



Food and Agriculture
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United Nations

Alliance



PUBLIC FOOD PROCUREMENT FOR SUSTAINABLE FOOD SYSTEMS AND HEALTHY DIETS

VOLUME

1





PUBLIC FOOD PROCUREMENT FOR SUSTAINABLE FOOD SYSTEMS AND HEALTHY DIETS

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1

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FOREWORD

Sustainable public procurement is a key instrument to work towards the achievement of the Sustainable Development Goals, and fits into the collective efforts and multisector approaches of the United Nations 2030 Agenda for Sustainable Development. This book is the result of the collaboration between the Food and Agriculture Organization of the United Nations and the research sector, and compiles contributions from internationally renowned scholars working in the field of public food procurement. It explores the multiple benefits that public food procurement can bring to various beneficiaries and analyses how it can contribute towards sustainable food systems and healthy diets.

Sustainable public food procurement has the potential to impact both food consumption and food production patterns. It may enhance access to healthy diets for consumers of publicly procured food (such as schoolchildren) and promote the development of more sustainable food systems (through its demand and spillover effects). Sustainable public food procurement also has the potential to decrease rural poverty by stimulating the development of markets, providing a regular and reliable source of income for smallholder farmers and helping these farmers overcome barriers that prevent them from enhancing their productivity.

The international recognition of sustainable public procurement – including food procurement – as an instrument for development goes back to the United Nations Conference on Sustainable Development of 2012 (and the subsequently formulated Sustainable Development Goals) and the Second International Conference on Nutrition of 2014. Other global platforms, such as the Committee on World Food Security and the Global Panel on Agriculture and Food Systems for Nutrition, have also recognized sustainable public food procurement as an instrument for development.

In addition, sustainable public food procurement has been included among the key concrete actions to foster the transformation of the world's food systems that was discussed at the 2021 United Nations Food System Summit. Sustainable food procurement is closely linked with school meal programmes, and especially with home-grown or similar school feeding programmes designed to provide schoolchildren with safe, diverse and nutritious food that is partially sourced from local smallholders. In 2021, school meal programmes also received considerable attention in the run-up to the United Nations Food System Summit. For example, a worldwide coalition on school feeding was created with the ambition to carry on outcomes from the summit for sustained impact.

Considering the current threats to our food systems (including the Covid-19 pandemic), this book comes at a very timely moment. It provides evidence that may not only stimulate the international debate on the topic, but also support the practical implementation of sustainable public food procurement initiatives at national, regional and local levels. With contributions from North and South America, Europe, Asia and Africa, the book is a useful tool for researchers, policymakers and development partners working in low-, medium- and high-income country contexts.



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PREFACE

The publication “Public food procurement for sustainable food systems and healthy diets” is divided into two volumes. It discusses public food procurement (PFP) initiatives designed with the objective of advancing social, economic and environmental development through government purchases. Often referred to as “institutional procurement,” PFP has been receiving increased attention in the literature and from policymakers and development agencies over the past decades; it is seen as an important policy instrument that has the potential to deliver multiple benefits to a multiplicity of beneficiaries and influence both food consumption and food production patterns. PFP is also increasingly recognized as an important entry point for policymakers to build more sustainable food systems and promote healthy diets. PFP initiatives include school feeding programmes, as well as the purchase of food for public universities, hospitals, prisons and social programmes.

These two volumes are the result of the collaboration between the Food and Agriculture Organization of the United Nations (FAO), the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) and the Federal University of Rio Grande do Sul (UFRGS).

The idea for this publication arose during the workshop “Institutional Food Procurement and School Feeding Programmes: Exploring the Benefits, Challenges and Opportunities”, organized in 2018 in the framework of the Third International Conference on Agriculture and Food in an Urbanizing Society, hosted by UFRGS in Porto Alegre, Brazil. The workshop brought together academics and practitioners with different areas of expertise and backgrounds to explore the multiple facets of PFP. The discussions brought to light the transdisciplinarity of the topic, the complementarity between

practical experiences and academic analysis – and the absence of a comprehensive publication analysing the multifaceted nature and development potential of PFP from different perspectives. This publication is based on the papers presented during the workshop, but goes beyond those papers to offer – for the first time – a comprehensive and extensive analysis of PFP. Leading scholars and practitioners from around the world were invited to contribute to the analysis of the use of PFP initiatives as a policy instrument to achieve multiple development objectives and, in particular, to help build sustainable food systems that offer healthy diets.

The two volumes and 35 chapters of this book were written by more than 100 authors, including academics, United Nations staff and practitioners. **Volume 1** analyses the use of PFP as a development tool, thereby placing it within the broader debate on sustainable public procurement and the United Nations Sustainable Development Goals. The volume explores PFP's multiple potential benefits and beneficiaries, taking into consideration the three pillars of sustainability, i.e. the social, economic and environmental pillars. It argues that PFP can provide support for agricultural production by local and smallholder farmers, promote the conservation and sustainable use of agrobiodiversity, and improve the nutrition and health of communities.

Based on examples and experiences with PFP in 32 countries in Africa, Asia, Europe and North and South America, **Volume 2** offers extensive evidence of the instruments used to implement PFP, enablers and challenges. It aims to provide useful lessons to policymakers and practitioners involved in the design and implementation of PFP policies and initiatives.

Hopefully, this book will also help researchers analyse PFP further. Ultimately, it aims to contribute to the improved understanding, dissemination and use of PFP as a development tool. Although the idea for this book preceded the COVID-19 pandemic, its publication during this pandemic is timely. In the search for answers to this crisis, public procurement and policies that aim to strengthen PFP linkages with local production are receiving more attention than ever, not only as a tool for recovery but also as an opportunity to set an example and take the right track towards more sustainable modes of consumption and production.

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ABBREVIATIONS AND ACRONYMS

10YFP	10 Year Framework of Programmes [on Sustainable Consumption and Production Patterns]
AIV	African indigenous vegetables
AO	appellation of origin
APPIH	association of fish producers of Honduras (<i>Asociación de Productores Piscícolas de Honduras</i>)
ASF	animal-sourced food
ATER	technical assistance and rural extension [system] (Brazil) (<i>Assistência Técnica e Extensão Rural</i>)
B2B	business-to-business
B2G	business-to-government
BCC	behaviour change communication
BFN	Biodiversity for Food and Nutrition [project]
CA	conservation agriculture
CACP	Commission for Agricultural Costs and Prices (India)
CAE	School Food Council (Brazil) (<i>Conselho de Alimentação Escolar</i>)
CASU	Conservation Agriculture Scale-Up [project] (Zambia)
Ceasas	food supply centres (Brazil) (<i>Centrais de Abastecimento</i>)
CECANES	Collaboration Centres on School Food and Nutrition (Brazil) (<i>Centros Colaboradores em Alimentação e Nutrição do Escolar</i>)
CELAC	Community of Latin American and Caribbean States
CESCR	United Nations Committee on Economic, Social and Cultural Rights
CG PNAE	interministerial governing committee of the National School Feeding Programme (Brazil) (<i>Comitê Gestor Interministerial do Programa Nacional de Alimentação Escolar</i>)
CIALCO	alternative marketing circuits (Ecuador) (<i>Circuitos Alternativos de Comercialización</i>)
CIAT	International Center for Tropical Agriculture

CNP	Child Nutrition Program (United States of America)
COMESA	Common Market for Eastern and Southern Africa
Conab	National Supply Company (Brazil) (<i>Companhia Nacional de Abastecimento</i>)
Consea	Food and Nutrition Security National Council (Brazil) (<i>Conselho Nacional de Segurança Alimentar e Nutricional</i>)
DINARA	national directorate for aquatic resources (Uruguay) (<i>Dirección Nacional de Recursos Acuáticos</i>)
DNCS	national directorate for school feeding (Cote d'Ivoire) (<i>Direction nationale des cantines scolaires</i>)
EAS	service provision entities (Colombia) (<i>Entidades Administradoras de Servicios</i>)
EMATER	Technical Assistance and Rural Extension Agency (Brazil) (<i>Empresa de Assistência Técnica e Extensão Rural</i>)
Embrapa	Brazilian Agricultural Research Corporation (<i>Empresa Brasileira de Investigación Agropecuaria</i>)
Endes	National Economic and Social Development Strategy (Brazil) (<i>Estratégia Nacional de Desenvolvimento Econômico e Social</i>)
EPAGRI	agricultural research and rural extension agency of Santa Catarina (Brazil) (<i>Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina</i>)
EPSEP	agency for fisheries services of Peru (<i>Empresa Peruana de Servicios Pesqueros</i>)
ERSU	regional entity for the right to university study (Italy) (<i>Ente Regionale per il Diritto allo Studio Universitario</i>)
ESN	Food and Nutrition Division (of the Food and Agriculture Organization of the United Nations)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FARC-EP	Revolutionary Armed Forces of Colombia-People's Army (<i>Fuerzas Armadas Revolucionarias de Colombia-Ejército del Pueblo</i>)
FBS	farmer business school
FBSSAN	Brazilian Forum for Food Sovereignty and Food and Nutritional Security (<i>Fórum Brasileiro de Soberania e Segurança Alimentar e Nutricional</i>)
FCI	Food Corporation of India
FFL	Food for Life
FFLP	Food for Life Partnership

FIES	food insecurity indicator
FNDE	National Fund for Educational Development (Brazil) (<i>Fundo Nacional de Desenvolvimento da Educação</i>)
FNP	National Front of Mayors (Brazil) (<i>Frente Nacional de Prefeitos</i>)
FNS	food and nutrition security
FPSAN	Parliamentary Front on Nutrition and Food Security (Brazil) (<i>Frente Parlamentar de Segurança Alimentar e Nutricional</i>)
FPSF	food price stabilization funding (China)
FSA	food supply agreement
FSC4D	Food Smart Cities for Development
FTC	fixed transaction cost
FUNAI	federal foundation for Indian affairs (Brazil) (<i>Fundação Nacional do Índio</i>)
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GI	geographical indication
GMO	genetically modified organism
GPA	Agreement on Government Procurement (World Trade Organization)
GPP	green public procurement
GPP NAP	National Action Plan on Green Public Procurement (Italy)
GPPnet	Green Public Procurement Network
GSFP	Ghana School Feeding Programme
HACCP	hazard analysis and critical control points
HGSF	home-grown school feeding
HGSM	Home-Grown School Meal [programme] (Kenya)
HLPE	High-Level Panel of Experts on Food Security and Nutrition
IBGE	Brazilian Institute of Geography and Statistics (<i>Instituto Brasileiro de Geografia e Estatística</i>)
ICBF	Colombian Family Welfare Institute (<i>Instituto Colombiano de Bienestar Familiar</i>)

ICC	intra-cluster correlation
ICT	information and communication technology
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IFPSF	institutional food procurement for school feeding
IFS	institutional food services
IHMA	Honduran Agricultural Market Institute (<i>Instituto Hondureño de Mercadeo Agrícola</i>)
ILO	International Labour Organization
INFOODS	International Network for Food Data Systems
INFOPECSA	Centre for Marketing Information and Advisory Services for Fishery Products in Latin America and the Caribbean
INPEC	National Penitentiary and Prison Institute (Colombia) (<i>Instituto Nacional Penitenciario y Carcelario</i>)
IQ COSAN	food and nutrition security quality index
ISMEA	institute for services to the agricultural food market (Italy) (<i>Istituto di Servizi per il Mercato Agricolo Alimentare</i>)
ISO	International Organization for Standardization
ITP	technological fisheries institute (Peru) (<i>Instituto Tecnológico Pesquero</i>)
JAC	community action boards (Colombia) (<i>Juntas de Acción Comunal</i>)
LAC	Latin America and Caribbean [countries]
LFP	Local Food Plus (Canada)
LM	local multiplier
LOC	local [service model]
LOC-ORG	local organic [service model]
LOW	low-cost [service model]
MAGA	Ministry of Agriculture, Livestock and Food (Guatemala) (<i>Ministerio de Agricultura, Ganadería y Alimentación</i>)
MANA	food and nutrition improvement plan of Antioquia (Colombia) (<i>Plan de Mejoramiento Alimentario y Nutricional de Antioquia</i>)

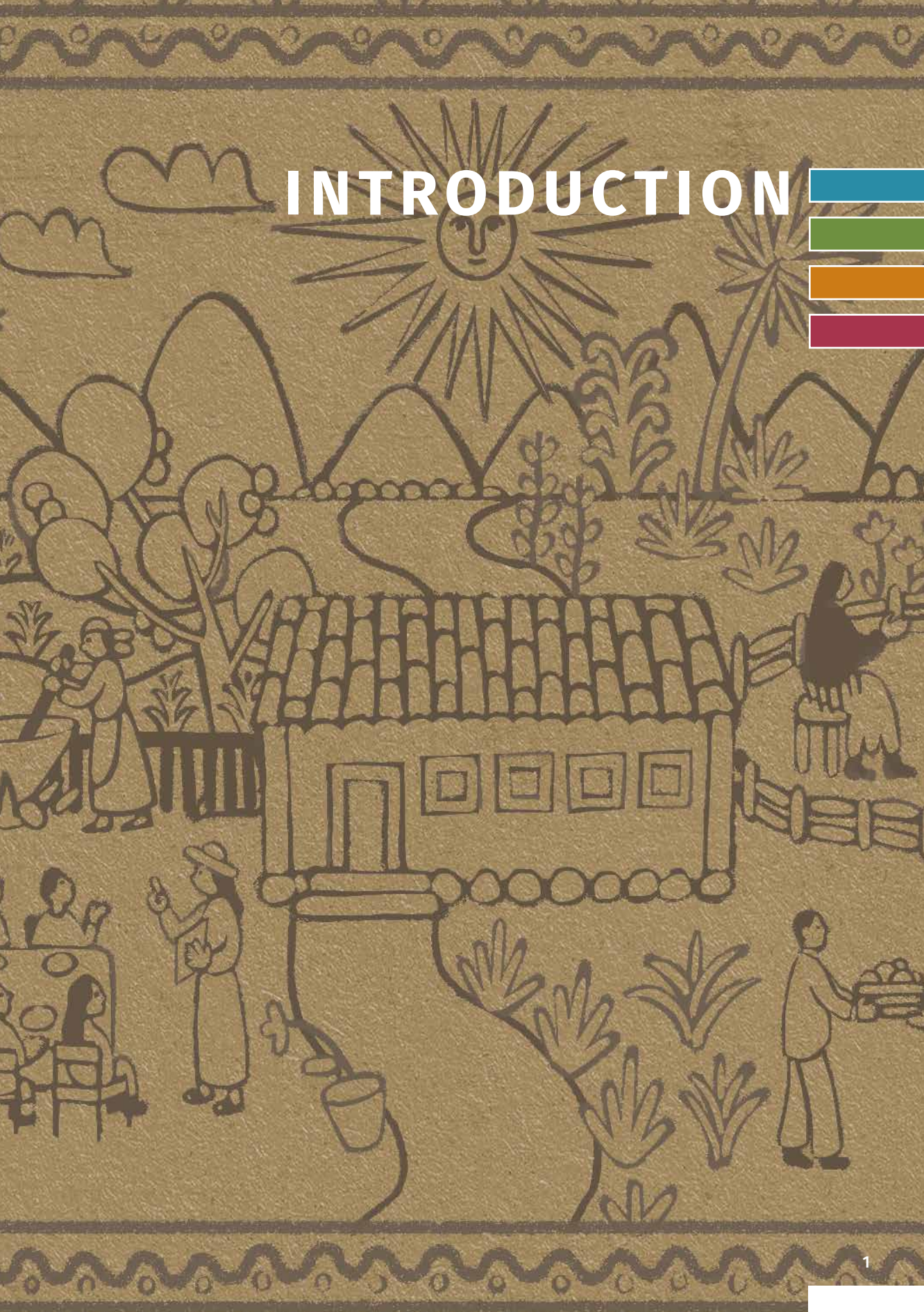
MAPA	Ministry of Agriculture, Livestock and Supply (Brazil) (<i>Ministério da Agricultura, Pecuária e Abastecimento</i>)
MDE	minimum detectable effect
MEAT	most economically advantageous tender
MHMR	PreK-12 School Food: Making It Healthier, Making It Regional [project]
MINEDUC	Ministry of Education (Guatemala) (<i>Ministério da Agricultura, Pecuária e Abastecimento</i>)
MPAS	Millet Procurement Automation System (India)
MSC	Marine Stewardship Council
MSP	minimum support price (India)
MSPAS	Ministry of Public Health and Social Assistance (Guatemala) (<i>Ministerio de Salud Pública y Asistencia Social</i>)
NCD	non-communicable disease
NFSA	National Food Security Act (India)
NGO	non-governmental organization
NSLP	National School Lunch Program (United States of America)
NUS	neglected and underutilized species
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
OPAC	Assessment body for participatory conformity (Brazil) (<i>organismo participativo de avaliação da conformidade</i>)
OPN	One Planet Network
ORG	organic [procurement model]
P4P	Purchase for Progress
PAA	Food Purchase Programme (Brazil) (<i>Programa de Aquisição de Alimentos</i>)
PAA	Purchase from Africans for Africa (World Food Programme)
PAE	School Food Programme (Dominican Republic, Honduras, Paraguay, Peru) (<i>Programa de Alimentación Escolar</i>)
PAE	School Feeding Programme (Colombia) (<i>Programa de Alimentación Escolar</i>)

PAFFEC	family agriculture programme to strengthen the peasant economy (Guatemala) (<i>Programa de Agricultura Familiar para el Fortalecimiento de la Economía Campesina</i>)
PAPERS	plan for ecological public purchasing of the region of Sardinia (Italy) (<i>Piano per gli Acquisti Pubblici Ecologici della Regione Sardegna</i>)
PCA	principal component analysis
PDO	protected designation of origin
PDS	Public Distribution System (India)
PEHEG	Educating with School Gardens and Gastronomy (Brazil) (<i>Projeto Educando com a Horta Escolar e a Gastronomia</i>)
PFP	public food procurement
PGI	protected geographical indication
Planapo	National Plan on Agroecology and Organic Production (Brazil) (<i>Plano Nacional de Agroecologia e Produção Orgânica</i>)
Plansan	National Plan for Food and Nutritional Security (Brazil) (<i>Plano Nacional de Segurança Alimentar e Nutricional</i>)
PNAE	National School Feeding Programme (Brazil) (<i>Programa Nacional de Alimentação Escolar</i>)
PNAN	National Food and Nutrition Policy (Brazil) (<i>Política Nacional de Alimentação e Nutrição</i>)
PNATER	National Policy of Technical Assistance and Rural Extension (Brazil) (<i>Política Nacional de Assistência Técnica e Extensão Rural</i>)
POPP	public organic procurement policy
Pronaf	National Programme for Strengthening Family Agriculture (Brazil) (<i>Programa Nacional de Fortalecimento da Agricultura Familiar</i>)
PROMATER	National Programme of Technical Assistance and Rural Extension (Brazil) (<i>Programa Nacional de Assistência Técnica e Extensão Rural</i>)
PSE	School Health Programme (Brazil) (<i>Programa Saúde na Escola</i>)
PSU	primary sampling unit
RCT	randomized control trial
RDA	recommended dietary allowance
REAF	Specialized Meeting on Family Farming [of Mercosur] (<i>Reunión Especializada de Agricultura Familiar</i>)

RFP	request for proposals
S2F	Strength2Food
SDG	Sustainable Development Goal
SEBRAE	Brazilian Micro and Small Business Support Service (<i>Serviço Brasileiro de Apoio às Micro e Pequenas Empresa</i>)
SF	school feeding
SFA	school food authority
SFP	school feeding programme
SFS	sustainable food systems
SHG	self-help group
SIBBR	Brazilian Biodiversity Information System (<i>Sistema de Informação sobre a Biodiversidade Brasileira</i>)
SIGPC	accountability management system (<i>Sistema de Gestão de Prestação de Contas</i>) (Brazil)
SINGI	Sustainable Income Generating Investment Group
SISAN	National Food and Nutrition Security System (Brazil) (<i>Sistema Nacional de Segurança Alimentar e Nutricional</i>)
SMC	school meals committee (Kenya)
SMEs	small and medium enterprises
SMEs	small and microenterprises (Ethiopia)
SNNPR	Southern Nations, Nationalities and People's Region (Ethiopia)
SPP	sustainable public procurement
SROI	social return on investment
SSA	sub-Saharan Africa
SSC	school support committees (Cambodia)
SSU	secondary sampling unit
SU	Sichuan University
SY	school year
TFPC	Toronto Food Policy Council
TLU	tropical livestock unit

TPDS	Targeted Public Distribution System (India)
TRIPs	[Agreement on] Trade-Related Aspects of Intellectual Property Rights
TSG	traditional specialty guaranteed
UIFS	university institutional food services
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children’s Fund
USDA	United States Department of Agriculture
UVG	Universidad del Valle de Guatemala
VAT	value added tax
VFM	Virtual Farmers’ Market
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
BRL	Brazilian real
CNY	Chinese renminbi
COP	Colombian peso
EUR	Euro
GBP	British Pound
GTQ	Guatemalan Quetzal
INR	Indian rupee
KES	Kenyan shillings
USD	United States Dollar

INTRODUCTION



PUBLIC FOOD PROCUREMENT AS A GAME CHANGER FOR FOOD SYSTEM TRANSFORMATION

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1. Overview

Over the past decade, national, regional and local governments in various low- to high-income countries have been developing public food procurement (PFP) initiatives that use public purchasing power and a regular demand for food as a policy instrument to promote sustainable development. These initiatives – often referred to as institutional food procurement – include school feeding or school meal programmes,¹ as well programmes whereby food is purchased for public hospitals, prisons, universities and cafeterias, and other social programmes. Such initiatives are increasingly being recognized as an important “game changer” – an entry point to promote the development of more sustainable food systems and the adoption of healthy diets (Foodlinks, 2013; De Schutter, 2015; High Level Panel of Experts on Food Security and Nutrition [HLPE], 2017; Willet *et al.*, 2019; Swensson and Tartanac,

¹ The terms school feeding and school meal programmes are used interchangeably in this publication. They refer to programmes that provide food to children or their households through schools, or that are conditional on school attendance. Such programmes provide meals, snacks or conditional household transfers in the form of cash, vouchers or in-kind take-home rations. There are different models of school feeding; these models may integrate other components, such as a home-grown school feeding component (which is analysed in various chapters of this publication).

2020; World Health Organization [WHO], 2021; Food and Agriculture Organization of the United Nations [FAO] and World Food Programme [WFP], 2018; FAO, 2019; Steiner, 2021; Carducci *et al.*, 2021, World Committee on Food Security Committee [CFS], 2021; International Panel of Experts on Sustainable Food Systems [IPES-Food], 2016; Marshall *et al.*, 2020).

Depending on policy and regulatory frameworks,² PFP initiatives can determine:

- i. what kind of food will be purchased (e.g. local, diverse, nutritious, healthy or culturally acceptable food);
- ii. from whom it will be purchased (e.g. from local or smallholder farmers, small and medium food enterprises, or women, youth or other vulnerable producers' groups); and
- iii. from what type of production it will be purchased (e.g. from agricultural production that ensures environmental sustainability and the conservation of biodiversity) (Swensson, 2018; Tartanac *et al.*, 2019; Swensson and Tartanac, 2020).

Considering the extent of the demand for food from the public sector, PFP initiatives have the potential to profoundly influence both food consumption and food production patterns and to deliver multiple social, economic and/or environmental benefits to a multiplicity of beneficiaries, including the producers and consumers of publicly procured food and the wider community (Morgan and Sonnino, 2008; Foodlinks, 2013; Fitch and Santo, 2016; Tartanac *et al.*, 2019, Cervantes-Zapana *et al.*, 2020). How these effects play out depends on the choices made by policymakers and procurement officers.

National, regional and local governments can tailor PFP initiatives to pursue different outcomes linked to the three dimensions of sustainability (economic, environmental and social). The flexibility to adjust PFP initiatives to specific priorities makes PFP a unique transversal instrument that can be used in very different contexts, ranging from low to high-income economies.

Despite the growing recognition of its potential, PFP still is an underexplored topic. Further research is needed into the linkages between PFP and the broader sustainable development agenda, PFP's multifaceted nature and its multiple potential benefits

² In this publication, the term regulatory framework comprises laws and regulations, as well as legal texts of general application, binding judicial decisions and administrative rulings.

and beneficiaries, PFP instruments, enablers and barriers, and the experiences and scaling-up strategies of cities, regions and countries. This analysis calls for a multidisciplinary approach, whereby different actors, with different roles and perspectives, should provide contributions covering various areas of knowledge.

The core objective of this book is to provide such analysis. The introduction presents key concepts and provides a background on the debate on PFP as a game changer to promote more sustainable food systems and healthy diets. This information helps the reader navigate the 2 volumes and the four main parts of the publication:

- **Volume 1:**

- **Part A**, which explores the linkages between public procurement and sustainable development;
- **Part B**, which analyses PFP's multiple benefits and beneficiaries;

- **Volume 2:**

- **Part C**, which focuses on PFP instruments, enablers and barriers; and
- **Part D**, which showcases a sample of PFP initiatives from Asia, Africa, Europe and North and South America, as well as from WFP.

2. Food procurement and sustainable development

2.1 Sustainable public procurement

The idea of using public procurement (i.e. the process through which public bodies purchase goods, works and services to fulfill their functions) as a policy instrument to achieve development goals is certainly not new, and does not apply only to the food sector. In the nineteenth century, many countries, including the United States of America, the United Kingdom of Great Britain and Northern Ireland and France, already used public procurement to pursue broader policy goals that contributed to the overall public good of the state (McCrudden, 2004; Quinot, 2013). Examples include the use of public procurement as a tool to enforce anti-discrimination employment laws, promote distributive justice or stimulate entrepreneurial activity by disadvantaged groups, such as small and medium-sized enterprises (SMEs) (McCrudden, 2004, 2007a).

However, this type of practice declined as a consequence of the economic constraints imposed by globalization and the influence of neoliberalism, especially during the 1980s. Indeed, according to the neoliberalist perspective, the role of the state in the economy must be limited, and public services are more efficiently delivered by the private sector or, where this is not possible, by the public sector operating under private market rules (McCrudden, 2007b; Melo Araujo, 2016). In the 1980s, the use of public procurement as a policy instrument to achieve development goals started to be seen as a source of financial inefficiency. New procurement rules were built around these ideologies, placing values like “lowest cost” and “full and open competition” at the heart of procurement systems (De Schutter, 2014; Swensson, 2018).

After decades of minimum interaction between the state and the market, the idea that governments can and should use public procurement to pursue social, environmental or economic goals is gaining traction again. This revival has been shaped by new political and economic ideologies, as well as by the increased importance that sustainable development has acquired in regional and international policy debates. The recognition of the role that public procurement can play in sustainable development by no way implies that public procurement shall distort or hinder the proper functioning of the market. Rather, it means that values other than cost and competition – such as social, economic and environmental values – shall also be taken into consideration (Watermeyer, 2004; Quinot, 2013; Cervantes-Zapana *et al.*, 2020).

The concept of sustainable public procurement (SPP) – the process of integrating a sustainable development perspective into public procurement, whereby economic, environmental and social aspects of development are considered in a holistic manner – has gained wide recognition over the past two decades, at both international and national levels.³ It is important to highlight that SPP covers, but goes beyond, the

³ There are various definitions of sustainable public procurement. Although slightly different, they all share the idea that social, economic and environmental considerations must be taken into consideration in a holistic way. For instance, the Marrakech Process on Sustainable Consumption and Production defines SPP as:

- the process whereby public organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life-cycle basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst significantly reducing negative impacts on the environment (UNEP, 2017, p. 1). Similarly, the European Commission defines sustainable public procurement as:
- a process by which public authorities seek to achieve the appropriate balance between the three pillars of sustainable development – economic, social and environmental – when procuring goods, services or works at all stages of the project (European Commission, s.d.).

concept of green public procurement.⁴ Indeed, besides the environmental perspective, SPP also takes social and economic perspectives into account.

As discussed in Part A of this publication, SPP is recognized in the United Nations' Sustainable Development Goals (SDGs) as a key strategic component of the global effort towards sustainable consumption and production patterns. The SDGs include a specific target (12.7) that promotes "public procurement practices that are sustainable, in accordance with national policies and priorities." This provides a platform for linking public procurement practices with sustainable development outcomes, as well as for aligning public spending with the development objectives of governments and the wider international community (Hansen, 2020) (see also Chapter 3 of this publication).

In addition, SPP has been recognized as one of the six programmes of the One Planet Network.⁵ Under the SPP programme, the various parties involved in this voluntary, global multi-stakeholder partnership (governmental, non-governmental, public and private) work together to promote and accelerate the implementation of SPP across the globe as a way to promote sustainable consumption and production patterns and achieve SDG 12 (One Planet Network, n.d.-a) (see also Chapter 3).

Many international, regional and national legal frameworks for public procurement have been revised to recognize SPP and provide instruments for its implementation (see also Chapter 2). Examples include the revised versions of the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Public Procurement (2011), the World Trade Organization's Agreement on Government Procurement (2012) and the European Union's directives on public procurement (2014). In its *Global Review of Sustainable Public Procurement* of 2017, the United Nations Environment Programme (UNEP) found that SPP is progressively being embraced by both national and local authorities and that it has become a growing trend in each of the studied

⁴ Green public procurement is defined by the European Union as:

- a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured (European Union, 2016, p. 5).

⁵ The One Planet Network is a multi-stakeholder partnership for sustainable development and an implementation mechanism of SDG 12. It was created with the objective to implement the 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP), a global commitment adopted in 2012 at the World Summit on Sustainable Development to accelerate the shift towards sustainable consumption and production in both developed and developing countries. The One Planet Network is composed of six programmes: Sustainable Public Procurement, Sustainable Buildings and Construction, Sustainable Tourism, Sustainable Food Systems, Consumer Information, and Sustainable Lifestyles and Education (One Planet Network, n.d.-b).

regions (UNEP, 2017). SPP is receiving renewed attention in the academic literature, too (Watermeyer, 2004; McCrudden, 2004; Thai, 2008; Preuss, 2009; Arrowsmith *et al.*, 2011; Brammer and Walkers, 2011; Quinot, 2013, 2018; Smith *et al.*, 2016).

Key areas of implementation of SPP practices currently include office furniture, computers and monitors, transportation, cleaning products and services, construction, electricity, textiles, food and catering and medical items (UNEP, 2017).

Thus, SPP has reached a turning point: it is recognized as a strategic tool to drive sustainability and transform markets (UNEP, 2017; Quinot, 2013). Indeed, the question is no longer *whether* public procurement (including public food procurement) should be used to pursue social, economic and environmental goals, but rather *how* i.e. how to best use and implement public procurement as a strategic tool to drive sustainability? How can we improve our understanding of the instruments, enablers and barriers that promote or hamper sustainable food procurement? These are some of the questions this book aims to address.

2.2 Sustainable public food procurement

Food procurement is an important component of SPP. Indeed, in many countries, food and catering services are among the main categories prioritized by the government to include sustainability criteria in public procurement activities (UNEP, 2017). The importance of food procurement within SPP is also recognized in various regional frameworks, such as the recent European Green Deal and Farm to Fork Strategy of the European Union. However, in many other countries, the connection between food procurement initiatives and the broader SPP agenda or (where an agenda is not in place) debate is not yet that evident.

The linkage between food procurement initiatives and the broader SPP agenda and debate seems to be clearest in high-income countries (and especially the countries of the European Union), where most research on SPP practices has been conducted (Hansen, 2020).⁶ Examples explored in this publication include Denmark, France, Italy

⁶ Hansen (2020) provides a systematic review of the literature on SPP constraints. The study suggests that research has predominately focused on SPP practices in high-income countries such as Australia, Canada, Denmark, France, Ireland, Sweden, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the countries of the European Union.

and Scotland, where public food procurement initiatives are anchored into specific SPP policy frameworks (see Chapters 2, 7, 13, 18, 20, 26 and 27). In these countries, SPP has been most commonly associated with environmental concerns, with a more recent and progressive integration of other social and economic concerns (UNEP, 2017) (see also Stoffel *et al.* [2019] for a broader discussion on the integration of the different dimensions of sustainability in SPP in Europe and sub-Saharan Africa).

In low- and middle-income countries, the direct linkage between food procurement initiatives and a broader SPP agenda or debate is not so evident. Most often, such initiatives are neither reported as an implementation of or contribution to SDG target 12.7, nor studied as a significant example of SPP.

This does not mean, however, that public food procurement is not being used as a key instrument to pursue development goals in these countries, too. On the contrary, in these countries in particular, public food procurement has been receiving considerable attention. It is being used as an instrument to pursue development goals, as highlighted by the many case studies from Africa, South America and Asia presented in Part D of this publication.

One key example are home-grown school feeding (HGSF) initiatives, or school feeding programmes designed to provide children in schools with safe, diverse and nutritious food sourced locally from smallholders (FAO and WFP, 2018). The HGSF model is mainly implemented in low- and medium-income countries, where it is used as an instrument to promote the health and well-being of school-aged children, as well as to support local agricultural production and promote the economic inclusion of vulnerable food producers. Chapters 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 16, 17, 19, 21, 33, 34 and 35 of this publication provide examples of the implementation of the HGSF model in various countries of the world.

Many reasons may explain why PFP initiatives are often disconnected from a broader SPP agenda or debate. One reason is that food procurement programmes are developed in function of specific entry points (such as health, nutrition or agriculture). These entry points are often not the same entry points as those of the broader SPP debate, which may focus, for instance, on the inclusion and support of SMEs, rather than of farmers or farmers' organizations.

Another explaining factor is that PFP programmes, such as school feeding programmes, are mostly designed and implemented by ministries and agencies other than those that are involved in the design of SPP policies. Indeed, the latter are often those working on environmental, economic and financial affairs (UNEP, 2017). Meanwhile, food procurement initiatives, and especially school feeding initiatives, are mostly designed by ministries and agencies working in the fields of education, social protection or agriculture. The lack of multi-stakeholder dialogue and coordination among these different actors is very evident in many countries. It constitutes an important bottleneck for the further development of food procurement initiatives within the SPP agenda and debate.⁷

The data on SPP and sustainable PFP, especially from low-income economies, are still very limited.⁸ In its *Global Review of Sustainable Public Procurement* of 2017, the UNEP found that of the 56 national governments that participated in the survey, only one (Côte d'Ivoire) was from Africa (UNEP, 2017). More data and research are needed to gain a better understanding of the two agendas and promote their development and connection. Here, the importance of multidisciplinary research must be stressed. The researchers involved in the analysis of PFP initiatives (and especially of HGSPF initiatives) often focus on specific areas of knowledge and use specific entry points. These entry points may not be directly linked to SPP. In addition, public procurement researchers often do not treat food procurement and its peculiarities as a key study area, especially in the Global South. A multisectorial and multidisciplinary approach to PFP is therefore key; it is one of the pillars of this publication.

PFP initiatives, including school feeding programmes, should be recognized as an important part of SPP that may contribute to achieving SDG target 12.7. The possibility to use PFP to pursue very diverse social, economic and environmental

⁷ This observation has been one of the main outcomes of the Africa Regional Workshop on Designing and Implementing Sustainable Public Food Procurement for Home Grown School Meals Programmes, organized by FAO and the African Union in 2019. Representatives of public procurement regulatory authorities and ministries of education, agriculture and/or social protection from 16 countries in Africa participated in this workshop.

⁸ Important work on these topics include the work of the African Procurement Law Unit, an inter-institutional research unit that promotes research, training and the building of networks for public procurement regulation on the African continent (see www.africanprocurementlaw.org). Another important example is the work done by the Deutsches Institut für Entwicklungspolitik (German Development Institute), for example through its annual International Dialogue Forum on Sustainable Public Procurement. This forum provides a platform for debates between decision makers, procurement practitioners, researchers and members of the civil society from Europe, Latin America and sub-Saharan Africa.

objectives demonstrates the flexibility and adaptability of this instrument. Indeed, PFP initiatives can be tailored to different contexts at national, regional and local levels. The recognition of PFP initiatives as an important part of SPP is key to reinforce both agendas at local, national and international levels, promote a systems-based approach and support the development of proper regulatory and policy instruments for effective implementation. To achieve these goals, the promotion of multisectorial coordination, the creation of knowledge exchange platforms at multiple levels and the development of multidisciplinary studies are crucial.

3. Public food procurement, sustainable food systems and healthy diets

3.1 Public food procurement as an entry point for food system transformation

PFP is increasingly being recognized as a strategic entry point for advancing sustainable food systems and healthy diets. This brings two important values to the SPP debate: health and nutrition (Morgan and Sonnino, 2008; De Schutter, 2014; Global Panel on Agriculture and Food Systems for Nutrition, 2015; Hawkes, 2015; Fitch and Santos, 2016; Swensson and Tartanac, 2020; Steiner, 2021; Carducci *et al.*, 2021).

Malnutrition in all its forms (such as hunger, stunting, wasting, micronutrient deficiencies, overweight and/or obesity) is a problem of global proportions. It affects one in three individuals worldwide, with an estimated cost to society of around USD 3.5 trillion per year (FAO and WHO, 2019; Global Panel on Agriculture and Food Systems for Nutrition, 2016). The nutritional status of the most vulnerable population groups is expected to deteriorate as a result of the health and socio-economic impacts of Covid-19 (FAO *et al.*, 2020).

To address all forms of malnutrition in a comprehensive manner, people need nourishment from healthy diets (FAO *et al.*, 2020; Carducci *et al.*, 2021). A healthy diet consists of a balanced, diverse and appropriate selection of foods eaten over a period of time. It meets the needs for macronutrients (proteins, fats and carbohydrates, including dietary fibre) and essential micronutrients (vitamins, minerals and trace

elements) specific to a person's gender, age, physical activity level and physiological state (WHO, 2018). Healthy diets protect against malnutrition in all its forms, including diet-related non-communicable diseases (NCDs).

Not all healthy diets are sustainable, and not all diets designed for sustainability are healthy (FAO *et al.*, 2020). Indeed, diets can have an important impact on environmental sustainability. As highlighted by the EAT-Lancet Commission, strong evidence indicates that food production is among the most important drivers of environmental change globally. It contributes to climate change, biodiversity loss, excessive freshwater use, the disruption of global nitrogen and phosphorus cycles and land-system change (Willet *et al.*, 2019).⁹

Diets may have not only environmental, but also important social and economic impacts and unintended costs. Choices related to food production and consumption may have, for instance, important implications in terms of gender equality or promote certain types – and sizes – of farms and farming systems. It is therefore important that diets are considered from a perspective of sustainability. Within this context, FAO and the WHO recently joined forces to introduce a new concept of sustainable, healthy diets, incorporating all three dimensions of sustainability.¹⁰

Improving diets is not a simple process. It is increasingly recognized internationally that in order to improve diets, the entire food system must be considered, including all actors (and institutions) involved in the production, aggregation, processing, packaging, distribution, marketing, consumption and disposal of food products (FAO and WHO, 2019; FAO *et al.*, 2020; Haddad *et al.*, 2016; Global Panel on Agriculture and Food Systems for Nutrition, 2016). This has also been recognized by the UN Decade of Action on Nutrition 2016–2025, as well as in the run-up to the UN Food Systems Summit that will take place in July 2021. This summit focuses specifically

⁹ The EAT-Lancet Commission consists of 37 leading scientists from various scientific disciplines, from 16 different countries. It seeks to reach scientific consensus on targets for healthy diets and sustainable food production.

¹⁰ FAO and WHO define sustainable healthy diets as: the dietary patterns that promote all dimensions of individuals' health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable. The aims of sustainable healthy diets are to achieve optimal growth and development of all individuals and support functioning and physical, mental, and social wellbeing at all life stages for present and future generations; contribute to preventing all forms of malnutrition (i.e. undernutrition, micronutrient deficiency, overweight and obesity); reduce the risk of diet-related NCDs; and support the preservation of biodiversity and planetary health. Sustainable healthy diets must combine all the dimensions of sustainability to avoid unintended consequences (FAO and WHO, 2019, p. 9).

on the transformation of food systems to promote healthy diets based on food that is produced sustainably, taking into account the various social, economic and environmental impacts of food and food systems.

PFP is one of the instruments that can be used as an entry point to promote a transformative change of food systems towards sustainability. As highlighted in Chapter 1 of this publication, by its very nature PFP affects all different components of the food system (i.e. food production and supply chains, food environments and food consumption). Considering the extent of the demand for food from the public sector, PFP initiatives have the potential to profoundly influence both food consumption and food production patterns and to deliver multiple social, economic and environmental benefits to the food system that can contribute to more sustainable healthy diets. How these effects play out depends on how public procurement choices are made (Swensson and Tartanac, 2020).

In particular, PFP can be used to send signals about governments' ambitions for the future direction of food systems. Such signals have the power to incentivize supply chain actors, including public purchasers, to align practices with values and thus foster a transition towards sustainable food production and consumption (Tartanac *et al.*, 2019). How public food procurement can promote food system transformation is discussed in various chapters of this book (see in particular Chapters 1, 8, 11, 18, 22, 24 and 26).

The homogenization and simplification of our food system is driving the global dietary health crisis. Globally, one in five deaths is associated with poor diets. Food systems are dominated by relatively few staple foods, and the underconsumption of fruits, vegetables, nuts, seeds and pulses is nearly universal. The industrialization of agriculture and the consolidation of global value chains have driven this uniformity, creating major lock-ins and bottlenecks that prevent the production and consumption of more diversified, nutritious foods (IPES-Food, 2016).

Transformative PFP is crucial to address the challenge of food system uniformity: it promotes the procurement of local food and makes it easier for smallholder producers, SMEs, cooperatives and other value chain actors to produce and utilize more diverse fruits, vegetables, grains, nuts and legumes (much of which are currently considered underutilized or neglected crops). A number of the chapters in this book

(for example, Chapters 11, 12, 18, 29, 31 and 33) highlight a number of ways to do this: by creating a structured demand for diversified food products from biodiversity-rich production practices, by creating policy incentives to encourage the production and consumption of underutilized nutrient-rich foods, or by using food-based dietary guidelines in innovative ways and developing novel approaches to change consumer behavior and enhance the desirability of underutilized nutrient-rich foods. While such actions are necessary to address poor diets and nutrition, they are also important in driving positive upstream outcomes, such as biodiversity conservation and environmental sustainability. Valencia, Wittman and Blesh (2019) report that two key features of the National School Feeding Programme (PNAE) in Brazil – the structured demand for diversified food products, and the price premium for certified organic and agroecological production – increase farm-level agrobiodiversity and stimulate the use of agroecological practices (see also Chapter 11). The first of its kind, the study concludes that PNAE plays a key role in driving the transition of family farms from low agrobiodiversity, input-intensive farming systems to diversified farming systems. The authors argue that the programme has thus led to a significant increase in the area cropped under diversified farming systems.

The important role that PFP can play in triggering more sustainable food systems has been recognized by several international frameworks,¹¹ as well as in the run-up to the UN Food Systems Summit of July 2021. Indeed, during the preparation of this summit, it has been acknowledged that PFP can play a key role to improving the availability and affordability of the diverse and often perishable nutritious foods found in small-scale production systems. These systems are essential to crop biodiversity and account for a significant part of the micronutrients in the global food supply.

It is important to ensure that, in the aftermath of the UN Food Systems Summit, all relevant actions recognized by the Summit – including the improvement of policy and regulatory frameworks, the reduction of the costs and risks faced by SMEs and smallholder producers of nutritious foods, the development of appropriate supply chain infrastructure and nature-positive solutions that seek to increase

¹¹ These platforms include, for example, the United Nations System Standing Committee on Nutrition, the High Level Panel of Experts on Food Security and Nutrition, the Global Panel on Agriculture and Food Systems for Nutrition, the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems, the African Union's Comprehensive Africa Agriculture Development Programme and the European Union's Farm to Fork Strategy and Green Deal plan.

agrobiodiversity for diverse production and resilience – are linked to PFP. This is crucial to ensure not only that PFP realizes its transformative power to boost the availability and affordability of nutritious foods and healthier diets, but also to reap the other, multiple social, economic and environmental benefits of sustainable PFP.

3.2 **Public food procurement and the three dimensions of sustainability**

One key characteristic of public procurement is its potential to contribute to all three dimensions of sustainability (social, economic and environmental). PFP can bring about benefits not only for those who consume food but also for those who produce food, as well as for their communities. By making choices as to what food to purchase, from whom and from what type of production practices, governments can tailor PFP to various policy goals, according to their own contexts and priorities. This makes PFP a potentially powerful instrument that can deliver multiple benefits and reach a multiplicity of beneficiaries, and is adaptable to multiple national, regional and local contexts.

Part B of this publication provides examples of the multiple dividends that PFP may produce and analyses how PFP can contribute to the social, economic and environmental pillars of sustainability.

It analyses the potential of PFP to stimulate agricultural productivity by creating markets that are accessible to smallholder farmers (Chapter 4), make food networks more resilient, sustainable and nutrition-sensitive (Chapter 5), improve children's nutrient intake while improving the livelihoods of their communities (Chapters 6 and 7) and empower rural producers (Chapter 8). Part B also explores the use of PFP as an instrument and opportunity for governments to target and support specific groups of vulnerable rural producers, such as women (Chapter 9) and indigenous people (Chapter 10).

These chapters provide further proof of the potential of PFP to benefit those who receive food, those who produce food and their broader communities by linking agriculture, nutrition and health.

Part B of this publication also explores how PFP, as a demand-driven intervention, can contribute to environmental sustainability. Chapter 11 demonstrates the potential of PFP to drive on-farm crop diversification and promote the adoption of agroecological practices, including organic approaches (see also Chapter 18). Chapter 12 analyses the use of PFP as an entry point to promote biodiversity conservation by stimulating the use of underutilized, nutrient-rich foods (see also Chapters 29, 31 and 33). Chapter 13 explores how PFP can have a significant impact in terms of carbon footprints.

Part D complements this analysis with additional case studies from the United States of America (Chapter 23), Canada (Chapter 24), Northern England and North Wales (Chapter 25), France (Chapter 26), Italy (Chapter 27), Colombia (Chapter 28), Guatemala (Chapter 29), Cambodia (Chapter 30), India (Chapter 31), China (Chapter 32), Kenya (Chapter 33), Ghana (Chapter 34) and Zambia (Chapter 35), as well as from the WFP (Chapter 22).

While PFP may produce multiple benefits for a wide range of beneficiaries, individual PFP initiatives may not achieve all these goals simultaneously. National, regional and local governments will choose to focus on one or several policy goals, according to their contexts, needs and priorities. However, even if they focus on only a few goals, PFP initiatives must be conceived within a multifunctional perspective. This will foster synergies and ensure that the initiatives are implemented in a coordinated manner and according to a multisectoral approach. A multifunctional perspective is also key to addressing the trade-offs between PFP's multiple options and possibilities (see Chapter 35).

While Part B of this publication addresses the multiple benefits and beneficiaries of PFP, Part C focuses on the instruments, enablers and barriers that need to be considered to achieve and reach them.

4. Towards successful implementation: instruments, enablers and barriers for public food procurement

The multifaceted nature of PFP provides a possibility for governments to achieve multiple benefits for different beneficiaries while promoting transformative changes to food systems. However, it also gives rise to multiple difficulties and complexity in its implementation.

The implementation of PFP initiatives is certainly not a simple or straightforward task. As illustrated by the country experiences analysed in this book, the successful implementation of PFP initiatives requires coordinated interventions on both the demand and the supply side. It also requires enabling policy, institutional and regulatory environments (see for example Kelly and Swensson, 2017). The impact assessment discussed in Chapter 35 of this publication shows that in spite of their potential, PFP initiatives can even be detrimental for their target beneficiaries (e.g. smallholder producers and schoolchildren) if not accompanied by adequate support measures. Chapters 21 and 35 demonstrate the importance of rigorous assessments of PFP programmes to determine the impact of PFP across multiple benefits and beneficiaries and to support more evidence-based policy development. However, such assessments are not easy to carry out due to the multifaceted nature of PFP.

Part C of this book analyses key instruments, enablers and barriers for the implementation of PFP initiatives at the levels of demand, supply and policy, institutional and regulatory frameworks. Part D complements this analysis with additional case studies.

Drawing heavily on the experiences of the Brazilian PNAE and Public Purchase Programme (PAA) (which are among the oldest and largest national PFP initiatives in the world), Part C of this book analyses the key factors that may impact the implementation of PFP initiatives by municipalities (Chapter 14), the challenges, dynamics and results of PFP initiatives in Brazil (Chapter 16), and the role played by civil society in Brazil in the construction of an appropriate regulatory framework and implementation mechanism for inclusive PFP (Chapter 15).

Chapter 17 in Part C analyses the challenges facing PFP initiatives and the institutional innovations that have been developed recently in Latin America and the Caribbean to tackle them. Chapter 18 analyses the mix of policy instruments that has been used to promote the inclusion of organic foods in the public plate in Denmark. Chapter 19 discusses the challenges for the implementation and scaling up of PFP initiatives created by public procurement rules and practices, and illustrates how they were addressed in Ethiopia. Chapter 20 analyses the role played by municipalities in various countries, focusing on the definition of tender criteria and the selection of operating modalities. Chapter 21 discusses the methodological challenges of measuring the impacts of PFP and proposes a stepwise methodology to conduct rigorous impact evaluations of HGSF initiatives, with a focus on agricultural development.

The analysis presented in this publication demonstrates that the resolution of many of the challenges related to the implementation of PFP initiatives depends on actions by the state, and especially the development of appropriate regulatory frameworks and policy instruments. Indeed, the analysis confirms that appropriate regulatory frameworks are key to the successful development and implementation of PFP initiatives. However, the analysis in this book also confirms that regulatory frameworks are not sufficient. Other actions by the state are necessary and may involve the use of a complementary mix of policy instruments. These include labelling and certification instruments, monitoring systems, and training and capacity building (see Chapter 18). The state may also provide technical assistance to farmers, set up registries of family farmers (or other target beneficiaries), decentralize PFP efforts, develop nutrition cards or food-based dietary guidelines aimed at matching the local food supply to beneficiaries' nutritional needs, or formulate appropriate protocols to guarantee food safety and quality (Chapter 17).

However, the analysis in this book also confirms that instruments used by the state alone are not sufficient to ensure the successful formulation and implementation of PFP initiatives. The chapters in Part c of this publication nearly unanimously argue that many other actors, including the private sector, civil society and other stakeholders, have a crucial role to play, too.

Indeed, the fact that PFP is a public policy instrument does not mean that its formulation and implementation must be handled exclusively by the state through

directed and highly controlled policies. Chapter 15 of this book demonstrates that civil society plays a key role in the construction of the regulatory frameworks and implementation mechanisms for inclusive public food procurement. Meanwhile, Chapter 14 shows that social mediators and political entrepreneurs who support the organization and structural strengthening of family farming and are open to dialogue with school managers and nutrition personnel may have a larger impact upon the implementation of PFP programmes than the size of municipalities. Chapter 16 demonstrates that social actors can help overcome many of the difficulties of PFP implementation. Chapter 18 argues that the development and implementation of PFP policies is a complex process that should involve a multitude of different stakeholders at different levels, including commercial and private actors.

The analysis of PFP experiences in this book not only illustrates the role of different actors in PFP implementation, but also highlights the importance of the balance between the role of the state and that of markets. Indeed, where this balance is achieved, the benefits of PFP for society are greater – a highly relevant finding in a period in which pro-market narratives still tend to deny the necessary, proactive role played by the public sector.

PFP should not be seen as an intervention by the state in a domain in which the market should be the only key performer. Rather, it should be seen as an instrument to promote creativity and innovation on the part of private actors in their relationships with the state. Here, instruments such as local governance, social participation and evidence-based policies have a key role to play. They can foster efficient relations between market players and policymakers and help ensure that PFP initiatives reap their full potential.

Although this book was mostly developed prior to the Covid-19 pandemic, its theme is highly relevant in the Covid-19 era. The pandemic has been affecting many of the world's food value chains, with negative effects on both food producers (in particular small and medium farmers) and food consumers, especially the poorest and most vulnerable ones (Torero Cullen, 2020; World Bank, 2021). Quarantine measures and restrictions on the movement of people have limited many farmers' access to inputs and labour, and prevented them from planting or harvesting on time. This has caused food shortages and price hikes, and resulted in considerable economic losses for

farmers (FAO, 2020a; Farmer Income Lab, 2021). In addition, the disruption of public services (e.g. in-field pest monitoring and surveillance) has hampered the adoption of sustainable production practices, with negative effects in terms of environmental sustainability (FAO, 2020b). Moreover, food systems have been affected by the closure of distribution channels and the reduction in the demand for food, including in that from the public sector (WFP, FAO and United Nations Children’s Fund [UNICEF], 2020). The closure or reduced functioning of schools has left nearly 1.5 billion children (more than half of the world’s school population) out of school, with important negative consequences for child nutrition and educational outcomes, as well as for local food producers involved in HGSF initiatives (WFP, FAO and UNICEF, 2020).

Within this context, PFP has, now more than ever, an important role to play. By localizing sourcing and strengthening the social and inclusiveness aspects of PFP for emergency food assistance and social protection programmes (such as school feeding programmes), governments can use PFP as an important tool to support recovery during and after crises (One Planet Network, 2021). In addition, and as illustrated by various case studies in this publication, sustainable PFP can be used to set an example and build the right track towards more sustainable and resilient local food systems (One Planet Network, 2021; Farmer Income Lab, 2021). More sustainable and resilient local food systems help communities better prepare for, and cope with, shocks, whether recurrent, protracted or unexpected (Eldridge, 2020). Although this publication does not deal explicitly with the Covid-19 pandemic, it does provide many insights that are valuable in the Covid-19 era.

5. Concluding remarks

This introductory chapter has presented a number of key concepts and provided an overview of background discussions to support readers in their journey through this publication. It is built on the recognition that the debate on SPP and PFP should no longer focus on the question of *whether* governments should use public procurement – including food procurement – to pursue social, economic and environmental goals. Rather, the question that researchers, practitioners and policy makers should ask is *how*: how to best use public procurement as a strategic tool to improve sustainability and trigger the transformation of food systems. How to maximize benefits and reach

most beneficiaries? How to improve our understanding of the instruments, enablers and barriers that promote or hold back sustainable food procurement? How to achieve a balance between the role of the state and that of private actors?

This publication aims to provide answers to these questions. By analysing the connections between food procurement and sustainable development and by exploring the multiple potential benefits and beneficiaries of PFP, its instruments, enablers and barriers, and experiences from five continents, the book contributes to the improved understanding of PFP and promotes its wider use as a development tool. This introductory chapter has provided a first step in that direction. Enjoy the rest of the book!

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PART A
PUBLIC FOOD
PROCUREMENT AS
A DEVELOPMENT
TOOL

1 PUBLIC PROCUREMENT AS A SUSTAINABLE FOOD AND NUTRITION SECURITY STRATEGY

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ABSTRACT

Widespread calls for development strategies that pursue both human and environmental goals have drawn attention to policy instruments that have the potential to engender systemic food change. Among these instruments, public food procurement has emerged as an especially promising tool to promote sustainable and secure food systems. This chapter reviews the scientific and grey literature on the contribution of public food procurement to food and nutrition security, and analyses two cases of school food reforms (in Ghana and Scotland). It explores the relationship between procurement policies, food and nutrition security and sustainable development. The analysis identifies a range of factors that may affect the sustainability of public food procurement, pointing to the need to construct enabling and inclusive governance arrangements at different levels.

1.1 Introduction

Over the past decades, the development potential of public procurement – the process through which public bodies purchase goods and services – has been extolled in policy and academic debates. A prime example is the identification of sustainable procurement practices as a key target to achieve Sustainable Development Goal (SDG) 12: “Ensure sustainable production and consumption patterns” (United Nations, 2015). Similarly, the Food and Agriculture Organization of the United Nations (FAO) has recently identified inclusive public procurement as a “comprehensive area of

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support” for the delivery of its innovative “Framework for the Urban Food Agenda” (FAO, 2019). The assumption underlying this global policy discourse is that by purchasing environmentally and socially preferable goods and services, governments may significantly contribute towards the development of a sustainable economy (United Nations Environment Programme [UNEP], 2012; Green Growth Knowledge Platform, 2013; Organisation for Economic Co-operation and Development [OECD], 2014; European Commission, 2015).

The academic literature on the sustainability potential of public purchasing strategies has mostly focused on food. Using empirically-rich descriptions of innovative strategies, researchers have identified public procurement as a policy tool that can be used to address the challenges of an unsustainable food system (Morgan and Sonnino, 2010; Lehtinen, 2012; Morgan and Morley, 2014; Sonnino, 2019). To date, however, there has been no explicit discussion of the relationship between public procurement and food and nutrition security, defined by FAO as:

the condition that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2002).

To help fill this gap, this chapter analyses data collected during a systematic review of the literature. A search for relevant literature based on the use of the keywords “public procurement” and “food” (restricted to the titles of articles, abstracts and keywords) yielded 63 academic articles. Their review was complemented with the analysis of a vast body of grey literature, identified through a Google search (again using “food” and “public procurement” as keywords) or cited in the selected academic articles. All this material was analysed to identify the main features of public food systems as contributors to food and nutrition security, their relationships with the broader food system in which they are nested, and the vulnerabilities that may affect the capacity of a public food system to deliver food and nutrition security outcomes. Insights from this meta-analysis are used to briefly examine the main features of two school food reforms (one in the Global North and the other in the Global South). This analysis raises important questions about the importance of the context of governance in the creation and maintenance of a strong relationship between public procurement policies and food and nutrition security objectives.

1.2 Public procurement as a tool for food system transformation

Public food procurement impacts upon the different components of food systems and affects a wide range of actors, assets and outcomes. At the level of production, key activities that may be affected by public procurement are agricultural planning and development. Suppliers may need to adjust their production strategies to comply with the specifications of contracts. For example, they may have to manufacture new types of food for public meals that meet local tastes and nutritional needs or step up organic production or sourcing (Morgan and Sonnino, 2013). An example of the power of public procurement as a driver of agricultural development (in this case, organic agriculture) is found in Sweden. In 2006, the Swedish Government introduced a law that required the public sector to increase its organic food purchasing to 25 percent of the total. This requirement led to a 20 percent increase in the mean share of organic farmland in overall farmland, from 6.9 percent in 2003 to 19.8 percent in 2016; absolute levels followed a similar trend, with the total number of hectares under organic cultivation increasing from 10 800 ha in 2003 to 26 300 ha in 2016 (Lindstrom, Lundberg and Marklund, 2020).

Food distribution is an important element in the implementation of public procurement initiatives, especially when the procurement cannot rely solely on local supplies (as is often the case in the Global North) or when transportation costs and arrangements exclude small farmers from institutional markets. The latter problem has been identified as one of the main barriers to the use of public procurement as an effective strategy for food and nutrition security in the Global South (Kelly and Swensson, 2017). In industrialized countries, local authorities – ranging from the small county of South Gloucestershire, in England, to the city of New York – have attempted to overcome distribution challenges by focusing their tendering processes on food distributors, rather than producers (Morgan and Sonnino, 2013). A similar strategy has been used in Kenya, where the transportation of food from World Food Programme (WFP) warehouses to beneficiary destinations is organized through long-term contracts with commercial transport companies (Kelly and Swensson, 2017).

The large-scale distribution of food is invariably affected by international trade. In some cases, public procurement requirements can trigger a virtuous development

cycle. This is the case, for example, for the city of Rome, which used to source fair trade-certified products (bananas, tea, coffee and chocolate bars) for its large school food system (27 million meals per year). As a result of this initiative, Italy recorded a 20 percent increase in annual sales of fair trade products between 2004 and 2006 (Sonnino, 2009). In many developing countries, however, international trade rules constrain governments' capacity to connect public procurement policies with strategies for food and nutrition security. In Indonesia, for example, administered prices, supported by public procurement, have historically been largely successful at providing price stability for both farmers and consumers, and hence at supporting livelihoods and enhancing food and nutrition security. Outcomes of deliberations at the World Trade Organization (WTO) since 2013, however, have reduced the policy space to administer prices for agricultural commodities, leading to a worrying decline in farmers' income (as experienced, for example, in China and India) (Thow, Sharma and Rachmi, 2019).

As far as the demand side is concerned, public procurement touches upon all aspects of food consumption. Schools, hospitals, prisons and care homes serve millions of meals every day, engaging in activities that range from menu planning, which is usually determined by existing nutritional standards and dietary requirements, to the acquisition and storage of ingredients and the preparation of meals. These meals are often the main, if not only, meal of the day for vulnerable citizens. Children in schools, patients in hospitals and the elderly in care homes obtain important nutrients in public canteens, which in some cases also offer a good opportunity for food education (Lagasse and Neff, 2010; Morgan and Sonnino, 2010).

There are critical waste issues associated with public procurement. Throughout the Global North, the loss of skills and infrastructure for healthy cooking (e.g. on-site kitchens), the difficulty of planning an exact number of meals on a daily basis (especially in hospitals), the use of pre-prepared and packaged meals that must be reheated in bulk, portion sizes that are too large (see Balzaretto *et al.*, 2020) and the lack of training of kitchen and catering personnel all result in often very high levels of food waste in public procurement. In some British hospitals, for example, up to 60 percent of the food purchased is wasted (Sonnino and McWilliam, 2011). To address this problem, the city of Rome allocated the responsibility for waste management to the school catering companies, introduced recycling schemes and requested caterers

to distribute uneaten food to food banks and leftovers to animal shelters in the city (Sonnino, 2009). As shown by recent studies, other municipal authorities (particularly in Europe) are beginning to exploit the opportunities offered by public procurement to support the transition towards more circular food economies (Alhola *et al.*, 2019). In some cases, this transition corresponds with increasing calls for strategies to exploit the potential of public procurement to promote food democracy (Mazzocchi and Marino, 2019), food sovereignty (Villalba and Perez de Mendiguren, 2019) and regional self-sufficiency (Orlando *et al.*, 2019).

As argued by Kelly and Swensson (2017), in developing countries many of these issues can be addressed through the formulation of national policies that place small farmers and entrepreneurs at the centre of agricultural transformation (as happened, for example, in Brazil and Rwanda). The creation of robust information and communications technology (ICT) infrastructure (combined with efforts to enhance human capacities to use it) is essential to communicate public procurement requirements to food producers, assess market readiness and increase the effectiveness of monitoring and evaluation systems for public food markets (Adjei-Bamfo, Maloreh-Nyamekye and Ahenkan, 2019).

More broadly, public procurement has the potential to contribute to the different dimensions of sustainability, from socio-economic welfare to environmental security. Evidence suggests that improving the nutritional quality and dining environments of school food may not only help tackle the different dimensions of food and nutrition security, but may also result in improved academic performance, engagement and classroom concentration (Storey *et al.*, 2010). Likewise, hospitals have the potential to communicate their primary prevention messages through the food they provide and thus become “a vehicle of improvement and a role model for food in the local community” (United Kingdom, Department of Health, 2014, p. 5).

An example of how public procurement can contribute to the environmental objectives of sustainability is provided by the city of Turin (Italy), where the introduction of vegetarian school meals has led to a reduction in the overall carbon footprint of school feeding by 32 percent (Cerutti *et al.*, 2018). In the United States of America, the Balanced Menus programme, developed by the San Francisco Bay Area chapter of Physicians for Social Responsibility, promotes human and environmental health by

changing menus in hospitals. Four hospitals participate in this programme to improve the nutritiousness and sustainability of their meals. Under the programme, meat consumption is reduced by 28 percent to curb greenhouse gas emissions and carbon footprints, as well as reduce costs. It is estimated that the programme prevented 1 004 tonnes of CO₂ emissions and allowed the hospitals to cut food spending by USD 400 512 (Lagasse and Neff, 2010; Health Care Without Harm, 2016). In the United Kingdom, the Nottingham University Hospitals NHS Trust places a strong emphasis on local food in its catering, with 77 percent of the ingredients being sourced locally. The Trust has reduced food waste by avoiding over-ordering and implementing a new “smart” meal ordering system. The meals provided cater to patients’ nutritional and cultural requirements (e.g. by offering vegan and halal options); they contain less sugar, salt and fats and include at least five portions of fruits and vegetables a day. The Trust has stated that their local procurement strategy helps save 150 000 food miles and GBP 6 million a year (Nottingham University Hospitals NHS Trust, 2014; Nottingham City Council, 2015).

In sum, from a social perspective, public food procurement systems can create or enhance access to nutritious food for vulnerable citizens (schoolchildren, the elderly or the sick); economically speaking, they can generate employment across the food system; from an environmental point of view, they can provide an incentive to maintain or even enhance existing ecosystem stocks, flows and services. Due to these characteristics, public food procurement is a prime instrument to respond to the persistent calls for a systemic approach to food and nutrition security and overcome the enduring divide between supply-focused and demand-focused interventions (see Sonnino, Marsden and Moragues-Faus, 2016). The various chapters of this publication present additional research and country experiences that reinforce these affirmations.

1.3 **Public procurement as a food and nutrition security strategy**

As a policy tool, public procurement has a specific contribution to make to food and nutrition security, for three main reasons. First, unlike most other policies, public procurement has a bearing on all the main pillars of food and nutrition security. Indeed, measures that governments implement to enhance access to healthy and nutritious food (e.g. in public canteens) often entail complementary market-based

interventions to increase the *availability* of healthy, nutritious and safe food products, i.e. to improve their *utilization* potential. The length of public procurement contracts and the presence of monitoring systems often contribute to the *stability* of food and nutrition security outcomes in public canteens over time. Second, unlike other food policies, which often focus on either food supply (e.g. direct subsidies to farmers) or food demand (e.g. food labelling and measures to reduce the fat, sugar and salt contents of food products), public procurement policies affect the entire food chain. Indeed, in order to be effective, they must balance the demand and the supply of healthy and nutritious food. Finally, public procurement focuses on vulnerable social groups that are often at a high risk of food insecurity and targets such groups collectively, as citizens, rather than as individual consumers. As such, public food procurement radically differs from anti-hunger strategies (such as food assistance through the operation of food banks) that intervene at the micro-level, framing food and nutrition insecurity narrowly as the outcome of a lack of individual purchasing power – what Jarosz (2011) calls “the individualization of hunger.”

While there is considerable potential to incorporate the principles of sustainability, human health and wellbeing in public food procurement, the literature suggests that a range of barriers prevent this potential from being realized in practice. Research has shown that food and nutrition security outcomes can be embedded in public food procurement systems by carefully balancing different sustainability objectives (Otsuki, 2011); however, sustaining such systems over space and time is a difficult process that involves a range of factors (Sonnino, Lozano Torres and Schneider, 2014; Walker and Brammer, 2009), including:

- **Information**, or the ability of the actors and organizations involved in a public food procurement system (e.g. procurement managers, suppliers, caterers, food service staff, etc.) to understand and value the potential for food and nutrition security of public procurement. As argued by Smith *et al.* (2016, p. 252), “strong leadership at political, administrative, cultural and commercial levels, along with clear goals, adequate resourcing and cross-departmental commitment and cooperation” are vital to ensure that public food procurement policies effectively deliver food and nutrition security.
- **Perceptions** of the financial viability of sustainable procurement policies focusing on food and nutrition security; such perceptions are shaped primarily by actors’

understanding of the difference between the internalized and the externalized costs of public food services. Critics argue that one of the biggest obstacles to the design and implementation of public food procurement systems for food and nutrition security, especially in industrialized countries, is the primacy of a rigid “value for money” ethos, which hinders the formulation of creative and flexible solutions and reinforces a risk-averse culture that inhibits change (Morgan and Sonnino, 2013). The widespread perceptions that sustainable food options drive up costs and that “value for money” is not consistent with sustainability have further entrenched a narrow efficiency culture within the public sector.

- **Organizational culture**, that is, the presence or absence of incentives to embed food and nutrition security goals in the design of tenders. Existing research emphasizes the role played by the “metric” (i.e. the set and balance of criteria) used to score tenders and award public contracts (Lang, 2010) and by the system used to monitor the quality of public food services (Uyarra and Flanagan, 2010). In developing countries, problems of corruption, international trade rules that favour imports over local (fresh) foods and weak governance often preclude the strategic use of public food procurement as a lever for food and nutrition security.
- **Technological capacity and capabilities**, or the existence of the physical infrastructure that is necessary to reduce postharvest losses (especially high in developing countries) (Kelly and Swensson, 2017) and, more generally, to improve the fundamental principles and routines embedded in food provision services (Sonnino and McWilliam, 2011).

It is important to emphasize that food and nutrition security outcomes may also be affected by the interactions between these factors. The allocation of an adequate budget to support public food systems that deliver food and nutrition security depends on the type of organizational culture, knowledge and skills in a specific location. This is especially evident in relation to school food programmes, which have only received appropriate financial support in countries such as Italy and Brazil, where school meal systems are perceived as instruments to promote education and health (rather than as a commercial service) (Morgan and Sonnino, 2013; Sonnino *et al.*, 2014) (see also Chapters 2, 8, 9, 10, 11, 12, 14, 15 and 16 on the Brazilian experience). The creation and upholding over time of such a vision depends not only on political will and leadership but also on the presence of enabling and inclusive governance frameworks that empower citizens by educating them about food and health.

Section 3 and Section 4 analyse two case studies: the home-grown school feeding programme (HGFSF) in Ghana, which was launched and coordinated by a global development agency, and school food reform in East Ayrshire, Scotland, which was initiated at the local level (see Chapters 5, 23 and 34 for additional analysis of these experiences). What these two models have in common is an emphasis on the use of public procurement as a strategy to feed vulnerable citizens (in both cases, schoolchildren) and, at the same time, create markets for small-scale food producers – two target groups that are key in strategies for food and nutrition security.

1.4 **Public procurement as a tool for food and nutrition security: the examples of Ghana and Scotland**

In developing countries, school feeding programmes have long been used to combat persistent problems of hunger and poverty and to act as a safety net in times of crisis. Most initiatives are coordinated by external actors, rather than by national governments. Indeed, the World Food Programme (WFP) is the world's largest provider of school food programmes (Bundy *et al.*, 2009). This organization launched the home-grown school feeding model as a development tool linking school feeding to local agricultural production, thus targeting not only schoolchildren but also small-scale farmers – two key vulnerable groups in terms of food and nutrition security.

Ghana was one of the first countries to launch a school feeding programme (the Ghana School Feeding Programme or GSFP) in 2005, with three explicit objectives: to reduce hunger and malnutrition, to increase school enrolment and attendance, and to boost domestic food production. The programme was trialled in ten schools in 2005, and expanded to cover 200 schools and 69 000 students in 2006. By the end of 2010, the programme covered 1 741 schools and 697 416 students (Ghana, 2011).

Due to its early implementation and strong support from the government, GSFP has emerged as an emblem of home-grown school feeding (Sonnino, Spayde and Ashe, 2016). However, GSFP has both strengths and weaknesses. In terms of outreach, the programme was scaled up very rapidly, but the number of children reached in 2010 represented only 22 percent of the total number of pupils and students (Sonnino,

Spayde and Ashe, 2016). In addition, beneficiaries tend to be concentrated in the more prosperous areas of the country as a result of political targeting (de Hauwere, 2008). Anecdotal evidence and case studies suggest that the programme promoted enrolment, improved retention rates in schools (Haverkort, 2008; de Carvalho *et al.*, 2011) and boosted the number of schools with potable water and toilet and sanitation facilities. Other positive outcomes include the provision of health training to 40 percent of school cooks and the introduction of a number of school gardens (Ghana, 2011).

Whether the programme was successful at creating markets for local small farmers is far more questionable. According to the United States Department of Agriculture (USDA) (USDA, 2009, p. v), small farmers in Ghana lack the production capacity to provide food to local schools and require assistance to acquire the inputs necessary to increase production. Moreover, the country faces a shortage of storage and drying facilities. As a result, postharvest losses range from 20 to 50 percent for fruits, vegetables, roots and tubers, and from 20 to 30 percent for cereals and legumes (Sonnino, Spayde and Ashe, 2016).

GSFP stipulates that 80 percent of the budget to buy food should be spent within the community where schools are located. However, caterers in charge of food sourcing are entitled to keep whatever profit they can generate and thus have no incentive to contract with smallholders (whose prices may be higher than those of larger traders) or to help them develop their production capacity (Morgan and Sonnino, 2013).

Thus, while GSFP has at least partially succeeded in reaching one of its target groups (schoolchildren), it has largely failed to reach its other target group (smallholders). To remedy this shortcoming, the regulations governing the programme and its provisions regarding logistics must be improved. For example, targets for local purchasing must be defined and funds must be delivered promptly (Sonnino, Spayde and Ashe, 2016). Indeed, smallholders are unable to extend credit to schools that cannot pay up front; when school caterers do not have the money needed for the day's meals, students simply get less food (see also de Carvalho *et al.*, 2011, pp. 46–47).

Another school food reform characterized by a systemic approach to food and nutrition security is that found in East Ayrshire, Scotland. This council area has higher than average rates of unemployment, reliance on benefits, deaths resulting from heart disease and cancer, teen pregnancies and students eligible for free school

meals (Sonnino, 2010). East Ayrshire's school food reform was the outcome of a joint approach, whereby the local government embraced the role of school food as an important contributor to a full spectrum of objectives: to improve the population's health, to develop the local economy and to fulfil a global mandate of ecological responsibility. To achieve these goals, one of the local government's primary strategies was to emphasize local sourcing and partnering with local producers through the adoption of a creative tendering model for inclusive procurement. Specifically, the local authority loosened some of the strict requirements for straightness for class 1 vegetables (to attract more organic producers), divided the contract into nine smaller lots instead of the four larger ones used previously (to enable smaller producers to participate) and actively encouraged the participation of local producers (Sonnino, 2010).

Importantly, East Ayrshire used contract award criteria that valued price and quality equally. The quality criteria were designed to favour local producers; they included provisions regarding producers' ability to respect deadlines, the time lapse between harvest and delivery, the inclusion of fair-trade, seasonal and traditional products, staff training, animal welfare, the contribution to biodiversity and efforts to minimize packaging and waste (Morgan and Sonnino, 2013). At the same time, the local government intervened on other fronts; it provided training to catering staff and adopted a "whole school" approach that aimed to transform children into more knowledgeable consumers. The "whole school" approach recognizes the "interconnectivity between school food, child nutrition and educational attainment as well as wider public health, social justice and environmental sustainability issues" (Morgan and Morley, 2014, p. 87), and has been acknowledged as an effective approach to improve dietary patterns by the World Health Organization (WHO, 2014).

The measurable results of East Ayrshire's reform confirm that school meals can indeed play an important role in terms of connecting food and nutrition security and sustainability. In just two years, from 2008 to 2010, the number of obese and overweight children in East Ayrshire dropped by 30 and 22 percent, respectively, and the county moved from being Scotland's "fattest" region to its second slimmest. From the perspective of economic development, the reform created opportunities for local suppliers; indeed, the implementation of the programme in the first 12 schools had a multiplier effect on the local economy of GBP 160 000 (Morgan and Sonnino, 2013).

The programme's environmental effectiveness is corroborated by several external assessments. The first, commissioned by the Scottish Environmental Protection Agency in 2007–2008, evaluated one primary school and estimated that 37.7 tonnes of CO₂ emissions were saved annually due to a 70 percent reduction in food miles. A second study, conducted in 2007–2008, aimed to calculate the social return on investment of the programme. It considered environmental, economic, health and other factors (including, among others, food miles, agricultural externalities, increases in local employment and production, and the reduction of the number of overweight children with a high probability of future disease), and estimated a return of GBP 6 for each GBP invested in the programme (Gourlay, 2007).

East Ayrshire's reform was not without challenges. Involving small local producers in the tendering system required targeted communication efforts (evidence shows that, despite these efforts, a number of producers remained unable or unwilling to tender). The short duration of the contracts, producers' limited production and distribution capacities and their lack of experience in public tendering all acted as barriers to inclusiveness (Sonnino, 2010). Moreover, take-up rates (the percentage of children who purchase their lunches in schools) remains a problem. East Ayrshire's programme experienced a total increase in take-up of approximately 4 percent since the beginning of the reform, and customer satisfaction – measured among children and parents who participate in the service – is high. However, persistent efforts are needed to ensure sufficient take-up and thus guarantee the continuity of the service.

1.5 Conclusions

A systematic review of the literature shows that public food procurement has the potential to promote food system resilience and adaptive change. Public food procurement can improve food and nutrition security by enhancing access to healthy food for vulnerable groups, as well as by promoting wider long-term changes in the food chain (e.g. changes in agricultural practices or the creation of markets for small-scale producers who are often marginalized by the forces of globalization). Furthermore, evidence shows that the “public plate” can be actively used as an instrument to enhance the public's knowledge about food, which may have a direct impact on the utilization of food and on the sustainability of food security over time.

However, tensions are present in the different policy frameworks of public procurement. In Europe, for instance, green public procurement is based on the recognition that the market may fail to deliver health, environmental and social benefits for all; however, this recognition is not translated into a consistent engagement of the state in demand management. Indeed, predominant neoliberal frameworks (defined by competition laws and free trade agreements, among others) neglect the role that states may play in shaping the demand for food (supposedly to protect consumers' freedom), and instead focus on the development of more efficient supply chains. Against this background, examples like East Ayrshire emerge as isolated best practices, driven by context-dependent (and often temporary) factors such as leadership and political will. This points to the role that governments at various levels can play in supporting local sustainability initiatives and incorporating their strengths into national and global development policies (Morgan and Sonnino, 2013).

The case of the GSFP programme highlights the shortcomings of a top-down approach to the design and delivery of public food systems that aim to promote food and nutrition security. It demonstrates the importance of creating platforms for policy discussion, unifying the actors in the various sectors involved (at all governance levels) to strengthen coordination and communication. By enabling all stakeholders to carry out their roles in an effective manner, such platforms can help overcome implementation problems and avoid an uneven geography of school feeding programmes across a country (see Kelly and Swensson, 2017).

This chapter reviewed the academic literature on the contribution of public food systems to food and nutrition security and analysed two practical examples, highlighting the need to institutionalize public food systems – that is, to embed them more formally in the multi-level food governance systems. Both in developed and in developing countries, the capacity of a public food system to produce even benefits across space and time depends on the coordination between actors at all levels. A first key step towards coordinated policymaking is the recognition that public procurement has a unique potential to further food and nutrition security and make food systems more just, both socially and environmentally.

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2 PUBLIC FOOD PROCUREMENT AS A DEVELOPMENT TOOL: THE ROLE OF THE REGULATORY FRAMEWORK

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ABSTRACT

While from a policy perspective it seems widely recognized practice to incorporate the pursuit of sustainable development in public procurement practices, the law seems to be still lagging behind in fully embracing this perspective. The present chapter addresses this issue by analysing how regulatory design can support the incorporation of development considerations in public food procurement practices. The chapter examines a number of international regulatory frameworks for public procurement and their evolution towards the recognition and promotion of sustainable development. Regulatory instruments to incorporate development objectives in public food procurement in three countries (Brazil, France and the United States of America) are explored as case studies. The chapter presents a discussion on the reach of these instruments and offers some reflections on possible regulatory pathways that ensure that food procurement schemes achieve maximum development outcomes.

2.1 Introduction

Although it is not a new phenomenon, the interest in the use of public procurement as an instrument to pursue development goals has grown significantly in recent decades. The weight of the public sector in national economies is important, and procurement by public institutions can therefore act as an important lever for change.

On average, public procurement accounts for 13 percent of gross domestic product (GDP) in low-, medium- and high-income countries (World Bank, 2020).¹

Food procurement occupies a prominent position in the emerging trend to use public procurement as a tool for development, and accounts for a significant portion of overall public procurement. Public food procurement initiatives can take different forms, including public school meal programmes, the provision of food and food-related services in the cafeterias of public offices, hospitals, prisons and universities, as well as social programmes such as in-kind transfers (the distribution of food aid to families in need) or social restaurants.

Examples of development policy objectives commonly pursued through public food procurement initiatives include supporting and promoting local agricultural production, supporting vulnerable producer groups (in particular smallholder farmers, but also women, indigenous peoples and small and medium food enterprises), and promoting agricultural production practices that ensure environmental sustainability and promote biodiversity. In addition, public food procurement initiatives increasingly target nutrition and health outcomes (Morgan and Sonnino, 2008; De Schutter, 2014; Global Panel on Agriculture and Food Systems for Nutrition, 2015; Fitch and Santo, 2016; Swensson and Tartanac, 2020).

The significant rise in the number of food procurement policies and programmes adopted in various countries over the past two decades attests to the increased awareness of the linkages between public food procurement and development.

In Brazil, the National School Feeding Programme (Programa Nacional de Alimentação Escolar or PNAE) reaches approximately 41 million children in public primary and secondary schools, with important positive impacts on their nutrition (and thus on their learning abilities). Since its reformulation in 2009, PNAE has also had a significant impact in terms of rural development and improved small-scale farmers' incomes, among others (Sidaner, Balaban and Burlandy, 2013; Swensson, 2015; Schneider *et al.*, 2016; Brazil, National Fund for Educational Development [FNDE], 2020) (see also Chapters 8, 9, 10, 11, 12 and 14 of this book).

¹ Data for 190 countries do not show significant differences between the weight of public procurement in low-, medium- and high-income economies; however, there are significant differences within income groups. Indeed, public purchasing accounts for 6 to 28 percent of GDP in middle-income countries and for 5 to 26 percent of GDP in low-income countries (Bosio and Djankov, 2020; World Bank, 2020).

In Ethiopia, a pilot home-grown school feeding programme was launched in 2012 (see Chapter 19 for an analysis of the Ethiopian experience). By 2018, the programme was feeding approximately 139 000 students in 238 schools, with food sourced from smallholder farmers through cooperative unions at a local level (Swensson, 2019). In 2015, a similar programme was launched in the country as an emergency measure to mitigate the impact of severe drought conditions on schooling; this programme reached about 1.8 million children in 2018 (Swensson, 2019).

In India, the Public Distribution System (PDS) has traditionally served to keep food prices low by establishing a network of government warehouses and food retail outlets that ensure access to major staple food grains at subsidized prices (see Chapter 31). While the scheme initially did not target specific population groups, it was transformed in 1997 into the Targeted Public Distribution System (TPDS). The system, which comprises “fair price shops” for the distribution of food grains at subsidized prices, currently reaches about 300 million households below the poverty line. Since 2013, TPDS has been diversifying its food basket to include coarse cereals and underutilized species. This change has boosted the programme’s potential to improve the nutrition of the overall population and strengthen the resilience, capacity for income generation and empowerment of smallholder farmers. There are many other examples of national programmes that have sought to strengthen the linkage between public food procurement and development (see Chapters 22 to 35 of this book).

While from a policy perspective it seems widely recognized practice to incorporate the pursuit of sustainable development in public procurement practices, the law seems to be still lagging behind in fully embracing this perspective. In addition, the importance of the law and regulatory design to the implementation of public procurement initiatives is often overlooked in debates on food procurement and rural development (Brooks, Commandeur and Vera, 2014; Swensson, 2018, 2019).

The present chapter addresses this issue by analysing how regulatory design can support the incorporation of development considerations in public food procurement practices. It is based on the premise that the question is not *if* public procurement law should allow for the deliberate pursuit of development goals in relation to food, but rather *how* they should do so i.e. which regulatory design is most likely to achieve this aim.

This chapter is organized in three main sections. A first section analyses key international regulatory frameworks for public procurement, their evolution towards the recognition and promotion of public procurement as a development tool, and the various instruments available. A second section focuses on food; it studies experiences in three countries (Brazil, France and the United States of America) with regard to regulatory instruments to incorporate development objectives into specific food procurement initiatives. A third section presents a discussion on the reach of these instruments and offers some reflections on possible regulatory pathways to help food procurement schemes achieve maximum development outcomes.

2.2 Public procurement as a tool for development

The (re-)emergence of public procurement as a tool for development

McCrudden, one of the leading scholars on the linkages between public procurement law and social policy has argued that:

Since modern procurement systems evolved alongside the development of the welfare state ... it is hardly surprising that the former was used in part to underpin the goals of the latter (McCrudden, 2004, p. 258).

Indeed, there is a long history of public procurement being used to promote a range of domestic development objectives (McCrudden, 2007). However, since the 1960s, the growth of a free trade ideology has increasingly shifted the focus of procurement systems away from domestic objectives to embrace non-discrimination between suppliers as their primary animating feature (Morlino, 2019). At the international level, efforts to harmonize public procurement laws over the past four decades have thus largely focused on opening up global procurement markets to free trade.

More recently, however, governments increasingly understand how they can use the public purse to achieve sustainable development outcomes, including improved nutrition and rural development. Sustainable public procurement was identified as a key area of work in the 10 Year Framework of Programmes (10YFP) on Sustainable Consumption and Production Patterns, which is mandated by the Johannesburg Plan

of Implementation adopted at the 2002 World Summit on Sustainable Development (United Nations Department of Economic and Social Affairs [UN DESA], 2008).

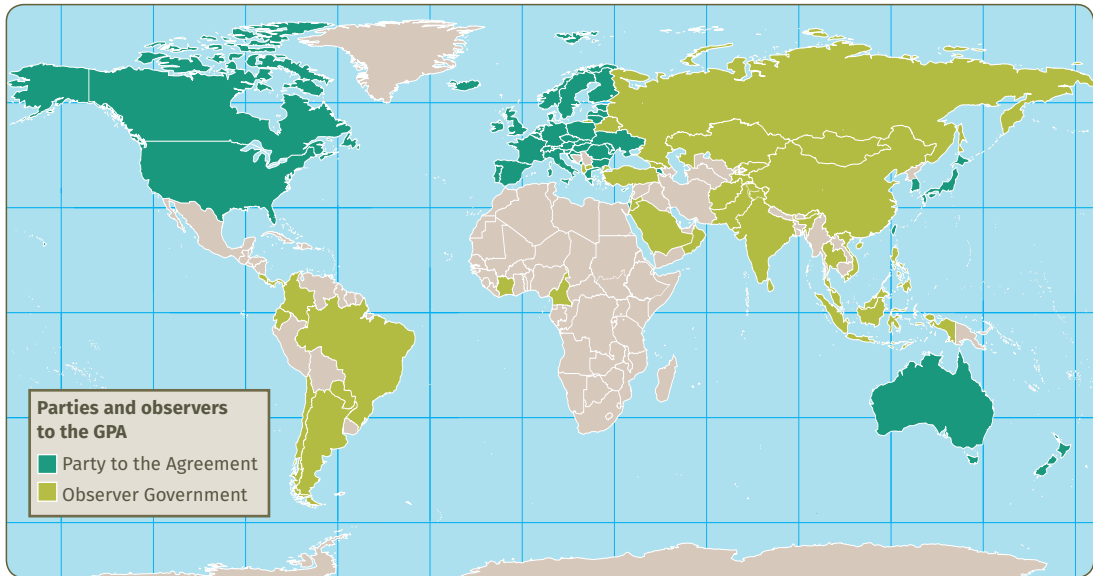
In 2011, the United Nations Secretary-General recalled that procurement can “harness the power of the supply chain to improve people’s lives.” He emphasized that the enormous purchasing power of international organizations – the United Nations (UN) bought USD 14.5 billion worth of goods and services in 2010, for example – can exert a positive influence on economic systems to the benefit of people (United Nations Office for Project Services [UNOPS], 2011). The UN 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDG) explicitly recognize the link between public procurement and sustainable development (SDG 12.7). The United Nations Committee on Economic, Social and Cultural Rights (CESCR) has highlighted the potential of public procurement to encourage businesses to contribute to the fulfilment of human rights, in particular by acting with due diligence to ensure compliance with human rights in supply chains (CESCR, 2017).

This renewed interest in the use of public procurement for sustainable development has led policymakers to pay increased attention to the linkages between regulatory frameworks for public procurement and development (Stoffel *et al.*, 2019; Quinot, 2018). Earlier frameworks were premised on the need to ensure non-discrimination between suppliers and avoid any distortions of competition. Meanwhile, second-generation frameworks are designed to promote the use of public procurement for sustainable development.

Evolution of public procurement regulation within the framework of the World Trade Organization

Within the World Trade Organization (WTO) framework, public procurement is regulated by the Agreement on Government Procurement (GPA), which imposes certain restrictions on the public procurement policies of the parties (GPA does not apply to purchases by private entities). The agreement ostensibly aims to avoid discriminatory practices and distortions of competition in the awarding of public contracts above the minimum threshold negotiated by each party. The GPA is a plurilateral agreement: it does not apply to all WTO members, but only to those members that have signed it (see Figure 1).

Figure 1 **Signatory parties to the WTO's Agreement on Government Procurement (GPA)**



Source: WTO, 2020 and United Nations Geospatial Information Section, 2020.

Note: The countries that are parties to the current GPA include the 27 member states of the European Union, as well as Armenia, Australia, Canada, Hong Kong (China), Iceland, Israel, Japan, the Republic of Korea, Liechtenstein, the Republic of Moldova, Montenegro, the Netherlands with respect to Aruba, New Zealand, Norway, Singapore, Switzerland, Taiwan (Province of China), Ukraine, the United Kingdom of Great Britain and Northern Ireland and the United States of America. In addition, Albania, China, Georgia, Jordan, Kazakhstan, Kyrgyzstan, North Macedonia, Oman, the Russian Federation and Tajikistan are in the process of acceding to the agreement. Most recently, Brazil has declared its intention to join GPA. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Although WTO rules are routinely invoked by governments to justify their refusal to use public purchasing to pursue development outcomes, the GPA contains important flexibilities that allow them to do so – especially since 2014, when the agreement was revised to improve its compatibility with the objective of sustainable development. The revised Agreement on Government Procurement of 2012 allows the inclusion in public tenders of considerations that are not purely economic.² Indeed, Article X allows procuring entities to lay down technical specifications, including specifications

² Specific thresholds have been negotiated by each party and range between SDR (Special Drawing Rights) 130 000 and SDR 15 million (or approximately USD 202 800 to USD 23.4 million according to the exchange rate at the time of writing in 2020).

relating to process and production methods, as long as they do not create unnecessary obstacles to international trade. This provision does not distinguish between product-related and non-product-related specifications.

In other words, specifications in public tenders need not focus exclusively on the physical characteristics of goods or services but may also concern how (under which conditions) they were produced. Parties to the GPA may thus introduce clauses concerning labour rights or environmental standards in their public procurement schemes – indeed, the revised text contains an important new provision (Article X.6) that explicitly allows public authorities to adopt technical specifications to promote the conservation of natural resources or protect the environment. Although Article X.6 does not specifically mention other “secondary” policy objectives, its wording makes it clear that objectives such as the protection of labour rights or the need to increase marketing opportunities for small-scale farmers, for example, may also be taken into account. This is not to say that signatories to the GPA may do as they please in this regard. Article X.2(b) of the revised GPA stipulates that technical specifications must be based, where appropriate, on international standards, and that they must be specified in terms of performance rather than design or descriptive characteristics. In addition, they may not specify particular brand names, producers or suppliers, except where there is no other intelligible way of describing the procurement requirements; in that case, words such as “or equivalent” must be inserted in the tender.

One important limitation to the inclusion of non-economic considerations in public procurement regulations is that signatories to the GPA may not discriminate between suppliers from countries that are signatory parties to the agreement. Indeed, signatories to the GPA commit to:

Accord immediately and unconditionally to the goods and services of any other Party and to the suppliers of any other Party offering the goods or services of any Party, treatment no less favourable than the treatment the Party, including its procuring entities, accords to: (a) domestic goods, services and suppliers [national treatment principle]; and (b) goods, services and suppliers of any other Party [most-favored nation principle] (Article IV.1 of the revised GPA).

In addition, Article VIII.1 of the revised GPA states with respect to the qualification of suppliers that:

A procuring entity shall limit any conditions for participation in a procurement to those that are essential to ensure that a supplier has the legal and financial capacities and the commercial and technical abilities to undertake the relevant procurement (Article VIII.1 of the revised GPA).³

Furthermore, although the GPA allows for the adoption of a preference scheme (price preference), it limits its adoption to specific circumstances. The possibility of giving preferential treatment to national products is allowed only as an exceptional and transitional measure to be adopted exclusively by developing countries “based on their development needs, and with the agreement of the Parties” when accessing the agreement (Article V.3.a of the revised GPA). These provisions aim to prevent procuring entities from granting preferential treatment to certain suppliers on the grounds that this would be arbitrary or may result in discrimination. They should not be seen, however, as prohibiting the use of purchasing programmes to contribute to poverty-reduction objectives, for instance by giving priority to small-scale farmers and/or farmers who rely on agroecological techniques. Indeed, contracting authorities may define the ability to supply products that respect certain social criteria as an essential requirement (Spennemann, 2001). They may also include ethical requirements in contracts, for instance compliance with labour rights or environmental specifications (McCrudden, 2007; Arrowsmith, 2003; Hoekman and Mavroidis, 1997).

Nothing in the text of Article VIII(b) of the GPA of 1994 and Article VIII.1 of the revised GPA seems to prohibit governments from pursuing social objectives through their procurement schemes, especially if one considers the notions of a supplier’s “capability” (in the 1994 version) or “legal and technical capacity” (in the revised text) in the light of current practices of governments. Indeed, Article VIII.4 of the revised GPA deliberately opts for a non-limitative list of grounds for exclusion of certain tenderers (“grounds such as ...”), which suggests that governments may choose to define any other grounds to disqualify certain suppliers. The key requirement is that any exclusion criteria be defined transparently, to avoid any arbitrariness or

³ This condition was included in broader terms in the original version of the GPA. Article VIII(b) of the GPA of 1994 stated that “any conditions for participation in tendering procedures shall be limited to those which are essential to ensure the firm’s capability to fulfil the contract in question.” For a comparison of the 1994 and 2014 versions of GPA, see Reich (2009).

discrimination in the choice of suppliers. With respect to the award criteria, Article XV.5 of the revised GPA specifies that procurers may decide to award the contract either to the “most advantageous” tender or to the tender with the lowest price (“where price is the sole criterion”). Non-economic considerations may thus play a role in the selection of suppliers. The procuring entity may take social and ethical considerations into account when determining the value of tenders, and the concept of “most advantageous” must include award criteria of a non-economic nature.

Meanwhile, the GPA does forbid signatories from imposing the condition that goods or services must be sourced locally. Indeed, making reference to the domicile of the supplier (or, in the case of food, to where food is grown or processed) may be seen as indirect discrimination against foreign suppliers. To circumvent that prohibition, many local public authorities will be tempted to issue public tenders for amounts that fall below the threshold beyond which the GPA applies.

When a programme is too large and procurement exceeds the thresholds above which the GAP applies, procurement can be broken down into smaller volumes. This allows producers to submit a proposal for only one product or for a small volume and favour the participation of small producers. This, for instance, is what the French Ministry of Agriculture and Food recommends in a practical guide addressed to local public authorities. The aim of this recommendation is to encourage local authorities to favour local, high-quality procurement for organizations such as schools, hospitals or administrations (France, Ministry of Agriculture and Food, 2014) (see Section 3).

In the specific case of food procurement, it is interesting to note that a number of countries have expressly excluded the procurement of agricultural goods for human feeding programmes from the coverage of the agreement. This is the case, for instance, for Canada, the United States of America and the member states of the European Union. The Notification of the United States of America annexed to the GPA establishes that “this Agreement does not cover procurement of any agricultural good made in furtherance of an agricultural support programme or a human feeding programme.” A similar provision is made by the member states of the European Union. This exception allows the United States of America to include a specific geographical preference in tenders for the purchasing of locally grown or locally raised agricultural products for child nutrition programmes funded by the government (see Section 3).

The European Union regulatory framework for public procurement

Just as the WTO's GPA was revised to give more flexibilities to public entities seeking to use public purchasing as a tool to achieve sustainable development, the European Union's regulatory framework has gradually opened up possibilities for public authorities to include non-economic considerations in public tenders. References to the imposition of environmental and social conditions were initially already included in two Directives concerning public procurement adopted in 2004.⁴ For instance, Article 26 of Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts stipulated that "the conditions governing the performance of a contract may, in particular, concern social and environmental considerations." This provision was seen as a welcome clarification at the time, since the inclusion of such considerations in public procurement had led to case law by the European Court of Justice that left a number of questions of interpretation unanswered (Arrowsmith and Kunzlik, 2009).

The 2004 Directives remained unclear, however, as to whether national authorities could include non-economic conditions other than those related to social or environmental considerations as criteria for the qualification of tenderers or for the awarding of contracts. The debate was relaunched in 2008 as a result of two factors. The first factor was the publication of a communication from the European Commission listing a number of recommendations as to how the public procurement framework could be interpreted to encourage "green purchasing" (European Commission, 2008).

The second and more crucial factor was the controversy that followed the issuance, by the Dutch province of Groningen, of a public tender for the supply and management of automatic coffee machines that included a reference to fair trade labels. The tender stipulated, *inter alia*, that the coffee had to be produced by smallholders, who must be paid a minimum price and a price premium for social development.

⁴ See Article 53(1)(a) of Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, and Article 55(1)(a) of Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors.

The tender referred explicitly to products bearing the EKO and Max Havelaar labels;⁵ moreover, it required tenderers to comply with the “criteria of sustainability of purchases and socially responsible business” and demonstrate, *inter alia*, that they contribute to improving the sustainability of the coffee market and to environmentally, socially and economically responsible coffee production (*European Commission v Kingdom of the Netherlands*, 2012).

Douwe Egberts, a mainstream coffee roaster, protested that these requirements effectively excluded them from the tender, because its coffee, though certified by the UTZ label, did not comply with all the conditions. The case finally reached the Court of Justice of the European Union, which took the view that the Dutch authorities had established a technical specification incompatible with Article 23(6) of Directive 2004/18/EC by requiring certain products to bear a specific ecolabel (*European Commission v Kingdom of the Netherlands*, 2012). Indeed, Article 23(6) sets out strict conditions for the use of ecolabels, including the condition that any reference to a particular ecolabel should be accompanied by a description of the technical specifications associated with that label, to allow tenderers to prove compliance with such specifications without having to acquire the actual label. At the same time, however, the Court did accept that “the conditions governing the performance of a contract may, in particular, refer to social considerations” and that “to require that the tea and coffee to be supplied must come from small-scale producers in developing countries, subject to trading conditions favourable to them, falls within those considerations.”⁶ Article 53(1)(a) of Directive 2004/18/EC states that when contracting authorities award tenders to the most economically advantageous tenderer, “various criteria linked to the subjectmatter of the public contract in question” can be taken into account, including, for example:

quality, price, technical merit, aesthetic and functional characteristics, environmental characteristics, running costs, cost-effectiveness, after-sales service and technical assistance, delivery date and delivery period or period of completion.

⁵ The tender specifically stated that “the province of North Holland uses the Max Havelaar and EKO labels for coffee and tea consumption” as part of the conditions imposed on potential suppliers.

⁶ *European Commission v Kingdom of the Netherlands*, 2012 (paragraph 76).

Hence, the Court argued that social considerations may be part of the criteria on which the award decision is based: “there is no requirement that an award criterion relates to an intrinsic characteristic of a product, that is to say something which forms part of the material substance thereof.”⁷

In 2014, a new general Directive on public procurement was issued (Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC). This Directive not only confirms the case law of the Court of Justice of 2012, but was also specifically designed to encourage the use of public procurement to realize the policy objectives of the Europe 2020 agenda.⁸ Indeed, the new instrument was adopted with the explicit aim to allow for a greater use of public procurement to support a set of:

common societal goals such as protection of the environment, higher resource and energy efficiency, combating climate change, promoting innovation, employment and social inclusion and ensuring the best possible conditions for the provision of high quality social services (European Commission, 2011, p. 2).

The Directive, which was strongly supported by civil society groups (ClientEarth, 2011, 2012a, 2012b), promotes the use of public procurement for societal goals in two ways.

First, it contains provisions that aim to facilitate the access of small and medium-sized enterprises to public procurement, for example by creating the possibility for public authorities to divide large contracts into smaller lots that are more manageable by such suppliers. While recognizing purchasers’ tendency to pursue economies of scale and aggregate orders to command lower prices and reduce transaction costs, the Directive warns about the negative effects of such practices upon small and medium-sized suppliers and encourages public procurers to divide large contracts into smaller lots that better correspond with the capacities of small-scale enterprises.

Second, the new Directive broadens the range of criteria that may be included in the definition of the object of the procurement and used as criteria to award a contract. Public authorities are authorized to adopt a life-cycle approach to the product, service

⁷ *European Commission v Kingdom of the Netherlands*, 2012 (paragraphs 89–91).

⁸ See in particular Recital 2.

or work object of the procurement and include a wider range of factors (including social and environmental factors) in the assessment of the most “economically advantageous” tender (Article 42 and Article 68). It is especially noteworthy that Article 42(1) sub.2 of the directive provides that:

characteristics may ... refer to the specific process or method of production or provision of the requested works, supplies or services or to a specific process for another stage of its life cycle even where such factors do not form part of their material substance provided that they are linked to the subject-matter of the contract and proportionate to its value and its objectives.

As specified in Article 42(1), sub. 2 the notion of life cycle refers to the steps “from raw material acquisition or generation of resources to disposal, clearance and end of service or utilisation.” The same variety of criteria may also be used to assess tenders and award contracts (Art. 67 to 69).

The reference to existing ecolabels may be a convenient way to ensure that economic operators comply with certain technical specifications. Indeed, Article 43 of Directive 2014/24/EU specifically allows for the use of such ecolabels (as did Article 23(6) of Directive 2004/18/EC), while clarifying the conditions for such references in the technical specifications attached to calls for tender. These conditions include the requirement that the label requirements “are based on objectively verifiable and non-discriminatory criteria”; moreover, the public authorities “requiring a specific label shall accept all labels that confirm that the works, supplies or services meet equivalent label requirements.” Where the supplier cannot acquire the label in time for reasons that are not attributable to them, Article 43 determines that the contracting authorities must:

accept other appropriate means of proof, which may include a technical dossier from the manufacturer, provided that the economic operator concerned proves that the works, supplies or services to be provided by it fulfil the requirements of the specific label or the specific requirements indicated by the contracting authority.

This provision incorporates the lessons learned in 2012, with the judgment in *European Commission v Kingdom of the Netherlands*.

The Directive creates the possibility to reserve certain procurement opportunities to specific categories of suppliers (i.e. reservation schemes) as an instrument to help vulnerable supplier groups access public contracts (Article 20). This tool is based on the recognition that certain types of suppliers are not able to participate under normal conditions of competition (Recital 36). Nevertheless, the Directive limits its use to sheltered workshops and other social businesses whose main aim is to support the social and professional integration of the disabled and the disadvantaged (i.e. the unemployed, members of disadvantaged minorities or otherwise socially marginalized groups).

The member states of the European Union and subnational authorities are now explicitly encouraged to use public procurement to achieve the Sustainable Development Goals, in particular by prioritizing products and services that minimize the use of resources and are the most efficient (European Commission, 2017). Good practices for public purchasing, and particularly regarding food purchasing, are increasingly well known; they inspire public authorities across Europe (Soldi, 2018).

The developments in the European Union provide a remarkable illustration of the shift that has taken place over the past decade. The European Union has moved from an approach to public procurement legislation that chiefly aimed to prevent any distortion of competition, to one that sees public procurement as a tool to encourage sustainable development. Improving marketing opportunities for smaller enterprises, including small-scale farmers, is part of that shift; the insertion of environmental requirements (in the technical specifications attached to calls for tender or as part of the performance requirements or award criteria) is another component.

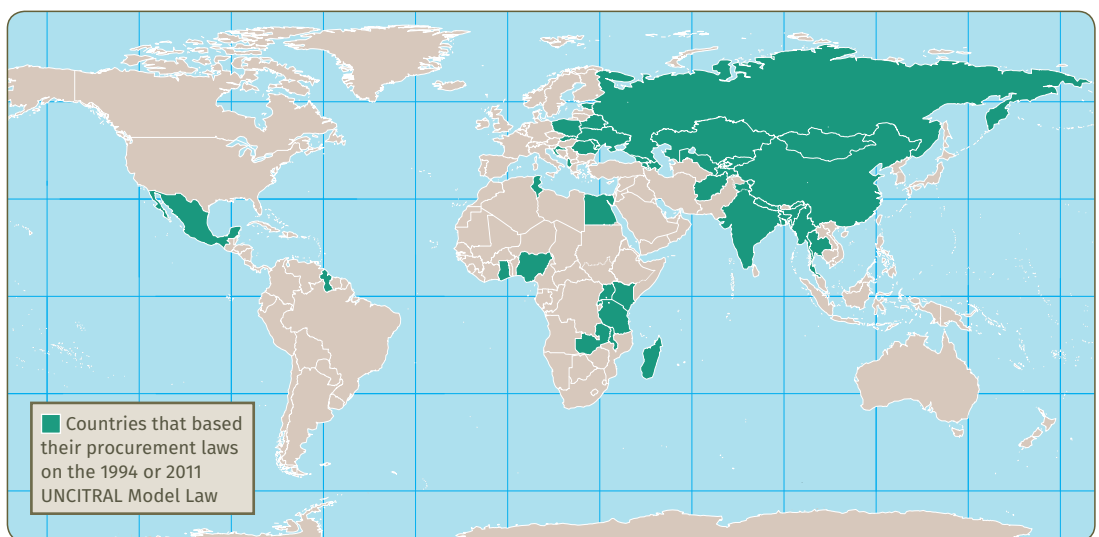
Evolution of public procurement regulation within the UNCITRAL Model Law

The United Nations Commission on International Trade Law (UNCITRAL) Model Law on Public Procurement is, alongside the WTO's GPA, the main international instrument for public procurement regulation. Given the overarching mandate of UNCITRAL to "further the progressive harmonization and unification of the law of international trade" and thereby "remov[e] legal obstacles to the flow of international trade" (United Nations General Assembly Resolution 2205 (XXI) of 17 December 1966), the

Model Law sits squarely within the free trade paradigm of public procurement that has emerged internationally since the 1960s.

Like the WTO GPA, the Model Law aims to facilitate international trade by avoiding discrimination against foreign suppliers and harmonizing procurement practices (Nicholas, 2017). Unlike the WTO GPA, the Model Law does not prescribe procurement rules; instead, it merely provides a template procurement law that countries can use when formulating domestic laws. The original Model Law dealing with public procurement was adopted in 1993; it was replaced by an extended version in 1994 and a fully revised version in 2011. The Model Law has been quite influential, especially in the developing world – unlike the WTO GPA. UNCITRAL records that the 1994 Model Law formed the basis of domestic procurement statutes in 30 countries, and the 2011 Model Law in 25 countries. Experience has shown that because of legal transplants between countries (i.e. the “borrowing” or moving of a rule of law from one country to another), the influence of the Model Law is even more extensive (Caborn and Arrowsmith, 2013). The vast majority of the countries that have used the Model Law are developing countries, including many in Africa.

Figure 2 **Countries with procurement laws based on the 1994 or 2011 UNCITRAL Model Law**



Source: WTO, 2020 and United Nations Geospatial Information Section, 2020.

While the Model Law is explicitly aimed at facilitating international trade, and thus places primary emphasis on open competition and value for money, it is not hostile to the use of public procurement for other policy goals, such as development. In the *Guide to enactment* that accompanies the Model Law, UNCITRAL states that it:

recognizes ... that procurement policymaking and implementation are not undertaken in isolation ... [and] the Model Law enables the pursuit and implementation of other government policies and objectives through the procurement system” (UNCITRAL, 2012, p. 4).

In this respect, the 2011 revised Model Law represents an important development compared to the 1994 Model Law. The revised law introduced the concept of “socioeconomic policies,” which is defined as “environmental, social, economic and other policies of this State authorized or required by the procurement regulations or other provisions of law of this State to be taken into account by the procuring entity in the procurement proceedings.” The 2011 Model Law also introduced a new general provision on evaluation criteria (Article 11). This provision allows contracting authorities to take any criteria into account when evaluating tenders – including socioeconomic policies (Nicholas, 2012) – as long as such criteria are authorized by law (Article 11(3)). Criteria other than price, cost and supplier competence do not have to relate to the subject matter of the procurement (Article 11(1)). Article 11(3) (b) also explicitly allows for any form of preference in evaluating bids. The 2011 Model Law allows for single-source procurement if such a method is necessary to implement a particular socioeconomic policy and no other supplier can fulfil that policy (Article 30(5)(e)).

The *Guide to enactment* warns that while the Model Law allows socioeconomic policies to be pursued through public procurement, the restrictions that such practices may place on competition within the procurement system may have negative consequences. The guide therefore recommends that any restrictions placed on open competition to promote socioeconomic policies should be viewed as transitory measures, and must not lead to protectionism (UNCITRAL, 2012). Despite the increased acceptance of a range of (social) policy objectives in public procurement, the UNCITRAL Model Law thus continues to view the use of public procurement in pursuit of socioeconomic policies as “an exceptional measure” (UNCITRAL, 2012, p. 6).

Regional regulatory frameworks in Africa

The UNCITRAL Model Law has influenced the development of procurement law in many African countries (Caborn and Arrowsmith, 2013). Not surprisingly, regional regulatory frameworks for public procurement in Africa have also been heavily influenced by the Model Law. The most comprehensive of these frameworks are the public procurement regulations of the Common Market for Eastern and Southern Africa (COMESA). In 2001, the 21-member trade bloc (the largest in Africa) embarked on a major project of reforming public procurement within the bloc, with the twin objectives of facilitating trade between members and improving governance in member states (Karangizi, 2005). In 2003, COMESA adopted a directive on public procurement containing “the principles and essential components of national legal frameworks” for the procurement systems of member states (COMESA Public Procurement Reform Project, 2003). This was followed in 2009 by the COMESA Public Procurement Regulations, constituting a regional procurement framework for regional competitive bidding.

The 2003 Directive paid very little attention to the incorporation of socioeconomic policy objectives in public procurement, but did not bar it. The Directive contained provisions dealing with preferences for domestic suppliers and small and medium enterprises. It provided that open tendering should be considered the paradigm procurement method and that restricted forms of procurement, including for purposes of socioeconomic policy considerations, should be limited to exceptional circumstances. The 2009 regulations are completely silent on the use of procurement as a tool for development.

A question of regulatory design

Questions are often raised about the desirability of using public procurement to pursue public policy objectives (Quinot, 2013; Schooner and Yukins, 2009). The argument is typically that such use of procurement, referred to as horizontal policy objectives, leads to protectionism because it invariably restricts competition; hence, it must be avoided. However, it is axiomatic that public procurement is never free of public policy considerations. After all, public procurement is never an end in itself, but always a means to achieve a public policy objective. At the most fundamental level, public procurement thus always stands in service of public policy.

But even one step beyond this inherent public policy objective, policy looms large in procurement. The use of the free trade agenda to criticize horizontal policies in procurement itself illustrates this point. Indeed, the argument against horizontal policies in public procurement in favour of open competition is not a policy-neutral argument. It is an argument in support of a particular economic policy, in other words that of free trade and market integration. The international hegemony of this particular policy position has dominated public procurement regulation paradigms over the past four decades. As a result, the pursuit of other policy agendas, such as social development, has been portrayed as suspect and to be dealt with as exceptions in international public procurement regulatory regimes.

However, the past few years have seen a shift in the hegemony of free trade at the international policy level. Powerful counter-narratives now place the focus on development, and especially sustainable development. At least from the perspective of policy, it has become less objectionable to incorporate sustainable development objectives (and particularly those related to environmental and social policies) in public procurement practices. However, the law seems to be lagging behind in fully embracing this perspective.

From a regulatory perspective, the relevant question should thus not be whether public policy considerations relating to development should be incorporated in public procurement, but rather what is the most appropriate regulatory design for such practices. Arguably, some regulatory approaches or instruments are better suited for particular developmental objectives than others (Quinot, 2018). It is therefore worthwhile to explore a particular area of linkages between public procurement and development, such as public food procurement, to determine what the most appropriate regulatory design for achieving maximum developmental outcomes in that area would be. In short, the appropriate question is not *if* public procurement law should allow for the deliberate pursuit of development through food procurement, but rather *how* public procurement law should do so.

2.3 Food procurement

Food procurement and its potential to contribute to sustainable development

Within the emerging trend of the use of public procurement as a tool for development, food procurement occupies a prominent position. Over the past two decades, the recognition at policy level of the potential that public food procurement initiatives have to pursue development outcomes has been growing. The many country experiences discussed in this book are a testimony to this evolution.

The potential of public food purchasing to contribute to development depends on the choices made by policymakers and procuring entities as to:

- the type of food to purchase (such as local, fresh, diversified and nutritious food);
- the type of production practices from which to purchase (e.g. from agricultural production that ensures environmental sustainability and promotes biodiversity); and, in particular,
- the type of suppliers from whom to purchase (e.g. from local and/or smallholder food producers) (De Schutter, 2014; Tartanac *et al.*, 2020).

Considering the weight of public sector demand for food and depending on how these choices are made, it is widely recognized that public food procurement has a considerable potential to influence both food consumption and food production patterns and deliver multiple social, economic, environmental, and nutritional and health benefits for a multiplicity of beneficiaries, including food producers, food consumers and the wider community (Morgan and Sonnino, 2008; Foodlinks, 2013; Fitch and Santo, 2016; Swensson and Tartanac, 2020).

Despite policymakers' increasing recognition of food initiatives as a powerful instrument to link public procurement and development, the importance of regulatory design to the implementation of such initiatives is often overlooked in the food procurement debate (Brooks *et al.*, 2014; Stefani *et al.*, 2017; Swensson, 2018).

Decisions such as who to purchase from, what type of food to purchase and from what type of production depends on the choices made by policymakers. However, the implementation of these choices will depend on the public procurement regulatory framework. As stated by Quinot (2013), although the law does not play a significant role in decisions to use public procurement for social, economic or environmental policy purposes, it does shape the way in which these policies are implemented, in other words, it plays an important role in the designing of the mechanisms used to implement the policies.

Multiple country studies show how regulatory frameworks may act as a significant barrier to the use of food procurement for development, especially by influencing the choice of the type of suppliers from whom to purchase (e.g. from local and smallholder food producers) (see Box 1, as well as Chapters 9, 15, 16 and 19 of this book).

Recognizing both the potential of linking public food procurement to development and the barriers to implementation that standard public procurement rules can create, countries have adopted different mechanisms and strategies to gear public procurement rules and practices towards development policy objectives, depending on the country context and objectives pursued.

This section discusses examples of different legal instruments and regulatory approaches adopted in Brazil, France and the United States of America. The discussion provides building blocks that may help determine which regulatory design is most conducive to successful policy implementation and the achievement of maximum developmental outcomes.

BOX 1 Country studies

A study by the Food and Agriculture Organization of the United Nations (FAO) on the possibilities for direct purchasing from family farmers for school feeding in Latin America concluded that in the eight countries analysed (Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay and Peru), the complexity of procurement procedures and the requirements of public procurement laws “impose serious obstacles for small-scale producers and their organizations” and “greatly hinder” their access to public food markets (FAO, 2013).

An FAO study offers similar findings for the African context (Kelly and Swensson, 2017). The key challenges that hinder smallholder farmers’ access to institutional food markets identified in this study include the complexity and cumbersomeness of the standard open tender procedure, disproportionate and costly participation requirements, an overemphasis on price and other non-smallholder-friendly factors as awarding criteria, and long payment periods. Similar challenges were observed, in the framework of the SNV Netherlands Development Organisation project on procurement governance for home-grown school feeding, which was implemented in Ghana, Kenya and Mali.

According to the findings of this project, public procurement regulations and practices that did not factor in the situation of the region’s smallholder farmers constituted one of the main reasons why those countries were not entirely successful in sourcing produce from local smallholders for their school feeding programmes (Brooks *et al.*, 2014). Similar conclusions were reached for Mozambique (Swensson and Klug, 2017) and Ethiopia, in a study that sought to provide information for the alignment of public procurement rules and practices to support government-led home-grown school feeding initiatives (Swensson, 2019).

Source: Swensson, L.F.J. 2018. *Aligning policy and legal frameworks for supporting smallholder farming through public food procurement: the case of home-grown school feeding programmes*. Working Paper No. 177. Rome, FAO, and Brasília, International Policy Centre for Inclusive Growth. 40 pp. (Also available at www.fao.org/3/ca2060en/CA2060EN.pdf).

Public food procurement and regulatory design: country examples

The comparative analysis of regulatory instruments used in countries that have implemented food procurement initiatives for development purposes shows that different approaches can be adopted. On the one hand, there are systems that incorporate specific instruments for food procurement; these are mainly reservation and preferential procurement schemes that allow procuring entities to reserve contractual opportunities to certain suppliers or to adapt the selection process and related rules to give a competitive advantage to targeted suppliers (Watermeyer, 2004). On the other hand, there are systems that rely on existing, non-specific instruments to regulate food procurement.

Brazil and the United States of America are good examples of countries that have developed specific regulatory instruments to support the incorporation of development objectives into public food procurement initiatives. These instruments target specific categories of suppliers (i.e. local and/or smallholder farmers and rural enterprise) and focus mainly on overcoming challenges related to the lack of competitiveness of these types of (vulnerable) suppliers in public markets. France provides an example of the second approach.

Designing specific instruments for food procurement: the cases of Brazil and the United States of America

The revision, in 2009, of the Brazilian National School Feeding Programme (PNAE) by *Lei N° 11.947, de 16 de junho de 2009* (Law No. 11.947 of 16 June 2009) constitutes a milestone in the use of food procurement as an instrument to achieve development objectives (see Chapters 8, 9, 10, 11, 12, 14, 15 and 16 for additional analysis of the PNAE experience in Brazil). Law No. 11.947 is aligned with Brazil's general legislation on public procurement (*Lei N° 8.666, de 21 de junho de 1993* [Law No. 8.666 of 21 June 1993]) that recognizes the promotion of "sustainable national development" as one of the objectives of public procurement (Article 3). Note that Brazil is neither a signatory of the WTO GPA agreement,⁹ nor did it use the UNCITRAL Model Law as a basis for its procurement laws.

⁹ In May 2020, Brazil submitted an application for accession to the WTO GPA.

Law No. 11.947 establishes specific instruments to use school food procurement as a tool to reach multiple social, economic and environmental policy goals by sourcing food from local family farmers and rural family entrepreneurs (see also Chapters 15 and 16 on the formulation process and the challenges to the implementation of this law). One of the legal instruments established Law No. 11.947 is the reservation scheme, which allows governments to reserve certain procurement opportunities to specific categories of suppliers that satisfy certain prescribed criteria linked to the designated policy objective (Watermeyer, 2004). While standard public procurement rules foresee that all qualified suppliers can tender for a contract, this mechanism creates an exception by allowing only the beneficiaries targeted by horizontal policies to participate in the selection process. The Brazilian law obliges procuring entities to spend at least 30 percent of the budget allocated to them by the federal government for the purchasing of food for school feeding, on food sourced from family farmers and rural family entrepreneurs. The target beneficiaries are defined by *Lei N° 11.326, de 24 de julho de 2006* (Law No. 11.326 of 24 July 2006), which lays down clear eligibility criteria for reservation schemes.

Other regulatory instruments, such as alternative evaluation criteria that acknowledge the social, environmental and economic quality of the food products offered, complement the legal instrument of reservation schemes (Swensson, 2018). Alternative evaluation criteria allow for the prioritization of local, vulnerable (i.e. land reform settlers and members of traditional communities) or organic or agroecological producers as target beneficiaries in the selection process. As such, they widen the range of development objectives that public entities can reach through public procurement, in a manner that is highly food-specific. This approach creates a distinct relationship between the specific policy objectives implemented by means of qualification criteria on the one hand, and those implemented by means of award criteria; this relationship is customized to the context of food procurement. Another regulatory instrument established by Law No. 11.947 is the simplified procurement method (“public call”), which aims to facilitate the access of family farmers and family rural entrepreneurs to public market opportunities (see also Chapter 15).

Another example of the use of specific regulatory instruments to reach development objectives through food procurement comes from the United States of America (see also Chapter 23).

Geographic preferences are not allowed in the general public procurement system in the United States of America. However, in 2008, an exception to this rule was created in the laws governing school food programmes (Public Law 110-246/2008 or the “2008 Farm Bill,” and the Code of Federal Regulations) to allow entities receiving funds through the Child Nutrition Programs (CNP) to apply a geographic preference for unprocessed locally grown or locally raised agricultural products, with the objective of supporting local agricultural production.¹⁰

Preferencing is the legal mechanism that allows governments to give a competitive advantage to a defined category of suppliers within a fully competitive procurement process (Watermeyer, 2004). In contrast to reservation schemes, the selection process is open to any interested supplier, who may compete with the targeted beneficiaries for the contract opportunities. However, preferential treatment is given to suppliers who satisfy certain criteria (e.g. local, small or medium enterprises or smallholder farmers) or commit to specific goals (e.g. caterers who commit to buying from local smallholder farmers) linked to the policy objective that government is targeting. As mentioned above, preference is among the instruments recognized by UNCITRAL, but not among those recognized by the WTO GPA. Contrary to the regulatory framework used in Brazil, the framework in the United States of America allows for the pursuit of policy objectives that are directly linked with the locality of the production, instead of the characteristics of the producers.

Through the preference mechanism, school food authorities in the United States of America are allowed to deviate from the traditional principle of equal treatment of suppliers and give preference to products that are “local,” according to the eligibility criteria. Although they still have to compete with other, non-preferred suppliers, local producers have a better chance of winning the contract. The instrument allows purchasers to select suppliers who comply with the eligibility criteria linked to the targeted policy objective but do not offer the lowest price, if they fall within the limits of the preference; thus, the instrument helps overcome challenges linked to the lowest price criterion (Swensson, 2018; De Schutter, 2014).

¹⁰ As mentioned above, although the United States of America is a signatory party to the WTO GPA agreement, the country chose to exclude the procurement of agricultural products made in furtherance of an agricultural support programme or a human feeding programme from the coverage of the agreement.

One of the key characteristics of the system in the United States of America is that the regulation gives procuring entities the power and discretion to create their own definition of “local” and define geographic and other eligibility criteria (United States of America, United States Department of Agriculture [USDA], 2015). This allows school food procurers to tailor their procurement and the preferencing scheme to the broader social, economic and/or environmental goals they aim to reach (see Swensson, 2018).

Building on existing regulatory instruments: the case of France

An alternative regulatory approach is to use existing, general instruments that – while not designed for the specific context of food procurement and the targeting of food suppliers – may support the pursuit of development objectives through public food procurement. France, for example, has adopted this approach (see also Chapter 26 on the French experience).

In France, the objective of linking public food procurement to development is expressly recognized at policy level in the National Food Plan (2004), which is linked to a broader National Action Plan on Sustainable Public Procurement (2015–2020). However, there are no legal instruments (such as reservations or preferencing schemes) that are designed specifically to support the implementation of public food procurement policies and related programmes, and other, general legal instruments are used instead.

The French *Code de la commande publique* (Public Procurement Code) expressly recognizes (in observance of European Union directives) the link between public procurement and development, including its social, economic and environmental dimensions (Articles L2111-1/L3111-1, L2111-2, L2111-3 and R2152-7 of *Ordonnance n° 2018-1074 du 26 novembre 2018* [Ordinance No. 2018-1074 of 26 November 2018]). In 2014, the Ministry of Agriculture and Food issued national guidelines to promote local and quality supply in public catering (France, Ministry of Agriculture and Food, 2014). These guidelines provide advice to public procuring entities on how to use public food procurement as an instrument to promote social, economic and/or environmental development policy goals. They contain specific instructions as to how to use existing legal instruments that, while not designed specifically for

food procurement, may be used to achieve such policy aims. The legal instruments proposed in the guidelines include the:

- division of contracts into smaller and specific lots to allow smaller farmers with limited production capacity to participate (contract lotting);
- rationalization of participation requirements;
- use of alternative procurement methods for amounts under specific thresholds (particularly methods that allow negotiations with potential suppliers); and
- use of multiple evaluation criteria.

In observance of European Union directives, Article R2152-7 of the Public Procurement Code foresees the possibility of using social, economic and environmental evaluation criteria. As laid down in the Code, these criteria may be linked to the fair remuneration of producers, environmental protection, the integration of vulnerable groups in the economy, biodiversity, animal welfare and the direct supply of agricultural products. According to the guidelines, these instruments create a range of possibilities for procuring entities to implement the link between food procurement and various horizontal policy objectives.

Article L2112-2 of the Code allows procuring entities to take into account social, economic and environmental considerations when specifying the conditions of execution of the contract. As such, they may favour supply modes linked to the proximity of production or to environmental outcomes (France, Ministry of Agriculture and Food, 2014). Nevertheless, these requirements cannot lead to any discrimination, and must be linked to the subject matter of the contract. The French legislation does not allow any discrimination based on geographical location (as does the legislation on school food procurement in the United States of America, for example).

France provides an example of a case where some regulatory attention (albeit still general and limited) is paid to the choice of procurement methods and the definition of needs in line with development objectives (Articles L2111-3 and L2111-1/L3111-1 of the Code). The tailored use of general instruments for public food procurement is further steered by the national guidelines on public catering (France, Ministry of Agriculture and Food, 2014).

2.4 Conclusions

The past decade has seen a notable shift in the way in which public procurement law deals with questions of development, and especially sustainable development. This is particularly evident in international legal regimes on public procurement, which have opened up important opportunities to incorporate development objectives into procurement practices. As such, the hegemony of free trade perspectives in international legal instruments on public procurement since the 1960s has given way to a broader policy agenda, focusing on sustainable development.

This shift is important for the use of food procurement as a development tool. While the importance of food procurement in development efforts is widely recognized at policy level, case studies show that regulatory frameworks may act as a significant barrier to the optimal use of food procurement for development. This demonstrates that public food procurement initiatives cannot be used for development purposes without considering their regulatory aspects.

Country studies show that countries may adopt different regulatory approaches to the public procurement of food, both within and outside of international regulatory frameworks. One approach is to develop specific regulatory tools for public food procurement; another is to rely on generic procurement mechanisms within existing procurement rules to pursue development objectives through public food procurement. The two types of approaches are not necessarily mutually exclusive; indeed, they may complement each other in important ways within a single system. The modalities of a system's public food and/or agricultural support programmes are a significant factor in the design of an optimal regulatory regime for food procurement within that system.

Despite the important shifts in regulatory approaches and the promising examples of how procurement law can facilitate public food procurement initiatives, it seems that overall, procurement law still does not optimally leverage policy insights as to the potential of food procurement for development. In other words, regulatory instruments for food procurement do not unequivocally exploit the full potential of policy choices relating to the:

- type of food to purchase (such as local, fresh, diversified and nutritious food);

- type of production practices from which to purchase (e.g. from agricultural production that ensures environmental sustainability and promotes biodiversity); and (in particular)
- type of suppliers from whom to purchase (e.g. from local and/or smallholder food producers) (De Schutter, 2014; Tartanac *et al.*, 2019).

Considering the three perspectives on linking public procurement to development goals put forward by Quinot (2018), current practices to pursue development through food procurement seem to be largely governed by a midstream perspective focusing on the incorporation of development objectives into the public procurement process itself. However, the potential linkages between food procurement and development recognized at the policy level seem to call also for an upstream perspective in regulatory design, focusing on the design of the procurement process itself, and on how this design can further development objectives (Quinot, 2018).

At the policy level, the most important potential contribution of food procurement to development may not necessarily consist in the actual acquisition of food (although that is an important dimension), but rather in earlier policy choices. This is illustrated by the common prejudice that purchasing sustainably produced food (i.e. food produced by small-scale farmers relying on agroecological methods of production) is more costly and will therefore meet resistance from end users. However, it is not necessarily true that sustainable food is more costly. As noted by Soldi:

The cost of more “sustainable” meals may be contained by reducing the consumption of meat (for example, through the reduction of meat portions); increasing the use of seasonal vegetables and fruits; reducing food waste (for example, by reusing leftovers); reducing the use of finished or semi-finished products; using recipes that imply the use of the whole foodstuff (for example, vegetable peels). Use of seasonal menus makes it possible to request seasonal and fresh food, which is more likely to be sourced nearby. Variety of menus allows for a wider range of products to be considered in a product group, thus reducing the volumes needed for each product. Smaller volumes are more likely to be supplied by small suppliers (Soldi, 2018, p. 30).

These examples illustrate how policy choices made when setting up a public food initiative can deliver superior developmental outcomes.

The relevant points discussed in these examples relate not to the adoption of reservation or preferencing schemes for small-scale farmers, but rather to choices pertaining to the formulation of procurement needs, or even to whether procurement is necessary (e.g. in the case of reusing leftovers). In other words, important questions for regulatory design not only concern the regulatory instruments used to approach the market, but also the very nature of procurement to pursue a particular outcome. Thus, paying more attention to demand management from a regulatory perspective may contribute significantly to the achievement of development goals through public food procurement. In addition, the regulatory regime for food procurement must be considered in conjunction with other dimensions of the system, which may be equally important to the achievement of the development objectives. These dimensions include the need to train the staff of procuring entities and suppliers (such as small-scale farmers and their organizations) to help them understand and exploit the opportunities presented by public food procurement initiatives.

From an international trade perspective, it is sometimes argued that the growing emphasis on localized procurement, stemming from policy choices to use public food procurement as a development tool to strengthen urban-rural linkages and reinforce local food systems, may be to the detriment of the very small-scale farmers that these policies aim to support. This argument is premised on the view that allowing procuring entities to geographically limit food procurement may deny small-scale farmers – and especially those from the Global South – access to global supply chains and hence market opportunities. Based on this argument, international procurement rules typically ban (or at least severely restrict) the favouring of local food suppliers in public food procurement. However, from a policy perspective, this argument does not hold. Indeed, it is small-scale farmers who benefit the most from the development of local and regional markets, whereas larger players are better equipped to supply large volumes and reap economies of scale, and thus stand to gain the most from the development of global supply chains. When small-scale farmers do gain access to global supply chains, they do so through large transnational agrifood companies that supply large retailers. The bargaining position of small producers in such supply chains is weak, not least due to the fact that the procurement reach of these dominant actors has now become global. Continuing to support the development of global supply chains at the expense of local and regional markets is therefore not the strategy that is best suited to improve the situation of small-scale farmers.

To conclude, there can be little doubt that public food procurement is potentially a very significant tool in support of transformational development. The case for the use of public procurement for development is well-established at policy level and borne out by case studies across the globe. However, procurement law still seems to be playing catch-up in providing regulatory models that optimally facilitate public food procurement initiatives for development. There are some promising country examples of how procurement law can support such initiatives, while at the international level there is notable momentum to shift procurement regulation towards a broader policy agenda. However, more work remains to be done to develop regulatory regimes that serve optimally as a facilitator, rather than a barrier, for efforts to reach development objectives.

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3 PUBLIC FOOD PROCUREMENT AND THE SUSTAINABLE DEVELOPMENT GOALS

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ABSTRACT

Food procurement policies and practices typically focus on the achievement of singular objectives, such as social (achieving food security, promoting ethical production, improving public health) or environmental goals (mitigating the impacts of food production by reducing carbon emissions and waste). Public procurers should adopt a more integrated approach to public procurement that covers sourcing, consumption and waste management, and considers the food system as an integral part of local, regional and national economies. Such an approach allows food procurement to become a powerful mechanism for delivering multiple policy goals. Life cycle or circular economy thinking is a key to unlocking this potential and enabling the public sector to play an important role in ensuring that achieving the Sustainable Development Goals (SDG) is not just an abstract ambition, but a clear and measurable contributor to green growth.

3.1 Introduction

Public procurement – the purchasing of goods and services by governments and state-owned enterprises – is increasingly used by governments as a strategic tool to deliver their mandates and achieve broad policy objectives. In addition to conforming to standard principles and existing rules, governments are increasingly devoting efforts to increase the efficiency and effectiveness of this key government function. The governments of 159 countries spent an average 16.4 percent of their gross domestic product (GDP) on public purchases in 2018, with percentages ranging from 4 to 38 percent (The GlobalEconomy.com, 2020). As such, public procurement is a potentially significant lever to address market failures. Public food procurement

(PFP) initiatives represent one of the key areas of work of the Food and Nutrition Division (ESN) of the Food and Agriculture Organization of the United Nations (FAO) and of the Sustainable Public Procurement (SPP) and Sustainable Food Systems (SFS) programmes of the One Planet Network (OPN) of the United Nations (UN).

The main focus of FAO's PFP work has been on inclusive public procurement – linking public institutions' demand for food to neglected or vulnerable supplier categories (i.e. local smallholders and small and medium enterprises [SMEs]) to advance social, economic or environmental development goals. In addition, FAO and OPN have been increasingly exploring the multiple potential benefits and beneficiaries of public food procurement under the social, economic and environmental pillars of sustainability). Public procurement can send a signal about governments' ambitions on future directions for food systems that has the power to incentivize supply chain actors and public purchasers to align values and practices accordingly and foster a transition towards sustainable food production and consumption (Tartanac *et al.*, 2019).

The global food service market was estimated to be worth USD 3.4 trillion in 2018 (IMARC, 2019). This is a powerful market force at the local, regional, national or international scale. Because of the sheer value and volume of public food procurement, public institutions have the potential to drive the market and prompt innovation towards the provision of more nutritionally balanced foods and healthier diets in a fair and transparent way. Public organizations account for a significant part of food procurement of any national economy and procure a large portion of the food that people eat every day.

3.2 **Green public procurement, sustainable public procurement and circular procurement**

Although often used interchangeably, there is a difference between green public procurement (GPP) and sustainable public procurement (SPP). The European Commission defines GPP as the purchase of goods and services with a reduced environmental impact throughout their lifecycle compared to those that would otherwise be procured. SPP is the process by which public authorities seek to balance the economic, social and environmental pillars of sustainable development when procuring goods and services.

Circular procurement goes further by considering not just how good and services are purchased and what the impact of their production is, but also how they are used (consumption) and what value they retain at the end of their life cycle. The European Commission defines this as:

... the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across the whole life cycle (European Commission, 2017, p. 5).

This life cycle approach to procurement helps bring together consumption and production as prescribed by Sustainable Development Goal (SDG) 12 *Ensure sustainable consumption and production patterns*, and links naturally to the concept of sustainable food systems.

3.3 Food procurement and the Sustainable Development Goals

Public procurement is a powerful tool for increasing the demand for sustainable products and services. It is specifically referenced in SDG 12.7 *Promote public procurement practices that are sustainable in accordance with national policies and priorities*.

Food loss and waste reduction is a specific target under SDG 12 (SDG Target 12.3). Around a third of all food produced for human consumption is lost or wasted on its way from the farm to the fork (FAO, 2015). This huge level of inefficiency affects many SDGs. Food loss and waste causes about USD 940 billion per year in economic losses. It exacerbates food insecurity and malnutrition as well as overconsumption. The production of food that is ultimately lost or wasted consumes about a quarter of all water used in agriculture. Crops grown to produce food that is ultimately uneaten occupy almost 1.4 billion hectares of land – close to 30 percent of the world’s agricultural land area (FAO, 2015).

Procurement acts as the interface between production and consumption – or supply and demand. Sustainable public food procurement is a dynamic policy mechanism that has a role to play in working towards all SDG goals, and some more than others (see Figure 1). The sustainable procurement of food by the public sector arguably contributes most to:

- **GOAL 2:** Zero hunger, for example by aiming to achieve national food security. Food procurement by international programmes such as the World Food Programme (WFP) also contributes to Goal 2. In 2018, WFP bought more than 3.6 million metric tonnes of foodstuffs, for a total value of over USD 1 billion (see also Chapter 22 on the WFP experience).
- **GOAL 3:** Good health and well-being, for example by reducing health inequalities and encouraging choices for nutritious food with a lower dependency on artificial fertilizers, pesticides and other chemicals, such as antibiotics or growth hormones.
- **GOAL 4:** Quality education, for example by providing access to nutritious food in schools, which drives healthier dietary choices throughout life.
- **GOAL 8:** Decent work and economic growth, for example by encouraging fair trade and green growth (fostering economic growth and development while protecting natural assets) across the food supply chain.
- **GOAL 11:** Sustainable cities and communities, for example by favouring local sourcing and closing organic material and nutrient loops in line with circular economy principles (see e.g. Ellen MacArthur Foundation, 2012).
- **GOAL 12:** Sustainable consumption and production, for example by reducing food loss and waste in production and consumption.
- **GOAL 13:** Action on climate change, for example by reducing the carbon footprint of food procurement through short supply chains, consumption choices, e.g. for seasonal produce, dietary choices and better food waste management practices.
- **GOAL 14:** Life below the water, for example through more sustainable seafood procurement policies.
- **GOAL 15:** Life on land, for example through dietary choices, the improvement of animal welfare and stewardship.

Figure 1 SDGs to which sustainable public food procurement contributes



Source: United Nations, n.d.-a.

The OPN's SPP programme aims to accelerate the uptake and implementation of sustainable procurement practices at the local, national, regional and worldwide level to ensure sustainable consumption and production patterns and assist in the delivery of SDG 12. It targets SDG 12.1 *Implementing the 10-year framework of programmes on sustainable consumption and production* and SDG 12.7 *Promoting public procurement practices that are sustainable*, in accordance with national policies and priorities.

More than 50 percent of the world's population lives in urban areas; this proportion is projected to reach 66 percent by 2050 (United Nations, n.d.-b). Providing healthy food for everyone in a sustainable way is therefore a challenge that affects cities especially. In 2016, the Food Smart Cities for Development (FSC4D) project, funded by the European Union and supported by 12 urban areas, recommended *inter alia*:

- using public procurement to create market opportunities for local producers and boost the demand for organic food and fair-trade food;
- embedding fair trade into urban food policies to raise awareness among citizens about global interdependences in the food sector and the need for trade justice; and
- setting up local steering groups to ensure local authorities' continued commitment to fair trade in food policies (FSC4D, 2016).

European Union Directive 2014/24/EU on public procurement enables public authorities in the European Union to progressively align their public purchasing with the SDGs. They can do this, for example, by encouraging better trading conditions for, and securing the rights of, marginalized producers and workers – especially in the South – through fair trade. To promote the better integration of social and environmental considerations in procurement procedures, European public procurement rules allow contracting authorities to:

use award criteria or contract performance conditions relating to the works, supplies or services to be provided under the public contract in any respect and at any stage of their life cycles from extraction of raw materials for the product to the stage of disposal of the product (European Parliament and Council of the European Union, 2014, p. 84) (see also Chapter 2).

This recognition of procurement as a strategic policy mechanism is also reflected in the emerging European Green Deal, and specifically in the Farm to Fork Strategy that is at the heart of this action plan (European Commission, 2019; European Public Health Alliance, 2019).

In 2009, the then Ministry of Agricultural Development of Brazil created a label of identification for family farming, which Brazilian fair trade organizations can use to distinguish their products on the national market (Fair Trade Advocacy Office, 2016) (see also Chapters 2, 8, 9, 10, 11, 12, 14, 15 and 16 for additional analysis of public food purchasing in Brazil).

3.4 Other drivers of public procurement of food

As stated by the United Nations Special Rapporteur on the Right to Food, Olivier De Schutter, in 2014:

Governments have few sources of leverage over increasingly globalized food systems – but public procurement is one of them. When sourcing food for schools, hospitals and public administrations, Governments have a rare opportunity to support more nutritious diets and more sustainable food systems in one fell swoop (United Nations Office of the High Commissioner for Human Rights, 2014).

Food security (SDG 2)

A person is considered food secure when he or she has the physical, social and economic access to sufficient, safe and nutritious food that meets his or her dietary needs and food preferences for an active and healthy life (FAO, 2019a). The Organisation for Economic Co-operation and Development (OECD) notes that challenges to achieving food security will be compounded by a growing world population with an increasing appetite for meat and fish, alongside growing competition from non-food agricultural products such as cotton and biofuels.

Better agrifood policies are crucial to improving global food security. Many agricultural policies are maintained with the stated aim of increasing food security; public procurement plays an important part in promoting food security through self-sufficiency in food production.

Public procurement can be used to pursue improvements related to smallholders' livelihoods, food security and nutrition, e.g. by providing an accessible market to smallholders and reducing the risks and uncertainties involved in market participation, the procurement of "women's crops" and using smallholders' products to meet the nutritional needs of target groups such as vulnerable populations (FAO, 2018) (see also Chapter 1).

Health and nutrition (SDG 3)

According to FAO (2016), only a few countries (Brazil, Germany, Qatar and Sweden, for example) have issued dietary guidelines that ensure good nutrition for all and make the link between diets and climate change and other environmental impacts of food production. There is increasingly robust evidence to suggest that dietary patterns that have low environmental impacts can also deliver good health. Linking these drivers creates a win-win situation for governments and public sector bodies that aim to deliver multiple policy goals (FAO, 2016).

Synergies between public food procurement, food security and nutrition can be further promoted when governments purchase target commodities that address the nutritional requirements of vulnerable populations from smallholders. Chapters 1, 4, 5 and 6 of this publication provide good examples of this potential.

Climate change (SDG 13)

Food waste and loss accounts for around 8 percent of global greenhouse gas (GHG) emissions. In Helsinki (Finland), the carbon footprint of each catered meal was estimated at 1.1 kg CO₂ emissions. In Turin, a life cycle assessment approach was taken to measure the carbon footprint of five commonly consumed food products (potatoes, carrots, apples, pears and peaches). For these five supply chains, the production stage accounted for 50 to 75 percent of the total carbon footprint, revealing the significance of agricultural practices in terms of GHG emissions. The requirement to source food from integrated and organic production resulted in a reduction in emissions of over 66 tonnes of CO₂ equivalent – a 26 percent reduction of the carbon footprint throughout the entire supply chain of these five products compared with conventional agricultural systems. The transportation of these five foods, from the farm gate to the table, accounted for 25 to 50 percent of the carbon footprint of the entire chain (INNOCAT, 2015) (see also Chapter 13).

These examples highlight the importance of food supply chains for carbon reduction policies and targets. They also highlight the importance of adopting a sustainable food systems approach as environmental impacts occur across production, processing and distribution and as a result of avoidable food waste and loss.

Biodiversity (SDG 14, SDG 15)

The current food production system is destroying the environment upon which present and future food production depends (FAO and Food Climate Research Network, 2016). Food production currently accounts for some 20 to 30 percent of overall anthropogenic GHG emissions. It is the leading cause of deforestation, land use change and biodiversity loss, accounts for 70 percent of all human water use and is a major source of water pollution. The grazing of livestock and the production of feed crops are the main agricultural drivers of deforestation, biodiversity loss and land degradation. The global reliance on just three crops (rice, wheat and maize) for more than 50 percent of total plant-derived protein production has contributed to the dramatic loss of over 60 percent of biodiversity over the past 40 years (Ellen MacArthur Foundation, 2019) (see also Chapters 11, 12 and 33). Meanwhile, unsustainable fishing practices deplete stocks of species that humans consume and cause wider disruption to the marine environment.

3.5 Sustainable procurement principles for food

Food and farming charity Sustain defines sustainable food as food that is produced, processed and traded in ways that:

- contribute to thriving local economies and sustainable livelihoods – both in [the procuring country] and, in the case of imported products, in producer countries;
- protect the diversity of both plants and animals and the welfare of farmed and wild species;
- avoid damaging or wasting natural resources and contributing to climate change; and
- provide social benefits, such as good quality food, safe and healthy products, and educational opportunities (Sustain, 2020).

In spite of the clear benefits of sustainable public procurement, existing procurement guidance does not adequately promote a systems-based approach to food procurement. Until this gap is addressed, progress will remain incremental rather than transformative. In order to realize the benefits of sustainable procurement, procuring entities and supply chain actors should recognize and implement certain principles that provide a more systematic approach to sustainable food procurement.

Rimington, Carlton and Hawkins (2006) outline nine principles that relate to corporate social responsibility in procurement:

- Sourcing food products from the country in which they are to be offered, if these products are available in sufficient volumes, appropriate quality and at a competitive price, rather than importing them.
- Providing appropriate menu information and food offerings to consumers so that they can make choices based on food provenance and sustainability.
- Taking relevant steps to avoid the purchase of foods whose production processes (anywhere in the world) are known to excessively damage human health and/or the environment.
- Working with contract catering businesses and intermediate suppliers to find ways to adapt existing centralized purchasing systems to the needs of smaller local and/or regional suppliers.
- Ensuring that food products are processed in facilities that use resources efficiently (i.e. have a reduced consumption of water and energy and minimize waste).

- Ensuring that transportation systems source and distribute food from the point of production/processing to the point of consumption in an energy-efficient way.
- Ensuring that animal food products are sourced from livestock production systems that comply with national standards and with the international standards being developed by the World Organisation for Animal Health (OIE) as they emerge.
- Ensuring that foods offered to consumers are prepared with a minimum amount of additives (including salt and sugar) and providing more information to consumers on additive contents (e.g. as widely done for allergens).
- Working towards the adoption of a organizational code of practice that embraces the principles of the Declaration on the Fundamental Principles of Human Rights at Work of the International Labour Organization (ILO), or, as an alternative, those of the Ethical Trade Initiative's Base Code (which is of specific relevance to imported foods).

This framework of principles applies not only to the organization, city and regional scales, but also to national and international levels. However the emphasis, on public procurement as a mechanism, shifts at these higher levels to a much stronger focus on socially responsible procurement practices that aim to support fair trade practices.

The Belgian city of Ghent identified eight themes for sustainable food procurement that implement these principles in a practical way: organic, vegetarian, fair trade, animal welfare, sustainable seafood, local sourced produce, and food waste reduction (see Figure 2) (Verbeke, 2016). Advocating vegetarian choices implies the need to make dietary choices (e.g. offering less meat). Additional themes could be nutrition (for health reasons) and food packaging (as the food packaging, and particularly plastic packaging, used in the production, processing and transport of publicly procured food direct impacts the environment).

3.6 Food procurement in the public education sector

A well-nourished child is a child that is healthier and better able to learn and develop at school. Food procurement for schools must therefore provide healthy meals to children. The early school years are essential for the adoption of healthy eating habits. Indeed, Morgan and Sonnino (2007) show that eating patterns developed during childhood persist throughout adulthood.

A review of green public procurement (GPP) in 2015 identified the education sector as the sector that most frequently applies new criteria and innovation (Neto *et al.*, 2015). The Maltese Government, for example, identifies the following benefits of the public procurement of healthy food for schools:

- increased availability of and access to nutritious and safe food;
- improved dietary habits and reduced incidence of obesity and overweight;
- positive effects on school attendance and performance;
- minimization of health inequalities; and
- development of health-minded children and school staff.

In Malmö (Sweden) and Copenhagen (Denmark), menus are planned using a slightly different composition of ingredients to enable the purchase of organic food within a conventional budget. This is done by reducing meat, purchasing seasonal food, balancing expensive and cheaper food types and minimising food waste (InnoCat, 2015).

FAO (2019b) has formally recognized the principle of inclusive procurement and value chains as one of the four pillars of its approach to school food and nutrition, which guides FAO's work in this area.

In many countries, schools and governments have issued guidelines regarding portion sizing and age-appropriate menus to address issues related to health, nutrition and obesity (SDGs 2, 3 and 4) and ensure sustainable consumption (SDG 12). An overview of current standards and measures for school meals in the European Union and Norway and Switzerland show that only 13 out of 34 regions/countries link procurement policy and education (school) policies (European Commission, 2020). However, many of the countries that do not yet fully make the connection between well-being and environmental impacts are countries that are often held up as SPP exemplars. This highlights the potential for some quick wins in achieving the objectives of the SDGs through food procurement. It also highlights the need for more countries and public entities to adopt a more strategic approach to public procurement in order to deliver policy objectives and best value.

3.7 Food procurement in the public health sector

The benefits of the public procurement of healthy food for schools can be equally reaped across the entire population. The emphasis of food procurement policies for public health varies between countries, reflecting their GDP levels. Various objectives such as tackling the increasing obesity resulting from western dietary choices, improving the access to nutritious and safe food, and minimizing health inequalities may be pursued within the same country, region and even locality in contexts of growing income inequalities. Such public health objectives can be pursued through sound public procurement policies; for example, there are many cases of public food policies that help protect workers' health and ensure food safety.

Addressing food waste is a key objective of public procurement policies in many countries, in line with SDG 12 (12.3 and 12.7). An estimated 25 percent of all food purchased by healthcare facilities in the Netherlands is thrown away (Wageningen University and Research, 2016). Strategies to reduce this waste focus on food waste reduction methods in kitchens and the monitoring and reporting of performance according to criteria stipulated in contracts. Wageningen University has developed and applied a practical method to measure food waste and examine its different dimensions, including the quantity and type of food wasted at different steps in the production, to identify which types of products are wasted most (case studies in the Netherlands have focused on vegetables). In 2009, the Irish Environmental Protection Agency, the Cork Institute of Technology and around 40 Irish hospitals jointly launched the Green Healthcare Programme. Under the programme, a system was set up to measure food waste in hospitals in terms of weight and purchase costs (the programme estimated that each kilogram of food wasted costs EUR 2).

Allied to the monitoring of food waste is the requirement within contracts for ongoing training to help improve performance. Food waste can be reduced through simple measures such as the reduction of portions and informed menu choices, as well as training on nutrition and better storage and preparation techniques.

Many countries across the world are experiencing ageing populations. According to the World Health Organization, nearly two billion people across the world are expected to be over 60 years old in 2050, triple the number in 2000. Healthy food experiences for older people in residential care have many similarities with the wider population,

but some individuals may require higher energy and nutrient intakes (for example, Public Health England, 2017). Procurement managers can improve the dietary quality of the food provided by buying foods with reduced salt, saturated fat and free sugar contents and a higher content of fibre, and buy more fruits, vegetables and fish. Such purchasing choices should be made in collaboration with menu planners and catering managers. Procurement managers may also need to ask suppliers for more information to determine which products best help meet any standards identified in the tender.

3.8 Catering

Reducing food loss and waste can generate a triple win: for the economy, for food security and for the environment. Public procurers must decide whether to purchase food or contract catering services. Mixed solutions may also be effective. Typically, for-profit entities provide catering services, and public bodies that purchase catering services, transfer the responsibility of food provision to the caterer. The challenge is that many caterers may not be aware, or may not believe, that there is a solid business case for reducing food loss and waste (Clowes, Mitchell and Hanson, 2018). Therefore, care must be taken to embed the SDG principles into service contracts, not only during the preparation phase of the tender but also during the contract management phase, in monitoring, reporting and performance evaluation.

The way kitchens are organized, or reorganized, needs to be flexible enough to adapt to the introduction of sustainable food practices. This requires an analysis of existing equipment and human resources and of whether adjustments are needed in terms of preparation tasks and management.

A study of pre-consumer waste reduction in catering sites across six countries found that the adoption of sustainable food practices had the following results (Clowes, Mitchell and Hanson, 2018):

- The average benefit-cost ratio for food waste reduction efforts was more than 6:1 over a three-year time frame.
- Within the first year of implementing a food waste reduction programme, 64 percent of sites had recouped their investment. Within two years of implementing a programme, 80 percent of the sites had recouped their investment.

- By reducing food waste, the average site reaped cost savings of more than 5 percent.
- There appears to be no clear correlation between benefit-cost ratios and a site's geography.
- Key strategies to reduce food waste were to measure food waste, engage staff, start small, reduce food overproduction and repurpose excess food.

Certification

Procuring food through integrated environmental farm management systems supports sustainable food production. Labelling and certification can facilitate the promotion of higher environmental production standards through procurement. The Ecolabel Index lists over 150 global and national product-specific voluntary labels, certification schemes and standards. Key concerns are ethical and fair trade practices, animal welfare, marine and terrestrial (e.g. forest and organic) stewardship, and environmental life cycle impacts. Table 1 provides a simplified summary of the areas where assurance schemes and certification can help ensure sustainable public procurement.

Table 1 **Assurance schemes and certification in sustainable public procurement**

THEMES	HEALTH AND WELL-BEING	RESOURCE EFFICIENCY	SOCIO-ECONOMIC CONCERNS
HEALTH	<ul style="list-style-type: none"> ▪ Food safety and hygiene 		
SOCIAL WELFARE			<ul style="list-style-type: none"> ▪ Fair and ethical trade ▪ Equality and diversity ▪ Inclusion of small and medium enterprises
ENVIRONMENT	<ul style="list-style-type: none"> ▪ Authenticity and traceability 	<ul style="list-style-type: none"> ▪ Authenticity and traceability ▪ Local and seasonal produce 	
ANIMAL WELFARE	<ul style="list-style-type: none"> ▪ Authenticity and traceability 		

Source: author's elaboration.

The proliferation of labels can, however, result in confusion (e.g. between voluntary labels versus mandatory labels). Obtaining certification can be costly and time-consuming for suppliers; the administrative burdens, costs and delays involved in obtaining Type I ecolabels can result in higher prices and a limited choice of suppliers.¹ The limited space available on packaging may complicate labelling. This can be tackled through innovative technological solutions to provide information (e.g. the scanning of QR and other bar codes). Labelling must be consistent throughout the supply and purchasing phases to enable verification and performance management. Environmental labels that are not self-explanatory for purchasers and consumers must be complemented by other tools (e.g. websites), which add costs that must be considered during the procurement cycle.

In spite of these challenges, certification and labels are a powerful procurement tool that responds to purchasers' needs and expectations. For example, they allow buyers to quickly identify environmentally friendlier food and beverage products (e.g. more sustainably produced palm oil). They also drive improvements in the supply chain and enable actors in that chain to communicate values and show leadership.

Packaging

The global issue of the use of plastic food packaging is linked to food losses in supply chains. Single-use plastic packaging plays an important part in modern life, especially where food safety and hygiene is concerned. Plastic packaging protects food products from contamination and damage and can extend their shelf-life, thus avoiding losses and waste. The plastics industry cites studies that suggest that if plastic packaging didn't exist and other materials were used, the overall use of packaging material and energy, as well as GHG emissions, would increase (Brandt, Pilz and Fehringer, 2011). However, other studies (for example, Schweitzer *et al.*, 2018) suggest that the rise in the use of plastic food packaging is failing to tackle the growing food waste problem (e.g. in Europe) and may in some cases even be fuelling it. Single-use and other problematic types of plastic packaging (e.g. rigid and flexible packaging, sachets, composite packaging and single-use cutlery and tableware)

¹ Type 1 ecolabels are verified by an independent third-party organization and have therefore been recognized as the most reliable certification schemes.

commonly used in public catering services can find their way into land and marine ecosystems if not properly controlled through recycling and waste management practices, both site-based and on-the-go.

Thus, procurers are faced with the double challenge of encouraging sustainable food systems and dealing with packaging and food waste. Systemic approaches are required to avoid unintended consequences when tackling SDG 12 (Sustainable consumption and production), SDG 14 (marine life) and SDG 15 (life on land). Guidance for purchasers is urgently needed; the OPN SPP programme is addressing this need, and bilateral national guidance is emerging, for example in Wales (Waste and Resources Action Programme [WRAP] Cymru, 2019).

3.9 Other sectors: sustainable events

Catering is a major procurement category in the organization of events (from concerts over international trade fairs to the Olympic Games). Public sector involvement in events ranges from licensing to participating, organizing or hosting. These all provide opportunities to improve the sustainability of food systems by linking licensing and purchasing to sustainable food procurement policies and using wider certification and standards (such as the International Organization for Standardization [ISO] ISO 20121:2012 standard for event sustainability management systems).

Building on the London 2012 Food Vision (London Organizing Committee for the Olympic Games and Paralympics Games, 2009), the city of Rio de Janeiro used the Olympics in 2016 to establish the Rio Sustainable Eating Initiative (Rio Organizing Committee for the Olympic Games and Paralympics Games, 2016). Created jointly by the government, civil society organizations and research institutes, this initiative supported the Rio Organizing Committee in the creation of a procurement plan for the supply of healthy and sustainable food for the Games. The food strategy for the Tokyo 2020 Games contains provisions regarding food waste, the reuse of tableware, specifications for healthy and safe foodstuffs, and cultural and dietary diversity (Tokyo Organizing Committee for the Olympic Games and Paralympics Games, 2019).

Key recurring themes in public food procurement for events are the facilitation of access to healthy and sustainable food for everyone (in food procurement and

throughout the supply chain), the purchasing of food from ethical (e.g. marine and land stewardship), diversified and safe sources, and socially responsible procurement that addresses gender issues and improves skills and training. Where licensing is required for third party events, criteria for food waste reduction and links to local food procurement strategies should be used as mandatory conditions within the application and approval system.

3.10 Conclusions

Public procurement can, and does, act as a significant driver for more sustainable and socially responsible production and consumption. Food procurement may bring about health and well-being benefits, alongside environmental protection. Food procurement policies and practices typically concentrate on production. Consumption is often indirectly addressed through nutritional requirements, provisions that aim to improve health and well-being, and efforts to reduce waste. The adoption of a more integrated approach to the procurement of food and beverages – covering sourcing, consumption and waste management – would provide a more effective contribution to sustainable food systems and wider SDGs, beyond SDG 12.3 *Food waste reduction*.

The principles for an integrated approach to the promotion of sustainable food systems through public food procurement can be synthesized into eight key areas (European Committee of the Regions, 2018):

- **Policy commitment** – the introduction of sustainable food in public catering is a medium- to long-term process. A long-term vision and continuity are therefore important. Aligning food procurement with policy goals (linked to SDGs) related to health education, the reduction of carbon emissions and supporting local economies is also recommendable.
- **Supply (e.g. supply chain capacity)** – to meet the demand for sustainable procurement, procurers should understand food supply chains' capacity and maturity in terms of production (type of products and volumes, including organic produce), processing (type of processing available) and packaging (packaging sizes available) and distribution (e.g. wholesalers) and transport. A good balance between demand and local supply increases the opportunities for small suppliers (producers and processors) to get involved in the food procurement procedure.

- **Purchasing food or catering services** – where a choice exists, a decision needs to be made on whether to purchase food or catering services. Mixed solutions may also be effective. If procurers purchase food, they have a direct relationship with suppliers. If they purchase catering services, the provision of food falls under the responsibility of the caterer.
- **Market engagement** – procurers should set up a viable system of demand and supply by communicating sustainable food ambitions and assessing the market's capabilities to meet those ambitions now and in the future.
- **Food procurement procedures** – these procedures are dependent on the type of purchasing (e.g. of food or of outsourced catering services) and the estimated value of the procurement. Centralized purchasing strengthens the negotiating power of public procurers but entails larger contract values, which may cut small suppliers out of the competition.
- **Tendering process** – the procurement of food or catering services is driven by cost considerations. An open procedure to award contracts to the most economically advantageous tender makes it possible to achieve a balance between price (cost) and a range of other criteria such as quality, technical merit, aesthetic and functional characteristics, accessibility, social characteristics, environmental characteristics, innovative characteristics, after-sales service and technical assistance, and delivery conditions (European Commission, 2015).
- **Demand (e.g. menu planning)** – by linking nutrition, dietary choices and portion sizing, food purchasing may encourage sustainable consumption patterns and bring social (improved health and well-being, the promotion of ethical production), environmental (reduced carbon emissions and waste) and economic (the development of local SMEs and job creation) benefits.
- **Waste** – reducing avoidable food waste is a key target of SDG 12. Where food waste arises, it is imperative that separate collection systems are implemented to avoid cross-contamination of waste streams and enable organic and nutrient loops to be closed through recycling and composting where appropriate. Returning nitrogen (N), phosphorus (P) and potassium (K) back into agricultural production systems not only reclaims critical raw materials but also reduces dependency on virgin nutrient stocks and artificial fertilizers.

Adopting a more integrated, circular approach using these principles enables the realization of economic benefits that act as a driver for shifting behaviours towards more sustainable procurement practices, even in countries where the delivery of SDGs

is more challenging. Goals such as economic growth are sometimes seen as more important, or even inconsistent with, social and environmental goals. Implanting circular economy principles within food systems can help rebalance this equation and ensure that food-related social and environmental goals are delivered as part of a green growth public procurement policy.

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The background features a green-toned illustration of a community meal. In the foreground, a group of people, including men, women, and children, are seated around a long table covered with a white tablecloth. Each person has a plate of food in front of them, and some are shown eating. In the background, a woman is standing and holding a large bowl, possibly serving. The scene is set outdoors with stylized trees and foliage. On the right side of the page, there are four horizontal bars: a solid brown bar at the top, a white bar with a black outline below it, and two solid brown bars at the bottom.

PART B
PUBLIC FOOD
PROCUREMENT:
POTENTIAL BENEFITS
AND BENEFICIARIES

4 SCHOOL FOOD PROCUREMENT AND MAKING THE LINKS BETWEEN AGRICULTURE, HEALTH AND NUTRITION

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ABSTRACT

Public school food procurement has the potential to stimulate agricultural productivity and improve food security by creating an accessible market for smallholder farmers. This chapter presents a high-level multisectoral framework for school feeding to illustrate how school food procurement can be leveraged to broaden the benefits of school feeding programmes beyond child health and education to include agricultural and community development. Using real world examples mapped to a stylized supply chain framework, the analysis captures a number of common features of public procurement systems for school food (also known as “home-grown school feeding”) and highlights context-specific nuances of different implementation models. The chapter suggests that as the evidence on the effects on agriculture and community development of school feeding programmes is still largely limited to case studies, rigorous research into the costs, benefits and trade-offs of different models of school food public procurement is needed.

4.1 Introduction

School feeding, or the provision of school meals, is a multisectoral intervention that is widely implemented by governments worldwide. School feeding programmes reach about 368 million children globally, for a total investment of about USD 70 billion annually (World Food Programme [WFP], 2013). Rigorous studies have

shown that school feeding can improve children's schooling, as well as their physical and psychosocial health, with most benefits being accrued by more disadvantaged children (Kristjansson *et al.*, 2007). Meanwhile, experiences in high- and middle-income countries (including over half a century of programming in the United States of America and more recent experiences in large-scale programmes in Brazil and India) shows that food procurement for school meals has been used as an outlet for commercial farmers to market their surplus (Levine, 2008; Schneider *et al.*, 2016; Drake *et al.*, 2016) (see also Chapters 2 and 23 on the United States of America, Chapter 31 on India and Chapters 2, 8, 9, 10, 11, 12, 14, 15 and 16 on Brazil). These are examples of the use of public procurement as a policy tool to pursue economic, social and environmental goals. On average, public procurement spending accounts for 13 percent of countries' total gross domestic product (GDP), with virtually no differences between country income level groups (Bosio and Djankov, 2020).

The public sector demand for food is significant; and can therefore provide an important market for smallholders, who constitute the majority of the workforce in rural areas in developing countries and rely on agriculture for their livelihoods. Public food procurement encompasses food procured for food assistance programmes, schools, prisons, hospitals, etc. This chapter focuses specifically on the procurement of food for school feeding as a case study that can be applied also to other types of public food procurement. Over the past two decades, national governments in low- and middle-income countries and international agencies have shown interest in the potential for explicitly linking agricultural development with the market for school feeding, through what has become known as "home-grown" school feeding (HGSF) approaches (Espejo and Galliano, 2009; WFP, 2013). In HGSF, the demand for food and services from school feeding is channelled to smallholders and other supply chain actors with the explicit intent of stimulating agricultural productivity, increasing incomes and reducing food insecurity. The seemingly simple idea behind this framing is to create a win-win situation for schoolchildren and commercial farmers (Sumberg and Sabates-Wheeler, 2011). As school feeding programmes require a regular supply of food throughout the year, they can provide a predictable demand for food of a known quantity, quality and price.

In practice, the pathways linking investments in school feeding to welfare impacts in smallholder farmers are complex, including both direct and indirect effects. Moreover,

as supply and value chains for school meals operate in multiple, context-specific configurations, the effects on chain actors, including producers, caterers and other processors, depend on a range of design and implementation characteristics that are not yet fully understood (Gelli *et al.*, 2012). There is little rigorous empirical evidence of the effects on the participation of smallholders in the market of school feeding programmes (Bundy *et al.*, 2009; Sumberg and Sabates-Wheeler, 2011).

This chapter introduces a high-level multisectoral framework for school feeding to illustrate how school food procurement can be leveraged to broaden the benefits of programmes that already span social protection, nutrition and education, to also include agriculture and community development. The chapter begins with an overview of the general programme theory for school feeding as a multisectoral strategy with objectives related to social protection, education, health, nutrition and agriculture. This is followed by the application of the programme theory to schematic design and implementation configurations based on three examples of implementation in the real world. A following section discusses the main implications and potential trade-offs between the different objectives of school food procurement and highlights research gaps. The last section contains concluding remarks.

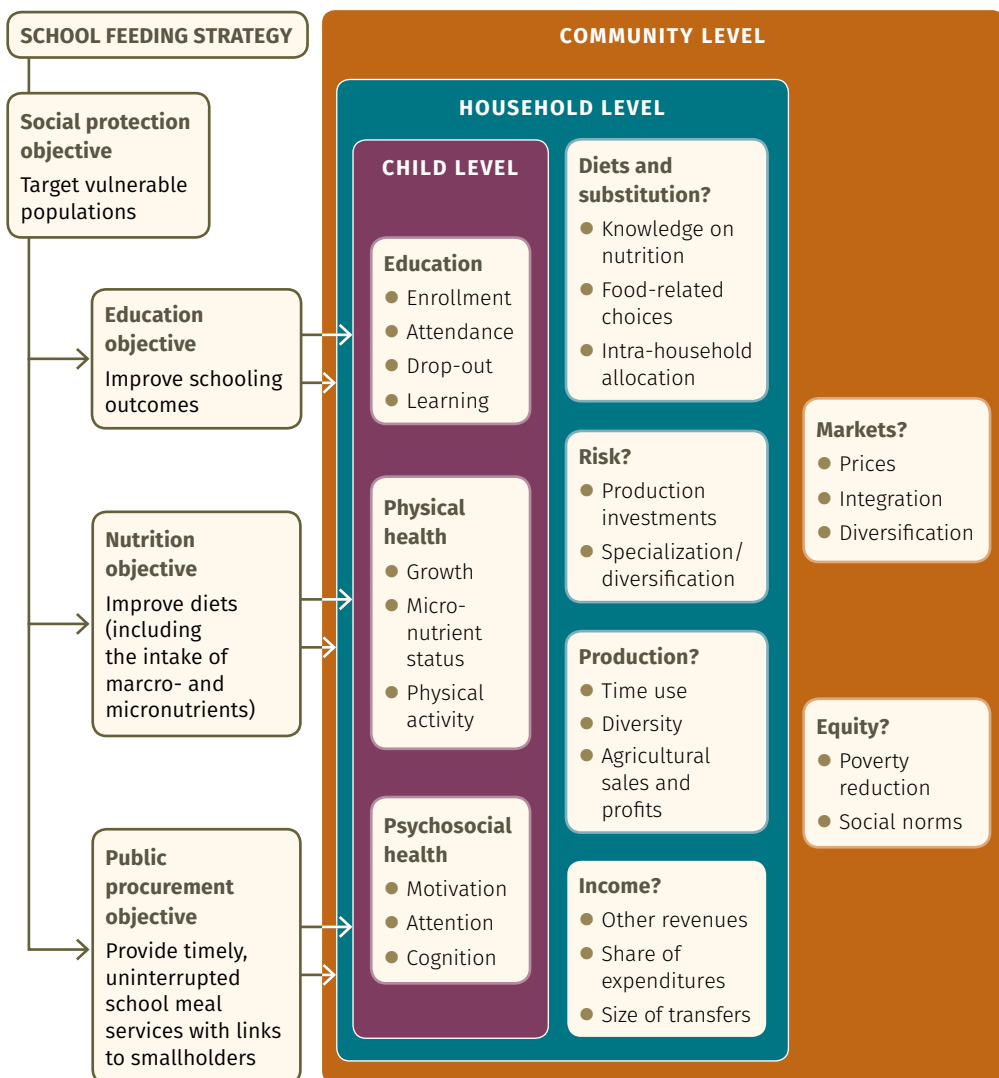
4.2 School feeding as a multisectoral strategy

4.2.1 Framing school feeding programmes as multisectoral strategies

Recent reviews suggest a framing of school feeding programmes as multisectoral strategies with goals across social protection, education, health and nutrition, and potentially agriculture and other social development domains (Alderman and Bundy, 2011; Drake *et al.*, 2017; Watkins *et al.*, 2017). Figure 1 presents, in very broad terms, a simplified ecological framework linking the objectives across the different sectors to child, household and community-level effects of school feeding. The evidence of the effects at the level of children is fairly well established and underpins the three main objectives related to social protection, education and nutrition. These effects depend on a range of household level behaviours and are also mediated by community-level factors. The underlying public procurement objective provides the

entry point targeting household and community level agriculture, thus providing a potential bridge linking effects across the domains of education, nutrition, health and agriculture, as described in the following sections.

Figure 1 **Stylized ecological framework of school feeding as a multisectoral strategy including potential effects at the levels of children, households and communities**



Source: authors' elaboration.

4.2.2 Effects of school feeding on education, diets, health and nutrition at the level of children

Rigorous evidence suggests that school feeding can affect children's education by increasing school participation (enrolment, attendance) and learning. It can also affect children's physical and psychosocial health by providing key foods and nutrients to complement diets. Improving physical and psychosocial health is also likely to improve schooling outcomes. The evidence base for the effects on education and nutrition of school feeding is largely well established and highlights that most of these benefits accrue to more disadvantaged children (Kristjansson *et al.*, 2015; Bundy *et al.*, 2009). This particular feature of the redistributive effects of school feeding interventions can be highlighted by framing the social protection objective at a higher level than the education, health and nutrition, and agriculture goals (Alderman and Bundy, 2011).

The quantity, quality and diversity of the food consumed by children plays a major role in determining their nutritional status, and provides the most direct link between school feeding, diets, health and nutrition outcomes. School feeding programmes are designed to supplement the food provided at home and improve schoolchildren's net food intake by providing energy, micronutrients and macronutrients. School food can, in principle, be shared by children with other household members or can substitute (at least partly) for food normally consumed in the home. This is obvious, and in most cases planned, for take-home-ration interventions, where children take home a quantity of food on a regular basis, some of which is consumed by other family members or sold. This also applies to any school feeding programme, because households may in principle use the school meal as a substitute for food normally consumed at home and spend the monetary equivalent otherwise. If the children receiving school meals are malnourished, substitution within the household may reduce the health and nutrition benefits of those meals.

However, evidence generally indicates that most of the calories provided by school feeding programmes "stick" with their beneficiaries (Jacoby, 2002). Interestingly, however, evaluations of fortified biscuits in Bangladesh and Indonesia found that gains in nutritional intake were not limited to the children actually receiving the biscuits at school (Ahmed, 2004). The two studies found significant evidence that schoolchildren shared the biscuits with younger siblings at home. Recent randomized controlled trials

in Burkina Faso also found that take-home ration programmes led to the improved nutritional status of younger siblings in beneficiary households (Kazianga, de Walque and Alderman, 2014). These studies provide emerging evidence of a spillover effect and a window of opportunity that can be planned for to affect children during a critical development stage, when nutritional interventions have the strongest impact.

The effects of school feeding at the level of children depend on a series of decisions taken at the level of households, such as the substitution of normally consumed foods (which affects both children's overall diets and the potential additional demand for food on the market). These decisions may be influenced by complementary interventions, including nutrition education or behaviour change communication (BCC) to address knowledge gaps related to nutrition and health, for example. A recent example involving the use of school meals as platforms for diet-related BCC was rigorously tested in community-based preschools in Malawi. A cluster randomized controlled trial entitled Nutrition Embedded Evaluation Programme - Impact Evaluation (Gelli *et al.*, 2017) found that meals provided in community-owned preschool centres for early childhood development in Malawi were an effective platform for BCC to boost the diversity of food production and improve maternal knowledge and nutrition practices at the household level, and thereby improve the diets of preschool children and promote the linear growth of their younger siblings (Gelli *et al.*, 2018). The study highlights the potential of preschool meals as platforms to promote behaviour change at the levels of households and broader communities; whether this is also an effective strategy in primary schools remains an important question for further research.

4.2.3 Smallholder agriculture

In addition to pursuing objectives at the level of children, public procurement activities may aim to influence decisions at the level of households, including decisions relating to agricultural investments, production and marketing (Masset and Gelli, 2013). Unlike for education, health and nutrition effects, the evidence base for effects on agriculture-related changes is very thin, and links between school feeding and these decisions are to be considered aspirational. Based on the theoretical model presented in Masset and Gelli (2013), the potential impact of school feeding on smallholders depends first on the extent to which the demand for school food is additional on the market.

The size of the shift in demand depends on the extent of household substitution effects described in Section 2.2., as well as on the size of the market involved. One extreme case is that of full substitution, whereby school food entirely substitutes for food normally consumed at home. In this case, there is no increase in demand, and school feeding does not affect production volumes or prices. Nevertheless, the intervention may have a distributional effect, if the food is purchased from smallholders rather than from large farmers; in this case, smallholders' revenues increase, while those of large farmers decrease.

Full substitution is, however, unlikely to occur and the largest substitution is likely to arise when households interpret school food as a cash transfer (Jacoby, 2002). In this theoretical case, the income equivalent of the transfer is spent in accordance with income elasticities. Evidence shows that households rarely interpret food transfers as cash transfers and that recipient households tend to attach some preference to the food received and thus consume food beyond what the income elasticities would suggest. Actual shifts in demand are thus likely to be situated somewhere in between these extremes.

The impacts of school feeding interventions on agricultural output and prices depend on the slopes of the demand and supply functions, or demand and supply elasticities (Caldes, 2004; Masset and Gelli, 2013). Supply elasticity depends on three main factors, including crop yield risk, market failures and the rigidity of fixed factors. If farmers are unable to meet the additional demand for food (i.e. supply elasticity is low), most of the effect of the intervention will take the form of a rise in prices, with little impact on output. From a welfare perspective, producer surplus increases (farmers win), while consumer surplus may decrease (consumers may lose). Meanwhile, if farmers are able to meet the additional demand for food by using existing inputs in a more productive manner or by using more inputs (i.e. supply elasticity is high), then the intervention would have a large impact on output and a negligible impact on prices. From a welfare perspective, both producer surplus and consumer surplus increase (both farmers and consumers win). Therefore, for school feeding programmes to benefit both producers and consumers, high supply elasticity is required. The distributional effects of such programmes also depend on the type of farmers (e.g. large or small) who are able to respond to the demand for school food.

In practice, school food interventions are likely to impact both prices and output. The impact on prices depends on the size of the market and the level of market integration. In principle, if markets are efficient, prices for the same food item should be the same across locations (after adjustment for transport costs). However, the literature on market integration suggests that transport costs may create a wedge between prices at different locations, which would allow prices in different locations to vary in an uncorrelated way within a band. Indeed, if transport costs for an isolated area are very high, food prices in that area may increase up to a point where they make transport worthwhile, in other words where prices are equalized. The impact of a price rise resulting from a school feeding intervention on consumers is more ambiguous.

Depending on the extent of the increase in prices, some households may see their welfare reduced as a result of the intervention. The programme may also have a distributional impact if it shifts demand from large to small farmers. In addition, the programme may potentially reduce household risk by offering a reliable demand and stable prices, thus stabilizing small farmers' incomes. Risk reduction has a number of positive effects, including increasing expected utility, reducing the use of inefficient coping strategies (such as the use of low-yielding crops and precautionary saving) and encouraging productive investment. However, yield risk may well dominate price risk. In addition, it may take a long time before price effects change farmers' expectations. The impact of school food programmes on risk-related behaviour is therefore unlikely to be large. In addition to the effects on producers and consumers, school feeding programmes may have wider effects on the local economy by generating employment. This is described in some of the case studies presented in Section 3.

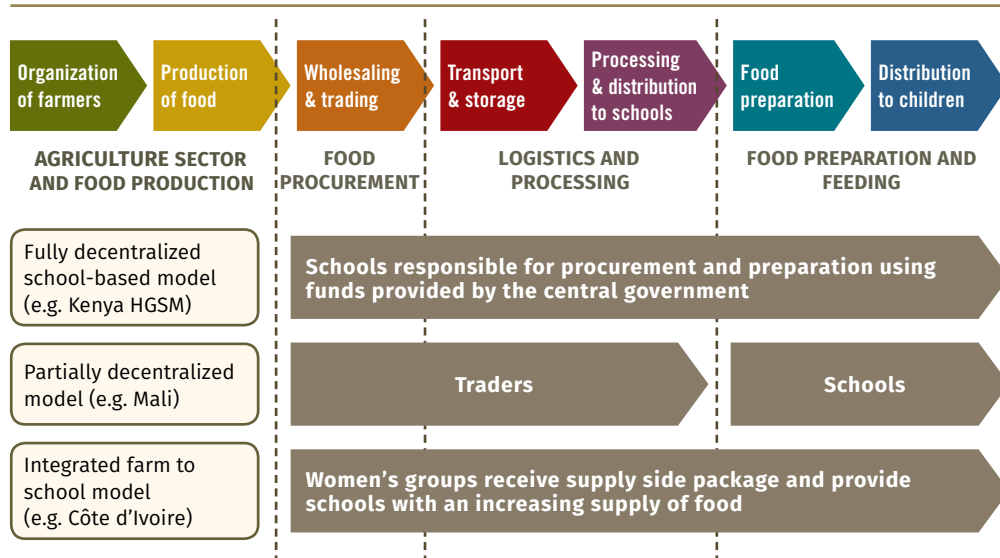
Finally, school feeding programmes may be used to direct farmers' production decisions towards the use of highly nutritional and/or climate-resistant crops, which potentially boosts the diversity of food production. For instance, the introduction of neglected or underutilized species (e.g. cocoyam, orange-fleshed sweet potato, teff or pigeon peas) in school menus could shift production decisions towards these crops, which are highly nutritious and more climate-resistant than the crops traditionally consumed and grown by smallholders for school food procurement in developing countries. In addition, this strategy has the potential to improve the diversity of the diets of farming households given the documented linkages between farm production diversity and farm household dietary diversity (Sibhatu, Krishna and Qaim, 2015).

4.3 School feeding implementation models¹

4.3.1 Supply chain models for school feeding

The ability of school feeding programmes to deliver the effects depicted in Figure 1 critically depends on appropriate programme design and implementation. Programmes often face challenges related to financing, the flow of information, supervision, monitoring, quality assurance and the lack of trust between schools and farmers. In practice, school feeding programmes exhibit different, context-specific implementation models or configurations. Different approaches may even coexist within the same country, if, for example, implementation is managed by decentralized institutions (e.g. states in Brazil or India), or where agencies such as WFP complement national programmes (e.g. in Mali and Kenya). Figure 2 shows a set of stylized supply chain models for school feeding that link food production to food distribution in schools.

Figure 2 Stylized supply chain models for school feeding programmes



Source: authors' elaboration.

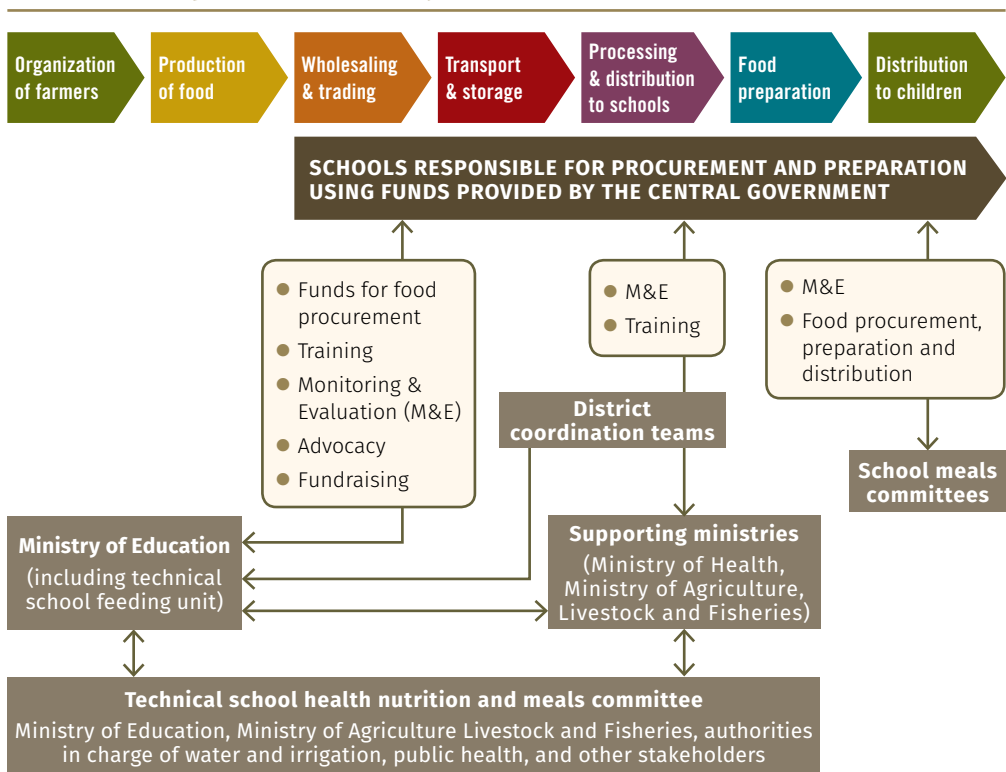
¹ This section builds on Gelli *et al.*, 2012.

Sections 3.2, 3.3 and 3.4 explore some of the different design and implementation features of these models and the trade-offs that may arise in practice. The sections present three stylized examples of implementation models that are commonly implemented at scale across the world. The case studies describe programme activities at each step of the supply chains.

4.3.2 Fully decentralized model

In this model, based on the Home-Grown School Meal (HGSM) programme in Kenya, food procurement is undertaken at the school level and coordinated by the members of school meals committees (SMCs), including teachers and community members (see Figure 3) (see Chapter 33 for additional analysis of the Kenyan experience).

Figure 3 **Stylised fully decentralized model scenario of school feeding as implemented in Kenya**



Source: authors' elaboration.

In the case of the HGSM programme in Kenya, the food procurement process replicates the process used for the procurement of educational material: cash is transferred directly from the national Ministry of Education to school accounts using existing school-based management systems on a biannual basis. Schools are informed about how much money is credited into their accounts for school food; the procurement of the food is then coordinated by the SMCs through competitive bidding by registered/licensed local farmers or suppliers. Preference is given to suppliers belonging to vulnerable groups such as HIV-positive individuals or women (e.g. widows) – although it is not clear how this preference is implemented. Procurement is guided by circulars from the National Treasury (the Kenyan ministry of finance). The frequency of procurement is influenced by the availability of storage facilities and of food. The construction of storage facilities is considered the responsibility of parents and the wider community.

Programme activities along the schematic supply chain under full decentralization include:

Organization of farmers

- No activities aimed at organizing farmers.

Production capacity

- No activities aimed at increasing farmers' production capacity.

Wholesaling and trading

- Commodity prices used for budgeting purposes are set on the basis of government guidelines, price surveys and gross margins for produce as set by agricultural experts.
- Suppliers must have a trading license, a bank account, a registration certificate, three years of trading experience and permanent premises.
- Procurement follows a simple tendering system: publication of the commodity description and supply criteria, submission of tenders, purchase and payment by cheque.
- Procurement mainly concerns maize, common beans, pigeon peas, green grams, soybeans and rice.

- Purchase lists are defined by SMCs, whose members visit local markets to collect product samples.
- The activities of SMCs are guided by manuals of the Ministry of Education.
- The procurement process replicates the procurement process for educational material.
- Managing the funds in the dedicated bank account for school feeding requires three signatures.
- Procurement occurs immediately after schools receive the funds.
- Procurement is undertaken at the level of individual schools by SMCs.

Transport and storage

- Successful suppliers are responsible for the delivery of commodities to schools; no additional costs are charged for transport and delivery.
- Storage facilities in schools are assumed to be of adequate quality to store a three-month supply of food.

Processing and distribution to schools

- The quality of the food is inspected upon its arrival in schools, in the presence of the supplier. Receipts are also exchanged at this point.

Food preparation

- In the Kenyan case, many schools were previously supported by international school feeding programmes, and in theory have storage facilities and kitchens that meet the relevant standards.
- Cooks are hired or provided on a voluntary basis by the community.

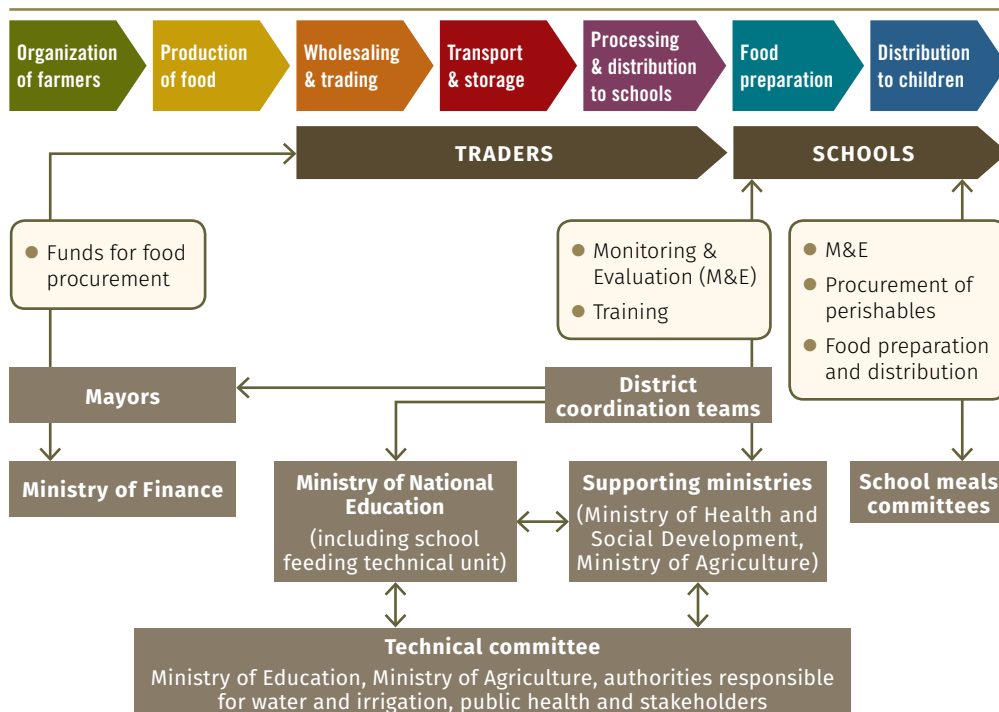
Distribution to children

- Children receive either a meal at midday or a mid-morning snack of porridge.

4.3.3 Partial decentralization

An example of this model is the national HGSP programme in Mali, where children receive lunch at school at noon. The food consists mainly of staples, alongside some vegetables and fruits. School enrolment figures are collected by district education officers through SMCs and passed to mayors with estimates of food requirements. The SMCs operate at the level of villages and are responsible for the day-to-day management of the programme. They are subdivided into subcommittees and include a stock manager, a representative of the cooks and a treasurer. Mayors, who receive a budget from the Ministry of the Economy and Finance based on food requirements, issue tenders and provide credit advances to certified providers (traders) to procure staple foods (cereals and legumes). The providers purchase the staple foods in markets or from smallholders and deliver it to the schools. Perishables are purchased by SMCs at the village level on a weekly basis or donated by communities.

Figure 4 **Stylized partially decentralized model scenario of school feeding as implemented in Mali**



Source: authors' elaboration.

Programme activities along the stylized supply chain under partial decentralization include:

Organization of farmers

- No activities aimed at organizing farmers.

Production capacity

- No activities aimed at increasing farmers' production capacity.

Wholesaling and trading

- Commodity prices used for budgeting purposes are set as an average of prices for selected regions and aligned with figures provided by the National Cereals and Produce Board.
- Cash is transferred from the Ministry of Finance to mayors biannually, based on the number of children; procurement is expected to be undertaken when prices are at their lowest.
- Suppliers (traders) must be certified service providers.
- Procurement follows a simple tendering system: publication of the commodity description and supply criteria, submission of tenders, purchase and payment via credit advance.
- Procurement mainly concerns maize, millet and beans.
- Food quantities for tenders are established annually by mayors and district education officials based on school enrolment figures.
- Purchasing prices are determined based on government guidelines.

Transport and storage

- Successful suppliers are responsible for the delivery of commodities to schools; no additional costs are charged for transport and delivery.
- Storage facilities in schools are assumed to be sufficient to store a three-month supply of food.

Processing and distribution to schools

- The quality of the food is inspected upon its arrival in schools, in the presence of the supplier.

Food preparation

- Many schools were previously supported by international school feeding programmes, and in theory have storage facilities and kitchens that meet the relevant standards.
- Cooks are hired or provided on a voluntary basis by the community.

Distribution to children

- Children receive a meal at midday.

4.3.4 Integrated farm-to-school model

An example of the integrated farm-to-school model is the HGSP programme in Côte d'Ivoire, where women's groups are mobilized to support the supply of foods through the school feeding programme. The women's groups are supported by the Government (through the *Direction nationale des cantines scolaires* [DNCS] or national directorate for school feeding) based on five-year cycles including capacity-building activities that aim to increase agricultural production. Women's groups supply increasing quantities of food for school feeding in targeted communities, beginning with 25 percent of cereal requirements in the first year, which gradually increases to 100 percent by year four. Any excess production beyond these requirements is sold on the market or to the suppliers of the national school feeding programme at a fixed price established by a central government board.

Programme activities along the stylized supply chain in farm-to-school models include:

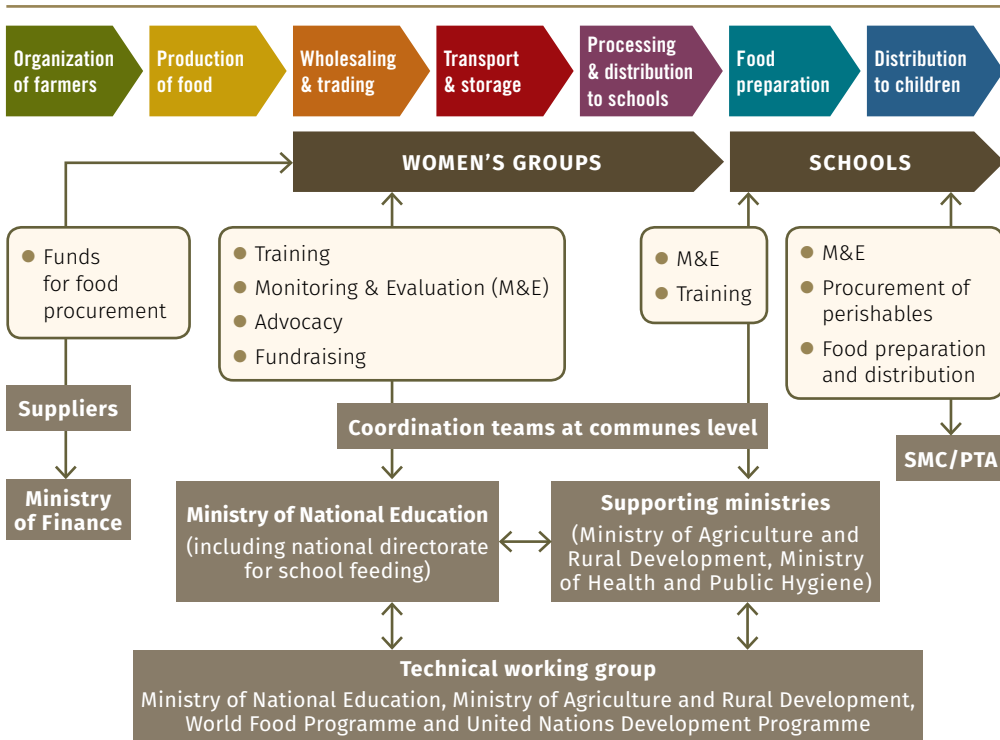
Organization of farmers

- Particular focus is given to how smallholder farmers will be organized around a school. The DNCS directly works with women's groups, from sensibilization to the creation of women's groups as legal entities.

Production capacity

- Particular focus is given to how farmers' production capacity will be increased. The DNCS works in close collaboration with the national agency providing support to rural development to ensure that women's groups' production capacity is enhanced. The women's groups receive technical agricultural support and training,

Figure 5 **Stylized integrated farm-to-school model of school feeding: Côte d’Ivoire**



Source: authors' elaboration.

with the objective of meeting an increasing portion of school food requirements: 25 percent in year 1, 50 percent in year 2, 75 percent in year 3 and 100 percent in year 4 and beyond. The women’s groups will sell their surplus production on free markets or to the suppliers of the school food programme. The DNCS is committed to purchasing any remaining produce from women’s groups at a fixed price, so that price fluctuations on the free market do not affect these groups.

Wholesaling and trading

- Food quantity requirements are estimated on an annual basis by SMCs and education officers operating at the level of communities, based on school enrolment figures.
- Women’s groups supply food directly to the schools, in the communes where these groups are fully functional. Any remaining school food needs are met by the DNCS.

- Food prices are set by a central market board, a national market regulation entity following governmental guidelines.
- By law suppliers (traders) for remaining commodity needs must be certified service providers.
- The DNCS works directly with traders throughout the procurement process; subsequent purchase and direct payment is conducted by the Ministry of the Economy and Finances.

Transport and storage

- The women's groups are responsible for the delivery of food to the schools.
- For food purchased by DNCS from other suppliers, transport service providers are contracted at the national level; they are responsible for delivering food to the schools.
- Storage facilities at schools are generally of adequate quality and size to store a three-month supply of food. Storage facilities are also set up by women's groups to store their excess production in the vicinity of schools.

Processing and distribution to schools

- The quality of the food is inspected upon its arrival at schools.

Food preparation

- In theory, many schools have storage facilities and kitchens that meet the relevant standards.
- The nutrition unit under the DNCS is responsible for the issuing of standards for the nutritional value of the meals provided in schools. The DNCS provides the SMCs with nutritional guidelines and tools that emphasize the importance of good nutrition, promote the consumption of local foods that are rich in micronutrients, and take into account dietary cultures and practices.
- Cooks are provided on a voluntary and rotational basis by the community.

Distribution to children

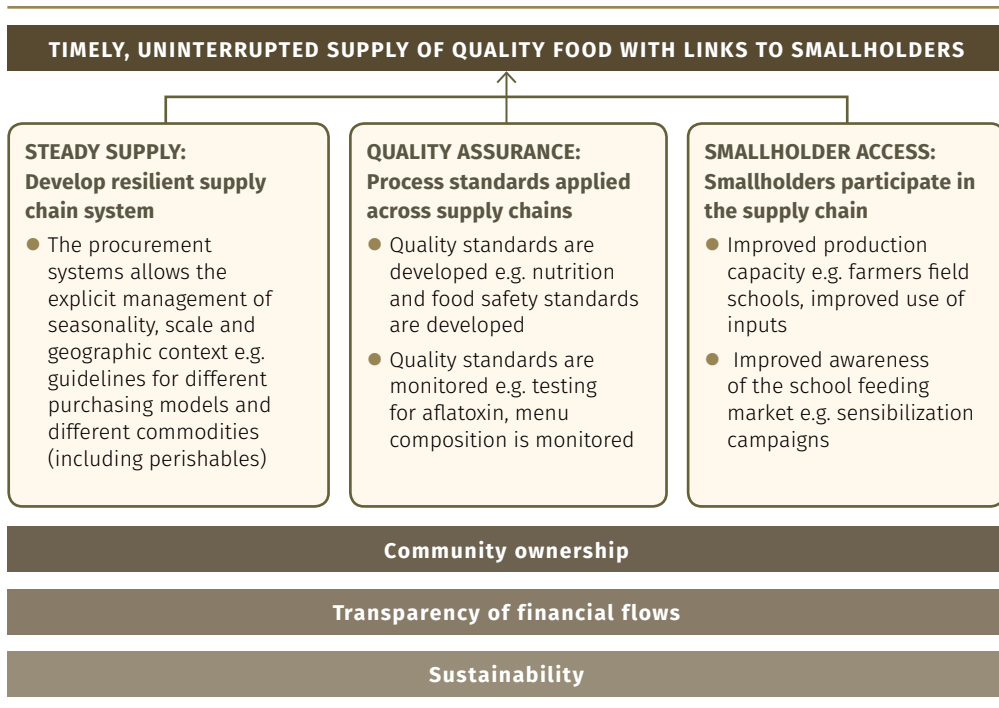
- Children receive a meal at midday.

4.4 Discussion

4.4.1 School food procurement and attaining the multiple objectives of school feeding

Attaining the potential multiple benefits of school feeding programmes (see Figure 1) depends to a large degree on the specifics of the school feeding service delivery, including the details of the design and implementation of the food procurement. Regardless of the specific implementation model, the overarching goal of any food procurement system for school food is to ensure the timely and stable supply of quality food (see Figure 6). This is a process-oriented goal that generally encompasses two dimensions: ensuring a steady supply of adequate food and providing quality assurance at each step of the supply chain. A specific policy goal may introduce a third dimension: links with smallholder farmers. In practice, this third dimension is not always included explicitly.

Figure 6 **Schematic example of stylized procurement objectives for school feeding programmes**



The first objective, i.e. ensuring a steady supply, refers to the development of a resilient supply chain system for the provision of the different foods required for the school food service, allowing for the explicit management of scale, seasonality, and the geographic and cultural context. This dimension is linked to the financing of the school feeding programme and is generally driven by cost considerations.

The objective of quality assurance is to provide process standards that underpin quality assurance processes in the food supply chains involved, including developing and applying nutrition and food safety standards to monitor the food service delivery. These are support-related processes that are not always financed by the same budget as food procurement; as such, they may be overlooked during the budgeting process.

Finally, the additional objective of smallholder access may be included if there is a policy goal to strengthen the participation of smallholders in the supply chain for school food. This would include linking with a) activities that improve production and post-harvest capacities and b) additional activities including information campaigns to increase the awareness of the market opportunity from the school food market and strengthen relationships between schools or other institutions in charge of procurement and farmers (e.g. through the development of contracts).

Additional objectives cutting across various dimensions may be added to support the overall procurement goal of the uninterrupted delivery of safe food, including for example:

- community ownership and participation in the management of the programme;
- transparency of financial flows at all levels; and
- sustainability of the programme.

4.4.2 Food procurement and smallholder participation across different implementation models

Exploring the opportunities and trade-offs of different procurement models and their links to smallholders remains an important challenge for policymakers. Indeed, evidence on the costs and benefits of different models or their implications in terms of food types (staple foods, perishables), prices, timeliness, seasonality and scale, is

scarce. Existing comparisons of models therefore focus on design features and are largely descriptive.

Examples of the specific objectives and activities related to food procurement across the three case-study implementation models are summarized in Table 1. Across the three models, a common set of capacity-strengthening activities are required to increase pro-smallholder engagement, including supply-side interventions focusing on farmer organizations or activities related to quality assurance to improve the cost-efficiency of the procurement process. An additional common need across models is the creation of mechanisms to improve the flow of information and coordination between actors (which requires the mapping of supply and demand actors).

4.5 Conclusions

This chapter describes the elements of a high-level multisectoral strategy for school feeding to illustrate the potential links between objectives related to social protection, education, health and nutrition on the one hand and agriculture on the other. While the existing evidence about the impacts of school feeding in terms of social protection, education, nutrition and health is relatively well-established, there remain important gaps in the evidence regarding the potential of school food procurement to promote agricultural and community development. An overview of a potential agenda for research on these issues concludes this chapter.

Improving programme design

School feeding programmes that aim to achieve objectives related to education, health and nutrition, agriculture and social protection must manage any potential trade-offs between these objectives. As such, it is critical that objectives are clearly defined (including differentiation between primary and secondary objectives) and the programme theory linking the different target groups, the programme activities and the impact pathways is clearly articulated. Clarifying the objectives is also critical in terms of defining programme activities within the context of an impact evaluation, and in particular for the identification of appropriate control groups (see also Chapter 21 on impact evaluations of HGSF programmes).

Table 1 Examples of potential objectives and activities for school food procurement

FULL DECENTRALIZATION		PARTIAL DECENTRALIZATION		INTEGRATED FARM-TO-SCHOOL MODEL	
GOALS AND OBJECTIVES	PROGRAMME FEATURES AND ACTIVITIES	GOALS AND OBJECTIVES	PROGRAMME FEATURES AND ACTIVITIES	GOALS AND OBJECTIVES	PROGRAMME FEATURES AND ACTIVITIES
<p>Ensure that food is nutritious and of high quality.</p> <p>Smallholder farmers are able to meet the demand from school feeding programmes.</p> <p>The procurement model allows for stability and a frequency of procurement.</p> <p>The procurement system allows for the direct purchasing from farmers in a sustainable way, whereby both children's and farmers' interests are optimally served.</p>	<p>Procurement frequency is assured.</p> <p>Delivery schedules are flexible.</p> <p>The capacities of smallholder farmers to comply with the requirements of the procurement system are reinforced.</p> <p>Farmers receive assistance to form associations.</p> <p>Link with partners to support farmers build their capacity.</p> <p>Information is made widely available to farmers.</p> <p>Community members are the target of sensibilization campaigns.</p> <p>Procurement officers are sensitized to become more pro-smallholder (including SMCs)</p>	<p>Timely delivery of safe/ high quality foods, cost-effectiveness.</p> <p>The feasibility of procuring food from smallholder farmers is improved by mayors (directly or indirectly).</p> <p>Strengthen the capacities of farmer organizations by providing information, improving storage capacities, providing credit, etc.</p> <p>Increase the procurement of perishables in support of smallholder farmers and children's nutrition.</p>	<p>Source a higher proportion of procurement from farmer organizations (via traders or directly).</p> <p>Provide more information to stakeholders in the supply chain.</p> <p>Increase funding to schools for the procurement of perishables.</p> <p>Map supply-side interventions in the area and take steps to link them to the programme.</p> <p>Review procurement procedures and make them more appropriate to smallholder farmers and farmer organizations (e.g. securities, documents, registrations, etc.).</p> <p>Review the timing of procurement in light of storage capacities, seasonality, etc.</p>	<p>Women's groups supply food to schools.</p> <p>Shorten storage periods for school food.</p> <p>Minimize transaction costs (most food comes from the farm gate to the school).</p>	<p>Purchase produce at a fixed price.</p> <p>Women are free to sell excess production on markets.</p> <p>Quantities supplied to schools by women are flexible.</p> <p>Capacity building – community and women empowerment.</p> <p>Provide agricultural support.</p>

School food procurement

Regardless of the food procurement model, the primary objective of school food procurement is the timely and stable supply of quality food for school feeding. Efforts to help smallholder farmers respond to the demand from the school feeding market are framed under the objective of ensuring a safe and stable supply. Further research is needed to explore the trade-offs within different pro-smallholder procurement models, analysing data relating to their costs and impacts, including in terms of market integration, scale, timeliness, prices, food types (including perishables) and seasonality.

The issue of decentralization highlights the inherent tension between procurement processes' priorities of transparency, accountability and value for money on the one hand, and the agricultural objective to prioritize procurement from smallholders on the other. These competing but not incompatible priorities require careful balancing to ensure stakeholders' buy-in into the programme and reap the intended financial and social returns to investment. How to balance these priorities remains an important issue for policymakers.

In addition to research into tools that may help policymakers manage trade-offs and optimize their decisions, there is a need for more detailed case studies of the various procurement models that provide information as to how programmes were set up and evolved over time, documenting good practices and lessons learned. How middle- and high-income countries implement and finance school food procurement is another important aspect that should be explored in further case studies. This aspect is particularly relevant for countries that are transitioning from externally driven programmes to nationally owned programmes; such countries need information regarding the characteristics of government and specific agro-environmental, economic and institutional contexts that make such transitions efficient.

Economic evaluation

Clarifying the specifics of the programme activities will also enable a more accurate estimation of the full implementation costs for the different activities and actors across the supply chains involved. It is particularly important here to capture all hidden costs, including those of contributions made by communities, which are often substantial but have until recently been overlooked.

A standard cost and impact framework (including standardized indicators) for the different implementation models would improve the comparability of cost and cost-effectiveness estimations. As school feeding programmes potentially have simultaneous impacts across multiple domains, an important challenge is how to aggregate these effects in a meaningful way. This is particularly important when comparing the cost-effectiveness of school feeding to that of other interventions. A particular challenge related to the aggregation of the impacts of school feeding stems from the fact that it is not easy to aggregate the value of transfers with that of other effects. Another particular challenge for aggregation is how to quantify the weight accorded by society to consumption by the poor, relative to that by the average citizen.

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5 HOME-GROWN SCHOOL FEEDING: PROMOTING THE DIVERSIFICATION OF LOCAL PRODUCTION SYSTEMS THROUGH NUTRITION-SENSITIVE DEMAND FOR NEGLECTED AND UNDERUTILIZED SPECIES

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ABSTRACT

This chapter maps the processes and pathways through which home-grown school feeding (HGSF) can increase localized, nutrition-sensitive demand for agricultural commodities. The chapter analyses the linkages in the HGSF model between agriculture, nutrition and agrobiodiversity, with a specific focus on neglected and underutilized species (NUS) and micronutrient-rich crops. By generating a structured demand, HGSF procurement creates mediated markets that are explicitly shaped by considerations related to geographic localization and the diversity of the commodity basket. If these mediated markets are designed well and function effectively, they can help make food networks more resilient, sustainable and nutrition-sensitive. The chapter presents evidence from Ghana and Nepal to illustrate this. It analyses the structural, behavioural, ecological and cultural challenges and constraints of promoting local production systems in specific agroecological and market contexts. The chapter highlights the need for HGSF interventions to be strategically integrated with other national agricultural support efforts and interventions related to nutrition-sensitive agriculture, especially those related to agrobiodiversity and climate-smart agriculture.

5.1 Introduction

This chapter discusses the concept and design of home-grown school feeding (HGSF) with a specific focus on agrobiodiversity and nutrition-sensitive agriculture. The discussion includes a conceptual exposition of the different pathways and processes through which HGSF interventions can affect functional agrobiodiversity in terms of nutrition. This is followed by a discussion on production diversity, with illustrative evidence from Ghana and Nepal. The issue of localization in the context of HGSF is also briefly examined. Key challenges and constraints are then analysed in some detail. Finally, the conclusion looks at issues related to evidence, research gaps and next steps.

5.2 Home-grown school feeding

The concept of HGSF was launched by the New Partnership for Africa's Development of the African Union in 2003 as a component of the Comprehensive Africa Agriculture Development Programme (Food and Agriculture Organization of the United Nations [FAO] and World Food Programme [WFP], 2018). There is no precise figure for the number of HGSF programmes that are implemented globally. According to some estimates, at least 47 countries in sub-Saharan Africa (SSA) were implementing school feeding programmes in 2014, of which at least 20 were HGSF or similar models (Singh and Fernandes, 2018). Globally, 46 countries have HGSF programmes that are supported by WFP (WFP, 2021). While there is significant evidence on the impact of HGSF in terms of nutrition and education, evidence on agricultural outcomes that are directly related to HGSF is relatively limited (Drake *et al.*, 2017). However, there is increasing recognition that HGSF can change dietary habits at the household level and affect smallholder production and markets (Drake *et al.*, 2017).

While the scope and content of HGSF can vary depending on the context and specific objectives, HGSF has recently been defined as “a school feeding model that is designed to provide children in schools with safe, diverse and nutritious food, sourced locally from smallholders” (FAO and WFP, 2018). Key principles of HGSF include local food procurement, smallholder engagement, the provision of nutritious food, dietary diversity and regularity in meal provision. The definition of local, as well as the scale and type of farmer engagement, varies significantly depending on the country

context. Conceptually, in terms of farmer engagement, HGSF procurement creates mediated markets through structured demand. This demand is explicitly shaped by considerations of geographic localization and a diversified commodity basket that is based on menus reflecting local nutrition needs and agricultural production (Conway *et al.*, 2017). If these mediated markets are designed well and function effectively, they can help make food networks more resilient, sustainable and nutrition-sensitive.

While HGSF can improve farm incomes by providing a predictable market outlet, the main agricultural component should focus on promoting nutrition-sensitive agriculture through the localized engagement of small farm systems. Small farm systems are reservoirs of agrobiodiversity, associated indigenous knowledge and primary supplies of essential micronutrients (Heywood, 2013; Herrero *et al.*, 2017). In most countries in Asia and Africa, agriculture is dominated by small landholdings; it is estimated that 85 percent of family farms in SSA are smallholdings with a farm size of less than 2 hectares (Bélières *et al.*, 2013), and in most cases of less than 1 hectare (Rapsomanikis, 2015). Given that school menus focusing on nutrition form the basis of food procurement contracts, HGSF has the unique potential, as a national programme, to contribute towards the diversity of agricultural production by engaging small farmers.

5.3 HGSF meal design: concept and methods

The method used to develop school meals critically determines the strength of local agriculture linkages. Indeed, the characteristics of the school feeding commodity basket guide the nature and extent of the impact of HGSF on agricultural diversity. There is no single standardized method of developing school feeding menus in HGSF models. In addition, the methods have evolved since HGSF's first applications in Africa. Indeed, the focus is increasingly on neglected and underutilized species (NUS) and specific micronutrients. This section briefly discusses the conceptual parameters of designing meals. Meal sets (one meal set consists of six meals – one for each school day of the week) are designed separately for different regions, most often based on administrative subdivisions such as districts, counties or states, and agroecological zones. All meals are designed jointly by community representatives (including teachers, parents, farmers, etc.) based on menu development guidelines.

To ensure a certain degree of dietary diversity, meals include a minimum number of food groups (three to five). The food groups are determined based on national food-based dietary guidelines or other similar national guidelines and consultations with relevant government departments and independent country experts. A list of NUS crops with their respective nutritional properties serves as a point of reference for the inclusion of these crops in meals. The cost and total nutrient content of the dishes is evaluated using available tools and software (FAO and WFP, 2018).

Nutrient level targeting is usually based on recommended dietary allowances (RDA) set by FAO and the World Health Organization (WHO) for specific age groups and national food-based guidelines, if available. RDA represents the amount of a nutrient that ensures that the nutrient requirements of nearly all the population (97.5 percent) are met. In many cases, a national nutrition expert working group is set up to deliberate over and formulate nutrient targeting recommendations. Issues related to bioavailability are also addressed. A wide range of nutrients are considered in the process of planning meals, including carbohydrates, protein, calcium, fat, niacin, thiamine, riboflavin, iodine, vitamin A, vitamin C, zinc, iodine and iron. While nutrition targets for meal planning cover all major macro- and micronutrients, the focus nutrients can be country-specific, based on the public health status and priorities. At the global level, iron, vitamin A and iodine are considered especially important as their deficiencies, particularly among women and children, pose a significant public health burden (Allen *et al.*, 2009). From a public health perspective, other important micronutrients include zinc, folate, vitamin B12 and other B vitamins, vitamin C, vitamin D, calcium, selenium and fluoride (Allen *et al.*, 2009).

RDA targets for daily meals are based on national policies and guidelines. RDA targets can be the same for all nutrients or can differ between specific nutrients or nutrient groups.¹ For example, in Nepal, the nutrient target for a single meal is currently set at 30 percent of the RDAs for all nutrients (Nepal, Ministry of Education, Science and Technology, 2019). In Nigeria, RDA targets differ between nutrients: 30 percent for energy and fat, and 50 percent for protein, vitamin A, zinc, folate, vitamin C and iodine (Nigeria, National School Feeding Coordinating Unit, 2019). It is important to note that the actual nutrient quality of meals may differ significantly from national standards.²

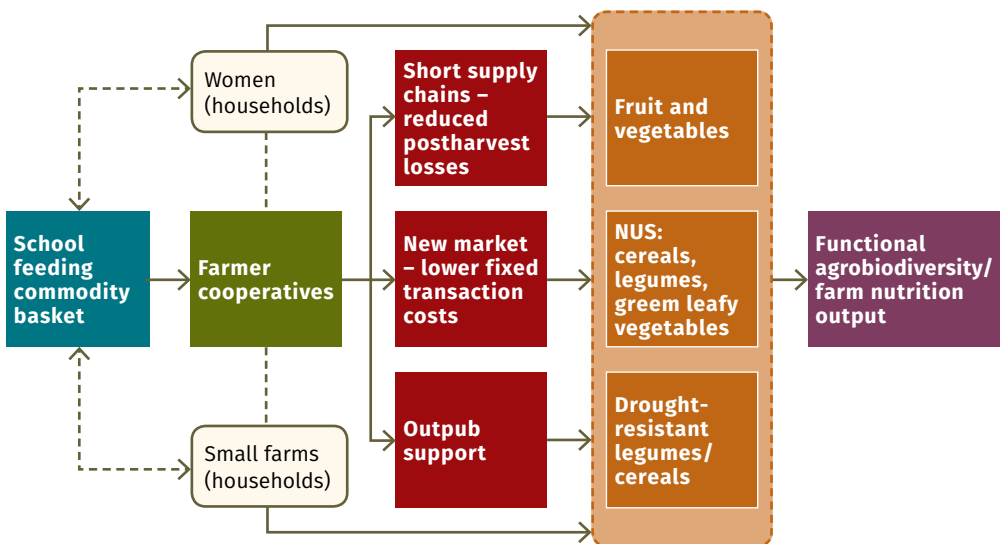
¹ For a summary of nutrient standards for some countries, see FAO, 2019.

² For a summary of the actual nutrient composition of school meals in low and middle-income countries, see Gelli *et al.*, 2015.

5.4 HGSF, nutrition, agriculture and agrobiodiversity – exploring pathways and processes

There are clear mechanisms and pathways through which HGSF drives nutrition and agrobiodiversity in local agricultural production systems. These mechanisms are primarily based on transfers of incentives and, to a lesser degree, of knowledge (see Chapters 11, 12 and 33 for examples and complementary analysis of these transfers). The incentives are market-based in the sense that the structured demand for certain commodities creates production incentives for a certain segment of farmers. Knowledge transfer relates to the increased awareness of the nutritious value of certain foods in households. Figure 1 illustrates the key interfaces and pathways through which HGSF may impact upon agrobiodiversity.

Figure 1 Pathways linking HGSF and agrobiodiversity



Source: author's elaboration.

The use of forward contracts between farmer cooperatives and nearby schools creates three distinct and interrelated pathways of market incentives for production systems:

- Short supply chains: short supply chains reduce the need for storage, thus minimizing the risk of postharvest losses and storage costs (Conway *et al.*, 2017). This is relevant for all foods, but especially for fruits and vegetables (including green leafy vegetables), which are most at risk of spoilage during storage and transportation. This element is of particular importance in low-income countries, where storage facilities for vegetables (except for roots and tubers) are generally very limited, and commercial processing is almost non-existent.
- Lower transaction costs: the structured demand of school feeding through forward contracts lowers fixed transaction cost (FTCs) such as the costs of finding a buyer, price negotiations, etc. The element of proportional transaction costs such as those of transport is covered in forward contract costing. While both components are equally important in market development, studies show that FTCs play a significant role in the decision-making process on market participation (Key, Sadoulet and Janvry, 2000). One study shows that a household's decision as to whether or not to participate in a market is largely influenced by FTCs, while the intensity of participation is more influenced by proportional transaction costs (Jagwe, Machethe and Ouma, 2010). This is particularly critical in the context of neglected crops.
- Output support: the forward contract acts as a clear output support mechanism with guaranteed prices for fixed quantities across a diverse range of commodities.

As far as agrobiodiversity pathways are concerned, the commodity basket for HGSP ideally focuses on three overlapping food categories i.e. fruits and vegetables, NUS and drought-resistant crops. These categories do not represent food groups but are based on nutritional and ecological characteristics. They are not mutually exclusive, and food items can fall in more than one category.

The market incentive pathways mentioned above affect the farm output commodity basket, which is a function of two elements here: demand and the procurement strategy. Demand is determined by the school feeding menu, which is designed to be nutritionally balanced and diverse and focuses on micronutrients. The procurement strategy focuses on local small farmers and women farmers by working with farmer cooperatives and groups. Both demand and the procurement strategy contribute

to the diversity of the commodity basket. While exact figures vary widely across regions, overall, the contribution of women and small farmers to agricultural output is especially large for non-staple food groups such as fruits, vegetables and legumes (Joshi, Joshi and BIRTHAL, 2006; Malapit and Quisumbing, 2015). In most contexts, women are the primary decision makers on the diversity of household consumption; they also tend to be more responsive to nutrition-sensitive production incentives (FAO, 1999; Malapit and Quisumbing, 2015; Rukmani *et al.*, 2019).

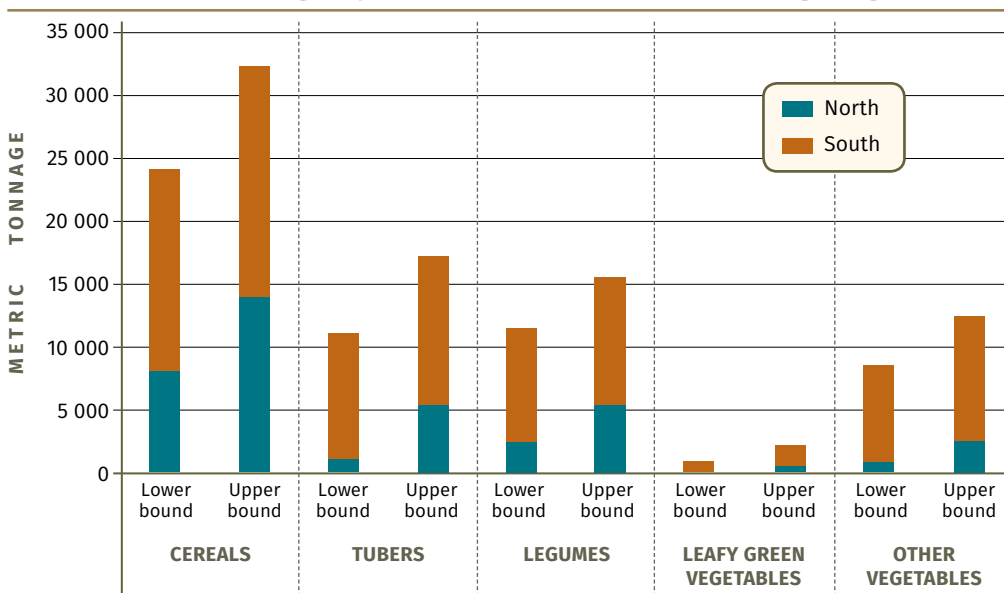
Finally, the incentives for a diverse commodity basket through the institutionalized mechanism of HGSP lead to better agrobiodiversity and farm nutrition output (the amount and diversity of nutrients produced by a farm). Over time, increased household consumption begins to boost the demand for food, in addition to the increased demand from school feeding. There is strong evidence to suggest that in low-income countries, production diversity is linked with increased dietary diversity, both at the national level and at the community level (Remans *et al.*, 2014). However, this link depends on the level of analysis and methodology, and may not hold true in many cases. At the micro level, a number of variables come into play, including agroecology, terrain, access to markets, proximity to market channels, proximity to international borders, etc., which all determine the type and level of interaction between local production and consumption.

Knowledge transfer pathways, shown in Figure 2 as dotted arrows, can lead to the incorporation of certain foods in household consumption. This can be due to an increased awareness of the nutrition value of specific foods resulting from the participation of parents or children in school feeding programmes. Parents, many of whom are farmers, participate in school feeding through school-based parent committees and may be involved in the supervision and design of school meals. Emerging evidence of programmes in Uganda, Nepal and Nigeria suggests that children influence dietary habits at home based on their school meal experiences, especially if school meals are accompanied by school-based nutrition education. This can eventually lead to incremental shifts in the cultural perception of certain undervalued nutritious foods, especially when complemented with school- and community-based nutrition education.

5.5 Promoting production diversity

HGSF interventions create a diverse aggregate structured demand for all key food groups. The scale and extent of the diversified demand is an important factor in driving production diversity. A simulated demand analysis from a study on the Ghana School Feeding Programme provides an idea about the scale of diversified demand by food group that can be generated by a HGSF intervention (Singh and Fernandes, 2018). This simulation was based on school feeding menus from 24 districts, which were extrapolated to compute national demand.³ As the figure below shows, the demand for all food groups is significant. Demand is highest for cereals (24 376 to 32 306 tonnes), followed by legumes (11 532 to 15 588 tonnes), tubers (11 235 to 17 279 tonnes) and other vegetables (8641 to 12 531 tonnes).

Figure 2 **HGSF demand simulation results for annual national demand for various food groups from the Ghana School Feeding Programme**



Source: Singh and Fernandes, 2018.

³ “North” includes Northern, Upper East and Upper West regions, while “South” includes the other seven regions of Ghana. The lower bound is the result of the extrapolation of the numbers for the menu from the region with the lowest quantity of each food group; the upper bound is the result of the extrapolation of the numbers for the menu from the region with the highest quantity of each food group.

In order to promote deliberate nutrition-sensitive agricultural diversity, HGSF models must be customized specifically towards promoting production diversity and supporting micronutrient-rich foods and NUS. Special attention should be paid to the stress tolerance qualities of the foods (certain local varieties and cultivars of millet, barley and rice have excellent drought tolerance and nutritional qualities). Promoting local agrobiodiversity is not limited to micronutrient-rich foods only; it also involves the promotion of local cultivars of major staples, such as rice. Besides these qualities, it is also important to consider the acceptability of food in terms of tastes and religious or cultural sensitivities.

By way of illustration, a summary of a school meal designed for the Jumla district of Nepal is presented in Table 1. Jumla lies in the high mountain region of Nepal, over 800 km north-west of the capital, Kathmandu. Ingredients are listed by weight in the first column, while the amounts for the main nutrients for each ingredient are listed in the following columns. The last row presents the percentage of the target nutrient quantity achieved for each specific nutrient. The target nutrient quality for HGSF in Nepal is 30 percent of the RDAs for all nutrients, as per the programme's design and objectives. This particular meal achieves or exceeds the target for almost all nutrients, and especially for vitamin A, zinc and iron, which are of particular concern in Nepal (Nepal, Ministry of Health and Population *et al.*, 2016).

The cereal staple in this meal is naked barley (*Hordeum vulgare* var. *nudum*). Naked barley is one of the oldest cultivated grains, and a source of complex carbohydrates (Gabrovská *et al.*, 2002; Arendt and Zannini, 2014). It is a NUS mountain crop and one of the eight mandate crops of a project of the United Nations Environmental Programme (UNEP) on mountain crop genetic diversity.⁴ Meanwhile, the primary source of vitamin A in this menu is lamb's quarters (*Chenopodium album*), known in Nepal as bethe leaves, which contributes 120 mcg of this vital nutrient to the meal. *Chenopodium album* is an underutilized plant that grows as a weed on farms; it is known to be drought-resistant and highly nutritious (Poonia and Upadhayay, 2015). The leaves are rich in essential amino acids and contain calcium and vitamin A in significant amounts (Poonia and Upadhayay, 2015). Another NUS included in this meal

⁴ The UNEP project is entitled *Integrating Traditional Crop Genetic Diversity into Technology: Using a Biodiversity Portfolio Approach to Buffer against Unpredictable Environmental Change in the Nepal Himalayas*.

is red horse gram (*Macrotyloma uniflorum*), an underutilized legume crop and a good example of a nutritious food that is culturally undervalued. It is primarily cultivated by poor and marginal farmers in India and Nepal and is considered a poor man's food (Aditya *et al.*, 2019). Horse gram is rich in iron and other macro- and micronutrients, and is known to have a high stress tolerance (Aditya *et al.*, 2019).

Table 1 Example of a HGSF meal for the Jumla District, Nepal

INGREDIENT	WEIGHT	TOTAL COST	CALCIUM	NIACIN	RIBOFLAVIN	THIAMINE	VITAMIN C	ENERGY	FAT	PROTEIN	VITAMIN A	ZINC	IRON
	g	NPR	mg	mg	mg	mg	mg	kcal	g	g	mcg	mg	mg
Naked barley, white (uwa)	80	4	20	0	0	0	0	276.8	1.28	10.08	0	1.2	3.28
Onion stalks (green)	10	0.7	5	0.03	0.003	0	1.7	4.1	0.02	0.09	4.95	0.099	0.743
Coriander leaves	5	0.25	9.2	0.04	0.003	0.0025	6.75	2.2	0.03	0.165	28.825	0.034	0.070999999
Taro tubers, raw	20	1.7	6.036	0.012	0.006	0.012	0.366	74.4	0.034	0.662	0	0.082	0.132
Sunflower oil	2	0.32	0	0	0	0	0	18	2	0	0	0	0
Peas (dry)	50	2	37.5	1.7	0.095	0.235	0	159.5	0.95	9.85	0	1.55	3.525
Bethe leaves	25	1.5	37.5	0.15	0.035	0.0025	8.75	7.5	0.1	0.925	120	0.245	1.05
Horse gram, red	10	0.8	0	0	0	0	0	32.2	0.085	2.111	0	0.271	0
Total	202	11.27	115.236	1.932	0.142	0.252	17.566	574.7	4.499	23.883	153.775	3.481	8.801
			55%	53%	52%	93%	177%	103%	32%	140%	102%	103%	164%

Source: Nepal, School Feeding Technical Assistance Project Office, email message to the author, 4 November 2019.

5.6 HGSF localization and agrobiodiversity

Localization is a well-discussed issue in food governance studies, and has also been thoroughly analysed in the context of HGSF (Hinrichs, 2003; Sumberg and Sabates-Wheeler, 2011). The nature and meaning of locality is variable; it can range from a country to a village community. The narrative of localization, which creates a local-global binary, was originally constructed as a form of resistance to the globalized capitalist agricultural system (Hinrichs, 2003; Tregear, 2011). This spatial dimension has evolved into a focus on local food systems with their specific relationships and processes and capability to improve local development practices (Barbera, 2014). The promotion of local, alternative food systems is increasingly seen as an economic and rural development strategy (Van der Ploeg *et al.*, 2000).

While the conceptual issues related to localization are important, localization is a functional aspect across two interrelated components in the context of promoting agrobiodiversity. One component is agroecology, which is inherently tied to geography and determines the type of available crops. Local conditions can also be a critical factor for the seasonality of micronutrient-rich foods. The degree of localization for this purpose is country-specific, depending on the level of agroecological variation. In countries with a high level of agroecological heterogeneity, localization would need to be more contextualized geographically to take these variations into account.

The second component is culture and communities. In many parts of the world, particularly in Asia and Africa, rural inhabitations are based on tribe or caste or other ethnic or cultural affinities. These factors have a significant influence on the appreciation of different foods, production patterns, dietary behaviours and traditional knowledge. Promoting agrobiodiversity and nutrition-sensitive agriculture is as dependent on these sociological and cultural factors as it is on ecological conditions. For example, the Santhal tribal community of Jharkhand, India, consumes plant seeds, mushrooms, shellfish and a wide variety of meats and indigenous fruits and vegetables (Ghosh-Jerath *et al.*, 2016); these foods thus enjoy a wide acceptability. A localized HGSF procurement strategy can include some of these foods, given that even in areas inhabited predominantly by members of the Santhal community, schools are frequented by children from all backgrounds. Similarly, in agro-pastoral communities, which are demographically significant in many countries,

HGSF production diversification pathways must be aligned with the unique food and nutrition security challenges of agro-pastoral communities (Rufino *et al.*, 2013, Galiè *et al.*, 2019).

5.7 Key challenges and constraints

There are numerous constraints to the promotion of NUS through a community-based localized demand model such as HGSF. These constraints can be divided into four interconnected categories: structural, behavioural, ecological and cultural. Structural constraints include the lack of availability of planting material (such as seeds and vines), fertilizers and pesticides, or agricultural extension support. Ecological constraints include the long growing periods of some NUS crops (which disturb existing cropping patterns), poor soil quality and a higher vulnerability to pests and disease of some NUS. Behavioural constraints relate to the difficulties of changing established production and dietary patterns. Some traditional crops and vegetables may also require more farm work for soil management and supervision. Cultural constraints relate to the consideration of certain foods as “inferior” for a variety of reasons, including their association with consumption by people who occupy a low position in the socio-economic hierarchy (e.g. red horse gram in Nepal).

The fundamental assumption of the HGSF model is that modern local production systems have the potential for a greater production diversity, which allows them to respond to a diversified food demand. Intuitively, this assumption is more likely to hold true in places with good agricultural productivity and minimally suitable ecological conditions for agrobiodiversity. However, even in places where these criteria are met, the validity of this assumption may often be called into question. Increasing amounts of land are being left fallow in many rural communities in countries such as Nepal, as new generations prefer non-agricultural employment in urban centres or abroad (Singh, 2020). Furthermore, the lack of agricultural support in low-income countries in the form of subsidies or the provision of inputs makes agriculture a financially risky livelihood method. Thus, the HGSF model is unlikely to promote local production in certain contexts. On the contrary, in the short term, HGSF interventions may distort thin local markets, as traders sell to schools through cooperatives. The dynamics of the model are quite distinct in regions with limited agricultural output.

Depending on the climate and the length of growing periods, the commodity basket for HGSF may include preserved and dried foods.

Another factor that affects the functioning of the HGSF model is seasonality. Indeed, the seasonality of agricultural production and dietary intake has direct implications on the promotion of agricultural diversification through HGSF. These implications vary significantly by agroecological zone and food group; they are a function of growing seasons and school calendars. There are two aspects to the issue of seasonality. One aspect relates to overall food deficiency during the lean season; the other relates to making HGSF commodity baskets seasonality sensitive. The demand for school feeding is constant for all school days. In most cases, there is a substantial overlap between the agricultural lean season (also known as the hunger season) and school days. The extent of overlap can be seen easily by comparing the harvest and school calendars. Depending on the region, the lean season can last between two to four months.

Although stocks of commodities such as cereals, legumes and tubers may be initially available during the lean season, limited on- and off-farm storage capacities may mean that those stocks eventually dwindle. This may cause serious food deficits at the household level and price rises on the free market (Vaitla, Devereux and Swan, 2009). This may consequently have a serious impact on localized food procurement. Furthermore, during the hunger season, the increasing costs of staples and the intensification of calorific hunger may undermine any food diversification strategies. Studies on seasonality show that the impact of seasonality on the production of micronutrient-rich crops such as fruits and vegetables depends greatly on local conditions, and can be very significant (Sibhatu and Qaim, 2017). This confirms that HGSF interventions must be adapted, to the extent possible, to geographical localization and the local context.

To promote quality production diversification, HGSF meals should be designed to include as many local nutrient-dense foods rich in iron, vitamin A or zinc as possible. However, it is important to take note of some key demand-side constraints. HGSF programmes provide one meal a day; they should be based on national nutrition guidelines and on a fixed budget allocation per child and per meal. In terms of volumes and costs, protein- and energy-rich staples are the most prominent types of food, and a balance must always be found between portion sizes and costs.

Given the issues mentioned above, the total amount of nutrient-rich foods required can be quite limited in terms of the volume of total demand. Furthermore, in places where schools are very dispersed and enrolment numbers are low, aggregation of supplies may not be possible. Under these circumstances, the pathway of structured demand for certain micronutrient-dense foods may become quite weak.

5.8 Conclusions

The process and pathways through which different elements of HGSF can affect agrobiodiversity and nutrition-sensitive agriculture are increasingly well recognized. A substantial number of studies on the linkages between agriculture and nutrition provide evidence as to the positive impact of agricultural development programmes on production and consumption diversity (Ruel, Quisumbing and Balagamwala, 2017). However, HGSF and its impacts on agriculture and nutrition is still only an emerging area of research, and empirical studies are needed to evaluate the scale and nature of the impact of HGSF in terms of nutrition-sensitive agriculture and production diversity in a range of settings and contexts. A number of ongoing studies in South Asia and West Africa aim to evaluate the extent to which such HGSF interventions at scale promote the production of nutritious food for human dietary needs and improve nutrition-related production diversity.

The focus of HGSF on promoting diversified production is primarily aimed at improving nutrition security. In resource-poor contexts, some of the structural and ecological constraints discussed in this chapter can severely limit the ability of HGSF interventions to promote diet quality through production diversity. For example, in the absence of seeds and agricultural extension support, the demand from school feeding, especially for a neglected crop, will not be sufficiently enabling for small farmers. HGSF interventions must therefore be integrated, wherever possible, with other national agricultural support efforts and interventions related to nutrition-sensitive agriculture, and especially with those related to agrobiodiversity and climate-smart agriculture.

Finally, the most critical and immediate challenge facing agriculture as a whole, and localized production systems in particular, is climate change. Events related to climate change are reducing yields and distorting cropping patterns across the globe. Rainfed smallholder farming systems in highlands and the tropics – which constitute 80 percent of the world's cropland and account for 60 percent of global agricultural

output – are the most vulnerable to these events (Bioversity, 2017). This has direct and significant implications on agrobiodiversity and the supply of nutrition. The most serious consequences are observed in resource-poor agricultural economies dominated by small farms. While a focus on drought-resistant crops is part of the HGSP model, the design of the model must be further developed to provide answers to the multifaceted challenges of climate change for local production systems and diets.

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6 DEVELOPMENT OF STRATEGIES FOR THE INCLUSION OF FISH IN SCHOOL FEEDING IN ANGOLA, HONDURAS AND PERU

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ABSTRACT

Fish and fish products are an important, yet often underestimated source of nutrients and have a huge potential to improve food security and nutrition. In countries with a high prevalence of malnutrition and poverty, school feeding programmes have the potential to improve children's nutrient intake and improve the livelihoods of fishing communities by integrating locally produced fish in school meals. The Governments of Angola, Honduras and Peru have, with the support of the Food and Agriculture Organization of the United Nations (FAO), developed pilot innovations for the inclusion of locally sourced fish into school feeding programmes; these efforts have demonstrated the benefits and feasibility of including fish products in such programmes, taking local fish species and food habits into consideration. This chapter discusses challenges and lessons learned, and presents recommendations for project replicability and for the future integration of fish into school feeding programmes. The chapter concludes that the successful replication of these initiatives in other countries requires many actions, including the transformation of the chapter's key recommendations into a toolkit.

6.1 Introduction¹

Globally, approximately 2 billion people suffer from multiple forms of malnutrition, including micronutrient deficiencies (often referred to as hidden hunger), overweight and obesity (Food and Agriculture Organization of the United Nations [FAO] *et al.*, 2019). Malnutrition compromises both physical and cognitive development from a young age and can affect people's health status over their lifetimes. Beyond the human costs of malnutrition, the estimated impact on the global economy could be as high as USD 3.5 trillion per year, or USD 500 per individual. These enormous costs result from economic growth foregone and lost investments in human capital; these lost investments are associated with preventable child deaths, 45 percent of which can be ascribed to poor nutrition, as well as premature adult mortality linked to diet-related non-communicable diseases (NCDs) (FAO, 2013; Global Panel on Agriculture and Food Systems for Nutrition, 2016). Although the prevalence of chronic malnutrition (stunting) has declined over the past 10 years to about one in five children, childhood obesity is on the rise (FAO *et al.*, 2019). An increasing number of children and young people are surviving but not thriving due to poor diets and malnutrition (United Nations Children's Fund [UNICEF], 2019). Many children are not getting the nutrients they need to grow and develop well, particularly during the crucial first 1 000 days, from conception to their second birthday. Much attention is focused on these first 1 000 days, as it is a crucial period for physical and cognitive development. There is, however, evidence that child growth extends for another 7 000 days (Crookston *et al.*, 2013; Fink and Rogers, 2014; Bargava, 2016; Georgiadis and Penny, 2017; Bundy *et al.*, 2018).

To address malnutrition, it is necessary to understand dietary patterns and food choices and the food environment that affect these patterns and choices, at every stage of the child's or adolescent's life. As many developing countries have seen rapid urbanization and globalization, diets have changed as the result of a nutrition transition characterized by a shift away from local cereals, fruits and vegetables, nuts, seeds and fish to processed and non-local foods with high fat, salt, sugar and

¹ Special acknowledgments are due to the participants in the many workshops, meetings, teleconferences and discussions organized in the framework of the project. These participants include programme consultants and specialists from FAO headquarters, FAO regional offices and FAO country offices in Angola, Honduras and Peru, researchers, government officials, representatives of non-governmental and private-sector organizations, and other stakeholders.

refined carbohydrate contents, and terrestrial animal-sourced foods (ASFs) such as red meat (UNICEF, 2019; Popkin, Adair and Ng, 2012; Pingali *et al.*, 2019). This nutrition transition and the globalization of diets has stimulated much discussion on healthy diets from sustainable food systems; dietary recommendations for a decreased consumption of terrestrial ASFs, and particularly red meat, have been a primary focus of these discussions (Willett *et al.*, 2019). While the nutrition transition has resulted in the increased consumption of terrestrial ASFs in urban centres (Popkin *et al.*, 2012; Delgado, 2003; Bett *et al.*, 2012), many rural poor communities still rely heavily on predominantly plant-based diets (Henjum *et al.*, 2015; Torheim *et al.*, 2010; Becquey and Martin-Prevel, 2010). In these communities, the low or zero consumption of ASFs results in an inadequate food intake and a low absorption (or bioavailability) of important micronutrients such as zinc, iron and vitamin A. These micronutrients are often deemed “problem nutrients”, as they are deficient in the diets of more than two billion people globally (Adesogan *et al.*, 2019; Barré *et al.*, 2018; Thilsted *et al.*, 2014; Ferguson *et al.*, 2006).

Recognizing the importance of poverty for nutrition, the World Food Summit and the New Partnership for Africa’s Development consider the fight against poverty and malnutrition as vital. They have supported several initiatives to improve school feeding programmes (FAO and World Food Programme [WFP], 2018). School feeding programmes have been used for decades to alleviate hunger, improve education outcomes, increase enrolment rates and reduce absenteeism – especially for adolescent girls (Bundy *et al.*, 2018). Indeed, these potential outcomes have been the key reasons for the implementation of school feeding programmes, which are often led by the education sector (United Nations [UN], 2017).

When school feeding is designed to provide schoolchildren with safe, diverse and nutritious food that is sourced locally from smallholders, it is called home-grown school feeding or HGSF (FAO and WFP, 2018). HGSF has a huge potential to enhance local economies and livelihoods by accelerating progress towards food security and nutrition (Sustainable Development Goal [SDG] 2) and poverty eradication (SDG 1). HGSF also contributes to other SDGs of the 2030 Agenda, including SDG 4 on quality education, SDG 5 on gender equality, SDG 8 on decent work and economic growth, SDG 10 on reduced inequality and SDG 17 on partnerships for achieving the goals (FAO, 2019a). In addition, HGSF boosts the local economy by sourcing specifically from

smallholder producers; by doing so, it supports the livelihoods of local citizens and ensures diversified school menus that include a variety of locally grown foods. As such, HGSF contributes to SDGs 14 and 15 by promoting the sustainable use of the oceans and protecting biodiversity, both in terrestrial and aquatic environments (FAO and WFP, 2018).

While including a diverse basket of locally grown crops into school feeding programmes, HGSF programmes in low-income countries tend to focus on plant-sourced foods from local farmers, as public procurement in these countries is unlikely to sustain the costs of including meat (Drake *et al.*, 2017; Baum, Miller and Gaines, 2017). Often excluded from HGSF programmes due to cost and food safety concerns, fish plays an important role in the livelihoods and diets of many people in developing countries. Fish has a unique nutritional composition of essential fatty acids, proteins and micronutrients such as iron, zinc, iodine, vitamin A and B12 (High Level Panel of Experts on Food Security and Nutrition [HLPE], 2017; Ferguson *et al.*, 2006). Fish is also an important contributor to global animal protein intake, accounting for more than 50 percent of total intake in some coastal countries and small island states (FAO, 2019b). The consumption of locally grown micronutrient-rich foods should be an integral element of policies related to food security and nutrition and should be encouraged in school feeding programmes. Fish products could play an important role in this respect (FAO, 2016).

The role of fish in school feeding: a background on pilot studies in Angola, Honduras and Peru

The role that fish can play in reducing levels of malnutrition is increasingly recognized (Thilsted *et al.*, 2014). Discussions at the Regional Forum on the Introduction of Fish into School Feeding, held in Uruguay in 2015, revealed that fish products are hardly ever included regularly in school menus in Latin America, despite their availability and accessibility. As a result, the Governments of Angola, Honduras and Peru requested assistance from FAO and INFOPECSA to develop strategies to support public procurement programmes to improve school feeding programmes by including fish in their meals.²

² INFOPECSA is the Centre for Marketing Information and Advisory Services for Fishery Products in Latin America and the Caribbean. For more information on the project *Development of strategies for the inclusion of fish in school feeding in Angola, Honduras and Peru*, please visit INFOPECSA's website at www.infopesca.org/node/2426.

The school feeding programme of Uruguay was presented as an example of a successful programme that has run continuously for more than 100 years; the programme requires fish on the menu at least once a week. Angola, Honduras and Peru face three very different realities. Peru has the highest fish consumption in Latin America and Honduras the lowest; Angola is in Africa. The project's objective was to develop a strategy to include fish in school feeding programmes; the selection of these three countries added an important component of learning from each other's experiences. It is important to highlight that while the Governments of Angola, Honduras and Peru have all adopted policies and programmes to guarantee food and nutrition security, with a special focus on children, food insecurity and malnutrition persist in each of these countries (see also Chapter 9 and Chapter 17 for complementary analysis of the experiences of Honduras and Peru). Chronic malnutrition, particularly linked to long-term malnutrition during the first 1 000 days of life, affects nearly one-third of children in Honduras and 38 percent of children in Angola; the rates of stunting of children's mental and physical development in rural and inland areas are even higher (Global Nutrition Report, 2018; The Borgen Project, 2015). While the national stunting rate in Peru stood at 13 percent in 2016, higher rates – similar to those in Angola and Honduras (33 percent) – are seen in rural areas of the Peruvian Amazon (WFP, 2020). In addition, many children do not get enough iron, which is particularly important for the transport and storage of oxygen and assists the immune system in our bodies. Iron-deficiency anaemia (which affects 50 percent of children in Honduras, and 25 percent of children in Peru) causes children to miss school and affects their school performance (Chong *et al.*, 2016).

Fishing activities greatly contribute to livelihoods in Latin America; however, fish consumption in the region has historically been low (FAO, 2017). In Honduras, fish consumption is very low in comparison to the global average (3.3 kg/capita in Honduras versus a global average of 20.3 kg/capita). Peru is the only country in the region where fish consumption exceeds that of all red meats combined (23.9 kg/capita per annum, accounting for 26.5 percent of total animal protein intake) (FAO, 2017, 2019b). Across the Atlantic, fishing activities off the west coast of Africa contribute greatly to employment and gross domestic product (GDP). In Angola, where small-scale pelagic fisheries are a main source of livelihoods and food for coastal communities, fishing contributes to nearly 5 percent of GDP (FAO, 2018).

Fish consumption in Angola is close to the global average (19.5 kg per capita) and contributes 35 percent of the total consumption of animal protein (FAO, 2019b).

This chapter is based on the results of FAO project Development of Strategies for the Inclusion of Fish in School Feeding in Angola, Honduras and Peru, which was a broad-based collaborative effort involving INFOPECA and the Governments of Angola, Honduras and Peru. The chapter presents the results of pilot studies that aim to promote the inclusion of fish in school feeding programmes in the three countries. These studies were carried out by FAO in collaboration with the national governments of the pilot countries between June and November 2019. Based on challenges encountered and lessons learned, the chapter formulates recommendations for school feeding programmes in these three, and other, countries. The chapter is organized in sections that discuss the school feeding programmes in each country and present diagnostic studies, discuss project implementation activities, analyse the lessons learned from these activities, and formulate recommendations and conclusions.

6.2 **Background and diagnostics on school feeding programmes in Angola, Honduras and Peru**

This section provides some background information regarding the school feeding programmes in each country and presents details of the diagnostic studies carried out under the project in each country to identify the feasibility of including fish in school feeding programmes. This diagnosis looked at the availability of fishery products, as well as the benefits and challenges of incorporating fish into public school feeding and other institutional feeding programmes, such as those in hospitals, correctional facilities and the armed forces.

Angola

Food policies in Angola focus on economic growth, sustainability and the diversification of production, in both the agriculture and fisheries sectors. This includes strengthening the organizational and productive capacities of farmers and small producers, supporting local food production and providing nutrition education – three activities where the role of school feeding programmes is getting

increased attention. In 2013, the Angolan Government implemented a school snack (not a complete meal) programme in certain schools to address high levels of malnutrition and improve school attendance. This is a national programme whereby the Government collaborates with private companies that provide public schools with foods that are prepared in school canteens or community kitchens. However, in most cases, the nutritional profiles of these foods do not reflect the nutritional needs of school-aged children.

Angola is one of the main producers of fish in sub-Saharan Africa. The captures of pelagic species (such as *Sardinella* and horse mackerel) in the country are significant (FAO, 2018). The potential nutritional impact of including fish in the diet of school-aged children is recognized by the Angolan Ministry of Education, which supervises the school feeding programme. However, cold chains are inadequate in many parts of the country; as a result, the provision of fish, be it fresh or frozen, might not be an option as its food safety cannot be guaranteed. In addition, most schools lack adequate infrastructure for the storage and preparation of meals that include fresh fish.

Honduras

A school feeding programme has been implemented in Honduras since 1998 with a view to boosting school attendance, improving the quality of life and reducing levels of malnutrition among schoolchildren. The food given to the children at school is mainly based on maize, rice, beans, oil and a pre-prepared mix of maize and soy flour. The school feeding programme is part of a governmental programme entitled Healthy Schools, which aims to reduce poverty and promote a healthy environment at both the physical and mental level.

Diagnostic studies investigated fish production and barriers to fish consumption in Honduras. Honduras is one of the main exporters of fish in Central America; its exports consist mainly of tilapia. About 12 000 tonnes of tilapia are exported annually, from both small- and large-scale producers. However, fish consumption in Honduras is among the lowest in the world, at an apparent per capita consumption of only 3.3 kg per year (FAO, 2019b). Bad quality, high prices and the lack of a local tradition to eat fish are the main factors causing the low fish consumption.

The association of fish producers of Honduras (APPIH) has provided access to small producers to financial resources and enabled them to negotiate the price of feed and other inputs. The number of tilapia producers is growing, and their contribution to the local economy as well as to food security is increasing. These tilapia producers were identified as a possible source of affordable, locally produced fish for school feeding programmes.

Peru

In the 1970s, the Peruvian agency that provides services to the fisheries sector (EPSEP) started to promote the consumption of fish products. Frozen horse mackerel was promoted in the Andean highlands, and the consumption of small pelagic fish (such as the Peruvian anchoveta) was encouraged. FAO supported this initiative in collaboration with the former technological fisheries institute of Peru (ITP). This collaboration resulted in the creation of the national programme entitled *A Comer Pescado* (Eat fish). This programme promotes fish consumption in general; it has increasingly focused on developing educational material for schoolchildren, such as information material on the benefits of fish consumption, healthy and tasty recipes, storybooks for children and material on the importance of protecting the marine environment.

The national school feeding programme Qali Warma provides breakfasts and lunches to 63 110 public schools; it reaches more than 3.8 million children every school day. However, the inclusion of fish in school feeding is, in most cases, minimal. Previous policies had been developed to facilitate the purchasing of low-cost Peruvian anchovies and giant squid for use in public institutions. However, these policies were abandoned, mainly due to challenges in meeting quality standards and a lack of national processors. Currently, school meals include fish 0.5 to 2 times per week; however, there is no formal requirement to include fish in school meals. The areas where fish consumption is low are the same areas where fish is seldom included in school meals. The supply of fish products through Qali Warma is still limited for various reasons, including consumption preferences, the limited availability of products that meet quality and safety standards, and the lack of efforts to promote fish consumption. The provision of fish products based on, for example, Peruvian anchovies is very cost-efficient; however, there is a need to improve processing

facilities to meet the required standards. Although the programme is considered highly successful, factors such as cost, availability, nutritional knowledge, etc. make that the composition of the meals provided often does not meet children's nutritional requirements.

Prior to the pilot studies by FAO, efforts under the *A Comer Pescado* programme on the one hand and those under the *Qali Warma* programme on the other were not formally coordinated. The pilot project was seen as an opportunity to collaborate and achieve the common goal of improving nutrition and food security among children. The diagnostic study revealed that a number of structural challenges still persist, such as the inadequacy of cold chains for fish products and the lack of infrastructure at schools (e.g. adequate kitchens, dining rooms and storage facilities to handle fish products).

6.3 Awareness raising and knowledge sharing

The initial stages of the project focused on the promotion of the inclusion of fish in schoolchildren's diets and awareness raising as to its importance among the personnel of public and private institutions developing food policies. In March 2019, the national authorities of the three project countries were invited to a meeting in Lima, Peru, where the benefits of the inclusion of fish in school feeding programmes were discussed. In addition, the results of the diagnostic studies were presented, with a focus on the availability of fish and difficulties and barriers to the incorporation of fish in their respective school feeding programmes.

Study tour to Uruguay

Uruguay was used as a positive example of how fish can be included in school feeding. In March 2019, a study tour to the country was organized to promote the sharing of knowledge. Uruguay has a school feeding programme that has been successfully implemented for more than 100 years; under the programme, fish is included at least once a week in school meals. About two thirds of all children enrolled in public schools receive at least one meal daily, and 90 percent of all schools receive some type of food assistance. Priority is given to schools in vulnerable areas. Uruguay's

national directorate for aquatic resources (DINARA) is implementing a programme to facilitate the inclusion of fish products into institutional markets such as schools and hospitals; this tool is ideal for introducing fish into school feeding programmes.

The participants from Angola, Honduras and Peru observed how Uruguay's school feeding programme manages to ensure a healthy meal every school day, and include fish in those meals at least once a week. One of the main areas of focus of the programme is the control of the quality and safety of the inputs used and of the hygiene practices of the personnel that prepares the meals. This school feeding programme fulfils three main functions: providing healthy meals, educating students and parents on the importance of healthy eating habits, and teaching etiquette by allowing students to share meals in a social setting.

Following the study tour, the participants returned to the project countries and worked with national and local stakeholders to organize workshops and trainings. The dissemination of knowledge on the importance of the inclusion of fish in school feeding programmes and the provision of training (including on food safety, basic hygiene and food handling and preparation) was a key component of the project. Each country prepared a guide on the benefits of fish consumption, based on local recipes and local fish species. These guides were directed towards school-aged children and adapted to the reality in each country.

6.4 Acceptability trials

Various challenges to the successful inclusion of fish in school feeding were identified, including challenges related to costs, the continuous supply of safe and good quality fish products, desirability and shelf life. Local authorities, chefs and family members were engaged in the identification of fish products that would be desirable, low-cost and safe for children to consume, taking into account the supply of fish and issues related to storage and shelf life. Once the most appropriate fish products were identified, community members and school caterers prepared healthy, balanced meals with these fish products, for children to taste and evaluate. All fish products were checked by the food safety authorities in each country prior to these acceptability trials. Various types of fish products were used to prepare meals for school children,

including fish soup, fish pie and fish croquettes. To assess the acceptability of the menus by students, a five-point hedonic scale was used (1 – extreme dislike; 2 – dislike; 3 – neither like nor dislike; 4 – like; 5 – extreme like). It was found that acceptance reached up to 80 percent in the target student population.

In Peru, several products based on the Peruvian anchoveta (*Engraulis ringens*), a fish that is available in significant volumes and used primarily for animal feed, were developed and tested. A salted and semi-dried anchoveta that was already being produced by small, local processing units driven by women was tested in school feeding programmes; it was found that this anchoveta had a level of acceptability among schoolchildren of around 90 percent. Meanwhile, a canned product based on whole anchoveta had a level of acceptability of close to 100 percent.

In Honduras, three different recipes including tilapia or bass were tested for acceptability. A traditional dish was prepared using fillets, while the heads and bones were used to prepare a soup. This ensured that the entire fish was used, which delivers more micronutrients and at the same time reduces food losses and waste (Bogard *et al.*, 2015a). The dishes were tested for acceptability in three schools in the municipality of Ilama in the department of Santa Barbara and in one school in Tela. Although fish consumption in Honduras is among the lowest in the world and children are not used to consuming much fish, the schools reported a 100 percent acceptance rate of the dishes among schoolchildren.

In Angola, mackerel (*carapau*) is the most popular fish in many areas, as it is often more affordable than other types of fish. The project tested three different preparation methods (fish soup, fish pie and fish croquettes) that use fish powder processed from dried mackerel. All three fish products were highly acceptable to schoolchildren.

Based on these initial results, which showed a high acceptance of fish by schoolchildren, the Governments of Angola, Honduras and Peru are currently exploring the feasibility of upscaling the inclusion of fish into school feeding programmes in those regions of each country where the availability and acceptance of fish is greater. In addition, areas were identified where fish in school feeding could have the greatest impact on nutrition, and where stakeholders such as non-governmental organizations and small businesses have the capacity to scale up initiatives. Recommendations for further actions are presented in Section 6 of this chapter.

6.5 Lessons learned and discussion

Each country in this study developed and adapted strategies to integrate fish into school feeding, based on local fish supply, food culture and acceptance of different fish products. Although different strategies were used, the results show that similar methodologies can be used across various contexts. Raising awareness and providing nutrition education to value chain actors who are no experts on nutrition, including consumers, parents, teachers, cooks, politicians and fish producers and processors, can improve the understanding of the nutritional benefits of fish and support positive outcomes beyond child nutrition (Hong *et al.*, 2010). To help raise awareness, the project developed guides directed towards children on the benefits of eating fish; the guides also provided examples of low-cost fish dishes based on locally available fish products.

The integration of fish into school feeding programmes provides an opportunity to include affordable, available and sustainably produced ASFs in feeding programmes for children beyond the first 1 000 days of their lives. Fish are more efficient converters of feed into protein than terrestrial animals; the production of fish also has a lower environmental impact, thus offering a source of sustainably produced ASFs (Hilborn *et al.*, 2018). Small fish species are available in markets throughout developing countries; they are often more affordable than other ASFs (Thilsted *et al.*, 2016) and can provide more micronutrients as they can be consumed whole – including bones, eyes and viscera (Bogard *et al.*, 2015a).

The finding of this study that fish products are highly acceptable among schoolchildren is supported by evidence from similar studies; these studies also demonstrate that fish products have the potential to greatly improve micronutrient intake (Bogard *et al.*, 2015b; Borg *et al.*, 2019a, 2019b; Abbey *et al.*, 2017). As important as providing nutritious meals to school children is ensuring that those meals are safe to eat. Fish is highly perishable and begins to deteriorate immediately upon being taken out of the water. To ensure that fish products are safe for consumers, it is therefore important to ensure proper handling, storing and processing of fish by all value chain actors (Rosenthal, 2019). The processed products included in the project, such as canned anchovies and salted or dried fish, were tested by the countries' food safety authorities to ensure their safety before giving them to children.

As demonstrated by this pilot study, fish that is safe, locally available and acceptable to children can be successfully included in HGSF programmes. Public procurement for such programmes has the potential to promote sustainable and healthy diets including local, culturally acceptable foods, while at the same time supporting domestic food producers and decreasing countries' dependence on imports (Tartanac *et al.*, 2019).

6.6 Recommendations and conclusion

Based on the challenges encountered and the lessons learned during the implementation of the project in Angola, Honduras and Peru, the following recommendations for the sustainable integration of fish into school feeding programmes can be identified:

Set up a multisectoral committee to develop policies and strategies to incorporate fish into school feeding. Engage national and local authorities from various departments (health, nutrition, education, fisheries) and relevant non-governmental actors to develop policies and strategies to effectively incorporate fish and fish products into school feeding programmes.

Use a multi-stakeholder participatory value chain approach to develop acceptable and affordable fish products from available resources and raise awareness of the nutritional benefits of fish. Include children, parents, schools, local fishers and fishing organizations, fish processors and processing organizations, and community members when developing fish products for school feeding.

Governments and stakeholders should address underlying issues such as the lack of infrastructure, sanitation or potable water to ensure the proper handling of fish along the value chain, thus ensuring the food safety and quality of fish products during the postharvest stages.

Develop guides and training materials on the importance of the inclusion of fish in a healthy diet; adapt these materials to the local context and curriculum. By using guides and training materials, awareness can be raised throughout a community about the importance of a healthy diet and the high level of nutrition in fish products.

Awareness-raising efforts should not only be addressed to schoolchildren, but also other family members, teachers, cooks and government authorities.

Understand capacity needs and build the capacity of small-scale fisherfolk to produce safe, acceptable and affordable fish products for school feeding programmes. Small-scale fisherfolk, fish processors and processing organizations may need capacity building in areas of organizational strengthening, food safety, fish handling, fish processing and value-addition. In addition, they may need assistance with access to raw materials or small-scale infrastructure; their finance and business management skills may also need improving.

Invest in the creation, based on the recommendations of this pilot study, of a toolbox of strategies and tools for the introduction of fish in school feeding programmes, to replicate the project's success in other countries. Based on the lessons learned in this project and other past projects that aimed to integrate fish in school feeding programmes, formulate successful strategies and methods to introduce fish into school feeding programmes. Test these tools and produce a toolbox or handbook for integrating fish into school feeding that is adaptable to various country contexts, to replicate the success of this project in other countries.

The importance of food value chains and school feeding for children should be highlighted in the context of the current COVID-19 pandemic situation. Special attention should be given to schoolchildren, regardless of whether or not they attend school during the pandemic. WFP, FAO and UNICEF have jointly formulated interim guidelines to guarantee that schoolchildren continue receiving meals at school and food value chain actors continue to benefit from reliable markets for nutritious food products in different situations (WFP, FAO and UNICEF, 2020).

In conclusion, the project results presented in this chapter demonstrate the benefits, challenges and feasibility of including fish products in school feeding programmes. To successfully replicate the initiatives described in this chapter in other countries, many actions are required, including the creation of a toolkit for integrating fish into school feeding that is adaptable to various country contexts.

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7 THE USE OF GEOGRAPHICAL INDICATIONS IN PUBLIC FOOD PROCUREMENT: THE EXAMPLE OF ITALIAN PRIMARY SCHOOLS

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ABSTRACT

This chapter analyses the inclusion of geographical indication (GI) products in public food procurement (PFP) in terms of their volume and their economic impacts in different models of PFP. The chapter discusses the cases of two Italian municipalities (Parma and Lucca), which have adopted two different business models to manage primary school meals services. First, the regulatory framework for PFP in both municipalities is discussed; then, a Keynesian-derived indicator is used to assess the economic spillover effect into the local economy. Even though GI products have a large presence in certain food categories (e.g. dairy products), overall, they account for only a small proportion of the total volume of food served in the school meals services studied (2 to 2.5 percent). In terms of economic impact, the inclusion of GI products in school meals services provides a positive but limited contribution to the local economy. The main obstacles to including more GI products in PFP are GI products' higher cost, their low availability and access, and regulatory criteria.

7.1 Introduction

A geographical indication (GI) is a name or sign that identifies products by linking them to their place of origin. GI products have specific qualities, characteristics or reputations that stem from natural factors (such as climate, soil or plant and animal species) and social factors (such as local know-how that is passed on from one generation to the next) that characterize their place of origin (Food and Agriculture Organization of the United Nations [FAO] and Strengthening International Research on Geographical Indications [SINER-GI], 2011).

GIs, which are protected as intellectual property rights, can protect a product's reputation, help it stand out in the market place, prevent the misuse of its name and increase producers' incomes by allowing them to charge a price premium – provided GI legislation is adequately enforced and quality control systems are in place (the GI institutional system).

In many countries of the world, GIs are considered a key instrument for policies that seek to promote food quality and rural development (Bonanno, Sekine and Feuer, 2019). Indeed, GIs are collective marketing tools that help preserve and promote traditional quality products; they are also a way of enhancing the provision of public goods such as food heritage, landscapes and traditional knowledge, and support the rural economy. Because of their territorial links, GI products reinforce the role of producers in the value chain, thus playing a key role in the sustainable development of local communities (FAO and European Bank for Reconstruction and Development [EBRD], 2018). The use of GIs can contribute to sustainable development and sustainable food systems (High Level Panel of Experts on Food Security and Nutrition [HLPE], 2017). Indeed, properly established and implemented GIs can ensure economic returns for producers and local communities, which they can invest in the preservation of their specific production system and related local resources.

For consumers, GIs represent a way to identify specific food products with official guarantees in terms of quality and origin. A growing body of literature explores the benefits of GIs in terms of nutrition and health (Summer *et al.*, 2017; Montel *et al.*, 2014). Most GI products are unprocessed or low-processed food products, which generally have better nutritional qualities than ultra-processed products (Monteiro

et al., 2018, 2019). Studies have shown that many traditional products have good nutritional values that meet nutritional recommendations (Durazzo *et al.*, 2017; Costa *et al.*, 2010).¹

Many GI products are linked to local biodiversity and indigenous varieties and breeds, which can provide specific nutritional benefits over and above those offered by globally diffused varieties or breeds (FAO and International Centre for Advanced Mediterranean Agronomic Studies [CIHEAM], 2015; FAO and Centre for Indigenous Peoples' Nutrition and Environment [CINE], 2009; FAO, 2010). As a result of traditional growing, breeding, processing, aging or fermenting methods, GI products can present a specific composition of nutrients that contributes to an improved microbiota and health benefits (FAO, forthcoming).

For example, many studies demonstrate the contribution of traditional cheeses to nutrition and health (Summer *et al.*, 2017; Montel *et al.*, 2014; Neviani *et al.*, 2013); the recognition of this contribution grows as the understanding of the importance of gut microbiota for human health increases. Various studies highlight the importance of animal feeding methods (and particularly pasturing) for the nutrient contents of both milk and meat products, with GI products presenting better nutrient values than non-GI products of the same category (Pugliese *et al.*, 2009; Rey *et al.*, 2006; Alfaia *et al.*, 2009, 2006a, 2006b; Casarotti *et al.*, 2017; Daley *et al.*, 2010; Moloney *et al.*, 2008; FAO, forthcoming). Meanwhile, the natural yeasts used for fermentation also provide health benefits. Many GI products are fermented and matured products that are obtained using traditional conservation methods (Coppola *et al.*, 2000; Sanjukta and Rai, 2016; Rizo *et al.*, 2018).

This chapter provides an overview of the weight of GI products in public food procurement. Two Italian cities were selected, Parma in the Emilia-Romagna region and Lucca in the Tuscany region, to analyse the use of GI products in public food procurement for primary school canteens. The two municipalities are examples

¹ Guerrero *et al.* (2009) defines a traditional product as: a product frequently consumed or associated with specific celebrations and/or seasons, normally transmitted from one generation to another, made accurately in a specific way according to the gastronomic heritage, with little or no processing/ manipulation, distinguished and known because of its sensory properties and associated with a certain local area, region or country.

of two different procurement models studied under the European Union project Strength2Food (S2F) with the aim of assessing their environmental, economic and social impacts.² The municipal authorities of both cities are responsible for contracting and managing school meals services; they have developed contract-tendering processes based on national and corresponding regional guidelines. From the analysis and evaluation of the procurement practices in the two cities, the chapter draws recommendations for best practices that exploit the potential of GIs in terms of sustainable public food procurement outcomes.

7.2 The concept of GIs and the link with public food procurement

GI products were officially developed as a category of products during the Punta del Este negotiations on the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, which led to the birth of the World Trade Organization (WTO) (Addor and Grazioli, 2002; Otten, 2015). The TRIPS Agreement is a minimum standards agreement that requires members to provide extensive protection of intellectual property. Member States are free to determine the appropriate method to implement the provisions of the Agreement under their own legal system and practices. Previously, the 1958 multilateral Lisbon Agreement had defined and protected a category of GI products with a stronger link to origin, the Appellations of Origin (AOs). As a result of the entry into force of the Geneva Act in February 2020, the Lisbon Agreement now offers a multilateral register to protect not only AOs but also the more general GI products.

Two essential elements identify and characterize GI products: the complexity and multifaceted nature of the concept of quality and the multifunctional nature of GI systems. The quality of GI products derives from their close dependence on local natural and social resources, the history of the territory of production, the cultural heritage and the reputation. The reputation of a GI product has developed over time,

² Strength2Food is 5-year project funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 678024. The Strength2Food Project brings together some 30 partners across the European Union and East Asia to investigate, *inter alia*, the sustainability of food quality schemes. For more information, visit www.strength2food.eu.

and consumers link GI products with the concept of typicality (Casabianca and Touzard, 2009). Typicality is an intrinsic part of GI quality and is perceived by consumers as not reproducible outside the specific geographical origin. The multifunctional nature of GI systems means that their interactions with public goods and their positive externalities, including the generation of financial returns in the areas of origin, the promotion of agrobiodiversity, the preservation of rural landscapes, the revitalization of food traditions and links with tourism, must be considered at the same time (Barham and Sylvander, 2011; Casabianca and Touzard, 2009; Allaire, Casabianca and Thevenot-Motted, 2011; Belletti, Marescotti and Touzard, 2015; Arfini *et al.*, 2019b).

GI products promote economic, social and environmental sustainability in the territory surrounding the place of production. This is because such products are, by their nature, strictly linked with the natural and social environment. Indeed, they have a strong local dimension, as they are produced using local plant or animal species, in local production chains.

GIs promote socio-economic development in rural areas and contribute to the production of public goods such as rural landscapes, cultural heritage, the stability of rural communities and environmental protection, for example in less favoured areas (e.g. mountainous areas). The particular linkage between GIs products and their territory of origin underpins local economic growth and local employment (FAO and EBRD, 2018; FAO and SINER-GI, 2011; Arfini *et al.*, 2019a, 2019b; Vandecandelaere, 2011, 2016).

The inclusion of traditional, local foods within public food procurement, for example for primary schools, has important implications in the socio-economic and cultural-educational dimensions. The public procurement of local foods strengthens the local socio-economic model and may thus improve the sustainability of the territorial system as a whole. From an educational perspective, the public procurement of traditional, local products may improve cultural and gastronomic knowledge in younger generations. Furthermore, the focus placed on food quality and safety in GI systems may contribute to sustainable, healthy diets.

7.3 The Italian case

The procurement and use of local food and GI products in public school canteens must meet the regulatory requirements that legislators have put in place to promote a balanced diet for school children. In Italy, public tenders are regulated by a framework law (*Codice dei contratti pubblici* [Code of public contracts], 2016) that lays down some important requirements for public tenders, such as the partition of the contract into small lots to stimulate participation by small and medium-sized enterprises (SMEs) and the observance of criteria related to value-for-money and environmental sustainability (see also Chapter 13 for complementary analysis of the Italian experience regarding environmental sustainability criteria). The Italian Ministry of Health lays down additional criteria for food procurement in its national guidelines for school meals (Italy, Ministry of Health, 2010). These national guidelines for school meals are the reference document for all public tenders for school meals. Each Italian region can impose additional criteria through regional laws (see Chapter 27 for an analysis of experiences in Sardinia). Once regional legislation is developed, the municipalities in charge of drawing up the public tender may implement further criteria. The national guidelines for school meals set specific recommendations for school lunches based on children's ages and identify a number of criteria that must be taken into account by municipalities when issuing public tenders for school meals. The national guidelines identify GI products as one of the criteria that municipalities have to follow in the design of public tenders (see Box 1).

BOX 1 Some criteria of Italian guidelines for school lunches

- Use short food distribution chains, and widely use products with few intermediaries between the production and consumption stages. To encourage the use of short food chains, producers are evaluated based on the geographical origin of foods; local products are preferred. In addition, schools are recommended to offer seasonal fruits and vegetables. To ensure that products are sourced through short food chains, regional authorities must draw up criteria to identify tenderers that are able to respect the free movement of products within the community and guarantee their freshness, thus favouring zero-kilometre foods.

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- Transport times between meal or food preparation and consumption must be as short as possible.
- Use protected designation of origin (PDO)³ products, protected geographical indication (PGI)⁴ products, traditional specialty guaranteed (TSG)⁵ products and other locally recognized products.
- Use food products with a low environmental impact.
- Use fair-trade food products when no local products are available.
- Repurpose leftovers through welfare initiatives, as a strategy to reduce food waste.
- Monitor users' satisfaction.

Source: Italy, Ministry of Health. 2010. *Linee di indirizzo nazionale per la ristorazione scolastica*, pp. 19–20. Rome. (also available at www.salute.gov.it/imgs/C_17_pubblicazioni_1248_allegato.pdf).

Overview of the study cases: the municipalities of Lucca and Parma

This chapter analyses the procurement practices for school meals of the municipalities of Parma, in the Emilia-Romagna region, and Lucca, in the Tuscany region.

In addition to the national requirements, *Legge Regionale 29/2002* (Regional Law 29/2002) adds a regional dimension to public tenders for school meals in Parma (Italy, Comune di Parma, 2014) by requiring at least 70 percent of the food products used to prepare school meals to come from organic or integrated agricultural systems,⁶ or be typical and traditional products. Preschools and primary schools must use

³ PDO products are products that are produced, processed and prepared within a specific geographical area using recognized know-how (European Commission, n.d.).

⁴ The PGI designation means that a geographical link must occur in at least one of the stages of production, processing or preparation. In addition, the product may benefit from a good reputation (European Commission, n.d.).

⁵ The STG designation highlights the traditional aspects such as the way the product is made or its composition, without being linked to a specific geographical area (European Commission, n.d.).

⁶ An integrated agricultural system is:

A production system aimed at the valorization of agricultural and agrifood productions in which good agricultural practices are combined with a sustainable use of fertilizers and plant protection products to simultaneously guarantee the cost-effectiveness of agricultural practices and a low environmental impact (Italy, Ministry of Agriculture, Food and Forestry Policies, 2016).

organic food, if available on the market. Other requirements laid down directly by the municipality of Parma include:

- a preference for organic and local raw materials and products (where local means from the province of Parma);
- the use of zero-kilometre products (products sourced within a radius of 100 km from the centre of the city of Parma) and short-chain products (produced in provinces inside Emilia-Romagna or in provinces adjacent to the province of Parma but outside of Emilia-Romagna); no minimum thresholds are defined for this requirement;
- in terms of the organization of logistics, transport methods must be optimal both in terms of time and in terms of the vehicles used (vehicles must have a low environmental impact);
- the use of tap water, instead of water in plastic bottles;
- the use of non-food products with a reduced environmental impact;
- the recycling of food surpluses, primarily in collaboration with non-governmental organizations and third sector associations;
- adequate differentiated waste collection throughout the supply chain;
- the development of food education initiatives for pupils, families and teachers.

According to the criteria above, Parma's procurement model can be defined as a local organic (LOC-ORG) procurement model.

Based on regional guidelines (*Linee di indirizzo regionali per la ristorazione scolastica* [Regional guidelines for school feeding], 2016), the municipality of Lucca lays down the following mandatory criteria in public tenders for school meals:

- suppliers must certify the quality of products and demonstrate the adoption of quality assurance systems and good manufacturing practices that ensure the traceability and labelling of products;
- the following products must be organic: pasta, fruits and vegetables (including potatoes) (both fresh and frozen), legumes, meat (meat must be sourced in Italy or in other countries of the European Union), milk, yogurt, eggs, butter and olive oil (olive oil must be extra-virgin);

- cheese must be organic or be recognized as a PDO or PGI product;
- fish must come from Northern Europe (because of its higher content of omega-3 fatty acids), except for trout, which must come from the Tuscany region;
- adequate differentiated waste collection must be applied throughout the supply chain.
- suppliers are allowed to reuse any leftover food.

Based on these considerations, Lucca's procurement system is characterized by a heavy reliance on organic products, followed by products with European Union certifications (e.g. PDO and PGI) and products from short food chains. No quantitative criteria for either organic or GI products are laid down. In sum, Lucca's procurement model can be defined as an organic (ORG) procurement model.

Although Italy's national guidelines for school meals include the requirement to use GI products as one of the criteria for tenders, the two municipalities analysed do not lay down additional GI criteria (except for Lucca's requirement to use PGI cheese and spelt).

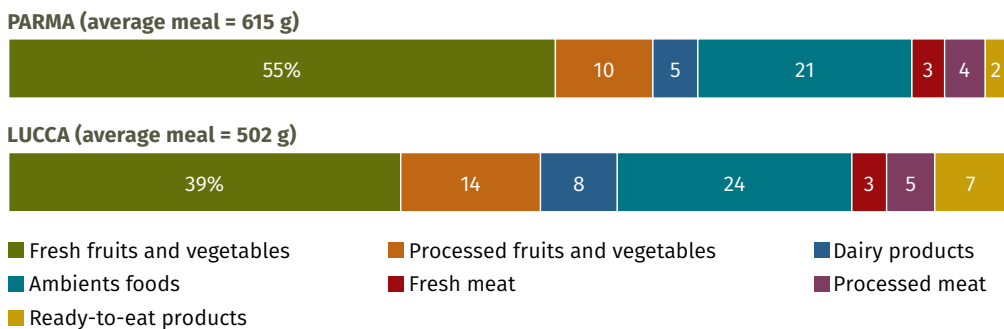
Primary schools in Parma and Lucca offer lunch meals that are carefully designed and approved by municipal dietitians.

In Parma, menus typically include a daily single-option meal comprising a starchy-based first course (e.g. pasta, rice, soup), a protein-based second course (e.g. eggs, meat, fish, legumes) and a side dish of vegetables, bread and fruit. Dessert is served only on special occasions, such as before holidays. A private catering firm prepares the meals off-site and then transports them to most schools (or 25 schools) in the municipality. The exceptions are starchy-based dishes, which are prepared on-site in the 25 schools. In the remaining eight schools, all ingredients are delivered directly to schools and cooked on-site, in school kitchens. Information for the 2017/18 school year (see Tregear *et al.*, 2019) shows that the average meal served in schools in Parma weighed 615 g in total and comprised 55 percent fresh fruits and vegetables, 10 percent processed vegetables, 5 percent dairy products, 21 percent ambient products,⁷ 3 percent fresh meat, 4 percent processed meat and 2 percent ready-to-eat products.

⁷ Ambient foods are foods with a long shelf-life that can be stored at ambient temperature (e.g. pasta, rice, olive oil, flour, etc.); bread is also considered as an ambient food.

In Lucca, the structure of the menus is similar to that in Parma, although dessert is served more frequently, as a substitute for fruit. A private catering firm prepares and cooks all the meals in a central kitchen; the meals are then transported to the schools where only cereal-based dishes (e.g. pasta and stock-based soups) can be assembled by using sauces or other dressings. Information for the 2017/18 school year (see Tregear *et al.*, 2019) shows that the average meal weighed 502 g and was comprised of 197 g (39 percent) of fresh fruit and vegetables, 119 g (24 percent) of ambient foods, 70.5 g (14 percent) of processed fruit and vegetables, 38.5 g (8 percent) of dairy products, 35.5 g (7 percent) of ready-to-eat products, 24.7 g (5 percent) of processed meat and 17.1 g (3 percent) of fresh meat. The average meal contained high proportions of fresh and processed fruit and vegetables (53 percent) and ambient foods (24 percent). Bread and pasta accounted for the bulk of the ambient foods (more than 60 percent of the total volume of ambient foods).

Figure 1 **Composition of the average school meal in Parma and Lucca**



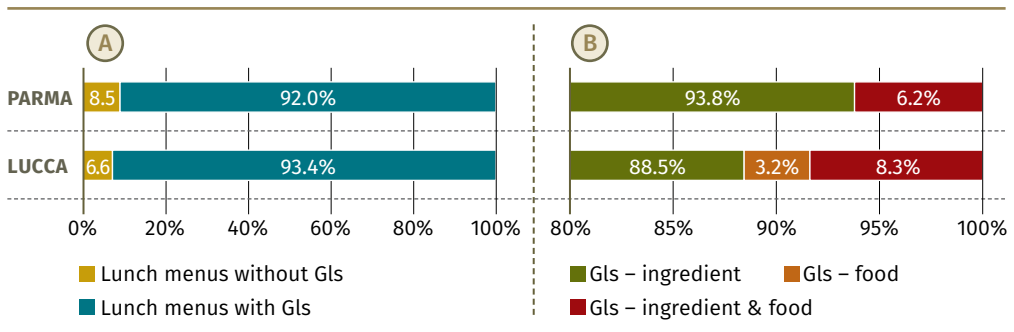
Source: authors' elaboration.

Presence of GI products in school lunch menus in Lucca and Parma

In both municipalities, more than 90 percent of menus served during the school year 2017/18 included GI products. Most of these products are seasoned cheese products, followed by cured meat and cereals (i.e. spelt) (see Figure 2A). Parmigiano Reggiano PDO (cheese) and Prosciutto Crudo di Parma PDO (cured meat) were served in both municipalities; Bresaola della Valtellina PGI (cured meat), Grana Padano PDO (cheese), Pecorino Romano PDO (cheese) and Farro della Garfagnana PGI (wheat) were served

only in Lucca, while Asiago PDO (cheese) and Taleggio PDO (cheese) were served only in Parma. Out of 167 school menus used in Lucca over the school year, 156 menus (93.4 percent) contained GI products. Of these, 138 menus (88.5 percent) contained at least one GI product as an ingredient of the first course, the second course or the side dish, while five menus (3.2 percent) contained one GI product as an ingredient of the second course. In the remaining 13 menus (8.3 percent), GI products were served as both an ingredient and a ready-to-eat food. Out of a total of 177 menus in Parma, 162 contained GI products. Most of these (152, or 93.8 percent) contained GI products as ingredients, while only a few (10 menus, or 6.2 percent) included GI products as both an ingredient and a ready-to-eat food (see Figure 2B).

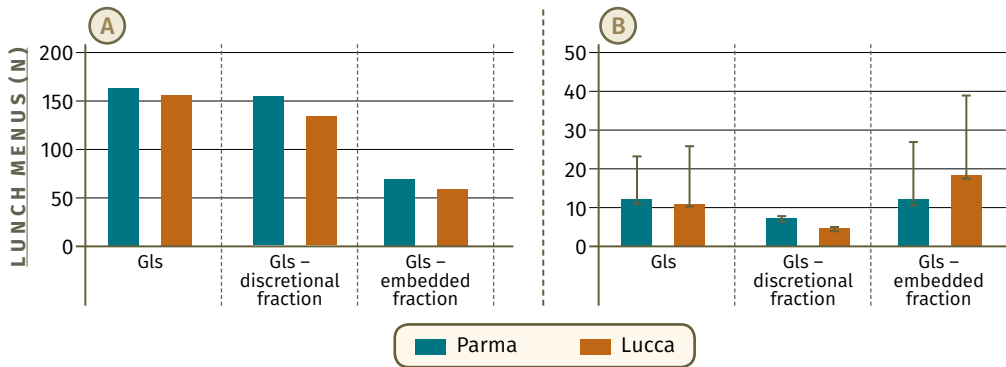
Figure 2 **The share (A) and use (B) of GI food products in lunch menus in primary schools in Parma and Lucca during the 2017/18 school year**



Source: authors' elaboration.

A further analysis can be made by distinguishing embedded GI food products, or GI products that are already included in meals, from GI products that can be added to the meals in discretionary amounts by the pupils themselves. In practice, the only GI product that could be added by the pupils in both Parma and Lucca was grated Parmigiano Reggiano PDO (cheese). Fifty-nine meals in Lucca, and 69 meals in Parma, contained embedded GI products. Meanwhile, 134 school menus in Lucca and 154 school menus in Parma allowed pupils to add grated Parmigiano Reggiano PDO cheese to their first course, if they wanted to do so (Figure 3A). The average amount added was 5 g in Lucca and 7.5 g in Parma (see Figure 3B). The average amounts of embedded GI products served within the menus were 18.7 ± 20.4 g in Lucca, and 12.3 ± 14.9 g in Parma.

Figure 3 **Number of school lunches providing GI food products (A) and average amounts of GI food products included in menus (B) in primary schools in Lucca and Parma during the 2017/18 school year**

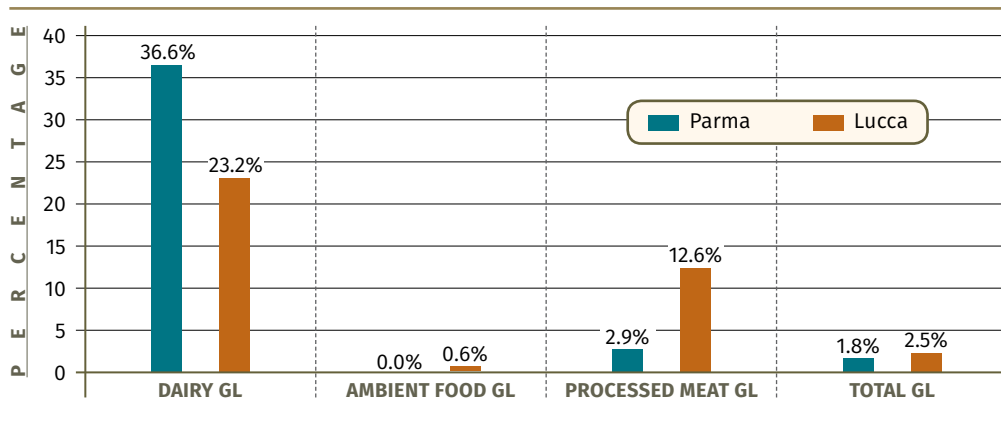


Note: the data are further divided into the number of menus presenting GIs (and their average amount in grammes) for discretionary use and embedded in the meals served to a single pupil.

Source: authors' elaboration.

In both municipalities, GI food products represented only a small proportion of the average weight of food served in school canteens: 1.8 percent in Parma and 2.5 percent in Lucca. However, the analysis of the share of GI products in individual food categories is interesting. The food categories where GI products are most present are dairy products and processed meat (see Figure 4). Just over 36 percent of all dairy products in Parma and 23 percent of all dairy products in Lucca included GIs, namely PDO hard cheeses (such as Parmigiano Reggiano, Grana Padano, Pecorino Romano, Asiago and Taleggio). Parmigiano Reggiano, which is used mostly as a condiment for pasta dishes, represented 34 percent of the dairy food category in Parma and 14 percent in Lucca. Prosciutto di Parma PDO and Bresaola della Valtellina PGI (cured meats) are included in menus throughout the year, resulting in a high presence of these GIs within the processed meat category. The proportion of GI food products in the category of ambient foods is negligible; only one food product (i.e. Farro della Garagnana PGI spelt) is used in to prepare school meals in Lucca.

Figure 4 **Proportion of GI food products in the average school meal in primary schools in Parma and Lucca, by food category (school year 2017/18)**



Source: authors' elaboration.

Local economic impact of the inclusion of GI products in school meals in Parma and Lucca

The analysis of the contribution of GI products to the local economy and its development requires an adequate methodology that is able to capture the extent to which evolutions in the food supply chain affect local economic growth in a clear and reliable manner. This study used local multiplier analysis or LM3 (Sacks, 2002; Bengo *et al.*, 2016) to assess these spillover effects (Tregear *et al.*, 2019).

Parma

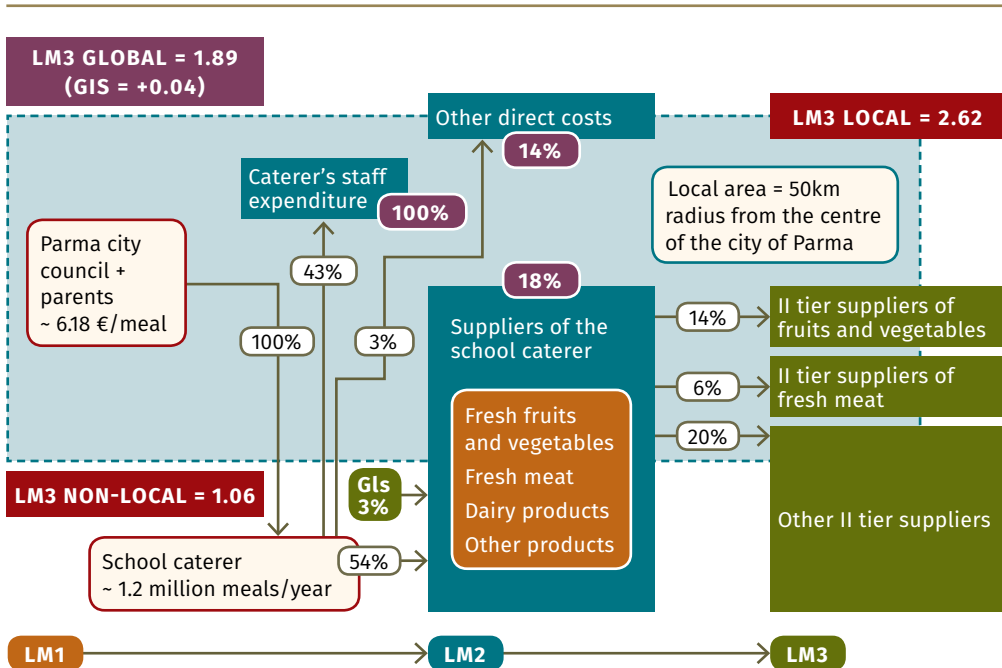
The local boundary for the study of Parma was defined as a 50 km radius from the seat of the city council in the city of Parma. The resulting area takes in the entire Parma province; parts of remote mountainous areas and the neighbouring province of Reggio Emilia are excluded.

As shown in Figure 5, the first flow of expenditure in the chain (LM1) was the transfer of money from the city council of Parma (the budget holder) to the caterer in Parma (the budget recipient). To calculate the size of the budget, the total annual number of meals served by the caterer was multiplied by the fixed price per meal as stipulated in the contract.

The second flow of expenditure (LM2) started from the caterer. Forty-three percent of the caterer’s entire budget was spent on staff, 54 percent on suppliers, and 3 percent on other direct costs. To determine retention/leakage, it was assumed that all staff expenditure was retained locally, as the entire staff of the caterer was resident within the local area.

The distribution of the caterer’s budget for food suppliers was estimated based on information provided by the city council and agricultural prices from ISMEA, the Italian institute for services to the agricultural food market. This information was used to calculate the economic weight of each first-tier supplier in the caterer’s total budget. It was found that 3 percent of the entire budget of the school caterer in Parma is spent on GIs products, mainly Parmigiano Reggiano cheese and Parma ham.

Figure 5 **Local multiplier analysis (LM3) of the school meals service in Parma**



Source: authors' elaboration.

The third flow of expenditures in the chain (LM3) was private spending by the staff working in the Parma caterer (i.e. their own discretionary income expenditure) and the business expenditures of first-tier suppliers on staff and upstream suppliers. For suppliers of GI products, the share of expenditure that is retained within the local area in overall expenditure is slightly lower than 50 percent.

Based on these estimates, the global LM3 ratio for the school meals chain in Parma was found to be 1.89. This means that for every EUR 1 spent by the initial generators of the budget (i.e. the city council of Parma and the schoolchildren's parents), an additional EUR 0.89 is generated within the local area. The contribution of GI products is very limited; of each EUR 1 spent on GI products for school meal services, only EUR 0.04 (or 4 percent) is retained within the local area.

Lucca

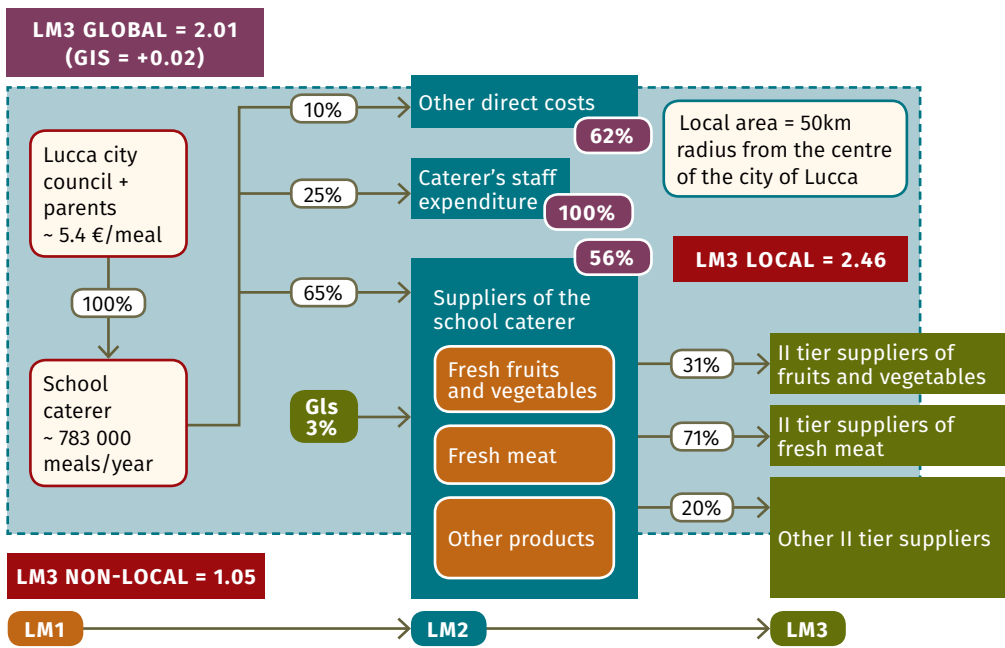
The analysis of the economic spillover effects of the school meal services in Lucca adopted the same approach as that used for Parma. The analysis started with the first flow of expenditure (LM1) – the budget available for overall school meal service procurement in Lucca (Figure 6).

The second flow of expenditure in the chain (LM2) is the budget spent by the caterer in Lucca on staff, suppliers and other direct costs. Based on the expenditure data provided by the caterer, it was established that 25 percent of the caterer's expenditure was on staff, 65 percent on suppliers and 10 percent on other direct costs. To determine retention/leakage, it was assumed that most of the staff expenditure was retained locally, as the entire staff of the caterer resided within the local area.

About 3 percent of the school caterer's budget was used to buy GI products (PDO hard cheeses and PDO/PGI processed meat).

The results for the LM3 stage were obtained based on the same criteria as those used for the Parma case. The proportion of the expenditure on GI products that is retained within the local area is negligible, since the upstream agricultural and processing activities for every GI product served in Lucca develop outside the radius of 50 km from the city centre.

Figure 6 Local multiplier analysis (LM3) of the school meals service in Lucca



Source: authors' elaboration.

Based on these calculations, the LM3 ratio for the school meals chain in Lucca was estimated at 2.01. This means that for every EUR 1 spent by the initial budget generators (i.e. the municipality of Lucca and parents), an additional EUR 1.01 is generated within the local area. The share of GI products in this spillover effect is 2 percent, meaning that every euro from the school meals budget generates an additional EUR 0.02 within the local area, due to its effects in the GI supply chain.

Conclusions and limits of the Parma and Lucca case studies

This study evaluates the relevance of the inclusion of GI products in primary school canteen menus in volume terms, and assesses its economic spillover effects. The calculation of the LM3 indicator is useful to track the financial flows within local areas at the different stages of the school meal supply chain. The indicator helps understand to what extent the inclusion of GI products in school meals services contributes to the local economy.

Most of the menus proposed throughout the school year in Parma and Lucca include GI products, mainly hard cheeses (e.g. Parmigiano Reggiano) and cured meat (e.g. Parma ham). GI products are frequently embedded as an ingredient in dishes; some are added to the plate by the pupils themselves. GI products are more frequently included in certain food categories, such as dairy products or processed meat products. However, overall, GI products account for only a small share of the total volume of food used for school meals services (2 to 2.5 percent).

The economic relevance of the inclusion of GI products in food procurement for school meals services is modest; its spillover effect into the local economy is positive but very low (4 percent for Parma and 2 percent for Lucca). The following factors help explain why it may be difficult to boost the procurement of GI products for school meals:

- the competitive disadvantage suffered by GI products compared to their non-GI counterparts due to their higher average market price;
- the lack of scale in the production of many categories of GI products (e.g. fruits and vegetables); and
- the terms of public contracts, which do not lay down clear and mandatory proportions for GI products in procurement for school meals.

The main findings of this study should be considered relevant for the two case studies of Parma and Lucca only. Indeed, food procurement schemes for school meals services depend on regional food procurement rules (which determine *inter alia* the minimum share of GI and organic foods in menus), municipal guidelines, caterers' size and the organization of their food purchasing, and capacities to promote the inclusion of GI foods in school menus.

The LM3 indicator proposed in this study is a static indicator of the economic spillover effect induced by school meals services in Parma and Lucca, and its accuracy is limited to the timespan used in the analysis. Changes in economic relationships, market factors and supply chain organization would necessitate a new assessment, which would result in a different estimate of the economic impact. Furthermore, a comprehensive evaluation of the economic effects of the inclusion of GI products in school meals services requires the analysis of its impacts on the perception of the embedded values of GI products and on the food spending behaviour of the children's

families. Such an analysis may help develop new strategies to inform citizens about the embedded values of GI products through actions in primary schools.

7.4 Conclusion

GI products and processes have the potential to contribute to the building of sustainable food systems that provide healthy diets through multiple entry points in the economic, social and environmental pillars that underpin sustainable development. However, this contribution depends on national, regional and local regulatory frameworks, as well as on the characteristics of production and consumption systems. The production of GI foods may contribute to many public goods (from the food, cultural and natural heritage to local employment and diversified diets). Hence, including GI foods in public food procurement, and especially procurement for school canteens, is particularly relevant:

- From the point of view of producers, public food procurement provides an interesting market for GI products, especially if the food is used in or close to the area of production; the resulting revenues for producers boost the viability of the GI system.
- From the point of view of consumers, and especially children, the inclusion of GI products in public meals services improves access to tasty, healthy food and educates children about their local or national food heritage.
- From the point of view of the territory and society, the inclusion of GI products in public food procurement can enhance the contribution made by these products to rural development and the provision of public goods.

Italy has a long tradition in the production of GI foods, and Italian consumers are keen on their traditional and local products (Fondazione QualiVita, 2020).⁸ The analysis of the cases of the two Italian municipalities in this study can therefore be used to draw more general lessons about how to include GI products in public food procurement, and how to maximize the environmental and socio-economic impacts of doing so.

⁸ For the complete list of GI products in Italy, see the European Commission's register of geographical indications, eAmbrosia, at <https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/geographical-indications-register/database> (European Commission, 2020).

A key finding of this study is that despite the importance of GI products in Italy and their inclusion in national and regional guidelines for tendering, the actual volume of the GI products that are included in menus is rather low – and consequently, so is their contribution to the provision of public goods (measured in this study as the spillover effects into the local economy). The main obstacle to the inclusion of GI products in public food procurement is linked to the fact that GI products are generally niche products, and are often produced by traditional or small-scale producers.

Actions that may increase the share of GI products in school meals and thus improve diet diversity and education on food and agriculture include:

- communication strategies developed by GI consortia and addressed to municipal officers, caterers, teachers and families, to raise awareness about the multiple benefits of GIs products;
- initiatives to allow pupils to discover the various dimensions of GI products (the farmers, landscapes, biodiversity, rural communities, etc.) through, for example, field trips, tasting sessions, meetings with producers and the dissemination of information in schools;
- the development of new frameworks for tendering that make the public purchasing of local GI foods flexible throughout the school year, thus enabling small producers to participate in tenders for the procurement of school meals services;⁹
- the formulation of specific agrifood policies that help GI producers participate in the market of public food procurement by promoting new models of organization of GI supply chains; and
- the development of new recipes that include local GIs products for meals offered in schools, to familiarize school-aged children with these products and their quality aspects.

The dominant motivation for promoting the inclusion of GI products in public food procurement may well not be its effects on producers and the territory, but rather its effects on consumers. Indeed, even a limited presence of GI products in school canteens

⁹ An example of a flexible framework is the dynamic purchasing system used by the Bath and North East Somerset Council (in the United Kingdom of Great Britain and Northern Ireland), whereby the school service contract remains open for new suppliers; qualified suppliers can participate in frequent competitions during the year to provide schools with local and seasonal products.

and other public places constitutes an opportunity to educate consumers about food taste, variety and quality and their cultural and natural heritage, and thereby improve their diets, nutrition and health. The link between GI products and these dimensions is a promising area for further research that aims to improve food habits worldwide.

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8 PUBLIC PROCUREMENT AND THE DEVELOPMENT OF SMALLHOLDER AGRICULTURE TO HELP BUILD SUSTAINABLE FOOD SYSTEMS: THE CASE OF THE BRAZILIAN STATE OF SANTA CATARINA

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ABSTRACT

At the end of the twentieth century, a new paradigm related to the sustainability of food systems arose. This new paradigm is based on the empowerment of rural producers and recognizes the potential of family farmers to contribute to the building of sustainable food systems. Against this background, the present chapter discusses public procurement policies, focusing on how local purchasing can enhance family farmers' potential to contribute to building of sustainable food systems. The chapter analyses the allocation of resources under the Brazilian National School Feeding Programme (PNAE) for the purchasing of products from family farmers in the Brazilian State of Santa Catarina. Its main observation is that efforts under the PNAE to include local smallholders as suppliers empower farmers to organize themselves and access other formal markets. The architecture of PNAE allows for policy continuity, and even growth, despite recent political changes in government.

8.1 Introduction

The unsustainability of food systems has become increasingly evident since the last quarter of the twentieth century (Marsden, 2018). Indeed, climatic events of grand proportions and the widespread depletion of resources have laid bare the limits to the expansion of current modes of food production, which are increasingly leading to widespread and diverse (food, fuel, financial and fiscal) crises. These crises generate deep-rooted inequalities and hunger, demonstrating that food systems are becoming unable to feed populations. Although the growth rate of food production is larger than that of the global population, levels of malnutrition have been increasing since 2015 (Food and Agriculture Organization of the United Nations [FAO] *et al.*, 2018).

Against this background of unsustainability, a new paradigm of food sustainability, with food security at its heart, has emerged. This paradigm goes beyond narrow environmental aspects to respond to fundamental social and economic questions about the sustenance of human life, the safeguarding of human health, etc. The food system is thus perceived as complex, and closely linked to space and place (FAO, 2014; Marsden and Morley, 2014). In a sustainable food system, the relationship between the production and consumption of food and nature is reconsidered to ensure that natural resources can be enjoyed indefinitely.

One of the goals of the new paradigm is to overcome social and spatial inequalities. It is closely intertwined with locally focused agricultural development strategies, centred around territoriality, innovation, biodiversity, agroecology and family farming using family labour (Francis *et al.*, 2003; FAO, 2014). A locally-based sustainable food system is seen as a way “to achieve synergies between sustainability, security, sovereignty and effective resource governance”; it is argued that “a more place-based economic model needs to be progressed” (Marsden and Farioli, 2015, p. 331). The new paradigm builds on local development strategies to empower rural producers and boost resilience (Marsden, Moragues-Faus and Sonnino, 2018). It is able to manage the mobilities and vulnerabilities resulting from the concentration and peripheralization that food systems tend to reinforce (Marsden, 2009). In short, the new paradigm is an alternative model to improve the social, economic and environmental sustainability of food systems based on family farming (FAO, 2014).

Considering the central role in food systems played by family farmers, the Brazilian Government made it compulsory in 2009 to use at least 30 percent of the federal resources dedicated to the National School Feeding Programme (PNAE) to purchase products from family farms (see Chapters 2, 9, 10, 11, 12, 14, 15 and 16 for additional analysis of the Brazilian experience).

This chapter analyses support for family farming to build sustainable food systems, based on three considerations the:

- growing understanding of the unsustainability of predominant food systems, and the search for a sustainable food system;
- role played by family farmers in the building of sustainable food systems; and
- ability of public procurement to boost the contribution of family farming to the building of sustainable food systems.

This chapter analyses the empirical case of PNAE in the Brazilian State of Santa Catarina to help understand the potential of public policies. Family farmers have a significant presence in the state of Santa Catarina; their organizations are well distributed across the territory and they strongly participate in local and formal markets. These conditions are believed to give Santa Catarina a predisposition to better absorb the potentialities of public policies. The analysis in this chapter consists of: a short discussion of PNAE, an analysis of the relative success of the policy in various municipalities, and the identification of the potentialities of PNAE as evidenced by its effects on farmers (based on interviews with 98 key actors conducted in 2015).

This chapter argues that food purchasing under PNAE has the potential to empower farmers, encourage farmers' organization and enable farmers to access other, formal markets. In addition, it argues that the purchasing of family farming products may contribute to the building of sustainable food systems by boost environmental biodiversity, protecting local cultures and supporting the fight against social inequalities.

8.2 Sustainable food systems: literature review

Food systems and denied unsustainability

Academia has historically separated natural and socio-economic aspects; nature was understood as an inexhaustible source of resources for the generation of value, an external factor that could be shaped to the needs of the world population. However, this misconception started to change at the end of the twentieth century as the adverse ecological and social effects of this view of agrifood development became increasingly evident. At the beginning of the twenty-first century, the food system was identified as one of the major causes of the depletion of natural resources and of poverty and food insecurity (Willett *et al.*, 2019). The recognition of the limits that nature imposes upon human activity implies the recognition of the relationship between human actions and environmental degradation, climate change and global warming, and awareness of the unequal use of the remaining resources. This recognition reflects the increasingly evident limits of appropriation and legitimation in the dominant model, as well as the fertile foundations for alternatives to be constructed (Marsden, 2018). However, evidence of the shortcomings of the dominant production model and its governance structures, and the emergence of alternative movements does not necessarily result in transformative changes. Indeed, the narrative around the dominant model persists (Marsden, Moragues-Faus and Sonnino, 2018). This persistence reflects a denial that shows itself in two ways: resistance and adaptation. Unsustainability is denied or underestimated, while the demand for sustainability is addressed through incremental adaptation, including the appropriation of precepts from emerging alternative markets. Labels attesting to organic production methods, fair trade or other concepts of sustainability and other actions are similar to the greening strategies used for conventional products, and do not question prevailing production models (Galli *et al.*, 2018). The persistence of the traditional narrative is justified based on the proposition that there is a trade-off between food diversity and quality and the preservation of the environment on the one hand, and sufficient food supplies on the other. In this thinking, the dominant food system and its agricultural model is considered as the only one capable of feeding the world. Hence, policymakers and consumers are presented with an impossible dilemma – the choice between two aspects that are essential to the future of humanity.

Many argue that the world produces enough food. Rather than producing greater quantities, the focus should be on ensuring that the food produced is of the right type and quality, production practices are sustainable and food is distributed equitably. The fundamental questions here are: How can we use the resources we have in a more just, effective and sustainable way? How can we at the same time produce food, protect wildlife and provide adequate livelihoods for rural populations? What would be the results of a better coordination of the use of resources by food producing communities? (Royal Society for the Encouragement of Arts, Manufactures and Commerce, 2019).

In recent decades, alternative food movements and networks have begun to seek answers to these fundamental questions; they show that it is possible to meet the demands for food security and sustainability, and at the same time connect urban and rural populations. Throughout the world, sustainable forms of production and consumption are being developed – especially in Latin America, which plays a pioneering role in agroecology. Other strategies are the expansion of markets for products of organic, agroecological agriculture and the strengthening of short marketing chains (Rover, 2011). These alternative movements and systems create new spatial and social connections in response to the concentration and centralization of capital in the agrifood sector, and to the peripheralization of food inequalities and poverty by the dismantling of social and food welfare networks. The new paradigm conceptualizes inequality in food and income as wasteful, and judges the current agricultural model to be inadequate (Marsden and Morley, 2014). Effective sustainable (socially, economically and environmentally) food systems are based on local needs and local inputs (such as culture and agrobiodiversity) and promote socially balanced and inclusive development.

The new paradigm of food sustainability focuses on food insecurity; it responds to social and spatial inequalities by empowering rural producers, implementing local development strategies and constructing conditions that ensure resilience within the system (Marsden, Moragues-Faus and Sonnino, 2018). According to this paradigm, the new agricultural model is local, innovative, biologically diverse and agroecological (Francis *et al.*, 2003), and relies on family labour (FAO, 2014). In other words, it is an alternative model centred around small family farmers that is socially, economically and environmentally sustainable (FAO, 2014).

The following sections discuss sustainable food systems and analyse the contribution that family farmers can make to the building of such systems.

Sustainable food systems

How can we use the resources we have in more just, effective and sustainable ways? The new paradigm of sustainability in food systems places food security at the centre of this discussion. This paradigm goes beyond strictly environmental aspects to tackle fundamental social and economic questions about the sustenance of human life, the safeguarding of human health, etc., and the interrelation between them.

Sustainability has been measured in terms of concepts such as water footprints or carbon emissions; however, these often obscure the complexities of sustainability. It is not enough to ensure low carbon emissions or water footprints if doing so results in other forms of unsustainability. Likewise, it may not be recommendable to use carbon emission levels or footprint criteria in food deserts, food-insecure regions or regions that do not have favourable conditions to produce food.¹ The debate around sustainable food systems and food security must overcome such limiting concepts (Marsden and Morley, 2014). Indeed, in some places, the building of a sustainable food production system requires a lot of time, while in other places it may be discovered that it is more sustainable to buy globally than locally. Such places need a more comprehensive understanding of sustainability. Looking at the larger picture may help formulate more complex and complete strategies.

Marsden and Morley (2014) define a sustainable food system using six parameters. First, a sustainable food system ensures that “economic development and environmental efficiency and protection are integrated in planning and implementation.” Second, it aims at “reducing the effects of unsustainability on the young and future generations.” Third, it guarantees “environmental biodiversity protection and restoration.” Fourth, it is “equity maximizing” and “entropy minimizing.” Fifth, it is based on “the quality of life and sustainable well-being.” Sixth, it has “inclusive and multi-stakeholder capabilities and commitments for developmental and business models that are more

¹ Food deserts are deprived areas with poor access to retail provision of healthy affordable food (Whelan *et al.*, 2002). Food-insecure regions are regions whose food insecurity places them on the hunger map.

than business as usual, and ones that enhance the multiple territorial capitals of different places.” Meanwhile, Caron *et al.* (2018, p. 4) state that:

Sustainable food systems may contribute to four outcomes: (i) enabling all people to eat nutritious and healthy diets, (ii) regenerating ecosystems, (iii) mitigating climate change, and (iv) encouraging social justice through focusing on the resilience and well-being of more impoverished rural communities.

FAO argues that a sustainable food system, and more specifically sustainable agriculture, requires a greater efficiency in the use of resources and direct actions to conserve, protect and improve natural resources; it implies protecting and improving rural livelihoods, promoting equity and social well-being, and boosting the resilience of individuals, communities and ecosystems (FAO, 2014). The report of the High Level Panel of Experts on Food Security and Nutrition (HLPE) (2017) highlights the importance of resilience to external shocks (including climate variability, natural disasters and economic shocks) and of a more diverse food supply that provides diversified and high quality foods. The report also underlines that policies aimed at building sustainable food systems must focus on environmental as well as nutritional and health aspects. It states that while the short-term costs of actions may seem high, “the cost of inaction is much higher, carrying with it a terrible legacy affecting future generations” (HLPE, 2017).

Sustainable food systems can make significant contributions to society in two ways. First, they may alleviate the problems arising from the traditional food production model of the Green Revolution. Second, they may help solve diet-related problems in terms of the access to and quality of food, as well as health (e.g. obesity and diabetes). Sustainable food systems connect consumers with local rural and urban farmers. The recognition of this connection does not imply the assumption that foods sourced locally through alternative, local food networks only have positive aspects (Sonnino, 2010). The reconnection between consumers and local producers, and even between producers and the landscape and nature they engage with, is seen as an opportunity to restart the discussion about food systems – and especially about the value given to short and alternative food chains. This renewed discussion includes the topic of how to deal with uneven development within and between regions, and takes into consideration the marginalization of farmers and the loss

of value of their operations. It questions the centrality of capital in conventional agriculture, the biotechnology industry and the agro-industry (Marsden, Moraes-Faus and Sonnino, 2018).

According to the United Nations (UN), “a sustainable food system is a food system that delivers food and nutrition security for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised” (UN, Secretary General’s High Level Task Force on Global Food and Nutrition Security [HLTF], 2015). According to Lindgren *et al.* (2018), sustainable food systems may enable a shift towards healthier, affordable and sustainable diets. The authors address various issues of sustainable food systems, including food waste reduction and interactions between food and industrial systems. They discuss dietary transitions and emerging innovations from a perspective that links health and sustainability – in other words – that connects aspects of production with aspects of consumption.

The transformations that are necessary to achieve a sustainable agrifood system are determined by political will, social organization and local production conditions, among many other factors. More specific and localized studies are needed to understand transformations in agrifood systems.

The next section focuses on a group of farmers considered to be directly connected to the local dimension of sustainability in food systems: family farmers.

Family farming and its potential to contribute to the building of sustainable food systems

There are various definitions of family farming, or family-based agriculture. Some definitions mention family management and labour, and emphasize a predominantly agricultural income (HLPE, 2013). Family-based agriculture does not guarantee the sustainability or nutritiousness of food. Nevertheless, family farming has the potential to be a tool for rural development that can engender socio-economic and environmental progress (Garner and de la O Campos, 2014). Family farming has resisted the concentration and centralization of production to continue supplying diversified products to different markets. As such, its very existence demonstrates that it is an alternative to the traditional agricultural model.

Family farming and its role in sustainable food systems can be understood through concepts such as embeddedness (Murdoch, Marsden and Bank, 2000), resistance (O'Brien, 2013; Scott, 1985), resilience (Folke, 2006) and redesign (Oostindie, 2015). A rural property and farming not only signify work, but they also mean home, food, health, community, culture and a way of life to a family farmer. The environment and socio-agrobiodiversity are part of family farmers' production systems; hence, it is in their direct interest to preserve them by using resources efficiently and promoting biodiversity. Family farming is at the forefront of organic and agroecological production, especially in Latin America where agroecology takes the form of a social movement among family farmers.

Food systems are complex and closely linked to place. They include connections between family farmers, neighbours and local consumers based on trust. Associations, cooperatives and other types of organizations empower farmers to overcome the disadvantages of their limited scale of production in terms of market power, access to assets and political representation. Family farmers usually source labour and resources for investment within their local communities, and typically market their products through short marketing circuits i.e. most of their trading is done close to consumers, often within their own communities (HLPE, 2013). The close connection between family farmers and their communities decreases dependence on the market economy. This provides local protection by boosting family farmers' resistance to shocks such as economic crises.

Family farmers' connection with the land and the environment makes them potential actors for the preservation of traditional food products, global agrobiodiversity and natural resources (FAO, 2014). Furthermore, family farming has been found to be associated with reduced malnutrition and food insecurity (FAO, International Fund for Agricultural Development [IFAD] and World Food Programme [WFP], 2015). In late 2017, FAO released a resolution launching the Decade of Family Agriculture (2018-2028) (FAO, 2019). This resolution emphasizes the importance of family farming for food security and nutrition improvement, as well as for the eradication of poverty and the conservation of historical, cultural and natural heritage.

Family farmers produce and consume healthy foods through biodiverse production systems that are integrated in the local environment and community. Note that there may be trade-offs between ensuring that family farmers play a central role in the building of sustainable food systems and short-term profitability (Marsden, Moragues-Faus and Sonnino, 2018).

Section 3 discusses the public purchasing of products from family farmers as a way to improve the sustainability of food systems in the Brazilian state of Santa Catarina.

8.3 Family farming and its potential contribution to the building of sustainable food systems: the case of Santa Catarina

The State of Santa Catarina

The Brazilian State of Santa Catarina can be considered a family farming state, where “the family is the central nucleus of a way of producing and living that has consolidated the state’s dynamic and diversified agriculture” (Ferrari and Marcondes, 2015, p. 7). Family farming is very present in Santa Catarina in terms of the number of farms, the area under production and production value. Family farms account for 78 percent of all rural properties in the state (Brazil, Brazilian Institute of Geography and Statistics [IBGE], 2019).² Family farmers in Santa Catarina stand out politically and economically. Their political participation is high, and they are generally recognized as strategically important from both an economic and a political point of view (Marcondes, 2016). The farmers are used to adopting new technologies and market mechanisms, and they are well integrated in both national and international markets, especially for meat. The strong presence of family farming in Santa Catarina has its roots in the early colonization of the territory. This part of the Brazilian South was not at that time suitable for the large-scale production of products with a high commercial value such as sugar, cotton or coffee (Burque de Holanda, 1984).

² Although family farms make up nearly 77 percent of Brazil’s 5.1 million agricultural enterprises, they account for only 23 percent of the total income generated by the agriculture sector, and occupy only 23 percent of the land (Brazil, IBGE, 2019).

Thus, the territory was colonized by granting possession of small properties to immigrants through colonization companies.³ These small, diversified operations set up cooperatives and developed an agro-industry to serve other Brazilian states. They laid the basis for enduring local economic systems and traditions (Mattei and Nunes Lins, 2010).

Family farming only lost relative importance in Santa Catarina at the end of the twentieth century, with the late arrival of agricultural modernization and the commercial opening up of the territory through neoliberal policies that changed the rules of the food market. The late arrival of modernization was due first to the geography of the State (with irregular and varied soil conditions, that could not easily be adapted to mechanization); second, family farmers in the State, through organizations such as cooperatives and thanks to their political clout, successfully created an environment that was hostile to agricultural modernization. Third, modernization was hampered by the fact that family farmers are flexible and can react to market pressures by changing their production methods in times of crisis; in addition, family farmers are often engaged in labour-intensive, rather than capital-intensive, activities (Marcondes, 2016).

As a result of the late modernization of agriculture in the State, the transformation towards the concentration of production and income also started late; agricultural production in Santa Catarina is still not dominated by the production of raw materials for export markets – as is typical for Brazil as a whole, where a structural transformation towards a decrease in the number of family farmers and an increase in the size of properties has taken place (Ferrari and Marcondes, 2015; Marcondes, 2016). Indeed, agricultural production in Brazil as a whole is becoming more intensive, with a growing use of agrochemicals; an increasing share of the land is being used for the production of soybean. This trend is resulting in the exclusion of less competitive family farmers. However, family farmers in Santa Catarina are still resistant to these trends, which facilitates the implementation of public support policies. As pressure on family farmers in the state increases, such policies must be strengthened.

³ The central government's main interest in the region was to use it a transit and supply route.

Analysis of the contribution of PNAE to the building of a sustainable food system

Overview

Public procurement can promote a shift towards more sustainable agriculture. Sonnino, Spayde and Ashe (2016) argue that public purchasing schemes (e.g. school meal programmes) can use alternative food systems and create new forms of governance. Public procurement can foster short food chains and reformulate relationships between farmers and institutional buyers by prioritizing nutritious and ecologically sustainable foods from smaller-scale and/or organic producers.

PNAE was created in 1955 as part of the Brazilian institutional purchasing system. It became a tool for rural development, sustainability and food security in 2009.⁴ Since then, the actors involved in PNAE – the country's 27 federative units, 5 570 municipalities and all state schools – have been required to use at least 30 percent of all federal resources under the programme to buy products from family farmers.⁵ In addition, foods should be purchased, whenever possible, within the federative unit where the schools are located; organic or “agroecological” foods should be prioritized.⁶ Thus, PNAE seeks to distribute food from more sustainable agrifood systems. In addition, the resolution gives preference to local, vulnerable producers. For purchases from family farmers, preference is given to (in this order) local suppliers within the municipality, agrarian reform settlements, traditional indigenous communities and quilombos,⁷ suppliers of certified organic or “agroecological” foods, formal groups of family farmers, informal groups of family farmers and individual family farmers.⁸

The regulations relating to the purchasing of food from family farmers under PNAE can be considered a success. The regulations were issued in 2009, and in 2011 (year of the first available data), 8 percent of the federal resources for school meals were

⁴ The original law on PNAE dates from 2009, but has been improved over time. The most recent version is the law issued in 2013 (*Resolução/CD/FNDE nº 26 de 17 de junho de 2013* [Resolution/CD/FNDE No. 26 of 17 June 2013]).

⁵ A price premium of up to 30 percent is tolerated for organic and/or agroecological products.

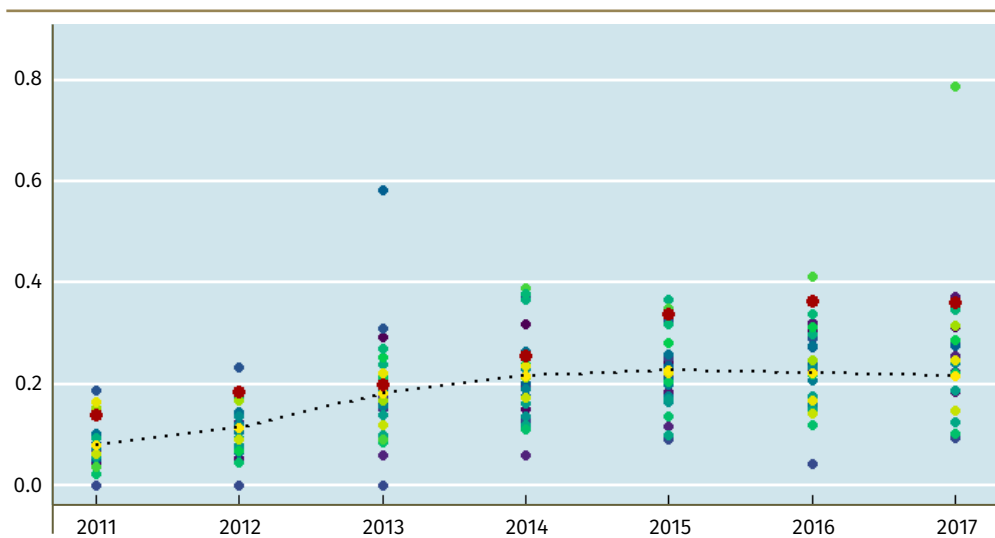
⁶ *Resolução/CD/FNDE nº 26 de 17 de junho de 2013* (Resolution/CD/FNDE No. 26 of 17 June 2013) (Article 19).

⁷ Quilombos are hinterland settlements founded by people of African origin.

⁸ *Resolução/CD/FNDE nº 26 de 17 de junho de 2013* (Resolution/CD/FNDE No. 26 of 17 June 2013) (Article 25).

used to purchase family farming products.⁹ In 2015, the share of funds spent on food from family farms reached 22.8 percent;¹⁰ it remained at a similar level in 2016 and 2017 (Figure 1).

Figure 1 **Funds used to buy food from family farmers, as a share of total federal funds available under PNAE to States and municipalities, 2011–2017**



Source: Brazil, Ministry of Education, National Fund for Educational Development (FNDE), 2019.

Although the national average share does comply with the requirement of 30 percent set by the law, several Brazilian states have shown consistent progress towards this goal.

Analysis

PNAE succeeded in boosting the share of food from family farms in overall purchases in Santa Catarina; the results differ, however, from municipality to municipality. Principal component analysis (PCA) was used to measure the degree of success of PNAE by comparing a number of variables before and after implementation of the

⁹ BRL 234.7 million or USD 74.54 million (in December 2017, BRL 3.2805 = USD 1).

¹⁰ BRL 858.6 million or USD 261.73 million (in December 2017, BRL 3.2805 = USD 1).

policy (Johnson and Whichern, 2007).¹¹ The following variables were evaluated for the municipalities in Santa Catarina:

- **horticulture:** number of horticultural establishments (per capita);
- **association:** number of associated establishments (per capita);
- **technical assistance:** number of establishments with access to technical assistance (per capita);
- **PNAE:** value (BRL) of purchases of family farming products (per capita).

Due to the large differences in size between the municipalities of the state, the absolute variables were divided by the number of inhabitants in corresponding municipalities, to obtain per capita values.¹² In addition, the municipalities were divided into two groups: “small” (up to 10 000 inhabitants) and “medium and large” (over 10 000 inhabitants).

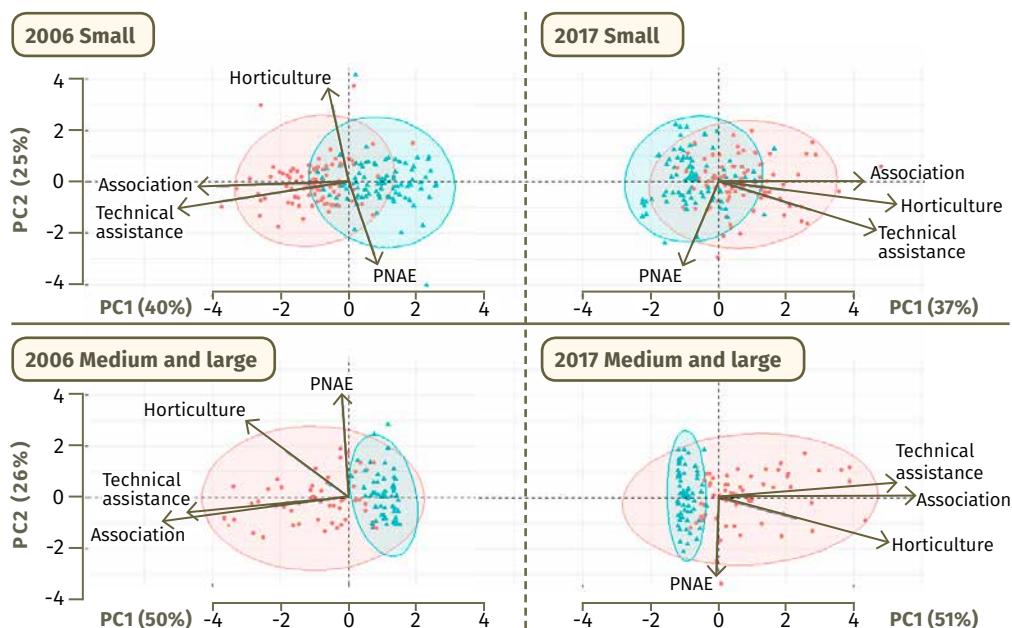
The PCA analysis generated four biplot graphs (Figure 2), one for each group of municipalities and each selected year (2006 and 2017); the dots are the various municipalities of Santa Catarina. The municipalities were analysed for the years 2006 (before implementation of the policy) and 2017 (after implementation), according to the availability of data from IBGE. The variables were selected based on the availability of literature and data. The selected variables are:

- the value of purchases of family farming products under PNAE (PNAE);
- the participation of farmers in associations, reflecting the organization capacity of farmers (association);
- access to technical assistance, reflecting public support and the private availability of farmer support (technical assistance); and
- the production of fruits and vegetables, the dominating product category in the purchases of family farming products for school feeding (horticulture).

¹¹ This multivariate methodology seeks to evaluate the variance and covariance structure of a random vector composed of random p-variables by constructing linear combinations of the original variables.

¹² The transformation was made because the analysis of the absolute values may have generated a mistaken image due to the differences in size between the municipalities.

Figure 2. **Analysis of the municipalities of Santa Catarina according to selected variables before (2006) and after (2017) the implementation of PNAE, by population size group and by year**



Notes: blue dots: municipalities with the lowest number of family farmers (lower median); red dots: municipalities with the highest number of family farmers (upper median).

Source: Brazil, Ministry of Education, FNDE, 2019; Brazil, IBGE, 2019.

The municipalities classified as small are characterized by a large number of associations and technical assistance bodies (2006 and 2017). These municipalities have more producers of horticultural products in 2017 than in 2006. In 2017, a larger number of red municipalities are located near the axis of the PNAE variable. This shows that in 2017, municipalities with the most family farms are also those with the highest family farming purchases.

As far as the medium and large municipalities are concerned, red municipalities remain practically identical between 2006 and 2017 in terms of the number of associations, technical assistance and horticultural production. For this group, the purchasing values of family farming products are more concentrated in 2017 (less scattered blue dots, closer to the axis of the PNAE variable as well as the number of red dots).

The increase in purchases of family farming products over time, and the emphasis on horticultural products led to an increase in purchases of organic products under PNAE.¹³ Indeed, under the programme, organic foods began to be served in schools. According to data from the accountability management system (SiGPC) of the National Fund for Educational Development (FNDE), Santa Catarina spent USD 1 070 368 to purchase organic products for school meals in 2017.¹⁴

In Brazil, organic and/or agroecological products can be marketed through three alternative mechanisms. An audit may be carried out by a certifying body accredited by the Ministry of Agriculture, Livestock and Supply (MAPA), a participatory guarantee system may be certified by a legally recognized participatory conformity assessment body (OPAC), or a direct selling organization under social control can declare its products organic, if it follows the specifications of a technical commission. The accreditation system for organic production has created new instruments to favour small producers (Brazil, MAPA, n.d.). For example, as the institutional market is configured as direct selling, farmers can use social control. Participatory certification has also been used by groups in a way that promotes greater interaction between farmers, consumers, technicians and other stakeholders.

The importance of the connection between farmers and support mechanisms (technical assistance and associations) to the success of PNAE is apparent for both groups of municipalities, and for both time periods analysed (see also Chapter 29). However, more horticultural producers and family farmers sold to PNAE throughout the years in small municipalities. In medium and large municipalities, the purchasing values of family farming products were more concentrated in 2017. These results may imply that incentives to diversify production should focus on smaller municipalities; however, most of the financial resources are concentrated in medium and large municipalities. The results validate strategies that support organic and “agroecological” production methods and promote the inclusion of historically more vulnerable groups of farmers.

The following section complements this discussion with qualitative information.

¹³ It was impossible to analyse organic products separately through PCA as the number of organic producers is too small and organic production is not sufficiently formalized, which hinders a more precise dimensioning.

¹⁴ BRL 3 510 625 (in December 2017, BRL 3.2805 = USD 1).

Understanding the potentialities of PNAE

Caron *et al.* (2018), Marsden and Morley (2014) and FAO (2014) build different but fully compatible concepts of sustainable food systems. The various concepts have three principles in common. First, they share a concern for the environment, the efficient use of its resources and biodiversity, the regeneration of ecosystems and the mitigation of climate change. Second, they consider present and future generations; equity is guaranteed and basic needs are satisfied with an emphasis on food security and quality of life i.e. all people (and especially the most vulnerable, rural populations) should eat nutritious and healthy diets. Third, the two previous aspects are contemplated while taking into consideration the needs of individuals, communities and ecosystems; social justice is promoted with a focus on resilience and well-being, especially for poorer rural communities. The food system, in terms of sustainability, is thus perceived as complex and closely linked to place.

The next paragraphs analyse the effects of PNAE in Santa Catarina based on 98 interviews with key actors, conducted in 2015. They consider the three central points highlighted above. The interviewees included family farmers, representatives of municipalities responsible for purchasing from family farms, and rural extension employees from EPAGRI, the agricultural research and rural extension agency of the state of Santa Catarina.

Keeping the three principles of sustainable food systems in mind, PNAE improved family farmers' relationships with the environment, food security and quality of life, and resilience in five ways:

- The interviewed actors universally confirmed the positive impact of PNAE purchases on farmers' incomes. "Guaranteed income" and "guaranteed purchases" were mentioned as the main advantages of the programme.
- The most often mentioned advantage of PNAE is the higher quality and diversity of food that thousands of children, teenagers, farmers and their communities receive on their plates. In 80 percent of all municipalities, the interviewees highlighted an increase in product diversity, which is linked to biodiversity (see also Chapters 5, 11 and 12). In some municipalities, respondents mentioned the use of regional products and fish in school meals (some of this fish is

purchased from a women's cooperative).¹⁵ PNAE's aim to boost the diversity of foods is related to the aim of preserving biodiversity. The greater diversity in food production resulted in a higher availability of food for farmers and meals with a higher nutritional diversity for students, their families and communities. The strengthening of farmers' livelihood capacities was highlighted as one of the primary positive outcomes of the policy in the municipality of Bom Retiro, even though there was no specific question on this topic.

- Family farmers, their family and communities cited local development, increased local production and the encouragement of young people to stay in the countryside as positive effects of PNAE. They also mentioned intangible aspects, such as the preservation of the history of family farming, the promotion of family farming and the improvement of farmers' well-being.
- PNAE guarantees purchases for a relatively long period (usually one year). Hence, farmers feel encouraged to make small investments in their enterprises, such as expanding production or increasing their product range, building greenhouses or adopting plasticulture.
- The previous four effects, together with the support from municipalities and the state, encourage farmers to organize themselves formally to take advantage of PNAE. By doing so, they can access other, previously inaccessible markets.

8.4 Conclusions

The new paradigm of sustainable food systems presents a possibility to overcome the limits of the hegemonic narrative that presents the current – unsustainable – agricultural model as the only alternative for the production of food. By overcoming these limits, answers can be sought to the most challenging questions, including how to produce sufficient quantities of healthy foods accessible to the population as a whole in a sustainable way.

This chapter discussed the potential of family farming to help answer this question, as well as the related challenges. Family farming, while not necessarily sustainable, has the potential to improve the diversity of food production, strengthen the

¹⁵ The regional products included pine nuts (*pinhão*), jaboticaba (the fruit of the Brazilian grapetree) and carambola fruits.

relationships between producers and consumers and foster connections with local cultures and biodiversity. The achievement of these goals requires the development of a new narrative around sustainable food systems. In addition to this narrative, strategies must be developed to attract farmers to forms of production that are more economically, socially and environmentally sustainable.

To analyse the potential of family farming, this chapter used the example of the State of Santa Catarina where family farming has a strong presence, but is under pressure. The analysis of the performance of PNAE in Santa Catarina revealed differences between small and medium and large municipalities. Horticulture, used as a proxy for the production of fresh and diverse foods, showed most changes in small municipalities after the implementation of PNAE. Smaller municipalities were found to be more sensitive to change over time. The changes in horticulture (e.g. production diversification) found through PCA were corroborated by qualitative data. Both the quantitative and the qualitative analyses found evidence of an increase in purchases of food from family farmers.

Future research should look into the local technical, personal, organizational and other factors that promote change towards more sustainable agrifood systems. Who/ what promotes such change, and why? Do the factors stem from the pressures on the traditional model of the Green Revolution? Could an agroecological transition be stimulated? Has PNAE led states and municipalities to change their policies for food and nutrition security, rural and environmental development in a way that supports the building of sustainable food systems from a sustainable production to encouraging healthier eating habits?

It is recommendable to follow up on the proposal of family farming as a sustainable production model with an analysis of existing and potential agricultural knowledge patterns. Changes in these patterns over time may explain possible permanent changes in the behaviour of family farmers. Public policies should aim at boosting the resilience and sustainability of family farms.

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LEGAL INSTRUMENTS

Brazil

Resolução/CD/FNDE nº 26 de 17 de junho de 2013. Dispõe sobre o atendimento da alimentação escolar aos alunos da educação básica no âmbito do Programa Nacional de Alimentação Escolar – PNAE (Resolution/CD/FNDE No. 26 of 17 June 2013 on the provision of school meals to basic education students within the scope of the National School Feeding Program – PNAE).

9 CHALLENGES AND OPPORTUNITIES FOR RURAL WOMEN IN PUBLIC PURCHASING PROGRAMMES: CASE STUDIES IN LATIN AMERICA AND THE CARIBBEAN

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ABSTRACT

This chapter assesses women's participation in a number of public food procurement initiatives in six Latin America and Caribbean countries (Brazil, Colombia, the Dominican Republic, Honduras, Paraguay and Peru) based on the results of field research. It addresses the opportunities and difficulties that women face when trying to participate in such initiatives as producers and sellers. Women's participation in most of the programmes was found to be very low, except in Brazil, where measures were taken to increase their involvement. The Brazilian case shows that doing so improves the quality and diversity of the food consumed in schools and social facilities. This chapter formulates recommendations as to how governments can facilitate the participation of women in public food procurement programmes, and thus fight hunger and malnutrition without reinforcing gender inequalities.

9.1 Introduction

Over the past decades, public food purchasing programmes began being recognized as instruments that enable states to honour commitments in terms of food security as a human right, improve the lives of their poorest citizens and promote local development. Using their sizable purchasing power, states can stimulate the production, sale and consumption of food products in the socially, environmentally

and economically most advantageous way (Latin American and Caribbean Economic System [SELA], 2014). Public purchasing programmes that favour family farming may boost the incomes of producers, increase the supply of fresh, varied products on the market, and help people eat healthier diets.¹

A number of public purchasing programmes have been implemented in recent years in Latin America and the Caribbean, generally by progressive governments and often supported by international aid programmes or by the Food and Agriculture Organization of the UN (FAO) (FAO, 2015a; FAO, 2016). Public purchases have been used under a variety of government-led programmes to supply food to public institutions such as schools, hospitals, prisons or the armed forces, or to vulnerable populations (through public canteens, food supplementation programmes, the distribution of basic food packages, etc.).

The first such programme was the Food Purchase Programme (Programa de Aquisição de Alimentos, or PAA) created in 2003 in Brazil, under the auspices of the federal government's food and nutrition security policy. PAA established a direct purchasing mechanism that bought food directly from small family farmers or their organizations. This food was distributed to people facing food insecurity through the social assistance network, including school meals (Menezes, Porto and Grisa, 2005; Chmielewska and Souza, 2010. See also Chapters 2, 8, 10, 11, 12, 14, 15 and 16 for additional analysis of the Brazilian experience). Similar, more or less institutionalized programmes soon followed in other countries (Cintrão, 2018).

Evaluations of these efforts have demonstrated their potential to create virtuous cycles linking the promotion of family farming to the improvement of the functioning of local markets, the provision of social assistance and the furthering of consumers' well-being (Ballesteros, 2015; Chmielewska and Souza, 2010; FAO, 2013, 2015a, 2017; Maluf *et al.*, 2015). In short, these programmes produce numerous social benefits and help address the causes of hunger and poverty in urban and rural areas alike.

¹ Beginning in the 1990s, numerous countries in Latin America saw the emergence of public policies dedicated to family farming. The term was eventually legally defined, taking into account factors such as the engagement of workers from outside the family, the size of enterprises and the use of land. However, family farmers remain a very heterogeneous category in terms of socio-economic and cultural characteristics. Farmers may have adopted more or less modern techniques; they may belong to traditional or indigenous communities, descend from African ancestors, etc. Differences among family farmers are not always duly considered in policy design, whether they are differences in family composition (gender or age, for example) or in the access to land and capital resources, in ways of life, in production methods, in the access to natural resources, etc. Salcedo and Guzmán (2014) trace the history of family farming as a category and offer a panoramic view of its complexity.

While public purchasing initiatives open up new possibilities for rural women, many obstacles may hinder their involvement as direct providers in the programmes. Gender inequalities arise at the personal, family and – most importantly – institutional levels (Quisumbing *et al.*, 2014; Siliprandi and Cintrão, 2015). These inequalities create significant hurdles to women’s full participation in the programmes, as they affect the ways in which women see themselves and are seen by others as rural producers, as women, and as members of a family or community (Siliprandi and Cintrão, 2011a). Treating women equally to men (i.e. without distinction, as if they enjoyed equal opportunities or as if their work were complementarily to that of men) in public purchasing programmes only reinforces existing inequalities.

International agreements on gender issues have, in many countries, promoted the creation of agencies that collect statistical data and implement plans and policies on gender equality.² However, these plans and policies do not always pay specific attention to the issues faced by rural women, as highlighted by rural women’s groups. The inclusion of rural women in public purchasing programmes is not just a matter of social justice and gender equality, but may bring tangible benefits.

This chapter demonstrates the potential contribution of rural women to public purchasing programmes, and identifies the factors that hamper their full participation in them. In particular, the chapter emphasizes that programmes must take due account of the causes of gender inequalities and help resolve gender gaps.

The chapter is based on two research studies. The first study was undertaken in 2009 and 2010 in Brazil, and examines the participation of women in PAA (Siliprandi and Cintrão, 2011a, 2011b, 2013).³ The second study was led by FAO’s Regional Office for Latin America and the Caribbean. It analyses women’s inclusion in public purchasing (trial) programmes (mostly school feeding programmes) in Colombia, the Dominican Republic, Honduras, Paraguay and Peru (Cintrão, 2018).⁴ School feeding programmes

² See, for example, the *United Nations Convention on the Elimination of All Forms of Discrimination Against Women (1979)*. Beginning in the second half of the 1990s, many countries formulated national plans to ensure equal opportunities for women and created institutions (ministries, secretariats, national institutes, directorates, etc.) to drive policymaking and implement actions for gender equity (See Cintrão, 2018, pp. 8–9, Table 1 and Table 2).

³ This mixed-methods research studied the formal presence of women as PAA contract-holders to identify the factors that facilitated or hampered their participation.

⁴ See the list of initiatives studied in Table 1. Beyond documenting women’s participation in the various programmes, the study delivered recommendations to improve their inclusion in the programmes.

grew significantly in the 2000s in Latin America and the Caribbean as an instrument to universalize the access to food through decentralized purchasing programmes with guaranteed public resources (FAO, 2013, 2015b). Most school food programmes offer breakfast or snacks, but some also offer lunches. Some try to source most of the food served nationally, preferably from the areas closest to the place of consumption (see Chapters 6 and 17 for additional studies on Honduras and Peru, Chapters 17 and 28 for Colombia and Chapter 17 for the Dominican Republic and Paraguay). Efforts have been made to include rural women as suppliers in these programmes, but they remain incipient (Cintrão, 2018).

9.2 Rural women and gender inequalities

The rural population of Latin America and the Caribbean is estimated at roughly 129 million people. They are peasants, indigenous people and Afro-descendants; they have different ways of life and social organization and carry out a range livelihood activities, from growing crops and raising animals to gathering wild plants or fishing – in addition to the non-agricultural tasks that continue to define rural life.

Women work in the productive and reproductive spheres (i.e. caring for their families); however, they face explicit and implicit discrimination when trying to access production resources (e.g. land) and services (Quisumbing *et al.*, 2014). They commonly work without pay on family plots, and, when they hold jobs elsewhere, are more likely than men to find themselves in temporary, seasonal and badly paid positions (Nobre *et al.*, 2017; Cintrão and Siliprandi, 2011; Siliprandi and Cintrão, 2015).

Because women's rural work often goes unrecognized, their labour is excluded from the statistics and their contribution to the economy cannot be calculated. The contribution of women to food security, the protection of biodiversity and the preservation of agroecological practices is often ignored. In agriculture, women prepare land for planting, care for animals, fish, gather wood, collect water and process, transport and sell food; in their families and communities, they prepare meals or care for children and the sick (among many other tasks). However, women's work in agriculture is considered part of the reproductive sphere and, as such, is unremunerated. Women's contributions are seen as little more than helping the (male) head of the household, and as part and parcel of women's roles as wives and mothers (Nobre *et al.*, 2017; Cintrão and Siliprandi, 2011).

Women in agriculture earn, on average, 40 percent less than men. Those who do not earn an income of their own are dependent on men (i.e. their fathers or husbands). This puts them in a position of extreme vulnerability, including to abuse and violence. At the same time, they often find themselves without adequate social security instruments, including pensions, income support, etc. (Nobre *et al.*, 2017). Furthermore, many services essential to improving agricultural production, such as the provision of technical and financial assistance, are often not extended to rural women as they are considered to be unable to run a farm, at least on their own (Cintrão and Siliprandi, 2011; Siliprandi, 2015). Banks, rural extension companies, non-governmental organizations (NGOs) and government representatives often recognize only men when it comes to making finance- or work-related decisions; this hinders women's efforts to earn better incomes on their own and decrease their dependency on their male family members. Likewise, women rarely participate in the forums and councils that discuss matters of rural development and public policy. Such platforms are usually reserved for men, who are seen as the rightful representatives of their families (Cintrão and Siliprandi, 2011; Siliprandi, 2015; Siliprandi and Cintrão, 2015).

Against this background, public food purchasing programmes may foster the inclusion of women in the economic-productive system and help ensure that their work is remunerated fairly. Indeed, the guaranteed outlet, and thus income, provided by such programmes may help women climb out of poverty, improve food security for themselves and their families, and boost their personal autonomy.

9.3 **The involvement of women as suppliers in public purchasing programmes: case studies**

The context: public purchasing programmes and rural women' organizations

National public purchasing systems are usually hard to access for small producers, rural and urban alike. Even though some countries have created laws and mechanisms to favour the participation of micro-, small and medium enterprises (SMEs), the logic of participation in such schemes remains the same (SELA, 2014). Complex registration and participation procedures, as well as the large quantities demanded and the

delivery conditions imposed, all work against the participation of small suppliers, which remains very marginal (Cintrão, 2018). In systems such as these, there is almost no possibility for rural women to become suppliers. Among other reasons, rural women's life and work do not follow a corporate logic. Their organizations tend to be small and informal – that is, off the books (Cintrão, 2018; Siliprandi and Cintrão, 2011a, 2011b).⁵ Many rural women do not even have civil documents (Nobre *et al.*, 2017).

Efforts to increase the participation of rural women in public procurement schemes are usually part of food security policies; they rely on direct purchases from family farmers and use non-standard procedures to simplify the requirements imposed by standard public procurement legislation (FAO, 2015a, 2015b, 2017). Some of the initiatives studied, though useful to demonstrate the potential of public purchasing programmes to stimulate local development, operated on a very small scale and ultimately could not be continued, scaled up or consolidated.⁶ In all the countries studied, conventional purchasing modalities (such as open tenders, public auctions, etc.) continue to prevail. This results in systems defined by high-volume contracts and dominated by wholesalers and large producers (generally urban ones), with limited participation by family farmers (at least as direct providers) and even less of women.⁷ Programmes to boost public purchasing from family farmers are usually disconnected from programmes that aim to promote equality for rural women, and therefore fail to include mechanisms to promote women's participation in purchasing schemes. Where women do manage to participate, positive impacts on those women and on the programmes can be observed. A number of examples of how women's participation can be boosted are highlighted below.

Table 1 lists the programmes and the cases studied in the research on which this chapter is based. They were chosen for their potential to improve the involvement of rural women.

⁵ A study of SMEs participating in public purchasing programmes in the Dominican Republic found that businesses run by (urban) women are smaller than those of men, and that their activities are generally linked to the home (Escuder, 2016).

⁶ See, for example, the cases of Peru, Colombia and Paraguay, where some initiatives, while successful, did not survive due to changes in government (at the national, state or local level), local disputes or a lack of interest of successive actors (Cintrão, 2018). In Brazil, the PAA budget grew between 2003 and 2016 but after that all but disappeared due to political changes.

⁷ Though often justified on the basis of logistical reasons, purchasing quantities continue to be too large to enable the direct participation of family farmers or rural women's organizations (which are generally small and informal) (Cintrão, 2018).

Table 1 **Cases studied by Cintrão (2018) and Siliprandi and Cintrão (2011a, 2011b, 2013)**

COUNTRY	PURCHASING PROGRAMMES AND CASE STUDIES
BRAZIL	<p>Programme: PAA or <i>Programa de Aquisição de Alimentos</i> (food purchase programme), a programme of the federal government.</p> <p>Case study*: the PAA component “purchasing with simultaneous donation” (no-bid contract buying of local food products from family farming organizations to use in social programmes (e.g. to complement school food programmes). Simultaneously promotes food access and local food production through direct purchasing. Launched in 2003, considerable reduction in size after 2016.</p>
COLOMBIA	<p>Programme: PAE or <i>Programa de Alimentación Escolar</i> (school food programme) and food purchasing by the Instituto Colombiano de Bienestar Familiar (ICBF) (Colombian institute for family well-being).</p> <p>Case studies**:</p> <ul style="list-style-type: none"> ▪ Food and Nutrition Improvement Plan of Antioquia (MANA), supported by FAO (2013–2015): supply of food to the PAE and ICBF to promote the inclusion of local family farming products in public purchasing schemes for basic food packages; and ▪ Mesoamerica Without Hunger (<i>Mesoamérica Sin Hambre</i>) in Boyacá (2007–present): aims to include family farmers as food suppliers for PAE and ICBF.
DOMINICAN REPUBLIC	<p>Programme: PAE or <i>Programa de Alimentación Escolar</i> (national school food programme).</p> <p>Case study**: pilot project to strengthen public purchasing from local family farmers, one of the programmes linked to efforts to reduce poverty and hunger, including PAE Sostenible (<i>Programa de Alimentación Escolar Sostenible - Sustainable School Food Programme</i>) and <i>Mesoamerica Sin Hambre</i> (<i>Mesoamerica Without Hunger</i>)</p>
HONDURAS	<p>Programme: PAE or <i>Programa de Alimentación Escolar</i> (national school food programme).</p> <p>Case study**: FAO-led pilot programme to include local purchasing in municipal programmes (2012– present) in the Mosquitia region, Gracias a Dios Department, under an agreement between PAE and the World Food Programme (WFP) (2001–present).</p>
PARAGUAY	<p>Programme: PAE or <i>Programa de Alimentación Escolar</i> (national school food programme).</p> <p>Case studies**:</p> <ul style="list-style-type: none"> ▪ simplified process for the acquisition of agricultural and fishery products from family farmers - direct purchasing modality (2013–present, applied in all purchasing programmes); and ▪ simplified process for the acquisition of agricultural and fishery products from family farmers - indirect purchasing modality (2015–present, applied only under PAE).
PERU	<p>Programme: <i>Qali Warma</i>, <i>Programa de Alimentación Escolar</i> (national school food programme).</p> <p>Case study**: FAO-led pilot project for purchasing from family farmers in the Junín region (2016) under the <i>Strengthening School Food Programme</i> (2012–present).</p>

Sources: *: Siliprandi and Cintrão (2011a, 2011b, 2013) and **: Cintrão (2018).

None of the countries studied had developed guidelines, requirements or actions specifically directed towards rural women's inclusion as producers in public food purchasing programmes.⁸ Indeed, it proved difficult to even obtain structured data on the participation of rural women, since some programmes did not record the gender of their suppliers. The lack of data on the potential of women to participate in public purchasing programmes demonstrates the invisibility of women's contributions to the agriculture sector (Cintrão, 2018).

Among the initiatives studied, those with the highest levels of women's participation were the PAA component "purchasing with simultaneous donation" in Brazil and the local purchasing scheme for school food programmes in the Mosquitia region of Honduras.

Rural women's participation in PAA (Brazil)

Women were largely invisible in the data on Brazil's PAA. Although the programme's files showed that women accounted for only 27 percent of all purchasing contracts at the national level, fieldwork suggested that women were actually involved in at least 60 percent (and in some cases, 100 percent) of all activities related to the production of food sold to the programme (Siliprandi and Cintrão, 2011a, 2013).

The high actual levels of women's participation in PAA may be attributed to a number of factors. Procurement was decentralized, with little bureaucracy involved. Suppliers could deliver small quantities or instalments, and received a fair price promptly. PAA valued the regionality of food and promoted the conservation of biodiversity, which stimulated the acquisition of locally produced food items. The programme accepted a wide variety of products, which enabled the purchasing of many items produced by women, including fresh products (roots and tubers, fruits, vegetables, eggs, etc.) and processed foods made with local ingredients (such as breads, biscuits, cakes, different kinds of flour, candies, jams, fruit pulp, etc.).

⁸ Only the Dominican Republic has implemented an affirmative action policy to boost women's participation in public purchasing programmes (this policy is not specific to rural areas). It set a minimum quota for the involvement of SMEs, which led to an increase in the participation of urban businesses headed by women (Escuder, 2016).

The fact that women's names did not appear in the contracts can be attributed mainly to institutional discrimination by public servants and officers – not to mention the legal instruments themselves – who consider it normal to list women's husbands as contract holders, since they are the heads of the household. Not having contracts in their own names entails a series of disadvantages for women. First, it reinforces their invisibility as rural producers and the lack of recognition as productive economic actors – that is, it depreciates their work. Second, it reinforces women's lack of personal and economic independence; in many cases, women had little direct access to sales revenues, which were deposited into the accounts of their husbands or delivered directly to them in cash.

In 2011, pressure from rural women's movements and technicians from the Ministry of Agrarian Development over the coordination of the programme led to the creation of quotas i.e. minimum numbers and values for contracts awarded to women, in an effort to increase women's participation. To fulfil these quotas, it was necessary to ensure that contracts could be signed in women's names or that family documents included both partners' names; in addition, efforts were made to raise gender awareness among public officials (Siliprandi and Cintrão, 2011a).⁹

Rural women's participation in PAE (Honduras)

Women noticeably participated in the pilot programme to include local purchasing in Honduras' Programa de Alimentación Escolar (PAE, national school food programme) in the Mosquitia region (Andino and Cintrão, 2018; Cintrão, 2018). The local programme supplier was the Asociación de Mujeres Indígenas Misquitas or association of indigenous Miskito women, an organization with 1 500 members, 80 percent of whom are women. This association supplied fresh food to 56 schools, serving more than 5 000 children in two municipalities. PAE regulations stipulated that school food supplies must be purchased within the region from associations, farmers' cooperatives and agro-industrial cooperatives (Cintrão, 2018) (see Chapters 6 and 17 for additional analysis of Honduras' experience). Regulations and procurement

⁹ A similar example comes from Paraguay, where the Ministry of Women supported the generation of statistics on rural women and took measures to ensure that land documentation included the names of women. However, national documents and records for family agriculture still carry only the name of the head of the household, usually the man (Cintrão, 2018).

guidelines were adapted to local realities, drawing upon the experiences of local actors. The list of prices and products to be supplied were defined jointly by the association, local producers and government agencies in meetings and field visits. Products changed seasonally, and a fair pricing scheme was developed on the basis of real local costs. Contracts were signed with each individual woman producer, and payments were made once every two weeks. The programme also made technical assistance and mentoring opportunities available to the women.

Requirements for becoming a provider were simplified: only an identity document, a national tax registration number and a receipt were requested. Organizations were required to submit documentation of their bylaws, legal status, national tax registration and receipts. Each organization had to supply a certain number of schools, with a total supply requirement that corresponded to their production capacity, product line and geographic location. Parents of schoolchildren had to supply and prepare the food, to ensure that the products used for their children's meals were of good quality. Among the fresh products that women producers supplied were tubers (yucca, taro), fish, seafood, eggs, dairy products, various types of bananas, vegetables and fruit for juice (lemons or an alternative, in-season choice). The national government, in cooperation with the World Food Programme (WFP), supported the local purchasing scheme; this helped achieve the programme's eventual inclusion in national purchasing legislation. The involvement of women's organizations, NGOs, and gender-focused international aid projects ensured an active, visible presence of women in the programme.

In 2014, the initiative was expanded thanks to the support of the Secretary for Development and Social Inclusion. By 2017, the model was being implemented in 103 municipalities and 3 800 schools, reaching 35 percent of all students nationwide. As part of the expansion, the schools' rations of dry staples (corn, beans and rice) were complemented with fresh, locally produced products, according to a region's supply base; women play an important role in the production of such foods.

It is worth emphasizing that the public purchasing process and operation of the Honduran PAE is fairly simple, with few administrative requirements or hygiene standards. This simplicity has made it relatively easy for small producers and women with low incomes to participate.

Women's contributions to programmes

Brazil's PAA provides an excellent example of the potential of the inclusion of women to increase the diversity of food in public purchasing programmes. Under PAA, 300 different products were purchased across the nation, with regional differences that reflected local food cultures.

Products considered as “women's products” are often those produced close to the home, and not through commercial farming. Women on family farms are mainly responsible for the production of foods associated with self-sufficiency, subsistence or “the back yard”; many of these foods are rooted in local eating habits. Women raise small animals, keep hens for eggs, cultivate gardens, collect wild foods and fish. Some of these products have been marginalized in the larger food economy; their inclusion in public purchasing programmes diversifies the offer, boosts consumers' appreciation for them and helps preserve biodiversity (Siliprandi and Cintrão, 2011a, 2013).

Some foods included in the purchasing programme (e.g. chicken meat and eggs, vegetables, wild foods such as fruits and chestnuts, fish and shellfish) used to be sold by women prior to the programme's launch, but usually on a smaller scale. Other products used to be exchanged with neighbours or given as gifts, or simply left untouched in the field. The opportunity to sell these products to a public purchasing programme helped valorize the work of women who produced them and strengthen their economic independence. At the same time, it also helped valorize the products themselves. PAA purchased ecologically produced foods – usually produced by women – at a 30 percent markup. Thus, it helped to promote and valorize these products as well.

In some cases, the public purchasing programme helped create new markets (or revive old ones) for products that families had stopped selling due to a lack of demand. The increasing visibility and popularity of these products allowed women to find new outlets at local fairs and markets (Siliprandi and Cintrão, 2011a, 2013).

9.4 Major obstacles and challenges to improving women's participation

The study of the cases revealed a number of factors that may promote or discourage the participation of women in public purchasing programmes. This section identifies the most important ones. Some factors relate to the design and operation of the programmes themselves, while others are linked to the institutional discrimination of women and the success – or failure – of policymaking in countering this discrimination.

Factors related to the rules of purchasing schemes

National public purchasing programmes are generally designed to work with large-scale commercial producers. Their minimum supply requirements, complex procedures, low prices offered and late payment terms often hinder the participation of small farmers – whether men or women. The recognition of the potential of public procurement as a tool for development has led governments to simplify contracting modalities for small farmers by stipulating less burdensome bureaucratic procedures as an exception to the ordinary regulations (FAO, 2015a, 2015b; SELA, 2014; Escuder, 2016). It goes for all the analysed cases that whenever rural women were able to participate in public purchasing programmes, this was largely due to a revision of specifications and regulations to facilitate the inclusion of small family farmers. However, even with these revisions, the effective inclusion of women as direct suppliers was still very difficult. Rural and indigenous women are usually involved in informal and communal types of production. Their organizations are small and have few resources, and production is often seasonal. All of these elements make it hard for them to engage in formal commercial operations (Cintrão, 2008). In some of the cases studied (e.g. Paraguay, Peru and Honduras), informal arrangements based on mutual trust eased women's inclusion in purchasing programmes. A better understanding and the legal recognition of such arrangements may help boost women's participation (Cintrão, 2008).

In addition, gender-focused actions are needed to overcome an institutional culture in which public officials automatically consider the family as a collective unit, with the husband as the head of the household and the sole producer. All documents related to family-based agriculture should be revised to incorporate both partners'

full information, as was done in Brazil's PAA and in the land titling programme in Paraguay (Siliprandi and Cintrão, 2011a, 2011b).¹⁰

The size of purchase contracts should be revised to allow for sales of products in smaller quantities by rural women. It is commonly argued that women do not participate in public purchasing programmes because they lack the production capacity to meet requirements for high volumes and steady supplies. However, if the potential of women as producers is recognized and they are to be included in purchasing programmes, the reasoning should be the opposite: contracts should be revised to permit smaller, more local purchasing. This has been confirmed by this study. The most successful cases in terms of women's participation are those programmes that considered women's production volumes prior to stipulating the items and quantities to be purchased, as in the cases of the PAE in Honduras (Cintrão, 2018; Andino and Cintrão, 2018) and the PAA in Brazil (Siliprandi and Cintrão, 2013). Women's production capacities were also taken into account in purchasing decisions for a number of individual rural schools, canteens and hospitals in the Dominican Republic, Paraguay and Peru (Cintrão, 2018).

The examples of PAA in Brazil and of smaller initiatives in Honduras, Peru and Paraguay show that facilitating participation in public purchasing programmes by lowering minimum volume requirements, offering fair prices and guaranteeing a long-term market can stimulate farmers to better structure their production activities and increase their output. Indeed, smallholders' low production volumes often result from a lack of market access – not the other way round (Siliprandi and Cintrão, 2013; Cintrão, 2018).

Another important set of factors are prices, payment schedules and forms of payment. To allow women to participate, payment terms cannot be overly lengthy, and payments cannot be subject to delays. Women producers (either as independent suppliers or as members of an association) face economic circumstances that necessitate a fast and reliable return on investment.¹¹ Prices must be fair and reflect the quality of the products, which are often natural and artisanal and hence cannot be compared to standardized industrial products.

¹⁰ In Brazil, it is now mandatory to have both partners' names in family agriculture records; it is no longer permitted to name a single contract holder. In addition, both Brazil and Paraguay have taken measures to include the wife's name on land titles.

¹¹ A study of SMEs led by urban women in the Dominican Republic also demonstrated the importance of this factor (Escuder, 2016).

The composition of menus and the selection of products to be purchased are other factors that can help rural women participate in public purchasing programmes. The more diversified the demand, the more possibilities there are for women to participate. If school food programmes offer not only breakfast and snacks but also lunches, for example, there are more possibilities to include foods produced by women. Unfortunately, in the countries studied, the lingering legacy of international food aid programmes means that breakfasts and snacks continue to comprise mainly industrial dairy-based beverages and wheat-based foods such as crackers and cookies. Indeed, studies of the milk and stock formation programmes under Brazil's PAA (Siliprandi and Cintrão, 2011a) and of the Instituto Hondureño de Mercadeo Agrícola (IHMA, Honduran agricultural market institute) and Vaso de Leche (glass of milk) programmes in Honduras (Cintrão, 2018) demonstrate that it is much more difficult for women to participate in supply chains for certain products – such as milk and grains – than for others.

It is essential to better understand the difficulties and opportunities that each particular supply chain poses for women producers, from region to region. In Brazil, for example, who is responsible for production varies from region to region, and from product to product. Some types of production are mainly entrusted to men, with women's contributions considered mere helping, while other types of production are primarily the responsibility of women (Siliprandi and Cintrão, 2013).

To ensure that menus reflect local production realities, women should be included in menu planning from the start, beginning with the choice of the products to be purchased. The case of the region of La Mosquitia in Honduras is instructive in this respect (Cintrão, 2018).

Research into how to increase the demand and supply of locally sourced foods produced by family farms generally fails to apply any sort of gender perspective, and usually considers only so-called commercial products. As a result, little is known about products produced by women, women's participation in agriculture or women's role in self-sufficiency or food security (Cintrão, 2018). To remedy the invisibility of rural women's labour, surveys must include questions related to the division of labour in agriculture (e.g. recording each person's gender, together with their responsibilities in agricultural activities). This will boost the recognition of women's capacities for

agricultural production and help find new ways to include them in purchasing programmes (Nobre *et al.*, 2017; Quisumbing *et al.*, 2014).

A final factor to be considered is the compatibility of hygiene regulations, quality assurance measures and food safety standards with local production realities. In several of the countries studied, the existence of stringent hygiene standards and the assumption that products from rural and indigenous women cannot not meet them, were commonly used to explain women's low participation in public purchasing programmes.¹² Hygiene regulations generally require small producers to adapt their production practices to industrial processes and standards. Indeed, these requirements are often formulated for export-oriented, large-scale productions, whose sanitary risks are very different from those of small, artisanal producers. As such, hygiene regulations become another obstacle impeding smallholders from participating in the public purchasing market.¹³

Structural factors and gender inequality

Deeply rooted gender inequalities affect rural women's access to resources (e.g. land or credit) and services that are essential for production. This hampers women's efforts to become independent, productive agents and participate in public purchasing programmes (Nobre *et al.*, 2017; Quisumbing *et al.*, 2014).

Access to markets is crucial to women's economic autonomy. Pilot programmes that successfully integrated women producers in public purchasing programmes were appreciated by the women involved precisely because they guaranteed a long-term income. This finding demonstrates that public purchasing programmes have the potential to reduce social and economic inequality (Cintrão, 2018; Siliprandi and Cintrão, 2011a).

¹² Hygiene certifications require compliance with a set of specifications related to processing, storage and transportation, and record-keeping thereof. These requirements are often defined by international rules, such as those of the Codex Alimentarius, that focus on industrial, large-scale productions. An association of women producers in Peru that was analysed for this study had to implement a hazard analysis and critical control points (HACCP) system for their production of homemade quinoa noodles for the local school food programme (Cintrão, 2018).

¹³ Cintrão (2017) critically discusses the lack of differentiation in hygiene standards for different scales of food production.

The initiatives studied in Brazil, Colombia, Honduras and Peru show that women's involvement in public purchasing programmes improves when those women are members of women-only groups. In groups with both men and women, women frequently found themselves relegated to secondary roles, performing unpaid tasks or administrative duties rather than managerial ones. Participation in women-only groups helped them overcome personal and family obstacles and surmount their lack of experience as they faced the challenges inherent in the commercialization of their products (Cintrão, 2018; Siliprandi and Cintrão, 2011a, 2011b)

Actions that support and promote direct sales by women's organizations in other markets can help women gain and strengthen the skills needed for accessing public purchasing markets. In Paraguay, for example, women's participation in market fairs and their involvement in associations of fair vendors facilitated the introduction of women's products in the school food programme (Cintrão, 2018).

Affirmative action policies setting minimum quotas for contracts awarded to women (as in Brazil's PAA and the Dominican Republic's PAE) highlight existing inequalities and open new paths to increase women's participation (Cintrão, 2018, Siliprandi and Cintrão, 2011a). Applying such policies requires unrelenting efforts by women's movements and other involved actors; it often also requires significant changes in the design and operation of the programmes and their related policies (i.e. as regards land titles, registration, access to services, etc.).

The case studies show that efforts to create opportunities for women to participate in public purchasing programmes must be accompanied by strategies that promote social and cultural change and allow for the real and effective empowerment of rural women (Cintrão, 2018).

The adoption of an across-the-board gender perspective in the formulation of public policies requires special competencies. Well-informed and trained government officers must take the lead, in collaboration with representatives from women's organizations and movements from across the span of public policies. Policymakers must ensure, however, that women's involvement in policymaking does not become another burden that women must face in order to gain access to resources (for example, several of the programmes studied required participants to take on such

duties as unpaid voluntary work).¹⁴ It is necessary to keep in mind the dynamic relationships that exist between the worlds of paid work (on the formal and informal labour market) and unpaid work (domestic and community work, broadly understood). There must be spaces to debate and reflect upon emerging changes in the subjective dimension of women's lives.

9.5 Conclusion

The cases presented in this chapter show that major challenges continue to stand in the way of efforts to fully include rural and indigenous women as providers in public purchasing programmes; there is still a long way to go. Despite advances in gender and equality policies and the emergence of concrete initiatives to promote the involvement of rural women, overall public policymaking for rural areas still fails to incorporate a gender perspective.

This situation adds to the barriers faced by rural and indigenous women as they attempt to negotiate public policies; it reinforces existing patterns of discrimination and anchors a model of rural development that overvalues productivity and fails to recognize women's contribution to food and nutrition security.

Increasing women's participation requires that rural women's distinct realities – including the structural inequality that defines and shapes the rural context – are taken into account from the first steps in the design of policies. The continued use of gender-neutral regulations means that, in practice, women continue to be excluded as beneficiaries of rural policies.

The economic and cultural discrimination to which rural women are subjected by their families is reflected in the difficulty they have to express themselves successfully in the public sphere. This leads to a vicious cycle of non-rights and non-citizenship that ends, in too many cases, with women's non-participation; hence the continuing gender inequality in rural development projects. Women in general, and poor women

¹⁴ Vizcarra (2008), for example, draws attention to the risk that food security policies imply a new burden of work for poor women, who are now charged with implementing the programmes but also remain responsible for the typical tasks of rural women (i.e. domestic and reproductive work).

in particular, are subjected to systemic, cultural and political processes that affect their capacity to act publicly and exercise their rights.

Public policies can help improve the lives of women by recognizing their valuable contribution to society and helping them overcome prejudices and social values that hinder their full identification as citizens. Public policies must be designed taking into account these questions if they are to liberate men and women alike from poverty.

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10 PUBLIC FOOD PROCUREMENT AND INDIGENOUS PEOPLES: THE CASE OF THE BRAZILIAN NATIONAL SCHOOL FEEDING PROGRAMME

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ABSTRACT

This chapter aims to explore the potential benefits of the institutional food market of school feeding for indigenous peoples in Brazil, highlighting achievements, challenges and possible ways forward. Indigenous people are introduced in this chapter in view of the 2030 Agenda for Sustainable Development's conceptual framework to determine who is left behind. Aspects of Brazil's School Feeding Programme (PNAE) related to indigenous peoples' issues will be highlighted, showing their potential to generate multiple benefits in social, cultural and environmental areas. Finally, this chapter will address the barriers to the productive insertion of indigenous peoples in PNAE and the institutional alternatives that have been developed at the national level for its improvement.

10.1 Introduction

The 2030 Agenda for Sustainable Development seeks to benefit everyone; it commits to leave no one behind by reaching out to all people in need and deprivation, wherever they are. The United Nations Member States pledged to “endeavour to reach the furthest behind first” (United Nations Development Programme [UNDP], 2018).

Across countries, indigenous peoples, ethnic and linguistic minorities are disproportionately present among those left behind (UNDP, 2018). Indigenous peoples

are among the planet's most vulnerable and marginalised populations (Kuhnlein *et al.*, 2006). They have lower living standards, a lower life expectancy and higher rates of maternal and child mortality, malnutrition and infectious diseases than the general population (United Nations Economic Commission for Latin America and the Caribbean [ECLAC], 2015).

In Brazil, indigenous peoples suffer great health inequalities when compared to other members of society. They live in poor sanitary conditions and face severe food insecurity (Coimbra, 2014). Since 2003, the country has designed and implemented several highly innovative multisectoral platforms and policy instruments to enhance food security that focus on smallholder farmers, with priority being given to indigenous peoples and other traditional communities (Grisa *et al.*, 2011).

The Brazilian National School Feeding Programme (PNAE) has been given utmost importance in the Government's agenda upon being incorporated into this set of policies and programmes. It is currently recognized as one of the largest institutional procurement programmes in the world (Soares *et al.*, 2013). Productive inclusion of smallholders is a challenge under these policies, which aim, among other objectives, at reaching the poorest and most needy producers (Swensson, 2015) (see Chapters 2, 8, 9, 11, 12, 14, 15 and 16 for additional analysis of the PNAE experience in Brazil).

Indigenous peoples are considered a priority group under the PNAE, both as food consumers and as suppliers. However, there is a marked gap in the technical, administrative and scientific knowledge about their productive inclusion under the programme. This chapter tries to help fill this gap by analysing the opportunities and challenges faced by indigenous people with respect to their inclusion in PNAE.

10.2 Indigenous peoples and the Brazilian National School Feeding Programme (PNAE)

Brazil was officially removed by the Food and Agriculture Organization of the United Nations (FAO) from its Hunger Map in 2014 (Mattheisen *et al.*, 2019). The country has gained international recognition over the past decade for its successful fight against hunger and food insecurity under the Zero Hunger Strategy and associated public policies and programmes (Santarelli, 2015).

Implemented by the Brazilian government in 2003, this strategy was recognized as a model by the FAO and the World Food Programme (WFP) in the fight against hunger and poverty (Fraundorfer, 2013). Its associated inclusive economic and social development actions have helped strengthen smallholder production, improve access to food through various social protection measures and foster inclusive rural development (Hunter *et al.*, 2016).

PNAE has made a significant contribution to the success of these initiatives, mainly due to its design, which prioritizes access to food, income generation and productive inclusion. The programme is developed and implemented under the umbrella of the Government's food and nutrition security policy, and stems from the right to food as enshrined in the Brazilian Constitution. Brazil was the first country to integrate the link between school feeding and agricultural production into its regulations. PNAE is currently the country's most important food and nutrition security programme (Hawkes *et al.*, 2016).

In 2020, PNAE was given a budget of USD 1.03 billion,¹ to be used to purchase food for 42 million students.² At least 30 percent of expenditures for the purchasing of products for school meals at all three levels of government (municipal, state and federal) must be on purchases from local smallholder farmers. This creates a potential institutional market of at least USD 309 million in local purchases.³ In 2018, the programme served 255 888 indigenous students in 3 345 schools.⁴ Of these, 98 percent were located in rural areas (Brazilian National Institute for Educational Studies and Research, 2019).

PNAE regulations require that school meals respect the local culture. This provision is particularly important for indigenous peoples, as food production, preparation and distribution and consumption practices are relevant in the cosmology and social organization of these peoples (Brazil, Federal Prosecution Service, 2017). Moreover, indigenous producers are given priority in the PNAE supply chain, together with land

¹ Or BRL 4.15 billion, according to the exchange rate on 2 January 2020, the first day of budget execution in 2020.

² As per school census data of the previous year.

³ BRL 1.24 billion (exchange rate on 2 January 2020).

⁴ As per the most recent data available.

reform settlers and quilombolas (*Lei N° 11.947, de 16 de Junho de 2009* [Law No. 11.947 of 16 June 2009]).⁵

There is extensive technical, administrative and scientific literature on the effects of PNAE on the general public. However, the literature is scarce when it comes to indigenous peoples. The particularities of PNAE as regards indigenous peoples, as both consumers and food suppliers, include *inter alia* the following:

- Respect for eating habits and culture has the potential benefit of offering indigenous students less industrialized meals that are more in line with their eating practices.
- Supporting sustainable development has the potential to encourage the purchasing of diversified, locally produced food from smallholder farmers, with priority being given to indigenous producers, among others.
- PNAE provides that indigenous peoples' representatives participate in its instruments of social participation, which allows them to express their needs and influence decision-making under the programme (Garnelo and Pontes, 2012; Martins *et al.*, 2008).
- PNAE transfers for the purchase of food for indigenous students are higher than those for non-indigenous students.⁶ The former must also receive greater daily nutritional support when compared to non-indigenous students (*Resolução/CD/FNDE N° 26 de 17 de junho de 2013* [Resolution/CD/FNDE No. 26 of 17 June 2013]).⁷ Such measures are based on the vulnerability of their health and nutritional situation (Giordani, Gil and Auzani, 2010).

⁵ According to the Brazilian legislation (*Decreto N° 4.887/2003* [Decree No. 4.887/2003]), the remaining members of quilombola communities are ethnic and racial groups with their own historical past, characterized by specific territorial relations and with the assumption of black ancestry, related to the resistance of historical oppression.

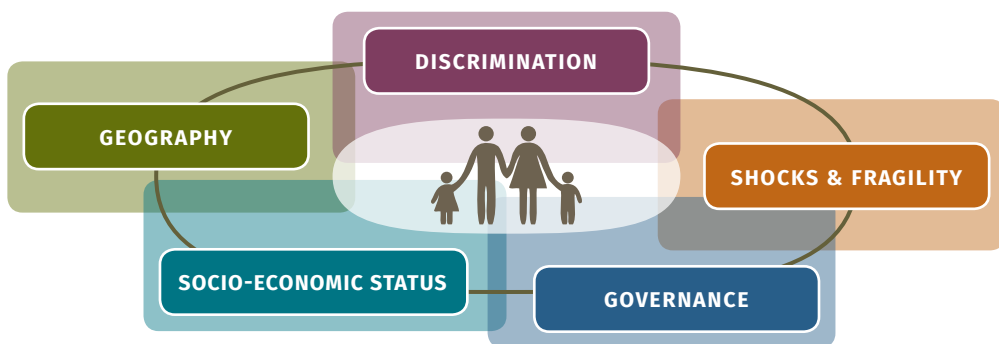
⁶ According to the Brazilian legislation (*Resolução CD/FNDE/MEC N° 1, de 8 de fevereiro de 2017* [Resolution CD/FNDE/MEC N° 1 of 8 February 2017]), pupils enrolled in elementary schools located in indigenous areas or remaining quilombo communities receive BRL 0.64 (USD 0.16) per day from the federal Government. Day care pupils in indigenous areas or remaining quilombo communities receive BRL 1.07 (USD 0.27) per day. Other pupils receive BRL 0.36 (USD 0.09) if enrolled in elementary and high schools, and BRL 0.53 (USD 0.13) if enrolled in preschool (exchange rate on 2 February 2019). These transfers must be complemented by states and municipalities.

⁷ According to the Brazilian legislation (Law No. 11.947 of 16 June 2009), each meal offered must meet at least 30 percent of the daily nutritional needs of pupils enrolled in schools located in indigenous areas. For indigenous and non-indigenous full-time day care pupils, at least 70 percent of the nutritional needs should be met. For non-indigenous students in elementary education, at least 20 percent of the nutritional needs must be met.

10.3 Indigenous peoples, public procurement and the Sustainable Development Goals (SDGs)

The 2030 Agenda's conceptual model of key factors (see Figure 1) makes it possible to determine who is left behind. In Brazil, all key factors affect indigenous populations simultaneously; as a result, they rank among the most severely disadvantaged populations.

Figure 1 2030 Agenda's conceptual model of key factors



Source: UNDP, 2018.



Food procurement policies hold considerable potential to deeply influence both food consumption and food production patterns and to deliver multiple social, economic, environmental, nutritional and health benefits (Lozano *et al.*, 2016). PNAE is groundbreaking in this respect as it delivers multiple benefits for multiple beneficiaries, including food consumers, food producers and local communities.

The productive inclusion promoted by PNAE is part of a mutually-reinforcing network of targets that can generate potential benefits in multiple areas relevant to indigenous populations (Le Blanc, 2015). The United Nations System Standing Committee on Nutrition considered PNAE as the most nutrition-sensitive policy in Brazil (Granheim, 2013).

An analysis of the objectives of the 2030 Agenda and PNAE's legal framework found a high degree of coherence between them. This means PNAE can potentially help



achieve the Sustainable Development Goals (SDGs) (Girardi, 2018). Table 1 was organized based on the SDGs and presents examples of potential benefits of PNAE for indigenous populations.

Table 1 Potential benefits of PNAE for indigenous populations

SDG	PNAE'S POTENTIAL BENEFITS FOR INDIGENOUS PEOPLES
 <p>SDG 1 (no poverty)</p>	<p>PNAE is fundamental to understand Brazil's success in fighting poverty by targeting the most vulnerable groups. The programme supports smallholders by purchasing their products, giving priority to the most vulnerable ones (Granheim, 2013; Soares <i>et al.</i>, 2013), including indigenous populations. The programme includes social protection mechanisms (Vinci, Hani and Djeddah, 2016) which contribute to income security and social inclusion (FAO and WFP, 2018).</p>
 <p>SDG 2 (zero hunger)</p>	<p>PNAE mainly benefits students with a greater nutritional and socioeconomic vulnerability, focusing on school feeding as a means of promoting food security (WFP and International Policy Centre for Inclusive Growth, 2013). PNAE promotes the diversification of production (Soares <i>et al.</i>, 2013), which is reflected in the increased variety of fruits and vegetables served in schools (Sidaner, Balaban and Burlandy, 2013). In addition, purchases from local smallholders may indirectly improve households' food security (FAO and WFP, 2018). In case of environmental and climate-related disasters, communities can consume their own production; this reduces their vulnerability and makes the food system more resilient (Grisa and Schneider, 2008; Romanelli <i>et al.</i>, 2015).</p>
 <p>SDG 3 (good health and well-being)</p>	<p>The design of PNAE menus must consider health conditions, social vulnerability and local eating habits (Law No. 11.947 of 16 June 2009). In indigenous contexts, it is necessary to recognize the legitimacy of native knowledge, which includes the ways in which health and food are understood and dealt with (Leite, 2012). Given the increasing prevalence of chronic non-communicable diseases among these peoples, food and nutrition education offered under PNAE can be a strategy to fight these diseases in schools (Santos, 2010), as long as local contexts are considered (FAO <i>et al.</i>, 2018).</p>
 <p>SDG 4 (quality education)</p>	<p>As far as education is concerned, indigenous peoples in Brazil faces a series of cultural, political and institutional barriers that compromise student performance (Rangel, 2015). PNAE focuses on school feeding as a way to keep students enrolled and performing well at school (Soares <i>et al.</i>, 2013).</p>
 <p>SDG 10 (reduced inequalities)</p>	<p>School feeding programmes can help break the vicious cycle of discrimination against vulnerable groups (FAO and WFP, 2018). This issue is particularly sensitive for indigenous peoples in Brazil, as their cultures are the target of great discrimination.</p>

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Table 1 <<<

SDG	PNAE'S POTENTIAL BENEFITS FOR INDIGENOUS PEOPLES
 <p>SDG 12 (responsible consumption and production)</p>	<p>PNAE supports sustainable development. The programme prioritizes the most vulnerable producers, including indigenous peoples (Resolution/CD/FNDE No. 26 of 17 June 2013), using a smallholder-friendly procurement process (FAO and WFP, 2018). PNAE provides support to agroecological and organic producers and offers the possibility of purchasing “socio-biodiversity” products,⁸ thus encouraging the sustainable management of natural resources (Beltrame <i>et al.</i>, 2016; FAO, 2012). Moreover, local purchasing reduces the environmental pollution generated by the packaging and transportation of meals to indigenous schools (Brazil, Federal Prosecution Service, 2017).</p>
 <p>SDG 17 (partnerships for the goals)</p>	<p>Brazil has shared its successful experiences with school feeding with other developing countries in Latin America, Africa and Asia by means of south-south cooperation (Santarelli, 2015). Most Latin American countries that have partnered with Brazil have indigenous populations.</p>

Source: authors' elaboration.

10.4 Barriers to the productive inclusion of indigenous peoples in PNAE

The main challenges for the productive inclusion of smallholder farmers in PNAE are well documented; they can be summarized as follows (Bellinger, 2014; Lozano *et al.*, 2016):

- The public procurement process does not correspond to smallholders' technical and organizational capacities.
- Payments are often delayed.
- There are information gaps on the possibilities of productive inclusion under PNAE.
- Smallholders have difficulties to comply with sanitary standards for the marketing of certain products.
- The infrastructure, human resources and management skills needed to support production activities to meet different demands are lacking.

⁸ Socio-biodiversity is a concept defined by the Brazilian legislation (*Portaria Interministerial MDA, MDS e MMA N° 239 de 21 de julho de 2009* [Interministerial Ordinance MDA, MDS and MMA No. 239 of 21 July 2009]) as “the relationship between biological diversity and diversity of socio-cultural systems,” and socio-biodiversity products are “goods and services (final products, raw materials or benefits) generated from biodiversity resources, aiming at the development of production chains of interest to traditional communities and family farmers, that promote and valorize their practices and knowledge and ensure the sharing of benefits, thus generating income and promoting better quality of life and quality of the environment they live in.” (Oliveira *et al.*, 2018).

The academic literature presents little data regarding the challenges faced by indigenous producers in the institutional market of PNAE, which must be added to the challenges described above.

Some of these constraints will be described below based on the five key factors of the 2030 Agenda's conceptual model. Various factors of vulnerability to which indigenous peoples are exposed, and how these factors are interrelated with the challenges to their productive insertion in PNAE, will also be highlighted (see Chapters 9, 16 and 17 for additional analysis on this topic, including in other Latin American school feeding programmes).

Discrimination

The structural discrimination that affects indigenous peoples, the impoverishment caused by the systematic expropriation of their territories, the loss of traditional ways of life, the obstacles to political participation and institutionalized racism have a strong negative impact on indigenous peoples' health (United Nations Economic Commission for Latin America and the Caribbean [ECLAC], 2015). In Brazil, this leads to higher morbidity and mortality coefficients than those registered at the national level, hunger and malnutrition, occupational risks and social violence (Coimbra and Santos, 2000).

Interethnic relations among indigenous peoples and PNAE staff members are unequal and marked by misunderstandings and prejudice (Gonçalves and Leite, 2016). Ethnocentric behaviour generates resistance against the purchasing of traditional food for school meals. One of the possible barriers to the inclusion of traditional indigenous foods in public purchasing is the negative perception of these foods among those responsible for implementing PNAE (Romanelli *et al.*, 2015).

Geography

Almost half of the indigenous population in Brazil (48.7 percent) lives in the Amazon region, mostly in remote and hardly accessible areas (Instituto Socioambiental [ISA], 2019), where physical isolation and social exclusion can be mutually reinforcing (International Federation of Red Cross and Red Crescent Societies [IFRC], 2018). Most of these peoples are concentrated on small plots of land and/or inhabit environments

that have been degraded by economic activities such as agriculture and mining. This situation limits the area where they live and grow food (Leite, 2007).

The great distances involved in the sending of food to these communities imply enormous costs; the transportation also generates significant pollution (Brazil, Federal Prosecution Service, 2017). Many communities are in precarious sanitary conditions (Coimbra and Santos, 2000; Garnelo and Pontes, 2012). In addition, indigenous peoples face serious infrastructural problems when trying to sell their products.

In the Amazonian context, the long distances that indigenous producers need to travel to deliver food to schools and the precarious situation of the means of transportation are an additional barrier. Therefore, industrialized products with a long shelf life are favoured over fresh and perishable foods grown locally (Brazil, Federal Prosecution Service, 2017; Rangel, 2015).

Governance

The International Labour Organization (ILO) acknowledges the importance of the participation of indigenous peoples in the formulation, implementation and assessment of programmes that directly affect them (*Indigenous and Tribal Peoples Convention*, 1989). In Brazil, indigenous peoples are underrepresented at all governmental levels in the development and implementation of policies and programmes that target them. In many cases, existing instruments for social participation do not reflect their traditional forms of representation (De Castro *et al.*, 2014; Gonçalves and Leite, 2016; Langdon and Diehl, 2007).

The indigenous population represents some 0.4 percent of the Brazilian population. There are about 896 917 individuals who identify as indigenous in Brazil, divided in 305 ethnic groups that speak 274 different languages (Brazil, Brazilian Institute for Geography and Statistics, 2012). Historically, the Brazilian State has failed to understand the sociocultural contexts of the groups targeted by PNAE. Demographic and epidemiological data are lacking, and the knowledge about the food and the nutritional situation of indigenous peoples is limited (Leite, 2012; Leite *et al.*, 2007). This lack of reliable data makes it difficult to determine development priorities and target actions effectively (FAO, 2015).

Furthermore, there is a lack of nutritional information on the foods traditionally consumed by indigenous peoples, which makes it difficult to adapt PNAE menus to local cultural specificities. This results a decrease in the demand for these foods. The situation is aggravated by the lack of basic education and training of PNAE officials to work in indigenous contexts (Diehl and Follmann, 2014).

In addition to all these difficulties, Brazil's ongoing fiscal, institutional and political crisis has been undermining indigenous rights. The Brazilian federal foundation for Indian affairs or FUNAI, which protects and promotes the rights of indigenous peoples in the country, has been subjected to significant budget and personnel cuts, and land rights have been infringed upon (Fraser, 2019; Mattheisen *et al.*, 2019).

As far as the productive inclusion of indigenous peoples in PNAE is concerned, the little information available is particularly vague and inconsistent. For instance, data are not segmented by ethnicity or community. In addition, there are no documents in the PNAE legal framework that are sufficiently detailed to support its operation in indigenous contexts (Gonçalves and Leite, 2016).

Another challenge faced by indigenous people concerns their difficulty to access information on how to sell products to PNAE (Bellinger, 2014). Public tendering procedures for food procurement are not adapted to the different indigenous contexts (Brazil, Federal Prosecution Service, 2017). In addition, information about tenders is generally disseminated in the Portuguese language, and may not be fully understood. Cases where information is divulged in indigenous languages are very rare.

In addition to the difficulties of navigating food tendering procedures, indigenous farmers face obstacles to obtain a declaration of aptitude, a mechanism for the registration of family farmers under the Government's national programme to strengthen family farming or PRONAF (Programa Nacional de Fortalecimento da Agricultura Familiar) (Teixeira and Norder, 2015). Without this declaration, a smallholder farmer is off the radar of the programme and cannot benefit from government policies or access credit facilities (Nehring and McKay, 2013). The lack of appropriate, contextualized and qualified technical assistance for indigenous farmers is another important challenge (Bellinger, 2014; Swensson, 2015).

Moreover, sanitary regulations are complex; they lay down rules that traditional, artisanal and family-based food producers find difficult to access, understand and comply with. The current health system does not take into account local and regional realities (Brazil, Federal Prosecution Service, 2017; Brazil, Food and Nutrition Security National Council, 2018).

Finally, the budget that is available for each indigenous student is another barrier to the insertion of indigenous producers in the institutional market of PNAE. Although this budget is larger than that for non-indigenous students, it is too general and does not take due account of the immense diversity of indigenous situations. For example, for some communities in the Amazon that are difficult to access, the existing transfers are unrealistic and do not allow recipients to purchase food that is suited to their realities (Brazil, Federal Prosecution Service, 2017).

Socioeconomic status

Indigenous peoples often face extreme poverty in its multiple dimensions and with all its implications. As a result, they are among the most marginalized and vulnerable human populations. Brazil ranks second in Latin America in terms of extreme poverty among indigenous people, which is six times higher than that of other populations in the country (Angulo, Solano and Tamayo, 2018).⁹

Indigenous peoples worldwide have higher rates of maternal and child mortality, malnutrition and infectious diseases. In Latin America, infant mortality among indigenous peoples is 60 times higher than among non-indigenous people (United Nations Inter-Agency Support Group on Indigenous Peoples' Issues, 2014). In Brazil, overweight and obesity are rapidly emerging among indigenous children and adults in parallel to this situation (Brazil, National Health Foundation, 2009; Coimbra, 2014; Welch *et al.*, 2009).

In terms of the inclusion of indigenous people in the productive system, there is no specific and differentiated national credit policy to support investments in indigenous agricultural or mining activities. There are no subsidies or tax exemptions that

⁹ It is important to consider a number of reservations pointed out in the literature when classifying indigenous peoples as poor based on the rationale of the accumulation of goods in non-indigenous societies (Angulo, Solano and Tamayo, 2018).

encourage the strengthening of local indigenous productive arrangements (Brazil, Federal Prosecution Service, 2017); no policies encourage the selling of products by indigenous people in the formal market. In addition, various cultural and social problems prevent the State from recognizing and supporting the various forms of organization of productive life and labour relations among indigenous peoples (Brazil, FUNAI, 2017).

Shocks and fragility

Indigenous peoples, particularly those living in the most remote regions, are extremely vulnerable to climate change impacts due to their dependence on and interrelation with the environment and its biodiversity. Climate change worsens the difficulties that indigenous communities face (United Nations Department of Economic and Social Affairs [UN DESA], 2007). Agriculture and biodiversity are susceptible to climate change, which directly affects the livelihood and income of rural indigenous communities and increases their food insecurity (Kronik and Verner, 2010).

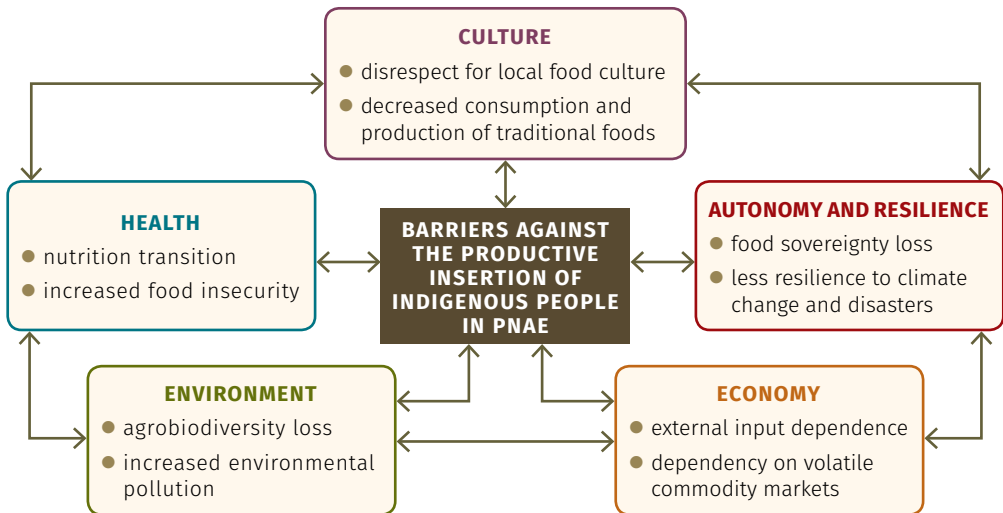
10.5 Barriers to the productive inclusion of indigenous peoples in PNAE: a vicious circle

PNAE has failed to prioritize the purchasing of food produced by indigenous people; the programme therefore needs adapting and improving to better address the needs of these peoples in the context of productive insertion (Bellinger, 2014). Data from the Food Purchase Programme (PAA) show that the participation of indigenous suppliers ranges from 0.014 percent to 2.25 percent of the total indigenous population, depending on the region (Teixeira and Norder, 2015).¹⁰

A number of barriers hinder the productive insertion of indigenous peoples in PNAE. These barriers are interconnected in complex ways, leading to a vicious circle. For purposes of clarification, this cycle can be divided into five thematic spheres: culture, autonomy and resilience, economy and environment, and health (see Figure 2).

¹⁰ According to the Brazilian legislation (*Lei N° 10.696, de 2 de julho de 2003* [Law No. 10.696 of 2 July 2003]), the Brazilian Food Purchase Programme was created with three main objectives: help family farmers and rural entrepreneurs produce and access markets, distribute food to people with food and nutritional insecurity, and build up strategic stocks (Swensson, 2015).

Figure 2 **Barriers hindering the productive insertion of indigenous peoples in PNAE**



Source: authors' elaboration, inspired by Valencia, Wittman and Blesh (2019).

There are hundreds of records that show the absence or insufficiency of school meals in many indigenous schools (Brazil, Federal Prosecution Service, 2017; Rangel, 2015; Verdum, 2016) and the inadequacy between the food served and indigenous communities' eating habits (Brazil, Federal Prosecution Service, 2017; Giordani, Gil and Auzani, 2010; Gonçalves and Leite, 2016; Trujillo, 2012). Another frequently reported problem is the excessive supply of processed foods (Brazil, Federal Prosecution Service, 2017; Brazil, Food and Nutrition Security National Council, 2013).

The meals served by PNAE to many indigenous communities caused indigenous children to reject traditional foods and gradually abandon traditional farming practices (Brazil, Federal Prosecution Service, 2017). Lack of incentives for local production may increase indigenous communities' dependency on external food sources; this affects their ability to support themselves and hence poses a threat to their food sovereignty (Pimbert, 2009). Moreover, dependency on narrow-base food sources increases vulnerability in situations of extreme climate change, diseases and other threats (Sunderland, 2011).

Despite all efforts to the contrary (Lozano *et al.*, 2016), the share of socio-biodiversity products in public purchases under PNAE is very low (Girardi *et al.*, 2018). This contributes to the existing trend of the decreasing diversity of agrifood, the loss of food sovereignty and nutrition transition among indigenous peoples in Brazil (Sunderland, 2011). The excessive consumption of processed foods by indigenous students also leads to the accumulation of waste in indigenous communities, which do not have adequate ways to dispose of it. In the case of communities far from urban centres, shipping processed foods is costly and creates serious socio-environmental and health damage (Brazil, Federal Prosecution Service, 2017).

The vicious circle discussed in this section shows that the greater the vulnerability of a population, the more closely intertwined and harder to overcome the challenges become. Extreme inequalities are reinforced and perpetuated. Therefore, significant efforts and resources must be dedicated to surmount these obstacles (UNDP, 2018).

10.6 Conclusions

One of the greatest challenges to the productive insertion of indigenous peoples is that there is no blanket solution for doing so (Leite, 2007). Indeed, the impacts of PNAE must be evaluated in view of the socio-cultural characteristics of each ethnic group, their relationship with the state and the market, as well as their different conceptions of surplus production (food production beyond their own subsistence) (Dalonso *et al.*, 2016).

One of the most promising efforts of the Brazilian Government to improve the productive insertion of indigenous peoples in PNAE is based on the concept of self-consumption (Brazil, Federal Prosecution Service, 2017), whereby food grown by a community is purchased by PNAE for distribution and consumption within that community (Grisa and Schneider, 2008). This concept is based on the impossibility of dissociating production, preparation and consumption in indigenous contexts (Brazil, Federal Prosecution Service, 2017; Brazil, FUNAI, 2017).

Compliance with the guidelines on indigenous participation in deliberations about their productive insertion in PNAE is critical to increase the effectiveness of public actions (FAO, 2015). It is known that the indigenous right to free, prior and informed

consent is frequently violated within the scope of public policies (FAO *et al.*, 2018). Hence, it is crucial to guarantee the participation of indigenous peoples in policymaking that targets them (Garnelo and Pontes, 2012; Martins *et al.*, 2008).

In Brazil, recent cuts in funding and trimming of social programmes, including those for indigenous peoples, must be taken into account. Decontextualized academic information can be used inappropriately to justify such actions. Therefore, it is worth clarifying that this chapter argues that the productive inclusion of indigenous peoples in PNAE represents a significant social and political advance. The chapter has demonstrated the potential benefits of inclusion in PNAE for indigenous populations, thus justifying efforts to improve this inclusion.

Due to the lack of data on productive inclusion under PNAE, this chapter adopts a comparative and interdisciplinary perspective and relies on the conceptual approaches of another programme that works towards productive inclusion – the Food Purchase Programme. Given the prominence given to indigenous populations in the 2030 Agenda, it is crucial that international organizations and the Brazilian government join efforts to gain knowledge on the productive inclusion of indigenous populations.

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11 PUBLIC PROCUREMENT FOR FARMING SYSTEM DIVERSIFICATION

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ABSTRACT

Diversified farming systems have received considerable attention for their potential to contribute to environmentally sustainable and resilient food systems. This chapter discusses the potential of public procurement programmes in building public support for diversified farming systems. Focusing on Brazil's flagship public procurement programme, the National School Feeding Programme (PNAE, by its Portuguese acronym), this chapter analyses how public procurement may drive farm diversification and the adoption of agroecological practices among small-scale farmers. It also explores the limitations of public procurement programmes in promoting agrobiodiversity and agroecological practices, and potential ways for achieving broader impacts for environmental outcomes.

11.1 Introduction¹

Diversified farming systems have received considerable attention for their potential to contribute to more environmentally sustainable and socially equitable food systems. Diversified farms can support greater biodiversity and multiple ecosystem functions such as soil nutrient cycling and enhanced nutrient retention, pest control and carbon sequestration (Power, 2010). Many diversified farms incorporate agroecological practices, exemplified by the use of ecological principles to inform management of plant diversity for ecosystem function, reducing or eliminating external inputs. Increasing plant diversity at farm and landscape scales, together with use of agroecological practices, can also reduce farmers' vulnerability to social and environmental risks by reducing the need for non-renewable inputs (Elser *et al.*, 2014) and contributing to food security and nutrition (Frison, Cherfas and Hodgkin, 2011). Despite growing evidence of their ecological and social advantages, diversified farming systems have received minimal public and private investment (Kremen and Miles, 2012; DeLonge, Miles, and Carlisle, 2015). As such, new analytical approaches are needed to assess food system interventions and policies that address the linked dynamics of food security and ecological sustainability (Wittman *et al.*, 2016).

Current market conditions, especially the consolidation of the global agrifood industry combined with a predominance of policies that favour industrialized agriculture, make it difficult for family farmers to thrive by maintaining diversified farming systems (Kremen, Iles and Bacon, 2012). In response, governments have developed new forms of public support for social-ecological services through targeted public food procurement programmes. Social-ecological services are the products and benefits derived from interactions between people and nature in social-ecological systems (Reyers *et al.*, 2013). Public procurement generates a “mediated market”

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that facilitates family farmers' preferential access to institutional markets for food produced under desired conditions (e.g. local, organic) (Wittman and Blesh, 2017; Guerra *et al.*, 2017). Policies that create structured demand – i.e. large-scale, predictable demand generated by public or non-profit institutional food procurement – for a range of nutritious foods (e.g. vegetables, fruits, legumes, dairy products) may promote diversified farming systems by increasing their economic viability, while also supporting food security and nutrition (Nehring, Miranda and Howe, 2017). Structured demand is recognized for its potential to contribute to food security by reducing risks and vulnerabilities through increased productivity and ensuring reliable food supplies (International Policy Centre for Inclusive Growth [IPC-IG], 2013; Stefani *et al.*, 2017). Important sources of structured demand for agricultural products include schools, hospitals, food reserves, the military and food aid programmes, such as the Purchase for Progress initiative of the World Food Programme of the United Nations (WFP, 2020).

Building on the need to identify policy designs that enhance food system resilience by supporting both food security and biodiversity (Wittman *et al.*, 2016), this chapter reviews the relationships between participation in a specific public food procurement programme, the Brazilian National School Feeding Programme (PNAE, by its Portuguese acronym), and farm diversification. Farm diversification refers to management changes that result in an increase in both agrobiodiversity – the diversity in crop and livestock varieties and species – and the area of farmland under diversified production, as well as reductions in the application of synthetic inputs.

11.2 Farm diversification

Diversified farming systems maintain a diversity of organisms and functional traits that allow agroecosystems to sustain functions following disturbance (e.g. pest outbreaks or price fluctuations) (Matson *et al.*, 1997; Wood *et al.*, 2015). This diversity contributes to resilience, or the ability of a system to cope with shocks and external pressures, and to sustain the production of sufficient nutritious, culturally acceptable, and accessible food over time and space (Schipanski *et al.*, 2016). Diversity of organismal traits occurs across ecological (e.g. genetic, taxonomic diversity), spatial (e.g. agroforestry) and/or temporal (e.g. crop rotation) scales, and may contribute to maintaining and regenerating biotic interactions that support production and

other ecosystem functions. Diversified farming systems exist along a continuum, but often include agroecological management practices such as increased crop rotation complexity, cover cropping (i.e. the use of non-harvested crops), the use of organic nutrient sources such as legumes or manure, and biological control (Iverson *et al.*, 2014). Particular functional groups of crops, such as legume cover crops and perennials, increase functional diversity with plant traits that supply and retain nutrients and increase soil organic carbon storage (Blesh, 2017). At larger scales, diversified farming systems can also reduce agriculture's contribution to global climate change by reducing external input dependency and associated greenhouse gas emissions. Although processes of farm diversification are managed at the plot and farm (i.e. farming household) scales, the aggregate effect of a network of diversified farms at landscape levels supports resilience in the food system.

Farm diversification also contributes to delivering improved nutrition and diet outcomes at multiple scales. At the household scale, diversified farming systems can support dietary diversity among family farmers in the context of a changing global nutrition landscape (Berti and Jones, 2013). By supporting higher levels of agrobiodiversity, diversified farming systems may increase dietary quality by increasing a farm household's dietary diversity (Jones, Shrinivas and Bezner Kerr, 2014), or through income generation to purchase foods (Sibhatu, Krishna and Qaim, 2015). Dietary diversity is of central importance to food security and nutrition, and is often used as a proxy of dietary quality because more diverse diets are positively associated with the nutrient quality of diets (Jones *et al.*, 2013). Poor dietary quality is leading to the so-called "dual burden of malnutrition," a public health issue characterized by the coexistence of nutrient deficiencies along with overweight and obesity (Rivera *et al.*, 2004), particularly in middle-income countries such as Brazil. At the landscape/community scale, a higher abundance of diversified farms contributes to food system resilience through positive effects on the nutritional security of non-farming populations by increasing access to diversified foods for the local population (Remans *et al.*, 2015).

11.3 Public procurement: a mechanism to diversify farming systems?

Targeted public food procurement programmes, such as PNAE, may foster farm diversification by offering: (1) demand for *diversified food products* (e.g. vegetables, legumes, dairy products); (2) a reliable source of *income generation* by creating favourable market conditions for family farmers; (3) *price stabilization* through the establishment and negotiation of prices; and (4) *predictable and reliable demand* for agricultural products that reduces risks and uncertainties associated with commodity markets (Sumberg and Sabates-Wheeler, 2011; Nehring, Miranda and Howe, 2017). These four characteristics make it less risky and more profitable for farmers to produce a diverse range of products for local and regional markets (Sumberg and Sabates-Wheeler, 2011). Stable and predictable market access for family farmers also strengthens local and regional markets, which can benefit food security and resilience by increasing access to local foods and improving dietary quality.

A substantial body of research has focused on evaluating outcomes of public food procurement for food beneficiaries, but effects on the farms and households of participating family farmers remain understudied. Recent case studies of food procurement programmes in Brazil observed two key changes in family farming practices: an increase in agrobiodiversity and a transition towards agroecological management (Blesh and Wittman, 2015; Chappell, Moore and Heckelman, 2016; Guerra *et al.*, 2017; Valencia, Wittman and Blesh, 2019). Therefore, public procurement programmes that offer a price premium for organic practices may drive, at least partially, transitions to agroecological management.

Brazil's National School Feeding Programme (PNAE)

School feeding programmes based on targeted public food procurement aim to increase children's consumption of locally and regionally procured food. The focus on *locally* produced food reflects increasing understanding of the benefits to farmers, traders and consumers that can be derived from more localized procurement strategies (Sumberg and Sabates-Wheeler, 2011). Brazil's National School Feeding Programme (Programa Nacional de Alimentação Escolar, PNAE) is a globally lauded public procurement programme that links objectives related to food security,

education and rural development. PNAE originated in the 1950s as a school meal programme, but has been substantially redesigned since 2009. PNAE is now part of a broader food security strategy based on the creation of new markets driven by public procurement (Schneider *et al.*, 2016). The success of PNAE in reducing child malnutrition, increasing access to healthy foods, improving eating habits and reducing school absenteeism has inspired many countries in Latin America and Africa to replicate and adapt its strategies (Food and Agriculture Organization of the United Nations [FAO], 2014). Since 2009, PNAE has provided a premium for certified organic and agroecological products (a price premium of up to 30 percent) and priority in contracts for certified production. PNAE is also committed to investing at least 30 percent of its budget in purchasing from local family farmers. “Local” here refers to the municipal scale, where family farmers supply food for the schools in their own municipalities. The establishment of a budget benchmark for expenditures on family farmers, and a premium for organic products, has created a unique market for diversified food and agricultural products for family farmers. In this way, PNAE is a form of public investment in a broader suite of social-ecological services from farms (see Chapters 8, 9, 10, 12, 14, 15 and 16 for additional analysis of PNAE in Brazil).

Targeted food procurement programmes are of strategic importance to allowing smallholder farms to transition to diversified farming systems and remain economically viable while supporting their contribution to local food security and nutrition. Supporting the production of diversified crops is particularly important given the homogenization of the food supply towards a few staple crops such as corn, wheat and rice (Khoury *et al.*, 2014). As such, this form of public procurement programme responds to growing calls for mechanisms to sustain and enhance smallholders’ contributions to production diversity and hence to the overall dietary diversity of the world’s population (Fanzo, 2017).

Effects of PNAE on farm diversification

In a recent study in southern Brazil, land use history assessments were conducted to identify the effects of PNAE on the process of farm system diversification (Valencia, Wittman and Blesh, 2019). It was found that farmers’ participation in PNAE played a direct role in farmers’ decisions to shift their household’s primary economic focus from low agrobiodiversity, input-intensive farming systems (e.g. corn or soy

monocultures) to more diversified, low external input systems (e.g. horticulture). Once PNAE emerged as an easily accessible and stable market for a variety of food crops, many farmers expanded the area of their horticulture plots from small home gardens for household consumption to market-oriented plots. Farmers explained that this shift was incentivized by guaranteed purchases leading to a reliable monthly income distributed over the school year, and by the stability and accessibility of the market generated by PNAE. For the farmers who were already market-oriented horticultural producers, the price premium offered by PNAE for certified agroecological products supported a transition to organic production practices. Local non-governmental organizations (NGOs) and farmers' associations were fundamental in supporting participation in PNAE and a transition to agroecological practices (Guerra *et al.*, 2017). Farmers explained that the reason for this transition was that organic horticultural production had lower production costs (e.g. lower or no costs for agrochemical inputs, lower labour requirements) and land requirements (i.e. higher profits per unit area) than did commercial grain cultivation (corn, beans, soybeans).

Among farmers participating in PNAE, the most significant change was an increase in the total land area planted with diversified food crops (i.e. horticulture plots), which among larger-sized farms also resulted in a significant increase in agrobiodiversity (Valencia, Wittman and Blesh, 2019). Moreover, higher levels of agrobiodiversity were associated with a lower use of synthetic inputs. However, this result may not necessarily be driven exclusively by PNAE since farmers who were not participating in PNAE also had a low use of synthetic inputs in their horticulture plots. Therefore, this may instead reflect the potential of managing diversified farming systems with no or low synthetic inputs by following agroecological practices. More work is needed to better understand the links between biodiversity, ecosystem functions and reduced input dependency. Presumably, greater agrobiodiversity alongside use of ecological practices supported beneficial ecological processes such as soil organic matter accumulation, trophic interactions that control pests and diseases, or nutrient supply through biological nitrogen fixation or decomposition; however, measuring changes in these processes was outside of the scope of this study. Future research should also focus on understanding other metrics of diversity, such as plant functional traits, and their relationship to ecosystem functions. Elucidating mechanistic relationships between farm-scale functional diversity and ecosystem services remains a critical

research need (Wood *et al.*, 2015), which could inform improvements to farm management and to agro-environmental policy schemes.

Building food system resilience

Diversified farming systems face significant challenges in terms of policy support, market access and research and development. Public support to generate greater social-ecological services from farms is needed for food systems that expand the distribution of nutritious foods to a wider population. In particular, targeted public food procurement is an undervalued policy instrument capable of addressing some of the complex problems related to food system resilience and food insecurity. In this form of market, the state mediates relationships between supply (family farms) and demand (food security and public nutrition programmes) (Wittman and Blesh, 2017). The PNAE programme in Brazil exemplifies how the strategic use of public procurement may align efforts across multiple sectors (agriculture, public health and nutrition, and education) to respond to the need for policies that build resilience in both rural economies and food systems in the context of global environmental change (see also Chapter 8).

Public support through PNAE may increase the diversity of farms, but the effects of PNAE on diversification outcomes may be moderated by farm size (Valencia, Wittman and Blesh, 2019). PNAE may be more appealing to the relatively smaller farms where horticulture is preferable in terms of returns per unit area and labour requirements. For small farms, the main contribution of PNAE was enabling farmers to transition a greater area of their cultivated land to diversified horticulture for regional markets. Larger-scale family farmers who focused on the production of commodity crops such as soybean did not generally seek integration into the mediated market for local foods created by PNAE, even if they also maintained small, low-input horticultural plots for household consumption. However, among the larger family farms that did participate, PNAE had the important effect of increasing overall agrobiodiversity as well as the proportion of land area in horticultural production for regional markets; the programme also increased household consumption of vegetables produced on the farm, and reduced the use of external inputs. This is consistent with other research showing that farm size affects production patterns and decision-making, because smaller- and larger-scale farms have differential capacities to capture economies of scale and invest in equipment and other resources. For example, as farms grow in size, crops that are more suitably grown

on small plots (e.g. vegetables) are reduced as a percentage of total farm area, whereas field crops that can be cultivated with mechanized techniques (e.g. cereal crops) are maintained or increased (Herrero *et al.*, 2017).

Increases in the production of socio-economic (e.g. improving farmers' livelihoods) and nutritional (e.g. increasing the production of diversified foods) services are currently the most important effects of PNAE. As a programme that primarily targets the procurement of vegetable and fruit crops, PNAE may actually have limited off-farm environmental impacts. That is, PNAE does not necessarily provide a sufficient incentive to transform management practices for the entire farm or for all cropping system types. In spite of the increase in diversified production on PNAE farms, the absolute area of diversified cropping systems is still relatively small compared to total farm size, and management practices in the other cropping systems that occupy more land – usually monocrops managed with agrochemical inputs – in many cases remained unaffected by PNAE (Valencia, Wittman and Blesh, 2019). For example, both agroecological and input-intensive systems often continue to coexist within farms (e.g. a conventionally managed corn plot alongside an ecologically managed horticultural plot).

Plot level differences in management practices across different cropping systems also speak to a more nuanced effect of PNAE (Guerra *et al.*, 2017). For example, the use of synthetic inputs for horticultural plots was not different between PNAE and non-PNAE farmers, regardless of farm scale. This means that many farmers were already managing their vegetable plots in low-input, high agrobiodiversity systems. On the other hand, external input use intensity for corn and beans was lower for PNAE farmers than for non-PNAE farmers. These differences are likely not the direct result of PNAE, but rather a secondary effect. Farmers in PNAE are often also involved in workshops organized by local NGOs and are in contact with extension agents who promote agroecological practices; in contrast, soybean and garlic farmers regularly receive technical assistance associated with the sale of agrochemical inputs and seeds. It is through this channel that PNAE's impacts on management may eventually extend to the whole farm and help realize broader environmental sustainability goals.

The use of public procurement as a policy instrument to drive food system sustainability should consider access to infrastructure and resources as potential mediating factors in the success of this type of public policy. Many of the positive

examples of targeted public food procurement come from the south of Brazil (e.g. Valencia, Wittman and Blesh, 2019; FAO, 2014; Chapter 8 and Chapter 16 of this book). Southern Brazil is characterized by higher infrastructure development, access to credit and resources, and economic development relative to other regions in Brazil (Medina *et al.*, 2015). This means that it cannot be assumed that the success of PNAE in the south of the country may be equally replicated in other regions (see Chapter 25 for an overview of PNAE's regional differences). Moreover, in the south of Brazil, growing diversified food products for household consumption – along with its management knowledge – existed before the onset of PNAE. In regions where home gardens are not part of local traditions (and hence local knowledge on growing diversified foods may be absent) farmers may face additional limitations in responding to targeted procurement programmes such as PNAE.

Finally, one may argue that farmers involved in PNAE have displaced their dependency from the commodity market to an institutional market, which has in recent decades been less volatile and risky than commodity markets. This creates a different type of vulnerability for participating farmers because they now depend on this commercialization channel. If PNAE were to be terminated or modified to its operational model before its redesign in 2009, the continuity of diversified farming systems may be jeopardized. This highlights the need for coordinated efforts, as well as public pressure, to sustain policies such as PNAE.

11.4 Conclusion

Diversified farming systems have the potential to contribute to environmentally sustainable and socially equitable systems that may buffer against global climatic and environmental change (Kremen, Iles and Bacon, 2012; Schipanski *et al.*, 2016). However, mainstream markets and dominant agricultural policies make it difficult for diversified and small-scale farmers to thrive. Public policies that create new markets for diversified farming systems contribute to food system resilience by supporting diversified farming systems. However, this market support may have a limited impact on environmental sustainability, given that only a limited number of family farmers participate and the sustainability changes that PNAE brings are focused on vegetable cropping systems that take up a small amount of total farm area. Broader impacts for

environmental outcomes could depend on whether low input, diversified production for PNAE ends up motivating changes to management on farmers' other cropped fields.

Public procurement may contribute to food system resilience through four key strategies. First, targeted public food procurement supports diversified farming systems by increasing the demand for agrobiodiversity and including incentives for agroecological practices. Second, targeted public food procurement creates an economically viable and stable market for diversified agricultural products that is an alternative to volatile, unpredictable commodity markets. Third, public food procurement programmes link local producers (family farmers) with local consumers (e.g. procurement beneficiaries) in a process of economic localization. Food system localization as an economic development strategy is emerging as a key response to the negative effects of globalization and trade liberalization. Lastly, public procurement increases local and regional access to nutritious food by generating a spillover effect in which excess horticultural production is channeled through local markets. By linking production and consumption at the municipal level, targeted public food procurement may strengthen local and regional food systems and increase the availability of diversified, nutritious foods. As such, targeted public food procurement is a promising strategy to foster food system resilience by simultaneously supporting rural development and food security and nutrition.

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12 BIODIVERSITY FOR FOOD AND NUTRITION: PROMOTING FOOD SECURITY AND NUTRITION THROUGH INSTITUTIONAL MARKETS IN BRAZIL

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ABSTRACT

A well-established political and regulatory framework exists in Brazil to promote food security and nutrition. Among its key elements are the Food Purchase Programme (PAA) and the National School Feeding Programme (PNAE), two institutional food procurement programmes that provide equitable support to family farmers by acquiring their products at a fair price and directing them to public schools, public programmes and social organizations. Both PNAE and PAA were identified by the Biodiversity for Food and Nutrition Project (BFN) (which is funded by the Global Environment Facility) as potential entry points to improve nutrition and livelihoods by linking them to native biodiversity and its conservation. BFN increased awareness on the importance and nutritional value of food species from Brazilian biodiversity through advocacy and capacity building workshops and by engaging in strategic alliances and partnerships with key actors involved in PNAE, PAA and related policies.

12.1 Introduction

Occupying roughly half of South America with a surface area of 8 515 759 km², Brazil is the fifth largest nation in the world and one of the world's 17 top biodiversity-rich (“megadiverse”) countries. The country harbours approximately 20 percent of the world's plant biodiversity, with 49 416 recognized plant species, as well as an estimated 9 000 vertebrates and 130 000 invertebrates. Many of these are endemic and live in the heterogeneous habitats that characterize the country's six different biomes: the Amazon, Cerrado, Caatinga, Atlantic Forest, Pampa and Pantanal (Brazil, REFLORA Programme, 2020; Joly *et al.*, 2019). Brazil's richness in biological diversity is matched by its cultural diversity: 900 000 indigenous people live in the country, belonging to 305 ethnic groups and speaking 274 languages. In addition, five million traditional communities such as the *caçaras*,¹ *quilombolas*,² rubber tappers, riverine populations, babassu nut breakers and *pantaneiros*,³ among others, inhabit one fourth of the country's territory (Brazil, Brazilian Institute of Geography and Statistics [IBGE], 2017). Many of these indigenous and traditional communities are custodians of knowledge and practices that help maintain Brazil's rich natural diversity and keep cultural and spiritual practices alive. For example, at least 469 plant species from 84 families are managed in agroforestry systems (Joly *et al.*, 2019). The term “socio-biodiversity products” has been coined to indicate the final products, raw material or benefits deriving from biodiversity; these are sustainably used and maintained by traditional communities and family farmers while protecting the environment.

Over the past two decades, Brazil has suffered unprecedented biodiversity loss and environmental degradation due to land use changes, such as the conversion of untouched land into agricultural land and urbanization. Currently, 1 173 animal species and 2 118 plant species are listed as endangered; climate change, pollution and the spread of invasive alien species are exacerbating this problem (Joly *et al.*, 2019). Exotic or introduced species (such as sugar cane, soy, orange trees, rice, coffee or maize)

¹ *Caçaras* are inhabitants of the coastal regions of southeastern and southern Brazil who descend from native indigenous peoples and the Portuguese.

² *Quilombolas* are inhabitants of the remnants of quilombos – communities formed between the sixteenth and nineteenth century by runaway African slaves.

³ *Pantaneiros* are inhabitants of the Pantanal, a tropical wetland area located largely within the Brazilian State of Mato Grosso do Sul but extending into Mato Grosso and portions of Bolivia and Paraguay. The majority of *pantaneiros* are cattle ranchers, but there are also fishermen.

dominate large-scale agricultural production (Brazil, Ministry of Agriculture, Livestock and Supply and Ministry of the Environment, Chico Mendes Institute for Biodiversity Conservation, 2019). Diets are shifting towards more simplified, obesogenic diets, with a consequent rise in obesity levels from 11.8 percent in 2006 to 19.8 percent in 2018, particularly among women (Brazil, Ministry of Health, Department of Surveillance of Noncommunicable Diseases and Health Promotion, 2019).

The Household Budget Survey (Brazil, IBGE, 2011) highlighted that 75 percent of Brazilians consume high amounts of ultra-processed foods and insufficient amounts of fruits or vegetables – well below the daily intake of 400 g recommended by the World Health Organization (WHO). In addition, the fruits consumed are predominantly exotic to the country (e.g. oranges, bananas, apples, papayas, mangoes, watermelons, tangerines and grapes), except for pineapples and açaí. Although the share of the population that consumes the recommended amounts of fruits and vegetables has risen in recent years (from 20 percent in 2008 to 23 percent in 2018) (Brazil, Ministry of Health, Department of Surveillance of Noncommunicable Diseases and Health Promotion, 2019), consumption of native species remains low, mostly because of a lack knowledge about their use and of information about their nutritional value.

Native food species are undervalued, despite their nutritional advantage over exotic species (Hunter *et al.*, 2019). Significant market and non-market barriers exist in Brazil, as elsewhere, that hinder a better uptake of neglected and underutilized species to enhance food and nutrition security. Using the multisectoral institutional framework established in Brazil under the Zero Hunger Strategy, the multi-country Biodiversity for Food and Nutrition (BFN) project (2012–2019) aimed to address some of these constraints by strategically targeting institutional markets to create a structured demand for these foods.

The Food Purchase Program (PAA) and the National School Feeding Programme (PNAE) were targeted as the two key federal government programmes with the greatest potential for diversifying institutional food procurement and improving diets while supporting family farming and promoting the conservation and sustainable use of neglected and underutilized species (Beltrame *et al.* 2016; United Nations System Standing Committee on Nutrition [UNSCN], 2017; Hunter *et al.*, 2015, 2016, 2019). In 2018, a list of 101 species of current or potential nutritional value was formalized by

Portaria Interministerial MMA e MDS N° 284 (Interministerial Ordinance MMA and MDS No. 284). This legal instrument recognizes the nutritional value of native food species and guides the management of institutional markets (e.g. through public procurement policies).

This paper discusses how policy and communication efforts can play a major role in the creation of an enabling environment for healthier food choices, and how they can promote the procurement of biodiversity products and encourage family farmers to sell their products to institutional food buyers such as school feeding programmes (see Chapters 2, 8, 9, 10, 11, 14, 15 and 16 for additional analysis of the Brazilian experience).

12.2 The Biodiversity for Food and Nutrition project in Brazil

The BFN approach

BFN aims to mainstream the conservation and sustainable management of native biodiversity into national and global nutrition, food security and livelihood strategies and programmes.⁴ Far from being prescriptive, BFN used a three-pronged approach that can be adapted to a variety of geographical and political contexts, and is applicable to the entire food value chain, from production to consumption. BFN aimed to improve knowledge on undervalued food biodiversity (component 1), strengthen policies and regulatory frameworks that regulate this diversity (component 2), boost the capacity of producers to use and benefit from this diversity, and stimulate demand for socio-biodiversity foods by developing value chains for these products while raising awareness of their value (component 3).

BFN was implemented in four countries – Brazil, Kenya, Turkey and Sri Lanka. To implement the project, Brazil decided to build on ongoing efforts under its Zero Hunger strategy (Fome Zero), a multisectoral framework established at the federal

⁴ The project Mainstreaming Biodiversity for Conservation and Sustainable Use for Improved Human Nutrition and Wellbeing (BFN) was a project of the Global Environment Facility (GEF); it was coordinated by Bioversity International, and its implementation was supported by the United Nations Environment Programme (UNEP) and the Food and Agriculture Organization of the United Nations (FAO). Additional support for the project was provided by the CGIAR Research Program on Agriculture for Nutrition and Health. The project contributes to the Convention on Biological Diversity's Cross-cutting Initiative on Biodiversity for Food and Nutrition.

level to solve the country's food security and nutrition issues (Beltrame *et al.*, 2016). The following actors were involved in the implementation of BFN: the Ministries of the Environment, of Agriculture, Livestock and Supply, of Social and Agrarian Development, of Education, of Science, Technology, Innovation and Communication, and of Health, as well as the National Supply Company (Conab), the Brazilian Agricultural Research Corporation (Embrapa) and the Food and Nutrition Security National Council (Consea). A project governance mechanism, the national steering committee, was established to coordinate and manage the activities of the partners in a transparent manner.

Of relevance to this chapter is BFN's engagement with Brazil's largest public procurement programmes, PAA and PNAE. These programmes have the greatest potential to create a large, reliable and stable market for socio-biodiversity products. In 2013, the institutional demand for food from family farmers from these two programmes was worth over USD 1 billion (International Policy Centre for Inclusive Growth, 2013). Since its launch in 2003, PAA has benefitted almost 200 000 families; more than three million tonnes of food were purchased under the programme between 2003 and 2012 (Swensson, 2015; World Food Programme [WFP], 2015).

The two programmes are central to Brazil's food security and nutrition strategy; they also contribute towards education and health outcomes and help achieve the broader objectives of social development and poverty reduction by providing incentives for family farmers to engage in sustainable agriculture and manage Brazil's food diversity. PNAE is legally bound to purchase a proportion of its food from family farmers; PAA focuses exclusively on them. Both programmes pay a 30 percent premium for organic or agroecological products and give preference to suppliers from indigenous and traditional communities. Additionally, PAA supports activities for the conservation, production, storage and distribution of local or traditional seed varieties by purchasing seeds produced by family farmers experiencing food insecurity (Brazil, Ministry of the Environment, 2006).

In 2012, when the BFN project started, the two programmes were buying only limited quantities of foods from native biodiversity (Beltrame *et al.*, 2016). Furthermore, despite the large number of native food species available, only 11 were included in the official inventory of local production systems of a government programme guaranteeing minimum prices for socio-biodiversity products (PGPM-Bio). Under this

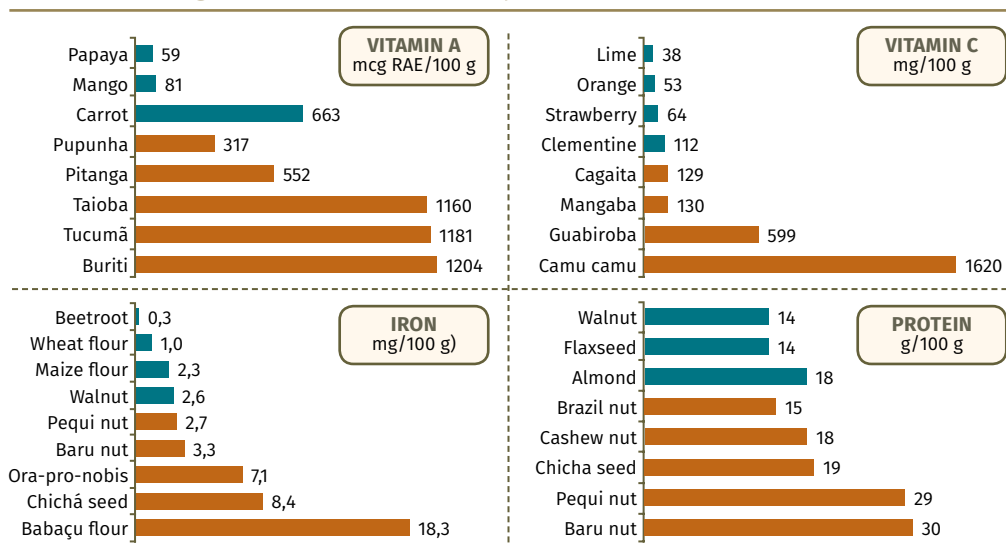
programme, the federal government sets a fixed market price for selected socio-biodiversity products; it intervenes to compensate producers or collectors who are unable to sell their products at this minimum market value. Against this background, the BFN project in Brazil identified PAA and PNAE as ways to boost the demand for sustainably produced socio-biodiversity products, while improving the quality and diversity of the diets of beneficiaries and improving the livelihoods of family farmers.

Highlighting the nutritional value of biodiversity foods

The lack of appreciation of the value of biodiversity for food and nutrition was identified early on in the BFN project as one of the main causes of biodiversity loss in Brazil; it was also found likely to restrict the market demand for these foods. While some information on the nutritional quality and traditional use of biodiversity for nutrition existed at the start of the project, data were scattered and obsolete or unreliable, and there was no single data repository. In addition, very little information was available on the role played by these foods in Brazilian diets.

The point of departure for building a new database on Brazilian biodiversity for food and nutrition was the Plants for the Future initiative, coordinated by the Ministry of the Environment. The Ministry had carried out research to identify and prioritize species of Brazilian flora of current or potential economic value for different types of use such as food, aromatic, ornamental, medicinal, fibrous and forage. Seventy-eight edible species (mostly fruits and nuts) became the focus of the BFN project. A first step was to determine the nutritional content of the species, to build a knowledge base and attract the interest of the two public procurement programmes. This was done in partnership with public universities and research institutes across the country, using methodologies developed by the Food and Agriculture Organization of the United Nations (FAO) and the International Network for Food Data Systems (INFOODS). Food composition data were taken from secondary sources (e.g. scientific documents and reports from national universities and research institutes) or generated through laboratory analysis; they revealed that many of the prioritized native species are richer in nutrients compared to more commonly consumed exotic foods, as shown in Figure 1. Figure 2 presents a number of Brazilian socio-biodiversity food species.

Figure 1 Nutrient content of Brazilian socio-biodiversity food species (orange) and other commonly consumed foods (blue)



Note: values are expressed per 100 g of edible portion in fresh weight basis.

Sources: Brazil, Center for Studies and Research in Food (NEPA) and University of Campinas (Unicamp), 2011; Brazil, Brazilian Biodiversity Information System (SiBBR), 2018.

Figure 2 Examples of Brazilian socio-biodiversity food species



1. Babaçu; 2. Baru; 3. Buriti; 4. Cagaita; 5. Camu camu; 6. Chicha; 7. Guabiroba; 8. Pitanga; 9. Ora pro nobis; 10. Tucumã; 11. Taioba; 12. Pupunha; 13. Mangaba; 14. Pequi; 15. Castanha do parã.

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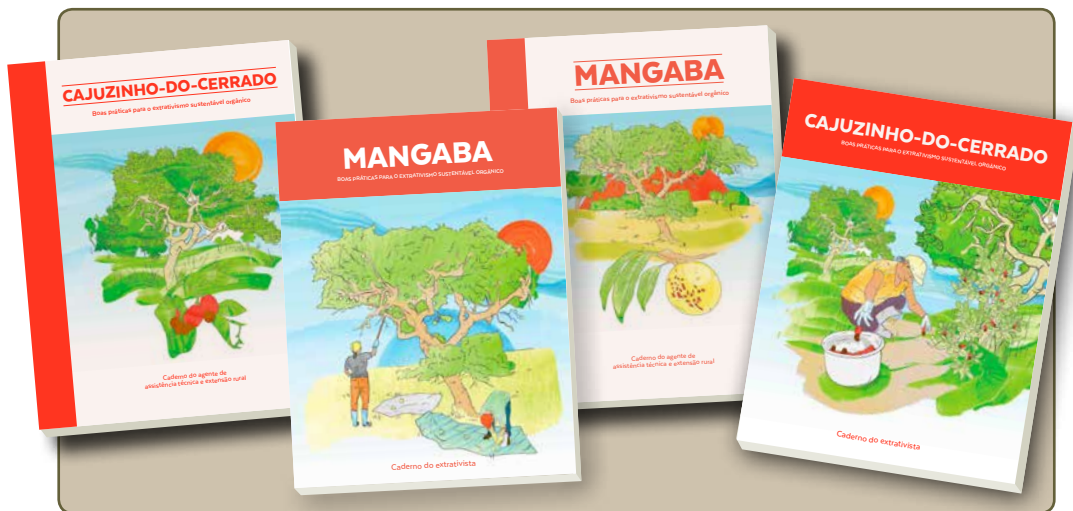
The information was generated in partnership with the Brazilian Biodiversity Information System (SiBBr) at the Ministry of Science, Technology, Innovation and Communication. It became the basis to solicit demand for biodiversity products from PAA and PNAE. The information has now been made available online via the [Biodiversity and Nutrition Food Composition Database](#) (Brazil, SiBBr, 2018).⁵

A critical entry point for the mainstreaming of biodiversity was the involvement in the collection of food composition and consumption data of the Collaboration Centers on School Food and Nutrition (CECANEs) of the National Fund for Educational Development (FNDE). CECANEs are firmly present within federal universities across Brazil. They are funded by PNAE and provide the programme with research and technical backstopping, in addition to providing training to local communities, municipal and school managers, nutritionists and cooks as part of the implementation of PNAE across Brazil. With help from the CECANEs, regional centres for food composition data were set up to provide regional support for school feeding programmes.

To meet the potential rise in demand for native biodiversity and address barriers to the improvement of food biodiversity in Brazil (such as the lack of skills and institutional capacities, and the poorly developed markets for native species), efforts targeting the producers and collectors of this diversity were undertaken. Far from being mainstream crops, socio-biodiversity species fall outside the scope of agricultural domestication programmes. Many are collected from the wild, are highly perishable and require unique methods of production, handling, processing, transportation and storage in order to meet the stringent quality standards set by institutional procurement programmes (Beltrame *et al.*, 2016). To improve the supply chain of native biodiversity and add more value to these products, guidelines for the sustainable collection of 21 socio-biodiversity species targeting producers and extension workers were jointly developed by the Ministry of the Environment and the Ministry of Agriculture, Livestock and Supply (Brazil, Ministry of the Environment, 2018; Brazil, Ministry of Agriculture, Livestock and Supply, 2014) (see Figure 3).

⁵ See <https://ferramentas.sibbr.gov.br/ficha/bin/view/FN>

Figure 3 Examples of guidelines for the sustainable collection of wild edibles published by the Brazilian Ministries of the Environment and of Agriculture, Livestock and Supply



Source: Brazil, Ministry of the Environment, 2018; Brazil, Ministry of Agriculture, Livestock and Supply, 2014.

Creating an institutional demand for biodiversity foods and boosting production

The next challenge was to ensure that the data were made available to those responsible for the implementation of PNAE and PAA, who were struggling to increase the use of native neglected and underutilized species in their programmes and in their school menus to support family farmers.

Along with actions to improve the capacities of PNAE staff to integrate more socio-biodiversity into institutional procurement, a momentous boost in the commercialization of native food species was provided by the publication of the official list of native Brazilian socio-biodiversity species of nutritional value. The list was laid down in *Portaria Interministerial N° 163 de 11 de maio de 2016* (Interministerial Ordinance No. 163 of 11 May 2016), which was superseded by *Portaria Interministerial MMA e MDS N° 284* (Interministerial Ordinance MMA and MDS No. 284) in 2018. It officially defines and recognizes over 100 native species of nutritional importance, which were originally identified by the Plants for the Future initiative

of the Ministry of the Environment. The inclusion of these species in the ordinance, together with the publication of the nutritional information in the SiBBR database, has greatly increased the marketing potential of native species. Indeed, ministries now refer to the ordinance's list to buy, organize and monitor purchases of socio-biodiversity products through their food procurement programmes. The list has also helped clarify the definition of "biodiversity for food and nutrition"; differences in the definition of the concept had hitherto hindered efforts to monitor and track public procurement of Brazilian biodiversity (Beltrame *et al.*, 2016).

The monitoring and promotion of the use of native biodiversity in school procurement also benefited from the creation of a food and nutrition security quality index (IQ COSAN) (Brazil, FNDE, 2018). Developed to help nutritionists and those implementing school feeding programmes plan healthy and balanced school meals, the tool allocates point-based ratings to school meals depending on their levels of dietary diversity and the absence of unhealthy foods such as sugars, sweets and processed and fried foods. Additional points are allocated if meals include any number of the neglected and underutilized species listed in the official list of native Brazilian socio-biodiversity species of nutritional value of Interministerial Ordinance MMA and MDS No. 284. The IQ COSAN manual helps schools monitor the nutritional adequacy of school meals and align menus with official dietary guidelines. It also encourages school nutritionists and managers to incorporate underutilized native species into school meals to increase their ratings (Brazil, FNDE, 2018a).

Not only technical staff responsible for PAA and PNAE at the federal level were involved in the implementation of the BFN project; efforts were also made to integrate biodiversity in other public policies and platforms related to food security and nutrition and food procurement, for example Consea, the National Plan for Food and Nutritional Security (Plansan 2016–2019), the National Pact for Healthy Eating, and the National Plan on Agroecology and Organic Production (Planapo). Procurement programmes are also closely aligned to the National Food and Nutrition Policy (PNAN), coordinated by the Ministry of Health. Therefore, training materials targeting teachers and health care professionals were developed in collaboration with PNAN, as part of the School Health Programme (PSE). These materials are aligned with national dietary guidelines, and highlight the role of native socio-biodiversity and regional foods in diversifying diets and reviving traditional culture.

Figure 4 IQ COSAN manual: parameters for rating

IQ COSAN assess the quality of school meals based on four parameters:

1. Presence of the following food groups:
 - a) cereals, and roots and tubers
 - b) pulses
 - c) vegetables
 - d) fresh fruits
 - e) milk and dairy products
 - f) meat and eggs
2. Presence of regional foods or socio-biodiversity products.
3. Dietary diversity (on a weekly basis).
4. Absence of restricted or banned foods such as sugars, sweets and processed and fried foods.

Point-based ratings are assigned to each parameter. The sum of the ratings determines whether school meals are ranked as inadequate, in need of improvement or adequate.



Source: Brazil, FNDE, 2018a.

Interministerial Ordinance No. 163 of 11 May 2016 created a reliable market for the products of 25 million foragers and family farmers who manage and grow native biodiversity species (Ministry of the Environment, Chico Mendes Institute for Biodiversity Conservation, 2019). A second ordinance (*Porteria N° 654/2018* [Ordinance No. 654/2018]), issued the same year by the Special Secretariat for Family Farming and Agrarian Development, created additional market incentives by establishing a socio-biodiversity label for all products listed in Interministerial Ordinance MMA and MDS No. 284 (see Figure 5). The label has a validity of two years (renewable) and can be requested by family farmers, cooperatives and small and medium enterprises with a strong link to family farming registered with the National Programme for Strengthening Family Agriculture (Pronaf). Registration with Pronaf and the use of the socio-biodiversity seal open up institutional market opportunities for family farmers and foragers.

Figure 5 Official Brazilian label for socio-biodiversity products



Source: Portaria N° 654, de 9 de novembro de 2018 (Ordinance No. 654 of 9 November 2018).

Communicating and educating to embrace socio-biodiversity

Considerable efforts were undertaken to raise awareness as to the use of socio-biodiversity to diversify diets. These efforts promoted the recognition of the value of socio-biodiversity products for public food procurement and boosted institutional demand for them. The dietary guidelines for the Brazilian population of the Ministry of Health promote healthy diets with foods derived from socially and environmentally sustainable food systems and highlight the importance of biodiversity. Meanwhile, the publication *Brazilian Regional Foods* provides recipes to help school nutritionists and school cooks develop school meals (Brazil, Ministry of Health, 2014, 2015).

The limited familiarity with socio-biodiversity foods, i.e. the lack of knowledge about how to use and prepare these forgotten foods, constitutes an important barrier to their greater consumption. A survey into the use of socio-biodiversity in school procurement and school meals carried out in 2015 across 21 municipalities in the South Region of Brazil revealed that out of 35 species listed, only three were present in school purchases or school meals (Girardi *et al.*, 2018). While it is important to persuade school managers and employees of the nutritional value of these foods, attention should also be given to the final consumers: the children. Prior to introducing socio-biodiversity foods into school meals, nutritionists and cooks should

be aware that children may be unaccustomed to the new tastes and textures (see, for example, the study carried out by Quinalha (2019) into the acceptability of school meals containing red pineapple (*Ananas bracteatus*) in two schools in Rio Grande do Sul). Promoting these foods in nutrition education activities, for example by using school gardens, has proved a successful way of engaging students and bringing about positive behavioural changes for healthy eating (Hunter *et al.*, 2020).

The BFN project collaborated with the Educating with School Gardens and Gastronomy initiative (PEHEG), carried out by the Centre for Excellence in Tourism of the University of Brasilia and funded by FNDE (see Figure 6). The collaboration has helped mainstream socio-biodiversity into PEHEG's activities through the inclusion of information on socio-biodiversity and awareness-raising on its nutritional value to improve eating habits and diversify diets. PEHEG staff have a strong presence in municipalities and provide direct technical assistance to schools, thus acting as important messengers for socio-biodiversity. By the time PEHEG ended in 2016, school gardens had been established in 541 municipalities across Brazil (Beltrame *et al.*, 2016; Domingues dos Santos *et al.*, 2020).

Figure 6 **School garden set up under the PEHEG initiative at a municipal school in Padre Bernardo (Goiás)**



To assist those responsible for the planning and preparation of school meals, the BFN project published, in collaboration with partner universities, nutritionists and the gastronomy sector, a book with 335 recipes using 64 native underutilized species entitled *Brazilian Biodiversity: tastes and flavours* (Santiago and Coradin, 2018).⁶ Socio-biodiversity was also the main theme of the second edition of the Best School Feeding Recipes competition launched by FNDE and sponsored by WFP's Centre of Excellence for the Fight Against Hunger and FAO (see Figure 7). The competition brings together school cooks from all over Brazil to prepare the healthiest and most nutritious school meals that are also appealing to students. In 2018, 2 252 school cooks from Brazil's five regions took part in the competition. Three of the 15 finalists used socio-biodiversity ingredients for the preparation of the following dishes:

- savoury rolls with baru nuts (*Dipteryx alata*);
- grilled fish with pupunha fruits (*Bactris gasipaes*) and tucupi (fermented cassava broth);
- pasta with tucupi, jambu leaves (*Acmella oleracea*) and powder of urucum seeds (*Bixa orellana*).

Figure 7 **Recipe book of the second edition of the Best School Feeding Recipes competition**



Source: Brazil, FNDE, 2018b.

⁶ See www.mma.gov.br/publicacoes/biodiversidade/category/54-agrobiodiversidade.html

The recipes of the 15 finalists of the second edition of Best School Feeding Recipes competition were collected in a [recipe book](#), with a special chapter devoted to the importance of socio-biodiversity. The recipe book is distributed to schools and available online (Brazil, FNDE, 2018b).⁷

Outcomes and future actions

The partnership between the BFN project and Brazil's food procurement programmes is promising. Changes in behaviours and attitudes are evident within partner ministries and federal institutions, and a number of guidelines for the implementation and monitoring of food procurement purchases and preparation of school meals now include socio-biodiversity species. Significant results were also achieved with regard to the promotion of biodiversity species in diets, as highlighted in Brazil's sixth national report to the Convention on Biological Diversity (Brazil, Ministry of the Environment, 2019). The report used data generated by the BFN project and data from Embrapa to demonstrate that the country is on track to achieve the national biodiversity target 13:

By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity (Brazil, Ministry of the Environment, 2019, p. 14).

Although the sums spent to purchase neglected and underutilized species remain low compared to those spent on overall food purchases, there has been an increase in the uptake of socio-biodiversity in public procurement programmes, as well as an increase in total expenditures under some of these programmes. Despite the economic crisis that hit Brazil in 2014, and following a long period during which funding was not augmented, in 2017 the federal government increased the funds allocated to states and municipalities for PNAE purchases by 15 percent. As a result, an extra BRL 542 million (approximately USD 101 million)⁸ was available yearly on average in 2017, 2018 and 2019 for school meal programmes in public schools, benefitting

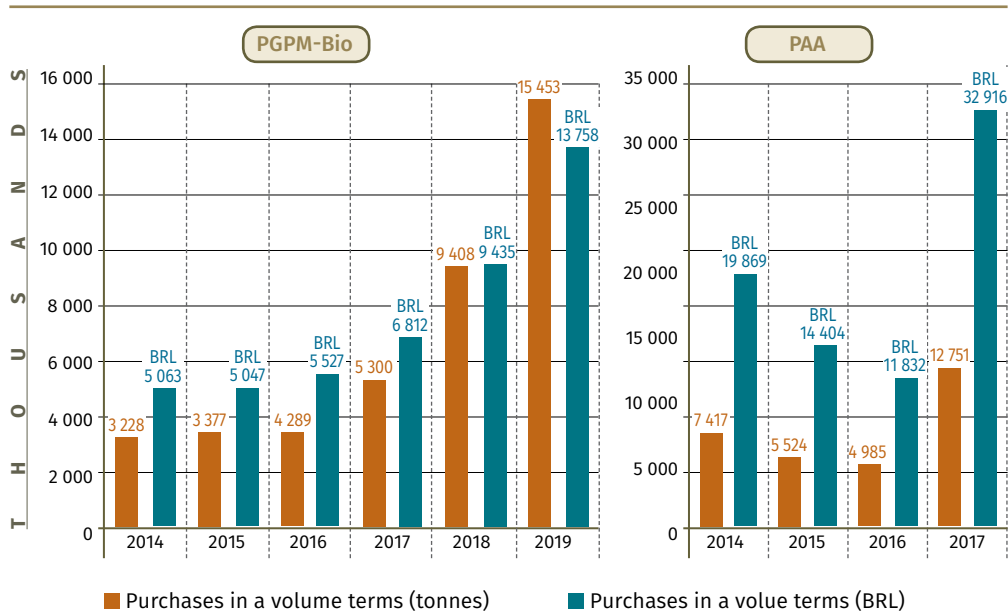
⁷ See <https://centrodeexcelencia.org.br/wp-content/uploads/2018/12/Melhores-receitas-2018-WEB.pdf>

⁸ USD 1 = BRL 5.33 in May 2020.

41 million pupils in primary and secondary education (Brazil, FNDE, 2020). Payments for socio-biodiversity products under PGPM-Bio grew steadily from 2014 onwards, to reach more than BRL 13 million (for 15 000 tonnes of products purchased) in 2019 (Brazil, Conab, 2020) (see Figure 8).

Despite a 20 percent cut in PAA’s overall annual budget in 2017 (from BRL 430 million in 2016 to approximately BRL 360 million in 2017), the share in total funds spent under PAA on socio-biodiversity products (as listed in Interministerial Ordinance MMA and MDS No. 284) increased from 2.75 percent in 2016 to 5.02 percent in 2017, to reach a total of almost BRL 33 million in 2017 (see Figure 8) (Oliveira *et al.*, 2018; Brazil, Ministry of the Environment, Chico Mendes Institute for Biodiversity Conservation, 2019). In sum, native biodiversity was incorporated in both PNAE and PAA, which thus became strategic tools to promote the conservation and sustainable use of neglected and underutilized species. The PGPM-Bio, PNAE and PAA experiences offer an indication of the market potential of neglected and underutilized species in other institutional markets.

Figure 8 **Purchases of socio-biodiversity products under PGPM-Bio (2014–2019) and PAA (2014–2017)**



Sources: Brazil, Conab, 2020; Brazil, Ministry of the Environment, Chico Mendes Institute for Biodiversity Conservation, 2019.

Building on the experience of the BFN project, other recently launched initiatives are helping to boost the markets for socio-biodiversity and agroecology products and link producers to consumers. One example is the **Green Markets and Sustainable Consumption Project** (2016–2020),⁹ which supports socio-biodiversity suppliers in four Amazonian states (Acre, Amapá, Amazonas and Pará) by strengthening their capacities to manage their businesses; the project also aims to boost sustainable consumption and contribute to the development of sustainable value chains (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, 2016).

At the national level, the recently launched National Economic and Social Development Strategy (Endes) aims to promote the sustainable use of biodiversity and the inclusion of local communities in the country's socio-economic development. Firmly based on the 2030 Agenda for Sustainable Development (United Nations, 2013), the twelve-year strategy (2020–2031) identifies five sectoral axes that will allow Brazil to position itself economically in the current global scenario (Brazil, Ministry of the Economy, 2019). Within the environmental axis, the strategy supports actions to broaden the knowledge base and sustainable use of native biodiversity. Programmes are being launched that could potentially support the production of socio-biodiversity products, such as the programme on bio-economy and socio-biodiversity (Programa Bioeconomia Brasil-Sociobiodiversidade) of the Ministry of Agriculture, Livestock and Supply. This programme aims to improve value chains based on the sustainable use of socio-biodiversity and generate income for family farmers, small and medium-sized enterprises and traditional communities.

Meanwhile, the Ministry of the Environment continues to build on the legacy of the BFN project to encourage the greater use of native biodiversity foods. In collaboration with the Ministry of Agriculture, Livestock and Supply, the Ministry is developing plans to revise the official list of native Brazilian socio-biodiversity species of nutritional value to include an additional 20 native species. A new ordinance is expected to be published in 2020, and the new list will be used by institutional procurement programmes.

⁹ See www.giz.de/en/worldwide/70390.html

12.3 **Conclusions and recommendations: lessons learned, constraints and key factors for success**

In conclusion, the BFN project and the use of institutional markets to promote the conservation and sustainable use of native biodiversity foods in Brazil generated several positive outcomes. This section outlines some important lessons learned; they may serve as a source of inspiration for other countries.

Geographical coverage

Countries with a large geographical coverage and a centralized government structure, such as Brazil, may consider developing multisectoral programmes for nutrition and food security at the national level. In the case of Brazil, the decision to work at the national level was key to the effective mainstreaming of biodiversity for food and nutrition into existing food security and nutrition frameworks. Indeed, the project collaborated directly with the federal ministries responsible for the development and implementation of these policies. The nationwide focus also promoted the partnering with several federal initiatives (e.g. food procurement programmes and other public initiatives related to food security, rural development and health) of different ministries, as well as the creation of links with civil society through federal and state universities and research institutions.

In countries with a decentralized government structure, working at the local level might be more appropriate. Whatever the territorial focus, countries without an existing multi-stakeholder policy platform should dedicate financial and time resources to a stakeholder mapping exercise early on in their project; they should focus on the policies and sectors with the greatest bearing on the conservation and sustainable use of food biodiversity. Stakeholder mapping is often a lengthy and costly process.

Identifying and involving existing institutional capacities and initiatives

In the case of Brazil, the existence of excellent technical research capacities within the country, in universities and research institutions, greatly facilitated the achievement of results; it also allowed for an optimal use of time and resources. The national approach, focusing on regional traditions and capacities, favoured the decentralization of research activities, the exchange of best practices and the building of capacities; it ensured the long-term sustainability of impact of the project beyond its closure. To build the network of universities and research institutions, researchers from different regions of the country were identified and involved in the project at an early stage; the plans and goals of the project were explained to them, and they were invited to participate in those activities that corresponded most with their own research interests and technical and institutional capacities. Most of the researchers identified were already involved in the study of native species, local communities, food composition or gastronomy, which made it easier to involve them in the project. One notable example was the decision to build on prior work by the Plants for the Future initiative, which had already prioritized native species across five Brazilian regions and identified and engaged with regional and local research initiatives. In sum, it is recommendable to identify potential research partners that have worked, or are working on, similar issues during the planning phase.

The importance of an appealing theme

The central theme of the BFN project – biodiversity for food and nutrition – and its goal of improving people's diets and livelihoods were fundamental in creating a positive work environment and attracting competent and passionate professionals and students to the project. The various collaborating institutions worked on species native to their own region, and researchers and students often had personal (mostly distant) memories of them, such as eating them as children while playing with friends in gardens or special recipes prepared by their mothers and grandmothers. This personal involvement greatly contributed to their commitment to the project. With food as its central theme, the project could develop awareness raising materials such as recipe books, or organize awareness raising events such as tasting sessions for native foods.

Monitoring and evaluation

The vastness of the Brazilian territory presented several challenges for the BFN project. Most of these challenges concerned the monitoring and alignment of results, as there were considerable differences among partners in terms of infrastructure, capacities and the ability to deliver within the given timeframe. To overcome these challenges, all activities were monitored continuously (e.g. on the basis of periodic reports, submitted every three to six months), initiatives were adapted to the needs and capacities of each region, capacity building workshops were organized, and clear standards and guidelines were established for food composition analysis and the development of recipes. Bureaucratic difficulties were encountered when formalizing regional partnerships and transferring financial resources (which did not always happen timely). The high turnover of technical personnel within partnering federal ministries and changes in the government's priorities required constant efforts by the project's national coordination committee to engage and lobby with the ministries.

The improvements brought about by the project – the expansion of the knowledge base on biodiversity native foods, the strengthening of the regulatory framework, the building of capacities and the raising of awareness about the nutritional relevance of biodiversity – undoubtedly increased the use and consumption of native edible species.

Looking ahead, the impacts of the project may be consolidated and amplified by:

- scaling up the activities implemented under the project;
- developing methodologies to rigorously assess the impact of the project's actions in terms of the increased conservation of native food species;
- increasing the general public's awareness of, and demand for, native foods; and
- stepping up the collaboration with the private sector; indeed, a greater engagement with small- and large-scale operators in the food and gastronomy sectors (e.g. restaurants), nutrition professionals and organizers of food festivals, among others, could contribute to the development of value chains for native species and promote the greater integration of these products into agricultural production systems.

This additional work requires a firm commitment on the part of national governments, as well as additional financial resources.

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13 MEASURING AND COMPARING THE CARBON FOOTPRINTS OF DIFFERENT PROCUREMENT MODELS FOR PRIMARY SCHOOL MEALS: ANALYSIS OF CASES ACROSS FIVE EUROPEAN COUNTRIES

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ABSTRACT

The study presented in this chapter sought to assess the sustainability outcomes of different procurement models for primary school meals services in five European countries. Based on environmental impact analysis, this chapter reports on the size and composition of the carbon footprints of the procurement models and analyses the contributions to overall carbon emissions of the various activities in the supply chains for meals services. It was found that while the transportation of food by suppliers to schools contributed somewhat to overall carbon footprints, other variables have a more significant impact, in particular the amount of meat on the menu and the choice of waste disposal method. The chapter concludes by discussing which actions stakeholders should prioritize to improve the environmental impacts of public food procurement. The research for this chapter was funded under European Union H2020 grant agreement 678024.

13.1 Introduction

In the growing body of scholarship that investigates sustainability in public sector food procurement, debates have focused on the different forms, or models, that procurement systems can take, and what the consequences of these are for sustainability outcomes (Morgan, 2008; Goggins and Rau, 2016; Smith *et al.*, 2016; Grivens *et al.*, 2018). In particular, procurement models oriented towards lowest cost are often criticized for being unsustainable (Morgan and Sonnino, 2007; Morgan, 2008) due to their perpetuation of industrial-scale, fossil fuel-reliant production systems, their geographically extended distribution channels and the low quality of food on the plate. Alternative procurement models advocated as more sustainable include those featuring greater localization and/or sourcing of organic food (Walker and Preuss, 2008; Nielsen *et al.*, 2009; Sonnino, 2010; Jones *et al.*, 2012; Lehtinen, 2012; Tikkanen, 2014). Such models are associated with less ecologically harmful production processes, lower food miles, more equitable supply chain relations and more nutritious food. In Europe, specific policy instruments have been developed in accordance with these principles. For example, Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement makes provisions to facilitate the procurement of more local and organic food, and thereby pursue enhanced sustainability outcomes.

Although the arguments in favour of alternative models are compelling, to date few studies have systematically examined and compared the sustainability outcomes of different models of public food procurement. The aim of this chapter is to address this gap. A three-year study conducted under the Strength2Food project, funded by the European Union,¹ examined the environmental, economic, social and nutritional outcomes of different models of food procurement across a set of primary school meals services in five European countries. This chapter focuses specifically on the investigation of the environmental impacts of the meals services. The research questions that guided the study were:

- Which activities contribute most to the carbon footprint of a school meals supply chain? and

¹ For more information on the Strength2Food project, see www.strength2food.eu. The research was funded under grant agreement H2020 678024.

- Do alternative procurement models, which emphasize sourcing of local or organic food, have lower emissions than low-cost models?

The sections that follow provide an overview of the meal services that were used as case studies and describe the methods used to measure their carbon footprints. The chapter then presents the results of the analysis and discusses the environmental sustainability implications for public food procurement policies and practices.

13.2 School meals services: case studies

In each of the five countries included in the study (Croatia, Greece, Italy, Serbia and the United Kingdom of Great Britain and Northern Ireland), a pair of school meals services was selected (see Figure 1). Each case meals service comprised the supply chain and catering activities through which meals were provided to a sample of five schools (or four schools, for the Serbian cases). For all of the countries except Italy, one of the two case studies concerned a local service model (LOC), whereby the contract award criteria referred explicitly to local sourcing and/or local suppliers accounted for a proportion of food purchased in practice.

The other case study for each country concerned a low-cost service model (LOW), whereby contract award criteria emphasized lowest price, with little to no mention of local sourcing. In Italy, where regional laws require a minimum of 70 percent of food procured for school meals to come from organic or integrated production systems, or to be typical and traditional products, one study case concerned a LOC-ORG model (a model operating according to these regional laws), while the other concerned an ORG model (a model in which the contract primarily referred to organic sourcing). See Chapter 7 and Chapter 27 for additional analysis of the Italian experiences, and Chapter 1 and Chapter 25 for experiences in the United Kingdom of Great Britain and Northern Ireland.

Of the many national and regional differences in procurement practices that existed across the cases, the following are helpful to contextualize the study. In Italy, public procurement policies have embraced the sustainability agenda. Combined with a well-elaborated regime to support high-quality food and nutritional standards in school meals, they provide a policy context that is highly conducive to localized

Figure 1 Map of case studies of school meals services



Source: map from UN Geospatial Information Section, adapted from Tregear *et al.*, 2019.

and organic procurement. The provision of school meals in Italy is organized at the municipal level. In the United Kingdom of Great Britain and Northern Ireland, there are frameworks setting nutritional standards for school meals and at least some encouragement of local and organic sourcing, notably through the Food for Life programme.² In Scotland, all school meals services are organized at the municipal level; the spatial scales of organization vary in other parts of the country.

In Croatia and Serbia, public procurement policies have to date focused less on sustainability. In Croatia, and specifically in the city of Zagreb, a mix of collective and individually organized contracts are used for high and low-quality goods, respectively, while in Serbia, individual schools are normally responsible for contracting their own

² For more information on the Food for Life project, see www.foodforlife.org.uk.

meals services. Croatia established national nutritional standards for school meals in 2013, while Serbia introduced such standards in 2018. Greece presents yet another, very different context. Until 2016, there was no public provision of school meals in the country. Their introduction in 2016 stemmed from a national social welfare programme targeting lower-income municipalities. Contracts are awarded according to the most economically advantageous tender (MEAT) framework. As schools in Greece are without kitchens or canteens, all meals are prepared off-site in central kitchens and transported in sealed containers for service in classrooms.

13.3 Calculation of carbon footprints

The core measure for the environmental impact of the meals services that were used as case studies was carbon footprint, expressed as the kilograms of CO₂e emitted annually from the production, processing, transportation and waste handling of food items procured by the selected schools in each case. The following paragraphs describe the approach that was developed, adapted from the method of Lancaster and Durie (2008), to calculate these emissions.

First, to calculate the emissions relating to the agricultural production, processing and upstream transportation of the procured food items, the delivery invoices sent by all suppliers to the schools in the case studies were collected for a minimum period of six weeks in 2017/18.³ Based on these invoices, the total annual quantities (in kilogram) of food items procured in each case were estimated. These annual quantities were then multiplied by the relevant per kilogram emissions factors.⁴ These calculations captured all emissions up to and including the transport to first-tier suppliers (i.e. wholesalers).

³ The exception to this was Italy, where it was not possible to obtain invoices. Instead, food quantities were estimated based on documents supplied by the municipalities and catering firms regarding menu composition and food quantities for the school year.

⁴ For all cases except the ones in Italy, the emissions factors proposed by Audsley *et al.* (2009) were used for fresh food items, those of Slater, Chalmers and Craig (2019) for processed items, and those proposed by Williams *et al.* (2006) for organic items. For the Italian cases, well-established and reliable databases providing emissions factors that are more specific to the Italian context were used, including the Double Pyramid database of the Barilla Center for Food and Nutrition (BCFN, 2016), the Environmental Product Declaration (EPD) database (EPD International AB, 2019), the LCA food database and the ecoinvent database (ecoinvent, 2019).

Next, the emissions relating to the downstream transportation of the food items were calculated, from first-tier suppliers to the schools included in the case studies, over a school year. Information was gathered through interviews with suppliers on their vehicle types, loads, delivery round distances and frequencies; then, the estimation formula of the Department of Environment, Food and Rural Affairs (Defra) was applied (United Kingdom of Great Britain and Northern Ireland, Defra, 2013).⁵

Finally, the emissions relating to the handling of waste were calculated. Over a period of two weeks (or one week, for the Greek case studies), all types of daily plate waste were collected and weighed in two schools for each case study. Based on these data, average annual plate waste was estimated for all schools in each case study. These estimates were multiplied with the waste handling emissions factors elaborated by Moulton *et al.* (2018), which not only make a distinction between different categories of waste, but also between different waste destinations (emissions from landfill, for example, are much higher than those from anaerobic digestion, composting or the transformation of waste into animal feed).

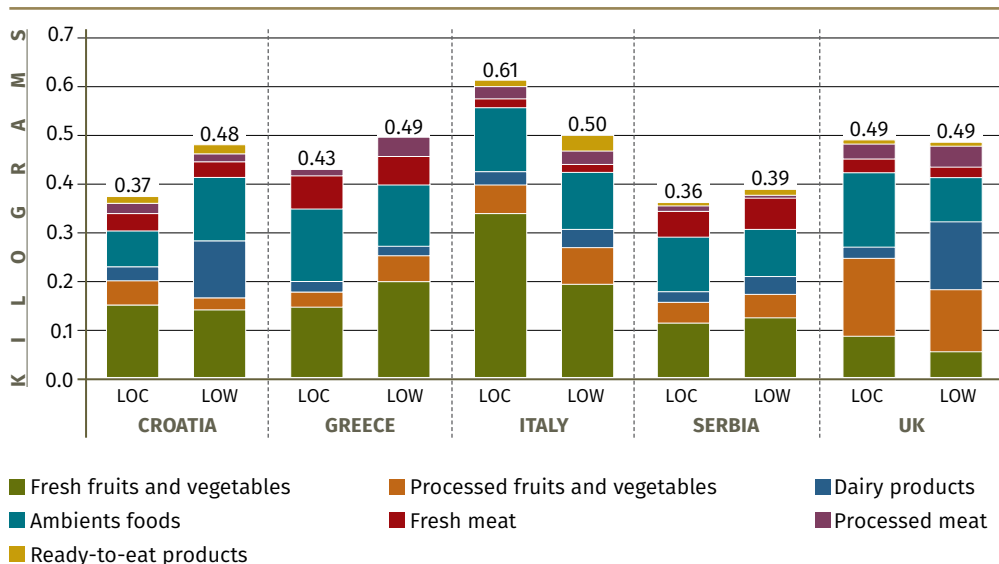
13.4 Results

Which foods were procured by the meals services that were used as study cases?

It is well-established that upstream production and processing activities make important contributions to the total carbon footprints of food supply chains; the magnitude of these contributions varies by type or category of food. Therefore, this study explored which foods were procured by the schools in the case studies, and in what relative amounts. Figure 2 summarizes the results, showing the types of foods and their relative weights per average meal. Note that the weights reported refer to the raw quantities of foods procured, before preparation and cooking, for the average meal, and not to the weight of the served meal.

⁵ The formula used was the following (incorporating the assumption that 89 percent of the weighted average was allocated to the distance of the delivery round and 11 percent to the vehicle load) (Kellner and Otto, 2011):

Figure 2 **Weights and proportions of foods procured for the average meal in the meals services (kilograms per meal)**



Note: ambient foods include bread, pasta, rice and oils.

Source: Tregear et al., 2019.

As Figure 2 shows, there was considerable variation between the paired cases, and across countries, in the total weights of foods procured for the average meal, from 0.61 kg and 0.50 kg (Italian cases) to 0.36 kg and 0.39 kg (Serbian cases).⁶ Considerable variations were also found in the proportions of different food types making up these weights. In most cases, fruits and vegetables (fresh and processed combined) represented the largest category. However, their share in total meal weight varied from almost two thirds in the Italian LOC-ORG case to around one third in the Croatian LOW case. Notably, the cases in the United Kingdom of Great Britain and Northern Ireland showed the smallest proportions of fresh fruit and vegetables procured for the average meal, and the highest proportions of processed fruits and vegetables. Dairy products represented only a small proportion of total meal weight in all the cases, except for the Croatian LOW case and the LOW case in the United Kingdom of Great Britain and Northern Ireland. The higher proportions in those cases were due

⁶ In some Italian schools, a proportion of the recorded fruit weight was served as a mid-morning snack instead of, or in addition to, the fruit served at lunch.

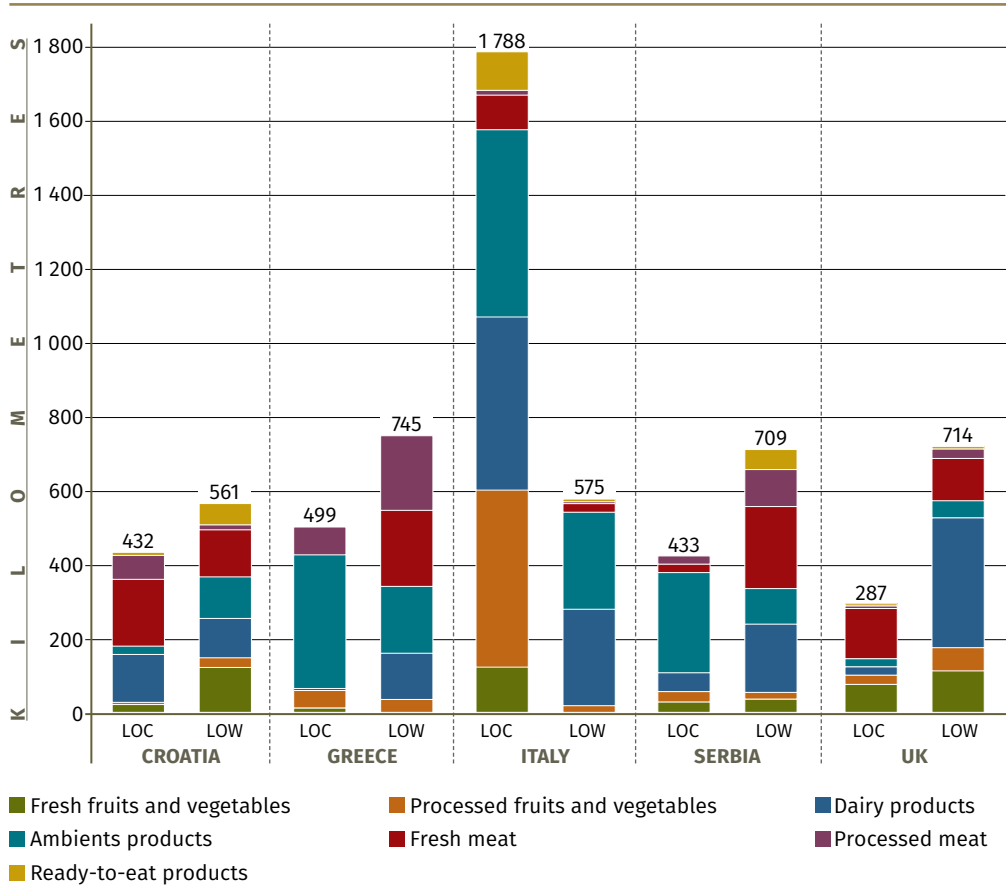
to the practice of procuring milk to drink with meals. Finally, variations are seen in the proportions of fresh meat across the cases, with the Greece and Serbian cases procuring noticeably more meat (including ruminant meat) than the other cases.

What were the transportation distances from first-tier suppliers to schools?

Food miles have long been a focus of attention in policies to improve the sustainability of public procurement. Hence, the study sought to estimate the transportation distances travelled by food suppliers for the case studies. Figure 3 shows the average weekly distances travelled by first-tier suppliers (i.e. wholesalers or equivalent end-chain suppliers) to the five schools in each case (or four schools, in the Serbian cases), based on their locations and the delivery frequencies. In order to make comparisons across cases, the total number of kilometres was divided by the number of weeks of delivery operations in a school year, as well as by the number of featured schools in the case, to obtain the average number of kilometres travelled per school per week. The estimates shown in Figure 3 depict the raw distances travelled, to provide a visual illustration and comparison. To estimate the emissions associated with these distances, factors such as the number of other customers in the rounds, shared loads and backhauling were taken into account.

As Figure 3 shows, in four out of the five case pairs, the kilometres travelled were smaller in the LOC case than in the other case. The Italian LOC-ORG case was an exception to this, due to the location of one or two key suppliers at a considerable distance from the central kitchen (e.g. canned tomatoes were transported from the Campania region, in southern Italy, to Parma). The distances between the locations of suppliers and of the central kitchen also explained the high number of kilometres travelled weekly in the Greek LOW case, where meat was transported from Germany. Other factors that influenced the number of kilometres travelled were the number of suppliers (e.g. the relatively high average number of kilometres in the Serbian LOW case were due to the relatively high numbers of individual suppliers making trips to the schools in an uncoordinated way) and the frequency of deliveries (the LOW case in the United Kingdom of Great Britain and Northern Ireland had the third highest average number of kilometres travelled due to the daily delivery to the schools of fresh milk for drinking).

Figure 3 Average number of kilometres travelled by suppliers in the case studies of meal services (per school, per week)



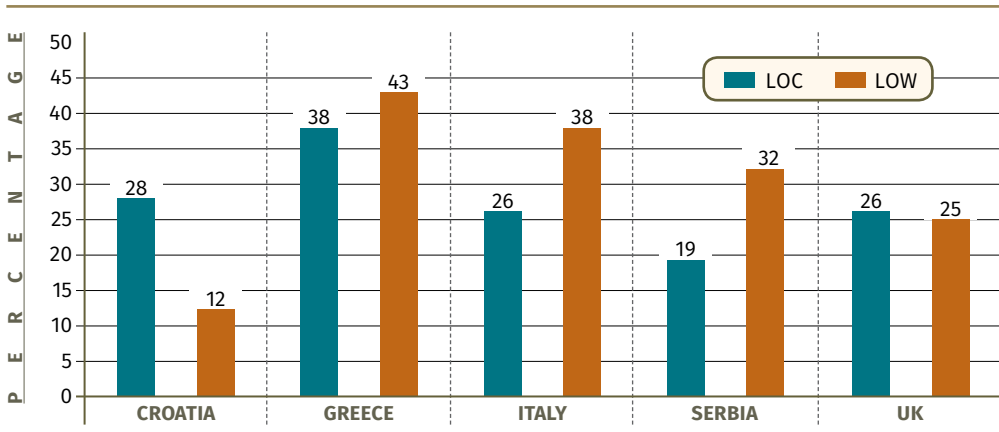
Note: ambient foods include bread, pasta, rice and oils.

Source: Tregear et al., 2019.

What were the waste levels in the case study meals services?

Food waste is increasingly recognized as a significant environmental problem in public procurement (Sonnino and McWilliam, 2011), in addition to its implications for nutritional and financial losses. Hence, the study gathered data on the quantities and types of plate waste generated in the schools. Based on these data, the average plate waste generated in the schools, expressed as a proportion of the total food served, was estimated (Figure 4).

Figure 4 **Plate waste in the case study meal services, as a proportion of total food served**



Source: Tregear et al., 2019.

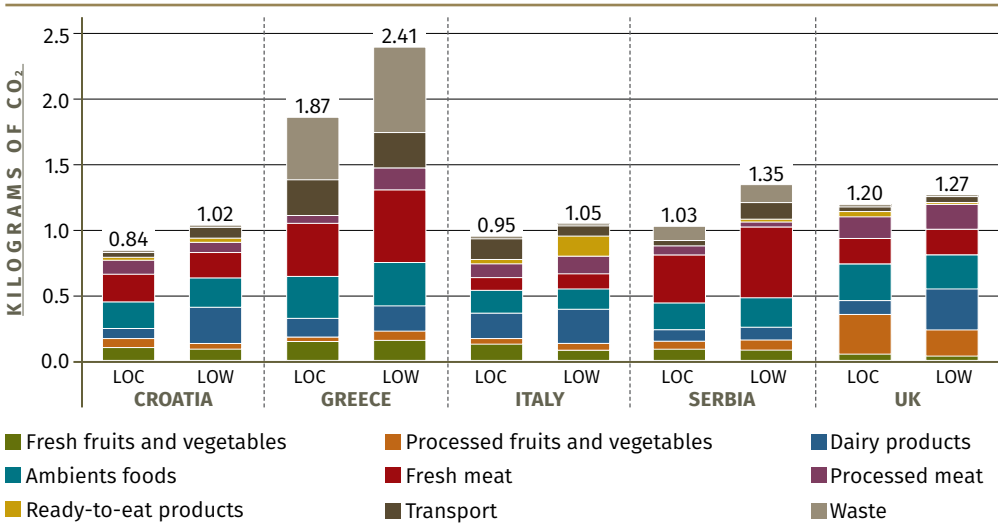
As Figure 4 shows, there was considerable variation within case pairs, and across countries, in terms of the percentages of served food that were wasted. The highest rates of waste were in the Greek LOW case (43 percent), the Greek LOC case (38 percent) and the Italian ORG case (38 percent). Meanwhile, the lowest rates were in the Croatian LOW and Serbian LOC cases (12 and 19 percent, respectively). In addition, data on the typical destination of the food waste were gathered. It was found that all cases relied exclusively on carbon-reducing waste disposal methods, except for the Greek (100 percent reliance on landfill) and Serbian cases (where a mix of landfill and composting/transformation into animal feed was used).

Carbon footprint of the case study school meals services

Having estimated the quantities and types of food procured by the meals services that were used as case studies, the related kilometres of transportation and the amounts and destinations of plate waste, the carbon footprints of the services were estimated. Figure 5 shows the total carbon emissions of the average meal in each meals service case study, along with the contribution of the different activities (production and processing per type of food, total transportation and total waste). Figure 6 shows the carbon intensity of the average meal in each case, that is, the kilograms of CO₂e per kilogram of food in the average meal. This latter measure is important for comparison

purposes within and across the case pairs, because it eliminates the variations in the total weights of average meals across the cases.

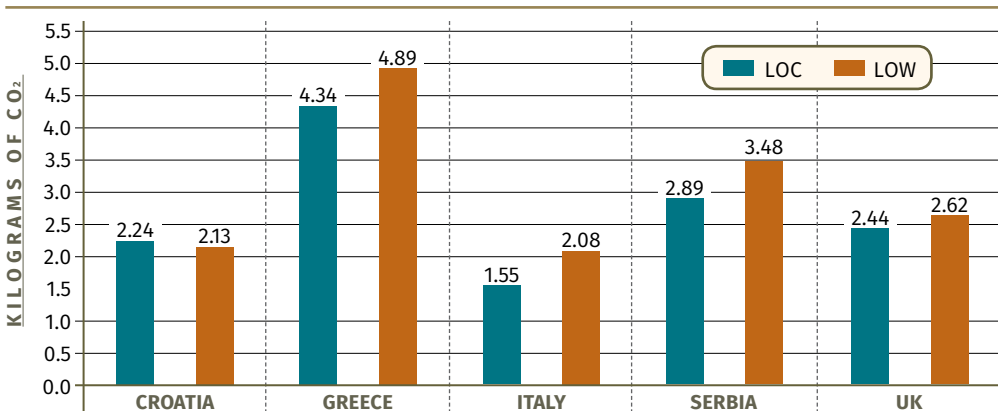
Figure 5 **Carbon emissions of the meals services case studies, per average meal (kilograms of CO₂e)**



Note: ambient foods include bread, pasta, rice and oils.

Source: Tregear et al., 2019.

Figure 6 **Carbon intensity of the average meal in the meals services case studies (kilograms of CO₂e per kg of meal)**



Source: Tregear et al., 2019.

Figure 5 and Figure 6 show that the two Greek cases had the highest carbon footprints per average meal, and per kilogram of meal. Indeed, according to the carbon intensity measure, the emissions of the Greek cases were more than double those of the case with the lowest emissions (Italy LOC-ORG). Figure 5 shows that the main contributors to emissions in the Greek cases were waste handling (due to the high waste levels and the exclusive reliance on landfill) and the use of fresh meat (which represented a relatively high proportion of the weight of the average meal). Waste disposal and meat consumption were also high contributors to emissions in the Serbian cases, which had the second-highest carbon intensities. Meanwhile, the Italian and Croatian cases showed the smallest carbon footprints. Per-meal emissions (see Figure 5) were lower in the Croatian cases; however, it should be recalled that in Italy, a much higher quantity of food was procured per average meal. When this variation is eliminated (see Figure 6), the Italian cases were found to have the lowest emissions per kilogram. Even on a per-meal basis, the low emissions of the Italian meals are striking. This demonstrates how the selection of the types of foods comprising the meals (in the Italian cases, a high proportion of fresh fruits and vegetables, and small amounts of meat) can have a strong carbon-reducing effect. The other key finding in Figure 5 that is worth highlighting is the relatively small contribution of transport emissions to the total carbon footprint in all cases, even those with a high number of kilometres travelled by first-tier suppliers. In particular, the Italian LOC-ORG case – where geographically distant suppliers were used – had the lowest carbon intensity of all cases.

13.5 Discussion

There is relatively little systematic evidence available as to the environmental impacts of public food procurement. Hence, this paper sought to explore: which activities contribute most to the carbon footprint of supply chains for school meals, and whether alternative procurement models, emphasizing localization or the use of organic food, have lower emissions than low-cost models.

Overall, the analysis found that across all cases, the greatest contributor to total carbon footprint was the **production, processing and upstream transportation** of the food items themselves, with emissions from those activities for meat (and in particular ruminant meat) being much higher than those for fruits and vegetables. By contrast,

downstream transportation, from first-tier suppliers to caterers/schools, contributed only a modest proportion of total emissions. Hence, the results indicate that the carbon footprints of public food procurement depend more on the composition of the meals than on the location of the suppliers. A further important finding is the **importance of the food waste disposal method for total carbon footprint**. In countries where methods with low carbon emissions such as anaerobic digestion, composting and transformation into animal feed are practiced (Croatia, Italy, the United Kingdom of Great Britain and Northern Ireland), waste disposal accounted for only a very small part of total emissions in all case studies – even in those cases with high rates of plate waste, such as in Italy. Meanwhile, in Greece and Serbia, where landfill is a common disposal method, waste accounted for much higher proportions of total emissions.

To answer the question of whether procurement models that feature local or organic sourcing have lower carbon emissions than low-cost models, a simple within-pair comparison of the case studies was carried out. This comparison revealed that for four out of the five pairs (Greece, Italy, Serbia and the United Kingdom of Great Britain and Northern Ireland), the LOC model had a lower carbon footprint than the LOW model. Furthermore, the Italian cases, both of which incorporated organic procurement, had the lowest carbon intensities of all cases. However, the analysis indicates that these differences were due to factors other than the specific localization and organic features of the models. As highlighted above, downstream transportation accounted for a relatively modest proportion of total emissions in all of the case studies, including LOW cases. Hence, any effect on emissions of localization is far outweighed by the effects of the types of foods procured and the waste disposal method chosen.

Similarly, the low emissions found in the Italian cases were due to their procurement of high proportions of fruits and vegetables and low proportions of meat, rather than to the organic status of these foods. In other words, even small increases in the amount of meat procured would greatly increase the emissions in both Italian cases, whether or not that meat was organic. Therefore, while localized and organic procurement models may be associated with – or could even promote – decision-making that makes environmentally friendly procurement and waste management choices more likely, the analysis points to the need for caution in attributing direct

causality between these specific procurement model features and beneficial environmental outcomes.

This is not to say that farm management practices, such as those associated with organic or low input farming, have no impact at all on the carbon emissions of meals services. On the contrary, according to measures used in other studies (e.g. the EX-ACT tool of the Food and Agriculture Organization of the United Nations [FAO]),⁷ environmentally friendly agricultural practices could indeed lower the greenhouse gas emissions of school meals services, if those services have the same menu composition as their counterparts using conventionally farmed foods. However, the results of this study highlight that a greater impact on emissions can be had by adjusting the composition of menus, rather than farming practices.

13.6 Conclusion

From the results of this study, three recommendations can be drawn for policymakers and supply chain stakeholders that allow them to enhance the environmental sustainability of public food procurement.

First, it is recommended to focus on food waste disposal methods, and specifically to switch from landfill to a more environmentally friendly alternative (e.g. anaerobic digestion, composting or transformation into animal feed). The results of the case studies indicate that landfill disposal may account for up to one third of total carbon emissions in food procurement chains. Avoiding landfill can thus result in a dramatic reduction of emissions. To ease the switching between waste disposal methods, policymakers should improve the availability of anaerobic digestion/composting facilities. Meanwhile, procurement contracting authorities are encouraged to incorporate the use of such facilities in contract award criteria. Actions targeted towards the reduction of food waste should also be pursued, for example awareness raising about food waste among associations of supply chain actors and user groups. Awareness raising efforts could take the form of study tours or discussion forums to exchange experiences about minimizing waste in school canteens.

⁷ For more information on the FAO EX-ACT tool, see www.fao.org/tc/exact/ex-act-home/en

Second, it is recommended to make menu adjustments, and specifically to explore ways to reduce the use of ruminant meat, for example by substituting it with more white meat or fish or by introducing meat-free days in menu cycles. Increasing the proportions of fruits and vegetables, as well as of animal proteins that are less carbon-intensive (such as milk and eggs) would also result in a reduction of emissions. Such menu adjustments must be balanced against nutritional requirements and “plate appeal,” which are particular concerns for school meals. Policymakers are encouraged to invest in more research on nutritionally sound low-carbon diets and menus; they should also implement programmes for the exchange of information and knowledge among nutritionists, menu designers, catering staff and pupils and parents, to ensure that the adjusted menus with a lower carbon profile are safe and appealing. For menus that have already been adjusted to include ingredients with a lower carbon profile, the attention can be shifted to procuring items from environmentally friendly farming practices; policymakers are encouraged to support and fund research into such practices.

Third, it is recommended to focus on transportation arrangements. Adjustments to those arrangements could involve sourcing items more locally (the transport emissions in the Italian and Greek cases, with their distant first-tier suppliers, were indeed higher than in other cases). However, in making such changes, authorities need to ensure that supply chains do not create a multiplication of short, local journeys as a consequence. Equal, or even greater, reductions in transport emissions may be obtained by switching to electric or more fuel-efficient vehicles, encouraging suppliers to share or backhaul deliveries, creating better coordinated local/regional transportation hubs or warehouses, and/or reducing the number of individual suppliers in the contract. Contracting authorities could promote these actions by allocating points to them in contract awards. Increasing storage capacities within schools (especially chilled and frozen storage) can also have the effect of reducing carbon emissions, as it allows for a reduced frequency of deliveries. However, such investments should be complemented with information and training efforts to ensure that kitchen staff understand the food safety implications of such storage methods.

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PART C
PUBLIC FOOD
PROCUREMENT:
INSTRUMENTS,
ENABLER AND
BARRIERS

PART D
CASE STUDIES:
REPLICATING AND
SCALING UP



PUBLIC FOOD PROCUREMENT FOR SUSTAINABLE FOOD SYSTEMS AND HEALTHY DIETS

VOLUME

1

This book is one of the most comprehensive contribution on the topic of public food procurement to date. For the first time we bring together the expertise of over **100 authors** from multiple fields, covering experience from **32 countries** in Africa, Asia, Europe and North and South America.

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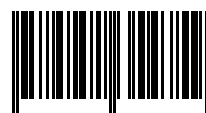
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Organization of the
United Nations

Alliance



PUBLIC FOOD PROCUREMENT FOR SUSTAINABLE FOOD SYSTEMS AND HEALTHY DIETS

VOLUME

2





PUBLIC FOOD PROCUREMENT FOR SUSTAINABLE FOOD SYSTEMS AND HEALTHY DIETS

VOLUME

2

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FOREWORD

Sustainable public procurement is a key instrument to work towards the achievement of the Sustainable Development Goals, and fits into the collective efforts and multisector approaches of the United Nations 2030 Agenda for Sustainable Development. This book is the result of the collaboration between the Food and Agriculture Organization of the United Nations and the research sector, and compiles contributions from internationally renowned scholars working in the field of public food procurement. It explores the multiple benefits that public food procurement can bring to various beneficiaries and analyses how it can contribute towards sustainable food systems and healthy diets.

Sustainable public food procurement has the potential to impact both food consumption and food production patterns. It may enhance access to healthy diets for consumers of publicly procured food (such as schoolchildren) and promote the development of more sustainable food systems (through its demand and spillover effects). Sustainable public food procurement also has the potential to decrease rural poverty by stimulating the development of markets, providing a regular and reliable source of income for smallholder farmers and helping these farmers overcome barriers that prevent them from enhancing their productivity.

The international recognition of sustainable public procurement – including food procurement – as an instrument for development goes back to the United Nations Conference on Sustainable Development of 2012 (and the subsequently formulated Sustainable Development Goals) and the Second International Conference on Nutrition of 2014. Other global platforms, such as the Committee on World Food Security and the Global Panel on Agriculture and Food Systems for Nutrition, have also recognized sustainable public food procurement as an instrument for development.

In addition, sustainable public food procurement has been included among the key concrete actions to foster the transformation of the world's food systems that was discussed at the 2021 United Nations Food System Summit. Sustainable food procurement is closely linked with school meal programmes, and especially with home-grown or similar school feeding programmes designed to provide schoolchildren with safe, diverse and nutritious food that is partially sourced from local smallholders. In 2021, school meal programmes also received considerable attention in the run-up to the United Nations Food System Summit. For example, a worldwide coalition on school feeding was created with the ambition to carry on outcomes from the summit for sustained impact.

Considering the current threats to our food systems (including the Covid-19 pandemic), this book comes at a very timely moment. It provides evidence that may not only stimulate the international debate on the topic, but also support the practical implementation of sustainable public food procurement initiatives at national, regional and local levels. With contributions from North and South America, Europe, Asia and Africa, the book is a useful tool for researchers, policymakers and development partners working in low-, medium- and high-income country contexts.



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PREFACE

The publication “Public food procurement for sustainable food systems and healthy diets” is divided into two volumes. It discusses public food procurement (PFP) initiatives designed with the objective of advancing social, economic and environmental development through government purchases. Often referred to as “institutional procurement,” PFP has been receiving increased attention in the literature and from policymakers and development agencies over the past decades; it is seen as an important policy instrument that has the potential to deliver multiple benefits to a multiplicity of beneficiaries and influence both food consumption and food production patterns. PFP is also increasingly recognized as an important entry point for policymakers to build more sustainable food systems and promote healthy diets. PFP initiatives include school feeding programmes, as well as the purchase of food for public universities, hospitals, prisons and social programmes.

These two volumes are the result of the collaboration between the Food and Agriculture Organization of the United Nations (FAO), the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) and the Federal University of Rio Grande do Sul (UFRGS).

The idea for this publication arose during the workshop “Institutional Food Procurement and School Feeding Programmes: Exploring the Benefits, Challenges and Opportunities”, organized in 2018 in the framework of the Third International Conference on Agriculture and Food in an Urbanizing Society, hosted by UFRGS in Porto Alegre, Brazil. The workshop brought together academics and practitioners with different areas of expertise and backgrounds to explore the multiple facets of PFP. The discussions brought to light the transdisciplinarity of the topic, the complementarity between

practical experiences and academic analysis – and the absence of a comprehensive publication analysing the multifaceted nature and development potential of PFP from different perspectives. This publication is based on the papers presented during the workshop, but goes beyond those papers to offer – for the first time – a comprehensive and extensive analysis of PFP. Leading scholars and practitioners from around the world were invited to contribute to the analysis of the use of PFP initiatives as a policy instrument to achieve multiple development objectives and, in particular, to help build sustainable food systems that offer healthy diets.

The two volumes and 35 chapters of this book were written by more than 100 authors, including academics, United Nations staff and practitioners. **Volume 1** analyses the use of PFP as a development tool, thereby placing it within the broader debate on sustainable public procurement and the United Nations Sustainable Development Goals. The volume explores PFP's multiple potential benefits and beneficiaries, taking into consideration the three pillars of sustainability, i.e. the social, economic and environmental pillars. It argues that PFP can provide support for agricultural production by local and smallholder farmers, promote the conservation and sustainable use of agrobiodiversity, and improve the nutrition and health of communities.

Based on examples and experiences with PFP in 32 countries in Africa, Asia, Europe and North and South America, **Volume 2** offers extensive evidence of the instruments used to implement PFP, enablers and challenges. It aims to provide useful lessons to policymakers and practitioners involved in the design and implementation of PFP policies and initiatives.

Hopefully, the book will also help researchers analyse PFP further. Ultimately, the book aims to contribute to the improved understanding, dissemination and use of PFP as a development tool. Although the idea for this book preceded the COVID-19 pandemic, its publication during this pandemic is timely. In the search for answers to this crisis, public procurement and policies that aim to strengthen PFP linkages with local production are receiving more attention than ever, not only as a tool for recovery but also as an opportunity to set an example and take the right track towards more sustainable modes of consumption and production.

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ABBREVIATIONS AND ACRONYMS

10YFP	10 Year Framework of Programmes [on Sustainable Consumption and Production Patterns]
AIV	African indigenous vegetables
AO	appellation of origin
APPIH	association of fish producers of Honduras (<i>Asociación de Productores Piscícolas de Honduras</i>)
ASF	animal-sourced food
ATER	technical assistance and rural extension [system] (Brazil) (<i>Assistência Técnica e Extensão Rural</i>)
B2B	business-to-business
B2G	business-to-government
BCC	behaviour change communication
BFN	Biodiversity for Food and Nutrition [project]
CA	conservation agriculture
CACP	Commission for Agricultural Costs and Prices (India)
CAE	School Food Council (Brazil) (<i>Conselho de Alimentação Escolar</i>)
CASU	Conservation Agriculture Scale-Up [project] (Zambia)
Ceasas	food supply centres (Brazil) (<i>Centrais de Abastecimento</i>)
CECANES	Collaboration Centres on School Food and Nutrition (Brazil) (<i>Centros Colaboradores em Alimentação e Nutrição do Escolar</i>)
CELAC	Community of Latin American and Caribbean States
CESCR	United Nations Committee on Economic, Social and Cultural Rights
CG PNAE	interministerial governing committee of the National School Feeding Programme (Brazil) (<i>Comitê Gestor Interministerial do Programa Nacional de Alimentação Escolar</i>)
CIALCO	alternative marketing circuits (Ecuador) (<i>Circuitos Alternativos de Comercialización</i>)
CIAT	International Center for Tropical Agriculture

CNP	Child Nutrition Program (United States of America)
COMESA	Common Market for Eastern and Southern Africa
Conab	National Supply Company (Brazil) (<i>Companhia Nacional de Abastecimento</i>)
Consea	Food and Nutrition Security National Council (Brazil) (<i>Conselho Nacional de Segurança Alimentar e Nutricional</i>)
DINARA	national directorate for aquatic resources (Uruguay) (<i>Dirección Nacional de Recursos Acuáticos</i>)
DNCS	national directorate for school feeding (Cote d'Ivoire) (<i>Direction nationale des cantines scolaires</i>)
EAS	service provision entities (Colombia) (<i>Entidades Administradoras de Servicios</i>)
EMATER	Technical Assistance and Rural Extension Agency (Brazil) (<i>Empresa de Assistência Técnica e Extensão Rural</i>)
Embrapa	Brazilian Agricultural Research Corporation (<i>Empresa Brasileira de Investigación Agropecuaria</i>)
Endes	National Economic and Social Development Strategy (Brazil) (<i>Estratégia Nacional de Desenvolvimento Econômico e Social</i>)
EPAGRI	agricultural research and rural extension agency of Santa Catarina (Brazil) (<i>Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina</i>)
EPSEP	agency for fisheries services of Peru (<i>Empresa Peruana de Servicios Pesqueros</i>)
ERSU	regional entity for the right to university study (Italy) (<i>Ente Regionale per il Diritto allo Studio Universitario</i>)
ESN	Food and Nutrition Division (of the Food and Agriculture Organization of the United Nations)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FARC-EP	Revolutionary Armed Forces of Colombia-People's Army (<i>Fuerzas Armadas Revolucionarias de Colombia-Ejército del Pueblo</i>)
FBS	farmer business school
FBSSAN	Brazilian Forum for Food Sovereignty and Food and Nutritional Security (<i>Fórum Brasileiro de Soberania e Segurança Alimentar e Nutricional</i>)
FCI	Food Corporation of India
FFL	Food for Life
FFLP	Food for Life Partnership

FIES	food insecurity indicator
FNDE	National Fund for Educational Development (Brazil) (<i>Fundo Nacional de Desenvolvimento da Educação</i>)
FNP	National Front of Mayors (Brazil) (<i>Frente Nacional de Prefeitos</i>)
FNS	food and nutrition security
FPSAN	Parliamentary Front on Nutrition and Food Security (Brazil) (<i>Frente Parlamentar de Segurança Alimentar e Nutricional</i>)
FPSF	food price stabilization funding (China)
FSA	food supply agreement
FSC4D	Food Smart Cities for Development
FTC	fixed transaction cost
FUNAI	federal foundation for Indian affairs (Brazil) (<i>Fundação Nacional do Índio</i>)
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GI	geographical indication
GMO	genetically modified organism
GPA	Agreement on Government Procurement (World Trade Organization)
GPP	green public procurement
GPP NAP	National Action Plan on Green Public Procurement (Italy)
GPPnet	Green Public Procurement Network
GSFP	Ghana School Feeding Programme
HACCP	hazard analysis and critical control points
HGSF	home-grown school feeding
HGSM	Home-Grown School Meal [programme] (Kenya)
HLPE	High-Level Panel of Experts on Food Security and Nutrition
IBGE	Brazilian Institute of Geography and Statistics (<i>Instituto Brasileiro de Geografia e Estatística</i>)
ICBF	Colombian Family Welfare Institute (<i>Instituto Colombiano de Bienestar Familiar</i>)

ICC	intra-cluster correlation
ICT	information and communication technology
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IFPSF	institutional food procurement for school feeding
IFS	institutional food services
IHMA	Honduran Agricultural Market Institute (<i>Instituto Hondureño de Mercadeo Agrícola</i>)
ILO	International Labour Organization
INFOODS	International Network for Food Data Systems
INFOPECSA	Centre for Marketing Information and Advisory Services for Fishery Products in Latin America and the Caribbean
INPEC	National Penitentiary and Prison Institute (Colombia) (<i>Instituto Nacional Penitenciario y Carcelario</i>)
IQ COSAN	food and nutrition security quality index
ISMEA	institute for services to the agricultural food market (Italy) (<i>Istituto di Servizi per il Mercato Agricolo Alimentare</i>)
ISO	International Organization for Standardization
ITP	technological fisheries institute (Peru) (<i>Instituto Tecnológico Pesquero</i>)
JAC	community action boards (Colombia) (<i>Juntas de Acción Comunal</i>)
LAC	Latin America and Caribbean [countries]
LFP	Local Food Plus (Canada)
LM	local multiplier
LOC	local [service model]
LOC-ORG	local organic [service model]
LOW	low-cost [service model]
MAGA	Ministry of Agriculture, Livestock and Food (Guatemala) (<i>Ministerio de Agricultura, Ganadería y Alimentación</i>)
MANA	food and nutrition improvement plan of Antioquia (Colombia) (<i>Plan de Mejoramiento Alimentario y Nutricional de Antioquia</i>)

MAPA	Ministry of Agriculture, Livestock and Supply (Brazil) <i>(Ministério da Agricultura, Pecuária e Abastecimento)</i>
MDE	minimum detectable effect
MEAT	most economically advantageous tender
MHMR	PreK-12 School Food: Making It Healthier, Making It Regional [project]
MINEDUC	Ministry of Education (Guatemala) <i>(Ministério da Agricultura, Pecuária e Abastecimento)</i>
MPAS	Millet Procurement Automation System (India)
MSC	Marine Stewardship Council
MSP	minimum support price (India)
MSPAS	Ministry of Public Health and Social Assistance (Guatemala) <i>(Ministerio de Salud Pública y Asistencia Social)</i>
NCD	non-communicable disease
NFSA	National Food Security Act (India)
NGO	non-governmental organization
NSLP	National School Lunch Program (United States of America)
NUS	neglected and underutilized species
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
OPAC	Assessment body for participatory conformity (Brazil) <i>(organismo participativo de avaliação da conformidade)</i>
OPN	One Planet Network
ORG	organic [procurement model]
P4P	Purchase for Progress
PAA	Food Purchase Programme (Brazil) <i>(Programa de Aquisição de Alimentos)</i>
PAA	Purchase from Africans for Africa (World Food Programme)
PAE	School Food Programme (Dominican Republic, Honduras, Paraguay, Peru) <i>(Programa de Alimentación Escolar)</i>
PAE	School Feeding Programme (Colombia) <i>(Programa de Alimentación Escolar)</i>

PAFFEC	family agriculture programme to strengthen the peasant economy (Guatemala) (<i>Programa de Agricultura Familiar para el Fortalecimiento de la Economía Campesina</i>)
PAPERS	plan for ecological public purchasing of the region of Sardinia (Italy) (<i>Piano per gli Acquisti Pubblici Ecologici della Regione Sardegna</i>)
PCA	principal component analysis
PDO	protected designation of origin
PDS	Public Distribution System (India)
PEHEG	Educating with School Gardens and Gastronomy (Brazil) (<i>Projeto Educando com a Horta Escolar e a Gastronomia</i>)
PFP	public food procurement
PGI	protected geographical indication
Planapo	National Plan on Agroecology and Organic Production (Brasil) (<i>Plano Nacional de Agroecologia e Produção Orgânica</i>)
Plansan	National Plan for Food and Nutritional Security (Brasil) (<i>Plano Nacional de Segurança Alimentar e Nutricional</i>)
PNAE	National School Feeding Programme (Brazil) (<i>Programa Nacional de Alimentação Escolar</i>)
PNAN	National Food and Nutrition Policy (Brazil) (<i>Política Nacional de Alimentação e Nutrição</i>)
PNATER	National Policy of Technical Assistance and Rural Extension (Brazil) (<i>Política Nacional de Assistência Técnica e Extensão Rural</i>)
POPP	public organic procurement policy
Pronaf	National Programme for Strengthening Family Agriculture (Brazil) (<i>Programa Nacional de Fortalecimento da Agricultura Familiar</i>)
PROMATER	National Programme of Technical Assistance and Rural Extension (Brazil) (<i>Programa Nacional de Assistência Técnica e Extensão Rural</i>)
PSE	School Health Programme (Brazil) (<i>Programa Saúde na Escola</i>)
PSU	primary sampling unit
RCT	randomized control trial
RDA	recommended dietary allowance
REAF	Specialized Meeting on Family Farming [of Mercosur] (<i>Reunión Especializada de Agricultura Familiar</i>)

RFP	request for proposals
S2F	Strength2Food
SDG	Sustainable Development Goal
SEBRAE	Brazilian Micro and Small Business Support Service (<i>Serviço Brasileiro de Apoio às Micro e Pequenas Empresa</i>)
SF	school feeding
SFA	school food authority
SFP	school feeding programme
SFS	sustainable food systems
SHG	self-help group
SIBBR	Brazilian Biodiversity Information System (<i>Sistema de Informação sobre a Biodiversidade Brasileira</i>)
SIGPC	accountability management system (<i>Sistema de Gestão de Prestação de Contas</i>) (Brazil)
SINGI	Sustainable Income Generating Investment Group
SISAN	National Food and Nutrition Security System (Brazil) (<i>Sistema Nacional de Segurança Alimentar e Nutricional</i>)
SMC	school meals committee (Kenya)
SMEs	small and medium enterprises
SMEs	small and microenterprises (Ethiopia)
SNNPR	Southern Nations, Nationalities and People's Region (Ethiopia)
SPP	sustainable public procurement
SROI	social return on investment
SSA	sub-Saharan Africa
SSC	school support committees (Cambodia)
SSU	secondary sampling unit
SU	Sichuan University
SY	school year
TFPC	Toronto Food Policy Council
TLU	tropical livestock unit

TPDS	Targeted Public Distribution System (India)
TRIPs	[Agreement on] Trade-Related Aspects of Intellectual Property Rights
TSG	traditional specialty guaranteed
UIFS	university institutional food services
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children’s Fund
USDA	United States Department of Agriculture
UVG	Universidad del Valle de Guatemala
VAT	value added tax
VFM	Virtual Farmers’ Market
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
BRL	Brazilian real
CNY	Chinese renminbi
COP	Colombian peso
EUR	Euro
GBP	British Pound
GTQ	Guatemalan Quetzal
INR	Indian rupee
KES	Kenyan shillings
USD	United States Dollar



PART C
PUBLIC FOOD
PROCUREMENT:
INSTRUMENTS,
ENABLER AND
BARRIERS

14 PUBLIC PURCHASING OF FAMILY FARMING PRODUCTS UNDER THE BRAZILIAN NATIONAL SCHOOL FEEDING PROGRAMME (2011–2017)

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ABSTRACT

As of 2009, at least 30 percent of total resources under the Brazilian National School Feeding Programme (PNAE) must be spent to purchase food from family farmers. This innovative requirement turns PNAE into a driver of local family agriculture by strengthening markets for family farming products. This chapter analyses the participation of family farmers in school feeding programmes at the national and regional levels. It investigates to what extent municipalities have, as PNAE budget managers, complied with the 30 percent requirement and improved market opportunities for family farmers. The chapter analyses whether the size of municipalities is an element that influences their performance in this respect. The results of the analysis show that overall the inclusion of family farming products in school meals is still below the minimum set by law. However, there is potential for growth. Clear differences are observed between the various Brazilian regions, with the South Region being a notable outlier.

14.1 Introduction¹

Public procurement has been identified as a market that has the potential to strengthen the development of small-scale farming and thereby promote social inclusion processes. The procurement of food from family farmers by public bodies in particular has attracted considerable interest from academia and international cooperation agencies, due to its potential to promote both economic development and social welfare and food security (Drake *et al.*, 2016; Sonnino, Torres and Schneider, 2016; Morgan, 2014; Food and Agriculture Organization of the United Nations [FAO], 2013; World Food Programme [WFP], 2013; Sumberg and Sabates-Wheeler, 2011). Institutional markets (or structured demand) are tools that fit in with Keynesian ideas about the potential of the state to generate effective demand, boost production and markets and thus trigger drivers of development.

The power of the state in economic planning and its role as inducer of development are relatively well known, particularly with regard to the post-World War II period (Morgan and Sonnino, 2008). Between the 1980s and the 2000s, government intervention declined as the orthodox view of the market as the best mechanism to control supply and demand gained broad support. In neoliberalism, the market plays the leading role, while the state merely enters the scene to correct flaws in self-regulatory and governance mechanisms. More recently, however, states have resumed their role in new forms of interaction with markets, for example by supporting local agrifood markets, which stand out for their promising results in terms of both social protection and food security (High Level Panel of Experts on Food Security and Nutrition [HLPE], 2015).

International organizations (e.g. FAO and WFP) have highlighted the synergy between (conditional or unconditional) cash transfer programmes and local food procurement policies; together, they can boost supply and demand simultaneously. There is ample evidence of the interface between social protection policies, food security actions

¹ This chapter is an updated and modified version of Schneider, S., Thies, V. F., Grisa, C. & Belik, W. 2016. Potential of public purchases as markets for family farming: an analysis of Brazilian School Feeding Programme between 2011 and 2014. In D. Barling, ed. *Advances in food security and sustainability, Volume 1, 1st edition*, pp. 69–95. Cambridge, USA, Academic Press. The present version discusses the new data published by the Brazilian National Fund for Educational Development (FNDE).

and efforts to reduce rural poverty (FAO, 2015; Devereux, 2015; Tirivayi, Knowles and Davis, 2013; HLPE, 2012). Public food procurement, whether to build public stocks (for strategic or regulatory reasons) or to distribute food, has been identified as a new direction to rethink the role of small producers. Indeed, in most poor or food-insecure countries, the agriculture sector is largely made up of family farmers (Sumberg and Sabates-Wheels, 2011).

Against this background, WFP (WFP, 2013) and the International Food Policy Research Institute (IFPRI, 2014) are reviewing conventional aid policies (based on food donations from the North to the South) and have begun to support the public purchasing of national, regional and local food products (e.g. under home-grown school feeding programmes) (Aliyar, Gelli and Hamdani, 2015; Sidaner, Baladan and Burlandy, 2013).

In several countries, especially in Africa and Latin America, FAO has encouraged public food procurement from family farming (FAO, 2015, 2013). In 2015, FAO published the report *The State of Food and Agriculture in the World (SOFA)* with the subtitle *Social protection and agriculture: breaking the cycle of rural poverty*. The report strongly supports school feeding programmes based on the consideration that they not only boost the intake of food by pupils and students, but in many cases also improve micronutrient intakes. Most programmes operate within the geographic boundaries of areas where poverty and food insecurity are more prevalent. Thus, the supply of food at the local level improves food security and offers a market outlet to local producers (FAO, 2015). Meanwhile, the WFP publication *The State of School Feeding Worldwide* emphasizes the benefits of linking local production (and particularly family farming) with school feeding programmes to support the sustainability (continuity) of these programmes, improve the quality of food offered in schools and create structured markets for local products. The document highlights the case of the Brazilian National School Feeding Programme (PNAE) as a successful experience (WFP, 2013). Another WFP publication, *Global school feeding sourcebook: lessons from 14 countries*, which is based on studies conducted in 14 countries, remarks that the purchasing of local products for inclusion in school meals is a new trend in school feeding programmes (Drake *et al.*, 2016).

The Brazilian experience with PNAE has gained prominence since 2009, when the programme underwent a major institutional change.² Article 4 of *Lei N° 11.947, de 16 de Junho de 2009* (Law No. 11.947 of 16 June 2009) establishes that at least 30 percent of the resources of the National Fund for Educational Development (FNDE) allocated to school feeding under PNAE should be used to procure food from family farmers,³ with priority being given to local family farmers, land reform settlers, indigenous and quilombola (decedents of Black slaves) communities, organic producers and formal groups (*Resolução N° 4, de 2 de abril de 2015* [Resolution No. 4 of 2 April 2015]). The law created an institutional link between the food offered in public schools in Brazil and local or regional family farms (Maluf, 2009). In other words, school feeding became an important tool to reconnect local production and consumption (Triches, 2010).

Brazil's school feeding programmes have been recognized by various international organizations as an example of good practices. In 2014, FAO stated that:

Access to school meals has become a universal right under Brazilian law, and 43 million pupils in 250 000 schools now get at least 30 percent of their daily nutritional needs when they attend school. Besides improving the health of millions of young people and reducing absenteeism, the programme provides a guaranteed market for 120 000 family farmers. Such has been the success of Brazil's school feeding programme that its strategies are being replicated and adapted elsewhere in Latin America and, more recently, the Caribbean (FAO, 2014, p. 2).

The specificities of PNAE are interesting (Fornazier and Belik, 2015, 2013). First, it is a long-standing programme (it was started in 1955), consolidated into a vertically institutionalized structure that encompasses all three governmental levels (federal,

² Prior to 2009, purchasing for school feeding was ruled by the principle of economic efficiency established in the Brazilian Constitution of 1988 and regulated by *Lei N° 8.666, de 21 de junho de 1993* (Law No. 8.666 of 21 June 1993) on public procurement. This process often supplied schools with processed foods, disconnected from the local food culture and local production and provided by companies able to take part in the bidding process. Although the decentralization of school meals, introduced in 1994, has helped minimize various prevailing distortions – such as the cartelization of food suppliers, rising school feeding costs due to the centralized acquisition and distribution of food, and the standardization of menus in disregard of regional food diversity (Triches, 2010; Maluf, 2009; Turpim, 2008; Spinelli and Canesqui, 2002) – there was no explicit mechanism to support local agriculture and family farmers or promote healthy school meals (Triches, 2015). *Resolução/CD/FNDE N° 38, de 23 de agosto de 2004* (Resolution/CD/FNDE No. 38 of 23 August 2004) requires that 70 percent of all purchases under PNAE be basic foodstuffs, indirectly assuming that these could be purchased from local farmers. The resolution included a list of basic products (which was updated later), including fresh and semi-processed foods to be purchased in local markets or from wholesalers.

³ *Lei N° 11.326, de 24 de julho de 2006* (Law No. 11.326 of 24 July 2006) defines family farms as rural establishments with an area of up to four fiscal modules. Family farms rely mostly on their own family labour; their household income arises predominantly from the economic activities of the farm and they are managed by the family that owns the farm.

state and municipal). Second, it is a national programme that has a universal character: it reaches almost all municipalities in the country, and guarantees the daily recommended intake of 800 calories for nearly 43 million children, youth and adults. Third, it is a programme that enjoys wide support and interest from civil society as it guarantees children's feeding (as well as that of young people and adults) and assists family farmers while mobilizing local public and private organizations. Fourth, it is a programme with an adequate budget: in 2017, the federal government, through FNDE,⁴ allocated USD 1.19 billion (or BRL 3.9 billion) to PNAE.⁵ Of this sum, at least 30 percent, or USD 0.36 billion (BRL 1.17 billion) was earmarked for the direct purchasing of family farming products. PNAE's budget and coverage makes it one of the most comprehensive public policies in Brazil. It has the potential to benefit a very important segment of the population, namely school-aged children, many of them from low-income families.

A decade after Law No. 11.947 of 16 June 2009 changed PNAE into an internationally recognized programme, it is opportune to consider the relationship between school feeding, local public procurement and family farming. The following questions are particularly relevant:

- To what extent has PNAE acted as a driving force for local food production, i.e. to what extent has it strengthened markets for family farmers to promote rural development?
- To what extent do Brazilian municipalities comply with the requirement that at least 30 percent of the budget for school feeding shall be used to purchase family farming products?

This paper attempts to answer these questions in four sections after the introduction. Section 2 reviews the international academic literature and local experiences in Brazil, to understand how school feeding can boost family farming and identify possible challenges. Section 3 analyses the participation of family farmers in the supply of products for school meals from 2011 until 2017; the evolution of national results is tracked, and regional differences identified. Section 4 discusses the challenges involved in the implementation of Article 14 of Law No. 11.947 of 16 June 2009 by analysing the share of family farming products in purchases for school meals in relation to

⁴ State and local governments should also allocate their own funds to school feeding.

⁵ According to the Central Bank of Brazil, the exchange rate on 2 January 2017 was USD 1 for BRL 3.27.

the size of municipalities (in terms of their number of pupils and students, which determines the amount of the funds transferred by FNDE to them). The aim of this exercise is to determine whether the size of municipalities influences the national and regional impact of the programme, based on the assumption that the municipalities with most pupils face more difficulties to include family farming products in school meals than smaller municipalities. Such difficulties would result from logistical problems in urbanized areas, and from the weaker influence of family farmers on decisions regarding public policies in larger municipalities. Section 5 presents some considerations as to the results discussed in the previous sections (see also Chapters 2, 8, 9, 10, 11, 12, 15 and 16 for additional analysis of the PNAE experience in Brazil).

The analysis in this chapter is based on data released by FNDE concerning the implementation of the programme during the period 2011–2017. The data were retrieved from FNDE’s website in October 2019. As FNDE itself points out, some of these data are preliminary, and still await accounts analysis and auditing.⁶ Only municipalities are used as unit of analysis in this chapter; this excludes other implementing agencies (the federal district, the state departments of education and the federal system of basic education, which also receive funds from FNDE).⁷

14.2 Linking school feeding and family farming: notes from the international debate and from Brazilian experiences

The debate on school feeding and its contribution to the fight against malnutrition, poverty reduction and food security and nutrition has grown remarkably in recent years. School feeding is seen as an instrument to empower family farmers and promote local food production by offering a structured demand and creating new markets

⁶ According to FNDE:

- The data presented are preliminary. They are taken from the Account Management System (SigPC), the online reporting system of FNDE, in operation since 2011. SigPC records are provided by municipal and state public officials responsible for local implementation of the National School Feeding Programme (PNAE), for accountability purposes. (...) It must be noted that the reports are still under analysis and, therefore, the data presented here are preliminary and subject to change (Brazil, FNDE, 2017).

⁷ It is important to note that six municipalities were excluded from the analysis of the 2011–2017 period, because they did not provide information on the funds transferred by FNDE. Another 23 municipalities were excluded because they gave a share of family farming in school feeding of more than 200 percent. Such outliers may result from procedural errors and diverge too much from data of other municipalities (Brazil, FNDE, 2017).

(distinct from the conventional ones), and to promote local sustainable development (Morgan, 2014; Bundy *et al.*, 2009; Gelli, Neeser and Drake, 2010). Long considered a subject beneath the dignity of academics, school feeding has finally reached the top of political and academic agendas, and is discussed in connection with issues such as urban food supply, sustainability and agrifood system policies (Morgan, 2014).

A review of the international literature on the role of school feeding reveals four lines of narrative or perspective, with overlapping areas between them. These narratives are not necessarily theoretical or analytical; some of them are mere approaches that guide policies and interventions.

The first narrative places the discussion on school feeding within a broader framework of public health promotion. In this narrative, the state plays an essential role as the institution that commands policies and actions and governs both civil society and market actors (Smith *et al.*, 2016; Haynes-Maslow and O'Hara, 2015; Lang, Barling and Caraher, 2009; Rocha, 2009).

The second narrative suggests that school feeding should be part of a broader strategy of food security and nutrition, with a special focus on poverty reduction and social inclusion. This narrative advocates the linking of school feeding to the inclusion of small farmers as suppliers of food, and especially of those engaged in agroecological production (Maluf *et al.*, 2015; Wittman and Blesh, 2015; Soares *et al.*, 2013).

The third narrative is based on an approach that has been widely recommended by international organizations such as WFP and, more recently, IFPRI; it advocates the use of school meals to strengthen local food supply chains, and promotes the fostering of the connection between small farmers and public procurement (Gelli *et al.*, 2010, 2012; Alderman and Bundy, 2012; Izumi *et al.*, 2010; Otsuki, 2011).

A fourth narrative suggests that school feeding can be part of a broader strategy for food supply, based on the creation of new markets driven by public procurement. This approach suggests that alternative agrifood networks, comprising organizations such as cooperatives and small farmers' associations, are able to fill these markets and supply consumers with healthier products. Various studies in Brazil (e.g. Morgan and Sonnino, 2008; Sonnino, Torres and Schneider, 2014; Sonnino, 2009; Triches and Schneider, 2010a, 2010b; Turpin, 2009) and the United States of America (Fenstra and

Jeri Ohmart, 2012), highlight the potential of public procurement as a supporting mechanism for the reshaping of food supply systems (in which cities and urban areas can play an important role).

Much of the literature has focused on home-grown school feeding (HGFS), whereby school meals are connected to local production (Espejo, Burbano and Galliano, 2009). Under HGFS programmes, school meals consist of food produced and purchased within a country; such programmes emphasize the importance of purchasing from local, small farmers (Espejo, Burbano and Galliano, 2009). The idea underlying HGFS programmes is that rural enterprises, family farmers and small businesses can benefit from the demand from school feeding programmes if efforts are undertaken to boost their ability to access this market and increase production. Meanwhile, children can benefit from a diet that corresponds with their food culture.

Against this background, Espejo, Burbano and Galliano (2009) highlight a number of benefits of connecting school feeding programmes with the local agriculture sector, based on experiences in various countries. These benefits include the injection of funds into local production, the creation of jobs in enterprises that produce food for school meals, the increase in incomes of farmers and other suppliers, and farmers' increased use of technology to meet demand. Underlying these processes, the importance of the role of the state in structuring demand and promoting food security and nutrition stands out.

Sumberg and Sabates-Wheeler (2011) critically discuss the possible tensions and challenges of attempts to unite market-related and social purposes within a single public initiative or programme. According to the authors, it is often assumed that farmers are able and willing to produce for institutional markets, and that all they need are incentives to do so. However, based on the example of sub-Saharan Africa, the authors point out that production resources are generally scarce, labour productivity is low, and farmers often face barriers to access to information, training and infrastructure. These factors are not directly related to an increase in demand. Indeed, the authors claim that in many cases additional interventions are required to empower poor farmers and boost their ability to participate in new markets. Note that the specificities of institutional markets (e.g. more or less close to short supply circuits, or more or less centralized) have an influence on development dynamics.

The changes introduced by Law No. 11.947 of 16 June 2009 to the functioning of PNAE are particularly interesting. The expected and partially realized results of the programme (a large number of municipalities have not yet integrated family farming products into school meals) reflect the above-mentioned four narratives. Teo and Triches (2016) advocate an interdisciplinary and intersectoral approach to the subject, taking in several perspectives and dimensions including local and sustainable development, the (re)connection of producers and consumers, the incentivization of short supply circuits, food security and nutrition, nutrition education and health, food quality, and the strengthening of local identities and social cohesion.

Other researchers, adopting a similar approach to the issue, have conducted case studies throughout Brazil. Their reports identify school feeding programmes (and other types of public procurement from family farmers) as a significant market for family farmers that has the potential to boost both food security and local or regional development (Fernandes, Schneider and Triches, 2016; Maselli, 2016; Baccarin *et al.*, 2015; Triches, 2015; Silva, 2015; Becker, 2014; Fornazier, 2014; Altemburg, Caldas and Grisa, 2014; Malina, 2012; Triches and Schneider, 2012; Belik and Siliprandi, 2012).

However, there are limitations and challenges to boosting the participation of family farmers in public procurement markets (Sumberg and Sabates-Wheeler, 2011; Sulemana, 2016). Family farmers may find it difficult to organize their production to meet demands for consistent quantities and quality (e.g. in cities with many pupils and students) due to the structural limitations that historically affect this category of producers. These limitations include: the restricted size of farms, poor access to water, poor access to logistics infrastructure (e.g. roads), difficulties to meet processing standards (which are usually tailored to large-scale operations), etc. In addition, institutional arrangements and local political alliances are needed to support and organize small farmers' participation in public procurement markets.

These constraints can be observed in Brazil, too. Recent studies have highlighted the resistance of government officials to the institutional adjustments that are required to implement Law No. 11.947 of 16 June 2009, which is due to path dependence in the bidding processes (Corá and Belik, 2012). Also noteworthy are the structural limitations faced by schools for the conservation and processing of products of family farming (lack of human resources and equipment), the challenges of securing adequate

school food supplies in municipalities with a large number of students, and the risks of appropriation of these special markets by large cooperative enterprises. These challenges and limitations explain, to some extent, the data presented in Section 3.

14.3 The participation of family farming products in public purchases for school feeding in Brazil

Before analysing the participation of family farmers in the school feeding market, the access of municipalities to PNAE funds must be considered, as this chapter only considers municipalities that effectively received FNDE funds for school meals over the period 2011–2017. Table 1 shows that over 99 percent of Brazilian municipalities (5 530 municipalities) received funds from the programme in 2017.

Table 1 **Number and percentage of municipalities, by region and for Brazil as a whole, that received FNDE transfers for school meals over the period 2011–2017**

REGION	2011*		2012		2013		2014		2015		2016		2017	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
North	374	83	363	81	442	98	432	96	445	99	395	88	445	99
Northeast	1 627	91	1 623	90	1 791	99	1 780	99	1 793	99	1 707	95	1 789	99
Southeast	1 624	97	1 627	98	1 653	99	1 645	99	1 659	99	1 611	97	1 655	99
Central West	440	95	436	93.76	456	98	452	97	462	99	441	95	457	98
South	1 180	99	1 179	99.24	1 184	99	1 189	99	1 187	99	1 179	99	1 184	99
Brazil	5 245	94	5 228	93.96	5 526	99	5 498	99	5 546	99	5 333	96	5 530	99

Note: * In 2011 and 2012, the number of Brazilian municipalities considered was 5 564, since the Federal District was excluded. In 2013 and 2014, this number rose to 5 569, as two municipalities were founded in the state of Santa Catarina, one in Rio Grande do Sul, one in Pará, and one in Mato Grosso do Sul in 2013.

Source: authors' elaboration, based on FNDE, n.d.

In 2011, FNDE resources reached 83 percent of all municipalities in the North Region, 91 percent in the Northeast Region and 95 percent in the Central West Region; by 2017, 98 to 99 percent of municipalities in all regions received such funds. These numbers show that PNAE has made significant progress towards the coverage of almost all municipalities in the country. They also illustrate the universal character

of the programme (as established by the federal constitution of 1988), as well as the magnitude of the “public plate” (Morgan and Sonnino, 2010, 2008) and of the institutional market.⁸

The data shown in Table 2 provide a first overview of the participation of family farmers in school feeding programmes. The table shows that the absolute number of municipalities that received FNDE resources and purchased products from family farmers for school meals grew from 3 100 in 2011 to 4 738 in 2017. Accordingly, the number of municipalities that did not purchase any products from family farmers decreased from 2 146 in 2011 (or 41 percent of all municipalities that received FNDE funds) to 792 (or 14 percent) in 2017. Significantly, the percentage of municipalities spending 30 percent or more of their funds to purchase family farming products (in compliance with Law No. 11.947 of 16 June 2009) has grown from 26 percent in 2011 to 49 percent in 2017.

Table 2 **Family farmers’ participation in school feeding programmes, 2011–2017**

	2011		2012		2013		2014		2015		2016		2017	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Municipalities that purchase from family farmers	3 100	59	3 484	67	4 328	78	4 382	80	4 597	83	4 534	85	4 738	86
Municipalities that do not purchase from family farmers	2 146	41	1 744	33	1 199	22	1 117	20	949	17	799	15	792	14
Municipalities that spent over 30% of their funds on family farming products	1 383	26	1 554	30	1 880	34	2 222	40	2 465	44	2 331	44	2 688	49
Share of expenditures on family farming products in total resources (nationwide)		15		15		24		23		26		24		25

Source: authors’ elaboration based on Brazil, FNDE, 2017.

⁸ In all, only 39 municipalities did not receive PNAE funds in 2017. According to Law No. 11.947 of 16 June 2009, FNDE may suspend the transfer of PNAE funds if states, federal districts and municipalities: do not set up a school feeding council, or fail to make it fully operational; do not adequately and timely report on the use of PNAE funds received; and fail to use PNAE funds as established by FNDE’s deliberative council.

Table 2 shows that the share of resources spent on family farming products in total resources spent by municipalities on school feeding has grown over the period 2011–2017 (even if the rise in the value of a single meal in transfers to municipalities since mid-2012 is taken into account). In 2011, approximately USD 181 million out of a total of about USD 1.41 billion transferred by FNDE to municipalities – or 15 percent – were used to buy family farming products. Meanwhile, in 2017, more than USD 206 million out of a total of about USD 832 million transferred by FNDE to municipalities were spent on family farming products, which represents a participation of 25 percent. These data show that, although the participation of family farming products has increased, and more municipalities have started buying from them, the minimum rate of 30 percent is difficult to reach. Some of the explanations for the relatively low rate of participation of family farmers in school feeding programmes and for the lack of continuity in this participation have already been mentioned above; they will be discussed again in Section 4 and Section 5.

To allow for a more detailed analysis, Table 3 and Table 4 show the number and percentage of municipalities according to strata of participation of family farming products in school feeding purchases from 2011 to 2017. Table 3 provides a detailed stratification at intervals of 15 percentage points (except for the last and penultimate strata). The table shows that in 2011, 93 percent of all municipalities were in the first three strata (0–44.99 percent); by 2017, this percentage had fallen to 81 percent. The most significant change was observed in the first stratum, which, in 2011, comprised 56 percent of the country's municipalities, compared to 28 percent in 2017. These data reveal that municipalities are making efforts to achieve the minimum expenditure on family farming products set by law. However, few are taking advantage of the law to strengthen family farming and stimulate broader local development. In 2011, only 7 percent of municipalities spent over 45 percent of their funds on family farming products; less than 1 percent of municipalities spent over 75 percent of their FNDE resources on these products. By 2017, these percentages had risen to 19 and 5 percent, respectively. Municipalities that use 100 percent of their FNDE resources to promote family farming are very rare.

Table 3 **Number and percentage of municipalities according to penetration strata for family farming products in school feeding purchases over the period 2011–2017 (extended strata)**

PARTICIPATION STRATA OF FAMILY FARMING (%)	2011		2012		2013		2014		2015		2016		2017	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
0–14.99	2 939	56	2 550	49	2 280	41	1 995	36	1 723	31	1 616	30	1 567	28
15–29.99	902	17	1 103	21	1 357	25	1 278	23	1 355	24	1 386	26	1 274	23
30–44.99	1 031	20	1 058	20	1 252	23	1 286	23	1 464	26	1 406	26	1 618	29
45–59.99	236	5	323	6	350	6	526	10	560	10	525	10	538	10
60–74.99	86	2	111	2	134	2	230	4	212	4	199	4	266	5
75–89.99	29	1	53	1	78	1	92	2	105	2	102	2	134	2
90–99.99	13	0.25	19	0.36	26	0.47	32	0.58	62	1	40	0.75	58	1
> 100	9	0.17	10	0.19	50	0.90	59	1	65	1	59	1.11	75	1
Total	5 245	100	5 227	100	5 227	100	5 498	100	5 546	100	5 333	100	5 530	100

Source: authors' elaboration based on Brazil, FNDE, 2017.

Table 4 shows data for those municipalities that purchased products from family farming only, categorized into three groups: those that spend up to 30 percent of their resources on family farming products (insufficient participation of family farming products – non-compliant with Law No. 11.947), those that spend 30.01 to 60 percent (minimum to moderate participation of family farming products), and those that spend more than 60.01 percent (high participation of family farming products in school feeding purchases). In 2011, the participation of family farming products was too low in roughly 55 percent of municipalities, minimum to moderate in 40 percent of municipalities, and high in only 4 percent of municipalities. In 2017, these shares stood at 43, 45 and 11 percent, respectively. Although the second and third groups of municipalities grew, the growth was relatively slow; indicating that purchasing from family farmers is subject to political interference and administrative routines. Too often, governments fail to see public purchasing as a strategy for the promotion of family farming, food and nutritional security, or local or regional development through the development of sustainable food systems.

Table 4 **Number and percentage of municipalities according to strata of penetration of family farming products in school feeding purchases, 2011–2017 (simplified strata)**

STRATA OF PARTICIPATION OF FAMILY FARMING PRODUCTS (% OF OVERALL PURCHASES)	2011		2012		2013		2014		2015		2016		2017	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
0.01–30	1 717	55	1 930	55	2 448	57	2 159	49	2 132	46	2 203	49	2 050	43
30.01–60	1 246	40	1 361	39	1 592	37	1 809	41	2 021	44	1 931	43	2 155	45
> 60.01	137	4	193	6	288	7	413	9	444	10	400	9	533	11
Total	3 100	100	3 848	100	4 328	100	4 381	100	4 597	100	4 534	100	4 738	100

Source: authors' elaboration based on Brazil, FNDE, 2017.

Table 5 shows the percentages of municipalities that received FNDE funds and purchased products from family farmers between 2011 and 2017 per region. The table shows that the number of municipalities that purchase products from family farmers has increased in all regions (albeit not constantly everywhere). The South Region consistently has the highest percentages over the period, and always well above the national average. In 2016 and 2017, almost 100 percent of municipalities in the South Region that received PNAE funds acquired products from family farmers for school feeding. The Southeast Region shows rates that are very similar to the national averages. In 2017, 85 percent of municipalities in the region purchased products from family farmers. The Central West Region consistently shows the lowest rates (except in 2013), with 74 percent of its municipalities buying from family farmers in 2017. The Northeast Region's performance is similar to that of the North and Central West Regions until 2013. In 2015, the share of municipalities that purchase products from family farmers for school feeding in the region increased significantly, bringing the region to a rate close to the national average.

Table 5 **Percentage of municipalities, by region and for Brazil as a whole, that purchase from family farmers for school feeding**

	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	2017 (%)	(%) INCREASE 2011-2017
North	52	59	69	71	72	79	77	47
Northeast	51	58	74	77	80	85	83	61
Southeast	57	65	76	80	83	80	85	49
Central West	48	58	72	67	72	76	74	54
South	78	86	94	91	95	98	98	25
Brazil	59	67	78	80	83	85	86	45

Source: authors' elaboration based on Brazil, FNDE, 2017.

Table 6 shows the share of funds spent by municipalities on family farming products in total FNDE funds received, per region. The table shows a clear upward trend in the share of school food acquired from family farmers in all Brazilian regions over the period 2011-2017, except for the Southeast region. The percentages are highest in the Southern Region throughout the period; they exceed 20 percent in 2011-2013 and 30 percent in 2014-2017. This makes the South Region the only region to exceed the 30 percent goal. The North and Central West regions were closest to reaching the minimum percentage established by law in 2017. Percentages for the Southeast Region increased until 2015 but fell thereafter, to about 20 percent in 2017.

Table 6 **Percentages of total PNAE funds used to purchase family farming products for school feeding, by region, 2011-2017**

	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	2017 (%)
North	10	15	23	25	26	26	27
Northeast	9	13	17	21	22	23	24
Southeast	9	12	15	21	25	19	20
Midwest	13	17	24	27	24	24	27
South	22	27	28	36	39	37	40

Source: authors' elaboration based on Brazil, FNDE, 2017.

In conclusion, the share of family farming products in school meals has grown nationwide over the period from 2011 to 2017, but limits to this growth are evident. Importantly, 51 percent of Brazilian municipalities failed to comply with the minimum set by law in 2017 nationwide; in some regions, this share is even higher. Public officials and researchers (e.g. Teo and Triches, 2016; Maselli, 2016; Baccarin *et al.*, 2015; Menezes, Porto and Grisa, 2015; Triches, 2015; Malina, 2012; Belik and Siliprandi, 2012) highlight a number of factors that may explain this result, including: a lack of dialogue and coordination between local actors, resistance to public bidding procedures and rules, logistical problems in the distribution of food, insufficient human resources and infrastructure in schools, , and poor planning and organization abilities of family farmers.

14.4 **Inclusion of family farming products and the amount of National Fund for Educational Development's funds transferred to municipalities**

The evolution in public purchasing described in Section 3 may also be perceived by analysing the share in total FNDE funds received per municipality that is spent on food from family farmers. Table 7 presents these data for a sample of three Brazilian states, which were selected based on the density of family farming and the presence of both large urban centres and small towns in the state. The selected states also cover different regions in the country. The sample consists of the state of Rio Grande do Sul in the South Region (which has a strong presence of family farming, and where family farmers are more organized in cooperatives), São Paulo in the Southeast Region (chosen because of the challenges posed to the implementation of PNAE in large cities) and Bahia in the Northeast Region (for its strong presence of family farming). These states account for a high share in total national FNDE resources (Rio Grande do Sul: 4.9 percent, São Paulo: 20.5 percent and Bahia: 8.2 percent in 2017).

Table 7 presents the concentration of municipalities per stratum of funds received for the three states in 2017, as well as the percentage of resources spent on family farming products per stratum. In Rio Grande do Sul, the clear majority of municipalities receive up to BRL 100 000 (USD 30 581); relatively few municipalities in this state receive more than BRL 500 000 (USD 152 905). Municipalities in São Paulo are more

evenly distributed among strata, with the highest concentration in the strata under BRL 200 000 (USD 61 162). In Bahia, most municipalities receive BRL 100 000 to one million, with a higher concentration in the stratum between BRL 200 000 and 500 000.

Table 7 **Municipalities in the states of Rio Grande do Sul, São Paulo and Bahia, per stratum of funds received from FNDE under PNAE, and the percentage of resources spent on family farming products per stratum, 2017**

FUNDS RECEIVED FROM FNDE UNDER PNAE	RIO GRANDE DO SUL		SÃO PAULO		BAHIA	
	% munic.	% spent on FF*	% munic.	% spent on FF	% munic.	% spent on FF
Up to BRL 100 000	63	51	23	26	2	13
BRL 100 000.01 to BRL 200 000	13	47	23	27	15	25
BRL 200 000.01 to BRL 500 000	12	48	22	23	47	26
BRL 500 000.01 to BRL 1 million	7	45	15	24	23	24
Over BRL 1 million	5	39	15	18	12	29
Total	100	-	100	-	100	-

Note: * calculated by dividing the total resources received by all municipalities that make up the stratum by the amount spent on family farming (FF) products by all these municipalities.

Source: authors' elaboration based on Brazil, FNDE, 2017.

The differences between the three states with regard to the distribution of municipalities according to PNAE funds received are evident. The next question is: are there differences in the levels of purchasing from family farmers between the different strata? This question is directly related to the hypothesis formulated: the level of purchasing from family farmers is influenced by the size of municipalities (measured as the amount of funds received from FNDE), that is, the larger the municipality, the more difficult it is to introduce family farming products in school meals and, therefore, the lower the share of purchases from this category.

Considering this hypothesis, Table 7 shows that in Rio Grande do Sul, the variation in purchases from family farmers between the stratum of municipalities with the highest purchases and that with the lowest purchases was 12 percentage points. In São Paulo, the difference is 9 percentage points, and in Bahia 16 percentage points. In Rio Grande do Sul and São Paulo, the smallest municipalities spend most on

family farming products (51 and 26 percent, respectively), while in Bahia the largest municipalities spend more on those products (29 percent). In conclusion, differences in the levels of purchasing from family farmers in the three states do not seem to be directly associated with the amount of funds received by local governments.

Table 8 presents the share of municipalities that did not spend any resources on family farming products in 2017, per stratum of funds received. The table shows that the bulk of municipalities (in both absolute and relative terms in Rio Grande do Sul and São Paulo, and in relative terms only in Bahia) that do not purchase products from family farmers receive funds of up to BRL 100 000. However, the percentage of municipalities within this first stratum varies considerably between the three states, with the highest percentage in São Paulo. In that state, a total of 123 municipalities (distributed across different strata) did not buy from any products from family farmers. Meanwhile, in Rio Grande do Sul, only eight municipalities did not procure any food from family farms in 2017, five of them being smaller municipalities. In Bahia, only 30 municipalities did not purchase food from family farms; while the percentage in the first stratum is high, few municipalities in absolute terms are in this condition.

Table 8 **Municipalities that did not purchase any family farming products for school meals per stratum of funds received from FNDE under PNAE, 2017**

FUNDS RECEIVED FROM FNDE UNDER PNAE	RIO GRANDE DO SUL		SÃO PAULO		BAHIA	
	%	N.	%	N.	%	N.
Up to BRL 100 000	2	5	31	45	20	2
BRL 100 000.01 to BRL 200 000	0	0	17	25	6	4
BRL 200 000.01 to BRL 500 000	2	1	16	23	8	15
BRL 500 000.01 to BRL 1 million	3	1	12	12	5	5
Over BRL 1 million	4	1	17	18	8	4

Source: authors' elaboration based on Brazil, FNDE, 2017.

Table 9 presents the number of municipalities that did not purchase any family farming products in 2017 per stratum, in both absolute and relative terms. The table shows that 161 municipalities in the three states did not purchase any food from family farmers. Most of these municipalities are in the first stratum (receiving up

to BRL 100 000). Nearly three quarters of all municipalities that did not purchase anything from family farmers are in the first three strata (receiving up to BRL 500 000). Nevertheless, the density of municipalities that did not purchase products from family farming in other strata cannot be ignored.

Table 9 **Distribution of municipalities that did not buy family farming products for school meals across strata, in absolute and relative terms, 2017**

	NUMBER	%	% CUMULATIVE
Up to BRL 100 000	52	32	32
BRL 100 000.01 to BRL 200 000	29	18	50
BRL 200 000.01 to BRL 500 000	39	24	75
BRL 500 000.01 to BRL 1 million	18	11	86
Over BRL 1 million	23	14	100
Total	161	100	

Source: authors' elaboration based on Brazil, FNDE, 2017.

In conclusion, the data presented in Section 4 refute the initial hypothesis; the size of municipalities (measured as the amount of FNDE funds received under PNAE) is not directly related to the share of funds spent on family farming products for school feeding.

14.5 Conclusion

With the creation of the Food Purchase Programme (PAA) in 2003 and the change of PNAE in 2009, the Brazilian government has demonstrated that the state can build local markets for family farmers. This chapter analyses whether municipal governments have complied with the requirement set by Law No. 11.947 of 16 June 2009 (Article 14) that at least 30 percent of FNDE funds for school food purchases must be spent on family farming products – in other words, how successful PNAE has been at integrating family farmers into this institutional market.

The results indicate that family farmers still hold an insufficient share of this market, as nearly half of all municipalities have so far failed to reach the 30 percent required

by law. However, shares are increasing, both nationally and within regions. The number of municipalities that have begun to acquire family farming products for school feeding is rising, as are the average shares of purchases from family farmers in total purchases and the number of municipalities with a growing share of family farming purchases. Importantly, there are notable differences between Brazilian regions. Until 2017, the South Region was the only region that met the legally required minimum of 30 percent.

At the beginning of this chapter, the hypothesis was made that larger municipalities (measured in terms of the amount of FNDE funds received) would spend a smaller share of their funds on family farming products for school meals due to logistical difficulties, the need for large volumes and the number of family farmers required to form a supply base. However, the data discussed in this chapter refute this assumption: the inclusion of family farming products in public purchases for school feeding was not found to depend on the size of municipalities (in terms of the amount of FNDE funds received).

While the present analysis does not shed any further light on the factors that may affect PNAE's success at integrating family farmers in school food markets, it is worth considering the challenges currently facing the programme. First, public officials in several states in Brazil have shown a lack of "appetite" to boost purchases from family farmers, in spite of the growing coverage of PNAE. Second, a number of members of the Brazilian National Congress have proposed shutting down the programme, or at least abolishing the requirement to source 30 percent of foods from small-scale farmers based on the argument that it distorts the market. Third, there are concerns that the Brazilian national Government is planning to cut, or at least slow down, the Food Purchase Programme (PAA) by dismantling its budget and thus making it inoperable (Sabourin *et al.*, 2020).

The literature and data examined in the preparation of this chapter suggest that there are "social mediators" and "political entrepreneurs" (Kingdon, 1984) who support PNAE and back the creation of markets for family farmers, and are committed to building connections between social actors. These mediators and entrepreneurs support the organization and structural strengthening of family farming, and are open to dialogue with school managers and nutrition personnel. These elements are

likely to have larger impact upon the implementation of Law No. 11.947 than the size of municipalities.

Importantly, the share of family farming products in purchases for school meals is still relatively low, and only few municipalities spend a minimum to moderate share of their funds on these products. Nevertheless, an important body of literature is absolutely clear about the significance of the results and changes since the creation of PNAE in 2009. Political changes resulting from the 2016 municipal elections seem have influenced the decision to include family farmers in public procurement. While a number of cases of corruption in bidding processes have led to the reinforcement of cautions in municipal bureaucracy, public purchasing from family farmers in Brazil is on the rise – an example of the “public plate” contributing to local development.

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LEGAL INSTRUMENTS

Brazil

Resolução/CD/FNDE No. 4, de 2 de abril de 2015. Altera a redação dos artigos 25 a 32 de Resolução/CD/FNDE N° 26, de 17 de junho de 2013, no âmbito do Programme Nacional de Alimentação Escolar (PNAE) (Resolution No. 4 of 2 April 2015. Changes the wording of articles 25 to 32 of Resolution/CD/FNDE No. 26 of 17 June 2013, within the scope of the National School Feeding Programme [PNAE]).

15 THE ROLE OF CIVIL SOCIETY IN THE CONSTRUCTION OF REGULATORY FRAMEWORKS AND IMPLEMENTATION MECHANISMS FOR INCLUSIVE PUBLIC FOOD PROCUREMENT: THE CASE OF THE BRAZILIAN NATIONAL SCHOOL FEEDING PROGRAMME

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ABSTRACT

In 2009, the Brazilian Government approved a new regulatory framework for the National School Feeding Programme (PNAE), after an intense process of social participation. The new rules require that at least 30 percent of PNAE's federal funds are used to purchase family farming products for school feeding, whereby the requirement to launch a bidding process is waived. This chapter examines the interactions between state and civil society actors that led to the formulation of the new regulatory framework and the design of innovative public procurement instruments. This political process was marked by resistance, tensions, conflicts and learning. The analysis relies on concepts and methodologies inspired by the sociology of public instrumentation, and draws on insights of the Advocacy Coalition Framework. The study involved the triangulation of different research techniques, such as participant observation, documental analysis and interviews.

15.1 Introduction

Brazil's National School Feeding Programme (PNAE) has historically asserted itself as one of the main tools to ensure the human right to adequate food in the country. PNAE is implemented nationwide; it is coordinated by the National Fund for Educational Development (FNDE),¹ in collaboration with municipal and state governments. PNAE's funds amounted to about USD 978.4 million in 2018;² approximately 40.5 million pupils and students in public schools, at all levels of basic education, received food under the programme that year (Brazil, FNDE, 2018).³

PNAE's history dates back to the 1950s, when the Brazilian Government institutionalized public policies to distribute food to schools, which were funded by international food aid programmes. Since its creation, the programme has undergone multiple changes in its objectives, guidelines, operational design and execution mechanisms, and has been managed by different government agencies (Turpin, 2008).

The quality of food offered to schools under PNAE underwent several changes over the course of the programme's history. Initially, the programme distributed industrialized food; it later focused on purchasing basic meals, hiring, in many cases, specialized companies to supply previously prepared food. At different times, the purchasing of food produced by small farmers was an element in the public debate on PNAE, as an objective to be achieved through the programme.⁴ However, this possibility was not translated into effective mechanisms until recently.

Since the enactment of *Lei N° 11.947, de 16 de junho de 2009* (Law No. 11.947 of 16 June 2009), PNAE regulations have required that at least 30 percent of federal funds transferred to states and municipalities be used to directly purchase food from family farmers. The mechanisms for bidding processes stipulated in *Lei N° 8.666, de 21 de*

¹ In Portuguese: *Fundo Nacional de Desenvolvimento da Educação* (FNDE).

² Or BRL 4.02 billion, in accordance with the exchange rates prevailing in December 2019.

³ In Brazil, the educational system is divided into basic and higher education. Basic education includes nurseries, preschools, elementary schools, high schools and youth and adult education programmes. A detailed overview of the institutions that receive food through PNAE can be found on the PNAE website at www.fnde.gov.br/index.php/programmas/pnae

⁴ In Brazil, the concept of family farming emerges as a social and political construction in the early 1990s. Since the creation of the National Programme for Strengthening Family Agriculture (Pronaf) in 1996, family farming has gradually consolidated itself within the scope of public policies as a form of agriculture distinct from business farming (Grisa and Schneider, 2014). Family-based agriculture encompasses a diverse set of political subjects and identities, and expresses different ways of living, production and organization (Altafin, 2007).

junho de 1993 (Law No. 8.666 of 21 June 1993), which are very demanding in terms of bureaucracy and tended to exclude family farmers as suppliers for public food purchasing, were waived for purchases of family farming products.⁵ Instead, these purchases must be made through simplified procedures. Guided by the principles and guidelines of the National Food and Nutrition Security System (SISAN), the new legislation attempts to link the human right to adequate food, the supply of healthy food in schools, food and nutrition education and family farming (Maluf, 2009).

The approval of Law No. 11.947 was preceded by a rich and intense process of social and political mobilization and debate that saw the participation of different sectors of civil society, academia, federal government representatives and legislators. The process was coordinated by the Food and Nutrition Security National Council (Consea), an advisory board to the Presidency of the Republic composed of one-third government officials and two-thirds representatives from civil society. Consea was set up in 1993 and abolished in 1995 under the Cardoso administration; it was reinstated in 2003 during the first few days of the presidency of Luiz Inácio Lula da Silva.

Social actors were not only involved in the formulation and approval of Law No. 11.947, but also in the design of its implementation procedures. This holds especially for the implementation of Article 14, which establishes the requirement to spend at least 30 percent of resources on family farming products. This chapter discusses the factors that allowed civil society organizations to effectively participate not only in the drafting and approval of the new law, but also in the construction of tailored public procurement mechanisms. These mechanisms are based on the principles of food and nutrition security; one of their main objectives is the inclusion of family farmers as suppliers of food to the institutional sector (see Chapters 8, 9, 10, 11, 12, 14 and 16 for additional analysis of Brazilian experiences, and Chapters 2 and 19 for reflections on the regulatory framework).

⁵ Law No. 8.666 of 1993 establishes different types of bidding for public procurement, including direct competition and price setting, among others. The procedure usually requires contracting parties to invest significant amounts of time and resources to meet legal demands, which acts as an entry barrier for family farmers (Schmitt *et al.*, 2015). In addition, sanitary standards governing the purchasing of food products are poorly adapted to the realities of smallholders. Together with the requirement to deliver large quantities of products under a single contract, these factors inhibit the participation of family farmers in institutional markets.

This chapter is based on a doctoral thesis published in 2017.⁶ The analytical framework underlying the research seeks to mobilize concepts and methodologies inspired by the (French) sociology of public policy instrumentation; it also draws insights from the advocacy coalition framework proposed by *inter alia* Paul Sabatier (Sabatier and Jenkin-Smith, 1993; Sabatier and Weible, 2007).⁷ The study involved the triangulation of different research techniques, including participant observation, documental analysis and interviews.

The chapter is subdivided into six sections, including the Introduction. Section 2 provides a brief overview of the historic process that led to the formation and strengthening of an advocacy coalition (including governmental and non-governmental actors) for the progressive institutionalization of food and nutrition security as a public policy goal. This coalition was a crucial driver behind the formulation and approval of the new PNAE regulations within the Brazilian National Congress, forging an alliance between social actors engaged in the defence of school feeding and those engaged in the defence of the rights of family farmers. Section 3 analyses the processes that made the restructuring of PNAE possible, underlining the important role played by Consea in this regard. Section 4 discusses the pathways followed by these implementation mechanisms, using the analytical lenses provided by the sociology of public policy instrumentation. Section 5 explores the social dynamics of the construction of new policy instruments by governmental and non-governmental actors, whereby the definition of PNAE mechanisms is treated as a controversial field. Section 6 presents concluding remarks.

⁶ Schottz, V. 2017. *Programa Nacional de Alimentação Escolar (PNAE): controvérsias sobre os instrumentos de compras de alimentos produzidos pela Agricultura Familiar*. Federal Rural University of Rio de Janeiro. (PhD thesis)

⁷ These authors define cause coalitions or advocacy coalitions as groups of social actors (governmental and non-governmental) that share beliefs and values and interact in a particular policy subsystem - in this case, the food and nutrition security subsystem - to influence decision-making processes.

15.2 Historical connections between the National School Feeding Programme, food and nutrition security and family farming

The restructuring of PNAE has its origins in the formation, over time, of a food and nutrition advocacy coalition – an alliance between heterogeneous governmental and non-governmental actors advocating the inclusion of food and nutrition as a priority in the government’s agenda. These actors shared (and still share) common values and a belief in a democratic and participative political project for the incorporation of food and nutrition security as an important reference for public action (Zimmerman, 2011).

The principles and guidelines shared by the food and nutrition security coalition include:

- the assertion of food and nutrition security as a strategic component of an alternative model of socio-economic development, based on principles of social justice and environmental sustainability;
- a broad interpretation of what constitutes adequate and healthy food, taking into account its biological, environmental, cultural and economic dimensions;
- social control and participation as principles of democratic governance; the adoption of an intersectoral approach to public policy;
- the application of the principles of the human right to adequate food and food sovereignty to food production, supply and consumption; and
- the strengthening of family farming as a means to improve the diversification and sustainability of food production.

From 2003 onwards, a number of factors converged to create a political environment that allowed the coalition to enhance its capacities, share knowledge and resources and ultimately ensure the inclusion of food and nutrition security principles in public policymaking in Brazil (Sabatier and Weible, 2007). The instauration in 2003 of Luís Inácio Lula da Silva (of the Workers’ Party or Partido dos Trabalhadores) as President was a central driver in this process. The policy guidelines adopted by the new administration, a coalition of different political actors, had a number of important

results, including the inclusion of the Zero Hunger programme as a priority in the government's agenda,⁸ the recreation of Consea and the organization of the second National Conference on Food and Nutrition Security in 2004 (ten years after the first conference took place).

According to Pires and Vaz (2014), one of the characteristics of the Workers' Party approach at the federal level was to enhance the interactions between the state and civil society organizations in the formulation and monitoring of public policies. The political environment under the new Lula administration helped bring two coalitions of actors closer together: a network of actors working on family farming, and the coalition advocating food and nutrition security. The two coalitions joined forces to modify food procurement mechanisms in such a way as to foster family farming and apply the principle of the human right to adequate food-to-food production, supply and consumption.

Among the initiatives that were influenced by the food and nutrition security approach is the Food Purchase Programme (PAA), which purchases food from family farmers (through simplified procedures) for distribution to public food and nutrition programmes.⁹ Legal provisions for PNAE published between 2003 and 2008 ensured that the programme's efforts were guided by the intersectoral perspective of food and nutrition security, highlighting its strategic role in the strengthening of family farming.¹⁰ The changes made to the programme between 2003 and 2008 concerned *inter alia* PNAE's objectives, the implementation of guidelines for the promotion of healthy eating, the role of nutrition professionals in school feeding; which paved the way for the changes introduced in 2009 by Law No. 11.947.

⁸ The Zero Hunger programme, an intersectoral strategy that aimed to eradicate hunger and poverty, was launched in 2003, during President Lula's first term; it was incorporated into the Federal Government's 2004–2007 Plan. Silva, Del Grossi and França (2010) analyse this experience, based on the evaluation by policymakers involved in its implementation.

⁹ On the synergies established between PAA and PNAE during this period, see International Policy Centre for Inclusive Growth (IPC-IG), 2013.

¹⁰ For details about these standards published between 2003 and 2008, see Schottz, 2017.

15.3 The political process of the formulation and approval of Law No. 11.947

In 2004, Consea recommended President Lula to reformulate PNAE's legal framework using a food and nutrition security perspective. As a result, the council was authorized by the President to present a proposal to the Federal Government. A first version of the PNAE reform bill was approved by Consea in April 2006, and presented by the Federal Government to the National Congress in 2008.

Various federal government agencies, as well as public education managers responsible for the implementation of PNAE at state and municipal levels, were involved in the negotiations and discussions on the reform of PNAE. At the same time, civil society organizations set up various initiatives to boost support for the proposed law and stimulate the public debate; these initiatives brought together organizations, networks and social movements promoting family farming, agroecology, food and nutrition security, solidarity economy, health, nutrition and education.

Research findings from Schottz (2017) confirm that the legal requirement that at least 30 percent of PNAE funds be used for the direct purchasing of family farming products was the result of a long process of institutional learning by the different actors involved in the reformulation of the programme. According to interviews carried out with key informants (Schottz, 2017), the starting point of this learning was the successful experience of PAA, which demonstrated that family farmers were capable of supplying diversified food products to institutional markets. Meanwhile, the public purchasing of family farming products under PNAE had contributed to the diversification of school menus, the inclusion of fresh and natural foods in school meals and the recognition of the value and importance of regional food cultures.¹¹

Various actors interviewed by Schottz in 2016 acknowledged Consea's protagonist role in the formulation and approval of Law No. 11.947 of 2009 (Schottz, 2017). Consea representatives interacted with governmental and non-governmental actors, and considered the multiple perspectives and interests of the various stakeholders in the restructuring of the PNAE programme. Another factor that contributed to the democratic

¹¹ Note that these three effects also guided the publication, in 2014, of the new *Food Guide for the Brazilian Population* (Carvalho, 2017).

elaboration of the new law was the intense engagement of social organizations operating in different fields. It is important here to highlight the capacity for mobilization of the Brazilian Forum for Food Sovereignty and Food and Nutritional Security (FBSSAN), which brought these different actors together around the reformulation of PNAE.¹²

A commission was put in place to mobilize and bring together *inter alia* rural social movements, food and nutrition security networks, agroecology organizations and professional entities acting in the fields of nutrition and education around the reformulation of PNAE. The commission adopted different consultation strategies, including:

- the public discussion of the proposed law and its political relevance to food and nutrition security in Brazil;
- the establishment of a partnership with the Parliamentary Front on Nutrition and Food Security (FPSAN) to lobby key deputies and senators involved in the discussion, bureaucratic routing and negotiation of the proposed law in the National Congress; and
- consultations with party and government leaders, and the dissemination of emails and public petitions.

The new PNAE law was passed in the Chamber of Deputies without problems; it was unanimously approved, due in large part to the actions of FPSAN. However, the processing of the law in the Senate was marked by public controversies related to the management model and the food purchasing mechanisms for PNAE. Some of the actors usually involved in the supply of food and in the preparation of meals for schools lobbied the Senate rapporteur on the proposed law, who rejected the changes to the PNAE regulations proposed by the food and nutrition security coalition.

In the face of the obstacles to the approval of the proposed law arising in the Senate, the Federal Government issued *Medida Provisória N° 455 de 28 de Janeiro de 2009* (Provisional Measure No. 455 of 28 January 2009).¹³ The content of this Provisional

¹² The FBSSAN, established in 1998, is a civil society network that brings together various organizations, social movements and activists in defence of the human right to adequate food and food sovereignty. The forum actively participated in the recreation of Consea.

¹³ According to the Brazilian Constitution, a Provisional Measure is a legal act through which the President of Brazil can enact legislation concerning urgent and important matters, without the approval of Congress. The National Congress is obliged to process Provisional Measures within a maximum period of 120 days.

Measure was negotiated with the National Front of Mayors (FNP), state representatives and municipal public education managers, without Consea's participation. As a result, representatives of the Federal Government had to make a number of concessions as regards the original text proposed by Consea. Indeed, the resulting document no longer included the ban on the outsourcing of purchases of family farming products, nor did it contain the explicit requirement that purchases of family farming products under PNAE should be executed directly by the public agency, without intermediaries.

These omissions unleashed a lot of political pressure from civil society organizations, through the mobilization commission and FBSSAN. In the end, the requirement that family farming products should be purchased directly from family farmers and their organizations was reinstated in the legislative proposal. Several arguments were used by the food and nutrition security coalition in defence of the original text, including the low quality of the food supplied by large wholesalers and catering companies – as attested, in a number cases, by federal control bodies (Schottz, 2017). Several amendments were presented in both legislative houses in an effort to undermine the initial proposal, especially regarding the requirement to purchase from family farmers. However, none of these were approved. The Provisional Measure was approved by the National Congress, sanctioned by the President of the Republic on 16 June 2009 and converted into Law No. 11.947.

15.4 Instrumentalizing the purchasing of family farming products under the National School Feeding Programme

The sociology of public policy instrumentation approach proposed by e.g. Lascoumes and Le Galès (2004, 2007, 2014), while still not much used to analyse government interventions, provides an analytical method that helps understand the construction and implementation of policy instruments. These instruments are seen as sociotechnical devices with institutional strength, capable of producing specific effects. They are a practical expression of the ideas and principles that shape the world view of the actors that formulate them, and have the potential to shape relationships between public policymakers and policy beneficiaries.

The capacity of public policy instruments to affect social relations can be observed in the trajectory of PNAE. From the early 1990s onwards, a decentralization trend is noticeable; this trend affected both the financial architecture of the programme and its implementation, as responsibilities were transferred from the federal level to state governments and municipalities, and a series of rules related to the bidding processes were adopted. These rules were institutionalized in 1993 under Law No. 8.666, providing a reference for food purchases based on the principles of legality, isonomy (equality before the law) and economic efficiency, which is to be achieved through free competition, a wide dissemination of information related to food procurement, and the selection of the most advantageous proposal. In the case of PNAE, the lowest price was established as the main purchasing criterion. This benefited producers and processors capable of supplying large quantities at low prices, thus leading to the domination in school feeding procurement of the industrial food system. Bidding processes favoured large food companies with a greater capacity to meet the bureaucratic and legal requirements and meet the operationalization costs of the institutional market (Turpin, 2008).

Efforts were made to change PNAE's implementation design in the 1990s and early 2000s. Indeed, during president Fernando Henrique Cardoso's two terms (1995-1998 and 1999-2002), guidelines were issued that prioritized the inclusion of basic, locally produced meals in school menus. However, the purchasing mechanisms instituted by Law No. 8.666 acted as an element of resistance to such changes - despite the efforts of the food and nutrition security coalition and food and nutrition specialists working on PNAE. This illustrates how policy instruments can produce institutional inertia (Lascoumes and Le Galès, 2012).

Studies by Turpin (2008) and Triches (2010) on Law No. 8.666 and related legislation argue that the complex bureaucratic demands of PNAE's regulatory apparatus were ill-adapted to the organizational dynamics of family farming. Indeed, the principles of free competition and equality before the law incorporated in the legal framework submitted small-scale producers to the same requirements as medium and large suppliers. In addition, the adoption of the lowest price as the decisive criterion for purchasing favoured large companies as suppliers to institutional school markets. Thus, it was decided to waive the bidding requirements for purchases from family

farmers; this strategic decision enabled policymakers to formulate differentiated purchasing mechanisms targeting family farmers and their organizations exclusively.

The waiver of bidding introduced by Law No. 11.947 was an important innovation that was not originally foreseen in the Brazilian legal system, except in some very specific situations (Brazil, Mato Grosso State Court of Accounts, 2014). This legal mechanism had already been applied in the case of PAA since 2003, opening the way for a similar innovation in PNAE. The waiver of bidding for the purchasing of family farming products under the new PNAE regulations foresees that the purchasing should be executed through a public purchase call that must be widely publicized and include a detailed description of the demanded food items, the quantity to be purchased, and the required logistics of distribution and delivery. The administrative procedure of the public call enables the selection of suppliers of family farming products, be they individual family farmers or their organizations.

The bidding waiver has certain characteristics that differentiate it from the mechanisms established by Law No. 8.666 in 1993, and grant greater freedom to public managers to adapt purchasing procedures to the local context. This freedom is, however, limited by the objectives of the programme and the legal criteria that protect the public interest. In the case of PNAE, the public interest is linked to the use of the state's purchasing power as an instrument to improve food and nutrition security and promote sustainable development through the strengthening of family farming (Brazil, FNDE, 2016).

To ensure that public purchasing instruments further the goal of food and nutrition security, the lowest price was abandoned as the main selection criterion for purchases of family farming products under PNAE. It is important to highlight here the observation made by Lascoumes and Le Galès (2007) that the choice of policy instruments is an expression of values and interests. The legal criteria for the selection of family farming suppliers under PNAE reflect a combination of priorities related to sustainable development (privileging the local level), social justice and the promotion of adequate and healthy food. The regulations regarding the implementation of Law No. 11.947 of 2009 establish that suppliers of family farming products should be selected according the following order of priority:

- suppliers from the same municipality;

- agrarian reform settlers, quilombolas and indigenous people;¹⁴
- suppliers of organic or agroecological food;
- formal groups have precedence over the informal, and groups have precedence over individual suppliers (*Resolução/CD/FNDE N° 4, de 2 de abril de 2015* [Resolution/CD/FNDE No. 4 of 2 April 2015]).

These criteria indicate that purchases of family farming products under PNAE are seen as a tool to promote sustainable local development and social equity.

15.5 Controversies over the formulation of purchasing mechanisms under the National School Feeding Programme

In a political environment marked by the permeability of public policies to social demands, the different actors that had been involved in the incorporation of food nutrition and security principles in PNAE's legal framework also participated in the formulation of implementing regulations. These actors understood that the shaping of institutional purchasing mechanisms would be of strategic importance. Policymakers could be held back in this process by the fact that the bidding mechanisms of Law No. 8.666 of 21 June 1993 had served as a reference for agents involved in food purchasing for school feeding since the 1990s. Representatives of public education managers at the municipal and state levels actively participated in the debate.

The formulation of the implementing regulations of Article 14, which governs the purchasing of family farming products under PNAE, was carried out in two stages, in a process marked by intense social participation. While legislation went through Congress, a working group on family farming was formed to help elaborate the resolution that would guide food purchases (published later as *Resolução/CD/FNDE N° 38, de 16 de*

¹⁴ According to Brazilian legislation, quilombo communities (*quilombolas*) are legally considered to be ethnic-racial groups, according to self-attributed criteria, with their historic trajectory, and with specific social territorial relations. They also carry the presumption of Black ancestry related to resistance to the historic oppression suffered (Decreto N° 4.887, de 20 de novembro de 2003 [Decree No. 4.887 of 20 November 2003]).

julho de 2015 [Resolution/CD/FNDE No. 38 of 16 July 2015]).¹⁵ After the publication of this new regulation, the social organizations that participated in the working group on family farming put pressure on PNAE's general coordination body to formalize this arena of social participation. This was done in 2010, with the setting up of an advisory group composed of 14 representatives of civil society organizations and of municipal and state governments. That same year, an interministerial government committee for PNAE was created.¹⁶ This committee, led by FNDE, brings together the various ministries involved in family farming purchasing through the institutional market. It was conceived not only as a management platform, but also as a mechanism for technical and institutional learning, considering that FNDE did not have any experience in the institutional acquisition of family farming products for school meals.

Lascoumes and Le Galès (2004) and Halpern *et al.* (2014) argue that the process of choosing policy instruments may generate controversies reflecting the complex dynamics of interaction between actors in negotiations over ideas and interests. The authors see controversies as situations permeated by socio-technical uncertainties shared by different agents. In the case of PNAE, the discussions on the new purchasing mechanisms saw the emergence of multiple controversies, both within the working group on family farming and the interministerial government committee.

The controversies that surrounded the formulation of purchasing mechanisms for family farming products were one of the main focuses of the research for this chapter. Overall, key respondents agreed that the construction of the purchasing mechanisms, while challenging, provided an opportunity for a rich and intense process of institutional learning. Interviewees highlighted the initial difficulties encountered by managers to cope with the multiple issues and uncertainties that emerged in these spaces, and described how tensions between governmental agencies formed obstacles that were eventually overcome.

Respondents mentioned that government representatives and civil society organizations were already working together in other political platforms (e.g. Consea

¹⁵ The working group on family farming was basically composed of the same actors that had participated in the formulation of Law No. 11.947 of 16 June 2009, including policymakers and technicians of different government agencies, organizations representing state and municipal education managers and 12 civil society organizations, including social networks and movements.

¹⁶ In Portuguese: *Comitê Gestor Interministerial do PNAE* (CG PNAE).

and PAA's advisory committee) contributed to the building of trust and helped actors deal with emerging tensions. The learning processes resulting from the formulation and implementation of PAA played a fundamental role in the setting up of the new PNAE purchasing mechanisms. Principles related to food nutrition and safety and the strengthening of family farming were already recognized as a common reference. The existence of a well-defined set of values and beliefs guiding policies on food and nutrition security helped PNAE staff deal with innovative purchasing instruments for family farming products (such as public calls); coordination with FNDE, especially with the public attorney's office, also aided in this respect. These factors favoured the substitution of the price criterion in public procurement with other criteria favouring suppliers of family farming products.

The members of the working group on family farming had many doubts and concerns about the construction of the purchase mechanisms, which had to:

- be adapted to the different dynamics and realities of family farming in Brazil;
- respect the basic constitutional principles of public administration; and
- be in line with the new PNAE guidelines and the principles of food nutrition and security as institutionalized in different pieces of legislation.

In this environment of shared uncertainty, different ways were evaluated to formulate the purchasing mechanisms of family farming products.

While the system of public calls was developed as an innovative purchasing mechanism (it does have several characteristics that make it different from other bidding modalities and grant more discretionary power to the implementing entities), certain aspects of it continue to resemble the conventional *modus operandi*. During meetings of the working group on family farming, a number of government agencies expressed their concern about breaking entirely with the format and language that public managers were used to, arguing that doing so could generate resistance.

Even though the public call was a new instrument in the context of PNAE, and had not been used much by the public administration, many key respondents of this study seemed to be satisfied with the outcome of its formulation process. They indicated that the controversy surrounding the instrument has subsided, for now, in different policy arenas.

15.6 Conclusion

This chapter analysed the protagonist role taken on by Brazilian civil society in the elaboration of PNAE's regulatory framework and the implementation of inclusive mechanisms for public food purchases. The study is based on the triangulation of research approaches and techniques, including interviews, document analysis, observation and biographical review. The research revealed a number of factors that made it possible to construct a legal framework that consolidates school feeding as a universal human right.

In the Brazilian case, the institutionalization of principles related to the human right to adequate food and the promotion of food and nutrition security by public policies involved a continuous process of interaction between governmental and non-governmental actors, creating opportunities for transformations in the *modus operandi* of both.

Several factors converged to create an enabling environment for the formulation and approval of Law No. 11.947 of 16 June 2009, including:

- the progressive institutionalization of food and nutrition security as a principle of public policy;
- the priority given to PNAE, which was considered as one of the key instruments within the ensemble of policies for food and nutrition security;
- the gradual adoption, from the 1990s onwards, of programmes and actions targeting family farmers that boosted their political recognition and helped strengthen their organization;
- the broadening and strengthening of formal and informal platforms of interaction between state agents and civil society organizations; and
- the reinstallation of Consea as a platform for the expression of political views and the proposal and monitoring of intersectoral public policies.

The greater permeability of policymakers to the demands of social actors enabled the latter to take part not only in the formulation and monitoring of specific sectoral policies, but also in the discussions about the structuring and implementation of policy instruments.

By focusing the analysis on PNAE and its mechanisms for the purchasing of family farming products, this chapter demonstrates that the dynamics surrounding the construction of policy instruments is as important as discussions on the general principles and objectives that guide public policies, particularly when it comes to innovative and intersectoral approaches to food and nutrition security.

The Brazilian experience concerning the reformulation of PNAE has demonstrated the importance of the existence of specific arenas where actors can deal with controversies. In the case of PNAE, the interactions between governmental and non-governmental actors within these platforms for social participation contributed to the construction of innovative proposals. Far from being obstacles to the process of institutional innovation, the discussion of controversies in these arenas enabled the political processing and resolution of complex situations that could not be resolved based on technical or scientific expertise or conventional political authority.

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16 THE ACQUISITION OF FAMILY FARMING PRODUCTS FOR SCHOOL FEEDING PROGRAMMES: CHALLENGES AND SOLUTIONS

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ABSTRACT

This chapter discusses the challenges, dynamics and results of the implementation of programmes for the purchasing of family farming products for school meals in Brazil. It is based on interviews conducted with family farmers, nutritionists, school managers, rural extension agents and members of school feeding councils in 32 municipalities in the States of São Paulo, Paraná, Santa Catarina and Rio Grande do Sul, as well as on the analysis of data regarding the purchasing of products from family farmers in these locations. The chapter demonstrates that although current legislation is favourable to the purchasing of family farming products under school feeding programmes, the behaviour of local actors and local conditions are essential to the success of such programmes.

16.1 Introduction

Over the past decades, school feeding programmes have been one of the privileged targets for the rethinking of development policies for greater sustainability in the context of the 2030 Agenda and Sustainable Development Goals (SDGs). Both developed and developing countries have acted to bring food production and

consumption closer in schools, by directly purchasing food from local family farmers. This new approach to school feeding has been termed home-grown school feeding (HGSF) in the international literature (Bundy *et al.* 2009; Espejo *et al.* 2009). The basic premise is that low agricultural productivity, the fragile development of local agricultural markets and limited nutritional and educational outcomes are mutually reinforcing, and cause hunger and poverty. HGSF programmes build on synergies between efforts to encourage development on the one hand, and efforts to protect public health on the other. These programmes are based on the view that governments can use public food procurement as an instrument for sustainable development, whereby sustainable development is understood to have social, economic, environmental and political dimensions. According to Morgan (2016), HGSF fits in with political projects to create a “green state,” which is generally defined as a democratic state where regulatory ideals and procedures are guided by an ecological, rather than a liberal, democracy.

In this view, the state also works to promote sustainable and healthy diets, which are defined as diets with a low environmental impact that contribute to food and nutrition security and to a healthy life for future generations (Burlingame and Dernini, 2012). Sustainable and healthy diets are protective and respectful of biodiversity and ecosystems. They are culturally acceptable, economically affordable and fair, and nutritionally adequate, safe and healthy; they optimize the use of natural and human resources.

The procurement processes of the Brazilian National School Feeding Programme (PNAE), which were in place from its creation in 1955 until 2009, ultimately favoured suppliers of industrialized and deterritorialized products. The decentralization of food programmes in Brazil in 1994, whereby states and municipalities became responsible for the management of funds, started a process of revision of public food procurement policies. In 2003, the Food Purchase Programme (PAA) was created as a programme for food and nutrition security. The creation of PAA encouraged the revision of PNAE’s procurement processes to boost purchases of family farming products and thus contribute to local and regional development and food and nutrition security. Thus, in 2009, *Lei N° 11.947* (Law No. 11.947) was issued; Article 14 of this law establishes the obligation to use at least 30 percent of PNAE’s budget for school meals to purchase products from family farmers. Other improvements followed, including the creation of

PAA's institutional purchasing modality (by way of *Decreto 7.775* [Decree 7.775], issued in 2012) and the requirement (laid down by *Decreto 8.476* [Decree 8.476], issued in 2015) that all public institutions that purchase food (universities, hospitals, prisons, nursing homes, military facilities, etc.) must also do so from family farmers.

As a result of these regulations and policies, Brazil has stood out globally for the universal provision of free school meals produced locally by family farmers (Sonnino *et al.*, 2016; FAO, 2015). However, while these regulations and policies are important instruments for sustainable development, they must be accompanied by additional legal and institutional measures and supported by social actors to be actually effective (see also Chapter 2 and Chapter 15). In view of this consideration, school feeding programmes must be evaluated continuously using different methodological approaches. This chapter contributes to this exercise with an in-depth evaluation of the implementation of Article 14 of Law 11.947 of 16 June 2009 in the states of the South Region of Brazil, including Rio Grande do Sul (RS), Santa Catarina (SC) and Paraná (PR), and the State of São Paulo (SP) in the Southeast Region (see Chapters 2, 8, 9, 10, 11, 12, 14 and 15 for additional analysis of the Brazilian experience). The chapter evaluates the efficiency of the procurement process, discusses problems encountered (and how they were resolved), and analyses whether quality food was provided to pupils and students and whether family farmers benefitted from the programme.

Section 2 describes the methodology used for the study. Section 3 discusses the difficulties reported by the actors involved in institutional purchasing in the selected municipalities, and demonstrates how they were overcome. Section 4 analyses the efficacy of the policy in terms of the food and nutrition security of students and farmers. Section 5 presents a few final considerations.

16.2 Methodology

This chapter presents the results of a qualitative study. Eight municipalities from each of the four states were chosen to conduct interviews with the actors involved in the implementation of Article 14 of Law 11.947 of 2009. To select the municipalities, a search was made for county websites, and records on public calls for the purchasing of family farming products under PNAE between 2012 and 2013 were requested from

municipal authorities. Based on these documents, the municipalities were sorted according to the following criteria:

- number of inhabitants: Group 1 – very small municipalities (less than 20 000 inhabitants); Group 2 – small municipalities (20 000 to 100 000 inhabitants); Group 3 – medium-sized municipalities (100 000 to 500 000 inhabitants); Group 4 – large municipalities (500 000 or more inhabitants);
- the different regions in each state.

Municipalities were selected randomly in each region.

For each municipality, four to five respondents were selected. The respondents included representatives of municipal school feeding services (e.g. managers and nutritionists), members of school feeding councils (regardless of the segment they represented i.e. parents, teachers or civil society), rural extension workers and family farmers. For each group of social actors, specific semi-structured interview guides were used. The interview questions concerned changes to school menus and to the operation of the local school meals service, difficulties in the implementation of Article 14, the level of participation of social actors and their experiences with PNAE, difficulties relating to the integration of actors in the programme, and the benefits achieved. The data were sorted by theme based on the content analysis technique, using the NVivo 8 software.

16.3 Challenges to the purchasing of family farming products and solutions

It is important to note that the changes to the laws governing PNAE were driven by experiences that had already been gained at the local level, as well as by the participation of social actors in public policymaking processes in councils (e.g. the School Food Council, CAE, and the Food and Nutrition Security National Council, Consea) and the creation of PAA. This means that PNAE's legal framework was modified based on social action, and that without such action, the framework would not have endured or been effective (see also Chapter 16 on a related topic).

To examine this consideration, a qualitative analysis of problems and solutions was carried out for the selected municipalities, with themes sorted into the category

of “organization of demand” (related to the executing entities) or into that of “organization of supply” (related to family farmers). For both categories, the core problems hindering public purchasing from family farmers were analysed, as well as the solutions to these problems found by municipalities.

With regard to the **organization of demand**, problems and respective solutions regarding menu planning, administration and bureaucracy, and financial and personnel issues were observed.

The elaboration of menus was considered an important aspect of **planning**. Many farmers reported that nutritionists plan menus without consulting them; family farmers from São Paulo complained that nutritionists do not understand that family farming operations do not have the same dynamics as food supply centres (*Centrais de Abastecimento* or Ceasas), which are able to provide large quantities of all products, in a standardized manner and at any time of the year. Meanwhile, nutritionists from Paraná stressed that it is difficult to know what is being produced in the municipality and region and who the family farmers are, and that it is therefore difficult to adjust their menus to this reality.

The solution to this problem was to adapt menus to the reality of local production. A nutritionist from Santa Catarina argued that “the first thing was to get to know the reality of the municipality, see what it produced, and then start to think about what could be included in the menu.” Thus, the school feeding managers mapped the municipalities’ supply base and developed the menus and procurement lists in collaboration with family farmers. The collaboration with family farmers also ensured that the organization of the logistics reflected the realities of family farming. To this end, the provisions in public calls regarding the number of suppliers, delivery locations and quantities supplied were revised. As a result, it became more interesting for family farmers to participate in school feeding programmes.

As far as **administration and bureaucracy** is concerned, the research showed that bureaucracy in public procurement has been reduced by the waiving of competitive bidding for purchases from family farmers. However, in certain locations, family farmers still had difficulties understanding PNAE regulations, especially regarding legal and administrative aspects. In many municipalities, purchasing is still carried out through tendering processes (mainly through on-site bidding and letters of invitation

to tender), because public purchasers consider that the waiver for family farming products violates *Lei N° 8.666, de 21 de junho de 1993* (Law No. 8.666 of 21 June 1993).¹ Respondents stated the following in this respect:

It is my understanding that legally, [Law No.] 8.666 is sovereign, so there has to be price competition between farmers. We issue a call and contract the supplier with the lowest price (nutritionist from São Paulo).

It is difficult to make public purchasers understand that public calls are not governed by the lowest price, but that instead, the criteria are different. There is a difficulty of understanding, because Law No. 8.666 is the one taken into account, and it is difficult to adapt the PNAE public call to this specific legislation (school manager from Rio Grande do Sul).

There is a difficulty related to the city's procurement system itself, because a public call is different from a public tender. Often, because [the city staff] does not understand the process in depth, there are some bureaucratic difficulties that would be unnecessary if they knew the process. When it comes to food, the city should take special care, as food is something that the producer grows, and if it isn't bought at a specific time they will no longer have any products, because they are gone, the season is over. Often, and for various reasons, it takes a long time for the public call to be published by the city; when it is actually issued and the contract is supposed to be signed, the farmer no longer has the food (nutritionist from Santa Catarina).

In addition to the predominance of *Lei N° 8.666, de 21 de junho de 1993* (Law No. 8.666 of 21 June 1993), it was also observed that public calls are not always adequately prepared, leading to frustration related to the purchasing process. For example, many farmers complained that orders are few and for small amounts per supply location, that the small quantities requested make deals financially uninteresting, that the production peak of many products occurs during school holidays (farmers from São Paulo) and that school strikes complicate the process (farmers from Paraná). As a result, many family farmers lose interest in the school feeding market, since the organization of their supply clashes with the bureaucracy and rigid organization of demand.

¹ *Lei N° 8.666, de 21 de junho de 1993* (Law No. 8.666 of 21 June 1993) establishes general rules for public biddings and contracts related to construction work, purchasing, and property leases at the level of the country, states, federal districts and municipalities.

Many managers argued that they managed to change perceptions of the legalities of public purchasing by consulting staff from other cities.

[...] We created a working group including the department of education, Emater (the technical assistance and rural extension agency) and the finance department, especially the personnel involved in bidding. We held meetings every 15 days, and grew more and more. We invited the city attorney to the meetings of the working group; when she understood the law, she changed the whole scenario of the municipality. She understood that it was a law of inclusion of people, and not a law of prices (rural extension agent from Rio Grande do Sul).

Once perceptions were changed, municipalities were able to better plan their demand and reduce the bureaucratic burden on family farmers wishing to participate in the bidding process.

Another problem that affects the organization of demand are the limited **financial resources** made available for school meals at the different levels of government (federal, state and municipal), the limited number of professionals working in school food facilities and the lack of adequate infrastructure in school kitchens and in the warehouses of executing entities (managers from Paraná). These problems often hinder the purchasing of products from family farmers, since they oblige purchasers to rationalize resources and choose products that require less handling, less processing in the kitchen and less storage in the warehouse. Respondents stressed the need to increase municipalities' resources for investment in kitchen and storage facilities to ease the purchasing process. Some executing entities assume the costs of transportation (including the purchase of a vehicle to collect food from farms) and even packaging (managers from São Paulo and Santa Catarina) in order to guarantee higher returns for family farmers.

A final issue that compromises the organization of the demand for family farming products is related to **personnel**. There were reports of resistance from nutritionists, cooks and even teachers and principals, who consider that buying from family farmers requires greater commitment, time and work and that their products are not always of good quality (school feeding councils in São Paulo and Paraná, farmers and managers from Paraná). In addition, it was reported that often different departments in

municipal governments do not consult each other when organizing public purchases, which creates problems and challenges. In all states, school feeding councils were regarded as not very active. Thus, the potential of these councils as platforms for debates, dialogue and problem solving is underutilized.²

The analysis in the previous paragraphs points to two strategies to improve the inclusion of family farmers in public purchases for school feeding: training of the actors involved, and intersectoral dialogue. Regarding the first strategy, many municipalities highlighted the importance of educating nutritionists, cooks, councillors, managers, rural extension workers and farmers about the legislation, and train them to motivate themselves and work together. Municipalities organized training sessions in partnership with various bodies (Collaboration Centres on School Food and Nutrition or CECANEs, universities, non-governmental organizations, etc.), or on their own. With regard to intersectoral collaboration, municipalities collaborated with departments of agriculture, health, education and administration, among others, to solve several problems. A school manager from Paraná stated “this engagement, the willingness to act and teamwork make all the difference.”

As far as the **organization of supply** is concerned, four themes were considered: planning, administrative and bureaucratic aspects, and financial and personnel issues (see also Chapter 17 of this book for analysis of the challenges related to the organization of supply in Latin America).

Regarding the **planning** of the supply by family farmers, several challenges were identified. Some are difficult to resolve, such as the impact of severe weather events, which invariably affect food production and occasionally lead to crop failures and irreparable losses for family farmers. Nature’s impact on agriculture has repercussions in terms of product quality, the regularity of supplies and the diversity of supply. In all states, school feeding managers, nutritionists and rural extension workers mentioned these difficulties, which result from family farmers’ small scale of operation and inability to diversify supplies for school feeding. Respondents stated that family farmers are insufficiently organized among themselves, and that they fail to rationalize their production and resist adjusting their production methods

² A study for the State of Paraná (Triches and Kilian, 2016) found that in most municipalities where purchases of family farming products were greater, school feeding councils were more active.

to the demands of the institutional market. Many respondents argued that family farmers are individualists who are not used to forming associations or cooperatives; this is seen as an impediment to their access to the institutional market, as such organizations would facilitate the planning of *inter alia* production, logistics and sales transactions.

In many cases, the formation of informal cooperatives, associations and groups or the incorporation of farmers into the existing was found to improve family farmers' access to the school feeding market. The formation of such organizations is encouraged by PNAE regulations and favoured by school feeding managers, as they help farmers collaborate, expand the range and quantities of products offered, minimize the costs of logistics and shift administrative and bureaucratic burdens away from farmers to other actors (e.g. staff members of cooperatives and associations, or service providers).

With regard to **administrative and bureaucratic** aspects, it was found that farmers face difficulties to obtain a declaration of aptitude from Pronaf, which is one of the documents farmers need to participate in public calls for school feeding purchases. Another obstacle mentioned concerns about the different health, environmental and fiscal laws that govern agricultural and agro-industrial operations. Many family farmers lack the knowledge necessary to formalize their operations. For example, how would they formalize an operation that processes dairy products, or one that produces bakery products? Often, family farmers do not understand the different health requirements and registration processes; even if they do, family farmers may not consider formalization of their operations as advantageous, as it may not be financially rewarding to adjust their production methods. This applies to organic certification, too. Some municipalities were found to purchase organic products, but these products were not always officially certified. Family farmers indicated that they had difficulties obtaining organic certification (even through participatory certification processes).

To overcome administrative and bureaucratic problems, family farmers were found to pursue partnerships with universities, Embrapa, rural extension agencies and the Brazilian Micro and Small Business Support Service (Sebrae). These partners provide knowledge and information, help farmers prepare documentation to obtain organic certification or pass health inspections, assist them in the formation of informal groups to participate in PNAE, etc.

One of the problems in the organization of demand is the scarcity of **financial resources**, which is especially pronounced in the organization of supply. According to family farmers, the costs of inputs and of logistics (transportation, packaging, storage and taxes) strongly influence the price of final products. Family farmers reported that the prices they receive for their products, as well as the revenues they could reap on institutional markets, are low; hence, it is not always financially interesting for them to participate in these markets. This may explain, in part, the scarcity of family farming suppliers and products complained about by managers, nutritionists and school feeding councils. Despite these challenges, many farmers start to invest more in logistics, mainly to be able to meet the demands of this market in terms of deliveries. To this end, some farmers apply for loans. A family farmer from Santa Catarina stated “the cooperative had to adapt to be able to supply school meals. We had to rent a shed for storage and buy trucks to deliver the food.”

Finally, issues related to **personal relationships** were observed, such as political conflicts and disagreements, farmers’ distrust of the state, precarious rural extension services and a lack of communication between family farmers and school managers. It is generally known that politicking often tacitly influences the implementation of policies (who they target, who they benefit and how efficient they are). Personal relations around political issues can therefore lead to a greater success of school feeding policies or, contrarily, hollow them out in municipalities.

Many family farmers are concerned about the susceptibility of institutional markets to political influences. The history of their relations with the state, and its unstable policies, has taught family farmers that depending on the state can be very risky for the sustenance of their family, and makes them distrustful of state interventions. This may also explain, at least partially, their decisions as to whether to join associations or cooperatives. The distrust is even greater for unknown markets. Family farmers are mostly familiar with informal markets; they also often use intermediaries to sell their products, and are not much involved in sales. As a result, farmers do not always know the rules and requirements of PNAE, and are thus unable to access the PNAE market. Even if farmers are familiar with the requirements of PNAE, they may be so disconnected from the everyday life of the farmer’s family that they are discouraged from participating in the market.

It is therefore important to help farmers understand PNAE and boost their trust in the state. Several municipalities invited family farmers to participate in activities to motivate and inform them and assist them in the production, processing and marketing of their products; these efforts boosted their confidence in PNAE purchasing process. A manager from Rio Grande do Sul stated “it is a long path of a lot of dialogue, of trust, too, because we have to reassure the farmers we want to call upon that they are going to be paid, that they can negotiate with the city.”

A final issue for this section is the universally (with the exception of Rio Grande do Sul) observed precariousness of rural extension services and their failure to promote the organization of producers. Rural extension services are crucial to the implementation of Article 14. Indeed, the providers of rural extension services act as mediators for the integration of family farmers in PNAE by bringing together producers and managers. They also provide technical knowledge for production purposes and economic knowledge for sales. Farmers in Santa Catarina stated “more technical assistance is needed, because we lack it.” Several family farmers argue that they do not receive sufficient assistance for the production and marketing of their products from technical assistance and rural extension (ATER) agencies. State-level ATER officers themselves acknowledged that their agencies lack personnel and other resources.

In conclusion, there are a number of difficulties that hamper the integration of family farmers as suppliers in PNAE; to overcome these difficulties, interventions are required in both the dimensions of demand and supply. While each context is unique, the common points in the various experiences analysed indicate that success requires sound legal frameworks and actors with agency power (Long, 2007), i.e. actors who succeed in changing structures and institutions using their own strategies. While there have been changes in the legislation governing PNAE, and the behaviour of the actors involved to a large extent determines the efficiency of the process, the permeability of the state is essential to the success of PNAE. PNAE must be complemented by policies and legislation on health, fiscality, organic certification, financing, rural extension, etc. This need for accompanying measures has hitherto been neglected.

16.4 The National School Feeding Programme's efficacy at promoting food and nutrition security for farmers and students

It is important to analyse how effective PNAE has been at reaching its objectives. In other words, does PNAE improve food and nutrition security for those involved? To answer this question, this chapter aims to establish whether access to the PNAE market provided financial security to family farmers. According to the family farmers themselves, PNAE provides security and stability in terms of income. However, it did not result in a substantial increase in incomes because of the sales limit set by law (BRL 20 000 per year per registered farmer)³ and because prices are not always attractive. This information corroborates other studies (Triches and Schneider, 2010; Bevilaqua and Triches, 2014; Sziwelski *et al.*, 2015) that demonstrate the economic benefits for family farmers of accessing institutional markets. However, more quantitative analysis is needed to verify what these benefits mean exactly.

PNAE was conceived as a policy to open up formal markets to family farmers and thus provide them with a complementary income; the aim was to reach as many family farmers as possible. Hence, a limit was imposed on the sales value for individual farmers. It is estimated that only 28 216 family farmers – 1.3 percent of all family farmers in Brazil – sold to PNAE in 2013 (United Nations Development Fund, 2015). Thus, the impact of PNAE in terms of the financial security of family farmers, and hence their food and nutrition security, is still limited.

To evaluate the impact of PNAE in terms of the food and nutrition security of pupils and students, the types of family farming products purchased through public calls were analysed. Since family farmers mostly produce fresh or minimally processed products, the degree of processing of the purchased products was analysed, to verify whether they are beneficial to the health of pupils and students and correspond to family farmers' production.

³ The limit of BRL 20 000 per farmer, with a declaration of aptitude, was imposed by *Resolução/CD/FNDE N° 26, de 17 de junho de 2013* (Resolution/CD/FNDE No. 26 of 17 June 2013), which was modified by *Resolução/CD/FNDE N° 4, de 2 de abril de 2015* (Resolution/CD/FNDE No. 4 of 2 April 2015) to allow family farmers to supply to as many executing entities as possible (within the income limit that qualifies them as family farmers).

It was found that more than 80 percent of public calls in all states included fresh products. However, 71.9 percent and 62.8 percent of the products purchased in Rio Grande do Sul and Santa Catarina, respectively, were (highly) processed products.

These findings lead to three important considerations. The first consideration concerns the ability of family farmers to add value to their products (e.g. by processing) and thus augment their incomes. This study and others (Triches and Baccarin, 2016; Triches and Schneider, 2012) indicate that family farmers find it hard to comply with sanitary and fiscal rules for processed products. The dominance of (highly) processed products in purchases in Rio Grande do Sul and Santa Catarina may indicate that family farmers in these states are better able to comply with these rules.

The second consideration is that the predominance of highly processed products may not be compatible with family farming, and may therefore indicate an incongruity between the demand of executing entities and the supply of family farmers. This hypothesis must be tested in other studies, as the analysis of the correspondence between demand and supply requires an evaluation of what is produced in each location (municipality).

A third consideration refers to consumption patterns. Indeed, one of the objectives of purchasing from family farmers is to serve less processed foods with a better nutritional quality to pupils and students (see also Chapters 4, 5, 6 and 29 on related topics). The purchasing of highly processed products would frustrate this objective. Other studies have been carried out in the same states to evaluate the quality of school meals that include family farming products; these studies found that purchases from family farmers scored better than those from conventional suppliers through bidding processes, both in terms of nutrition (Fuhr and Triches, 2016) and in terms of purchased quantities of recommended products, as opposed to those of controlled ones (Soares *et al*, 2013).

In conclusion, the research described in this chapter has demonstrated that Brazil's programme for home-grown school feeding or PNAE has improved the food and nutrition security of both types of its beneficiaries, namely family farmers and pupils and students. However, a number of challenges must be addressed to ensure the programme's efficacy at achieving this objective.

16.5 Conclusion

The new legal framework of Brazil's PNAE, installed in 2009, has led to an increase in public spending on family farming products. In 2016, almost BRL 1 billion were spent to purchase these products. However, the number of family farmers that sell products to PNAE is still limited; it could be higher if all executing entities complied with the provisions of the law.

This chapter sought to evaluate the efficiency of PNAE's purchasing modalities in a number of states in the South Region and Southeast Region of the country, showing how social actors in municipalities in these regions have dealt with difficulties. It was found that a large part of the difficulties identified could be overcome through strategies of the different social actors. However, the resolution of many other issues was found to depend on actions by the state. Other regulatory frameworks should be revised to make PNAE more successful in this regard. For example, ATER should be more structured and committed to family farming, health regulations should better reflect the realities of family farming and organic and agroecological products should be promoted more. Willingness on the part of the state plays a major role in making the necessary changes to PNAE's legal framework and in creating an enabling political environment to support such changes.

This chapter has shown that the purchasing of family farming products under PNAE has had a positive impact upon the food and nutrition security of both types of beneficiaries: it has boosted farmers' incomes and provided healthier, more nutritious, less processed and ecological foods to pupils and students.

Further longitudinal research should be carried out to evaluate the programme; this could generate more support for the programme as an important strategy for food security and the respect of human rights, not only in Brazil, but at the global level. Research efforts that corroborate the findings of this chapter may help build a permanent and consolidated policy that may be applied to other public food procurement processes as well.

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17 HOW CAN POLICY ENVIRONMENTS ENHANCE SMALL-SCALE FARMERS' PARTICIPATION IN INSTITUTIONAL FOOD PROCUREMENT FOR SCHOOL FEEDING? EMERGING INSTITUTIONAL INNOVATIONS AND CHALLENGES IN LATIN AMERICA

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ABSTRACT

Institutional food procurement for school feeding (IFPSF) – more recently called home-grown school feeding (HGSF) – plays a pivotal role as a social protection policy and as a strategy to effectively implement people's right to adequate food. Initially developed as a policy to guarantee access to food for children in vulnerable situations, IFPSF has also become a way to stimulate the development of small-scale family farmers. By relying on local production, IFPSF may boost territorial development and thus increase producers' incomes and protect their livelihoods, highlight the cultural relevance of foods and promote healthy diets. The recognition of family farmers as social actors (or “policy entities”) enables the creation of effective linkages between policies for rural poverty reduction and policies for market-oriented development – as is the case in IFPSF programmes. However, these programmes face challenges in terms of institutional development. This paper identifies some of the most relevant challenges and analyses institutional innovations that have been developed recently in Latin American and Caribbean countries to tackle them.

17.1 Introduction

It is estimated that worldwide, nearly 500 million farmers operate farms of less than 2 hectares (Lowder, Scoet and Singh, 2014). The majority of people living under the poverty line are believed to live on small farms (International Food Policy Research Institute [IFPRI], 2005). In Latin America, around 60 million people live and work on small-scale farms. These farms make up nearly 81.3 percent of all agricultural units in the region; they account for 27 to 67 percent of overall food production (Food and Agriculture Organization of the United Nations [FAO], 2014, 2019) and generate nearly 60 percent of jobs in the agriculture sector (Sabourin, Samper and Sotomayor, 2014).

At the same time, however, small farmers face the highest rates of poverty and food insecurity in the region (ECLAC, 2018). Strategies to reduce rural poverty that rely exclusively on farm intensification and increases in productivity (such as those adopted during the Green Revolution) have been proved to be effective at raising living standards in, for example, extensive parts of Asia (Rosegrant and Hazell, 2000); however, they might not work well in Latin America, due to the region's specific institutional and developmental context. Whether a country context is conducive to agricultural growth having pro-poor effects depends on the country's stage of development, the (relative) weight of agriculture in the economy, the degree of industrialization of the agriculture sector, the type of products that small-scale farmers grow, the policy environment and the market systems that are in place (Hazell, Wiggins and Dorward, 2010).

In a number of Latin American countries, the pro-poor effects of agricultural growth have been found to be limited as a result of inequitable land distribution and a marked difference between large and small-scale policies (Hazell, Wiggins and Dorward, 2010). In most of these countries, the prevalence of small-scale farmers and their contribution to societal challenge has gained wide recognition as the family farming paradigm has become increasingly popular. The use of the terms "family farmers" or "family production units" to denominate small-scale producers is not just a matter of nomenclature; it also has conceptual and theoretical implications (Schneider, 2016). The recognition of the importance of family farming led to the declaration of 2014 as the International Year of Family Farming by several United Nations organizations. The successful conclusion of this International Year in turn

resulted in the proclamation by the United Nations General Assembly of the decade from 2019 to 2028 as the United Nations Decade of Family Farming.

These developments illustrate the growing recognition of family farmers not just as food providers, but as crucial actors who help build sustainable and resilient production systems capable of coping with environmental shocks (United Nations Environmental Programme [UNEP], 2011) and ensuring food and nutrition (International Fund for Agricultural Development [IFAD] and UNEP, 2013). Family farmers, as a social category, can play an active and strategic role in processes of rural social change (Schneider, 2014).

The recognition of the importance of the role played by family farmers in society started in Brazil at the end of 1990s, and has since influenced institutional and policy agendas in most countries in Latin America. Indeed, several countries in the region have put in place laws, policies or programmes that specifically target family farmers. One of these strategies – institutional food procurement for school feeding (IFPSF)¹ – is being used in almost all Latin American and Caribbean (LAC) countries to enhance family farmers' linkages to local markets and thus boost local socio-economic development (see Chapters 2, 8, 9, 10, 11, 12, 14, 15 and 16 for analyses of the Brazilian experience, and Chapters 6, 9, 28 and 29 for experiences elsewhere in Latin America). There has been extensive research into the characteristics, drivers and challenges of these programmes, e.g. by FAO (see Swensson, 2018; Kelly and Swensson, 2019; Miranda, 2019). This paper focuses on the emergence of innovations that help family farmers cope with the requirements imposed by IFPSF and associated new challenges (see also Chapter 16).

17.2 Family farmers' linkages to formal markets

Family farmers engage with many interrelated markets, but still face enormous challenges in securing market access and eliciting benefits to support healthy livelihoods (Committee on World Food Security, 2015). To tackle these challenges and address the problem of rural poverty, systematic, market-oriented and sustainable

¹ More recently called home-grown school feeding.

approaches to agricultural growth and to agricultural intensification are needed (IFPRI, 2005). Market-oriented approaches are gaining popularity in the international development world. Markets are not abstract systems that equilibrate supply and demand, but rather differentiated socio-economic entities that are structured and governed in specific ways. Turning market-oriented approaches into concrete possibilities for family farming requires the construction of adequate socio-material infrastructures and the adaptation of legal frameworks that govern the transactions and circulation of food products in a way that favours family farming (Van der Ploeg, 2012).

According to Nehring, Miranda and Howe (2017, p. 1), institutional markets are a “set of initiatives that stimulate long-term demand through the procurement of smallholder production for distribution to vulnerable populations through food assistance programmes.” A characteristic of institutional demand is its explicit focus on state ownership of the design and implementation of procurement policies. Another characteristic is the search for synergies between actions to boost smallholders' production capacities and those to help people facing food insecurity. The agricultural component should focus on improving market access, increasing profits, providing price support and encouraging productive investments. Meanwhile, the social protection component should concentrate on providing consumption transfers to the poor to reduce their vulnerability and risk and ensure their basic rights (as does school feeding assistance, for example) (Nehring, Miranda and Howe, 2017). By combining agricultural development with social protection goals, institutional demand promotes pathways for the reduction of poverty and malnutrition.

To realize the potential of IFPSF, supporting policies and strategies are required that place family farmers at the centre of agricultural transformation. An exemplar of such policies and strategies is the Brazilian Government's Zero Hunger (Fome Zero) programme, which involves coordination between various ministries (Kelly and Swensson, 2017). The programme has three pillars - access to food, strengthening family farming and social mobilization and accountability - under which policies, programmes and resources for rural development and social protection are combined.

Two programmes within the Zero Hunger strategy, the National School Feeding Programme (PNAE) and the Food Purchase Programme (PAA), highlight the notion that both the demand and the supply side of the chain need to function well for the

overall strategy to be successful. The development of the Zero Hunger programme required a years-long consultation process. For seven years, until the approval of the programme, the National Policy of Technical Assistance and Rural Extension (PNATER) and its National Programme of Technical Assistance and Rural Extension (PRONATER) organized negotiations to this end. In most Latin American countries, policies and institutional infrastructure for IFPSP are recent or still under development (see Table 1).

17.3 The policy and institutional environments of family farming

FAO defines family farming (including all family-based agricultural activities) as:

A means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production that is managed and operated by a family and predominantly reliant on family labour, including both women's and men's (FAO, 2014, p. 26).

Common elements in the definitions of family farming in all LAC countries are the size of the production unit (small), the family management of production, the generation of agricultural income for the family, and reliance on family labour (Sabourin, Samper and Sotomayor, 2014). However, these criteria are interpreted differently in the various countries as a result of differences in ecosystems and production systems and – perhaps most importantly – of differences in social movements and their power to lobby governments.

The interaction between governments and social movements has led to several processes that aim to formulate a definition of family farming, ensuring its inclusion in sectoral and intersectoral agendas, and implementing specific programmes. The Specialized Meeting on Family Farming (REAF) of Mercosur member countries has been one of the forerunners in the region in the definition of family farming and the design of focused policy instruments. Several LAC countries have enacted specific laws on family farming or included the category of family farmers in laws or sectoral agendas; this provides a basis for funding and investments in programmes for poverty reduction. However, to date, most normative and technical instruments are still under development (see Table 1).

Table 1 **Legal and institutional framework for family farming and public food procurement for school feeding**

COUNTRY	LEGAL FRAMEWORK	INSTITUTIONAL FRAMEWORK	INTERVENTIONS AND PROGRAMMES
ARGENTINA	Law No. 27.118 and Resolution 330-2017 (which creates a label for family agriculture).	Secretariat for family agriculture (under the Ministry of Agriculture, Livestock and Fisheries) and the national coordination for family agriculture (under the National Service for Agri-Food Safety and Quality or SENASA).	Registry of family farmers and label for family agriculture. Programme to improve market access for family farming.
COSTA RICA	Agreement N°001-2018-MAG (which contains provisions regarding differentiated policies for family farming and the setting up of a voluntary registry of family farmers).	Ministry of Agriculture and Livestock and National Council for Production.	
ECUADOR	Organic law on rural lands and ancestral territories (2016), organic law of the food sovereignty regime (2008); organic law on school feeding (2020).	Ministry of Agriculture and Livestock (sub-secretariat for family farming).	The CIALCO project on alternative marketing circuits, registry for family farmers and label for family agriculture.
EL SALVADOR	Law on family agriculture (currently in the formulation stage). Law on public administration procurement.	Ministry of Agriculture and Livestock.	
HONDURAS	Agreement No. 286-2016 (setting up the National Public Commission of Family Agriculture), Law 025-2016 on school feeding, national strategy for family agriculture (currently in the formulation stage).	Ministry of Agriculture and Livestock, unit for family agriculture.	National strategy for family agriculture (under construction), voluntary registry of family farmers, school feeding programme.
GUATEMALA	Decree No. 16-2017 on school feeding.	Vice-Ministry of Rural Economic Development.	Family agriculture programme to strengthen the peasant economy (PAFFEC) 2016–2020.

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Table 1 <<<

COUNTRY	LEGAL FRAMEWORK	INSTITUTIONAL FRAMEWORK	INTERVENTIONS AND PROGRAMMES
PARAGUAY	Law No. 6286 on rural family agriculture (2019).	Ministry of Agriculture, directorate for family agriculture.	School feeding programme, registry of family farmers, label of family agriculture, family agriculture programme to strengthen the peasant economy.
PANAMA	Law 127 on family agriculture (2020).	Ministry of Agricultural Development.	Study without Hunger programme (which will be broadened and included in social development). National plan on family farming (in the process of being enacted).
PERU	Law No. 30355 on the promotion and development of family agriculture (2015).	Ministry of Agriculture and Irrigation.	School feeding programme.
DOMINICAN REPUBLIC	Resolution No. RES-MA-2016-14 defining family agriculture and adopting the goals of assisting family farmers and promoting their organization.	Ministry of Agriculture. Advisory council on family agriculture.	

Source: Argentina, Ministry of Agriculture, Livestock and Fisheries, 2020; Costa Rica, National Production Council, 2020; Ecuador, Ministry of Agriculture and Livestock, n.d.; FAO, 2017, 2021; Honduras, Ministry of Development and Social Inclusion, n.d.; Guatemala, Ministry of Agriculture, Livestock and Food, 2020; Paraguay, Ministry of Agriculture and Livestock, 2018; Panama, Ministry of Agricultural Development, 2019; Peru, 2020; Dominican Republic, Instituto Nacional de Bienestar Estudiantil, 2020.

Many LAC countries have developed an official definition of the concept of family farming for use in public instruments (see Table 1). However, few countries have operational mechanisms that allow rural/agricultural information (e.g. information obtained through agricultural censuses) to be updated based on such a definition (Lowder, Skoet and Singh, 2019). This hampers the effective targeting of family farmers in agricultural development efforts. Efforts to date have focused on building consensus around the definition of family farming, the construction of information

systems for the identification and registration of farmers, and the design of specific policies and actions.

Institutional food procurement programmes, and in particular school feeding programmes, have accelerated the identification of family farmers by prioritizing and establishing minimum criteria for the sourcing of food from family farmers (e.g. 30 percent in Brazil, 50 to 70 percent in Guatemala, 70 percent in the Dominican Republic). These programmes require structures for coordination between institutions in the agriculture, education and economy sectors. To satisfy the institutional demand for products from family farming, family farmers' capacities to meet formal market requirements (in terms of quality, volumes, timing and administration) must be strengthened.

To work around the problem of out-of-date definitions of family farmers in agricultural censuses or surveys, IFPSF programmes use innovative instruments (such as voluntary family farmer registries) to identify recipients and analyse productive and territorial dynamics; the use of such instruments should lead to a more efficient, effective and fair use of public resources.

Countries in the Southern Cone, including Argentina, Brazil, Chile and Uruguay, have been pioneers in the use of voluntary registration systems to implement policies that strengthen family farmers' resources and capacities. Such policies include interventions related to financing and banking, insurance, access to productive inputs or basic services, farmer markers or the payment of farmers for environmental services, developed and implemented in coordination with different actors of rural development (REAF, 2019). In all countries in the Southern Cone, laws related to family farming establish registry systems; these systems are managed by the ministries of agriculture and/or rural development and require technological infrastructure. In Central America, countries such as Panama and Costa Rica are attempting to follow this model (their systems are currently still under construction).

Registry systems are linked to another innovative strategy, namely the development of family farming labels. These labels certify the origins of food and incentivize producers to comply with food safety and quality regulations. The labels create opportunities to access markets other than the public procurement market and sensitize consumers to the family farming origin of food. Figure 1 presents some examples of family farming labels.

Figure 1 Family farming labels in different Latin American countries



1. © Brazil, Ministry of Agriculture, Livestock and Supply; 2. © Argentina, Ministry of Agriculture, Livestock and Fisheries; 3. © Ecuador, Ministry of Agriculture and Livestock; 4. © Chile, Ministry of Agriculture, Institute of Agricultural Development; 5. © Paraguay, Ministry of Agriculture and Livestock; 6. © Bolivia, Ministry of Productive Development and Plural Economy; 7. © Colombia, Rural Development Agency.

Other countries such as Guatemala, El Salvador and Honduras identify family farmers to supply IFPSF programmes by cross-referencing information from producers' databases from the ministries of agriculture with the criteria that define family farmers.

Another strategy to strengthen family farming is the development of alternative marketing circuits through territorial organizations (e.g. CIALCO in Ecuador or the farmers' markets in Colombia), with the support of local authorities or decentralized units of the ministries of agriculture (Chauveau, Lacroix and Taipe, 2013; FAO, 2015). These alternative circuits facilitate the identification of family farmers and the assessment of their production and marketing capacities. Alternative marketing circuits are still under development; their potential to facilitate the identification and strengthening of family farmers is likely to grow.

17.4 Matching the local food supply to children's nutritional needs

A valid way to galvanize the potential of local food production through IFPSF programmes is to broaden criteria for menu composition beyond nutritional requirements, to include requirements related to freshness, organic/agroecological production, and cultural relevance and acceptability (ECLAC, 2018). This opens up opportunities to diversify the food offered to users. In Brazil, Colombia, Panama and Uruguay, this shift has led to the incorporation of food-based dietary guidelines as a planning instrument and the creation of national or local committees (involving administrations responsible for health, education and agriculture) to establish menu criteria and purchasing specifications (such committees have also been set up in Guatemala and Honduras).

An interesting innovation in decentralized procurement schemes (such as the school feeding programme in Guatemala) is the creation of parents' committees as purchasing agents. These committees are responsible for designing the menus for school meals, taking into account local farmers' production profiles and seasonality, as well as local consumption habits and preferences. As a result, the acceptability of the food for children is improved, and food waste is reduced. In Honduras, IFPSF programmes operated in decentralized territories (*mancomunidades*) plan purchases according to the local supply. Quality and food safety requirements are defined by the Ministry of Development and Social Inclusion, with a focus on the nutritional requirements of children; the menus are defined in function of the fulfilment of these requirement by local production (Honduras, Ministry of Development and Social Inclusion, 2019). The creation of committees made up of parents links to another important innovation: the increasing incorporation of artisanal fishery and aquaculture products (recognized for their high nutritional value) in menus.

A complementary strategy to promote the inclusion of local producers in IFPSF programmes is the use of technical food cards with nutritional information on food baskets that meet the criteria of nutrition, cultural relevance and acceptability *and* can be procured locally, in public procurement processes (Miranda, 2018). An example is the annual planning of eligible products or groups of products (or their substitutes) in Costa Rica; this assists family farmers in the planning of their production and

the marketing of their products, thus helping them access institutional markets (University of Costa Rica, 2019).

Despite these innovations to expand the requirements for public food purchasing, there are as yet no evaluation mechanisms that generate evidence as to the improvement of the nutritional status of children or the contribution of local food to this. There is also no systematic evidence for the incorporation of new crops or the conservation of varieties or culinary practices (Argentina, National Service for Agri-Food Safety and Quality, 2019). Such information could guide actions not only to provide food to schools but also to promote the supply of food by family farmers (see also Chapter 29).

17.5 **Requirements imposed upon suppliers by institutional food procurement for school feeding programmes**

In order to satisfy the nutrition requirements of IFPSF programmes, family farmers must change their production and business models. For instance, school feeding programmes in Costa Rica use a list of 300 different food products; the food must be fresh, safe, diverse, culturally appropriate and nutritionally rich (University of Costa Rica, 2019). Suppliers must assure permanent and timely supplies of fresh foods, and maintain stocks for further processing. Producers should enhance their logistic capabilities to comply with the demands of volume and frequency, be able to store a large number of products in one physical location, and plan the delivery of foods to limit the number of transactions and trips. In addition, producers should have access to packaging and labelling services and offer products with a good price-quality ratio.

In most countries, IFPSF programmes demand that producers be formally registered as suppliers; the aim is to enhance not just farmers' production capacities, but also their administrative capacities (for registration, application, tendering, contracting, inspection). In many cases, registration requires certain types of permits, or is conditional upon the fulfilment of requirements related to operation and distribution.

It is clear that isolated family farming units are unable to meet the production and management demands of IFPSF programmes. Organization of family farmers and

collective actions therefore constitute an important strategy to expand the volumes offered, implement quality controls, comply with the administrative and management requirements of IFPSF programmes and even create new social rules that help guarantee compliance with standards and requirements. Enhanced organization and collective action require long-running, coordinated efforts to boost capacities and improve farmers' access to resources. Brazil is one of the few countries in the LAC region whose government was able to ensure coordination between institutions and structured policymaking to undertake such efforts (Swensson, 2019; Van der Ploeg, 2012). Alternative approaches to dealing with these demands are emerging in the region.

One approach is to promote the integration of family farmers' associations that already operate in farmers' markets into institutional markets. An example of this approach is Ecuador, where the development of alternative marketing circuits for family farmers (under the CIALCO programme) has been accompanied by a programme for associative marketing that improves farmers' capacities in production planning, protocols for postharvest and quality control, collection and distribution, as well as administrative and financial management (Chauveau, Lacroix and Taipe, 2013).

Another example is decentralized purchasing in Honduras and Guatemala, which takes advantage of the proximity between family farmers and schools. This proximity allows schools and parents' committees to determine local farmers' supply capacities and plan the menus accordingly. Meanwhile, producers can adjust their production activities to the demand for school food according to their capacities and resources, with logistic and/or technical assistance from local governments.

17.6 **Technical assistance and incentives required by producers**

The issuance of legislation to strengthen family farmers and the opening up of institutional markets such as the market of IFPSF represent an opportunity for development. To seize this opportunity, it is essential to develop programmes that strengthen family farmers' production capacities and provide financial or non-financial services to them; such efforts will help family farmers produce and supply healthy, high-quality food.

To guarantee the supply of healthy food, the production environment (soils, water, seeds, inputs and practices) must be also healthy. Although family farming systems generally have low environment impacts, they are highly vulnerable to soil and water degradation and to the impacts of chemical input use, which affects the quality and quantity of harvested crops. Family farmers are also highly vulnerable to price fluctuations and evolutions in markets (ECLAC, 2018).

Against this background, efforts to provide technical assistance, incentivize family farmers and introduce innovations in the LAC region have focused on the transition of farming systems to agroecological systems, and the identification of barriers and the monitoring of progress towards this transition. The ultimate aim of these efforts is the promotion of the development of healthy and diversified production systems (FAO, 2019). Certain countries have started incorporating this transition into their policies. An example is the Central American Climate-Smart Agriculture Strategy of the Central American Integration System, which focuses on productivity, adaptation to climate change and risk mitigation. As yet, no impact evaluations of the strategy have been conducted.

Stimulating the transition towards agroecological systems often involves revitalizing traditional knowledge and practices, and promoting mechanisms for self-management and the exchange of knowledge at the local level. It may also involve developing and introducing innovative technologies to monitor and access information. In other cases, it entails developing and promoting the adoption of new agricultural practices.

To help family farmers access the market of IFPFS, production plans must be improved to take account of the requirements for diversity, quality and seasonality of IFPFS. An interesting practice to comply with quality and food safety standards was developed in the Dominican Republic, El Salvador and Honduras. These countries use technical food cards for school feeding, based on food groups; the cards provide information on foods (including local and seasonal products) that allows producers to improve their quality controls. The food cards create possibilities to link IFPFS to diversified and local production, and take advantage of skills already developed by family farmers.

Family farmers wishing to secure IFPFS contracts must meet the requirements of IFPFS in terms of volume, collection and supply protocols, logistics and administrative management. Certain countries (including Argentina, Brazil, Chile, Ecuador, Guatemala,

Honduras and Paraguay) have incorporated modules that aim to improve market access in their technical assistance or rural extensions programmes. These modules promote an innovative and associative approach to marketing, and in some cases foresee the provision of equipment (such as scales, baskets or packaging) or infrastructure (e.g. collection centres). However, in most cases, assistance is insufficient or scattered, and does not capture the particularities of the IFPFS market. In some cases, the provision of assistance negatively affects the agency of producers, and the transition process becomes dependent on external assistance.

Food quality and safety standards comprise one of the main barriers to family farmers' access to IFPFS markets. Argentina has developed an innovative strategy to mainstream animal and plant health and food safety and quality procedures in family farming systems, *inter alia* by harmonizing sanitary norms for family farming. The strategy aims to improve family farmers' production and processing practices with regard to food quality and safety, thus creating new marketing opportunities for family farmers while at the same time strengthening the national food control system (Argentina, National Service for Agri-Food Safety and Quality, 2016).² It has been found that family farmers' poor compliance with food safety and quality norms is related to a lack of knowledge about their obligations and responsibilities (Argentina, National Service for Agri-Food Safety and Quality, 2019); this lack of knowledge results from the insufficient dissemination of information about these norms and divergences in interpretation. In addition, compliance with current food safety and quality requirements requires farmers to invest in their farms, obtain professional technical assistance and purchase supplies and laboratory services, all of which are highly costly.

To help farmers comply fully with food safety and quality standards, and avoid the duplication of requirements, the Argentinean authorities have developed several actions, including:

- provision of training to technicians and producers and the dissemination of information on food safety and quality regulations (and their modifications), with a focus on family farming;

² Plan de Gestión Institucional del Programa de Agricultura Familiar (Institutional management plan of the programme for family agriculture), approved by way of SENASA Resolution No. 607/2015.

- focus and adjust efforts to promote compliance with food safety and quality regulations to the realities of family farming;
- participatory design of specific protocols to guarantee food safety throughout the procurement process;
- harmonization of family farmer registries and sanitary registries to exempt family farmers from the payment of fees, as an incentive for compliance with protocols.

The provision of adapted technical assistance to improve family farmers' access to institutional markets is important, but not sufficient. Indeed, the structure and requirements of contractual processes – and the time and financial costs they entail – often make it impossible for family farmers to take advantage of these market opportunities. Several LAC countries (most of them participating in REAF) have deployed actions to overcome such administrative barriers, including the:

- simplification of registration and public tendering processes, and the waiving of fees for registration in registries of family farmers or proven providers;
- development of differentiated tax registers that facilitate the formalization of family farmers' associations, thus enabling them to participate in purchasing systems;
- development of inclusive mechanisms for public purchasing from family farmers' associations or local producers (discounted dues, priority on the eligibility list, rotation between suppliers).
- provision of credit to family farmers by public banks, whereby contracts with the public sector as accepted as guarantees.

These measures can only be effective if there is permanent collaboration between institutions. In addition, compliance with food safety and quality requirements should be sustainable for family farmers. If these conditions are met, the coverage of the measures can be expanded. Besides the REAF countries, other countries in the region have also undertaken actions to address administrative barriers; examples include the technical national roundtables on IFPSF in Colombia or the multisectoral school feeding committees (in which authorities responsible for health, agriculture and education participate) in El Salvador and Guatemala (Miranda, 2018).

17.7 Conclusion

As a result of the recognition of smallholders as social actors in the family farming paradigm, most countries in the LAC region have developed regulatory instruments that lay the ground for the inclusion of small-scale producers in public procurement, and especially in IFPFS. However, the results of specific programmes and actions that aim to achieve this inclusion are still unsatisfactory, and many of these interventions still need to gain speed. Several innovative solutions have been developed to promote the inclusion of family farmers in IFPFS markets, including:

- setting up of voluntary registries of family farmers, to allow for targeted implementation of actions;
- decentralization of efforts, to stimulate participation and appropriation by local actors and thus establish and reinforce trust relationships and ensure shared responsibility in IFPFS management; this improves the efficiency of IFPFS processes;
- development of instruments such as nutritional cards or food-based dietary guidelines for use in procurement, production and distribution;
- participatory adaptation and formulation of protocols to guarantee food safety and quality.

The implementation of these measures at a wide scale is often hampered by the unavailability of instruments to measure their impacts, as well as by the lack of coherence between policies and the absence of focalized investments to improve family farmers' capacities and resources.

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18 SUSTAINABLE AND HEALTHY SOURCING OF FOOD FOR THE PUBLIC PLATE: LESSONS LEARNED IN DENMARK

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ABSTRACT

Denmark has a long tradition of organic food and farming policies. Public organic food procurement for the one million meals per day that compose the public plate has become a cornerstone in these policies, and enjoys broad support among citizens. This chapter looks at the experiences gained over the past three decades. It looks at the history of organic food policy making at different governmental levels, and describes the mix of policy instruments that has been used to promote the inclusion of organic foods in the public plate (e.g. certification, education and statistical monitoring). In addition, the chapter looks into the associations between the public procurement of organic food and healthier eating practices. It gives an overview of how organic food procurement policies have been implemented in two selected examples of best practices, the cities of Copenhagen and Aalborg. Lastly, it attempts to identify some of the enabling and disabling factors considered useful to the creation of successful and replicable models.

18.1 Introduction¹

The production of food and agriculture has a significant impact on the climate and the environment, and addressing this sector is an important part of governmental climate mitigation and sustainability strategies. For governments at the local,

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regional and national levels, organic farming practices are of great importance as they directly influence soil quality, water supply, energy consumption, waste streams and biodiversity. They also impact on the potential for the recycling of animal and vegetal by-products and residues.

It is universally accepted that organic farming strategies can make a substantial contribution to a more sustainable food system. The idea that the public sector can make a major contribution to sustainable development in the food domain by adopting organic food procurement policies and practices, known as public organic procurement policies (POPPs), has been gaining strength (Fragkos and Mikkelsen, 2018). Public expenditure for the procurement of foods is a substantial part of the food economy. At the European level, the market for social food services is estimated to have an annual value of EUR 82 billion (Caldeira *et al.*, 2017). Public procurement, in general, is increasingly being recognized as an important way to influence the production regimes of societies (Preuss, 2009; Brammer and Walker, 2011). As a result, organic food procurement policies are increasingly being included as a component in food policies; they are widely considered to result in major contributions towards achieving more sustainable food systems.

The public procurement of organic food can be a way to increase awareness about organic food within general consumer markets. Public procurement is therefore an important component in general food and agriculture policies. If implemented correctly, the public procurement of organic food has the potential to increase access to nutritious and sustainable food for communities and citizens (Mikkelsen *et al.*, 2006; He and Mikkelsen, 2014). In many countries, the public plate is an important part of public service provision, and substantial amounts of public money are spent on food services in institutions such as hospitals, kindergartens, schools, nursing homes and government workplaces. Especially in countries where agriculture is an important part of the economy, it is increasingly recognized that the greening of the public procurement policy, in combination with the shortening of the supply chain, can make a positive impact on the development of local food economies (Wiskerke, 2009; Nijaki and Worrel, 2012; Mikkelsen, 2015; Mikkelsen and Lundø, 2016). POPPs are widely implemented in European countries; they are framed by a number of regulations and supportive documents (such as Directives 2014/23/EU, 2014/24/EU and 2014/25/EU of the European Parliament and of the Council).

The aim of this chapter is to look into experiences with public procurement policies as a part of organic food and agriculture policies in Denmark. It examines the history of POPPs and organic policymaking and policy implementation at different levels of government in Denmark. The chapter looks at the mix of policy instruments that have been used to promote the use of organic foods in the public plate, highlighting the role of metrics in policy development. The chapter then looks in detail at the experiences of POPPs in the cities of Copenhagen and Aalborg. Lastly, it identifies some of the enabling and disabling factors that can be useful to create successful and replicable models.

18.2 The case of Denmark

In Denmark, several policy components have been used to guide the inclusion of organic foods in the public plate (Fragkos and Mikkelsen, 2016). These components include top-level political decisions and support, a governmental grant programme, the adoption of an official statistical monitoring scheme and the introduction of innovative means and methods of training. In addition, the Danish Government and public governing bodies at lower levels have taken a series of actions to develop the organic food and agriculture policy over the past decades.

The Danish organic food and agriculture policy began taking shape in 1987; it has continued to develop since then. The components of the policy cover a wide range of actions such as the introduction of regulations for organic production, the establishment of an official state-backed organic certification scheme, support for education and training, the conversion of publicly owned land, special efforts to promote organic exports, the introduction of subsidies to motivate Danish farmers to make the switch to organic farming, and the establishment of an Organic Food Advisory Council (Mikkelsen and Lundø, 2016; Denmark, Ministry of Food, Agriculture and Fisheries, 2015; Food Nation, 2019).

The development has been founded on a partnership between a range of stakeholders in organic agriculture, including food producers, retailers, consumers, researchers, nature conservation organizations, control systems and government representatives from the ministries concerned. In 1995, the first Danish organic action plan intensified

attempts to promote organic food and agriculture in Denmark (Mikkelsen and Lundø, 2016). Today, it is estimated that more than 13 percent of total food retail sales concern sales of organic products, and that 11.3 percent of the arable land in Denmark is cultivated organically (Denmark, Ministry of Environment and Food, 2020).

Important components of policy actions have placed an emphasis on public food service and its procurement for a long time. As a result, it is estimated that approximately 800 000 citizens are being served organic meals every day in public canteens, hospitals and nurseries. As far as the out-of-home eating sector is concerned, close to 3 000 professional kitchens and catering outlets in Denmark (such as restaurants, hotels and canteens) have been granted the official Organic Cuisine Certificate, which means that the share of organic products in their overall food purchases is between 30 and 100 percent (Denmark, Ministry of Food, Agriculture and Fisheries, 2015). The focus on the public food sector as an “organic greenhouse” has, to a large extent, been driven by the wish to let the public sector set an example for more sustainable food practices (Mikkelsen, 2006; He and Mikkelsen, 2012) and to promote a healthier eating agenda for the public plate. Studies have shown that implementing organic food and nutrition policies in food service institutions often has positive ramifications and spin-off effects, for example on the nutritional quality of the food offered in the institutions (Mikkelsen, 2006; He and Mikkelsen, 2008, 2014).

The policy implementation efforts are reflected in the volumes of organic food in the public sector. These can be seen as a direct result of the Danish government’s prioritization and commitment to POPPs. After more than a decade of POPPs, support among the public is substantial (Mørk, Tsalis and Grunert, 2014). In 2018, Denmark was awarded the Future Policy Award of the United Nations. As mentioned in the introduction to this chapter, public food services are complex in nature. They are always “part of something else,” and the responsibility of three levels of government. This means that procurement officials buying food for *inter alia* schools and kindergartens, hospitals, nursing homes or army facilities are not necessarily coordinating their procurement efforts. This is perceived as confusing by farmers and primary producers, since it means that they have to do business with three different levels of government. Seen from the supply side, it means that there is not one “the public,” but rather three different kinds.

Table 1 illustrates the three government levels, the type of public food service offered at each level and some of the characteristics of the procurement practices.

Table 1 **Levels of government, types of food services and characteristics of procurement practices**

LEVEL OF GOVERNMENT	TYPE OF FOODSERVICE	CHARACTERISTICS OF PROCUREMENT PRACTICES
Municipality	Schools (including kindergartens)	Limited procurement volumes. Often produced on-site. In some cases, outsourced to third parties and governed by contracts.
Municipality	Nursing homes, meals-on-wheels	Large procurement volumes. In most cases, food services are operated as in-house services (i.e. not outsourced to third parties).
Region	Hospitals	Large-scale and centralized operations, with many satellite serving units.
State	Armed forces, universities, prisons	Large-scale operations. Often outsourced to third parties and governed by contracts.

Source: authors' elaboration.

Three components have played a major role in the organic transition of public food procurement in Denmark: training and workforce development, targeted communication to citizens and the statistical monitoring of progress.

Training and workforce development – a key to innovation

The idea that professionals can contribute to the implementation of important societal goals and prioritized agendas and policies is frequently referred to as workforce development (Hughes, 2008; Kugelberg *et al.*, 2012). It deals with strategies and interventions that aim to provide the knowledge, skills and competencies specific professions may need to change their daily practices. In the context of food services, training and workforce development efforts have been studied by Sørensen and Mikkelsen (2017) in a project including a sample group of 49 Danish public kitchens taking part in the Ekologika training programme.

The educational effort took the form of a three-day training programme based on experiential and problem-based learning approaches. The study monitored the share of organic products in overall food purchases for the kitchens and found that on average, the percentage of organic foods increased by 27 percent in the 49 catering units studied as a result of the implementation of the policies. It also found that the job satisfaction of food service workers increased and that knowledge and skills improved.

Sørensen *et al.* (2015) studied physical and psychological well-being at work, along with the beliefs and attitudes of kitchen staff before and after the organic food conversion training programmes. Although the study did not find substantial changes in physical or psychological well-being at work, it did observe a significant increase in kitchen staff's motivation to work.

Although the importance of the public plate as a research field has been growing, limited attention has been paid over the past decades to the need to develop and implement effective learning strategies. Indeed, it is not enough to develop detailed policies for the transition of public food services towards more organic foods; these policies must also be implemented in a way that makes sense at the level of food service practitioners and food service workers. The Danish case has shown that the workforce in the public food service sector plays a central role when it comes to changing the direction of public food strategies. To develop stronger, sustainable urban–rural relations, it is also important to reintroduce the “sense of food” into a sector that has been driven by industrialized approaches to cooking for many years. The EkoLogika programme has shown how the “artisan” approach to food and cooking can be brought back into food service production units.

Communicating with citizens – the role of certification

To allow food service operators (e.g. in restaurants, cafes, canteens, public institutions and other professional large-scale kitchens) to effectively communicate the fact that the food served is organic to their users/customers, the Danish Ministry of Food, Agriculture and Fisheries has developed and introduced, in 2009, an official certification system for food service units that serve organic products. The system was developed by the national food agency in cooperation with the different food

value chain actors. It works at the input level, in the sense that it measures what goes into food service units. The scheme issues three different “Organic Cuisine” labels: gold (90 to 100 percent of the ingredients used in the food service are organic), silver (60 to 90 percent) and bronze (30 to 60 percent). Food service operators apply for these levels of certification according to the percentage of organic ingredients used in their kitchen. The certification as such does not certify the final meals served in the food service unit. However, it has shown to be operational and easy to manage for food service professionals. The certification and the corresponding percentage are routinely controlled by the national food agency. These controls involve checking the invoices, since it is mandatory for all suppliers to divide their invoices into two columns, one for organic products and one for conventional products (measured by weight or value).

The system is suited for statistical analysis since the number of kitchens that have been awarded a gold, silver or bronze certificate is monitored along with the procurement volumes. The certification data cannot, however, be readily linked with the size of the kitchens, the procurement or the consumption. For this reason, the certification data cannot be used to measure the development of the volumes of organic food purchased; in addition, the data do not cover kitchens that market organic food services without using the certificate. Public institutions account for more than 2 300 of the 3 100 Organic Cuisine certificates in Denmark; the remaining 800 certificates are held by private canteens. Of these, restaurants and cafes account for nearly 200 labels, while hotels, catering centres, public schools and food markets account for the rest. It is estimated that the system has granted approximately 650 labels are gold labels, 1 261 are silver labels and 1 184 are bronze labels (Denmark, Ministry for Food, Agriculture and Fisheries, 2019).

Monitoring progress – the power of statistics

At the request of the Ministry of Environment and Food, an annual survey of the sales of organic products to food services has been set up as the metric for measuring progress under the POPPs. The data for the study are collected by Statistics Denmark, as part of its official statistics programme, from a questionnaire targeting food wholesalers. Data collection started in 2013 (Mikkelsen and Lundø, 2016).

The survey methods were developed by Statistics Denmark in collaboration with a reference group of market experts and with representatives from the Ministry of Environment and Food, Organic Denmark and the Danish Agriculture and Food Council. The questionnaire was tested in a pilot survey. The survey serves the purpose of policy benchmarking and provides policymakers with a complete picture of the effects of organic food and farming policies. The survey captures both business-to-business (B2B) and business-to-government (B2G) trade. This means that the study focuses on settings where food is served for out-of-home eating, as opposed to the sale of organic foods in the retail trade (B2B).

The data collection system is set up to exclude sales to other wholesalers or exports, as well as sales to retail stores. Organic food is defined as food that is certified as complying with the regulations for organic food and carries the national eco brand – the “Ø”- label. The survey covers sales to private food service operators as well as to the public sector. A kitchen is considered to belong to the public sector if the food prepared in that kitchen is served in a public sector institution, even if the daily operation is outsourced to a private company – a catering subcontractor. The survey covers food service wholesalers with an annual turnover of at least DKK 20 million. This model was chosen to limit the cost of data collection, since the number of procurement officials in the municipalities is much larger than the number of suppliers. The survey population is estimated to cover 90 to 95 percent of total sales to food service providers.

It is worth noting that the nature of the procurement interface is complex and involves the supplier, the food service unit and the procurers. There is no direct interaction between the food service units and the suppliers; the latter enter into agreements and sign contracts with public procurement officials. The result of the procurement process, which is based on a call for tender, is a contract in which procurement officials and food service managers agree on quantities, qualities and other conditions.

Approximately 850 wholesalers are covered by the data collection efforts, and the survey covers both traditional food service wholesalers and food service wholesalers of organic goods (Denmark, Statistics Denmark, 2019). Due to the official status of Statistics Denmark, participation in the survey is mandatory, and data on individual enterprises are treated according to Statistics Denmark’s data confidentiality policy.

The survey covers two main themes: overall food sales to the food service sector, and organic food sales to the food service sector. The sales of organic food to the food service sector are divided into categories of goods and types of eating, determined by the type of end user. Sales are categorized according to the following food groups: shelf-stable goods, dairy products/eggs, fruits/vegetables, meat/poultry/fish and frozen foods. To allow for the monitoring of progress in the different segments of the food service sector, the survey distinguishes between the following types of eating: canteens for government staff, canteens for the staff of private enterprises, hotels/restaurants/cafes, institutional food service units, and other types of eating. The questionnaire is available (in Danish) at www.dst.dk/food.

18.3 Best practice case study – Copenhagen

Since 2002, the food strategy of the municipality of Copenhagen has been to ensure that 90 percent of the ingredients used in the city's public food system are organic. In 2017, 88 percent of all foods purchased by the city to prepare meals were organic foods. The target of 90 percent was instituted by the municipal authorities as part of Copenhagen's sustainability strategy, developed in 2001. This strategy aims to secure cleaner drinking water for the citizens of Copenhagen, since many water sources in Denmark are contaminated with pesticides. The strategy also aims to strengthen the market for organic and, more generally, sustainable food through the city's food spending.

The 90 percent strategy is a dual effort to improve the skills of kitchen staff through training and simultaneously restructure procurement methods to ensure the purchasing of high-quality, organic ingredients. This dual effort requires coordination between the procurement team and the people responsible for the extensive training programmes that are implemented in kitchens throughout the city; the overall objective of these efforts is to supply better, more nutritious meals to the benefit of children, youths and the elderly alike. Major investments were required to improve the skills of public kitchen staff across a capital the size of Copenhagen. This process took many years and required input from several external consultants, as well as a high degree of determination on the part of the city's employees. Slow and steady wins the race, and over the years the city has seen that attitudes towards greener

menus have changed. Organic producers in Denmark are encouraged by their market share of more than 10 percent – a world record.

However, improving skills alone will not yield the desired results. Indeed, a deliberate and strategic approach to public procurement is essential to Copenhagen's success. Several of the inclusive techniques and approaches that were adopted in Copenhagen have produced positive results. One of these inclusive techniques is extensive market dialogue with both producers and wholesalers before and during the tender period, and a market monologue right after the publication of the tender material, to inform market players about the details in the tender material. All this information is published and remains available for everybody. A 2014 tender for seasonal and diverse fruits and vegetables not only helped raise the standards of the market, but also earned Copenhagen the Procura+ Award in the fall of 2016.²

Since 2018, Copenhagen's procurement team has been working on the development of new criteria for the procurement of sustainable fish, in collaboration with non-governmental organizations (NGOs) and the industry. Expectations are high that the new standards for sustainable fish – which target the protection of vulnerable species and specify fishing techniques that do not cause irreparable harm to the marine environment – will be a game changer.

In September 2019, the city council of Copenhagen approved a climate food action plan that aims to shift consumption further towards a plant-based diet and drastically reduce emissions from public food consumption. Future tenders directed at wholesalers will help fulfil some of these targets by making direct reference to the Sustainable Development Goals (SDGs) in contracts and linking the targets of the SDGs to a clear description of how progress towards achieving these targets will be monitored during the contract period.

The main lessons learned from the long-running efforts in Copenhagen is that, although changing both dietary habits and supply chains is laborious and incremental, the investment is well worth the reward, and the coupling of the two is essential. One of the innovative aspects of the organic food policy in Copenhagen is

² For more information on Copenhagen's Procura+ Award, see www.procuraplus.org/fileadmin/user_upload/Procura__case_studies/Procuraplus_case_study_Copenhagen.pdf

the project's broad aim of raising the quality of public food across the entire public system; the other innovative aspect is its novel approach to public food procurement. By necessity, organic procurement in Copenhagen reaches beyond the limits of the municipality and encompasses a wide network of wholesalers, producers and NGOs. Finding solutions to restructure the supply chain is not easy; it would be impossible without involving the other stakeholders or even know who they are. Visiting small-scale producers to learn about the way they run their businesses is key to finding solutions that work for everyone.

To research prospects for the procurement of sustainably caught fish, it is vital to speak to as many fishing companies, of varying sizes, as possible. In the spring of 2017, the procurement officers of the municipality of Copenhagen, together with the Ministry of Environment and Food, set up a national network for procurement officers specialized in food tenders. The aim of the network is to help food procurement officers from different public institutions, since food tenders are often more complex than other types of tenders. It is hoped that the network will promote the sharing of knowledge and best practices and thus allow the development of tenders based on plant-based menus and of new methods to reduce food waste in the supply chain. The whole approach adopted in Copenhagen, from changes in diets and meal culture to changes in procurement practices, depends entirely on inclusion. Anyone who has experience in developing public tenders knows that a contract is only ever as good as the end users perceive it to be; those who are wise include as many of those end users in the process as possible, to obtain good results.

The effects on the population of Copenhagen in regards to the transformation of the public food system towards greener menus is both tangible, in the form of changed eating habits, and imperceptible, in the form of slowly changing attitudes and awareness. The impact in terms of sustainability of the municipality of Copenhagen's gradual conversion to organic food is hard to quantify. A moderate appraisal of the municipality's yearly consumption of organic milk (roughly 1 854 125 litres) means that about 370 822 400 litres of ground water are prevented from being contaminated with pesticides, according to the calculation model that Organic Denmark has made publicly available on its website at:

<https://okologi.dk/viden-om-oekologi/rent-grundvand>

Other environmental impacts, such as increased biodiversity, improved animal welfare and avoidance of chemical fertilizers come on top of that. The impact that the municipality's active commitment to sustainable and organic procurement has had on the Danish food service market is obviously difficult to quantify; however, it is worth noting that the organic food service market has been experiencing significant growth in recent years (Denmark, Statistics Denmark, 2019).

The total turnover of the organic food service has multiplied by a factor of five since 2009. There is no doubt that the municipality of Copenhagen, through sheer quantities but also due to the combination of the clear political objective of 90 percent organic foods and a development-oriented approach, has contributed to this development.

18.4 Best practice case study – Aalborg

The city of Aalborg is the fifth-largest city in Denmark. It is the capital of the North Denmark (Nordjylland) region of the country, and the city and the surrounding region have traditionally played an important role in the Danish food economy. However, according to Statistics Denmark, agricultural production in the North Denmark region decreased by nearly 5 percent in 2015 as compared to earlier years. Furthermore, the region has been facing a continuous decrease in agricultural production over the last 30 years; production is currently more than 60 percent lower than in 1985, the baseline year (Denmark, Statistics Denmark, 2020). Therefore, there is strong interest in developing and implementing strategies that can boost the local and regional food economies. At the same time, there is also a strong interest in integrating procurement policies into climate change mitigation efforts, which are the responsibility of the region and its municipalities, including the city of Aalborg. Developing short food supply chains for the public sector is seen as a means to reach that goal.

Policymaking, and the implementation of sustainable food practices in the municipality of Aalborg, is led by the municipal Center for Green Transition. The centre includes a network for green retail, a network for sustainable business development in North Denmark, and a network for sustainable agricultural development. The centre's sustainability strategy sets a target of 60 percent for the share of organic foods in overall food purchases for municipal kitchens, canteens and institutions run by the

municipality of Aalborg, which is to be met by the end of 2020. Organic procurement is part of the municipality's efforts to support organic food and farming strategies.

The share of organic food in overall food purchases is calculated annually by municipal administrative staff. In 2017, the percentage for the municipality of Aalborg was 45 percent. There were 59 food service units with an organic food certificate in the municipality that year. Of these, 41 were institutions (with one gold, 35 silver and five bronze certificates), two were schools (both bronze), four were central production units (kitchens) for nursing homes (all with a bronze certificate), 11 were municipality canteens (with two silver and nine bronze certificates) and one was a cultural institution (bronze).

An important part of the development of organic public food services in Aalborg has been the city's participation in the EkoLogika training programme (Sørensen and Mikkelsen, 2017). A total of 400 food service workers participated in this programme. The central hub of which was the Aalborg public food development programme.

The organic policy efforts in and around the city of Aalborg were studied by Mikkelsen, Clausen and Nørgaard (2017). This study explores the potential of local and regional producers as suppliers to the diverse public food sector in the city and its surrounding region. The study particularly looked at the challenges related to the integration and coordination of the supply chain in a way that ensures that this chain meets the demands of the multitude of public food service consumers in Aalborg and the ten other municipalities that make up the North Denmark region.

The study zoomed in on one of the challenges facing public organic procurement, namely the fact that the responsibility for food services is spread across several levels of government. These different levels, and their corresponding types of food service, are illustrated in Table 1. The table shows that food services for the elderly and for the young (in schools and kindergartens) are operated by the municipalities, while food services for hospital patients are operated by the regions and food services for army facilities by the state. The study found that coordination in the form of regional and local food hubs is essential, in particular if public procurement is to make sense in the eyes of local organic growers and suppliers. Coordination also needs to take place at the level of suppliers, for instance in the form of supplier cooperatives. These forms of cooperation may allow local and regional suppliers and procurement officials to work together as partners in a local organic food economy.

18.5 Conclusion

The rise in organic procurement is not the only sign of the increased politicization of public food services. Food procurement policies, including organic ones, were until recently considered more or less placeless in the sense that their main focus was on the lowest price or, in some cases, on sustainability. However, there is now a growing interest in redesigning food supply chains to make them more local, with shorter distances from farm to fork. More and more, policymakers seem to realize that public procurement policies are a powerful tool that can be used to promote some of the SDGs, and that these goals can more easily be achieved in a local or regional food economy context. Planners for climate mitigation and environmental protection have come to realize that food production and consumption contribute to climate change, and that influencing procurement decisions may promote the implementation of climate change mitigation measures.

Overall, the case of public organic procurement in Denmark has shown that policy development and implementation is a complex process that involves a multitude of different stakeholders at different levels. Governments at various levels are important. At the national level, overall strategies must be developed. The Danish case shows that the essential components of effective policymaking to strengthen organic public procurement include labelling and certification, continuous and authoritative monitoring of organic volumes, the provision of seed money for the transition towards organic food services, and training and capacity building.

The Danish case also shows that both policy development and implementation cannot be carried out only by the public sector. The supply chain for the organic public plate involves not only public actors but also commercial and private ones. The Nordic tradition of working in a partnership to create multi-stakeholder governance has shown to be rather effective in this regard (Fragkos and Mikkelsen, 2016, 2018).

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19 HOME-GROWN SCHOOL FEEDING AND CHALLENGES POSED BY THE PUBLIC PROCUREMENT REGULATORY FRAMEWORK: AN ANALYSIS OF THE EXPERIENCE OF ETHIOPIA

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ABSTRACT

The multiple potential benefits of using the public procurement of food for schools as an instrument to support agricultural production by local smallholders – or home-grown school feeding programmes (HGSF) – are widely recognized. However, many countries still face various challenges related to the implementation of such programmes. Of particular prominence here are challenges related to the alignment of the programmes with regulatory frameworks for public procurement. Nevertheless, the debate about the role of public procurement regulatory frameworks in the design and implementation of HGSF programmes is poorly represented in the development literature, especially in contexts of developing countries. This chapter aims to contribute to this debate. It combines a discussion of the experience of Ethiopia with an analysis of the challenges created by public procurement rules and practices for the implementation and scaling up of existing HGSF initiatives.

19.1 Introduction¹

A considerable body of research literature and publications by international development agencies recognize the multiple potential benefits of linking school feeding programmes to agricultural production by local smallholders; these benefits have been confirmed by experiences in various countries (Morgan and Sonnino, 2008;

¹ This study benefited greatly from contributions made by Florence Tartanac (senior officer, FAO), Cristina Scarpocchi (project coordinator of project GCP/GLO/775/ITA, FAO), Shawel Moreda (national consultant, FAO Ethiopia) and Tecte Hagos Bahta (Professor of Law, Mekelle University, Ethiopia).

Sumberg and Sabates-Wheeler, 2010; Triches and Schneider, 2010; De Schutter, 2014; United Nations System Standing Committee on Nutrition [UNSCN], 2017; Food and Agriculture Organization of the United Nations [FAO] and World Food Programme [WFP], 2018; FAO, 2019; Valencia, Wittman and Blesh, 2019; Swensson and Tartanac, 2020). Under the so-called home-grown school feeding (HGSF) approach, public procurement of food for schools is used as an instrument to improve the livelihoods of smallholder farmers and local communities and to strengthen the nexus among nutrition, agriculture and social protection (FAO and WFP, 2018).

Ethiopia is among the many countries that have adopted the HGSF approach. Ethiopia currently has two main HGSF initiatives that share the objective of linking schools' demand for food with agricultural production by local smallholders. The approach is also recognized in the draft of the country's new national school feeding strategy, which provides a new framework for the implementation of a national school feeding programme. The strategy establishes as one of the objectives of the programme the provision of a stable market for local farmers, which is considered an instrument with the potential to incentivize and increase diversified agricultural production and productivity while creating employment opportunities for women and young people, thereby increasing their incomes in a sustainable manner (Ethiopia, Ministry of Education, 2019). The HGSF approach adopted in Ethiopia is aligned with international and regional policy frameworks such as the Comprehensive Africa Agriculture Development Programme of the New Partnership for Africa's Development and the African Union's Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (African Union, 2014).

Despite the recognition of the multiple potential benefits of using the public procurement of food for schools as an instrument to support agricultural production by local smallholders, Ethiopia, like many other countries, still faces various challenges in its implementation, especially regarding the alignment of HGSF programmes and their objectives with the public procurement regulatory framework.

The number of studies reporting on the challenges for HGSF posed by public procurement rules and practices is increasing. However, these challenges are often not fully taken into account by policymakers designing and/or reforming HGSF programmes (Swensson, 2018). In addition, the debate around the role of the public procurement regulatory framework in the design and implementation of HGSF

programmes is poorly represented in the development literature, especially in contexts of developing countries (see also Chapter 2 of this book).

This chapter aims to contribute to this debate. It combines a discussion of the experiences of Ethiopia with an analysis of the challenges created by public procurement rules and practices for the implementation and scaling up of existing HGSF initiatives. The Ethiopian experience is particularly interesting because of the country's need to implement standard public procurement rules and practices after years of implementation of WFP's flexible procurement procedure. This change – following years of successful implementation – has facilitated the identification of the challenges imposed by standard public procurement rules and practices. It has also played a key role in raising the government's awareness of the issue and of the need to find suitable solutions.

This study builds on an assessment report conducted within project GCP/GLO/775/IT (entitled “Policy support for public food procurement for government-led home-grown school food initiatives”), which is financed by the Italian Agency for Development Cooperation (Swensson, 2019). It uses data from both primary and secondary sources, including expert opinions of representatives from the Ethiopian Public Procurement and Property Administration Agency, the Ministry of Education, the Ministry of Agriculture, the Federal Cooperative Agency, the Procurement Services Enterprise, the Ethiopian Trading Business Corporation, FAO and WFP, as well as contributions from the Core Team Committee for the development of HGSF procurement guidelines and its field observation reports.² The opinions were collected mainly through semi-structured interviews conducted in Ethiopia in April 2018.

19.2 Home-grown school feeding and the public procurement regulatory framework

There are various laws and regulations that are relevant to the development and implementation of HGSF initiatives. Examples of these include trade and agriculture laws, education legislation, food safety legislation and standards, social protection

² The Core Team Committee has the objective of supporting the development of a regulatory framework that is conducive and appropriate to HGSF by developing or adapting public procurement directives at the federal and regional levels. The committee consists of representatives of the Ethiopian Ministry of Education, Ministry of Finance, Public Procurement and Property Administration Agency, and Federal Cooperative Agency, as well as of FAO and WFP.

laws, human rights legislation, nutrition standards and health legislation (FAO, 2020). Laws and regulations that are particularly relevant to HGSF programmes are those of the regulatory framework for public procurement.³

Indeed, one of the key characteristics of public food procurement initiatives (including HGSF programmes) is that their operationalization, just like that of any other type of public purchasing, is regulated by specific and detailed rules. These (public procurement) rules govern the entire procurement process, shaping and limiting governments' choices. As a result, the objectives and implementation of any government-led HGSF initiative are intrinsically linked to the public procurement regulatory framework. This framework should be aligned with the objectives of HGSF initiatives and support their implementation.

An increasing number of studies demonstrate the challenges that standard, unaligned public procurement rules and practices may pose to the implementation of HGSF initiatives that aim to use public food procurement as an instrument to support agricultural production by local smallholders (Triches and Schneider, 2012; Brooks, Commandeur and Vera, 2014; De Schutter, 2014; FAO, 2013, 2015; Kelly and Swensson, 2017; Swensson and Klug, 2017; Swensson, 2019, 2020). The main obstacles created by public procurement regulatory frameworks include:

- overly complex and burdensome bidding procedures (i.e. methods);
- an overemphasis on price as the award criterion (to the detriment of quality and other socio-economic values);
- disproportionate and onerous participation requirements;
- incompatibility of the contract size with the supply capacity of small-scale operators;
- a lack of information (regarding tender opportunities and notices of contract awards); and
- long payment periods.

³ The term "regulatory framework" here comprises all public procurement laws and regulations, legal texts of general application and administrative rulings made in connection with public procurement.

Although some of these aspects of public procurement processes may also affect large suppliers, it is widely recognized that they affect small-scale suppliers more acutely (Brooks, Commandeur and Vera, 2014; Trybus, 2014; World Bank, 2017).

Similar challenges can be observed in Ethiopia in the implementation of the country's two HGSP initiatives. The analysis of these initiatives is of particular relevance considering the objective set by the revised Ethiopian national school feeding strategy to scale up existing HGSP initiatives.

19.3 Home-grown school feeding initiatives in Ethiopia

Ethiopia currently has two main HGSP initiatives that share the objective of linking schools' demand for food with agricultural production by local smallholders: an HGSP pilot initiative and an emergency HGSP programme.

The HGSP pilot initiative started in 2012 in the Southern Nations, Nationalities and People's Region (SNNPR) through a partnership between the Ethiopian Ministry of Education and technical partners, including WFP and FAO. The initiative has tapped the support of the WFP's Purchase for Progress Programme (P4P),⁴ as well as the joint FAO and WFP programme Purchase from Africans for Africa (PAA Africa).⁵ The programme aims to: link the existing school feeding demand with local agricultural production by sourcing locally produced food from smallholder farmers; and build the capacity of the government to plan and manage sustainable school feeding programmes in the country.

⁴ Purchase for Progress (P4P) is a WFP pilot initiative launched in 2008 in 20 countries. Its main aim is to:

- pilot and learn from innovative programme and food procurement activities that have the best potential to stimulate agricultural and market development in a way that maximizes benefits to low-income smallholder farmers (WFP, 2020).
- Through P4P, WFP aims not only to provide a stable demand for smallholder producers through a smallholder-friendly procurement system, but also to support capacity-building at the country level.

⁵ PAA Africa was a joint initiative of FAO, WFP, the Brazilian government and the Department for International Development of the United Kingdom of Great Britain and Northern Ireland that was implemented between 2012 and 2017 in five African countries (Ethiopia, Malawi, Mozambique, Niger and Senegal). It had the objective of promoting food security and income-generation among vulnerable populations by combining institutional food purchases from smallholders for school feeding and production support activities to strengthen local food systems.

The HGSF pilot initiative operates in two regions, SNNPR and Oromia and covers 238 schools and reaches around 139 000 students (WFP, 2018a). The implementation of the programme is decentralized at the regional level; the regional Bureaus of Education are the entities responsible for food procurement. A mixed implementation model whereby the procurement of certain types of products (fresh foods) would be decentralized at the school level has been discussed, but has not yet been implemented (Ethiopian Agricultural Transformation Agency, 2013; Teklu, 2018). The procurement funds are transferred to the regional Bureaus of Education, initially from WFP but increasingly also from the regional governments. The food is procured from cooperative unions that supply the Bureaus of Education with the two primary foods produced by their members, or act as intermediaries to supply vegetable oil and iodized salt (WFP, 2018a). Although the programme aims to provide a fully diversified menu, the current food basket consists mainly of cereals and pulses.

The second HGSF initiative currently being implemented in Ethiopia is the emergency HGSF programme. This programme is the most recent and largest HGSF initiative in Ethiopia. It was first implemented in 2015 with the aim of providing emergency food supplies to selected drought-affected areas to prevent children from dropping out of school due to droughts. Like the HGSF pilot initiative, the emergency programme aims to procure food products from local smallholder producers through their cooperatives (Teklu, 2018; Ten Gizaw, 2018; Akele, 2018).

One of the key distinct characteristics of the two initiatives is the targeting of specific areas. While the HGSF pilot initiative targets two fixed regions (the SNNP and Oromia regions), the emergency HGSF programme may cover different areas each year to focus on areas affected by drought (selected by the Ministry of Education). At the time of this study, the programme was being implemented in ten drought-affected regions (including the SNNP and Oromia regions) and reached around 1.8 million children (Akele, 2018).

During the first year, the emergency programme was implemented at the central level, with procurement being managed by the Ministry of Education. From the second year onwards, implementation was decentralized to the regional level. Funds are transferred from the federal Government to the regional Bureaus of Education, which are responsible for the procurement. Although schools should ideally provide a

diversified and locally appropriate menu, in practice the food provided is still mainly composed of grains and pulses (as in the HGSF pilot initiative).

There are other types of school feeding initiatives in Ethiopia besides these two initiatives. However, these initiatives do not share the objective of the HGSF, which is to link school meals programmes with agricultural production by local smallholders. They include the in-kind school feeding programme that has been implemented since 1994 and is supported by WFP (at the time of this study, this programme reached 292 249 students in 570 schools). Another initiative is the First Lady School Meals initiative that has been implemented since 2017 in 203 of the 2 020 schools in Addis Ababa (but does not target all students in the schools). Other smaller initiatives are supported by non-governmental organizations (WFP, 2018a; Teklu, 2018; Akele, 2018).

19.4 Challenges to the implementation of home-grown school feeding initiatives in Ethiopia posed by public procurement rules and practices

Context

Similarly to other international experiences (Triches and Schneider, 2010; FAO, 2013; Kelly and Swensson, 2017; Brooks, Commandeur and Vera, 2014; Swensson and Klug, 2017), standard public procurement rules and practices in Ethiopia have been identified as an important bottleneck in the implementation of HGSF initiatives (Ten Gizaw, 2018; Akele, 2018; WFP, 2018a; Ethiopia, Committee for the Development of HGSF Procurement Guidelines, 2018a).

One interesting characteristic of the Ethiopia experience is the fact that these challenges could be clearly identified as a result of the need for the country to adopt standard public procurement methods (i.e. open bidding) in its HGSF initiatives, after years of implementation of WFP's flexible procurement procedure. This shift prompted the government's attention and reaction to the issue, including the creation of a dedicated multi-stakeholder committee.

One of the key characteristics of Ethiopia's HGSF initiatives is that they, like many school feeding initiatives in low-income countries, were initially funded and partially implemented by donors and development agencies. As a result, these initiatives were allowed to adopt their own procurement procedures and did not necessarily follow the standard procurement rules imposed by the national regulatory framework for public procurement.

While the acquisition of goods, works or services by public institutions with public money is subjected to public procurement rules (which have among their objectives the protection and best use of public money), acquisitions using other types of resources may not. In Ethiopia, the possibility of avoiding the application of public procurement rules in these circumstances is recognized by Article 6 of the Federal Government Procurement and Property Administration Proclamation. This provision applies especially to the HGSF pilot initiative. This initiative was implemented on the basis of a memorandum of understanding signed by WFP and the regional Bureaus of Education and Bureaus of Finance and Economic Cooperation. This memorandum regulates both the transfer of funds and the procurement process.

Tapping into the previous experience of WFP's P4P programme, the procurement procedure adopted was the one used by P4P, i.e. based on direct contracts. Recognizing the need to match its procurement needs with the capacities of small suppliers, the P4P programme adopted contracting mechanisms that are different from WFP's standard competitive tender procedures in the various countries of implementation.⁶ Direct contracting was the procurement modality that was used most often by the P4P programme globally to engage with farmer organizations, and especially those with little experience of selling as a group or selling to formal buyers. The modality offered them the possibility of selling products to WFP while still working to strengthen their capacities to participate in more competitive processes (Kelly and Swensson, 2017). The key characteristic of direct contracting is that there is no competition, and quantities and prices are negotiated directly with suppliers (WFP, 2013). Box 1 provides an overview of the implementation of the direct contracting procedure by regional

⁶ The P4P initiative was launched in 2008 across 20 pilot countries for a period of five years. Since the end of the pilot, WFP has continued to mainstream the approach in its country offices. The countries involved in the pilot phase were Afghanistan, Burkina Faso, the Democratic Republic of the Congo, El Salvador, Ethiopia, Ghana, Guatemala, Honduras, Kenya, Liberia, Malawi, Mali, Mozambique, Nicaragua, Rwanda, Sierra Leone, South Sudan, the United Republic of Tanzania, Uganda and Zambia.

BOX 1 The direct contracting procedure adopted by the HGFH pilot initiative in Ethiopia

The first step in the direct contracting procedure is a market assessment by the regional Bureau of Education to assess the market price of the food products it wishes to purchase. These products are selected based on the menus and rations drawn up by the Bureau of Education in collaboration with the Bureau of Health. With the support of the Federal Cooperative Agency, the Bureau of Education identifies the cooperative unions that may be able to supply the selected products to the school feeding programme, based on their supply capacity and proximity to the schools. The Bureau of Education can directly approach the selected cooperative unions and present a description of its needs and supply requirements.

Once the Bureau of Education receives the proposal from the cooperative union the proposal is compared with the assessed market price and the final price and conditions are negotiated. After the price is agreed upon, a contract is signed. The payment to the cooperative unions should be effective within 15 days of delivery (although some delays have been reported). In general, deliveries are made twice a year. Initially, the programme only selected one cooperative union for each region; this was usually the union that had already received support through the P4P programme and had the capacity necessary to supply the programme. However, in both regions, other cooperatives started to be selected to participate in the procurement process and supply the programme over time.

Source: Swensson, L.F.J. 2019. Aligning public procurement rules and practices to support the implementation of Home-Grown School Feeding (HGSF) initiatives: the case of Ethiopia. Rome. 39 pp. (Also available at www.fao.org/3/CA3614EN/ca3614en.pdf).

Bureaus of Education under the HGSF pilot initiative in Ethiopia for the procurement of food from cooperative unions.

This alternative procedure worked well for the implementation of the HGSF pilot initiative. However, its use became an important issue when the government started to co-finance the programme, as the procedure was not aligned with the mandatory standard public procurement procedures in Ethiopia. The issue was particularly

pronounced in the case of the emergency HGSF initiative. This initiative had started following the direct contracting method of the HGSF pilot initiative instead of the standard public open bidding method – despite been financed by the federal and regional governments.

The field report for the SNNPR, where both HGSF initiatives were implemented, states that “previously it was easy for the regional government to procure directly from cooperatives based on the agreed memorandum of understanding as the partner’s cash was from the WFP programme.” However, the implementation of the emergency HGSF programme “created a new challenge for the Ministry of Finance and Economic Cooperation as the programme is financed by the government” (Ethiopia, Committee for the Development of HGSF Procurement Guidelines, 2018b). Thus, while the Bureau of Education of the SNNPR initially used the same procurement modality as the HGSF pilot initiative, in the academic year 2017/18 it was notified that it was required to follow the standard procurement rules and methods for the implementation of the emergency HGSF programme.

The same situation was reported for the Oromia region. In the academic year 2017/18, regional auditors notified the regional Bureau of Finance and Economic Cooperation that it was not complying with the regulatory framework for public procurement, as it was not using the standard methods established for the public procurement of goods. Both regions had to start applying the standard procurement rules and methods for the implementation of the HGSF emergency programme, which has created a series of challenges. These challenges will be analysed in the next section.

It is interesting to note that in the case of the HGSF pilot initiative, a memorandum of understanding was signed between the government and WFP to create an exception to the standard public procurement rules and allow the implementation of WFP’s procurement model to continue. Nevertheless, considering the expected increase in the financial contribution by the federal and regional governments and upscaling of the programme, the issue may arise again and threaten the sustainability of the programme in the long term. Furthermore, the memorandum of understanding was only signed for the initial years of the programme, with the idea that other procurement modalities that are better aligned with public procurement rules would be adopted in the future (Teklu, 2018).

Challenges encountered

The adoption of standard public procurement rules and practices has been identified as an important bottleneck to the implementation of HGSF initiatives in Ethiopia to link schools' demand for food to agricultural production by local smallholders (Ten Gizaw, 2018; Akele, 2018; WFP, 2018; Ethiopia, Committee for the Development of HGSF Procurement Guidelines, 2018a). Indeed, the programme's mid-term evaluation results indicate that the standard public procurement rules represent one of the main challenges faced by the Ministry of Education when trying to feed schoolchildren in a timely manner through the HGSF emergency programme (Akele, 2018). The Bureaus of Education in some regions were unable to start feeding children three months after receiving the funds, because of issues related to the procurement process. This delay has led to high rates of children dropping out of school (as high as 50 percent in the SNNPR), which is of great concern to the Ministry of Education (Akele, 2018).

In line with international practices (i.e. the Model Law on Public Procurement of the United Nations Commission on International Trade Law [UNCITRAL]), public procurement regulations in Ethiopia recognize different procurement methods that procuring entities must use to procure goods, work and services to achieve their procurement objectives. These methods include open bidding, restricted bidding, requests for quotation, direct procurement, requests for proposals and two-stage bidding (see Swensson [2019] and Bahta [2013] for an overview of these methods).

Open bidding – also known as competitive bidding, or open or competitive tendering – is, as in most countries in the world, the default procurement method that public entities in Ethiopia must use for the procurement of goods, work and services. Any other procurement methods can be used only in specific cases established by the law. These cases include, among others, low-cost purchases under specific thresholds. As recognized by the UNCITRAL Model Law on Public Procurement, the possibility of adopting alternative procurement methods for simple procurements with low values is based on the recognition that in such cases, the benefits of bidding are often outweighed by the costs of using a formal bidding procedure, both in terms of the use of resources in the procedure and in terms of the time taken for its completion (Arrowsmith, 2011). An example of an alternative procurement method is the request

for quotation method, a simpler and shorter procurement method designed for the procurement of readily available goods, with the estimated value of the contract falling below an established threshold. In the case of Ethiopia, this threshold is currently set at a relatively low value (around USD 6 000).⁷ As a result, the open bidding method is mandatory for the procurement of goods in the majority of cases.

Open bidding is characterized by a high degree of competition, the equal treatment of suppliers (meaning that bids by any qualified person are considered) and transparency. It is also characterized, however, by a high level of formality, complexity and costs. Box 2 provides an overview of the key characteristics of the open bidding method.

BOX 2 Key characteristics of the open bidding method

The key characteristics of the open bidding method for public procurement include:

- a public notice advertising the procurement;
- use of a detailed specification that provides a common basis for bidding and for comparing all the bids;
- a single stage of tendering, with fixed dates and times for the submission of tenders;
- a requirement for bids to be submitted in writing, signed and in a sealed envelope, or in an electronic format that provides equivalent safeguards of confidentiality;
- public opening of the bids;
- a requirement to award the contract to the supplier submitting the best bid, with no possibility of negotiating bids with suppliers or of allowing amendments (except to correct certain errors that are not of a substantial nature).

*Source: Arrowsmith, S. 2010. Horizontal policies in public procurement: a taxonomy. *Journal of Public Procurement*, 10(2): 149–186.*

⁷ The threshold for the use of the request for quotation method is currently set at ETB 200 000 (around USD 6 000, based on the exchange rate on www.xe.com on 29 May 2020). Meanwhile, in Senegal, the threshold is fixed at XOF 50 million (around USD 85 000, based on the exchange rate on the same date), a much higher value.

One of the key challenges related to the adoption of the standard open bidding method reported was the delay in the procurement process (Akele, 2018). This delay can be explained *inter alia* by the time needed to perform all the steps of the open bidding method and meet all its requirements in terms of advertisement. While direct contracting and other alternative procedures (such as the request for quotation method) were reported to take around 10 to 15 days, the open bidding method takes at least two months. In the case of the HGSP emergency programme, the lengthiness of the open bidding method is aggravated by the difficulties encountered by the regional Bureaus of Education in the advance planning of the procurement activities. As reported by the Ministry of Education, the process of selecting beneficiary regions and schools under the emergency HGSP programme takes considerable time, and the transfer of funds generally occurs not much in advance (Akele, 2018). This makes it difficult for the regions to plan and start the procurement process earlier.

The challenges reported relate not only to the length, but also to the complexity and high level of bureaucracy of the open bidding method, for both the procuring entity and interested suppliers. For example, the standard bidding documents that must be purchased and used by suppliers participating in open bidding procedures are over 100 pages long. They are very complex, especially for small-scale rural suppliers. Meanwhile, the standard documents for alternative procurement methods (such as the request for quotation method) and for WFP's direct contracting method are only two pages long, or just a little more.

In view of the challenges created by the open bidding method, the Bureau of Education of the Oromia region requested permission to adopt an alternative procurement procedure. Following this request, the region was authorized to use the restricted bidding method. This method allows procuring entities to avoid the traditional requirement of publicly advertising the invitation to tender. Indeed, in the case of open bidding, invitations to tender must be published at least once in a national newspaper with nationwide circulation, in the same language as that of the bidding document. Although publication requirements stem from the desire to reach all potential suppliers, enhance competition and ensure the equal treatment of suppliers, traditional advertising methods (such as official bulletins) are generally not very accessible to smallholders, and can constitute an important barrier against their participation in tender procedures (Brooks, Commandeur and Vera, 2014; Swensson, 2015).

The language used to advertise invitations to tender may also create a barrier in certain country contexts. By contrast, the restricted bidding method allows procuring entities to contact potential suppliers and invite them to bid. Although the other steps in the restricted bidding procedure are similar to the standard open bidding procedure (and therefore still very complex and bureaucratic), the possibility to contact target suppliers directly is significant. It not only speeds up the process, but also helps overcome potential challenges related to a lack of access to information. It also allows procuring entities to better target the category of suppliers (i.e. the local smallholder food producers) that the HGSF programme and related policies aim to reach.

However, certain challenges are related to the restricted bidding method, as well. To ensure a certain level of competition, the regulatory framework for restricted bidding requires that invitations to bid must be sent to at least five potential suppliers. In the case of the HGSF initiative, the Bureau of Education was able to identify only two cooperative unions in the region with the capacity to supply food for the programme. As a result, the regional Bureau of Education had to suspend the process and submit a new request to the Bureau of Finance and Economic Cooperation to obtain permission to proceed with only these potential suppliers. One month after filing this request, the Bureau of Education was allowed to proceed with the procurement process with only those two cooperative unions.

In addition, the adoption of the restricted bidding procedure created complications related to the area of operation of the bidding cooperative unions. Both unions were only interested in bidding for the supply of food to schools in their respective geographical areas. This was not in line with the procedural rules, and the unions had to participate in the bid for the entire district (i.e. Woreda). However, supplying the entire district was against the unions' bylaws, which delimit the geographical areas in which they can operate (Ethiopia, Committee for the Development of HGSF Procurement Guidelines, 2018a).

Additional challenges highlighted in the field observation report include the increase in the price paid to the cooperative unions. According to the report, this increase can be explained by the timing of the procurement and by the lack of negotiations between the parties, which had been standard practice in the previous procurement

modality.⁸ Meanwhile, standard procurement rules do not allow negotiations between the parties, and require contracts to be awarded to the eligible supplier proposing the lowest price.

Another reported challenge is delays in payment. It is widely recognized that long payment timeframes hinder participation in public procurement processes, especially for small-scale suppliers who struggle with limited access to money, savings and credit (World Bank, 2017). Furthermore, payment delays negatively affect trust in the public buyer, not only that of the farmer, cooperative or enterprise concerned but also that of other potential suppliers through word of mouth (Kelly and Swensson, 2017). Instruments to shorten payment timeframes are considered to be of key importance to the successful implementation of public food procurement initiatives targeting smallholder farmers.

In Ethiopia, procuring entities must process payments within 18 days (World Bank, 2017). This is a relatively short timeframe compared to that imposed by other countries (see World Bank, 2017). However, in practice suppliers may receive their payments significantly later. In the case of the HGSP initiatives, a lack of uniformity in the clearance documents for payments across schools, as well as human factors, were mentioned in the field observation reports as important causes of delay (Ethiopia, Committee for the Development of HGSP Procurement Guidelines, 2018a).

Legal instruments to overcome challenges: going beyond small and microenterprises

The regulatory framework in Ethiopia provides a number of instruments to address the challenges described in the preceding paragraphs. However, these instruments mostly target small and microenterprises (SMEs).⁹ Likewise, the access of micro, small and medium enterprises to public procurement opportunities is a well-known theme

⁸ In the SNNPR, the length of the procurement procedure and delays increased the pressure on the cooperative unions to aggregate and supply food products within a very short period of time (Ethiopia, Committee for the Development of HGSP Procurement Guidelines, 2018b). Furthermore, the start of the school year (September) – which is when the purchases are expected to be made – falls outside of the harvest season, and food prices are double those recorded during the harvest season (WFP, 2018b; Ethiopia, Committee for the Development of HGSP Procurement Guidelines, 2018b).

⁹ Note that, in the context of Ethiopia, the abbreviation SME stands for small and microenterprises, while in other contexts it stands for small and medium enterprises.

in the literature on public procurement and in international regulatory frameworks (Zheng *et al.*, 2006; European Commission, 2004, 2008, 2010, 2014; UNCITRAL, 2014; Tribus, 2014; Nicholas and Fuhmann, 2014; Saastamoinen, Reijonen and Tammi, 2017).

However, farmers and their organizations are rarely considered as beneficiaries of these instruments or as subjects of this debate – although their characteristics and vulnerabilities are similar to those of SME and they face similar challenges when trying to access public food procurement opportunities. The cause of this problem is that the instruments targeting SME may not be readily applicable to smallholder farmers and their organizations (see Swensson, 2018). Indeed, individual farmers may not conform to the basic definition of what constitutes an enterprise. For instance, smallholder farmers are generally not registered as commercial enterprises, nor do they work within the applicable official tax structure. On the other hand, when organized in cooperatives or associations (or cooperative unions, as in the case of Ethiopia), the size of their operations often means that they do not conform to the criteria for the definition of SME, for example in terms of annual sales or the number of employees (Aboah, Commandeur and Casey, 2016; Brooks, Commandeur and Vera, 2014).

This problem is particularly relevant to the discussion on programmes and policies that aim to promote the access of local and smallholder farmers to public food procurement markets as an instrument to support socio-economic development goals. It is also relevant for country contexts – such as the Ethiopian case – where smallholder agriculture represents a significant portion of the economy, and smallholders are those most in need of policy support (Organisation for Economic Co-operation and Development [OECD] and Policy Studies Institute [PSI], 2020).

In Ethiopia, instruments to help SME access public markets and favour the procurement of goods produced in Ethiopia include preferencing and reservation (set-aside) schemes, as well as other mechanisms to overcome participation barriers. Preferencing and reservation schemes are instruments used, for instance, in Brazil and the United States of America to support local and/or family farming production and link school feeding initiatives to local agricultural development (see Swensson, 2018 and Chapter 2 of this book).

The 2009 Federal Government Procurement and Property Administration Proclamation determines that a preferential price margin of 3 percent is granted to SME that

compete with other, larger suppliers in national competitive bidding (with specific legislation defining SME). The same type of instrument is included in the regional states' regulations,¹⁰ which in some cases provide for a preferential price margin for SME of up to 13 percent (Bahta, 2013). Some regional regulations, such Directive 124/2010 relative to procurement set-asides for micro and small enterprises of the state of Tigray, also recognize the use of set-aside schemes to reserve certain procurement opportunities for SME (Bahta, 2013).

Other instruments that help SME to access public markets rationalize participation requirements and reduce the costs of participation in bidding procedures. For instance, SME can obtain all the bidding documents free of charge, while other types of suppliers must purchase them. In addition, SME may be exempt from requirements to provide bid security, performance security or advance payment guarantees to participate in the bidding process. Article 16.20.5 of the Federal Government Public Procurement Directive of 2010 determines that in the case of SME, these instruments can be substituted by a letter of guarantee issued by a competent institution. To overcome challenges related to the length of payment processes, Article 16.26.4 of the Federal Government Public Procurement Directive also establishes that up to 30 percent of the price of a contract can be advanced to SME suppliers by way of advance payment, without asking for an advance payment guarantee.

As argued earlier, in Ethiopia, these procurement instruments are, however, not applicable to the main target beneficiaries of HGSF programmes, i.e. primary farmer cooperatives and cooperative unions – despite the importance of the agriculture sector and of the policy objectives of HGSF initiatives. Since 2018, the Government of Ethiopia has been acting to remedy this situation, including actions supported by development partners such as FAO and WFP. An example of these actions is the establishment of a multi-stakeholder committee under the leadership of the Ministry of Education, bringing together representatives of the Ministry of Agriculture, the Federal Cooperative Agency, the Federal Public Procurement and Property Administration Agency, FAO and WFP. The committee allows stakeholders to discuss

¹⁰ Ethiopia is governed as a federal system, whereby the regional states and the two chartered cities have the power to legislate and regulate their own procurement systems. However, regional regulations traditionally mirror what is laid down in federal regulations (i.e. the Federal Government Procurement and Property Administration Proclamation of 2009 and the 2010 Federal Government Public Procurement Directive).

issues and propose joint and coherent proposals, including for the amendment of the Federal Proclamation on Public Procurement.

Other actions undertaken by the government to promote the inclusion of local smallholders in HGSF initiatives are the development of field observation reports in the Oromia and SNNP regions and of a legal assessment of public food procurement rules and practices. Such actions are considered best practices to improve policy coherence and ensure a holistic approach to food and nutrition initiatives (FAO, 2019b). In addition to actions undertaken by the federal government, the regional government of the SNNPR has recently issued a special directive for the procurement of food and transportation services for school feeding programmes with alternative and adapted procurement methods (including direct procurement and an alternative procurement method based on a request for quotations). The directive also creates additional instruments to overcome barriers to the inclusion of local smallholders, such as advance payment instruments and adapted participation requirements. Although these provisions are limited to the SNNPR, this directive represents an important milestone towards the alignment of public procurement rules and practices to support the implementation of HGSF initiatives in Ethiopia (see Swensson, 2019).

19.5 Concluding remarks

The analysis of experiences with HGSF initiatives in Ethiopia in this chapter corroborates findings of assessments in other countries regarding the challenges that public procurement regulatory frameworks may impose for the implementation of HGSF initiatives. These initiatives aim to use public food procurement as an instrument to support agricultural production by local smallholders and achieve broader development outcomes. This chapter supports the recognition that HGSF initiatives – or indeed any other public food procurement initiative that pursues broader development goals – cannot be designed without taking into consideration the role of the regulatory framework for public procurement (Quinot, 2013; Swensson, 2018).

This chapter has argued that it is important to consider the long-term sustainability of alternative mechanisms adopted in public procurement initiatives supported by external partners. Such alternative mechanisms adopted in pilot programmes may be

a necessary first step to start and ensure the feasibility of HGSF initiatives. Without the flexibility provided by these alternative mechanisms it may, in certain circumstances, be impossible to initiate the process to link public food procurement initiatives to local smallholder agricultural production and assess its multiple potential benefits. Nevertheless, it is recommended that a transition strategy be designed to bring HGSF initiatives in line with public procurement rules – or, alternatively, to develop adapted national public procurement instruments. Such a strategy should be considered at the outset; it should involve the public procurement regulatory authority, together with representatives of the ministries of education and agriculture, as strategic partners. This is particularly relevant considering that the shift from external funding (such as funding from WFP) to national or local funding is one of the most common critical transition points in the development of national school feeding programmes. This shift often also represents a breaking point (FAO, 2019b).

Lastly, the chapter has highlighted the potential adaptation and/or extension to farmers and farmers' organizations of the legal instruments to support the access of micro, small and/or medium enterprises to public market opportunities. Despite the wide recognition of such instruments in both national and international frameworks (such as the European Union's directives on public procurement and the UNCITRAL Model Law on Public Procurement) and in the literature, there is still no discussion on *if* and *how* these instruments should apply to farmers and their organizations, as well. This gap is critical, since farmers and farmers' organizations are the key suppliers targeted by HGSF initiatives, as well as by most public food procurement initiatives that aim to pursue broader development goals. It is also critical due to the strategic economic relevance of these actors, particularly in low and middle-income countries, such as Ethiopia and other African countries. Thus, it is an important research gap that deserves further attention.

To conclude, while this chapter focuses on the challenges imposed by public procurement regulatory frameworks, it recognizes that this is only one piece of the puzzle. It is important to emphasize that the development of any public food procurement initiative that aims to link local smallholders to public markets to promote development requires a series of enabling factors that must be coordinated and matched. As demonstrated in this chapter, these factors include a public procurement regulatory framework that is conducive to the inclusion of smallholder

farmers in public markets; however, they are also related to demand- and supply-side conditions and to the policy and institutional environment, which were not the object of analysis of this study.

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20 LOCALIZING SUSTAINABLE DEVELOPMENT GOALS: PUBLIC FOOD PROCUREMENT IN MUNICIPALITIES AND LOCAL INSTITUTIONS

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ABSTRACT

Municipalities and local institutions have historically played an important role in public procurement processes, even if these processes have not always been effectively linked to broader sustainable development goals. In recent years, municipalities and local institutions have progressively gained legitimacy as key actors that contribute to the global sustainable development agenda by developing their own strategies, including those related to procurement. In this context, public food procurement has gradually become one of the main levers for achieving sustainable development goals at the local level. Municipalities that design public calls for tender to achieve social, economic and environmental goals must overcome two main challenges: how to translate sustainable development goals and norms for public food procurement and food handling into tender criteria; and how to design operating modalities, i.e. food flow and school canteen management models that are aligned with existing infrastructure and available human resources.

20.1 Introduction

In the 1970s, the scale of reference for development interventions started changing. In parallel with the dominant non-spatial and macro-economic approaches to development, new approaches recognizing the importance of the local dimensions of development gradually gained ground (Hettne, 1990). At the beginning of the 1980s, the role of local institutions and local development began to take central stage in the development policies of industrialized and developing countries. In the wake of

globalization, the reconfiguration of geopolitical scales and relationships between “global” and “local” (Brenner, 1999) led to the progressive strengthening of global networks that started acting independently and beyond the borders of the nation state (Jessop, 1994; Sassen, 1996). In that process, cities and regions also gained more ground to act as new development actors. Since then, municipalities and local institutions have been playing an important role in public procurement processes – even though these processes have not always been effectively linked to more comprehensive goals of economic, social and environmental development and sustainability.

The evaluation of mainstream strategies whose aim was to link social protection programmes (of which school feeding programmes are the most prominent) with agricultural development goals have provided valuable lessons to advance the discussion on sustainable local procurement. These lessons highlight inconsistencies behind the assumption that local procurement interventions have necessarily delivered positive synergies between social protection and agricultural development, particularly in sub-Saharan Africa.

Instead, a careful examination is required of the relationship between territorial and family farmers’ development and procurement that strives to advance social, environmental and nutrition goals (Sumberg and Sabates-Wheeler, 2011). Linking public procurement to sustainable development goals can be complex in terms of the legal instruments required. In addition, municipalities and local institutions may not always have the financial and human resources necessary to explore innovative solutions to strengthen this link. Nevertheless, municipalities and local institutions have progressively gained legitimacy in recent years as key contributors to the global sustainable development agenda, as demonstrated by the creation of the Milan Urban Food Policy Pact that brings together municipalities around the world to work towards the achievement of the United Nations’ Sustainable Development Goals.

Against this background, public procurement for school canteens has gradually become one of the main levers for municipalities and local institutions to achieve sustainable development goals. Several authors (Nogueiro and Ramos, 2014; Testa *et al.*, 2014) have highlighted how the most innovative, context-specific and effective solutions concerning sustainable public procurement were developed and implemented by local institutions. Most of these solutions concern public food procurement for school canteens, given that in many countries, municipalities are

responsible for this task (see Table 1). In addition, the purchasing of food for school canteens (i.e. for consumption by school-aged children) provides an opportunity to address several concerns at once: health concerns (e.g. child malnutrition and obesity), environmental concerns (related to the agricultural and processing practices used to produce food), and economic concerns (related to local and territorial agricultural development).

Table 1 **Entities responsible for tendering procedures to purchase food for school canteens – country examples**

COUNTRY	ENTITIES RESPONSIBLE FOR FOOD PURCHASING
ARGENTINA	(Depending on the province) <ul style="list-style-type: none"> ▪ Schools ▪ Provincial ministries ▪ Municipalities
BRAZIL	(Depending on the type of school) <ul style="list-style-type: none"> ▪ Municipalities ▪ States ▪ National Supply Company¹
FRANCE	(Depending on the school level/degree) <ul style="list-style-type: none"> ▪ Regions ▪ Departments ▪ Municipalities
ITALY	<ul style="list-style-type: none"> ▪ Municipalities ▪ Schools (for private schools) ▪ Central purchasing bodies²
SPAIN	(Depending on the autonomous community) <ul style="list-style-type: none"> ▪ Autonomous communities ▪ Counties ▪ Municipalities ▪ Schools ▪ Parents' associations

Source: Italy, Ministry of Health, 2010; Muñoz Rico, 2018; Diaz Langou *et al.*, 2014; France, National Food Council, 2017; FAO, 2014, 2015.

¹ The Brazilian National Supply Company or Conab is a public company under the administrative arm of the Ministry of Agriculture, Livestock and Food Supply.

² *Centrali Uniche di Committenza* (unique central purchasing bodies) aggregate the demand from several municipalities and deal with suppliers.

This paper aims to provide an overview of some of the challenges that municipalities and local institutions face when trying to develop a strategy for the sustainable public procurement of food for school canteens. The chapter also shows which models can be implemented. The number of both industrialized and developing countries adopting legal and regulatory frameworks that are conducive to the coupling of public food procurement with sustainable development goals is growing. However, the available literature on the role of municipalities and local institutions in this coupling mostly comes from high and middle-income countries.

20.2 Legal frameworks for public food procurement

When designing public calls for tender to purchase food for school canteens, municipalities and local institutions must consider *inter alia* existing legal frameworks for public procurement procedures and food safety and hygiene regulations. The legal framework on public procurement defines the overall goals, minimum criteria and responsibilities that must be respected when designing calls for tender and contracts and selecting food suppliers.

Table 2 provides a country example of a legal framework concerning public food procurement. It demonstrates that legal frameworks for public food procurement may include regulations formulated at different levels of rulemaking. In Spain, public food procurement is governed by regulations formulated at the level of the European Union (European Parliament and Council of the European Union), at the national level (the Spanish Parliament) and at the subnational level (the Autonomous Communities).

Although these instruments should, in theory, be aligned and complement each other, it is not always easy to gain a clear and coherent picture of the overall principles, goals and responsibilities that need to be respected when designing public tender calls and contracts for the purchasing of food for school canteens. In addition, while international regulatory frameworks increasingly recognize public procurement as a tool to pursue economic, social and environmental goals, national laws often lag behind, and do not always provide the most appropriate legal instruments to achieve these objectives (Quinot, 2018) (see also Chapter 2 of this book).

Table 2 The legal framework pertaining to the public procurement of food for school canteens – the example of Spain

ENACTED BY	SUBJECT OF THE LAW/REGULATION	RECIPIENTS	GUIDING PRINCIPLES SET BY THE LAW/REGULATION
European Parliament and Council of the European Union	European Directives on public procurement (2014/23/EU, 2014/24/EU, 2014/25/EU), in line with the Europe 2020 strategy for the realization of smart, sustainable and inclusive growth, associated with a more efficient use of public funding.	Member States of the European Union, which transpose European Union directives into national laws.	<ul style="list-style-type: none"> ▪ key role of green public procurement (GPP); ▪ it is mandatory to consider minimum environmental criteria when purchasing products and services; ▪ respect of the hygiene regulations of Regulation (EC) No. 178/2002; ▪ respect of Regulation (EU) No. 1169/2011 on food labelling.
Spanish Parliament	Law 9/2017 on public sector contracts.	Autonomous Communities have to adapt their procedures to the national law.	<ul style="list-style-type: none"> ▪ best value for money; ▪ social criteria; ▪ environmental criteria; ▪ transparency in contracts; ▪ facilitate access for small and medium enterprises.
Parliament of the Autonomous Community of Catalonia	Decree 160/1996, regulating school canteen services in public schools managed by the Department of Education. Decree 219/1989, delegating powers on education from the government of Catalonia to the counties.	County councils who are responsible for the management of public school canteens.	<p>Allowed operating models:</p> <ul style="list-style-type: none"> ▪ outsourcing to an external company; ▪ direct management by schools; ▪ agreements with municipalities or other public bodies. <p>Tendering processes:</p> <p>Direct management by schools, which have to prepare an operation plan that has to be approved by the county authorities.</p>

Source: Muñoz Rico, 2018.

When trying to implement sustainable procurement practices, local authorities may face a number of challenges. These challenges include, among others:

- translating sustainable development principles and goals into tender criteria for public food procurement;
- designing operating modalities (i.e. food flows and school canteen management models) that are aligned with existing infrastructure and available human resources.

Municipalities and local institutions do not always have the financial and human resources required to overcome these challenges (Chandler *et al.*, 2015), but examples and experiences from other local institutions can help reduce the financial and time costs of the complex process of public procurement of food for school canteens.

20.3 **Translating sustainable development goals into tender criteria for public food procurement**

Ever since the 2002 World Summit on Sustainable Development and the Marrakech Task Force developed an approach to implement sustainable public procurement (SPP), public procurement has been promoted as a means to achieve environmental goals (Smith *et al.*, 2013). The recent focus on green growth has led governments to use market strategies to promote sustainable development. The debate about the definition of SPP and green procurement (GPP) is ongoing; in general, SPP is considered to be based on a broader approach than GPP, the former being understood to cover additional environmental aspects, social aspects, benefits and responsibilities (Neubauer *et al.*, 2017). Municipalities have built on national legislative frameworks to work towards ambitious objectives of their own, and adjust strategies to their local needs and realities (see Table 3).

Table 3 Examples of national legislative frameworks and action plans, and goals for public procurement set by municipalities

MUNICIPALITY	NATIONAL LEGISLATIVE FRAMEWORK AND NATIONAL ACTIONS PLANS	ENACTED BY	GOALS FOR PUBLIC PROCUREMENT SET BY MUNICIPALITIES
COPENHAGEN (Denmark)	-	-	<p>Social and health goals</p> <ul style="list-style-type: none"> healthy food as part of the urban sustainable development program <p>Environmental goals</p> <ul style="list-style-type: none"> organic food procurement targets less meat more fresh, seasonal and local vegetables and fruits less food waste recyclable packaging transportation (environmental zone certificate or EUR 5 standard)³ <p>Socio-economic goals</p> <ul style="list-style-type: none"> Education and training of catering staff about the principles of the organic kitchen Price – organic tenders cannot be more expensive than conventional tenders
SEOUL (Republic of Korea)	Act on promotion of purchase of green products (2005)	Ministry of Environment	<p>Socio-economic goals</p> <ul style="list-style-type: none"> free school meals for all <p>Environmental goals</p> <ul style="list-style-type: none"> high-quality, certified environmentally friendly products
ROME (Italy)	Law 488/1992 Legislative Decree 163/2006 (the Code of public contracts for works, services and supplies)	Ministry for the Environment	<p>Environmental goals</p> <ul style="list-style-type: none"> reduction of energy consumption reusing of leftovers from school canteens <p>Socio-economic goals</p> <ul style="list-style-type: none"> school meal costs met by a combination of fees paid by parents and municipal funds local products, foods purchased from social cooperatives

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³ European emission standards range from EUR 1 to EUR 7; they define acceptable limits for fuel emissions of vehicles in the European Union and in European Economic Area member states. Environmental or low emission zones are areas that only vehicles with a special permission or certificate can enter. A number of local authorities (Copenhagen, Paris) have created certificates based on the EUR 1–7 system to allow certain categories of vehicles (based on emission levels) to enter environmental zones in their cities.

Table 3 <<<

MUNICIPALITY	NATIONAL LEGISLATIVE FRAMEWORK AND NATIONAL ACTIONS PLANS	ENACTED BY	GOALS FOR PUBLIC PROCUREMENT SET BY MUNICIPALITIES
EAST AYRSHIRE COUNTY (Scotland, United Kingdom of Great Britain and Northern Ireland)	The Procurement Reform (Scotland) Act 2014 (the national framework for sustainable public procurement)	Scottish Parliament	<p>Social and health goals</p> <ul style="list-style-type: none"> ▪ better quality meals ▪ public health and nutrition <p>Environmental goals</p> <ul style="list-style-type: none"> ▪ seasonality, freshness, local ▪ responsible use of resources ▪ lower food miles <p>Socio-economic goals</p> <ul style="list-style-type: none"> ▪ investment in the local economy ▪ better employment practices ▪ improved links with education and community learning

Source: Smith *et al.*, 2015.

National legislative frameworks on public procurement in the countries of the European Union are determined by the supranational European Union Directive on public procurement (Directive 2014/24/EU), which member states are obliged to transpose into national law. The Directive specifies the main obligations of public procurers and provides the basis for the European Commission's public procurement strategy. The Directive has to be implemented by the countries of the European Union through national laws. In addition to the Directive, the European Commission has issued criteria for GPP of *inter alia* food and catering services. These criteria are designed to make it easier for public authorities to purchase goods, services and works with a reduced environmental impact. These criteria are a key instrument that helps translate environmental objectives into tender criteria for public food procurement. The use of the criteria is voluntary. They are formulated in such a way that they can be partially or fully integrated into individual authorities' tender documents with minimal editing, if deemed appropriate.

However, to date, the take-up of the voluntary criteria by countries is low; in addition, Directive 2014/24/EU is still not implemented coherently throughout the Member States of the European Union through national laws and regulatory frameworks (Boyano *et al.*, 2019). While the Directive recognizes the importance of

social and economic considerations in public procurement for the first time, it does not provide any guidance for the translation of social and economic objectives into procurement criteria.

An analysis of public food procurement in five European cities identified and classified the social, economic and environmental criteria that were most frequently adopted to translate sustainable development goals. The criteria were classified into three main categories: criteria linked to social and health goals, such as food and diet quality; criteria linked to socio-economic goals, such as labour conditions, the revitalization of the local and regional economy, or fair trade; and criteria related to environmental goals, such as seasonality, food miles or recyclable packaging (Smith *et al.*, 2015).

The same study demonstrated that the transition models towards sustainable public food procurement of cities can be differentiated according to whether the transition began with GPP (often as a part of a wider environmental agenda), or an SPP approach (considered to be a broader approach) was adopted from the beginning. In the latter case, transition models incorporate more direct social and ethical objectives and resulting criteria. For example, national legislation in Italy encourages organic food procurement; the city of Rome, however, used a broader interpretation of “quality meals” that includes additional socio-economic objectives to encourage local procurement and public health education (Smith *et al.*, 2015). This example demonstrates that it is in the interpretation and application of national legislation at the local level that municipalities can assert their key role and exploit their room for manoeuvre in driving SPP. The interpretation of goals, and the formulation of criteria in function of local needs, makes SPP frameworks more sophisticated; it not only expands the range of criteria used, but also creates new dynamics among different sets of criteria, creating new trade-offs but also complementarities in respect to the original goals.

A study at the national level by Evans *et al.* (2010) of public procurement in nine countries in the European Union and Norway found that all countries use life cycle assessments in their public procurement strategy, whereas socio-economic and social/health criteria are less commonly used. To promote the inclusion of social and health goals in public tenders, the European directives of 2014 were revised in 2016, based on innovative mechanisms to include social goals in tendering that were already being implemented by local governments.

Some of the most commonly identified conflicts and trade-offs between social, environmental and economic goals in medium and high-income countries are barriers to entry for small farmers because of food safety regulations, and ensuring the financial viability of catering companies while they are adjusting their business model to meet sustainability criteria. Overall, the main challenge is how to prioritize local, organic, fair-trade, seasonal and nutritious foods while keeping the cost of the service reasonable for both public institutions and consumers (Smith *et al.*, 2015; Evans *et al.*, 2010). For example, in Copenhagen, concerns were raised about how to finance menus based on nutrition criteria. These concerns were overcome by piloting small-scale test projects, which demonstrated that it was possible to buy healthy, tasty and organic food within the allocated budget (Foodlinks, 2013).

Meanwhile, suppliers faced the challenge of providing the right variety of organic food, delivered at the right time and packed in the right size for kitchens and catering production units. Additional challenges may stem from the fact that many small enterprises are not used to the onerous paperwork involved in procurement procedures, and may not be familiar with the quality requirements of public catering systems (Foodlinks, 2013). As highlighted by Mikkelsen and Madsen in Chapter 18 of this book, challenges at the supply level mainly relate to the integration and coordination of the different actors to meet the demands of the multitude of public food service consumers.

Increasingly, some of the barriers listed in the previous paragraphs are being overcome by dividing tenders into smaller products or lots (contract lotting) and helping local and small-scale suppliers fill out the required documents. Copenhagen used contract lotting as an important legal mechanism to boost the market share for local and small-scale suppliers. Indeed, contract lotting allows single large contracts to be divided into smaller individual contracts or “lots,” thereby lowering the threshold for local and small-scale suppliers (Food and Agriculture Organization of the United Nations [FAO], 2018). Small farmers can be awarded just one part of the tender (for example, the supply of eggs only), rather than being excluded because of their inability to supply the quantities and varieties of the entire tender.

How to balance, assess and frame the multiple dimensions of sustainability criteria is a big challenge for policymakers and procurement officers; it is ultimately a question of political ambition (de Oliveira *et al.*, 2013). Analytical work on the use of public

food procurement to achieve broader development goals shows that policies and legal frameworks can be aligned with these goals by using preferential procurement schemes (i.e. reservation, preferencing and indirect procurement) and contract lotting (Swensson, 2018). These mechanisms are identified as key elements to improve the performance and inclusiveness of social protection programmes involving food distribution, and especially of so-called home-grown school feeding programmes (FAO and World Food Programme [WFP], 2018).

20.4 Operating modalities of public procurement programmes

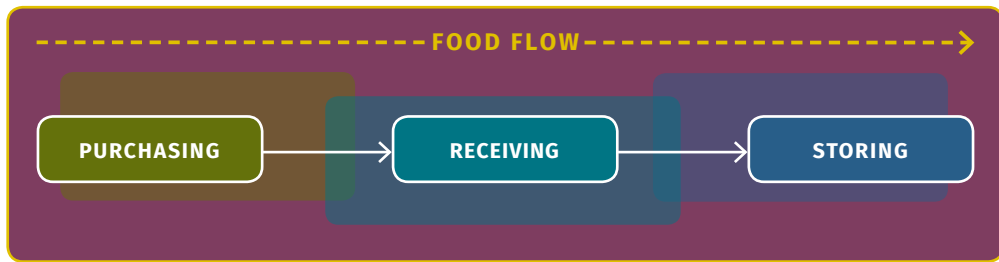
An important challenge faced by municipalities and local institutions, when designing a public tender contract to purchase food for schools, is the decision as to which operating modalities they want to implement, i.e. how they want to manage the food flows from suppliers to schools, as well as the school canteen.

Before thinking about food flows and school canteen management, a first step is to plan the school menu, to understand which types and quantities of food are needed. Usually, menus are planned by specialized staff belonging to public health services. If the menu is planned by municipal or school personnel they usually have to respect national guidelines provided by the ministry of health. Once the menu has been planned, the types, quantities and characteristics of the food to be purchased can be translated into specific requirements to be included in the public call for tender for food purchasing for school canteens. Then, the officials in charge of food procurement can start to think about the food flow model they wish to adopt.

The food flow is the set of activities and functions that bring food from its production site to its consumption site. It is a little studied subject in local contexts, as is the link between the management of food flows and sustainability (Palacios-Argüello *et al.*, 2018). Indeed, the literature on public food procurement tends to focus more on tendering criteria than on how to manage food flows to achieve the set goals.

The food flow is composed of a number of consecutive processes that must be carried out to bring food from its place of production to its place of consumption: food purchasing, food receiving and food storing (see Figure 1).

Figure 1 Food flow processes



Source: authors' elaboration based on Mauleon, 2018.

Public officials in charge of food procurement should have a clear idea of the pros and cons of the different models that can be used to manage food flows. Based on the availability of infrastructure (e.g. warehouses where food can be stored) and human resources (public personnel to manage warehouses and transport), public officials can decide to in or outsource the management of food flows.

Table 4 Models for managing food flows

MODEL	PROS	CONS
INSOURCING	<ul style="list-style-type: none"> More control over food purchasing. 	<ul style="list-style-type: none"> Infrastructure and human resources belonging to the public institution must be dedicated to the management of the food flow. Costs can be higher, due to the difficulty to realize economies of scale.
OUTSOURCING	<ul style="list-style-type: none"> No need to dedicate public infrastructure and personnel belonging to the public institution to the management of the food flow. Costs can be less, since it is easier to realize economies of scale. 	<ul style="list-style-type: none"> Less control over food purchasing.

Source: authors' elaboration based on Mauleon, 2018.

The insourcing of the management of food flows can ensure more control over the ingredients purchased; however, it requires both infrastructure and human resources (see Table 4). There has been a gradual shift, since the mid-twentieth century, towards the outsourcing of food flow management to the private sector (Chandler *et al.*, 2015). However, this trend started changing somewhat when municipalities and local institutions began to rethink their sustainable development strategies. Indeed, it is easier to ensure the respect and achievement of sustainable development goals when directly controlling food flows, for example by purchasing high quality and/or organic food (Chandler *et al.*, 2015). Moreover, the cost effect of outsourcing food flow management to the private sector is a controversial topic. As stressed by Chandler *et al.* (2015), some municipalities, such as Copenhagen, managed to make savings by keeping public control over food flows (e.g. by buying whole animals and ensuring the use of all their parts, and by carefully planning menus to include seasonal foods, whose better quality makes up for the higher costs).

The outsourcing of food flow management to private companies does not always translate into reduced quality or less sustainability. Even outsourcing to private companies offers opportunities to design and implement innovative solutions to improve both the nutrition of school-aged children and the sustainability of the services. As seen in Section 3 of this paper, the performance of private actors in terms of quality and sustainability of the offered services can be improved by fine-tuning the tendering criteria. As an example, the municipality of Gloucestershire (United Kingdom of Great Britain and Northern Ireland) has outsourced its catering contracts, but still found space to include innovative sustainability goals within its tenders (Chandler *et al.*, 2015).

While food flow management models determine which food is purchased and how purchasing is done, school canteen management models have an impact on how the food is prepared, and by whom. School canteen management is composed of two different processes: food preparation and food serving. Different combinations of the various options for food preparation and food serving result in different school canteen management models (see Table 5).

Table 5 Options for food preparation

SCHOOL KITCHEN	OPTION	PROS	CONS
YES	Internal preparation – food is prepared in the school kitchen.	<ul style="list-style-type: none"> ▪ The food served has better organoleptic qualities (no chilling or reheating) and its perceived quality is higher. ▪ There is flexibility as to the items included in menus; it is possible to use traditional recipes (there is no need to modify recipes to allow for chilling or reheating). 	<ul style="list-style-type: none"> ▪ Higher costs of labour (more labour intensive), food and supply, less control over portion sizes, more deliveries (drops), and the amount of waste may be greater. ▪ Less control over food safety. ▪ Lack of standardization of meals: if there are many schools with their own kitchen in the same municipality, there may be great variability in food preparation, food taste and portion sizes.
NO	External preparation – food is prepared elsewhere and is kept chilled or heated before being brought to schools.	<ul style="list-style-type: none"> ▪ Lower labour, food and supply costs (economies of scale through centralization). ▪ Inventory control: centralized inventory with good inventory turnover. ▪ Centralized hygiene controls. ▪ Standardization of meals: consistency in food preparation, food taste and portion sizes. 	<ul style="list-style-type: none"> ▪ The food served has worse organoleptic qualities (due to chilling, freezing and reheating) and a lower perceived quality. ▪ The people preparing the food are not the same as those serving the food to customers.

Source: authors' elaboration based on National Food Service Management Institute, 2002; Mauleon, 2018.

The decision as to whether or not to prepare food internally depends on the existence and capacity of the school kitchens (see Table 5).

Both internal and external food preparation have their pros and cons. Internal food preparation generally results in higher consumers' satisfaction, given that the meals are served soon after preparation and traditional recipes can be used. On the

other hand, this model is, in theory, more costly in terms of labour, food and supply (Mauleon, 2018). If the municipality or local institution does not have many budget constraints, higher labour costs can also be seen as an advantage, as they mean job creation. Meanwhile, external food preparation allows for cost reductions (labour, food and supply costs), given that the centralization allows procurers to reap economies of scale. The main disadvantage of external preparation is the lower quality (both the perceived quality and the nutritional quality) of the food.

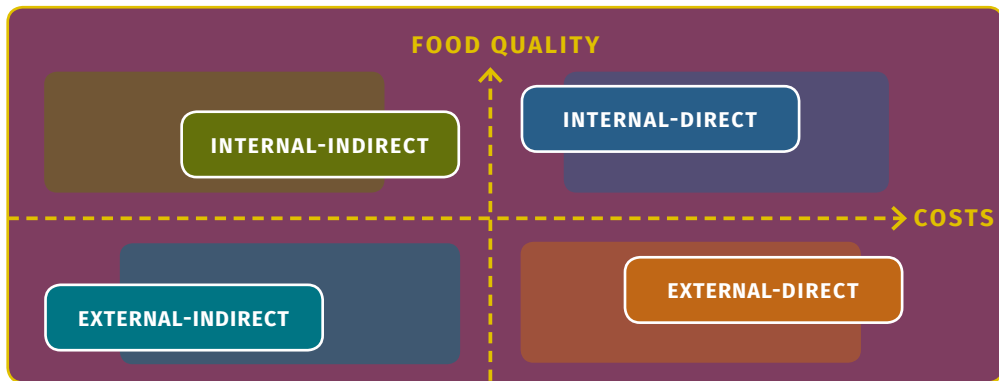
Municipalities and local institutions not only have to decide between internal or external food preparation; they also have to choose whether to in- or outsource the two processes of food preparation and food serving, depending on the available human resources (cooks and personnel to serve the food) (see Table 6).

Table 6 **School canteen management models**

FOOD PREPARATION	AVAILABILITY OF HUMAN RESOURCES	MODEL
Internal preparation	Yes	Internal-Direct
	No	Internal-Indirect
External preparation	Yes	External-Direct
	No	External-Indirect

Source: authors' elaboration based on National Food Service Management Institute, 2002.

The combination of available infrastructure (school kitchens) and of available human resources (cooks and personnel to serve the food) gives rise to four school canteen management models: internal-direct, internal-indirect, external-direct and external-indirect (Muñoz Rico, 2018). While the internal-direct model maximizes the pros and cons of internal preparation and the external-indirect model maximizes the pros and cons of external preparation (see Table 5), the internal-indirect and the external-direct models seem to provide intermediary solutions in terms of the costs and quality of the food (see Figure 3).

Figure 3 **Costs–food quality matrix of school canteen management models**

Source: authors' elaboration based on Muñoz Rico *et al.*, 2018; National Food Service Management Institute, 2002; Ham, Hiemstra and Yoon, 2002; Mauleon, 2018.

20.5 Impacts of different operating modalities

To design tenders in an informed manner, public officials must understand the impacts and benefits of innovative solutions for food purchasing for school canteens. Two possible impacts are discussed in this chapter:

- impacts in terms of consumers' satisfaction;
- impacts in terms of the inclusion of local and small-scale suppliers.

Consumers' satisfaction with school canteens services and the inclusion of local, small-scale suppliers are of key importance for the achievement of sustainable development goals. Indeed, as shown in a number of studies (FAO, 2019a, 2019b; Golley *et al.*, 2010), school meal programmes are a key component of nutrition education within schools. They critically influence the nutritional behaviour patterns of pupils and may have a long-lasting impact in terms of diet quality and nutrition for the population. Similarly, many authors (FAO, 2014, 2015, 2017) have stressed how public food procurement programmes can revitalize rural economies by providing a guaranteed demand for local small-scale suppliers. Positive impacts concerning these two aspects are crucial to the creation of a foundation of consensus for municipalities and local institutions.

Consumers' satisfaction

According to the literature (Lülfes-Baden, Rojas-Mendez and Spillar, 2008; Wall and Berry, 2007), various dimensions must be considered when analysing consumers' satisfaction, including:

- food quality;
- dining ambience; and
- customer service.

Several authors (Ham, Hiemstra and Yoon, 2002; United States of America, United States Department of Agriculture [USDA], 2015) highlight that the perceived quality of food is higher in internal food preparation models than in external ones (see Table 5). This is confirmed by empirical studies conducted in different countries. Ham, Hiemstra and Yoon (2002) investigated the factors affecting lunch participation in schools in Indiana, in the United States of America, and showed that the average daily participation rate of all students in school lunch was 5 percent lower in schools with an external food preparation model than in those with an internal model. A similar finding is that of Mauleon (2018), who studied families' opinions of school canteens in the Basque Country, Spain. Families rated meals prepared in internal school kitchens significantly higher (average score of 7.86 out of 10) than those prepared elsewhere and brought either cold or hot to schools (average score of 6.27 out of 10). The same study also showed that families are significantly more satisfied with school meals when parents' associations are directly involved in the management of food flows. Meals prepared in school canteens in which parents' associations are involved obtained an average score of 8.87 out of 10, compared with an average score of 6.71 for all types of school meal preparation combined. This suggests that involving parents' associations may significantly improve consumers' satisfaction with the provided service.

Dining ambience and customer services have been the objects of a number of studies on food services in general (Wall and Berry, 2007; Ryu and Han, 2010). Both dining ambience factors (equipment, facility layout, lighting and colour) and customer service factors (body language, tone of voice and level of enthusiasm) are widely considered relevant to customers' satisfaction in the food services sector, and so are they for children consuming meals at school. The relevance of these elements is confirmed

by the fact that municipalities and local institutions consider them when designing or redesigning their school meal programmes. The municipal authorities of Kazan, in Russia, for example, specifically included the aesthetic upgrading of school canteens as a pillar in the reform of the school food and nutrition system.

Inclusion of local and small-scale suppliers

Public food procurement is being increasingly identified as an opportunity to improve the livelihoods of local and small-scale suppliers (i.e. farmers, farmers organizations and small and medium enterprises or SME) in both developing and high-income countries (Morgan and Sonnino, 2008, 2010). A global study by the United Nations Environment Programme (UNEP) about social norms in SPP at the national level found that the social aspect that was mentioned most often was employment, followed immediately by SME development (UNEP, 2013).

Even though inclusive public procurement programmes are widely recognized as suitable tools to create market opportunities for small-scale suppliers (FAO, 2018), detailed research on their impacts on these suppliers remains rather limited. Two countries where the specific objective of targeting food purchasing at smallholder farmers has benefited from the active involvement of local governments are Brazil and the United States of America.

- The Brazilian National School Feeding Programme (PNAE) and the Public Food Purchase Programme (PAA) were conceived as strategies to increase farmers' incomes, stimulate local economies and improve access to nutritious food (WFP and International Policy Centre for Inclusive Growth [IPC-IG], 2013). In line with PNAE's guidelines for nutritionists, many municipalities formed multi-stakeholder mechanisms to promote dialogue among farmers, local governments, nutritionists and schools (FAO, 2017). In some cases, special working groups tailored school menus to food supply from smallholders (Triches and Schneider, 2010). An interesting incentive for municipalities, the "entrepreneurial mayor" award of Sebrae, the Brazilian agency that provides support to SME, recognizes efforts made by municipalities to promote local and small-scale suppliers through public procurement as one of its categories (Brazil, Brazilian Micro and Small Business Support Service [Sebrae], 2019). Municipal governments played a coordinating role in product placement, and occasionally provided support services to farmer associations (Wittman and Blesh, 2017).

- In the United States of America, the Farm to School programme promotes purchasing from local producers and suppliers for school lunches to support the farming sector and increase the consumption of fresh foods at schools (United States of America, USDA, 2015). School districts are a unique form of local government in the United States of America; these districts have the freedom to decide how the money from the states is spent. In 2012, the nation's ten largest school districts formed the Urban School Food Alliance to share best practices and leverage their purchasing power to continue to drive quality up and costs down while incorporating sound environmental practices. Together, these ten districts currently procure USD 95 million worth of local items annually (Urban School Food Alliance, 2019). In 2018, the members of the Alliance set a collective goal to increase their local food purchases by 5 percent by the 2021/22 school year. This purchasing effort will support state and federal policies that champion farm-to-school efforts and provide useful information for them.

To better understand the impacts of inclusive public food procurement programmes, municipalities and local institutions should implement suitable assessment methodologies, such as the social return on investment (SROI) methodology. The SROI methodology is used to measure and valorize (in monetary terms) the social, economic and environmental outcomes of interventions; it captures types of value that are often left out from cost-benefit analysis.

The Food for Life initiative (FFL) in municipalities in the United Kingdom of Great Britain and Northern Ireland has been the object of several SROI studies. These studies have demonstrated the benefits of the initiative to the local economy (Food for Life, 2016). For example, in East Ayrshire County (Scotland), the FFL initiative generated GBP 6 in economic, environmental, health and other types of value for every GBP 1 invested (Lancaster and Dune, 2008). The larger part of this value was found to be related to the value of the contracts for local food suppliers and their employees. Self-reporting by interviewed stakeholders to assess the outcomes of the initiative showed *inter alia* that farmers, processors and wholesalers had more secure businesses and greater access to new contract opportunities, and that the profile of their goods and services in the local community increased. In addition, local employees (of local supply businesses) reported more employment opportunities, increased job security and improved workplace well-being and satisfaction (Food for Life, 2016).

The FFL initiative is just an example of how suitable assessment methodologies can demonstrate the value of the impacts of inclusive public procurement food programmes in terms of the revitalization of the local economy (e.g. impacts on local and smallholder suppliers) (Lancaster and Dune, 2008; Jones *et al.*, 2016). For another example of an assessment methodology, see Chapter 21.

20.6 Conclusions

This chapter has analysed key challenges faced by municipalities and local institutions in linking food procurement, especially for school canteens, with sustainable development goals. The chapter expands the current debate, which focuses on tendering criteria, by including reflections on important subjects such as food flow and school canteen management – two issues that are relevant to the achievement of a sustainable public food procurement model.

The examples provided in the chapter show that there are no universal solutions to overcome challenges; solutions should be adapted to local contexts and capitalize on local specificities. Policymakers and procurement officials in municipalities and local institutions should use the examples provided in this chapter as a source of inspiration for the design and implementation of ambitious programmes for public food procurement for school canteens. The achievement of sustainable development goals requires local actions besides global commitments; the sustainable procurement of food for school canteens is an instrument that can be realistically used to work towards sustainable development goals at a localized scale.

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21 ASSESSING THE IMPACTS OF HOME-GROWN SCHOOL FEEDING PROGRAMMES

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ABSTRACT

Globally, millions of children receive meals at school through home-grown school feeding (HGSF) programmes that link school feeding programmes with local smallholder farmers. Countries such as Brazil, Ethiopia, Ghana, Kenya and Nigeria have undertaken HGSF initiatives. However, with a few exceptions, there is a dearth of empirical evidence on the effectiveness and economic sustainability of such programmes. This evidence gap is due to the innate difficulties of applying standard impact evaluation approaches to complex programmes that combines two interventions, each of which has specific target populations. This chapter aims to support practitioners by providing methodological guidelines for conducting rigorous impact assessments of HGSF programmes. It presents an overview of the main technical issues to be addressed, depending on the characteristics of the context and of the intervention itself. The chapter focuses on the methodological challenges related to the estimation of the effects of HGSF interventions on farmers.

21.1 Introduction and motivation

Home-grown school feeding (HGSF) programmes stand out for linking school feeding interventions to agricultural development by using food that is produced and purchased within the country. The overall goal of linking school feeding programmes (SFP) to agricultural development – particularly to local small-scale production – is to reduce rural poverty by developing markets, generate a regular and reliable source of income for smallholder farmers and support them in overcoming the barriers that prevent them from enhancing productivity (Food and Agriculture Organization of the United Nations [FAO] and World Food Programme [WFP], 2018).

Globally, many countries (e.g. Brazil, Ghana, Kenya and Nigeria) have undertaken HGSF initiatives (Drake *et al.*, 2016) (see also Chapters 2, 8, 9, 10, 11, 12, 14, 15 and 16 for experiences in Brazil, Chapters 1, 5 and 34 for experiences in Ghana and Chapters 4 and 33 for experiences in Kenya). However, with a few exceptions, there is a dearth of empirical evidence on the effectiveness and economic sustainability of such programmes. This evidence gap hampers the promotion of what has been framed as a potential win-win intervention. Furthermore, it hinders the upscaling of HGSF within the broader framework set by Sustainable Development Goal (SDG) 2, which aims at achieving food security and nutrition targets by promoting sustainable agriculture (FAO and WFP, 2018).

Since HGSF programmes are by definition cross-sectoral (with goals spanning social protection, education, nutrition and agriculture) and involve two main beneficiary groups (school-aged children and farmers), rigorous impact evaluations must capture both education and nutrition effects for schoolchildren, and agricultural impacts for farmers (FAO and WFP, 2018). Given this complex nature, evaluating HGSF presents several methodological challenges.

This chapter aims to support practitioners by providing methodological guidelines for conducting rigorous impact assessments of HGSF programmes. It presents an overview of the main technical issues to be addressed, depending on the characteristics of the context and of the intervention itself. Importantly, the chapter focuses mostly on the agricultural goals and on the methodological challenges related to the estimation

of the effects of HGSF interventions on farmers, as this is the area where the largest knowledge gaps remain (Gelli *et al.*, 2016; Sumberg and Sabates-Wheeler, 2011).

More specifically, the following sections provide practical answers to these overarching questions:

- What is the rationale behind HGSF programmes? What are the main challenges in designing rigorous evaluations for HGSF programmes?
- What is the theory of change behind HGSF? How should school meals and public food procurement affect beneficiaries in terms of nutrition and education for schoolchildren, and in terms of farm production, agricultural profits and increased income for farmers? What is the role of supporting factors and of contexts/ structural mechanisms in programmes' successes or failures?
- How can an adequate research design to conduct an impact evaluation of HGSF be chosen? What are the most commonly used experimental and non-experimental evaluation designs? How can these techniques be adapted to specific characteristics and to the food procurement model adopted by the HGSF programme?
- What are the most suitable sampling strategies for different food procurement models?
- Which outcomes should be measured to assess a programme's effects?
- What are the implications for the external validity of the evaluation's results?

In order to provide some evaluation tools that best suit the characteristics of the contexts in which HGSF interventions take place, this chapter focuses on the practical differences in evaluation under two main food procurement modalities: a decentralized model, wherein each school procures food from (smallholder) producers living in the school's catchment area, and a more centralized model, wherein procurement occurs centrally or at the regional level (e.g. districts). These are very common operating models for school food procurement (see Chapter 4). However, in practice, HGSF programmes can be implemented in many ways, and food procurement systems that combine elements from both schemes are frequently encountered (Blamey and Mackenzie, 2007).

The rest of the chapter will present a five-step approach for the design and implementation of impact evaluation for HGSF programmes. The five-step approach is articulated as follows:

- **Step 1 – Setting up the theory of change for HGSF programmes:** identification of the channels through which the purchasing of school meals from local farmers can increase agricultural profits, and thus farmers' incomes and food security.
- **Step 2 – Choosing the research design:** presentation of the main methodological tools to design impact evaluations and of the potential challenges in estimating the real impact of the programme.
- **Step 3 – Adopting the most adequate sampling strategies:** general recommendations for the drawing of a sample for impact evaluations.
- **Step 4 – Selecting outcome indicators** in different dimensions, with a focus on agriculture.
- **Step 5 – Considering implications for external validity:** discussion on whether the impact of the intervention can be generalized to different contexts.

The chapter provides a general overview of the methodology for assessing the impact of HGSF programmes. For a more detailed discussion of the tools and procedures, see Giunti *et al.* (forthcoming). For a general background on the techniques mentioned in this chapter, see Gertler *et al.* (2016) and White and Raitzer (2017).

21.2 Designing impact evaluation: a stepwise approach

Setting up a theory of change for home-grown school feeding programmes

The design of an impact evaluation should start with the formulation of a solid theory of change of the intervention. A theory of change is understood here – as in Blamey and Mackenzie (2007) – to represent both an implementation theory and a programme theory. The implementation theory is the diagram representing the links between the project activities and the anticipated outcomes of those activities. For example, the purchasing of school meals from local farmers should increase agricultural revenues,

which in turn should increase farmers' incomes. The programme theory consists of the mechanisms represented by the arrows linking the elements of the causal chain. For example, the demand for local food from the school meal programme may meet an elastic supply from subsistence farmers, whose resources (land and labour) are relatively unemployed and can therefore be readily invested in the production process.

The next sections briefly discuss three key elements of theories of change; these are then applied to HGSF programmes.

Supporting factors

HGSF interventions usually exert their effects in conjunction with other operating factors. For example, a HGSF programme may increase school enrolment if local weather conditions allow a constant flow of agricultural products to schools throughout the school year, thus ensuring the effective implementation of the school feeding programme. In addition, a single outcome can be achieved through alternative policies; increased school enrolment, for example, can be obtained through cash transfers, the building of schools, teacher training, etc.

Factors supporting an intervention and alternative pathways to the achievement of the same outcomes should be taken into consideration in causal chain analyses – not only for the intervention as a whole, but also for each link in the causal chain of a project. If the mechanism considered is sufficiently understood, and if the supporting factors can be observed and measured, the researcher can model the negative or positive impact of these factors as mediators within a structural model. Causal chain analysis should also consider how the elements of packages of interventions interact (for example, school feeding and sourcing food from local farmers), and how different activities interact with factors outside the control of the project designer in the determination of the intervention's outcomes.

A distinction should be made between supporting factors that are within the control of the experimenters, and those that are not. For example, the designers of a HGSF programme may decide whether or not to source food locally, but they cannot decide whether the area of intervention is able to provide food all year round. The factors within the control of the experimenters should be included in the causal chain diagram, while those outside of the control of the experimenters should be included and discussed as assumptions.

Mechanisms

The analysis of mechanisms is in two parts: modelling mechanisms and designing evaluations to test those mechanisms. First, all the causal relations of the theory of change need to be described and explained. This step must be conducted using behavioural models that show how an activity is transformed in an outcome and under what conditions. Second, the analysis should identify weak links in the causal chain. Weaknesses refer to causal links that are not well understood or for which little evidence is available. Evaluations may be designed to understand and to evaluate these links (Ludwig, Kling and Mullainathan, 2011).

For example, in HGSF programmes, the mechanism for farmers to increase their incomes is profit maximization. According to economic theory, farmers operate to maximize profits. Hence, if offered the right incentives, farmers will increase their food production. In practice, however, risk-averse farmers may maximize expected utility and hence prefer a less variable income stream to a more profitable but variable production activity. In Ghana, for example, farmers did not respond to the incentives provided by a HGSF programme (Aurino *et al.*, 2018).

The reason was that caterers provided the school meals, and were paid after the meals were served. Caterers were thus unable to purchase food from farmers, and would instead purchase food on credit from market queens (dominant actors on markets). The farmers could have sold their produce to the caterers on credit, but there was not enough trust between farmers and caterers to make this type of arrangement possible. The lack of credit mechanisms, enforceable contracts and mutual trust made transactions between farmers and caterers impossible.

Identifying the mid-level mechanism implies identifying mechanisms that work under a range of different contextual conditions. Once the general causal mechanism is defined, the goal of the project designers is to adapt the interventions to the specific characteristics of each context. A specific project will not work in the same way everywhere, but variations of a valid causal mechanism can be researched and identified.

Context

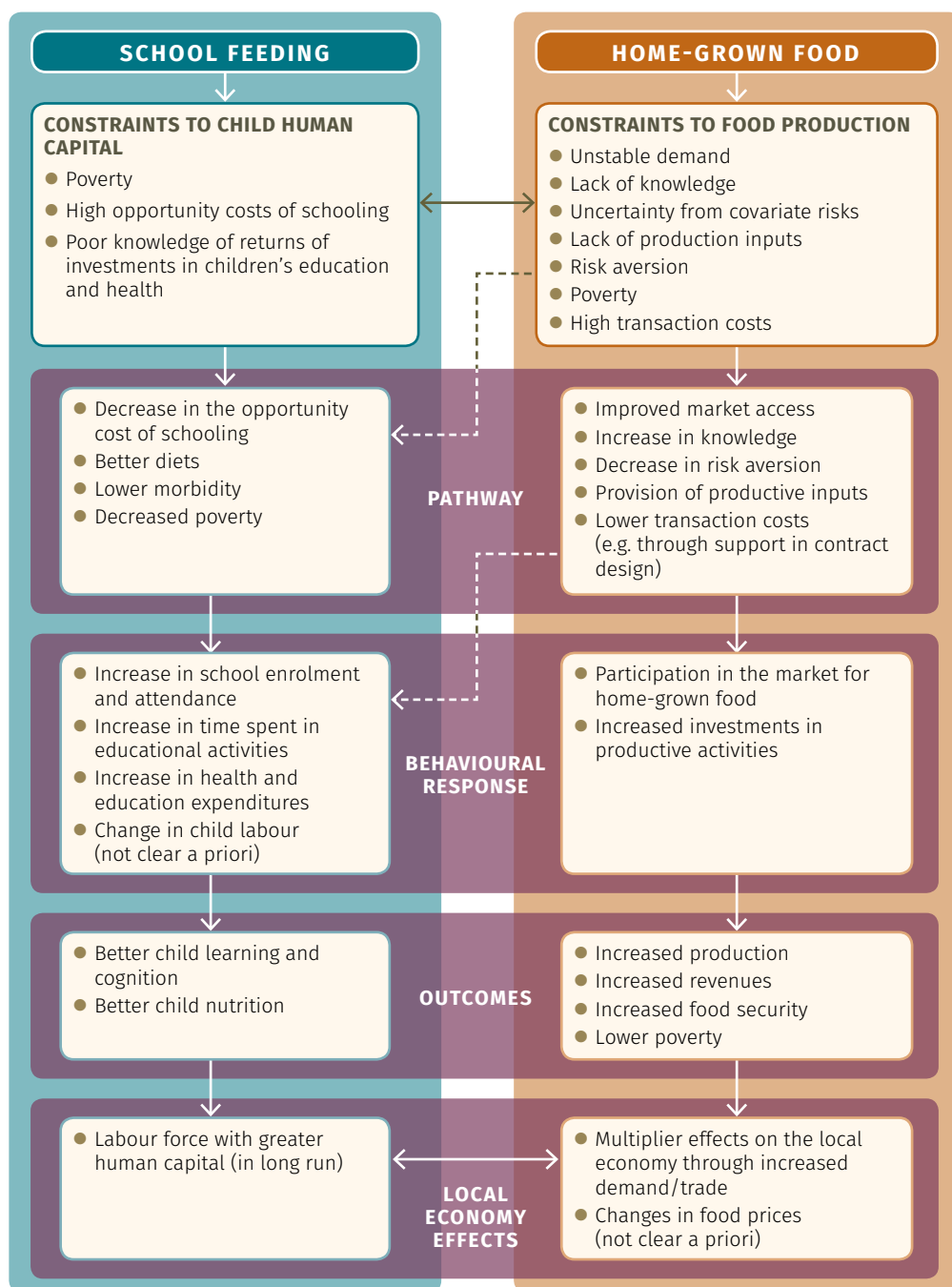
Context is defined as the set of covariates describing a population, as well as the complex systems of norms, institutions and relations that support a causal pathway. When the characteristics of the context are well known and understood, the effects of interventions can be extrapolated based on the heterogeneity of the characteristics of population, interventions and locality using statistical methods. A simple extrapolation based on covariates and subgroup analysis may be sufficient in simple contexts, while more complex contexts may require an analysis of the central features of the contexts or markets. For example, the extrapolation of the effects of HGSF programmes may require knowledge of the market structure or other key characteristics of the context that allows the incentives to operate.

An example of theory of change for HGSF programmes

Figure 1 provides a highly schematic example of a theory of change for HGSF interventions. For reasons of brevity, the example focuses on the home-grown component only. Benefits for farmers include increased incomes and food security and changes in agricultural production patterns. The home-grown component of the programme generates an additional demand for food, which increases farmers' incomes or decreases its variance over time (better income security). To the extent that demand is stable over time, it may also help stabilize income against seasonal fluctuations and other shocks, and thus promote food security and encourage agricultural investments. In the long term, higher incomes and improved expectations regarding future income streams may also encourage farmers to invest in their farms or in their, or their children's, human capital.

The second stream of benefits to farmers is the diversification of production towards foods that are healthier and more nutritious to supply schools – although production diversification will happen only under certain conditions. For example, it has been observed in Zambia that the beneficiary farmers of Zambia's HGSF programme would reallocate resources within the existing production mix, rather than diversifying into new crops – presumably because of land, labour, inputs and other constraints that limit their capacity to meet extra demand without reducing other production activities (see also Chapter 35) (Prifti and Grinspun, forthcoming). Finally, there can

Figure 1 A theory of change of HGSF interventions



Source: authors' elaboration

also be benefits for the wider community, particularly for traders, caterers and food processors. These benefits consist mainly of increased income and job opportunities.

The theory of change should also consider how the effects of the home-grown component interact with those of school feeding. For instance, the home-grown component can impact indirectly on schooling if the increase in the family income of the farmers that are supported by the programme is invested in child education and nutrition. Another effect of the interaction between implementing school feeding and its home-grown component is diet diversification. Locally produced food may be healthier and/or more diverse, which may have a positive impact on child nutrition and school attendance. However, a negative interaction effect is possible if the HGSP programme increases the use of child labour on farms to produce the additional food for schools; this would decrease school attendance or reduce the time spent on educational activities.

Choosing the research design

The goal of impact evaluations is to empirically verify to what extent a programme has contributed to selected outcomes. To establish causality between an intervention and a given outcome, the possibility that any factors other than the programme itself explain the observed impact, must be ruled out. To eliminate the influence of potential confounding factors, the evaluation should measure each outcome at the same point in time for the same unit of observation in two different states of the world. In the earlier example, these states are exposure of a child to the SFP, and non-exposure of that same child to the SFP (the counterfactual). This is, by definition, impossible in practice.

The group that is assigned or exposed to the programme is known as the treatment group. To estimate the impact of the programme, it is critical to identify a counterfactual for this group. In other words, a group must be found that is statistically identical to the treatment group for all characteristics other than the exposure to the programme. This comparison group remains unaffected by the programme, and thus allows researchers to estimate the counterfactual outcome, i.e. the outcome for the treatment group had it not been exposed to the programme (Gertler *et al.*, 2016).

For an ideal counterfactual, the treatment and comparison groups should have the following properties:

- the average characteristics of the two groups must be identical in the absence of the programme;
- the treatment should not affect the comparison group, either directly or indirectly;
- the outcomes in the control group should change in the same way as the outcomes in the treatment group, if both groups were given the programme (or not).

The use of a control group that differs from the treated group, in ways other than the absence of the treatment, would generate inaccurate estimates of the outcomes of the programme, as the effects of the programme would be mixed with those other differences.

Several empirical methods can be applied to construct the counterfactual. The choice of the preferred strategy depends on multiple factors, such as context, available data or the possibility to intervene in the design of the intervention from its early stages.

Experimental methods

Randomized experiments are commonly considered as the gold standard for impact evaluations, if certain conditions are met. These conditions are: the evaluation design takes place jointly with programme design (or at least before the programme starts), and there are potential units of treatment that have never been treated, and whose treatment will take place later. A randomized control trial (RCT) involves the random assignment of members of the eligible population to one or more treatment groups that receive the intervention, and to the control group, which receives no intervention. Alternatively, if a programme needs to be gradually phased in until it covers the entire eligible population, the control group can be constructed by randomizing the time period during which participants are enrolled in the programme. This randomization scheme is well known as a pipeline or step-wedged design.

The random assignment of units to treatment and control groups has a high probability of generating two (or more, depending on the number of treatment arms) statistically identical groups. In general, if the population of eligible units is large enough, the randomized assignment mechanism will transfer any characteristic of

the population to both the treatment and the comparison group. This is expected to be the case for both observed characteristics (e.g. individual or household socio-demographics) and unobserved variables (such as motivation, preferences, etc.), which are more difficult to measure. Thus, the treatment and comparison groups generated through randomized assignment will be similar, not only in their observed characteristics but also in their unobserved characteristics (Gertler *et al.*, 2016). Thus, since all observed and unobserved factors that might otherwise explain the difference in outcomes are ruled out by randomization, the impact of the programme is simply the difference between the mean outcome of the treatment group and the mean outcome of the comparison group.

In a **decentralized food procurement model**, the smallholder farmers living in a school catchment area are the main beneficiaries of the farming promotion component of the programme. Here, a clustered design with randomization at the level of the school catchment area (or village) is preferable, to minimize the risk of spillover and imperfect compliance with treatment assignment. Indeed, the signing of supply contracts between treated farmers and schools may produce spillover effects on the control group through multiple channels. For instance, an increased demand for agricultural inputs (seeds, fertilizers, irrigation, etc.) may cause a rise in the prices of those inputs, which would negatively affect other local farmers by augmenting their production costs.

Another – positive – spillover effect is that the increase in the demand for food may raise the price of farm products, which would benefit all local producers. Imperfect compliance happens when a farmer assigned to the control group participates in the programme. For instance, in case of a bad harvest, farmers enrolled in the programme (the treatment group) might decide to subcontract production to farmers who belong to the control group, in order to fulfil contractual supply requirements. Thus, farmers in the control group would indirectly benefit from the increase in demand caused by the HGSF procurement. In these cases, randomization at the level of single farmers would produce inaccurate estimates. School catchment areas are usually small and numerous enough to allow for the randomized assignment of treatment.

In the **centralized food procurement model**, the whole district is enrolled in the HGSF programme and all households with school-aged children are eligible for

school meals. Procurement occurs centrally, at the district level, so that all farmers in the district are eligible to become suppliers for school feeding. In this setting, the implementation of an experimental design is less straightforward. An RCT would need to conduct randomization at the district level and compare outcomes of farmers located in treated and control districts. A sufficient number of districts is required to obtain estimates that can capture statistical differences between the treatment and control groups (the programme effects).

Moreover, the comparison of farm production across districts assumes that the farm production systems of the different districts are similar. In many practical cases, this assumption does not hold. Districts are often very distant areas; their types of crops, agroecological zones, land distribution and so on may differ significantly. Therefore, the use of the RCT method is recommended only in cases where districts are small and homogeneous or where the number of districts is large enough to conduct randomization.

Quasi-experimental methods

In some cases, RCTs cannot be conducted since the evaluator cannot control the intervention design from the very beginning; in other cases, ethical, financial, political and operational factors may hamper random assignment. Where randomization is not feasible or desirable, quasi-experimental methods are useful tools to create a comparable control group.

In most cases, farmers who decide to sell their products to schools differ from other farmers in both observable (e.g. socio-demographics, asset level, access to credit, etc.) and unobservable (e.g. motivation, propensity to risk, etc.) characteristics. As a general rule, a comparison group can be constructed by selecting comparable farmer households from datasets that target agricultural populations similar to the programme population in comparable areas, and measuring the outcomes that are relevant for the evaluation among those populations. Since unobservable characteristics are not measurable, the best approach is to construct two groups and test whether they are statistically identical across observable characteristics (Jetha, Kanan and Escueta, 2017).

In cases where programmes do not cover the entire population of a district or school catchment area, control group units can be selected among eligible but non-beneficiary smallholders in the same district or school catchment areas, or, alternatively, among non-eligible households from the same district (school catchment area). In addition to the spillover effects described above, further inaccuracies may arise from the fact that non-eligible farmers are likely to have different unobservable characteristics; this entails a clear risk of having a control group that is not similar to the treated group. Eligibility criteria established for the home-grown component are likely to provide some indications about the nature of this bias towards a certain type of farmers (e.g. land size, product quality, productivity).

In general, if the research team can control the evaluation design from the early design and implementation stages, matching procedures (propensity score matching and synthetic controls) can be implemented more efficiently. The quality of the matching can be improved by collecting baseline data for a wide variety of farmers' characteristics; this reduces the estimation bias due to the selection of farmers on unobservable characteristics. For a complete overview of the most commonly used statistical techniques to deal with selection bias, see Gertler *et al.* (2016).

Designing the sampling strategy

A rigorous sampling strategy for impact evaluation needs to be designed in a way that ensures that the sample is representative of the population of interest and allows for the identification of a valid control or comparison group (White and Raitzer, 2017). This is crucial to ensuring the internal and external validity of the findings of impact evaluations.

To draw a representative sample a three-step procedure is usually undertaken:

- determine the population of interest;
- identify a sampling frame;¹
- draw as many units from the sampling frame as required by power calculations (see below).

¹ The sampling frame is the most comprehensive list of units in the population of interest that can be put together (Martínez-Mesa *et al.*, 2016)

In the context of HGSF programmes, interventions target local smallholders or farmer organizations. The introduction of specific eligibility criteria can further restrict the definition of the population of interest. Moreover, farmers who are able to enrol in the programme and become school suppliers are those that have sufficient production capacity to produce a surplus and sell it to schools. These farmers are only a subsection of the entire farming population, so they need to be oversampled to ensure appropriate coverage in both the treatment and the comparison groups.

Experimental design

In the case of cluster RCT designs, the identification of the primary sampling unit depends on the food procurement model. In the decentralized model, a multi-stage cluster sampling procedure should be applied, and school catchment areas would ideally be used as primary sampling units (PSU). In a first step, a subgroup of representative catchment areas is randomly selected and then randomly assigned to either the treatment or control group. Households within catchment areas can be considered as secondary sampling units (SSU). As eligible farmer households represent a subgroup of the whole household population, a stratified design should be implemented to specifically target this subgroup and oversample them within both treatment and control arms. A listing exercise collecting information on farm production, characteristics of the farmers and other data that can help identify eligible households should be conducted at an early stage to make this stratification possible.

Randomization of HGSF programmes in a centralized procurement setting is unlikely, but theoretically possible. PSU should correspond to the randomization level. Thus, if the entire district is covered by a programme, districts should constitute the PSU. Households within selected districts (SSU) can then be sampled randomly, or stratification layers can be introduced (e.g. rural/urban, village size, etc.). In this setting, oversampling by strata of eligibility status is even more important, since the share of those benefiting from the local purchasing of the HGSF programme is even smaller.

Quasi-experimental designs

In quasi-experimental settings, the sampling strategy should focus on targeting the eligible comparison groups. The eligibility criteria of the HGSF programme (e.g. production standards) help identify the population of reference from which to extract the ultimate sample units. Administrative data can provide the list of

all potential beneficiaries, reconstructing the sampling frame. As for randomized experiments, programme implementation modalities are a determinant for designing the stratification strategy and identifying the PSU, i.e. districts or school catchment areas, based on the food procurement system adopted.

Compared to the experimental context, researchers cannot randomize treatment allocation of PSU. Depending on the procurement scheme, researchers can decide whether to include all treated and control PSU (where existing) or rather a random subgroup of them in the sample to reach the targeted sample size. Households living in the selected PSUs constitute the SSUs; they should be randomly selected among the whole population eligible for the programme. Importantly, for the home-grown component, both farmers who voluntarily participate in the programme and those who do not should be part of the sample.

For the school feeding component, control units should be randomly selected from children in non-treated PSU since the entire population of schoolchildren can potentially be treated. This is feasible only where control PSU are comparable to treated ones. In cases where the whole eligible population is treated, sample units should be randomly identified among beneficiaries, and their outcomes should be observed over time. In experimental designs, the secondary sampling unit may change if farmers are organized in cooperatives. If there are many cooperatives active in the study area, the researcher can decide to stratify the sample at the level of the cooperatives first, and include all farmers in the sampled cooperatives.

Choosing the sample size

As a general rule, the larger the sample, the more likely it is to be representative of the population from which the sample is taken. However, sample size has important cost-time trade-offs. Power calculations can determine the minimum sample size that is sufficient to detect statistically significant intervention effects. A study comes to the right conclusion in two cases: when the intervention works and a significant impact is found, or when the intervention does not work, and no significant impact is observed. When the intervention does not work, but the study concludes that it does, a type I (inclusion) error has occurred. Meanwhile, if the intervention does work but the study finds no significant impact, a type II (exclusion) error has occurred. The power of a study is defined as 100 minus the probability of a type II error.

A type II error can be avoided by increasing the sample size. The objective of power analysis is to determine the sample size the study needs to obtain an acceptable level of type II error. Practitioners usually consider a 20 percent error level acceptable, or a power of 80 percent. In order to derive sample size, the minimum detectable effect (MDE) must be established – that is, how large (or small) an effect a study can detect. An MDE can be based on previous experiences of similar interventions or on consultations with policymakers. The MDE may correspond to the policy objectives of the intervention.²

Intuitively, the larger the MDE researchers want to detect, the smaller the sample size that is required. However, setting an MDE that is too large will result in an underpowered study if the impact of the intervention is not as large as expected. The MDE is minimized with a balanced sample, i.e. when the number of observations is the same in the treatment and comparison groups. Importantly, when outcomes are highly correlated at the cluster level, e.g. income and test scores (high intra-class correlation coefficient), more power is achieved by sampling relatively more clusters rather than more people within a cluster. This type of intervention requires samples with a large number of villages. A sample with many individuals from a relatively small number of villages will have limited power.

Measuring the impact on multiple outcomes

The design of indicators to be measured during the impact evaluation should build on the consideration of all potential interactions occurring among the stakeholders along the steps of the food supply chain. Increased farm production and market participation of smallholder farmers are considered as core outputs of HGSP interventions in terms of food security and local agricultural development. FAO and WFP (2018) provide a specific list of suggested outcomes, outputs and indicators to evaluate the impact of HGSP programmes on farm and agriculture-related realms.

² Statistically speaking, the MDE depends upon: i) the t-statistic values targeted for the significance level, usually corresponding to significance level threshold of 5 percent, ii) the chosen level of power (80 power as default), iii) standard error of the outcome variable, iv) the proportion of the sample in the treatment group and iv) the sample size. See the calculations in Appendix A for both single and cluster designs. For further details on power calculations for standard and complex sampling designs see White and Raitzer (2017) and Gertler *et al.* (2016). Power calculation software exists to calculate the required sample size on known parameters.

General recommendations for evaluating the intervention impact on outcomes are the following:

- all person-based indicators should be disaggregated by sex;
- trend analysis should be conducted in the short, medium and long term;
- representative samples of smallholder farmers should include both those who received support from the programme and those who did not;
- a survey system based on telecommunications technology should be used, e.g. using cell phones;
- the inclusion of respondents in multiple surveys should be avoided to boost households' willingness to participate and improve the quality of the answers obtained.

Considering implications for external validity

The external validity of the intervention refers to the possibility of generalizing the results of the programme and transferring them to other contexts that differ from the context of the intervention. HGSF interventions are implemented with a variety of procurement models and supporting factors; simple generalizations from one context to the other may therefore not often be possible. The question of whether a HGSF intervention works is not very informative and unlikely to be answered by any study or number of studies. The success of the intervention will depend on the characteristics of the programme implementation, such as:

- programme design;
- the characteristics of the target group;
- the characteristics of the implementing agency (e.g. administrative, monitoring and financial capacity, and whether these vary between the areas where the programme is implemented);
- the geographic scale of the programme and heterogeneity in the areas affected by the programme (e.g. in terms of agro-environmental characteristics, ethnicity, production capacity, access to credit, etc.);
- market structures and prices; and

- contextual institutional set-up, including levels of trust between institutions and HGSP actors, as well as between farmers and schools, etc.³

Given these heterogeneities, HGSP may work in some contexts, but not in others; it may work for some farmers, but not for others, etc. Therefore, the results of the impact evaluation of an HGSP intervention can rarely be extrapolated from one context to another (unless the contexts are extremely similar, which is rare).

The focus of evaluators and policymakers should not be on a critical extrapolation of findings to new settings, but rather on understanding the mechanisms that made the intervention work (or fail) in the first place. For example, the analysis of the theory of change in this chapter has identified some key general questions that are preconditions for the successful operation of HGSP programmes across contexts. Does HGSP generate additional food demand in the market? Do farmers respond to the additional demand by producing more food? Will farmers make investments in their farm to respond to the larger and more stable demand for food?

Simple extrapolation is not possible because the success of HGSP programmes does not only depend on a set of characteristics of the population or of the intervention (such as for example the type of local food being produced or the type of contract between farmers and the project). The success of a project also depends on several supporting factors, including the presence of simultaneous programmes and institutional conditions allowing the operation of agricultural markets and contractual arrangements. The successful replication of an intervention would require the presence of the same or similar contextual factors. Hence, the analysis of the external validity of HGSP should consider the key factors that allow the operation of the fundamental mechanisms described above.

21.3 Conclusion

Although HGSP initiatives have been implemented in many countries, empirical evidence assessing the effectiveness and economic sustainability of such programmes with regard to agricultural goals is very limited.

³ The scale of the programme, and the identity of programme implementer (e.g. international organizations versus governments), matter particularly for external validity. See Aurino *et al.* (2018) for a list of useful references on the generalization of evaluation results of small-scale school feeding programmes implemented by international agencies.

This chapter provides an overview of a stepwise methodology for conducting rigorous impact evaluations of HGSF initiatives. The chapter focuses on the agricultural development component of HGSF programmes, as this is the area where the largest knowledge gaps remain. To tailor the guidelines to common implementation modalities of HGSF, two specific frameworks are considered: a decentralized food procurement system wherein the food supply chain links local smallholders in school catchment areas directly to schools, and a centralized procurement system wherein the food supply chain involves farmers in a larger area.

The chapter presents the various stages involved in setting up an impact evaluation of a HGSF programme. First, it discusses the development of a theory of change by identifying the channels through which the purchasing of school meals from local farmers can increase agricultural profits, and hence farmers' incomes. The chapter then presents methodological issues concerning the choice of rigorous research designs and sampling strategies, and discusses how to measure intervention impacts on different dimensions, with specific attention to agricultural production and farmers' income. Finally, external validity issues for the generalization of the results of a single intervention to other contexts are discussed.

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APPENDIX A

Power calculation to determine sample size**Simple design**

As discussed in the main text (Section 2), the minimum detectable effect depends upon the t-statistic values for the significance level α and the chosen level of power $(1 - \beta)$, the standard error of the outcome variable σ_y , the proportion of the sample in the treatment group (P), and the sample size (n):

$$MDE = \left(\frac{t_{\alpha}}{2} + t_{1-\beta} \right) \sigma_y \sqrt{\frac{1}{P(1-P)n}}$$

We can obtain sample size $n = \frac{(\frac{t_{\alpha}}{2} + t_{1-\beta})^2 \sigma_y^2}{MDE^2 P(1-P)}$

In case a stratified sample design is adopted to assure representation of population subgroups in the sample, power analysis determining the sample size should be conducted separately for each specific stratum. In case outcome variables and intervention effects are expected to vary across groups, the resulting sample size would be different across subgroups.

Cluster design

Cluster designs provide that the unit of assignment contain multiple units for which the data are collected. This has relevant implication for sample size. The intra-cluster correlation (ICC) coefficient ρ is a measure of how similar the units are *within* each cluster. Power is higher the more heterogeneous the units are within a cluster, as reflected in a lower. The ICC is calculated as:

$$\rho = \frac{s_b^2}{s_b^2 + s_w^2}$$

where s_b^2 is the variance of the outcome variable between clusters, and s_w^2 is the variance of the outcome variable within clusters. The ICC is therefore the fraction of the total variance that is between clusters. When there is no interdependence between individuals within a cluster, the ICC is 0. Ideally, the best source for the ICC to use in power calculations is from a dataset similar to the one that will be used in

the evaluation with the same outcome variable, the same type of cluster and covering the same population. A second source is from previous research contributions or pre-analysis plans.

Sample size, calculated ignoring statistical dependence within clusters, needs to be multiplied by a *design effect DE*.

$$DE = 1 + (m - 1)\rho$$

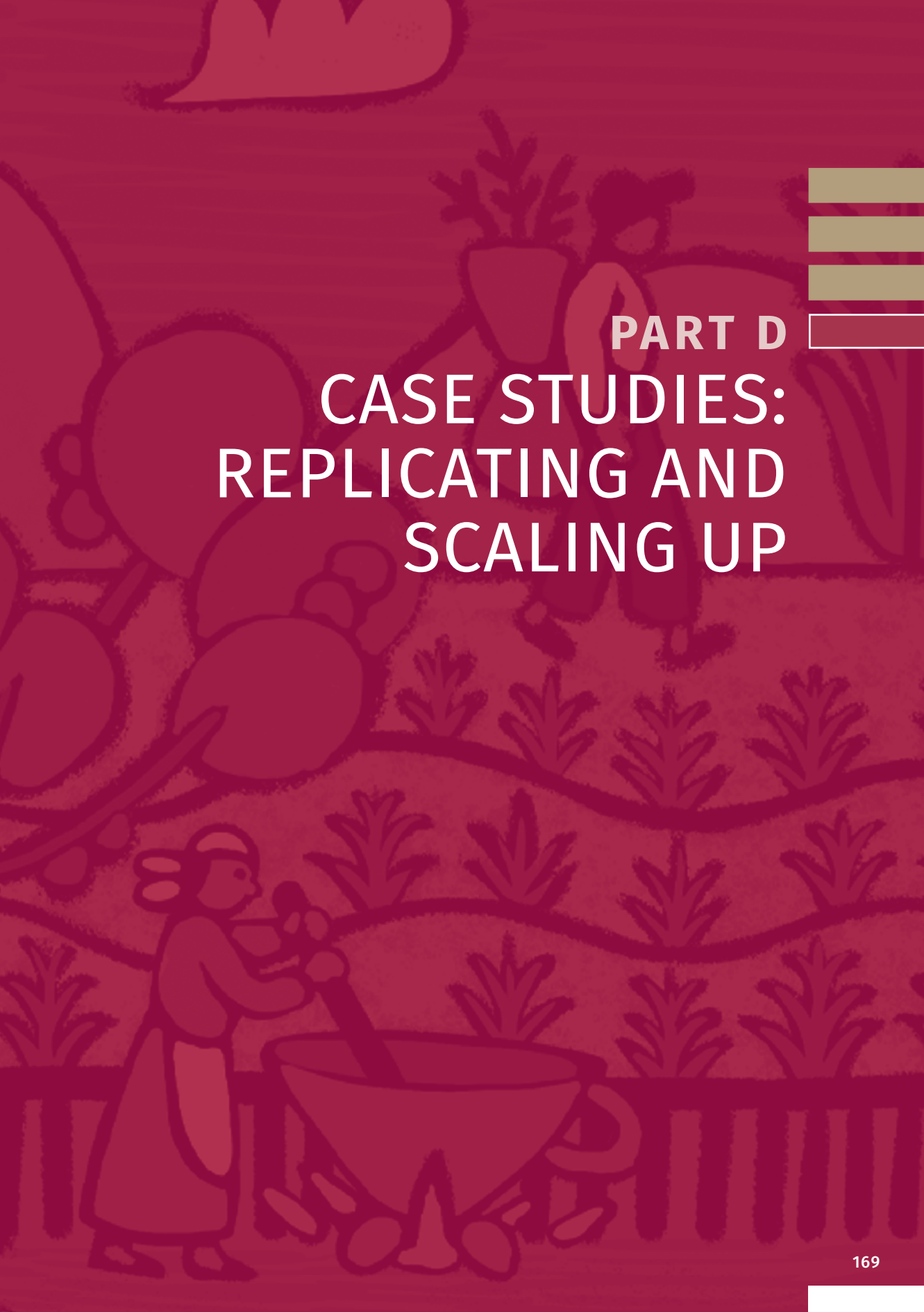
where m is the number of individuals per cluster and ρ is the ICC. Thus, the true sample size needed, accounting for intra-cluster correlation, is:

$$n = \frac{(t_{\frac{\alpha}{2}} + t_{1-\beta})^2 \sigma_y^2}{MDE^2 P(1-P)} 1 + (m - 1)\rho$$

Two observations:

- cluster design requires more observations than a simple design; and
- the number of clusters is the main factor determining the power of a study for a clustered intervention, rather than the number of observations in each cluster.

Similarly to what was said for simple designs, in case of stratified cluster sampling the power analysis determining the sample size should be conducted separately for each specific stratum.



PART D

CASE STUDIES: REPLICATING AND SCALING UP

22 LEVERAGING FOOD PROCUREMENT TO ACHIEVE DEVELOPMENTAL GOALS: WORLD FOOD PROGRAMME'S PRACTICES AND LESSONS LEARNED

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ABSTRACT

This chapter explores how the World Food Programme (WFP) has been leveraging its purchasing power as a leading humanitarian agency to foster developmental goals. WFP's local and regional food procurement can contribute significantly to the promotion of inclusive food value chains and the building of sustainable food systems. By injecting cash into local economies and providing smallholder farmers with access to a fair and transparent market, WFP strengthens the livelihoods of smallholders and fosters the development of sustainable value chains to the benefit of all actors in the chain (farmers, farmers' organizations, processors, aggregators, traders, etc.) – especially when the food procurement is associated with supporting activities by WFP, governments or partners. This chapter describes the context in which WFP's local food procurement takes place, discusses the principles and parameters that are taken into account in the decision-making process, and explores the programme and partnership goals that are considered when planning food procurement. In addition, the chapter provides an overview of WFP's recent experiences and lessons learned.

22.1 Introduction

Over the years, the World Food Programme (WFP) has steadily increased the share of food procurement carried out locally in its overall food procurement. In 2019, 31 percent of WFP's total food purchases (1.07 million tonnes) were bought locally. Increasing percentages of this food are purchased in developing countries and in the country where it was produced.

By injecting cash into local economies, local and regional food procurement (including pro-smallholder procurement) can significantly strengthen smallholders' livelihoods and improve the sustainability of food systems, particularly when it is associated with activities that support value chain actors (e.g. farmers, farmers' organizations, processors, aggregators, traders) where required.

However, the cash injected by WFP in food value chains is often not distributed fairly and transparently among the value chain actors. Farmers, often the weakest players, do not receive adequate shares, with profits being kept by stronger players. To tackle this problem and to maximize the positive impact of its local food procurement activities, WFP has been exploring new and better ways of buying the food items required by its operations.

In 2019, WFP adopted a new policy for local and regional food procurement with the aim of boosting its local, regional and pro-smallholder procurement. To this end, WFP broadened the cost-efficiency considerations that had hitherto guided its procurement decisions and introduced additional principles and parameters, including programme objectives and analysis of local value chains.

This chapter explores how WFP has been leveraging its purchasing power as a leading humanitarian agency to foster development goals, and discusses the innovations brought by the recently approved policy.

It describes the context in which WFP's local food procurement takes place, the principles and parameters that are taken into account in the decision-making process, and the consideration of programme and partnership goals during the planning of food procurement. The chapter also includes an overview of WFP's recent experiences and lessons learned.

22.2 Overview of food procurement by WFP

Procuring and delivering food assistance to those who need it, especially in emergency contexts, forms the basis of WFP's work. Food procurement is a core function across all WFP operations, enabling the organization to provide life-saving food assistance to more than 80 million people worldwide (WFP, 2020). It is performed with the primary

purpose of maximizing value for WFP while providing the most appropriate food items for the beneficiaries, i.e. food that is adapted to their nutritional needs.

Food procurement activities are a key part of WFP's supply chain. Food procurement goes hand in hand with logistics (e.g. shipping by sea or air) to guarantee end-to-end delivery and ensure cost efficiency in the complex environments in which WFP operates. Depending on the context, trucks, planes, trains, helicopters, vessels, warehouses, ports and prepositioning hubs all play important roles in the journey of food from its sources to where it is needed.

WFP's procurement is organized in a decentralized way, with a network of procurement units in the organization's headquarters, six regional bureaus and 62 country offices. At all levels, teams develop and maintain short lists of qualified suppliers to source commodities (including complex commodities such as fortified cereals, which are being increasingly used in WFP food baskets).

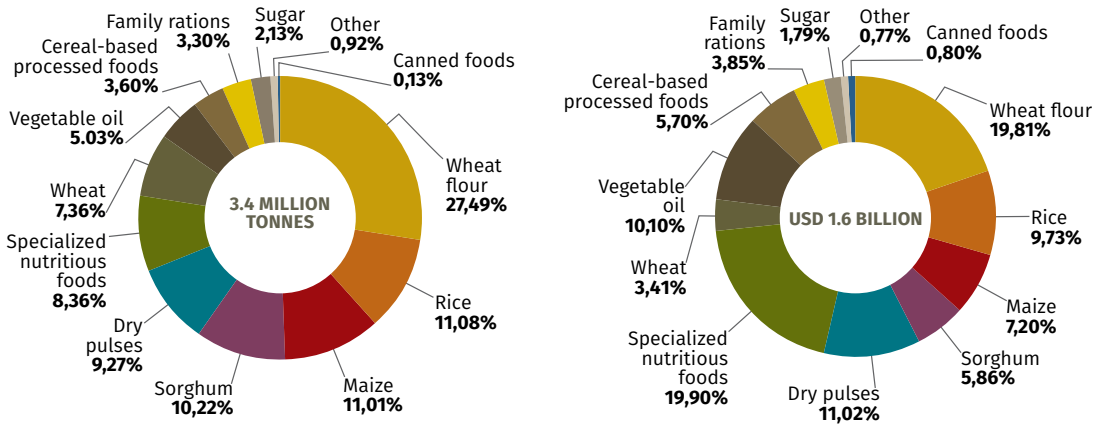
WFP's food procurers use market intelligence to develop – in collaboration with other WFP officers – sourcing strategies that optimize the timing of the procurement of different commodities in various locations. Market prices are monitored continually to avoid any adverse impact of the procurement on local markets, while a stringent vendor vetting system is in place to ensure fairness, transparency and accountability.

WFP strives to green its procurement practices in different ways. One important way is to procure food as close as possible to where it is needed, whenever feasible. This contributes significantly to minimizing WFP's carbon footprint.

In 2019, WFP purchased approximately 3.4 million tonnes of food, for a total value of about USD 1.6 billion, thereby taking into account local contexts and beneficiaries' preferences (WFP, 2020). As shown in Figure 1, grains and flour represent more than 50 percent of total purchases.

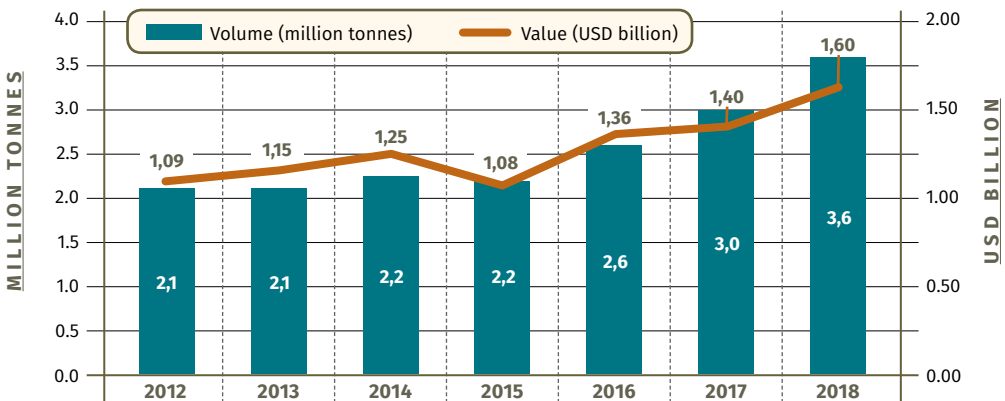
The volume of the food procured by WFP has been increasing steadily over the past years (see Figure 2) as a result of the exceptionally high level of humanitarian needs arising from an unprecedented number of emergencies.

Figure 1 Food procurement by WFP in 2019



Source: WFP, 2020.

Figure 2 Food procurement by WFP in volume and value terms, 2012–2018



Source: WFP, 2019a.

On average, half of WFP's purchasing is done locally, in countries where the organization has ongoing operations. Items ranging from cereals and pulses to complex nutrition products and fortified cereals are bought from over 90 different

origin countries. Over 70 percent of the food is bought in developing countries, which helps strengthen local markets and contributes to local economic development.

WFP has developed a strategic financing platform for the forward positioning of food in a region or corridor, based upon the anticipated demand of nearby countries. The platform's aim is to reduce delivery lead times and ensure that food is procured at the right time, and thus maximize value for money. The facility, called the Global Commodity Management Facility, is crucial to operational agility; it is being used for over 60 percent of total food purchases.

To ensure its quick operational response, WFP maintains comprehensive and diverse lists of approved vendors, grouped in rosters and organized by food commodities. Only approved vendors are invited to participate in tenders, in accordance with WFP's needs, rules, policies and prerogatives.

All commodities purchased by WFP are inspected for quality, quantity and compliance to food and packaging specifications. To mitigate the risk that non-conforming commodities are delivered to a distant place where they may be rejected, WFP appoints an independent third-party inspection company to verify that consignments conform to the applicable contractual terms.

WFP delivers most of the food commodities to some of the most remote parts of the world. In such extreme circumstances, packaging is essential to safeguard food commodities until they reach their destination. Indeed, packaging preserves the food's shelf-life and protects it from mechanical damage during transport and handling.

22.3 WFP's approach to promoting market access

Smallholders occupy a central position in WFP's food assistance initiatives, either as direct or indirect beneficiaries or as the suppliers of locally procured food. As far as smallholders are concerned, as suppliers of food, WFP aims to leverage its strengths, knowledge and capacities to support national efforts to boost the productivity and resilience of smallholders and improve their market access.

The Purchase for Progress (P4P) initiative is WFP's flagship initiative for pro-smallholder procurement. P4P is a deliberate strategy to procure food from smallholder farmers

to improve their access to formal markets and thereby incentivize them to adopt productivity-enhancing technologies and practices (WFP, 2015).

WFP implemented P4P pilot projects in 20 countries over a period of five years, starting in 2008. Over that period, WFP bought USD 148 million worth of food more or less directly from smallholder farmers. The food was purchased mainly from farmers' organizations, but also from small and medium-sized traders or through marketing platforms such as commodity exchanges and warehouse receipt systems (WFP, 2014a). The sales represented a massive achievement for the farmers, many of whom had never sold on formal markets previously. Farmers' organizations also engaged with formal buyers other than WFP, selling at least USD 60 million worth of staple crops to buyers such as millers, seed companies, agrobusinesses, government-run school feeding programmes, national food reserves and hospitals (WFP, 2014a). Since the end of the pilot, WFP has continued assisting governments to support smallholders and promote market development, not just in the initial pilot countries but also in other countries.

Through P4P and related initiatives, WFP has developed leading expertise in supporting smallholder farmers over the last decade. A key element of this expertise is the recognition that sustainable agricultural development hinges not only on supply-side interventions, but also on well-functioning markets that provide reliable outlets for farm products and serve as dependable sources of affordable food. Experience has shown that large increases in agricultural productivity that are not accompanied by improvements in markets can lead to localized gluts that drive down prices and cause farmers to abandon new technologies (Audsley, 2012).

WFP has been making efforts to counter the simplistic perception of its role in rural areas as a mere deliverer of food handouts to passive recipients. WFP possesses a wide array of capacities to develop context-specific solutions to fundamental challenges facing smallholders, in close collaboration with partners. By deploying a comprehensive range of instruments, activities and platforms, WFP aims to empower vulnerable and food-insecure people and communities to access nutritious food in different contexts. To this end, WFP develops innovations that build resilience, increase market access and bridge emergency relief, recovery and long-term development contexts.

WFP occupies a unique position at the intersection of short-term humanitarian action and longer-term hunger reduction. It is able to work with a wide range of partners to apply numerous innovations to address the many causes of food insecurity. WFP's portfolio of food assistance initiatives focusing on smallholders has been developed progressively over many years and is now wide and deep, covering most of WFP's countries of operation.

In many countries where WFP operates the bulk of food available in local markets originates from smallholder farmers. WFP's procurement footprint in these markets can therefore provide a basis to catalyse demand-driven platforms that enable smallholders to engage sustainably and profitably with local markets beyond WFP, in partnership with governments and the private sector.

Building on its experiences with P4P, WFP has developed a Smallholder Agriculture Market Support framework (WFP, 2017). This framework provides an approach to addressing the constraints faced by smallholder farmers, structured around four basic pathways, including:

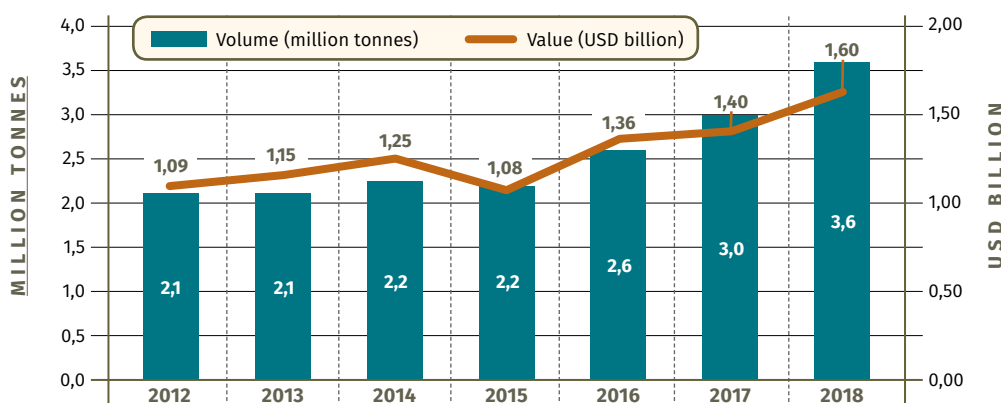
- Individual smallholder farmers must increase their marketable surplus of quality food and engage more strongly in markets. Support should be gender-specific and focus on improving access to inputs and finance, providing training in improved agricultural practices and farm management, and promoting the adoption of improved postharvest handling technologies and practices.
- Inclusive aggregators must be supported. To attract buyers, the production of individual farmers must be aggregated. Aggregators can take different forms, including farmers' organizations, warehouse receipt systems, or small and medium trading enterprises. Aggregators often require support to allow them to provide key services to smallholder farmers, in particular in marketing, postharvest handling, governance, gender equality and access to credit.
- Buyers of quality food products, both public and private, must provide a stable demand for smallholder farmers' products. This demand can be direct or can be channelled through aggregators, with an emphasis on gender equality. The creation of stable demand requires organization; buyers must develop behaviours that offer remunerative market opportunities to smallholder farmers and encourage them to invest in their enterprises.

- For smallholders to participate in local markets, an enabling environment must be created. Governments' abilities to identify and overcome the key policy and institutional bottlenecks in smallholder market systems (and especially those that exclude women) must be strengthened. Major hurdles facing smallholders and rural agribusinesses in financial systems must be overcome. The focus should be on risk reduction, not only in production but also in aggregation and marketing.

As a consequence of WFP's efforts to deploy its purchasing power to the benefit of local economies, local and regional food procurement has been showing an upward trend in recent years. An average 50 percent of WFP's total food purchases are carried out through local procurement processes, with over 70 percent of the food being purchased in developing countries (WFP, 2019a).

Purchases from smallholders through local and regional procurement processes peaked at USD 39 million towards the end of the P4P pilot phase in 2013, accounting for 4 percent of WFP's total food procurement. They decreased to USD 16 million by 2016 (or less than 2 percent of overall food procurement) by 2016 but picked up again after that. They reached USD 31 million in 2018 due to the implementation of recent initiatives (see Section 7) and improvements to the internal registration process, which reduced the underreporting of such purchases (Figure 3).

Figure 3 **WFP's procurement of food from smallholder farmers, in absolute values and as a percentage of WFP's overall food procurement**



Source: WFP, 2019a.

Among the important lessons learned from the P4P pilot is the realization of the long-standing relationship between farmers and traders, as well as of the value these traders add throughout the value chain by providing liquidity to local markets, supplying transport and storage services, aggregating crops, improving quality, etc. The following section demonstrates how important it is for WFP to have a clear understanding of the value chain in which it procures food.

22.4 The integrated value chain approach

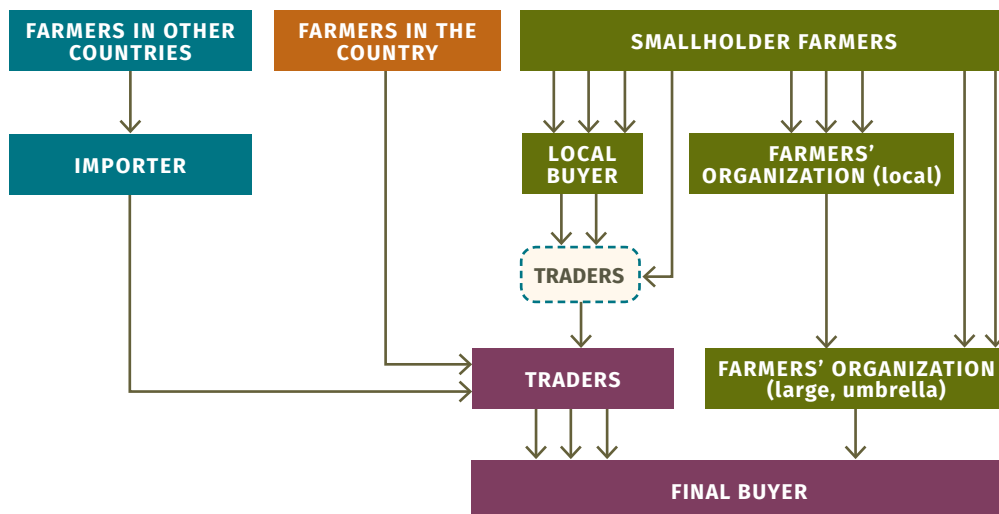
In the context of food systems, the value chain development approach provides a systemic examination of the way value is produced and shared among the multiple players involved from an end-to-end perspective i.e. from producers to governments to consumers (FAO, 2018).

WFP's actions are guided by the dual objective of saving and changing lives. The value chain approach is a valuable tool to promote integration between food procurement (with its own intrinsic operational objective of cost efficiency) and programme interventions aimed at improving livelihoods in rural areas, and particularly those of smallholder farmers.

In most contexts where WFP operates, value chains are loose, i.e. connections between actors are poor. This holds especially true for cereals and pulses, two commodities that are often included in WFP's food baskets. In loose value chains, the relationships between different players, including smallholders, are mainly based on prices; this makes the value chains volatile, with increased transaction costs and greater obstacles to the establishment of partnerships and long-term agreements. Figure 4 provides a schematic overview of a typical value chain in developing countries that includes smallholder farmers.

Farmers may sell their surpluses to a local buyer or to a farmers' organization, if they are members of such an organization. The local buyer will aggregate purchases from multiple farmers and sell them to an intermediate trader, possibly performing a quality upgrade. This intermediate trader aggregates purchases from multiple local traders and sells them to a large trader, who may finally reach stable, formal markets at the regional level.

Figure 4 **Typical food value chain including smallholder farmers in developing countries**



Source: authors' elaboration.

The farmers' organizations that farmers sell to can be local, larger or regional. A farmers' organization with limited coverage and aggregation capacity may sell the products to a larger farmers' organization (that will aggregate from various smaller farmers' organizations) or to commercial traders. Meanwhile, a large farmers' organization may be capable of reaching a stable and formal market directly.

As a rule, each actor involved adds value to the product as it moves down the value chain from the farmer to the final buyer. Value adding may take the form of primary production, aggregation, transportation, storage, packaging, etc. Accordingly, aggregated tonnage, quality and especially prices can be expected to increase as products move down the value chain (Markelova *et al.*, 2009).

As a buyer, WFP decides at which point to connect to the value chain. As the impacts that can be expected from local procurement vary according to the characteristics of the value chain, this decision needs to be guided by a value chain analysis that helps determine if the value chain in question is efficient and balanced. The nature of inefficiencies and imbalances differs from one value chain to the next; hence, each chain requires a different approach from WFP.

Efficient vs inefficient value chains

In an efficient value chain, the different actors are well connected and informed; this makes operations efficient and ensures that prices are not inflated by unnecessary costs. By contrast, in an inefficient value chain the different actors incur unnecessary costs, which are passed on to the final buyer (Upton, 2017).

Among the most common causes of value chain inefficiencies – which lead to an unfair distribution of benefits – is a lack of communication and information exchange (Bode, Victoria and Valencia, 2008). For example, a large final buyer who does not inform traders about its planned demand forces these traders to build stocks and wait for the demand (which may be lower than the built stocks, when it finally comes). The level of risk for the traders – both operational and financial – is quite high, and the cost is ultimately transferred to the final buyer as a price markup. Thus, in an inefficient value chain, prices are unnecessarily high without benefiting any of the actors. In such a chain, all players can be expected to benefit from a higher level of cooperation. WFP can accompany local procurement with interventions to reduce inefficiencies by, for example, fostering communication and coordination among actors, providing actors with updated information on market prices, promoting transparent market environments, supporting governments and other public buyers to improve their procurement practices, etc.

Balanced versus imbalanced value chains

In a balanced value chain, the different actors have equal access to relevant information and a comparable level of alternatives to sell to or to buy from. In addition, the different actors have similar choices concerning the timing of sales or purchases. In such value chains, the distribution of profits among players is well balanced. Profits provide actors with reasonable returns that reflect the investment that each of them has carried out or the value that each of them has added to the product.

By contrast, in imbalanced value chains, the distribution of profits often does not reflect the value added by each actor. Typically, the closer actors are to the final buyer, the higher the margins they reap. This means that farmers and small farmers' organizations are usually those that receive the lowest profits in relation to the value they add.

In a balanced value chain, the connecting point for WFP is not that relevant. Whether a contract is signed with a farmers' organization or with a trader hardly makes a difference in terms of benefits for smallholder farmers, because the funds injected into the economy will be fairly distributed throughout the value chain anyhow.

Imbalanced value chains, on the other hand, make it more challenging for WFP to positively influence the market and food systems – but they are also the value chains where the potential benefits for smallholder farmers of pro-smallholder procurement are highest. In an imbalanced (but otherwise efficient) value chain, higher benefits for farmers mean lower benefits for other value chain actors. Hence, a certain degree of resistance from those actors to participation in pro-smallholder procurement can be expected, and a corresponding degree of force and control may be required. If WFP establishes that a certain share of its purchases must be earmarked for pro-smallholder purchases, it can oblige traders to follow certain rules if they want access to WFP's market. For example, it can require traders to document that the food they sell to WFP was bought from smallholders at fair prices.

WFP acknowledges the importance of private sector engagement in value chains. In 2017, the agency modified its internal procurement processes with the aim of increasing indirect purchases from smallholder farmers through traders, while ensuring the transparency of and control over transactions between traders and farmers or farmers' organizations (WFP, 2019b). These new procurement processes are usually referred to as indirect procurement modalities; they complement the direct procurement forms that are traditionally used to connect with farmers and their organizations.

- There are two main types of *direct* contract modalities: spot contracts and food supply agreements. A spot contract is signed with a farmer organization to cover a single purchase, based on the assessed availability of food for immediate delivery. The procurement process can be made smallholder-friendly by a waiver of competition or through soft tendering, i.e. a tendering process that is restricted to farmers' organizations (thus excluding commercial traders). A food supply agreement (FSA) is a framework agreement signed with a farmers' organization to cover multiple deliveries during a certain period. The agreement is preferably signed before the start of the marketing season; the quantity to be delivered is based on expected availability (on the side of the farmers' organization) and

demand (on WFP's side). While a FSA generally predefines contractual parameters, prices are typically set at the time of each individual purchase (rather than being fixed beforehand upon the signing of the FSA) to reflect local market fluctuations.

- *Indirect* contract modalities include conditional contracts and mandate contracts. A *conditional contract* is a spot contract signed with a trader for a single, short-term delivery. It is similar to the spot contracts used for regular purchases, except for the fact that it contains certain conditions that make it pro-smallholder (e.g. a minimum percentage of the total volume must be sourced from farmers' organizations). A *mandate contract* is a framework agreement signed with a trader, whereby the trader purchases and aggregates the production of farmer organizations on behalf of WFP. Like a direct FSA, a mandate contract is preferably signed before the marketing season starts, with the quantity based on expected availability and demand. The price in the agreement has two components: the price to be paid by the trader to the farmers' organizations, (which is defined and controlled by WFP) and a service fee to cover the services provided by the trader. For this kind of contract, traders can be selected either through a tendering process or through a waiver of competition.

Rather than directly linking WFP and farmer organizations, indirect contract modalities promote interaction between farmers' organizations and private players in the value chain. Benefits are twofold – as demonstrated during the P4P pilot phase (WFP, 2015). First, farmers and all other actors in the chain profit from existing infrastructure and operational arrangements. Second, the potential gains are multiplied because farmers are linked to other players by way of long-term commitments that anchor them to the value chain and to a market beyond that of WFP procurement.

22.5 Value proposition for local and regional food procurement

Local and regional food procurement directly supports the operational objective of ensuring a reliable and cost-efficient supply of food for WFP operations. It can also contribute towards programme-level development objectives, including:

- Injecting cash into local economies, which strengthens local markets, encourages smallholders to be more productive and generates positive multiplier effects in the local economy. This leads to improved food security and livelihoods, rural transformation and the creation of jobs (WFP, 2014a; Grandia and Meehan, 2017;

Chmielewska and Souza, 2010). In the long term, local and regional procurement can also enhance the performance of macroeconomic indicators. Furthermore, depending on the commodities purchased, local and regional procurement can stimulate crop diversification and induce consumers to prefer diverse and nutritious foods (Smith *et al.*, 2016).

- Strengthening value chain actors by engaging with the (mainly local) private sector. The stronger involvement of local traders and their increased turnover improves the functioning of local markets and potentially reduces prices, which increases the purchasing power of beneficiaries of cash-based transfers (Coles, 2013; Choularton, 2014).
- Building stronger and more stable market relations among WFP, traders, smallholder farmers and other development partners. This may improve farmers' access to credit and inputs, which may in turn lead to an increase in their production and productivity and an improvement in the quality of their products. As a result, farmers' income-generating opportunities augment, and their livelihoods are strengthened (Hoddinott *et al.*, 2012; Ferris *et al.*, 2014).
- Improving the performance of all market actors in food value chains. This makes food systems more resilient (e.g. through increased crop diversification), sustainable (e.g. by enabling smallholders to sustainably use natural resources) and inclusive. As a result, more nutritious food is supplied to and consumed by populations beyond the direct beneficiaries of WFP procurement. This ultimately facilitates WFP's transition, i.e. the organization's exit strategy and the long-term sustainability of the intervention (Tschirley, Myers and Zavale, 2013; Coles, 2013).

The fulfilment of these programme objectives may help strengthen the involvement of women and girls in farmers' organizations and improve their participation in value chains; it may also create job opportunities, especially for rural women and young people, and improve the environmental sustainability of value chains.

In addition, local and regional food procurement can be an important element in efforts to mitigate the effects of crises on a country's overall economy. Indeed, food for an emergency response can be purchased from other areas of the country where there are surpluses. In the case of an emergency, local purchases can provide vulnerable smallholder farmers who are affected by the crisis with access to markets; integrated livelihood and resilience activities (such as food assistance for assets and home-grown school feeding) can encourage farmers to re-engage in production and

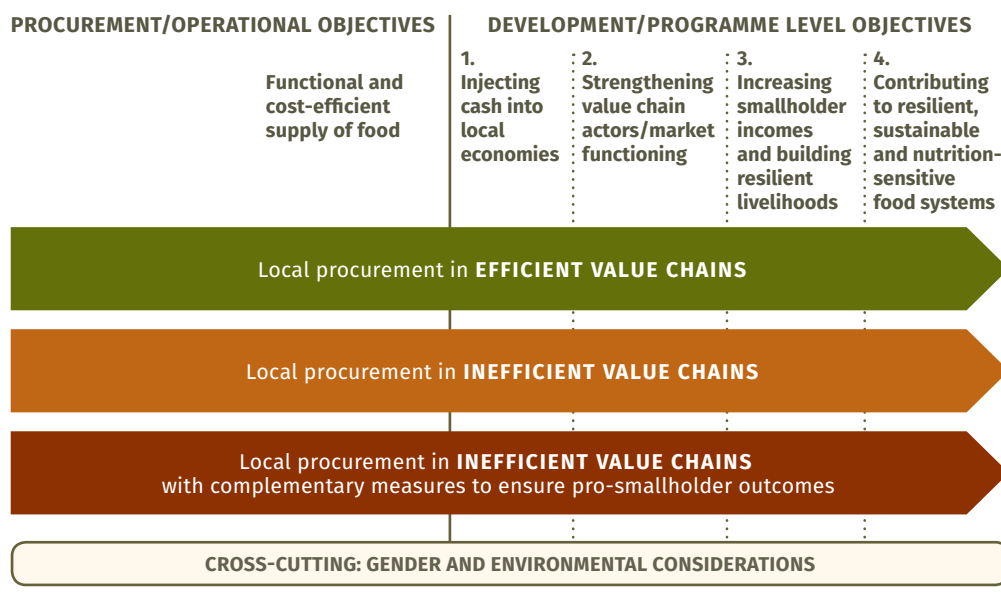
recover their livelihoods. In certain contexts, local and regional food procurement can also be a means of reducing tensions and establishing cooperation among communities in conflict (WFP, 2014a, 2015; Wiggins and Keats, 2013; Valencia, Wittman and Blesh, 2019; Onumah *et al.*, 2007; Fafchamps, 1992).

In most of the settings where WFP operates, value chains are neither efficient nor balanced. Often, smallholder farmers and their organizations are exposed to greater risks than other suppliers or do not receive fair prices, commensurate with the value they add. WFP's local and regional food procurement, when combined with programme interventions (by WFP or partners), offers a framework to address bottlenecks in value chains and thereby enhance food systems and strengthen the livelihoods and resilience of smallholders. Such efforts benefit vulnerable farmers the most (Fischer and Qaim, 2012). Value chain analysis is essential to identifying prevailing bottlenecks, detecting inefficiencies and imbalances that may prevent farmers and other actors from fully benefiting from local food procurement, and informing strategies to address constraints.

Figure 5 illustrates the various objectives of WFP's local food procurement. It illustrates how the achievement of these objectives depends on the functioning of the relevant value chains:

- In efficient value chains (first arrow), the goals of cost efficiency and reliable supplies of food are achieved together with broader programme goals.
- In inefficient value chains (second arrow), the goals of cost efficiency and reliable supplies of food can be achieved; however, this does not lead to the attainment of development and programme objectives. In this context, complementary measures (third arrow) are required to achieve broader programme goals.

Figure 5 Objectives of local and regional procurement by WFP



Source: WFP, 2019b.

As a buyer, WFP determines the point at which it connects to the value chain. At present, this connection point is mainly situated at the level of wholesalers. The promotion of additional, programme-related outcomes requires shifting WFP's procurement activities further down the value chain, to the level of intermediate traders or farmer organizations, or using indirect contracts that enable wholesalers to buy from farmers under fair conditions (i.e. not below prevailing market prices).

WFP has identified the following complementary measures to address value chain deficiencies:

- WFP can introduce certain pro-smallholder contract modalities to ensure that smallholder farmers benefit from WFP's stable demand. These modalities can include direct purchasing from smallholders and their organizations, or indirect purchasing through contracts with traders that buy food from smallholders at fair prices. The choice of the most appropriate contract modality is context-specific; it should be guided by market and value chain analysis as well as development objectives.

- WFP can link its local and regional procurement activities to its programmatic activities or to activities implemented by governments, international organizations such as the Food and Agriculture Organization of the United Nations (FAO) and the International Fund for Agricultural Development (IFAD), local or international private actors or civil society partners with the aim of strengthening the capacity of value chain actors and thus address structural weaknesses. The range of possible activities includes activities aimed at increasing the quality and quantity of farmers' output, strengthening farmers' organizational and marketing capacities, reducing postharvest losses or improving infrastructure. Activities can also aim to increase the demand for fresh and nutritious foods through voucher programmes or promote the production of fortified or biofortified staples or specialized nutritious foods. This more comprehensive procurement approach requires reinforced internal collaboration (programme-procurement) and strengthened partnerships with the private sector, farmer organizations, other United Nations Rome-based Agencies, non-governmental organizations and governments.

22.6 Principles, parameters and risks

Building on its extensive experience in local and regional food procurement, including procurement from smallholders (WFP, 2014b, 2014c, 2014d, 2014e, 2014f, 2015; Lentz and Upton, 2016), WFP has introduced principles, parameters, programme-related considerations and partnership elements to underpin a nuanced and integrated approach to local and regional food procurement. Innovative elements include the use of additional principles and parameters in decision-making processes, the consideration of programme and partnership goals during the planning of food procurement and the integration of procurement with programme objectives.

WFP's local and regional procurement continues to ensure that appropriate food is available to beneficiaries in a timely and cost-efficient manner, while at the same time achieving programme outcomes based on context-specific analysis. The enhanced integration of procurement and programme/partnership planning enables the achievement of broader programme objectives as per the value proposition.

Principles

In line with its current corporate policy on local and regional food procurement (WFP, 2019b), WFP's local and regional food procurement strategies and modalities are governed by the following guiding principles:

- **Saving lives and changing lives.** WFP aims to source a maximum amount of safe and nutritious food with the resources available (saving lives); it considers programme outcomes when selecting procurement modalities (changing lives).
- **Do no harm.** WFP carefully considers the multidimensional nature of the potential negative impacts of local or other procurement on markets and value chains (disruption, inflationary effects, etc.); it also considers the effects of its procurement in terms of the protection of livelihoods and of the environment, which can affect vulnerable people and poor consumers. Environmental and social standards that may influence both local and regional procurement are also taken into account.
- **Sustainability.** WFP promotes sustainable practices along value chains and pursues durable improvements to food systems that lead to systemic changes.
- **Transparency and equity.** WFP works to ensure that all market actors have equal access to information and receive a fair share of the end price, corresponding to the value they have added. This requires a solid understanding of market dynamics and price mechanisms.

Parameters

The following parameters guide WFP's selection of the best procurement approach and related contract modalities, taking the value proposition into consideration:

- **The context of the purchase** refers to all considerations that may influence the choice of the procurement modalities and conditions (including the type of contract used). WFP carefully considers the context when determining whether to purchase locally and what contract modalities to apply. Possible considerations include the need for a rapid response to humanitarian needs, existing regulatory frameworks, funding availability, potential donor restrictions, pipeline analysis, food safety and context-specific risks.

- **Outcomes** refers to the intended goals, at corporate or country level, that WFP wants to achieve through its procurement. Possible outcomes include improving smallholders' livelihoods and incomes, or building resilient, inclusive and nutrition-sensitive food systems. The benefits that are expected to arise from the achievement of programme objectives have to be described and assessed to allow decision-makers to choose the most appropriate procurement modality.
- **Value chain analysis** refers to the analysis of value chains for selected commodities, to identify opportunities and challenges and assess the inefficiencies that may prevent farmers from participating profitably in markets. WFP systematically undertakes value chain analysis (especially for the procurement of large volumes) as a key step towards gathering information on entry points, determining which supply and procurement modalities best serve the intended outcomes, and identifying potential measures to strengthen the capacities of the various actors involved (farmers, traders, etc.). Value chain analysis should also include an assessment of the opportunities to use and strengthen existing in-country e-commerce platforms and other initiatives that may improve smallholders' access to markets, and link smallholders to them.
- **Import parity price** is the total cost of sourcing food from another country and bringing it to the recipient country where it is to be used. WFP considers the cost of procuring food commodities locally, regionally or internationally, taking into consideration not only the cost of the food itself but also all associated costs (e.g. the costs of logistics).

Risks

WFP carefully considers the risks associated with local and regional food procurement strategies and modalities to identify mitigation measures (WFP, 2019):

- Procuring large volumes of food in a single country may have inflationary effects that negatively affect households, particularly the poorest. WFP therefore analyses procurement and market dynamics, taking due account of factors such as the timing of procurement and prevailing price fluctuations, to anticipate any potential negative effects on prices.
- Seasonality, changes in the number and nature of key value chain actors and global market trends continuously affect prices and local markets in unpredictable ways. Procurement strategies and plans must be reviewed regularly; they should be adaptable to changing conditions.

- Purchasing food from smallholders carries the inherent risk that those smallholders might not be able to provide goods on time of the quality and quantity stipulated in the contract. WFP's procurement strategies must include backup plans for such situations and ensure food safety and quality.
- Procuring food from smallholders also entails risks associated with local agricultural practices, which may include unsustainable farming techniques (e.g. the use of pesticides or fertilizers) leading to land degradation or reduced biodiversity. WFP and its partners should therefore promote programme interventions (e.g. in food assistance for assets) that foster sustainable agricultural practices, including soil conservation techniques, sustainable water harvesting methods, etc.

22.7 Recent experiences and the way forward

This section describes concrete recent experiences of WFP in pro-smallholder procurement. More specifically, it discusses the pilot implementation of indirect contracts, a preliminary value chain assessment to evaluate potential impacts of indirect contracts in Uganda, and the approval of a new corporate policy (WFP, 2019b).

Pilot implementation of indirect purchasing from smallholder farmers

In 2017, Zambia, the United Republic of Tanzania, Malawi and Honduras were selected to pilot new pro-smallholder contracting and procurement modalities for the indirect purchasing from farmers through contracts with traders. At the end of the pilot, in 2018, over 16 000 tonnes of cereals and pulses had been purchased during the 2017/18 harvesting season using these contract modalities.

WFP's country office in Zambia used a direct FSA to contract a network of 17 aggregators that had been supplying WFP for several years. The digital application "Virtual Farmers' Market" and the commodity exchange "Zamace" were incorporated in the pilot.¹ A total of 5 965 tonnes of pulses were purchased under the pilot.

¹ Virtual Farmers' Market (VFM) is an app-based e-commerce platform where farmers' surplus and buyers' demand for crops are advertised and traded. VFM provides a transparent, open and trustworthy space for smallholder farmers and buyers to negotiate fair prices and deals. For more information on VFM, see <https://innovation.wfp.org/project/virtual-farmers-market>

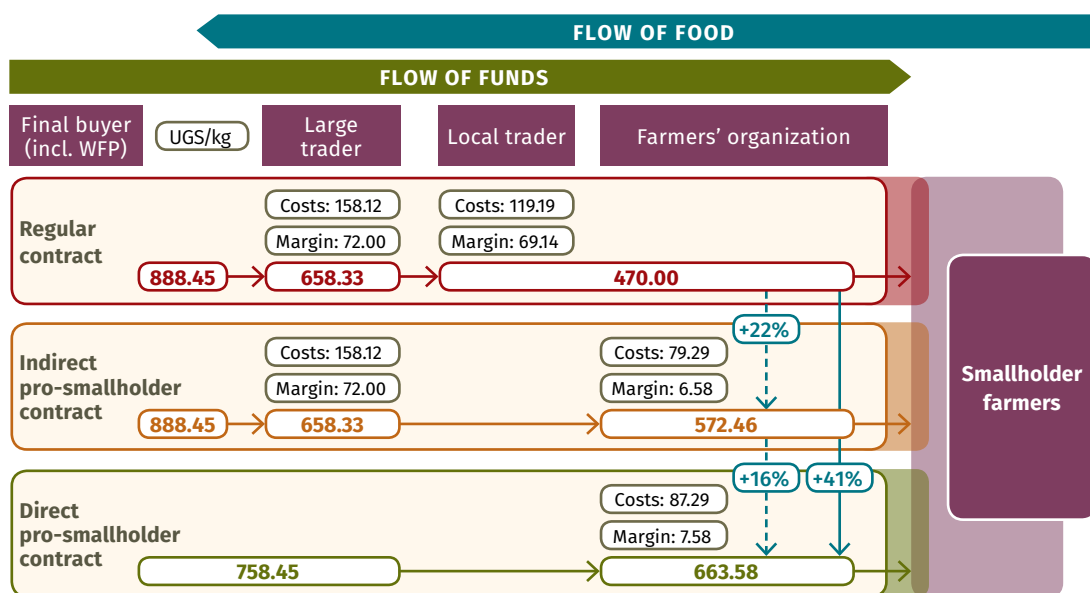
The country office in the United Republic of Tanzania opted for a mandate contract, whereby a local miller bought food from a set of farmers' organizations selected by WFP, on WFP's behalf. A total of 4 500 tonnes of maize was purchased through this arrangement from mid-2017 until mid-2018.

The Malawi country office tested both a direct FSA and a conditional contract. In 2017, 2 288 tonnes of maize were procured using these two contract modalities. The contracts remained in place in 2018, allowing the purchasing of an additional 3 149 tonnes.

Value chains for the local procurement of maize in Uganda

The year 2018 was a record year for local purchases in Uganda, with food purchased for operations not only in Uganda but also in other countries in East Africa. WFP bought more than 188 000 tonnes of food in Uganda that year (mainly maize, but also beans and sorghum), injecting about USD 50 million into the local economy. Although 80 to 90 percent of the food purchased by WFP was produced by smallholder farmers, only 1 000 tonnes were bought directly from farmers through farmer organizations. Indeed, the bulk of the food was procured from large traders through open tendering, in which shortlisted suppliers were invited to participate. In June 2019, a WFP mission analysed the value chain for maize to obtain insights into how the cash injected by WFP was distributed among the actors in the chain, and how farmers were benefiting from it (see Figure 6). The value chain for maize in Uganda is loose, with several flows of goods moving in parallel, and little integration among players. The main problems that farmers face in moving up in the chain are access to credit and to transport.

Figure 6 The local value chain for maize in Uganda – flows of food and funds



Source: WFP, 2019b.

The few large companies that dominate the trading business have scattered, direct contacts with farmers. Smaller, local traders therefore play an important role in the aggregation of production. Indeed, up to 90 percent of the maize produced in Uganda passes through local traders before reaching large traders.

When WFP uses regular contracts and open tendering to buy from large traders (who in turn buy from local traders), roughly 50 percent of the price that WFP pays reaches smallholder farmers. The remainder is absorbed by intermediary players in the value chain (Figure 6, red arrow).

This analysis shows that the use of indirect and direct pro-smallholder contract modalities could have addressed imbalances in the maize value chain and significantly increased the benefits for smallholders – at the same cost to WFP (Figure 6, yellow and green arrow).

22.8 Concluding remarks

In 2019, WFP's Executive Board approved a new policy on local and regional food procurement, introducing a new framework for procurement decision-making with a set of new principles and parameters as described in this chapter. Building on experience gained in the past, this policy will shape the way in which WFP will manage local and regional food procurement initiatives in the future. One key innovation introduced by the policy is the analysis of local food value chains before planning any intervention, acknowledging the importance not only of smallholder farmers but of all actors in the chain.

Rural development initiatives that focus too heavily on farmers, and do not consider the other actors in the value chain, risk not reaching their desired objectives, or reaching them in an unsustainable way. Interventions are needed to tackle inefficiencies and imbalances that prevent a fair distribution of profits and margins. However, such interventions should not disrupt the operations of value chain actors in a way that becomes harmful in the long term.

With this in mind, WFP will further explore innovative methods of public food procurement. Much attention will be given to new contract modalities that allow WFP to maintain its relationships with regular suppliers, while guaranteeing that farmers' interests will be observed in the execution of contracts.

Local and regional food procurement is an activity that lies at the interface of two fundamental areas of WFP's work: programme and procurement. The new policy for food procurement will enable WFP to better align these two areas, as well as its multiple programmatic activities.

The policy will be implemented progressively over the years. Tools and systems will be developed and tested by teams across WFP, in various selected countries, before mainstreaming them into the organization's global operations. Key components of the policy include long-term demand and supply planning, the methodology for value chain analysis, the updated theory of change, a dedicated monitoring and evaluation framework and digital traceability systems.

Over the coming years, WFP will be working to operationalize the policy by building internal systems and tools and designing pilots to implement the new approach in a number of selected countries. The entire rollout phase, in which several country offices will be involved, is envisaged to take place over the next couple of years; it is expected to strongly potentialize WFP's local and regional food procurement operations.

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23 IMPACT OF VALUES-BASED FOOD PROCUREMENT ON CAFETERIA STAFF IN THE UNITED STATES OF AMERICA'S NATIONAL SCHOOL LUNCH PROGRAM

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ABSTRACT

Current research examining institutional purchasing motivated by values of sustainability, healthfulness or other social and environmental considerations neglects the food workers tasked with preparing these foods for consumers. This chapter explores the impacts of such purchasing initiatives on the daily experiences and responsibilities of front-line workers in the National School Lunch Program (NSLP) in the United States of America. Drawing on observations of cafeterias, interviews with cafeteria managers, and surveys of cafeteria workers, the chapter documents how school food service workers respond to the integration of healthy and local purchases in their activities. The study identifies an unintended consequence of procurement changes, namely an additional workload that is not accounted for in the planning and implementation process. However, the care that workers feel for students motivates them to deal with challenging circumstances. The chapter concludes with recommendations for stakeholders seeking to institute values-based procurement changes in institutional food service environments.

23.1 Introduction

A growing body of literature documents the increasing popularity of values-based purchasing by institutions, as food service managers within organizations such as schools and hospitals increasingly consider sustainability, healthfulness or other

social and environmental concerns when they purchase food (Barlett, 2011; Fitch and Santo, 2016; Harris *et al.*, 2012; Kimmons *et al.*, 2012; Klein, 2015; De Schutter, 2014). However, researchers have paid insufficient attention to the impacts of changes to food procurement on the front-line workers tasked with preparing these foods for consumers (Tsui *et al.*, 2013; Vancil-Leap, 2016). Even researchers and advocates focused on labour issues tend to emphasize the impacts of values-based purchasing upstream in the food chain, namely on agricultural workers and food processors, with less attention paid to those preparing food.

This case study addresses this gap by examining the perspectives of front-line staff in the context of values-based procurement shifts, using cafeteria workers in the National School Lunch Program (NSLP) in the United States of America. It draws from the PreK-12 School Food: Making It Healthier, Making It Regional (MHMR) project, which investigated meal programme operations in six school districts.¹ Procurement changes cannot be successful without the labour of cafeteria staff; however, this study finds that serving healthy and locally-sourced foods creates challenges for cafeteria workers that they overcome only through their own determination and dedication to their students.

23.2 Background

The NSLP provides low-cost meals to over 30 million students in nearly 10 000 schools across the United States of America (United States of America, US Department of Agriculture, Food and Nutrition Service, 2020; Food Research and Action Center, 2016). Most school meal programmes – officially school food authorities (SFA) – are organized as a unit of the city or county school district and may serve anywhere from a few hundred to hundreds of thousands of children. The central SFA office oversees all schools in the district, including setting a district-wide menu, contracting with vendors, equipping cafeterias and hiring and training food service staff. Responsibility for executing the menu and getting meals to students rests with the cafeteria workers and the cafeteria manager in each school (Young *et al.*, 2012).

¹ The MHMR executive report and a case study of each SFA are available at www.foodcorps.org/case-studies

In 2010, the Congress of the United States of America passed the Healthy, Hunger-Free Kids Act, which revised federal nutrition guidelines for school meals (Harrington, 2017). As of school year (SY) 2012/13, the new standards restricted sodium, saturated fat and calories in school meals and increased required amounts of whole grains, fruits and vegetables. In response to the new regulations, and as part of their ongoing efforts to improve the health and quality of menu offerings, there has been increasing interest in many school districts to serve more freshly-prepared foods (Schober *et al.*, 2016). These efforts also overlap with initiatives to leverage the purchasing power of schools for upstream improvements in supply chains, such as by sourcing from local farms.

Such initiatives must be implemented within the context of existing SFA budgets and infrastructure. SFA only spend about USD 1.71 per meal on food, with a similar amount spent on labour, and most operate at a deficit (Fox and Gearan, 2019). Many SFA attempt to economize on labour, with school food staff earning low wages and working few hours. A cafeteria employee working four hours per day, typical of many SFA staffing arrangements, would have a mean annual salary of approximately USD 12 000,² or about one-fifth the median income in the United States of America, and would not receive employer-based health insurance benefits.

23.3 Methods

This case study uses data collected from meal programme operations in six SFA in the Southeast United States of America in SY 2016/17 and 2017/18 (see Table 1 for details of participating SFAs). After interviewing the director of each SFA via phone, two researchers visited each school district, observing meal preparation and/or service in three to five elementary or secondary schools suggested by the SFA director. In each school, the researchers interviewed the cafeteria manager and administered a written survey to the cafeteria staff. Findings of this chapter are based on interviews with 23 cafeteria managers and 147 completed staff surveys in 23 schools. The survey sample was approximately 92 percent female, with an average age of 48 and a little over eight years of experience working in their SFA.

² Authors' calculations based on an average median hourly wage for elementary and secondary school food service workers at USD 14.65 as of May 2020 (United States of America, US Department of Labor, Bureau of Labor Statistics, 2020).

Table 1 **Making It Healthier, Making It Regional participating SFA details, SY 2016/17**

SFA LOCATION	TOTAL STUDENT ENROLMENT	STUDENTS QUALIFYING FOR FREE OR REDUCED-PRICE MEALS*	LUNCH PARTICIPATION RATE	TOTAL CAFETERIA STAFF
Florida	186 332	68%	60%	1 081
Georgia	180 000	54%	70%	1 300
Iowa	32 979	74%	66%	419
Kentucky	100 063	68%	68%	913
South Carolina	17 301	35%	68%	160
Virginia	89 901	40%	62%	854

* Students whose families earn 185 percent or below the poverty level qualify for a reduced-price or free meal. Nationally, 48 percent of students qualify (based on authors' calculations using data from United States of America, US Department of Education, Institute of Education Sciences, 2020).

Source: Data on student enrolment and students qualifying for free or reduced-price lunch comes from the National Center for Education Statistics (United States of America, US Department of Education, Institute of Education Sciences, 2020). Each SFA provided its lunch participation rate (the average percentage of students participating in the National School Lunch Program each day) to the researchers.

23.4 Impacts of procurement changes on workers

All of the SFA in the MHMR study are making efforts to maximize purchases of foods they see as healthy and locally sourced,³ which often means fewer pre-packaged items. As a result, staff must prepare more foods from basic ingredients. SFA staff have also tried to serve more fresh produce instead of canned or frozen options. Fresh items, especially if they are local and come from small farms, will not be pre-processed and so must be washed and prepared, and potentially cooked.

Most school kitchens are not currently designed to handle or cook fresh foods. Nor are staff necessarily trained for these activities or accustomed to doing them as part of their regular job descriptions. Furthermore, cafeteria workers face a heavy workload as they prepare hundreds of meals in a short period of time, and cafeterias may face short or long-term understaffing problems.

³ There is no nationally recognized definition of "local foods" for the NSLP (United States of America, US Department of Agriculture, Economic Research Service, 2015). For four of the SFAs, "local" is defined as produced within the state. For one, "local" means within 100 miles of the food service central office, and for another, from within the state or a neighbouring state.

As such, changes to staff activities as they prepare and serve healthier and locally sourced foods raise concerns about staff workload, training and equipment needs, and staff attitudes and motivation. The sections below use survey and interview data to investigate the impact of purchasing changes as experienced by cafeteria staff in these areas.

Increased workload

As a result of procurement changes, cafeteria staff must do more complicated activities to produce the same number of meals. Preparing fresh produce options, such as boxing salads or chopping cantaloupes, requires more labour than opening cans of vegetables. Workers may need to get used to looking for dirt or bugs on fresher produce, or switch preparation methods, like tearing a delicate, local bibb lettuce by hand instead of chopping it. As new items are introduced, cafeteria staff must adjust to different types of tasks. Many have not previously been asked to make a smoothie in the blender or follow a recipe to bake a cake from scratch.⁴ These tasks not only take more time but also require time to learn and adjust to.

However, the number of staff or hours for current staff do not tend to increase in proportion to new tasks or offerings, so the already heavy cafeteria workload intensifies as workers are asked to do more in the same amount of time. In response to a survey question that asked staff whether their jobs had become harder, easier or stayed the same over the past five years, many responses noted increased workloads. When asked to explain how her job has become harder, one staff member responded simply “by doing all the cooking.” Another noted “more students; more responsibilities of other jobs; more time getting done with normal duties; more job duties if other staff is [sic] ill.”

Training and equipment needs

Cooking skills are not a prerequisite for cafeteria staff positions, so when food preparation tasks beyond opening boxes and reheating are required, employees may need supplemental training. As more fresh produce enters the cafeteria, knife skills and food safety become salient concerns. Required adjustments are more challenging

⁴ Cooking “from scratch” refers to preparing meals using basic ingredients, which requires some level of culinary knowledge and skills.

if the foods are not purchased regularly, which can happen particularly with local foods, due to their expense and/or seasonality. For example, one SFA purchases local chicken but can only afford to do so twice per year. It must purchase this product raw, whereas its regular chicken items come into the cafeteria pre-cooked. Working with raw meat requires careful attention to food safety protocols, and while the staff are able to prepare the product safely, they find it stressful. Staff commented that it would not be so difficult if they became accustomed to the process, but in serving it so rarely, they never become truly comfortable.

More complicated food preparation also may require equipment that is different from that with which most cafeterias are equipped. Two SFA in the study had recently fitted all their kitchens with combi-ovens, which allow for more precise cooking. Three have also purchased or refurbished equipment to quickly cut produce, saving staff time and energy.

When asked if they have equipment and training necessary to do their jobs, staff on average agreed with both statements, with slightly more agreement that they have adequate training. Fewer staff agreed that they would like more culinary training (see Table 2).

Table 2 **Cafeteria worker opinions on equipment and training**

	I HAVE THE EQUIPMENT I NEED TO DO MY JOB WELL	I HAVE THE TRAINING I NEED TO DO MY JOB WELL	I WOULD LIKE MORE TRAINING IN CULINARY SKILLS
Average level of agreement*	3.9	4.1	3.5

*1 = strongly disagree, 5 = strongly agree.

Source: authors' elaboration.

From the viewpoint of the managers, formal training and accessing the proper equipment seem to be less of a concern than finding time and opportunities to work closely with staff as they adjust to new tasks. Cafeteria managers are expected to offer support and on-the-job training to staff who may need it, for the variety of new tasks that might be expected. They highlighted the day-to-day process of adapting to change as the most difficult part of serving new types of foods. As one cafeteria manager put it: "that, I think, was a challenge for my staff in the beginning, change. Compared to having [items] already made and just popping them on a pan in the oven."

Ultimately, managers must spend time and energy to incorporate new foods and preparations into the kitchen. In order to most effectively implement all that is asked of them, they must adjust work schedules and find efficiencies so they can do more with less time.

Attitudes and motivation

Despite the challenges noted above, cafeteria managers largely agreed that their workers do ultimately adjust to changes. Speaking about increased washing and chopping of produce, one manager said: “once they get used to it, they don’t really have any issue.” Similarly, describing incorporating new recipes, another manager noted: “you start doing it, and then after you do it, you’re like ‘okay, that wasn’t too hard.’” Many managers expressed a stoic, practical attitude in the face of new requirements and requests handed down to them from above; as one manager said: “it’s something we have to do, we get it done.”

Staff often rationalized the extra effort these adaptations require with a sense of purpose and motivated themselves with their responsibility to students. Cafeteria managers and front-line workers agreed on an overall mission to serve healthy and local meals to students. One cafeteria manager said:

Some [staff] still say, “this is ridiculous, more work,” but for the most part we’ve tried to realize it’s a positive thing for the kids. It might cause us a little more work, but in the end we’re taking care of the kids.

The sense of care that motivates workers not only shapes their “can-do” attitude but is also a factor in their acceptance of an increased workload without additional resources or compensation. As another cafeteria manager responded to the question of sufficient compensation: “probably not enough, but I say I don’t do it for the money, I do it for the kids ... Because we’re all mothers, and we all have children.”

This care for children overrides concerns related to the fairness of their compensation and is tied to their own maternal experiences. As an example of the lengths some staff might go to ensure the quality of food service, one manager shared:

But there’s days I come in, I’m not supposed to, but I come in a little early. I don’t clock in. I know, just to make sure everything goes right ... I want everything to go right and be perfect.

Almost all managers noted the importance of feeding children healthy foods and thus responded positively to offering fresher foods. As one said, “I’m teaching my kids to eat healthy and going in that route. So for me, it makes me happy we’re serving these types of foods to them.” Cafeteria workers recognized this as well: almost all agreed with the statement: “it is important to serve healthy foods.” One staff member noted her job has become harder but wrote, “it has been exciting [to] get to learn more about cooking healthier foods. It is great working with fresh ingredients.” Staff also, on average, agreed with the statement: “it is important for us to serve local foods” (see Table 3).

Table 3 **Cafeteria workers’ opinions of the importance of healthy, “from scratch” and local foods**

	IT IS IMPORTANT FOR US TO SERVE HEALTHY FOODS	WE SHOULD SERVE MORE FOODS THAT WE COOK FROM SCRATCH	IT IS IMPORTANT FOR US TO SERVE LOCAL FOODS	IT IS IMPORTANT FOR US TO TELL THE STUDENTS WHEN THE FOOD IS LOCAL
Level of agreement*	4.3	3.1	4.0	3.6

* 1 = strongly disagree, 5 = strongly agree.

Source: authors' elaboration.

22.5 Conclusion

In school cafeterias in the United States of America, purchasing healthy and local foods often requires the staff to work more, and generally they are asked to do more and increasingly involved tasks without corresponding increases in time or compensation. Even though workers and managers are often motivated to make new initiatives successful to support their students’ health, they still face challenges that may limit their own well-being as well as their ultimate effectiveness and continued dedication.

Ideally, staff would be compensated appropriately and given increased hours or additional help, as well as any needed training and equipment. Such training could include a greater emphasis on equipping cafeteria managers to institute more efficient work processes as well as more regularized communication about why the

SFA is requiring these changes, so both managers and staff are reminded of the value of serving healthy and local foods.

As policymakers, bureaucrats and advocates design initiatives to improve public food procurement, they should consider the food service staff in these programmes, especially by ensuring adequate funding to hire, train and fairly compensate an adequate number of cafeteria workers as well as install and maintain the necessary kitchen equipment. Those responsible for purchasing food in these programmes should plan for the impact of procuring certain foods on staff and solicit staff input before purchasing and during the implementation process (i.e. through pilot testing and peer-to-peer training). Finally, researchers should include worker perspectives as they study and report on public food procurement.

Initiatives to improve public food procurement should account for the contributions of labour across the food supply chain; otherwise, the well-being of some workers may be sacrificed for that of others. Food service staff are a crucial link in the chain from food production to consumption, and large-scale changes to the food system will require that initiatives designed in the procurement office are tenable all the way to the plate.

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24 HOW CANADA'S LARGEST UNIVERSITY MOVED TOWARDS LOCAL AND SUSTAINABLE FOOD PROCUREMENT: A STORY OF DISRUPTIVE INNOVATION AND OPERATIONALIZATION¹

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ABSTRACT

This chapter recounts the partnership between the University of Toronto with the non-profit Local Food Plus (LFP) to bring local sustainable food to the University of Toronto's Saint George campus. At its launch, the partnership represented the largest purchase of local sustainable food at a Canadian university. LFP was founded in 2005 to foster sustainable local food economies through a certification system and marketing programme that linked certified farmers and processors to buyers. This chapter uses information from key informant interviews to argue that LFP represented a disruptive innovation challenging many dimensions of the dominant food system. The chapter reveals structural obstacles to operationalizing a local and sustainable food system, including a lack of mid-sized infrastructure serving local farmers, the domination of a rebate system of purchasing controlled by an oligopolistic food service sector, and government support of export agriculture.

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24.1 Introduction²

In 2006, the University of Toronto, with more than 91 000 students, became Canada's first university to purchase certified local sustainable food (Local Food Plus, 2006a). The initiative arose from a partnership between the University of Toronto and a newly formed civil society organization, Local Food Plus (LFP).³ This partnership marked the first time in Canada that three concepts – public sector procurement, local food and sustainable food – were brought together under a unified project.

LFP's vision was to “foster vibrant local, regional economies by growing environmentally, socially and economically sustainable local food systems” (Local Food Plus, 2006b). To this end, LFP combined three functions. Its first function was to provide the first comprehensive third-party certified local sustainable labelling system for products featuring sustainable production methods, on-farm labour practices, animal welfare, biodiversity protection and energy use. The second function was to offer a market development programme linking farmers with purchasers. A third function was to advocate for local and sustainable food as the norm for public sector food service and community-minded businesses.

At its peak, LFP linked more than 200 certified farmers and processors to more than 80 “market partners.” In 2012, LFP estimated that about 160 000 certified local sustainable offerings were served weekly at 277 Ontario public institutions, with an annual value exceeding USD 2 million (Local Food Plus, 2012). The University of Toronto-LFP partnership marked the first major institutional contract to specify the purchase of certified local sustainable food.

Despite many successes, LFP was unable to raise funds to continue operations beyond 2014. Nevertheless, the University of Toronto provided a legacy in 2016 when it took over its main campus food service operations, rather than contracting with a global food service corporation.⁴ University of Toronto food service administrators

² The author is the founder and former president of Local Food Plus. The primary research for this paper is based on 36 in-depth semi-structured key informant interviews conducted by the author; only personal notes, emails, and memories that are confirmed by interviews or public documents were used for this research.

³ The original name of the organization was Local Flavour Plus. The name was changed to Local Food Plus in 2007.

⁴ In 2019, the number of students living in residences run by Food and Beverage Services, University of Toronto was about 2 100. Food and Beverage Services, University of Toronto also sources food for retail outlets on the Saint George campus; these outlets cater to almost 62 000 students, as well as faculty and staff. In addition, the Saint George Catering Company, the catering arm of Food and Beverage Services, University of Toronto, caters meetings, events and conferences across the downtown campus.

acknowledge that the University of Toronto-LFP partnership paved the way for this game-changing decision (Lokker, 2016; Macdonald, 2016).

This chapter on the University of Toronto-LFP partnership examines major factors affecting the operationalization of local and sustainable food initiatives in Canada. It highlights the impact of disruptive innovation of the dominant food system on the functioning and fate of LFP (Christensen, 2003).

24.2 Local Food Plus as a disruptive innovation

Christensen developed the concept of disruptive innovation in his influential book *The innovator's dilemma* (Christensen, 2003). His term embodies three dimensions: it disrupts existing product offerings and operational models, it ends the privileges of powerful groups benefitting from the existing model, and it comes from outside established structures (Christensen, 2003). Christensen's book offers a useful way to analyse LFP's role relative to four major forces: the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), dominant food service corporations, the organic sector and philanthropies. Perhaps most disruptively, LFP articulated a public purpose to both food production and food procurement. This contested the hegemonic food system premise shared by business, government and philanthropy that food is strictly a commodity, not a public good.

Local Food Plus and the Ontario Government

By championing a local and sustainable food system, LFP put itself in opposition to OMAFRA's long-standing focus on food exports, which downplays food for domestic populations. Foodland Ontario, a government-run branding scheme promoting Ontario food established in 1977 (Canada, Ontario, n.d.), focuses on increasing awareness of local foods. Ontario's Local Food Act of 2013 claims to:

- foster successful and resilient local food economies;
- increase awareness of local food in Ontario, including the diversity of local food; and
- encourage the development of new markets for local food.

However, the Local Food Act is aspirational, with no regulatory force.

LFP also challenged Ontario's historic stance on sustainability. Although pesticides are federally regulated in Canada, the provinces regulate their sale and use (Canada, Ontario, OMAFRA, 2020). LFP standards, which restrict the use of certain approved pesticides, posed a challenge to the Ontario government's claim that food production in Ontario already met standards for leadership in environmental stewardship (Canada, Ontario, 2019).

Local Food Plus and the dominant food service industry

LFP maintained that sustainable food systems must be primarily local, and that local is most robust when sustainable. By coupling local and sustainable, LFP confronted the dominant food system. Conventional food service relies on high-volume purchases of standardized and placeless low-cost foods, as well as rebates that give high-volume vendors preferential access, thereby excluding small, local farmers. LFP's offering of local and sustainable food, with no preferential discounts, countered this business model.

Local Food Plus and the organic sector

Although most LFP leaders came out of the organic movement, LFP's focus on local and broader sustainability issues such as labour conditions, animal welfare, biodiversity and energy use disrupted the organic sector's stature and dominance in the alternative food market. While several leading organic farmers saw LFP as highlighting their commitment to local food or humane animal and labour practices, some in the organic sector saw LFP as unwelcome competition. LFP co-founder and vice-president Mike Schreiner stated: "I think the organic movement saw LFP as a threat because the organic movement had owned the environmental sustainability piece" (Schreiner, 2016).

Local Food Plus and philanthropic foundations

By intervening directly in mainstream food service and the supply chain, LFP became an economic actor, disrupting philanthropic models of charitable donations. Philanthropic foundations typically fund charitable projects on behalf of disadvantaged groups not served in the marketplace. Despite strong early interest,

foundations treated LFP more as a business venture than as a non-profit and expected LFP to become self-financing within a few years. The reality of LFP's slow model did not fit with the way philanthropies make grants, usually based on one to three-year projects. Equally important, as an organization providing full services, LFP went beyond talking about policy issues in an abstract manner. It worked to change the operation of procurement. In retrospect, LFP set overly ambitious goals; however, without such goals, neither funding nor media attention would likely have been forthcoming. Launching operations with the University of Toronto contract made these goals seem alive with possibility (Mills, 2016; Schreiner, 2016).

24.3 The Local Food Plus certification standards

LFP was more than an organization with an idea. It rolled up its sleeves for food system change. To promote foods from specific farmers, LFP had to specify what local and sustainable meant. This entailed the development of detailed standards, and a way to apply these standards through a credible certification process.⁵ The labour-intensive model adopted – annual third-party inspections based on site visits and examination of detailed records – was influenced by the experience several LFP senior staff gained in the organic movement.

LFP's standards and certification methods were developed with consultants such as Rod MacRae, a soil scientist and food policy expert. MacRae saw LFP standards as a three-legged stool:

One leg is creating something that differentiates you from the dominant practices, and actually causes positive change on the landscape, whether it is at the farm, processor, or whichever level you're focusing on. Another leg is what consumers can recognize as important. The third leg is to write a standard that enough producers can meet so that you have enough supply to create a new market (MacRae, 2016).

⁵ LFP's Local Food Plus General Standards for Farmers and Ranchers and Local Food Plus General Standards for Processors and Packers, as well as Local Food Plus Policies on Multi-Ingredient Products and genetically modified organisms (GMO) are included as appendices in Stahlbrand, 2017b. Individual crop standards are not publicly available.

In keeping with evolving integrated pest management standards,⁶ LFP awarded farmers points based on five sets of practices: employing sustainable production systems that reduce or eliminate synthetic pesticides and fertilizers and conserve soil and water, providing healthy and humane care for livestock, providing safe and fair working conditions for on-farm labour, protecting and enhancing wildlife habitat and on-farm biodiversity, and reducing on-farm energy consumption. Detailed production standards were developed for most crops grown in Canada, as well as for processing and packing. The standards were based on MacRae's research into sustainable practices, with input from farmers and OMAFRA crop experts.

LFP launched the first ecolabel in Canada to couple local and sustainable food. LFP defined local food as food produced, processed and distributed within or very close to one province. This matched Canadian realities, where distances between centres are great, supply chains long, and most agricultural programmes fall under provincial jurisdiction.

The initial focus was on institutions in the public sector because LFP founders saw institutional procurement as the way to leverage public power to localize a sustainable food system. "We wanted to achieve something that was meaningful in terms of change in farm practices," recalls Schreiner, while remaining affordable to institutional purchasers on tight budgets. "For me, that was always the most challenging and difficult tension" (Schreiner, 2016).

24.4 The University of Toronto–Local Food Plus partnership

In Canada, universities are pivotal to local and sustainable food purchasing because Canada lacks elementary and high school meal programmes. Campuses across Canada spend more than USD 800 million a year on food (Meal Exchange, n.d.). They thus provide opportunities to use buying power to promote creative public procurement (Morgan, 2014; Morgan and Morley, 2014; Morgan and Sonnino, 2008).

⁶ Integrated pest management is an ecosystem approach to crop production and protection that combines different management strategies and practices to grow healthy crops and minimize the use of pesticides (Food and Agriculture Organization of the United Nations [FAO], 2021). LFP's standards define practices that are a meaningful shift away from conventional approaches to pesticide use, while including labour, animal husbandry and energy components.

The University of Toronto-LFP partnership arose from a casual conversation in 2005 between the author and David Clandfield, principal of New College, which houses almost 900 students. Clandfield fits the formal definition of a “champion” who “voluntarily takes extraordinary interest in the adoption, implementation, and success of a cause, policy, programme, project, or product” (Business Dictionary, 2020). Clandfield learned how to act strategically throughout his varied career as an administrator, academic, Board of Education trustee, and provincial government policy advisor. At New College, he pioneered an academic programme in Equity Studies. The author co-taught the first course in food and equity while developing Local Food Plus. Clandfield saw a connection:

When we said we were going to pursue an equity emphasis based on all forms of equity, we decided that this should apply not only to the curriculum, but to everything we did in the College. We were looking for opportunities to embed in the College life, not just in the classroom, things that demonstrated this commitment to social justice and equity (Clandfield, 2015).

The author's students conducted a survey of New College residents indicating they were willing to pay a small premium for food with social and environmental qualities. By pure coincidence, the food service contract at New College was up for renewal. Clandfield acted strategically, seeing his job as “find[ing] the right people to put together so an exciting idea could emerge” (Clandfield, 2015). He called a small meeting in his office to present the idea of a partnership between New College and LFP.

One of the people attending that initial meeting was Anne MacDonald, director of ancillary services at the University of Toronto and responsible for campus housing, parking and food service. For Macdonald, another champion, the meeting coincided with efforts to improve campus communication about food service. She was impressed by the author's commitment to incremental change and continuous improvement. “I felt that there was a kind of business case for it,” she said. “It wasn't asking us to buy completely into a huge costly programme” (Macdonald, 2015). She also appreciated the sustainability option. She knew that buying organic food to meet the university's interest in sustainability wasn't affordable.

Macdonald introduced the concept to a key champion: Jaco Lokker, a former hotel chef who stayed at The Chestnut Hotel as executive chef when the University of

Toronto bought the hotel and converted it into a residence for 1 200 students known as 89 Chestnut. Lokker had grown up in the Netherlands, where many of his friends were connected to food production. “I just understood where food came from, and how important it was,” he said.

In Holland, the milkman who came to the door was actually the dairy farmer. The vegetable farmer would come in his truck with a wagon behind it, and you would buy your vegetables off the rack in the wagon. That’s how I understood food (Lokker, 2015).

Lokker felt that partnering with LFP was ideal for students:

You’re coming to school and starting your life as an adult. Now you’re going to make decisions as an adult, and I can influence you on buying local and sustainable, or just thinking in a responsible manner around food. Why wouldn’t I take that opportunity? (Lokker, 2015).

But the major piece for Lokker was third-party verification. “That’s where I saw value in LFP because everyone says, ‘how do you know that farmer is responsible?’ Well, now I can tell you how I know” (Lokker, 2015).

The author’s meeting with University of Toronto managers was fortuitous, because the university was about to prepare a request for proposals (RFP) for a large food service contract. RFPs of this size are usually issued every ten years. Macdonald brought LFP senior staff into the process. The author and Schreiner suggested RFP language requiring the purchase of specific amounts of local sustainable food. For New College Residence, the RFP required that:

A minimum of CAD 80 000 net (USD 70 272) (excluding non-food charges) of annual food purchases (food cost) must be sourced from local and sustainable growers and suppliers. The annual minimum amount will increase at a compound rate of 5 percent per year. To ensure variety and support for a wide base of farmers and suppliers, a maximum of 35 percent of the total dollar amount can be allocated to any one commodity, e.g. milk, meat, fruit, etc. (University of Toronto, 2006, p. 28).

A similar requirement was included for retail outlets on campus.

Aramark, an American-based global food service corporation with annual revenues in 2019 of about USD 16 billion and a workforce of 284 000, won the contract to provide the New College residence and other key downtown campus outlets. Self-operated food service units, including University College and 89 Chestnut Residence, signed up for the University of Toronto-LFP partnership, too.

Macdonald said Aramark resisted the local sustainable programme from the start, despite having agreed to the contract terms. “I was getting these phone calls from Aramark procurement saying, ‘I don’t think we can do this whole local thing’,” said Macdonald (Macdonald, 2015). By contrast, Lokker, keen to see what he could do to advance the LFP programme, was a hands-on problem-solver. He offset the costs of sustainable purchases by cooking from scratch with whole foods, rather than relying on processed products – thereby reducing food costs. Lokker also launched an educational campaign to minimize food waste, especially food left on plates. The savings helped offset any extra cost of LFP-certified food. Over the years, Lokker grew the LFP programme to about 17 percent of his total purchasing, with local products accounting for up to 65 percent (Lokker, 2015). Comparable estimates from Aramark are not available.

Lokker said the LFP-certified products that worked best were apples from the Norfolk Fruit Growers Association in Norfolk County, a major farming and food processing region on the shore of Lake Erie, about two hours from Toronto, carrots and onions from Carron Farms, grown in the rich soil of the Holland Marsh directly north of Toronto, and milk from Harmony Organic Dairy, about two hours due west of Toronto. For these products, Lokker switched completely to LFP sources. He proactively thought about how to foster change:

If you have two carrot farmers and one is connected and one is not, you buy from the one who is connected. That’s the only way you will ever get them to stay in the programme (Lokker, 2015).

Lawrence Andres, the President of Harmony Organic Dairy, said the greatest value of LFP certification was LFP’s ability to open the door to institutional procurement (Andres, 2016). “[Students] are going to be consumers” said Andres, “and they are going to be informed consumers who are willing to do something for the environment” (Andres, 2016). Andres was willing to give Lokker a price below the usual organic

premium because “we made up for it with significant volume, and the future looked promising.” Andres saw Lokker as a food service visionary but said the programme “needed LFP to develop the relationships and turn it into action.”

Background factors influencing the University of Toronto–Local Food Plus partnership

Four factors played key roles in the evolution of the University of Toronto–LFP partnership. First, Toronto had a dynamic “community of food practice” which created conditions supportive of LFP (Friedmann, 2007). Second, transnational food service corporations resisted local and sustainable procurement. Third, there was insufficient mid-sized infrastructure to support scaled-up local and sustainable food sales. Fourth was the hegemonic force of neoliberalism, which treats food as a commercial commodity requiring minimal government oversight of corporate decisions (Harvey, 2006; Moore, 2010). LFP’s mission of enhancing public benefits from public institutions ran against this neoliberal grain.

Communities of food practice

Friedmann writes about Toronto’s highly interactive community of food practice (Friedmann, 2007). This included institutions such as the Toronto Food Policy Council (TFPC, a municipal body with citizens as members who advise the City of Toronto on food issues), the food justice organization FoodShare (which provided early support) and established players in the sustainable food arena. In other words, the author was connected to a broad network that gave LFP a strong start. She drew from this network to hire an impressive team with deep experience in farming, food policy, organic certification, food sales and marketing. This team included Mike Schreiner, an entrepreneur who founded a home box delivery service, former TFPC coordinator Rod MacRae, organic inspector trainer Garry Lean and Don Mills, an organic farmer and leader with Canada’s National Farmers Union.

Food service oligopoly

The second background factor was a food service sector dominated by three transnational corporations – Compass, Sodexo and Aramark. Their business model

is described as “based on centralized supply chains and management structures, with a reliance on prepared and ‘ready to eat’ food, intended to lower procurement and labour costs” (Martin and Andrée, 2012, p. 162). This food service oligopoly had combined revenues of USD 65 billion in 2019. They employ 1.35 million people at colleges and universities, schools, hospitals, sports facilities, workplace cafeterias, airlines, railways, remote mining camps, offshore platforms, the military and prisons (Aramark, n.d.; Compass Group, n.d.; Sodexo, n.d.). Oligopoly in food service makes it difficult for local and sustainable entrants to gain a foothold because the three main players use their enormous purchasing power to drive down prices (Clapp and Fuchs, 2009; Martin and Andrée, 2012).

Food distribution is, likewise, dominated by a few broadline distributors – multi-billion-dollar global corporations that provide one-stop shopping to food service operations. Ontario’s major broadline distributors are Gordon Food Service and Sysco. Gordon Food Service had revenues of more than USD 14.6 billion in 2018 (Forbes, 2020). Steve Crawford, a category manager with Gordon Food Service in Ontario, said the company lists 17 000 different products. He described broadline distribution this way: “if you picked up a restaurant upside down and shook it, whatever falls out, we usually sell” (Crawford, 2013). Besides fresh and processed foods, this includes napkin holders, cutlery and staff uniforms. Oligopolistic domination of the marketplace reduces innovation from new and independent competitors.

Absence of mid-sized infrastructure

The third background factor influencing the University of Toronto-LFP partnership was the lack of infrastructure appropriate for a community-based sustainable food system – termed the “infrastructure of the middle”(Stahlbrand, 2016a, 2016b, 2017a) in analogy with the concept of “agriculture of the middle.” These farms and ranches “operate in the space between the vertically-integrated commodity markets and direct markets” (Kirschenmann *et al.*, 2008). The concept of infrastructure of the middle was also influenced by food hub conceptualizations (Blay-Palmer *et al.*, 2013; Morgan and Morley, 2014; Morley, Morgan and Morgan, 2008). “Infrastructure of the middle” can be defined as “the resources, facilities and networks that create a critical mass, enabling alternative food producers to meet the needs of high-volume, high-profile food service clients, especially public-service institutions” (Stahlbrand, 2016b).

Mid-sized infrastructure includes hard infrastructure such as warehouses and processing plants, and soft infrastructure such as communities of practice and structures for creating essential relationships.

In Canada, where the climate is daunting, the population is small and construction expensive, infrastructure has typically been built with public money – as with canals, railways, roads, utilities, radio and television broadcasters, colleges and universities. Food infrastructure, by contrast, is largely in private hands. A local and sustainable food system requires distributors, processing plants, warehouses and information technology that handle local and sustainable products and work with smaller companies. Such mid-sized processing plants are declining in Ontario (Windsor Star, 2013; Sparling and LeGrow, 2015). For these reasons, the language of “farm to fork” is misleading. The little word “to” masks a huge absence of essential infrastructure (Stahlbrand, 2016b).

While LFP founders recognized that new relationships were part of the soft infrastructure needed for local and sustainable food systems in Ontario, it was not immediately clear how little mid-sized hard infrastructure exists. Schreiner noted that:

There is no mid-scale infrastructure in the whole system. For the most part, it is either mass scale or small artisans. It was very challenging for the partners we were trying to work with because they couldn't achieve scalability. Though they didn't necessarily want to become big, there was no alternative, other than artisanal production, which is a micro-niche with very high costs of production” (Schreiner, 2016).

The political economy of the marketplace meant that LFP lacked a foundation within the food sector.

Operational challenges in the University of Toronto–Local Food Plus partnership

LFP’s commitment to operationalization attracted funders and volunteers and led to media attention. No one in Canada had previously tried to transform university food procurement by linking with local, mid-size farmers and processors who met standards for environmental and social sustainability. As MacRae noted, most local and sustainable food programmes limit themselves to smaller endeavours, but LFP’s

mission was nothing less than food system transformation. MacRae contended that:

Everybody is overly optimistic about what the small stuff can deliver. Operationally [LFP] was out front, because hardly anyone before us had ever really struggled with these operational dilemmas, and really figured out how to make the operation side serve the concept (MacRae, 2016).

Commitment to operationalization turned out to be LFP's Achilles heel. LFP was expensive to establish but had to move fast to raise funds from sources with minimal understanding of the grinding work of operationalization. Being first meant unforeseen operational issues every step of the way.

Understanding such challenges is essential to appreciating the barriers blocking sustainability transition in food systems. This section reviews three of many operational challenges – those related to defining local, those related to defining sustainable, and those related to the dominant food system's rebate system.⁷

Defining local

Scholars note that local food can have multiple and conflicting meanings (Allen *et al.*, 2003, p. 63; Born and Purcell, 2006; Feagan, 2007). Practitioners must develop meaningful standards for implementation in places such as university cafeterias serving thousands of meals daily on limited budgets, usually during the off season for local agriculture.

All food service relies on scores of processed products such as canned tomatoes and dairy. Therefore, LFP needed standards for both farmers and processors. LFP originally defined local food as “food that has been produced, processed and distributed within the province in which it is consumed, or up to 200 kilometres within a neighbouring province” (Local Food Plus, 2011, p. 4). This definition was unworkable. Farmers have minimal control over food they grow after it leaves the farm. Nor can they control whether processors mingle their food with non-local ingredients. Processors with the

⁷ There are many examples of operational issues that impact sustainability transition in food. Some of these include how to evaluate changing government pesticide regulations in a cost-effective manner in order to include them in a certification process, how to work with distributors to avoid shrinkage (food loss from decay) while the demand for local and sustainable food is still relatively low, and how to identify certified products on packaging when farmers and processors print new packages every few years.

best intentions can rarely source all ingredients locally. Even producers with deep convictions could not meet LFP's definition of local.

Mapleton Organic, established in 2000 by Martin de Groot and Ineke Booy, is a case in point. Processing is done on-farm, where they raise dairy cows since coming to Canada from the Netherlands in 1980. All milk for their premium organic ice cream and yogurt comes from their herd. Both De Groot and Booy are deeply committed to local food and were among the first to certify with LFP. Yet they were unable to find Ontario processed strawberries or blueberries for their ice cream and yogurt. De Groot stated: "if there were strawberries here, even if I had to pay a little more for them, I would buy them from Ontario. But there's nothing here" (De Groot, 2013). Such realities led LFP to develop a policy for multi-ingredient products allowing up to 50 percent non-LFP-certified ingredients (Local Food Plus, 2007).

Defining "sustainability"

The unidentified presence of genetically modified organisms (GMO) in many processed foods also challenged the working definition of sustainable. GMO are not permitted in the Canadian Organic Standard, or by LFP. Unlike in Europe, however, genetically modified crops such as corn and soy for animal feed are standard in Canada, and there is no required segregation from non-GMO crops (Canadian Biotechnology Action Network, 2020). Access to non-GMO corn and soy is virtually impossible for non-organic farmers. Beef farmers certified with LFP were forced to purchase organic feed but could not recoup the organic price premium through LFP sales. The beef farmers petitioned LFP to use mingled organic and conventional feed until a segregated supply could be established. After considerable consultation, LFP temporarily allowed such mingled feed (Local Food Plus, 2008). In doing so, LFP tried to balance three factors: an actionable definition of sustainability, a sufficient supply to provide a full range of products to market partners, and an inability to influence Canadian regulations permitting mingling with GMO products. LFP's decision provoked a backlash from within the organic community, requiring crisis management.

Policy ambiguities only become pointed in the course of operationalization. Those supporting zero tolerance for GMO did not face the ranchers' reality that organic feed was too expensive for meat sold to institutions. The world of operationalization brings out shades of grey not visible in the light spectrum of spectators.

The rebate system

LFP's most formidable operational challenge was the rebate system, a defining feature of the dominant food system. Rebates entrench price incentives that block small and mid-sized farmers from selling to food service contractors, while generating hundreds of millions of dollars for global food service corporations (Fitch and Santo, 2016). Rebates are the price of admission for farmers and distributors to be on the lists of preferred vendors of food service contractors. They are similar to slotting fees in supermarkets, where suppliers pay for shelf placement in supermarkets (Hendrickson *et al.*, 2001). Rebates are the disciplinary tool of a cheap food system, because they force all participants in the supply chain to bid low and push costs down. This is the business model that enforces cheap food in a food system controlled by oligopolies. LFP ran headlong into it. Lokker, by contrast, as the executive chef of a self-operated food service unit, did not demand rebates from LFP-certified farmers and processors.

24.5 Conclusion

This chapter argues that LFP was a disruptive innovation challenging dominant food system players. The partnership between the University of Toronto and LFP to bring certified local sustainable food to the University of Toronto illustrates this argument. The research discussed in this chapter confirms two points:

- Universities can make a signal contribution to local and sustainable food efforts.
- Despite the benefits they bring, such projects will face obstacles as a result of disruption to dominant players.

The events described here produced a significant development. After ten years with Aramark, the University of Toronto took back its food service and moved to self-operate downtown food venues. According to the university, the operation, launched in August 2016:

[Ensured] that the campus food services provide a wide range of affordable, sustainable and nutritious food options to our community through excellent service, commitment to our environment and celebration of food to reflect our diverse community (University of Toronto, n.d.).

Under this arrangement, about 30 downtown locations come under the purview of Jaco Lokker, now director of culinary operations and executive chef. Macdonald stated:

It's not simply that the managers change. It's that there's more cooking, and there's a shift from prepared ingredients and low-skilled labour to less prepared ingredients and higher skilled labour. It's just a completely different way of operating" (Macdonald, 2015).

Lokker says the kitchens enable food service to work directly with local farmers selling whole foods, making the University of Toronto a hub for local and sustainable food (Lokker, 2015). Macdonald and Lokker said the LFP partnership gave them experience and confidence to move towards a self-operated food service (Lokker, 2016; Macdonald, 2016). The LFP partnership made visible problems associated with contracting out food service, in contrast with how Lokker implemented the LFP programme in a self-operated kitchen (Macdonald, 2016).

LFP co-founder Mike Schreiner believes LFP played a significant role in building public support for local food. But sustainability proved to be difficult to embed in everyday food discussions. He said:

I don't think we succeeded in really having any enduring penetration around local sustainable. Institutional food service is one of the most entrenched systems in the world. That's why people focus on farmers' markets – little pieces that chip at the edge of the system – because trying to actually go into the heart of the beast and change it is really hard (Schreiner, 2016).

This chapter points to the need for research on institutional food procurement, an area that has been referred to as a sleeping giant of food localization and sustainability (Clark, 2016). There is much to learn from both successes and setbacks.

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25 SUSTAINABLE FOOD PROCUREMENT IN BRITISH SCHOOL CATERING

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ABSTRACT

Subject: sustainable food procurement for school catering in northern England and north Wales. **Methods:** qualitative research, using semi-structured interviews with procurement and catering managers.

Findings: the research identified widespread local and regional sourcing policies and practices. These included logistical arrangements and subdivision (lotting) of contracts. A minority of services promoted organic food, alongside placing increased emphasis on waste and meat reduction.

Audience: professionals involved with sustainable food procurement.

Conclusion: sustainable food procurement is a complex concept, which relates to a variety of practices.

25.1 Introduction

The research examined 15 case studies of sustainable food procurement in school catering in northern England and north Wales, based on interviews with senior procurement and catering managers conducted in 2013–2015. It shows how sustainable food procurement progressed in an era of austerity when government was drastically reducing public spending. Public procurement practitioners placed strong emphasis on local and regional sourcing. They devised a set of practices for encouraging local suppliers within the framework of European procurement rules. These included separation of distribution and supplier engagement measures and lotting of contracts (subdivision by product and/or by area). A minority of school catering services had a

stronger environmental agenda, promoting organic food and financing the extra costs by finding savings by changing work practices, reducing waste and meat usage. The Food for Life (FFL) catering mark became an increasingly widely adopted measure of sustainable food practices.

Fourteen of the organizations interviewed were local authorities (councils), where the researchers spoke to catering and procurement managers. The fifteenth was a social enterprise providing catering for 17 schools in one local authority, where school catering was divided among a number of independent contractors.

There are 174 local authorities providing school catering services in England and Wales. Due to their leadership roles in regional and subregional procurement arrangements, the 14 councils, which were the subject of the research, collectively carried out food procurement for just over 5 000 schools, which represented approximately 20 percent of the total in England and Wales.

The research concentrated on North West England, where Salford University is located. In this region, staff were interviewed at ten organizations. Bringing in local authorities from adjoining regions broadened the focus of the research.

The research examined the attitudes and practices of catering and procurement managers. It involved a grounded theory analysis of multiple case studies, selected according to theoretical relevance (Eisenhardt, 1989). A suitable number of cases were identified that carried specific characteristics that rendered them appropriate to answer the research questions while at the same time permitting comparisons between them (Johnson and Leenders, 2004).

25.2 Literature review

British school food policy 1944–2016

The United Kingdom of Great Britain and Northern Ireland United Kingdom of Great Britain and Northern Ireland has a long-established national school feeding scheme, established after the Second World War.

In 1984, Mrs Thatcher's government abolished nutritional standards and the obligation to provide meals for all children. Local authorities were obliged to put their school

catering services out to tender. Pay and ingredient spending were cut and food quality declined (Morgan, 2006).

The years from 2002 to 2009 saw a radical policy shift towards school catering, prompted by concerns over child obesity (Morgan and Sonnino, 2008). The Labour government introduced mandatory school nutrition standards, which excluded junk foods (School Food Trust, 2008). The government invested heavily in equipment, training and subsidies for school kitchens and introduced the Public Sector Food Procurement Initiative, which promoted purchasing from small and local producers, organic food and animal welfare (Deloitte, 2009; United Kingdom of Great Britain and Northern Ireland, Department for Education, 2010). The initiative disseminated guidance and case studies promoting new procurement policies and practices.¹

However, the government has not given organic food the level of support given by other European governments who believe in its environmental and health benefits (Soil Association, 2011).

The Food for Life Partnership (FFLP) is an alliance of English non-governmental organizations led by the Soil Association. It has been receiving large-scale grant funding since 2007, particularly from the National Lottery (Morgan, 2011). This has enabled it to work with schools in every English region, aiming to promote procurement of local and organic food and teach children to learn how food is produced and how to grow and cook it themselves.

FFLP was designed so that school caterers could win a hierarchy of awards. Bronze requires fewer additives, no hydrogenated fats, farm-assured meat, cage-free eggs, and 75 percent of dishes to be freshly prepared. Silver requires a range of local and organic items, sustainable fish, poultry meat, eggs and pork that comply with stringent animal welfare standards, and at least one fair trade product. Gold requires at least 15 percent organic and 50 percent local food, increased fair trade and vegetarian food and greater emphasis on animal welfare (Food for Life Partnership, 2017).

After the May 2010 general election, new government policies intensified political and financial pressures on local authorities' catering services. Schools were encouraged

¹ These are summarized in Stein, 2014, pp. 105-112.

to cut their ties with local authorities to become academies funded directly by the central government. Groups of parents and businesses were encouraged to establish new free schools, also funded directly by the central Government. Both academies and free schools were exempted from school food standards and able to save money by serving poor quality food (Save our School Food Standards, 2012). Kevin Morgan expressed the fear that “the school food revolution, embodying one of the most hopeful and inspiring social experiments in post-war Britain, has been stopped in its tracks by the age of austerity” (Morgan, 2011, p.16).

The government set up the school food review late in 2012 in response to criticism that it was endangering children’s health by cutting back school meals (Nelson, 2014). The resulting School Food Plan was published in July 2013. This plan reaffirmed the previous government’s policies of improving school food, with minimum food standards binding for all schools (Dimpleby and Vincent, 2013). It praised caterers for using local and organic food and cited the Food for Life catering mark as an example of best practice.

In September 2013 the government announced that it would provide school meals free of charge for children between the ages of five and seven from September 2014, with improved health and educational attainment, justifying massive extra costs – over GBP 1 billion (USD 1.35 billion) between 2014 and 2016 (Gove and Laws, 2014).

These announcements were an abrupt U-turn in government policy. A right-of-centre government, making massive public expenditure cuts, decided to follow the example of two Scandinavian welfare states – Sweden and Finland – who have long-established policies of free school food. All future free schools and academies would be required to comply with school food nutrition standards and existing ones would be encouraged to do so.

In July 2014 a new public sector food procurement policy, the British Food Plan, reaffirmed the previous government’s policy of encouraging sourcing from British farmers. It was supportive of the Food for Life catering mark and encouraged procurers to raise their standards to Food for Life Silver and Gold (Bonfield, 2014). The new Conservative government committed itself in November 2015 to continue funding universal infant free school meals. A proposal by prime minister Theresa May to abolish these was made during the 2017 general election campaign. It was dropped when she failed to win a parliamentary majority.

Review of academic and practitioner literature on sustainable public food procurement

Government-sponsored school feeding schemes are widespread internationally and play an important role in promoting child health and assisting low-income families. These schemes are frequently accompanied by procurement initiatives to promote local and environmentally sustainable food production (Bundy *et al.*, 2009; World Food Programme, 2013). Such initiatives are often referred to as “sustainable food procurement” (Morgan and Sonnino, 2007; Lawrence *et al.*, 2015).

Most academic research relating to local authority food procurement in the United Kingdom of Great Britain and Northern Ireland has been done by Kevin Morgan and Roberta Sonnino of Cardiff University, whose publications include case studies of five specific local authority areas (Morgan and Sonnino, 2008; Morgan and Morley, 2014). One of these case studies – of East Ayrshire in Scotland – has been referred to as an exemplar of best practice in three international studies (Smith *et al.*, 2016; Bundy *et al.*, 2009; European Commission, 2012) (see also Chapter 1). In addition, Levidow and Psarikidou (2011) make brief reference to local authority food procurement in Cumbria.

These six case studies in academic literature can be contrasted with the more extensive coverage of academic studies from other European countries – and particularly from Denmark, Finland and Sweden.

Muukka *et al.* (2008) reports on a survey of procurement of local and organic food by 366 Finnish municipalities, describing how municipalities expanded their purchases of local and organic products, overcoming obstacles and changing working practices. Granvik (2012) reports on a national survey of 218 Swedish municipalities, showing widespread adoption of policies encouraging small local producers – particularly communication exercises and subdivision of tenders. Since 1995, the Danish Government has encouraged increased organic food in public catering. Mikkelsen and Sylvest (2012) examined 43 municipal projects receiving government grant assistance. Catering managers converted to organic without increasing their food budget by making savings compensating for the greater cost of organic food. They rethought kitchen procedures, retrained staff and reduced costs – particularly by reducing waste and meat usage (see also Chapter 18). This can be contrasted with

significant cost increases from introducing local and organic food in East Ayrshire and Carmarthenshire (Morgan and Sonnino, 2008; Morgan, 2008).

In Denmark, meat reduction was accomplished by replacing traditional meat dishes with vegetarian alternatives or having a greater percentage of vegetable ingredients (Mikkelsen and Sylvest, 2012). There have been successful moves to introduce vegetarian days in public catering in Ghent (Belgium) and Helsinki (Leenaert, 2012; Lombardini and Lankosti, 2013). However, Laestadius *et al.* (2013) highlights the weakness of similar campaigns in other countries.

Wang *et al.* (2012, p. 841) describes city sustainability initiatives and stresses the importance of developing managerial capacity “which includes establishing sustainability goals, incorporating goals in operations, and developing a supportive infrastructure.” The study underlines the importance of citizen involvement in sustainability initiatives. With reference to food, a significant step has been the creation of city food strategies in individual cities (Marsden and Sonnino, 2012; Granvik, 2012) (see also Chapter 20).

Walker and Preuss (2008) discusses government policy in the United Kingdom of Great Britain and Northern Ireland encouraging aggregation of public procurement into a smaller number of buying points as a way of cutting costs (see also the discussion of collaborative procurement in Walker *et al.*, 2013). Collaborative procurement may conflict with other government policies that aim to encourage small and medium enterprises to take a higher share of public procurement. Muukka (2008) describes difficulties facing small local suppliers in Finland. Izumi, Wright and Hamm (2010) discuss similar issues in the United States of America (see also Morgan and Sonnino, 2008).

Academic literature contains few references to the establishment of distribution arrangements to assist small suppliers. Detailed discussions come from Sweden (Bjorklund and Gustaffson, 2013) and the United States of America (Cleveland *et al.*, 2014). Morley, Morgan and Morgan (2008) provide an overview and there are passing references in Granvik (2012), Morgan and Sonnino (2008) and Levidow and Psarikidou (2011).

The division of contracts into lots also assists smaller suppliers (Trybus, 2014; Swensson, 2018). It is referred to in practical guidance for public food procurement in

France (France, Ministry of Agriculture and Food, 2014). It is also described in Swedish academic literature (Granvik, 2012; Knutsson and Thomasson, 2014). There are passing references in Morgan and Sonnino (2008) and Levidow and Psarikidou (2011).

Communication efforts with local suppliers may also be effective in encouraging them to supply the public sector. For Sweden, this is well documented in Granvik (2012) and there are passing references to this in Morgan and Sonnino (2008).

25.3 Results

Table 1 summarizes the information obtained from the 15 case study organizations.

Table 1 **Summary of the most important interview results in 15 councils (Y = Yes)**

COUNCIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	%
Urban/Rural/Mixed	U	U	U	U	M	R	R	R	M	R	R	U	R	U	M	
Reducing food miles	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	80
Buy from local suppliers (within council boundary)					Y	Y	Y	Y	Y		Y	Y	Y		Y	60
Buy from regional suppliers	Y	Y	Y	Y				Y	Y	Y		Y	Y	Y	Y	73.3
Divide contracts into lots	Y	Y	Y	Y		Y	Y		Y	Y	Y		Y	Y	Y	80
Separation of distribution and supply	Y	Y	Y	Y					Y		Y		Y	Y	Y	60.0
Promote urban agriculture	Y											Y				13.3
Local companies not chosen as suppliers	Y	Y	Y	Y				Y		Y				Y	Y	53.3
Free-range eggs	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	93.3
Farm assured meat	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	93.3
Sustainable fish	Y	Y	Y						Y	Y		Y	Y	Y	Y	60
Organic food								Y				Y		Y		20
Vegetarian days	Y											Y		Y		20
Reduce meat % in recipes	Y															6.6
Shift from frozen to fresh meat		Y				Y					Y			Y		26.6
Food strategy: health and sustainability	Y										Y	Y	Y	y		33.3
Council	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	%

Source: authors' elaboration.

Buying from local and regional suppliers

The research revealed a high concentration of buying power through collaborative procurement arrangements. Council 4 ran a subregional buying consortium with 1 400 schools spread over eight local authorities. Council 15 administered a regional consortium for ten local councils with a total of 1 500 schools. Council 11 purchased for 550 schools. Such concentrated buying power encouraged procurers to seek larger-scale suppliers.

However, all 15 organizations expressed a desire to source locally, while 12 made explicit reference to the desirability of reducing food miles. The justifications for this policy were supporting the local economy and the alleged environmental benefits of reducing food miles.

In general, procurement managers worked with regional food distributors oriented to supporting local suppliers. Such wholesalers aimed to provide food from British sources whenever supplies are available.

Three councils bought almost entirely from local suppliers. Two of these (Councils 7 and 8) purchased from locally based wholesalers, even though the food may have been grown elsewhere. In the third case (Council 11), a great deal of the food purchased was produced within the local authority area.

Six organizations bought from regional suppliers. Five were urban local authorities with limited local food production. One was a rural local authority that ceased to buy meat locally because a meat supplier elsewhere in the region offered better traceability. A further six bought both locally and regionally. They were able to buy some foods locally – especially meat and dairy. Other foods – particularly fruit and vegetables – came from elsewhere in the region or elsewhere in the United Kingdom of Great Britain and Northern Ireland or abroad.

There were two instances where the local authority had encouraged local suppliers of respectively milk and organic meat to start selling to municipalities. These suppliers had expanded their businesses to sell nationally, creating a significant number of jobs.

Council 12 provided the sole example where a small proportion of the food purchased was sourced from local urban agriculture projects. Council 1 had experimented

with buying from local organic growers. There were aspirations to develop urban agriculture over the next five to ten years.

Supplier engagement

Three councils stressed the importance of holding information days that suppliers could attend to discuss a forthcoming tender. Another three highlighted the importance of informal discussions with suppliers. One procurement manager described how she engaged with local suppliers:

We don't do meet-the-buyer events. When any company contacts me, we will have an informal discussion. I will show them a generic tender and explain the process and how to complete the tender. I will also notify the schools and care homes and will encourage them to tell local suppliers about the tender.

Officer time is needed to talk to suppliers. As local authority budgets are cut by the central government, available staff time is reduced. In one council, the procurement staff had been cut back so drastically by 2014 that it was in danger of breaching its legal requirements to renew the tenders for expiring contracts. New tenders were issued hurriedly, which left little time for local producers to prepare their bids. The officer who had been most involved with informal supplier engagement took redundancy.

Lotting

This is the technical term for the division of large contracts into sections. It was practiced by 13 of the 15 organizations.

Lotting can open up opportunities for smaller suppliers. It can take the form of dividing up contracts into individual product groups and/or different localities. It requires more officer time to construct and appraise tenders. Two councils said they would like to do more lotting but lacked the staff.

The regional contracts, run by Council 4 and the subregional contract run by Council 15, both involved lotting by both product and by individual districts. However, the population size of these individual districts was in each case well over 200 000 and therefore still large in relation to small suppliers.

Council 7 is divided into four lots, which were the smallest in population terms and therefore offered the greatest opportunity to small suppliers.

Separation of distribution and supply

Separation of distribution and supply was a widespread practice, used by 9 of the 15 organizations. In eight cases, this involved the fruit and vegetables and/or groceries supplier distributing products of other companies. This helped small companies sell into the school catering market by freeing them from the need to distribute their food to large numbers of schools. It thus gave buyers a wider choice of suppliers. Council 9 purchased from a public sector purchasing body, which had its own depot and vehicles to distribute food to schools.

Fair trade, animal welfare and sustainable fish

Twelve organizations bought at least some fair trade products. Four bought quantities for school menus. Others bought much smaller amounts of tea and coffee for office usage. The modest amounts of fair trade products bought for school catering reflected the limited range of products available: bananas, fruit juice, tea, coffee and chocolate.

All 15 organizations purchased free-range eggs. In fact, free-range was the only option available for all councils, except for Council 4.

When purchasing meat, 12 of the organizations specified Red Tractor, or an equivalent form of farm assurance, satisfying British animal welfare standards.

A majority of the organizations (nine) only offered fish approved by the Marine Stewardship Council (MSC). The remaining six all bought at least some MSC-approved fish.

Organic food

Research in mid-2013 showed that three (Councils 8, 12 and 14) of the 15 organizations were buying substantial amounts of organic food. They had been able to finance the extra cost without increasing their budget. This was achieved partly because of the increased take-up of school meals resulting from the higher quality of the food.

In addition, kitchen procedures had been reorganized to make savings by reducing energy usage, meat consumption and food wastage.

Council 12 had the highest percentage of organic food. It sourced organic pasta and flour that was cheaper than conventional products, while paying a 50 percent price premium for organic cheese and rice. The council with the second highest use of organic products bought organic milk, yogurt and beef meatballs and planned to start buying organic cheese. The catering manager of Council 8, the council with the third highest consumption of organic products, bought organic meatballs and burgers from a local supplier:

The price is high but they are very tasty and so we are able to justify putting them on the menu a couple of times a week because the children like them so much.

In addition to these three councils, Council 10 said they might start buying organic pulses. Council 15 said several councils were buying organic milk through its regional contract and Council 4 said its subregional contracts permitted individual councils to order organic products.

By July 2015, Council 11 had started purchasing organic food. Organic food made up at least 5 percent of the council's total food purchases – whereby it qualified for Food for Life Silver.

At the same time, Council 12 decided to cut costs by ceasing the purchase of organic food, except for rice and pasta. They had established their reputation for providing high-quality locally sourced school meals and no longer needed Food for Life accreditation.

Switching from frozen to fresh meat

Three organizations switched from imported frozen meat to British fresh meat around 2011. One said that they had thus cut costs by 10 percent. A representative of Council 11 commented that:

The move from frozen meat to fresh meat was consumer-led, consumers wanting fresh products. We developed a supplier who was willing to invest

in breaking into this market. To make the switch from frozen to fresh, staff needed new equipment such as chopping boards and training, which our catering training team rolled out in phases – doing batches of schools.

By contrast, another catering manager (Council 8) stated that:

Frozen meat is simpler and easier for cooks. If we switched to fresh meat it might benefit local suppliers but kitchen staff would need to be retrained – very difficult in the present climate.

Meat reduction

Only 3 of the 15 organizations made substantial efforts to reduce the meat content of school meals. Council 12 had two meat-free days a week. Councils 14 and 1 had a meat-free Monday. In addition, Council 1 was experimenting with reformulating recipes by replacing a percentage of the meat with Quorn. All three organizations reported increased school meal uptake.

Local strategies and the role of individuals

Only 5 of the 15 organizations had food strategies that committed the entire organization to abide by specific standards of food provision.

Certain individuals were critically important to sustainable food procurement in their organizations. However, the absence of an organizational strategy that supports this initiative could mean the departure of these individuals would lead to the abandonment of these practices.

Food for Life catering mark

The research showed overall growth in the influence of Food for Life within school catering. The number of catering organizations accredited by Food for Life grew from six in June 2013 to ten in July 2016.

In the spring of 2013, four organizations (Councils 3, 9, 13 and 15) had attained the Bronze catering mark, which requires 75 percent of the ingredients used to prepare meals to be fresh ingredients. One school catering service (Council 14) had reached

the Silver level, which requires higher levels of local and organic food, while one had reached Gold (Council 12).

By July 2016, Council 14 had progressed from Silver to Gold. Councils 8 and 11, which had previously been sceptical of FFLP, had achieved Silver. Two other previously sceptical councils (1 and 9) had now achieved Bronze, as had Council 6. Council 4 was working towards Bronze.

Meanwhile, Council 3 had discontinued its Bronze accreditation. The catering manager told the researchers they did not feel the council had benefitted from it. Council 12 reported they had discontinued their FFLP Gold accreditation, cutting costs by reducing organic food. They had established their local reputation for high quality school meals and no longer needed FFLP to promote themselves.

25.4 Discussion

The research revealed widespread practical arrangements made by procurement practitioners to buy food locally or regionally. The research provides information about actual practices, which is not widely available in the academic literature (Flynn and Davis, 2015).

The research showed that the prime importance of food miles in assessing environmental impacts has become conventional wisdom among public procurement practitioners. This is the first research to document these views among public procurement practitioners. Practitioners showed no awareness of academic studies, which have shown that the contribution of transport to food's total environmental impact is often rather small (Edward-Jones, 2010).

Lotting of contracts – structuring procurement to encourage small and local suppliers to have a larger share of food procurement business – was a very important procurement practice. There are several brief references to this in the academic literature (Carpineti, Piga and Zanza, 2006; Knutsson and Thomasson, 2014; Levidow and Psaridikou, 2011).

In two cases, organizations were inhibited from lotting contracts by staffing constraints. This factor is mentioned only once in the academic literature (Flynn and Davis, 2015).

The research also revealed that the separation of distribution and supply is a widespread procurement practice. There has been little discussion of this in the pertinent academic literature, with some references in studies from Sweden and the United States of America.

Interviews within the 15 case studies revealed that frequent communication with small suppliers was also a widespread procurement practice. This is referred to briefly in the academic literature.

In 3 of the 15 councils, catering managers were able to source a considerable percentage of organic food without increasing the budget; they did this by reorganizing working practices. This is consistent with a study of Danish organic conversion by Mikkelsen and Sylvest (2012). It can be contrasted with the significant cost increases that resulted from the introduction of local and organic food in East Ayrshire and Carmarthenshire (Morgan and Sonnino, 2008).

There is very little academic literature describing FFLP's role in local and organic food procurement. Morgan and Sonnino (2008) describe the trialling of FFL in East Ayrshire. Walker and Preuss (2008) briefly mention the role of FFLP in promoting local food sourcing. The research for this chapter demonstrates the growing influence of FFLP on school catering organizations.

The research showed that eight organizations had considered local suppliers but decided not to use them. It presents a detailed picture of actual procurement practices, which is comparable to the detailed discussion of procurement in Finland by Muukka (2008). In that respect, the research of this chapter is substantially more detailed than that of Morgan and Sonnino (2008). The findings of this chapter reinforce the point previously made by Walker and Preuss (2008) that collaborative procurement has the potential to exclude smaller suppliers from public contracts.

Only 3 of the 15 organizations interviewed had reduced the meat content of school meals. This finding is consistent with Laestadius *et al.* (2013), which highlights the weakness of meat reduction initiatives internationally.

Reducing the meat content of recipes, which is being tried by Council 1, is similar to work being done in Denmark (Mikkelsen and Sylvest, 2012). No other reference to this practice was found in the academic literature.

Three organizations had switched from imported frozen meat to British fresh meat, which was usually cheaper but required new working practices. This finding has not been reported in academic literature except for a very brief reference concerning the Greenwich council (Morgan and Sonnino, 2008).

With regards to animal welfare, all 15 organizations purchased free-range eggs; in fact, free-range eggs were the only option available for all councils except for Council 4. When purchasing meat, 12 of the 15 organizations specified Red Tractor or an equivalent farm assurance satisfying national welfare standards. With respect to sustainable fish, the findings of this research are consistent with figures from the MSC, which show that 31 councils have policies to only purchase sustainable fish (MSC, 2013). This reflects a vigorous campaign by non-governmental organizations, as well as an acceptable pricing of sustainable fish products. No academic literature was found on animal welfare or sustainable fish in public food procurement.

The finding of limited purchasing of fair trade products is consistent with predictions by Fisher and Corbalan (2013).

The research found that only 5 of the 15 organizations had some version of city food strategies. It highlighted the important role of key individuals in promoting sustainable food initiatives. This is consistent with academic studies (Post and Mikkola, 2012; Morgan and Sonnino, 2008). It follows that the departure of individuals will disrupt these initiatives, particularly if they are not formally incorporated within the organization's overall strategy.

25.5 Conclusion

Within the framework of institutional theory, the theoretical concept of isomorphism is relevant to understanding why and how procurement and catering managers in different local organizations adopt similar policies and practices (Dimaggio and Powell, 1983).

Coercive isomorphism is where organizations are forced to change by external forces. In the context of public food procurement, this includes legal requirements to comply with new procurement legislation or school food standards. It may also

include decisions made at a higher level to enter into large-scale collaborative procurement arrangements. The creation of these arrangements has been a major factor working against purchasing from small and local suppliers and compelling procurement practitioners to source from outside the local area or region or buy imported food. Normative isomorphism is where professional standards or networks influence change. Mimetic isomorphism is where an organization's goals or means of achieving these goals are unclear, and mimicking another organization becomes a safe way to proceed.

Public procurement practitioners have devised practices to encourage small and local suppliers within the framework of European procurement rules, including supplier engagement, lotting of contracts and separation of distribution and supply.

These practices have diffused among public procurement practitioners through professional networks and imitation (mimetic isomorphism). The Public Sector Food Procurement Initiative played an important role between 2003 and 2007. Since then, the Food for Life catering mark award scheme has achieved growing popularity among procurement and catering managers. Among the 15 catering organizations studied, the number with the mark rose from six to ten between June 2013 and July 2016.

There is general support for procuring food with animal welfare credentials – particularly free-range eggs and Red Tractor meat – that carries modest additional costs. There is less general support for sourcing only sustainable fish. Purchases of fair trade products are small, reflecting the limited range of products available for school catering needs.

A minority of school catering services have a stronger environmental agenda. In three cases, this takes the form of increased purchases of organic food (as reflected in the achievement of Food for Life Silver or Gold catering marks). The extra cash required to purchase organic food has been generated by increasing sales and reorganizing kitchen practices.

Further research could include a larger-scale survey using a structured questionnaire approach and international comparison with practices in Europe, North America and further afield. There is also scope for examination of the companies that are beneficiaries of policies that promote purchasing from small and local suppliers.

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26 PUBLIC PROCUREMENT AS A BOOSTER OF MEDIUM-SCALE FOOD SUPPLY CHAINS: THE CASE OF AVIGNON, FRANCE

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ABSTRACT

This chapter shows how public procurement is key to improving cities' capacity to re-localize their food system. The chapter analyses the case of school food procurement in Avignon (France), focusing on actions to improve the quality of the food served by increasing the use of local fresh fruits and vegetables in the preparation of school meals. Comprehensive analysis was combined with participative workshops. The research found that the main constraint to public procurement of local fresh food is not the quantity of local production, but the structure of its distribution and retailing network, especially strategic alliances across scales. In this sense, public demand can boost the development of medium-scale food supply chains operating at territorial scales.

26.1 Introduction

The demand for high-quality food products from public procurement for French schools

Until recently, the spatial planning field paid little attention to food systems (Pothukuchi and Kaufman, 2000), and urban food planning remained a major challenge (Morgan, 2009). Then, in the 2000s, several local governments got to grips with the issue and developed food strategies in the Global North (Mansfield and Mendes, 2013). Although food policy councils have not yet taken off in the same way in Europe as in North America, municipal food policy in Europe is developing in

other ways, especially in the form of initiatives for school food reform that combine objectives related to nutrition and the re-localization of food procurement (Morgan and Sonnino, 2008).

The French Government has spotlighted procurement in public canteens since 2010, seeking to increase the proportion of local and organic products in overall food purchases. *La Loi Agriculture et Alimentation* (Agriculture and Food Law), commonly known as #EGalim and enacted on 1 November 2018, specifically requires that public canteens use at least 50 percent high-quality food products (i.e. certified products or products coming from sustainable circuits) by 1 January 2022 at the latest, to support local producers. In this context, many managers of public canteens, including municipal governments attempting to anticipate future requirements for local or organic products, have started to change their practices.

Whatever their nuances and the different forms of partnership between local governments, private stakeholders and local civil society groups, these new food policies tend to be framed around four major themes: health and well-being, environment, economic and community development and social and cultural aspects (Brand *et al.*, 2019). In this context, the re-localization of the urban food supply is seen as a way to enhance human health by emphasizing the freshness, seasonality and distinctive qualities of local food (Lamine, 2015). Thus, urban food strategies usually view “food from somewhere” (i.e. place-based forms of agriculture that are socially and ecologically embedded; Campbell, 2009) not as a commodity or a commercial service but as an investment in the health and welfare of the citizens of tomorrow. However, there is debate on the capacity of local food systems to curb the energy and pollution costs associated with the transportation of food (i.e. “food miles”) (Coley *et al.*, 2009).

Can the demand for food from public procurement be satisfied by local production?

Several French local governments are developing strategies to provide their cities’ public procurement system with fresh food products sourced from nearby peri-urban agriculture. However, little research has been conducted on the extent to which the demand for food from public procurement can be satisfied by local production (Darly and Aubry, 2014). To help fill this gap, this chapter seeks to highlight the importance

of medium-scale food supply chains in providing cities with local food. It underlines the special role that public procurement plays in boosting the development of existing medium-scale food supply chains. These medium-scale, territorial food chains:

[Represent] strategic alliances among midsized farms and other processing, distribution and retail businesses that operate at regional level, handle significant volumes of high-quality, differentiated food products, and distribute profit margins equitably among the strategic partners (Lev and Stevenson, 2011, p. 120).

In North America, the notion of “agriculture of the middle” has been proposed to define food systems combining commodity markets and short supply chains (Stevenson and Pirog, 2008). The concept has been used in France to analyse new forms of agrifood systems that are emerging at the interface between short and long circuits and provide services aimed at organizing local agricultural supply to meet local demand (Brives *et al.*, 2017).

This chapter argues that the main constraint to public procurement of local fresh food is not the quantity of local production, but the structure of its processing, distribution and retailing network. The chapter’s hypothesis is that public procurement only involves farmers who correspond to the “agriculture of the middle” profile. To illustrate this point, the chapter focuses on public procurement of food for nursery and primary schools in Avignon (France). The local government of Avignon is running a project to improve the quality of school meals by increasing the use of local fresh fruits and vegetables in their preparation, to replace frozen and tinned foodstuffs. Given the enormous size of the public procurement market, the findings of this chapter should be of interest to urban food policymakers, planners and stakeholders.

26.2 Methods

Research context

This chapter focuses on public procurement of food for nursery and primary schools in Avignon (France). School food procurement, as part of the city catering service, was contracted out in 2000 to the private firm Scolarest, a branch of Sodexo, one of the biggest French food services and facilities management companies. However, in March

2014, the new maire (mayor) from the socialist party brought school catering back under municipal control, thereby fulfilling a campaign promise. The main objective was to improve the quality of the meals served to children by introducing local fresh products and to educate children about good eating habits. During a session of the municipal council in March 2015, Cécile Helle, the maire of Avignon, stated that school food was “a service with a social function, meeting needs in the public interest.” The characteristics of school food catering and procurement in Avignon are summarized in Table 1.

Table 1 **Characteristics of school food catering and procurement in Avignon**

	DESCRIPTION
Preparation of school meals	A central kitchen delivers 4 000 to 5 000 lunches to 58 childcare centres and primary state schools, as well to the private homes of elderly people who request this service.
Cost of meals	School meals cost parents between EUR 1.02 (for families with low incomes) and EUR 2.95 per meal. This price has not changed over the past four years, although the food used to prepare the meals alone costs around EUR 2.1 per meal. ¹
Schedule	Meals are served on the four full schooldays per week (Monday, Tuesday, Thursday and Friday).
Origin of school food	Roughly 18 percent of the ingredients used to prepare the meals are local; about 28 percent are organic.
Local procurement	The local fresh products used are mainly fruits. Vegetables are mainly either “raw, ready for use” (classified under the 4th range under the public procurement code) or “cooked, ready for use” (5th range). The production of animal-sourced foods (e.g. meat, eggs or dairy products) in the Avignon area is limited, so local sourcing of these products is small.
Strategy for the procurement of local products	Contracts with a large food-service provider are supplemented by ad-hoc orders on the intermediary online platform Agrilocal to provide seasonal fresh products (mainly fruits). ²

Source: author’s elaboration.

It should be noted that the municipal department responsible for catering did not receive any additional financial or human resources to facilitate the transition to the local procurement of fresh products.

¹ The decision to place school catering under municipal control resulted in a reduction of the total annual cost of school meals from EUR 2.4 to 2 million (60 percent of which is funded by the city).

² Agrilocal is a free website that allows local farmers to contact public procurement services with a collective catering mission (schools, hospitals, retirement homes, etc.). Agrilocal was created in France in 2012 and implemented in the Avignon province in 2015. The platform shows buyers all the products that are available locally, while each supplier has a personal farm presentation page (see www.agrilocal.fr).

Framework for qualitative analysis

To investigate the process of change in food provisioning, the research combined several methods yielding different kinds of evidence (see Becker, 1958) so as to cross-validate the provisional hypothesis that only farmers with an “agriculture of the middle” profile participate in public procurement.

In a first step, data collected through 25 semi-structured interviews with key informants in 2017 were analysed,³ grey literature was reviewed and 14 meetings on the re-localization of school food procurement were observed. The aim was to:

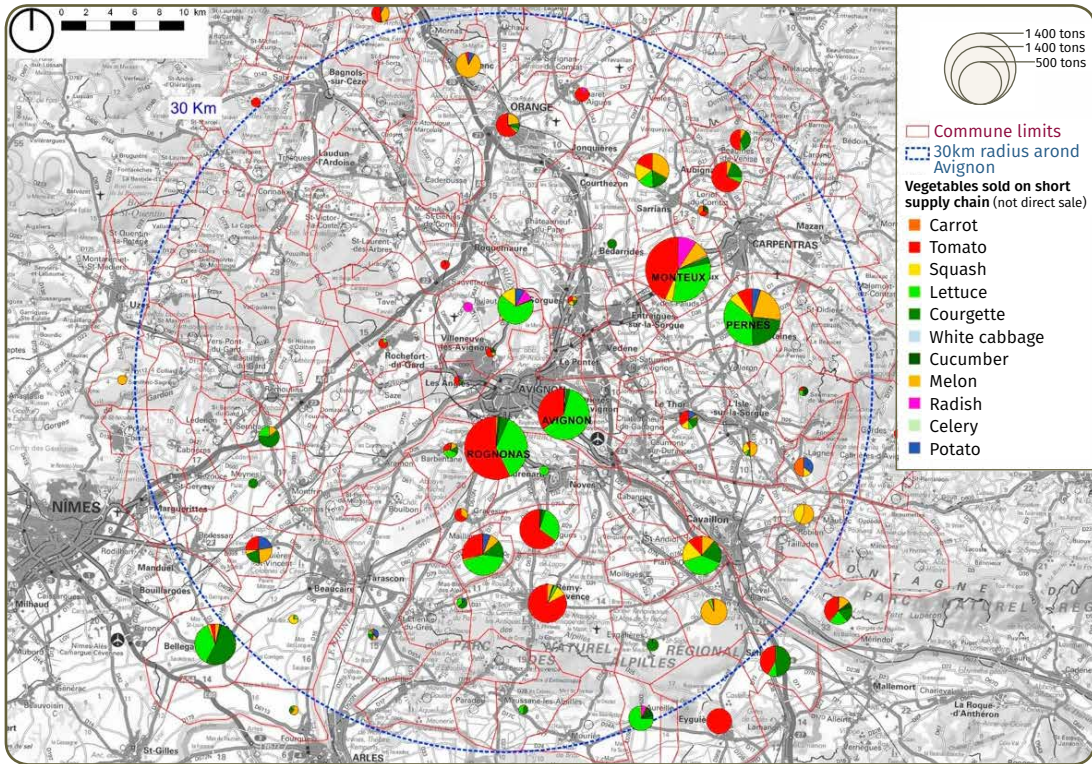
- provide a comprehensive inventory of the demand by the schools of Avignon (including central kitchen needs and constraints) and the supply from existing local food producers (farmers currently providing food under public procurement);
- analyse the strategies employed to implement urban food policies aimed at re-localizing public food procurement.

In a second step, in 2018, three half-day workshops were organized with key informants involved in the preparation and supply of school food in Avignon. Interviews revealed that the profile of the farmers providing schools’ kitchens with fresh products is that of “agriculture of the middle”: medium-sized farms selling through both long and short supply chains (no direct sales) and producing significant volumes of high-quality, differentiated food products. Then, the production of vegetables by organic and conventional farms of “agriculture of the middle” in a radius of 30 km around Avignon was estimated (see Figure 1). Finally, the theoretical demand from Avignon school central kitchen for the most commonly used 11 raw vegetables was compared with estimated production.⁴ All results were discussed by the workshop participants. The objective was to identify lock-in and enabling factors in the re-localization of school food procurement, and especially factors related to local production and the structure of its processing, distribution and retailing network.

³ Twenty-five interviews were conducted with key informants involved in the preparation and supply of school food in Avignon, including public procurement officers, the head of food procurement, the manager of the Agrilocal platform, experts on local agriculture, nutritionists, the head of the central kitchen and politicians.

⁴ Avignon is located in a very fertile region for vegetables and fruits. The land used to grow these 11 vegetables accounts for 90 percent of total cultivated farmland in a radius of 30 km around Avignon. Minor areas of farmland are used for the production of poultry and other meat, and dairy.

Figure 1 Estimated production by “agriculture of the middle” of the 11 most important vegetables used in Avignon’s central kitchen

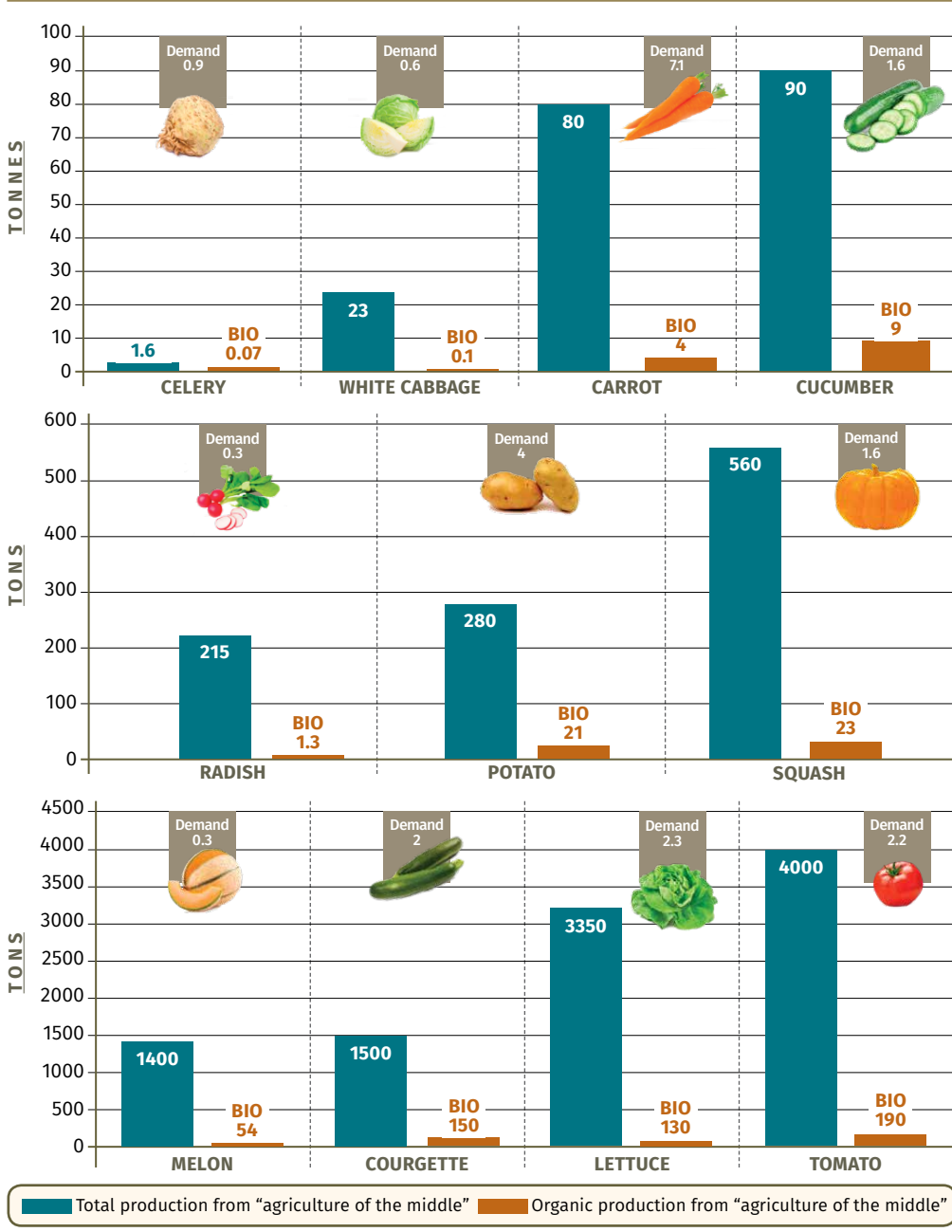


Sources: author’s representation based on surface data from the 2010 national agricultural census at the farm level (France, Ministry of Agriculture and Food, 2010) and yield data from the Centre Technique Interprofessionnel des Fruits et Légumes (CTIFL) (CTIFL, n.d.). The background map is from the French National Institute of Geographic and Forest Information (see www.ign.fr).

26.3 Results

Avignon is located in a very fertile foodshed. Hence, the demand from Avignon’s central school kitchen can be satisfied by local production. Nevertheless, for certain products such as carrots, white cabbages and celeriac, local organic production is not sufficient to meet demand (Figure 2). Furthermore, the overall demand for these products from the inhabitants of Avignon and surrounding municipalities is much higher than the demand from the schools alone.

Figure 2 Comparison between the theoretical demand from Avignon’s central school kitchen for the 11 most important vegetables and the estimated production by “agriculture of the middle” in a radius of 30 km around Avignon (in tonnes)



Sources: author’s elaboration.

In addition to the local availability of supplies, what enabled schools' transition to the procurement of local, fresh food were the strategic alliances among medium-sized farms and processing, distribution and retail businesses operating at regional level. The following paragraphs describe the main strategic alliances in processing, provisioning and purchasing created to overcome the main barriers to the use of local food.

Processing constraints were one of the main barriers to the use of local fresh ingredients, since the central kitchen was not equipped with a processing area to pre-prepare (decontaminate, peel, cut ends, slice) raw vegetables before cutting them (slice, dice, julienne, shred). A plan to equip the kitchen for these operations was examined; however, the financial cost (EUR 700 000) and the additional labour required were deemed prohibitive. Instead, new partnerships were created with two local small and medium enterprises (SME) (Local en Bocal and La Légumerie de Solène) processing local fresh vegetables and fruits to circumvent the need for technical equipment and labour to process raw products.⁵

Another major barrier concerned the provisioning itself. In 2016, the municipal department responsible for catering knew little about seasonality, local farmers and which local products were available at a given time. For example, it did not know the exact quantity of fresh vegetables per month that it would need every month a year ahead, so amounts were estimated. Officials from the department went to local farmers and specified their needs (e.g. estimated required quantities of specific vegetables per month). Farmers adjusted their production to meet the requirements of the catering department. In addition, the department developed and tested new products in collaboration with farmers and processors; a mixed green salad that would be to schoolchildren's liking was tested, so that a local producer could grow it, while fruit purées were tested with Local en Bocal to determine the right amount of sugar to be added.

European public procurement rules do not allow contracts to require that food must be local. The catering department got round the French public procurement regulations

⁵ Local en Bocal is an SME created in 2015; it prepares soups and fruit purées using organic and local products. La légumerie de Solène is an SME created in 2017 that provides kitchens with peeled fresh vegetables that are ready to cook.

by creating an award criterion of “direct supply/no intermediaries,” combined with a “guaranteed freshness/carbon footprint” award criterion to promote the use of locally produced food. Furthermore, the ceiling for the price of each lot of EUR 25 000 (excluding value added tax or VAT) per year for purchases based on a simplified competitive call without tender documents, was raised to EUR 90 000 through a deal with the legal department of the intermediary platform Agrilocal (operating at county level), supported by the Provence-Alpes-Côte d’Azur regional government and the Vaucluse provincial Chamber of Agriculture.

These strategic alliances, among medium-sized farms and processing and retail businesses operating at regional level, facilitated the introduction of local fresh food into school meals. Orders through Agrilocal grew exponentially from 2014 onwards. They increased from 49 orders in 2014 to more than 111 000 in 2019, placed by 70 schools or care establishments (up 93 percent from 2016). The collective approach across scales to the distribution and retailing of local products has enabled the structuring of medium-sized food supply chains and reinforced local food autonomy.

26.4 Discussion: contextualizing school food procurement in the urban food system

Until recently, governments treated the provision of food as a commercial service and not as an investment towards the health and well-being of its future citizens. State school systems imported the neo-liberal values of the market to shape a “cheap food” catering culture (Morgan and Sonnino, 2008). However, the food system is now recognized as having a great bearing on the quality of urban life and a great impact on a city’s economy, public health, environment and other community systems. This recognition presents new opportunities for school food procurement (Pothukuchi and Kaufman, 1999). Furthermore, public school food procurement is acknowledged as a driver of food and nutrition security, particularly by promoting the alignment between local food demand and local supply that is needed to improve sustainability (Filippini *et al.*, 2018; Soldi, 2018). School food reform raises questions concerning the public realm. How powerful is the public plate, and what role should it play in the implementation of urban food strategies? What are the prospects for a transition

from school food provisioning to community food planning? Recent work highlights the crucial role of public food procurement initiatives in promoting healthy diets and the protection of children in general (Caldeira *et al.*, 2017). As stated by Morgan and Sonnino (2008, p. xxi):

Community food planning could help to extend the public plate to new social and spatial scales, enabling it to serve adults as well as children and helping the state to honour the most basic human right of all – the right to food.

26.5 Conclusion

The implementation of strategies for the re-localization of the supply of school food in public procurement is not just a matter of broadening and deepening the values and criteria behind food tendering and procurement processes. Medium-scale food chains must be created also, which requires new forms of organization among all stakeholders in the food chain, new territorial markets (such as Agrilocal), new tendering systems and bidding processes suited to small and medium-sized farmers (e.g. joint contract standing orders), structural changes and new technical equipment (e.g. small pre-processing facilities). *In fine*, the main constraint to public procurement of local fresh food is not the quantity of local production, but the structuring of its processing, distribution and retailing network, especially the translocal, strategic alliances across scales highlighted by other scholars (Moragues-Faus and Sonnino, 2018). In this sense, public demand can boost the development of medium-scale food supply chains. Furthermore, institutional responses to food system issues at the local level need to be bolstered by planning and policy initiatives at the regional, national and even global levels.

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LEGAL INSTRUMENTS

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27 PLANNING AND NETWORKING FOR GREEN PROCUREMENT IN THE FOOD SECTOR: THE CASE OF THE REGION OF SARDINIA, ITALY

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ABSTRACT

Food supply services, including catering, are among the target sectors of the Italian National Action Plan for Green Public Procurement. The elaboration and promotion of national criteria for green public procurement not only has environmental objectives, but also socio-economic ones; in addition, it aims to improve the quality of food. The experiences of the Italian region of Sardinia regarding green public procurement provide a source of inspiration for other regional and local authorities. Sardinia created a network of regional and local authorities involved in the procurement of catering services, thus promoting the exchange of knowledge and tools for the sustainable procurement of catering services for schools and universities. Several Sardinian authorities were rewarded for their efforts with the national Mensaverde award.

27.1 Introduction

The promotion of sustainable, healthy diets in Italy is the result of a combination of cultural factors and regulatory frameworks. Growing attention to the relation between health and food led to the spreading of initiatives to guarantee that sustainable, healthy food has been offered in public canteens, and especially school canteens, from the early 2000s. In 2002, the Province of Cremona started the Green Public Procurement Network (GPPnet), a project funded by the European Union that represents a first attempt at identifying and gathering information on ongoing experiences with green public procurement (GPP) at the national and European level. From the beginning, the project focused on the food sector, with emerging practices from both medium-

sized (e.g. the municipality of Ferrara) and large public bodies (e.g. the city of Rome). A national working group on GPP was created at the end of the project to ensure that the tools and experiences developed over two years would be improved and mainstreamed. The working group has been coordinated by the Province of Cremona within the framework of the activities of the association *Coordinamento Agende 21 Locali Italiane*.¹ Adhesion is voluntary and free of charge. The region of Sardinia was the first region to join the working group and start training activities for public bodies at the regional level. As GPP policies developed in a more consistent manner, the approach to public food procurement adopted a new vision and became more strategic.

In line with directives issued by the European Union, the national policy on public food procurement focused on environmental criteria. However, attention was also paid to the health and social aspects of food procurement, especially after the approval of specific guidelines that introduced social criteria in all procurement sectors. Moreover, economic sustainability of food tenders – i.e. the sustainability of public expenditures, but also the participation of local suppliers in public procurement procedures – was identified as fundamental to public buying decisions. Local initiatives were strengthened and improved by the development of a regulatory framework that first provided guidelines for the introduction of sustainability criteria into public procurement of catering services and food, and then made those guidelines compulsory. Indeed, the national procurement code (*Decreto Legislativo 18 aprile 2016, n. 50* [Legislative Decree 18 April 2016, No. 50]) foresees that all public tenders for product categories for which minimum environmental criteria have been adopted at the national level – such as catering services and food supplies – must include sustainability criteria (Italy, 2016).

The approach adopted by the region of Sardinia is an example of how national and regional guidelines have been applied at the local level to add value to food production and consumption and thus reach multiple objectives (see Chapter 7 and Chapter 13 for additional analysis of Italian experiences in public food procurement). In practice, GPP has played a fundamental role as a driver for the improvement of food systems at several levels.

¹ Information on the activities carried out by the working group are available on the website www.a21italy.it/forum-green-economy/acquisti-verdi/. The group is currently coordinated by the municipal authorities of the city of Rome.

27.2 Overview of the green procurement strategy of the region of Sardinia

In 2009, Sardinia was the first region in Italy to adopt a regional action plan for GPP, entitled PAPERS.² The plan aimed not only to follow the indications of the National Action Plan for Green Public Procurement (GPP NAP),³ but also to develop a tailor-made approach taking into account the specific features of the Sardinian public administrative system and of the regional economy. The plan included the objective of developing three sectoral plans for areas of key importance for regional and local development in Sardinia: tourism, agriculture and construction. The final scope of all three sectoral plans was to ensure the adoption of environmental criteria in public tenders was seen by local producers and suppliers as an opportunity rather than a barrier to their access to public markets.

The plan for the agriculture sector was constructed with the specific aims of:

- ensuring that all Sardinian public authorities applied the minimum environmental criteria approved at the national level in their purchasing of food supplies and catering services;⁴
- increasing the knowledge and awareness of local food suppliers about the opportunities created by compliance with green requirements; and
- creating a network of actors and a repository of good practices for the food sector to help public procurers develop sustainable tenders.

² The PAPERS or *Piano per gli acquisti pubblici ecologici della Regione Sardegna* (plan for ecological public purchasing of the region of Sardinia) was adopted by way of *Deliberazione della Giunta Regionale n. 37/16 del 30.07.2009* (decision of the regional council No. 37/16 of 30.07.2009). In 2017, a second version (PAPERS2) with updated objectives and activities for the period 2017–2020 was approved.

³ The Italian National Action Plan on Green Public Procurement or *Piano d'azione per la sostenibilità ambientale dei consumi della pubblica amministrazione* (action plan for the environmental sustainability of consumption of the public administration) was adopted in 2008.

⁴ The minimum environmental criteria for the public procurement of catering services and food supplies were adopted on 25 July 2011 by way of *Decreto 25 luglio 2011* (Decree 25 July 2011), published in the *Gazzetta Ufficiale della Repubblica Italiana* of 21 September 2011. This decree was updated by *Decreto 10 Marzo 2020* (Decree 10 March 2020), published in the *Gazzetta Ufficiale della Repubblica Italiana* of 4 April 2020.

27.3 Key success factors for the promotion of sustainable food procurement

The main driver of success of Sardinia's strategy for public food procurement was the continuous promotion and enhancement of interaction between all actors involved in food procurement, both on the demand and on the supply side. Indeed, networking activities enabled the collection of information on ongoing practices as well as their continuous improvement. They also offered opportunities to strengthen the integration of environmental, social and economic objectives in tendering processes. This function was fundamental, as local experiences had demonstrated excellence in certain areas, but weaknesses in others. In particular, some of those experiences showed a lack of interdisciplinary knowledge and competences needed for the elaboration and management of sustainable food tenders. Furthermore, in certain cases attempts to favour the inclusion of local producers and suppliers in public markets were not totally compliant with public procurement laws.

In order to pursue the objectives of Sardinia's GPP plan, the regional office in charge of the overall GPP policy (at the time the Plan was adopted, the service for environmental sustainability and environmental assessment was placed within the environmental department) set up an internal working group that included representatives of the agriculture and health departments. This interdepartmental collaboration ensured that all issues pertaining to sustainable and healthy diets were taken into account. The working group coordinated two main activities:

- the setting up and development of a technical roundtable on sustainable canteens; and
- the promotion of a network of sustainable canteens.

The technical roundtable on sustainable canteens allowed representatives of municipalities with more than 25 000 inhabitants, hospitals and universities to exchange knowledge and experiences and discuss difficulties, both among themselves and with representatives of the regional development agency for the agrifood sector (Laore Sardegna) and of the provincial GPP ecodesks,⁵ with support provided by regional GPP experts.

⁵ A GPP ecodesk was set up in each province (eight provinces at that time) to help local authorities and enterprises implement the PAPERS and to promote sustainable consumption practices at all levels.

Based on the inputs provided by the participants in the technical roundtable on sustainable canteens, a common template for tenders for the purchasing of green catering services for schools, universities and hospitals was developed. In addition, meetings with local food producers and suppliers of catering services were organized to discuss possible actions to improve the regional offer of sustainable food and catering services.

The network of sustainable canteens was set up to give visibility to all the local authorities involved in the process of improving catering services. Local authorities that joined the network were provided with the following guidance and documents:⁶

- the basic principles of a sustainable canteen;
- a list of criteria to be recognized as a sustainable canteen;
- a checklist of compliance with the criteria for sustainable canteens;
- a template for a municipal decision to express political will towards the adoption of sustainable purchasing practices for the food sector.

In addition to these activities for the food sector, the regional administration developed a campaign to raise awareness about GPP and offered training courses to public purchasers in all sectors. The combination of all of these actions allowed for the wide diffusion of green and sustainable procurement practices for several categories of goods and services – however, the maximum effect was achieved in the food sector.

27.4 Results and best practices at the regional level

A study conducted by the region of Sardinia in 2015 found that 75 municipalities, accounting for 45 percent of the population of the region, had introduced sustainable criteria in their tenders for catering services and/or food supplies (Regione Autonoma della Sardegna, 2015).

Meanwhile, the first survey conducted at the national level by the Osservatorio Appalti Verdi (observatory on green procurement) on the implementation of green criteria in

⁶ All documents are available in Italian at www.regione.sardegna.it/index.php?xsl=509&s=1&v=9&c=9861&tb=9839&st=15

public tenders in 2018 found that about 28 percent of municipalities regularly adopted green criteria in food tenders. This percentage was found to increase to 56 percent in the case of Sardinia, the highest percentage of all Italian regions.⁷

Over the years, several Sardinian municipalities, including Pabillonis, Uta, Samassi, Giba, Sassari and Cagliari, have been awarded the Premio Mensaverde, a national award given to organizations that promote sustainability in their catering services.⁸

In addition to the results obtained by municipalities, the achievements of ERSU Cagliari, the regional body for the right to university studies, merit mentioning. ERSU Cagliari was twice awarded the Mensaverde award (in 2014 and 2018), and participated in all training and exchange activities organized at the regional level to improve its procurement approach. The public tenders published by ERSU Cagliari for the acquisition of catering services for university students are an exemplar of the implementation of the sustainability approach promoted by the region. ERSU Cagliari manages four canteens that serve meals to more than 520 000 students every day. The value of its most recent tender for catering services, published in 2017, was over EUR 10 million. The tender fully integrates the environmental minimum criteria approved at the national level, including:

- methods of food production and sourcing (i.e. organic agriculture and sustainable fishing);
- the selection of seasonal fruit and vegetables;
- the promotion of typical and traditional foods;
- waste reduction through the avoidance of single-use cutlery;
- separate waste collection;
- the use of recycled/recyclable packaging;

⁷ The Osservatorio Appalti Verdi was set up in 2018 by Legambiente and Fondazione Ecosistemi to monitor the use of green criteria in public tenders in sectors where this is compulsory according to the Italian code on public procurement (see Article 34 of *Decreto Legislativo 18 aprile 2016, n. 50* [Legislative Decree 18 April 2016, No. 50]).

⁸ The Mensaverde award is promoted by the Forum Compraverde Buygreen, an annual national event on green procurement (see www.forumcompraverde.it/mensa-verde/)

- the use of cleaning products and cleaning paper with a reduced environmental impact;
- environmental training of personnel involved in the delivery of catering services;
- the implementation of a campaign to raise the awareness of users about healthy diets and the environmental impact of food production;
- the monitoring of meals and leftovers to reduce food waste.

In addition, the tender of ERSU Cagliari stresses the importance of reducing water and energy consumption linked to the provision of the services and requires the implementation of measures to ensure that uneaten meals are collected and distributed for charity purposes. Particular attention is given to social aspects, in particular the protection of workers and the creation of new employment linked to the execution of the tender. The award system used by ERSU Cagliari was designed to stimulate competition on sustainability aspects with points given to:

- higher percentages of food sourced from sustainable production systems than the minimum criteria set in the tender specifications;
- the use of products from social agriculture (i.e. agriculture whereby farming practices and resources are used to improve workers' inclusion, rehabilitation, and community well-being);
- increased used of traditional products for the preparation of meals;
- the use of fresh products and products from short supply chains.

The tender of ERSU Cagliari has served as an example of good practices for other public bodies, not only at the regional level but at the national level, too.

27.5 Conclusion

The approach adopted by the region of Sardinia to introduce green public procurement in general, and in the food sector in particular, has been recognized as a best practice that can be used in other Italian regions and at the European level. From 2009 to 2013, the region of Sardinia was a partner in the GPPbest project, financed by the Life programme of the European Commission, which aimed to replicate the Sardinian experience in two other Italian regions (Basilicata and Lazio) and in Romania, through a partnership with the Romanian Ministry of the Environment and Climate Change.⁹

The implementation of the GPP strategy in the region of Sardinia proved how cooperation between public bodies at different levels, together with dialogue between public buyers and suppliers, can bring about optimal results and benefits for all. The mere introduction of environmental criteria into public tenders may not lead to the achievements of all the results that could have been obtained by implementing a more comprehensive GPP policy. Indeed, food systems can be improved markedly when the elaboration of public tenders is accompanied by careful planning for training, preparation and the raising of awareness on both the supply and the demand side. When the rationale behind the introduction of sustainable criteria is fully understood by food producers and service suppliers, the implementation of such practices will become habitual for them; they may also apply them when answering to traditional and/or less demanding tenders (which may include award criteria for better quality). On the demand side, efforts made to improve the design, execution and monitoring of public tenders can be replicated in procurement practices in later years. Doing so may have a significant positive effect on suppliers that perceive green demand as an orientation for their future activities.

⁹ Details on the activities realized by the project partners and on the results achieved are available on the project website at www.gppbest.eu/?lang=en

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28 PUBLIC FOOD PROCUREMENT AS A DEVELOPMENT MECHANISM IN COLOMBIA

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ABSTRACT

This chapter analyses the paradoxes of public food programmes in areas of armed conflict in Colombia, where armed groups use food as a domination mechanism. After six decades of conflict, a peace treaty was signed by the national Government of Colombia and the Revolutionary Armed Forces of Colombia–People’s Army (FARC-EP) guerrilla in 2016. Certain regulatory frameworks have favoured the commodification of public food procurement and the usurpation of the public plate by private firms over the past two decades. This has generated confrontations over the four attributes of food programmes: quality, quantity, efficiency and care. Many rural communities are continuously looking for solutions in food supply in response to the effects of permanent violence and exclusion. This study demonstrates that public food programmes can go beyond private interests, with communities sharing multiple available resources (e.g. voluntary work and cash and in kind contributions to school feeding). The potentialities of food programmes to improve nutrition, strengthen social and neighbourhood relations and contribute to local development through short marketing circuits have not been recognized by the Colombian State.

28.1 Introduction

Public food procurement can be an effective mechanism to boost rural incomes and stimulate the production and consumption of healthy, diversified and fresh food (Valderrama *et al.*, 2018). In Colombia, direct public purchasing from family farmers should be given priority as a means to allow rural populations to return to and stay in rural areas, especially in places affected by armed conflict (Valderrama and

Schneider, 2018). It is a strategy that is presented in one of the six parts of the peace agreement signed in 2016 between the national Government of Colombia and the guerrilla Revolutionary Armed Forces of Colombia-People's Army (FARC-EP), entitled *Towards a new Colombian countryside: comprehensive rural reform*. In June 2020, *Ley 2046 de 2020* (Law 2046 of 2020), which aims to promote the participation of small family and community farmers in public food purchasing, was decreed by the Colombian Congress. However, as long as institutional frameworks continue to prioritize other criteria (such as food safety) over the knowledge of peasant and traditional communities, and require financial contracts with the central government instead of decentralizing contracting processes, such agreements and regulations will not have significant results, and the development potential of public food procurement will remain unexploited. While most countries in Latin American and the Caribbean, including Colombia, have developed regulatory instruments that allow the inclusion of family farming products in public procurement, the results are still unsatisfactory, and there is still a long way to include rural communities as providers (see Chapters 9 and 17).

This study analyses the contribution of community organizations to public food programmes, the effects of changes in regulatory frameworks for public food procurement and social actions undertaken by rural communities in reaction to shortcomings in these frameworks. The main actors in community organizations are teachers, community mothers operating under the programmes of the Colombian Family Welfare Institute (ICBF), parents and their neighbours.¹ For this publication, a three field visits were carried out to collect qualitative and quantitative data between 2016 and 2018. Some official reports and documents were consulted. In addition, 83 semi-structured interviews and 12 focus groups were conducted with teachers, farmers, and community mothers. This report synthesizes a few results of a doctoral thesis entitled *Public food, armed conflict and rural development in Colombia: a possibilities approach* (Valderrama Bohórquez, 2019). Three case studies were carried out in the municipalities of Samaniego (in the department of Nariño), Florencia

¹ In 1986, the figure of community mothers was institutionalized in the *Hogares Comunitarios de Bienestar* programme of the Colombian Family Welfare Institute (ICBF). Community mothers are mainly women who contribute to community development, especially to the benefit of children and single mothers and primarily in rural areas and peripheral neighbourhoods. However, their work is frequently conditioned by the decisions of private firms, which outsource precarious jobs to them.

(Caquetá) and Granada (Antioquia), which are all affected by the armed conflict. This study helps fill the current gap in international research about public procurement in areas faced with armed conflict.

Over more than six decades of violence, the armed conflict in Colombia resulted in the displacement of nearly 7.2 million people, the grabbing of 6.6 million hectares of land and more than 218 094 murders, of which 81 percent were civilians (Colombia, High Commissioner for Peace, 2015). Since the signing of the last peace agreement in 2016, more than 1 100 community leaders have been murdered. Between 2016 and 2018, the number of forced displacements doubled; that of the victims of explosive mines quadrupled. Since 2018, the annual average of displaced people stands at 28 million, and that of victims of explosive mines at 151. The intensification of violence is due to the rearrangement of social forces after the demobilization of FARC-EP. Additionally, the dominant economic and political groups use tactics that exacerbate violence, with the aim of thwarting attempts for peace building. Although public food procurement is on the political agenda, it has not been a priority to date.

Public food procurement has the potential to create stable local markets for smallholders in a context in which 47.5 percent of the rural population lives in poverty, and 19.3 percent live in extreme poverty.² Public food procurement may also encourage displaced families to return to their homes and promote the reconstruction of food networks affected by the armed conflict.

28.2 Public food procurement in Colombia

The evolution of food programmes in Colombia can be divided into three distinct periods. During the first period, between 1940 and 1960, the State received aid under international humanitarian programmes (Lappé, Collins and Kinley, 1980). During the second period, from 1960 to 1990, a developmental approach was combined with community participation (Fajardo Montaña, 1991). The third period started in the

² The data are for 2019. In Colombia, those living on a per capita income of less than COP 137 350 per month (or USD 39) are considered extremely poor; those living on a per capita income of less than COP 327 674 per month (or USD 95) are considered poor (exchange rates in August 2019).

1990s, when the neoliberal model, based on privatization and decentralization, was promoted (Strauch, 2017).

There are currently two main public food programmes for children in Colombia. The first food programme is implemented through four initiatives developed by ICBF: the Family, Woman and Childhood programme, childcare centres, child development centres and community welfare centres. These initiatives are managed in a decentralized manner by 192 zonal centres belonging to 33 regional centres. Overall rules are formulated by ICBF's national general direction. The second food programme for children is the School Feeding Programme or PAE, which is managed by 95 certified territorial entities (municipal and subnational authorities). In Colombia, there are 1 123 municipalities and 32 departments. The State contracts private firms called Entidades Administradoras de Servicios (EAS), but it has limited capacities to supervise the contracts, especially for PAE due to its centralized management model. Since the 1990s, fiscal decentralization has obliged municipal and subnational authorities to finance the federal budget deficit for PAE.

The annual budget for all public food programmes in Colombia (the ICBF's food programmes, PAE and food distribution by INPEC, the National Penitentiary and Prison Institute) exceeds COP 2.5 trillion (or more than USD 726 million) (Food and Agriculture Organization of the United Nations [FAO], 2017). However, just 3 percent of the total is spent on direct purchases from family farmers (FAO, 2019). Unfortunately, the situation at the subnational and municipal levels is not different from that at the national level, and local purchases and purchases from family farmers are not representative (Valderrama Bohórquez, 2019).

This study discusses the effects of the changes in the regulatory frameworks for public food programmes in Colombia that marked the transition between the second and third period in the evolution of those programmes. The working hypothesis of this chapter is that the adoption of neoliberal regulatory frameworks has excluded community organizations from food programmes and hindered the functioning of their "pattern of optimal disorder" (Hirschman, 1958), which allows endogenous and autonomous food relations and practices to work as a development mechanism.

28.3 Contributions by community organizations to public food programmes and development

There are two types of community organizations in rural Colombia: community action boards (JAC) and the parent associations of ICBF. Community action boards legally represent *veredas* or subdivisional administrative parts of municipalities; they were institutionalized in 1958 and are authorized to sign contracts with the state. In some cases, JAC function as political representatives, or as social organizations that undertake actions in the common interest. ICBF's parents' associations are legal entities, which were institutionalized in 1965, and can sign contracts to manage certain ICBF welfare initiatives. Both types of organization are based on groups of volunteers and represented by local political leaders. In their relations with the state, these organizations are social organizations with legal, economic and fiscal responsibilities.

By contributing to public food programmes, rural community organizations not only aim to meet basic food requirements, but also to promote social strategies that go beyond the provision of food. Until the 1990s, community organizations enjoyed a high degree of autonomy and flexibility in their decisions as to how to invest the public money they received from ICBF. Thus, public food programmes were managed by these organizations based on heterogeneous practices, resources and capacities and informal rules. In most cases, the organizations were truly committed to providing good nutrition and prioritized this goal over private interests. This was linked to the sense of responsibility in the communities involved and the social control they exercised (Colombia, ICBF, 1989). The functioning of the community organizations is an example of what Hirschman calls the "pattern of optimal disorder," whereby a sequence of elements and human agencies works towards the achievement of common objectives. In this view, the art of development is to identify and mobilize "hidden, scattered or badly utilized resources and skills" (Hirschman, 1958).

Purchasing by community organizations of food produced in their own municipalities benefitted the quality of the food. In addition, the complementary food activities undertaken by these organizations delivered unexpected, secondary results that strengthened social cohesion and economic development (Hirschman, 1996). These complementary activities included the organization of bazaars, raffles and other events to raise funds for road maintenance, school feeding, schools or health centres.

If there were spare funds, communities organized special events to recognize the importance of the work of teachers, community mothers, farmers and children. However, these secondary results, which did not fit into ICBF's mission statements, were not considered important; they were never quantified, and organizations were forbidden to use public funds for complementary activities. However, these activities of community organizations fit within a "pattern of optimal disorder" (Hirschman, 1958), whereby creative actions are constantly being formulated to employ economic resources and human capacities in contexts of scarcity. The aim of such actions is to strengthen local development to improve living conditions and meet rural communities' demands (which are not limited to demands for food).

Over the past two decades, the regulations regarding contracts for public food services have become more complex. The community action boards were disbanded in 2012, while the leeway of ICBF's parent associations has gradually been diminished by regulations that prioritize specialization and competition for public procurement and thus favour the most competitive private firms. Nowadays, private enterprises are responsible for the entire range of food services, including procurement, transportation and training for food preparation. While in many cases voluntary efforts of communities still support most food service activities, the increased complexity of regulatory frameworks has had critical implications for the management of public food programmes.

28.4 Implications of changes in regulatory frameworks for public food purchasing programmes

Recent changes in regulatory frameworks looked at shaping social practices between the state and society in food public procurement. According to Fligstein and McAdam (2011), normative frameworks are structures that organize relations between actors by way of formal and informal rules. Usually, regulatory frameworks reproduce the privileged position of dominant groups. However, these structures are constantly challenged by the multiple actors who interact within them. In Colombia, the main changes in the regulatory framework for public food procurement relate to the increasing complexity of food safety requirements, contracting rules and administrative procedures.

Food safety requirements have become more burdensome, which hinders the purchasing of food from smallholders. Contracting rules have come to prioritize specialization, which favours dominant firms and allows them to usurp public food procurement as a good. Administrative procedures are guided by neoliberalism, which promotes fiscal reduction and privatization; the state transfers its responsibilities to private firms, which pursue their own interests. These changes have had important implications for four attributes of feeding programmes: quality, quantity, efficiency and care. In terms of quality, food safety has been given priority over eating habits. The need to increase food service coverage, the concentration of public contracts and the centralized management led to a reduction of food quantity, a deterioration of service quality and reduced community decision capacity and empowerment. Efficiency was reduced by the lengthening of supply chains. Care was moulded by modern guidelines from international agreements, without due consideration of local knowledge and social dynamics (Pupavac, 2001).

In the late 1990s, ICBF concluded that community organizations were not able to submit proper accounting records, meet food safety requirements or comply with other regulations because of a lack of technical and professional staff (ICBF, n.d.). Indeed, the complexity of the new regulations, regarding public food procurement, excluded these organizations from the voracious game of market competition and favoured the dominant actors in the public and private spheres (Colombia, Office of the Comptroller General, 2018). The neoliberal view is that the private sector is better than the public sector at managing social and investment programmes. Thus, the Colombian State gradually delegated its own responsibilities to private enterprises (Kahn and Minnich, 2009). This process was accompanied by fiscal austerity and “decentralization without autonomy,” which obliged local authorities to comply with complex regulations while economic resources were scarce (Strauch, 2017). Food programmes were subjected to complex regulations that limited the possibility of using local capacities and resources, as well as to a gradual fiscal suffocation. Furthermore, sophisticated rules were put in place to allow the state to exercise its control remotely and shape social practices. These criteria respond to the need to insert communities into global family care pacts and adapt food procurement to the globalized agrofood system.

A phenomenon that has emerged over the past two decades in public feeding in Colombia is the concentration of public contract awards in the hands of a few private firms. For example, the five largest private firms supplying PAE were awarded contracts for a total value of COP 655 461 million (or more than USD 191 million) from 2013 to 2017.³ This figure represents 17 percent of total public expenditure on food programmes over the period (Colombia, Office of the Inspector General, 2017). The four attributes of food programmes have been negatively affected by this concentration. First, the quality of food has been affected by the longer supply chains. Food arrives in a bad condition or does not correspond with local eating habits. Second, the reduced efficiency has led to an increase in supply costs and a decrease in the quantity of the food supplied (León Ayala, 2015). Third, the Colombian State implemented public decentralization without flexible criteria for management or prioritization of and targeting of criteria. Additionally, the state tried to increase the reach of its feeding programmes by reducing the food's caloric content, as well as the frequency of supply (ICBF, 2012, 2015; Colombia, Ministry of National Education, 2017). Fourth, specialization was prioritized over community actions.

28.5 Practices of resistance and mobilization: the transformational force of public food procurement

Rural communities experience continuous difficulties in trying to employ their capabilities and resources in the face of the commodification of the public food supply and the usurpation of the public plate by private firms. This usurpation is made possible by a mix of factors, including the state's indolence, its inability to monitor public procurement and, in some cases, the use by officials and politicians of public feeding programmes for private benefits. Communities may employ six key practices to fill the public plate.

First, communities may democratize food procurement by making voluntary monetary contributions to cover supply gaps or expand the coverage of food programmes for

³ On 16 August 2019, 1 USD = COP 3 441.50.

children. These monetary contributions may also promote the economic recognition of the work of the women who prepare the food.

Second, many communities voluntarily transport foodstuffs from population centres to rural schools, and often women prepare the food without being formally hired or without payment. Indeed, PAE's technical guidelines are ambiguous in relation to the payment of these female workers. Private firms negotiate the amount paid to them according to criteria such as the number of days worked or the number of children served; however, this amount is always lower than the minimum wage (Valderrama Bohórquez, 2019).

Third, communities may donate food that is produced on their own fields or purchased at local markets. Indeed, rural communities feel that public programmes do not supply enough food to cover children's requirements as these programmes are often usurped by private firms who tend to commodify this public service. Against this background, voluntary donations by communities boost the quantity of food supplied (Valderrama Bohórquez, 2019).

Fourth, the foodstuffs supplied by private companies that are not culturally recognized and accepted by rural communities (e.g. bread) may be exchanged in local markets for other, locally preferred foodstuffs (such as rice, oil or tuna).

Fifth, communities often organize social events such as bazaars or raffles to raise funds to ensure the continuity of food programmes.

Sixth, the role of community mothers has grown in recent years as a result of the crisis of social programmes. Community mothers' labour rights have advanced very shyly through social mobilization, syndicalism and multiples strikes.

In addition, public indignation over a number of corruption cases in public feeding has forced the Colombian State (Office of the Comptroller General, Office of the Inspector General and Office of the Attorney General) to launch formal investigations of public officials and private firms involved in PAE (Colombia, Office of the Comptroller General, 2018). However, these investigations do not result in convictions, as the penalties are negotiable. Colombia's armed conflict situation, and the recent increase in the number of murders of social leaders, are factors that discourage communities from reporting cases of corruption and thus perpetuate violations of the human right to food.

The above-described phenomena may be interpreted using the analytical framework of Hirschman's possibilistic approach, complemented by concepts from Fligstein and McAdam's strategic action field theory. According to Fligstein and McAdam (2011), normative frameworks organize social relations by way of formal and informal rules. Certain discriminatory regulatory frameworks have hindered the "pattern of optimal disorder" and affected the quality, quantity, efficiency and care attributes of food programmes. Current regulatory frameworks generally favour the more powerful actors, commodify public food procurement and negatively affect community care practices. To counter these effects, social actors interpret the governance structures and mobilize instruments of control that do not necessarily fit into them (Fligstein, 1996, 2005). In addition, communities join efforts using available resources and capabilities in their pursuit of collective objectives (Hirschman, 1986). The practices highlighted in the preceding sections show that collective actions related to public food procurement programmes are a mechanism to ensure the social reproduction of rural communities and the strengthening of social cohesion, even though these actions are constantly rendered invisible by the state. Communities are not inert in the face of critical situations; indeed, they constantly formulate answers to deal with discriminative regulatory frameworks (Fligstein, 1996, 2005).

28.6 Conclusions

This study argues that in order to understand the paradoxes of public food procurement, the evolution over time of regulatory frameworks for public food programmes must be examined to uncover disputes and hidden social practices. The study explains how feeding programmes in Colombia were historically implemented by community organizations according to a pattern of optimal disorder as proposed by Hirschman (1958). Community organizations use locally available resources and capacities to use public feeding programmes as a development mechanism. Concerns about food procurement work as a transformative force for collective action; they lead to creative responses aimed at meeting the multiple demands of rural communities (which are not limited to nutritional demands). However, in recent years, the formulation and implementation of new regulatory frameworks, based on specialization and modernization, have encouraged the commodification of public feeding. Complex regulations exclude community organizations from public food

programmes and favour private firms who are better positioned to sign contracts with the state. As a result, the attributes of public food programmes, including quality, quantity, efficiency and care, have been radically transformed.

Commodification has led to the appropriation of public food programmes by private actors, which puts their continuity at risk, threatens the social reproduction of rural families and violates their human right to food. However, communities are not powerless in the face of this evolution; they constantly formulate answers to deal with discriminatory regulatory frameworks (Fligstein, 1996, 2005). Communities have recently started to assume responsibility for filling the public plate usurped by private actors through collective actions (e.g. voluntary work and contributions to school feeding in cash and in kind). Meanwhile, public indignation over the crisis in public feeding has pressured the Colombian State into investigating cases of corruption. These investigations have uncovered illegitimate links between certain actors in the public and private sectors. As long as the potential of public feeding to improve nutrition, strengthen social and neighbourhood relations and contribute to local development through short marketing circuits, is not recognized by the state, opportunities for rural development, and the achievement of stable and lasting peace, will continue to be neglected.

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29 SOURCING OF NEGLECTED AND UNDERUTILIZED SPECIES AND SCHOOL FEEDING IN GUATEMALA

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ABSTRACT

In 2017, the Government of Guatemala approved a new law on school feeding to ensure children's access to healthier and more nutritious diets. Under this law, the food for school meals should be fresh and preferably purchased from local producers in the region the school is located, whereby family farmers are prioritized. In August 2018, Bioversity International and Mancomunidad Copan Ch'orti' successfully lobbied for the inclusion of the native vegetable *chaya* (*Cnidoscolus aconitifolius* (Mill.) I.M. Johnst.), a hardy and nutritious underutilized species, in school meals in the department of Chiquimula. This chapter discusses the nutritional importance of *chaya* and describes the process that was followed to promote its inclusion in the school feeding programme.

29.1 Introduction¹

In 2017, the Government of Guatemala approved a new law on school feeding to provide children with healthier and more nutritious diets that include fresh ingredients produced and supplied by family farmers (*Ley de Alimentación Escolar. Decreto Número 16-2017* [Law on School Feeding. Decree No. 16-2017]). This law has

¹ The authors warmly thank the producers in the communities of Chaguiton, Chantiago, Las Cruces, Petenta, Talco, Cruz de Charma, Piedra Parada, Candelero, Peñascos and Matazano, who kindly participated in our *chaya* market studies. Special thanks go to Alfredo Amador (president of the cooperative COREDCHORTI), Karola Castellon (Ministry of Education, Guatemala), and Mancomunidad Copan Ch'orti' and UVG (Universidad del Valle de Guatemala) staff. The authors acknowledge the financial support provided by the International Fund for Agricultural Development (IFAD) and the European Commission to support the implementation of the project in Guatemala.

provided an entry point for promoting the consumption and production of native crops, which have important nutritional and cultural values but have hitherto been neglected by research and development initiatives. Taking advantage of this opportunity, Bioersity International and Mancomunidad Copan Ch'orti' lobbied for the inclusion of the native vegetable chaya (*Cnidoscolus aconitifolius* (Mill.) I.M. Johnst.) in school meals in the department of Chiquimula.² This chapter provides insights into the benefits and potential of chaya to make a significant nutritional contribution in schools, as well as provide a source of income for chaya producers in vulnerable communities. The process used to promote the inclusion of chaya in the local school feeding programme is described in this chapter.

29.2 Background

Country context

Guatemala is an eminently agricultural country, where nearly 92 percent of farmers are smallholder and subsistence producers (Guatemala, National Institute of Statistics [INE], 2004). The country faces extreme poverty, hunger and malnutrition. It has the highest rate of chronic undernutrition of children under five in Latin American and the Caribbean and the fourth highest rate in the world, with almost half of children under five (46.7 percent) affected (Food and Agriculture Organization of the United Nations [FAO] *et al.*, 2020). Alarming rates of malnutrition appear in statistics on anaemia, stunted growth, obesity and physical and intellectual development; they result in low educational achievement in early life and in low labour productivity and chronic illness later (FAO *et al.*, 2017). In addition to issues of limited food availability and access, one of Guatemala's main nutrition problems is the poor quality of the diet of its inhabitants, who have the lowest per capita protein intake in Central America (Neufeld, Hernández Cordero and Fernández Gaxiola, 2006) as well as high deficiencies in micronutrients and vitamins (34.9 percent of children under five have a deficiency in zinc, 12.9 percent in vitamin B12 and 26.3 percent in iron) (Guatemala, Ministry of Public Health and Social Assistance [MSPAS] and INE, 2012).

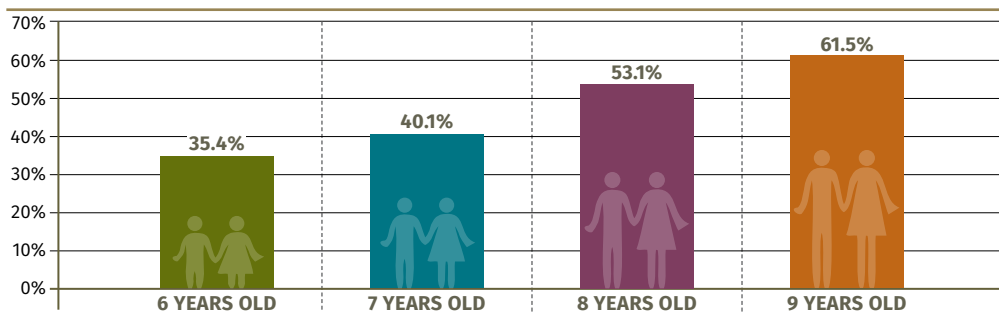
² Mancomunidad Copan Ch'orti' is a non-profit organization that contributes to the sustainable development of the Copanch'orti' region in the face of climate change (see www.copanchorti.org).

The diets of families in Guatemala consist primarily of maize and beans, occasionally complemented with foods that vary depending on the season and availability in the market (Azurdia, 2016).

Chronic malnutrition rates in Guatemala are higher among subsistence farmers, indigenous peoples and children of mothers without education (MSPAS, INE and ICF International, 2017). Chronic malnutrition affects 80 percent of the indigenous population, primarily as a result of extreme poverty and inadequate nutrition practices (Guatemala, Ministry of Agriculture, Livestock and Food [MAGA], 2015). The situation is particularly dire in the Dry Corridor, a semi-arid zone afflicted by periods of drought, poor soil and low agricultural performance. For example, seasonal famine impacts the livelihoods of many people in Chiquimula, which is one of the departments falling within the Dry Corridor region in Guatemala (Famine Early Warning Systems Network [FEWS NET], 2017).

Chiquimula is characterized by a chronic malnutrition rate of 61.8 percent (United Nations Development Programme [UNEP], 2011), ranking it fifth among the 22 departments in Guatemala (MSPAS, INE and ICF International, 2017). A census conducted in primary public schools in Chiquimula revealed that six-year-old children have a lower prevalence of chronic malnutrition than other age groups; as age increases, so does the prevalence of malnutrition, as shown in Figure 1 (Guatemala, Food and Nutrition Security Secretariat [SESAN], Ministry of Education [MINEDUC] and INE, 2015). Due to these characteristics, the region would benefit from nutrition interventions: such as school feeding programmes with meals including neglected and underutilized species (NUS) to improve nutrition outcomes.

Figure 1 **Prevalence of stunting among children in public schools by age group, Chiquimula**



Source: Guatemala, Food and Nutrition Security Secretariat [SESAN], Ministry of Education [MINEDUC] and INE, 2015.

The School Feeding Programme in Guatemala

Among various initiatives to reduce chronic malnutrition, the Government of Guatemala recently approved a law on school feeding (*Ley de Alimentación Escolar. Decreto Número 16-2017* [Law on School Feeding, Decree No. 16-2017]). This law aims to provide pupils aged 6 to 12 a healthier and more nutritious diet at their schools. The law is part of a wider trend in Latin American countries to adopt similar school feeding laws and policies, as described in Chapter 17. This trend is closely linked to the Plan for Food and Nutrition Security and the Eradication of Hunger 2025 of the Community of Latin American and Caribbean States (CELAC), which argues that school feeding programmes are one of the main mechanisms to address hunger and malnutrition (FAO, Economic Commission for Latin America and the Caribbean [ECLAC] and the Latin American Integration Association [ALADI], 2014).

The diet promoted by the school feeding policy in Guatemala should provide 25 to 35 percent of the daily amount of energy and protein needed by pupils to sustain an adequate nutritional status and school performance, and at the same time promote healthy eating habits among the population, especially in regions of high vulnerability and poverty (Law on School Feeding). To support the implementation of the policy, MINEDUC allocated a budget of GTQ 3/day per student in 2018 and GTQ 4 for 2019,³ to benefit an estimated population of more than 2.5 million students (MINEDUC, 2019). A detailed description of the key elements of the School Feeding Programme is presented in Table 1.

The governing body of the school feeding programme is MINEDUC. This institute, in coordination with MSPAS, MAGA, nutritionists and other local stakeholders, is in charge of working out the details behind the policy, including the development of an annual list of healthy, diverse and nutritious foods. Healthy menus are defined based on dietary guidelines developed for Guatemala by MSPAS and collaborators, and must fulfil four key aspects: nutritional value, cost, feasibility and acceptability. The composition of these menus is governed by the following principles:

- The menus must include diverse and safe foods that have cultural, social, ethnic and biological relevance, respecting local traditions and eating habits.

³ GTQ 4 = USD 0.55 (1 USD = 7.33 GTQ).

- The menus must include foods from all nutrient groups, i.e. they have to offer proteins (e.g. meat, eggs, milk, cheese and yogurt), carbohydrates (e.g. rice, maize, oatmeal, legumes, sugar, tubers and pasta), fats (e.g. avocado, seeds, nuts, canola, sunflower, and olive and soy oil) and vitamins and minerals (e.g. fruits, vegetables, greens and herbs).
- The food must meet food safety, quality, packaging and distribution criteria.
- The menus must include products sourced from local family farmers.
- School meals must be accompanied by education and public awareness measures on food and nutrition targeting the parents of pupils and other community members.
- School meals must be accompanied by the creation of pedagogical school gardens as learning tools to educate children about crop diversity and its importance in peoples' lives.

To promote, support and strengthen the local economy through the Law on School Feeding, products for the programme must be purchased from local agricultural, fishery and aquaculture producers in the region where the school is located, whereby family farmers must be prioritized. All purchases are to be made by a group of parents in each school, which must be recognized and registered by MINEDUC as a “parents committee.” Suppliers must be able to provide an official invoice that complies with the requirements of the Guatemalan tax authorities; only suppliers able to provide such invoices are allowed to sell their products to the programme. MAGA is the institution that provides MINEDUC with the list of suppliers who are duly accredited according to its Family Agriculture Programme. Producers who want to join the food procurement scheme must:

- be aware of the list of healthy products issued by MINEDUC;
- have health and safety plans that guarantee the quality of their products; and
- register with MAGA under the Family Agriculture Programme and with the tax authorities, to whom they must report monthly sales.

The Law on School Feeding sets the intention to strengthen the capacities of farmers' organizations to supply high quality products to schools by providing technical assistance in the fields of agriculture and entrepreneurship.

Table 1 **Key elements of the School Feeding Programme in Guatemala**

Beneficiaries	<ul style="list-style-type: none"> ▪ Students aged 6 to 12 in public schools. ▪ More than 2.5 million students in 33 000 public schools.
School menu requirements	<ul style="list-style-type: none"> ▪ Cost: GTQ 4/day per student (budget for 2019). ▪ Nutritional value: meals must cover between 25 and 35 percent of the daily energy and protein requirements of students, as well as of other nutrient requirements (vitamins, fat, minerals and carbohydrates). ▪ Origin: at least 50 percent of the ingredients must be purchased locally from farmers. ▪ Preparation: easy to prepare (by parents) and accepted (by students).
Key principles	<ul style="list-style-type: none"> ▪ Food and nutrition education for students and parents. ▪ Quality school feeding and health promotion. ▪ Varied and nutritious food that provides fat, proteins, vitamins, minerals and carbohydrates. ▪ Food safety (good hygiene practices and safe use of food and water). ▪ Relevancy (the menus must take due account of the resources, culture and food traditions of the community). ▪ Only family farmers recognized by MAGA can supply food to the programme.

Source: *Ley de Alimentación Escolar. Decreto Número 16-2017* [Law on School Feeding. Decree No. 16-2017].

The Linking Agrobiodiversity Value Chains, Climate Adaptation and Nutrition: Empowering the Poor to Manage Risk project

From 2015 to 2019, Bioversity International implemented a project funded by the International Fund for Agricultural Development (IFAD) and the European Union entitled Linking Agrobiodiversity Value Chains, Climate Adaptation and Nutrition: Empowering the Poor to Manage Risk. The project aimed to enhance the production, use and commercialization of neglected and underutilized species (NUS) to support climate change adaptation and improve the food security, nutrition and incomes of resource-poor communities in Guatemala, India and Mali. In Guatemala, the project was implemented in the department of Chiquimula, where it was implemented jointly with the Universidad del Valle de Guatemala (UVG) and Mancomunidad Copan Ch'orti'.

The project promoted the cultivation, consumption and marketing of *chaya* (*Cnidoscolus aconitifolius* [Mill.] I.M. Johnst.), which is a native perennial shrub also known to locals as *chatate* or, in English, as Mayan spinach. The crop was prioritized

by local stakeholders for its nutritional qualities, delicious taste and tolerance to poor soils and in view of the challenging growing conditions emerging under climate change. The edible parts of the chaya plant are its leaves, which are highly nutritious, rich in a variety of macro and micronutrients (Porres and Cifuentes, 2014), minerals (calcium, iron, zinc, phosphorus and magnesium) and polyunsaturated fatty acids (Molina-Cruz, Curley and Bressani, 1997). Chaya is traditionally consumed in soups, stews, pinol (toasted maize flour mixed with water), tamales (steamed maize dough wrapped in maize husks), with scrambled eggs, and in infusions and teas (Amaya, Padulosi and Meldrum, 2020). The nutritional content of chaya is unaffected by the type of preparation (Porres and Cifuentes, 2014).

Although the nutritive and agronomic potential of chaya has been recognized for decades (Molina-Cruz, Curley and Bressani, 1997), few research and development efforts have sought to promote its wider use (Azurdia, 2016). To exploit the multiple potentials of chaya, the project carried out a value chain assessment to shed light on the constraints and opportunities related to its demand and marketing. The outcome of this study allowed for the identification of a number of strategic interventions to promote chaya, leveraging its cultural, nutritional, culinary and ecological importance. Highly promising, among the identified interventions, was the inclusion of chaya in the feeding programme for public schools in Chiquimula. The project worked to support the introduction of chaya as an ingredient in local school meals to improve the food and nutrition security of schoolchildren, while at the same time supporting the conservation and sustainable use of biodiversity and boosting the incomes of poor communities. The relevance of home-grown school feeding programmes in promoting NUS is described in Chapter 12. Section 3 presents the results of these activities.

29.3 Results

Introducing chaya in the school feeding programme in Chiquimula

In August 2018, MINEDUC, together with MISPAS and MAGA, organized a series of municipal consultations across Guatemala to develop lists of healthy and nutritious foods for the 2019 school meal programme, in collaboration with MISPAS and MAGA. Participants in these meetings selected appropriate foods and cooking preparations,

taking into account the sociocultural contexts and the ethnic, linguistic and production characteristics of each area. The lists of healthy foods were evaluated by nutritionists who developed 10 national and 12 regional menus, considering the country's different agricultural seasons and the parameters of nutritional value, cost, feasibility and acceptability established by the Law on School Feeding.

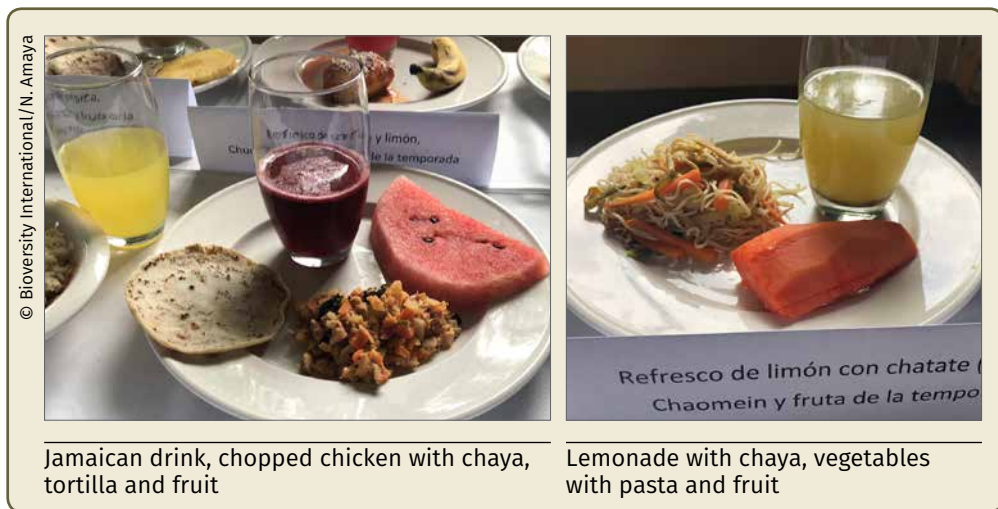
During the consultation that took place in Chiquimula, Bioersity International and Mancomunidad Copan Ch'orti' advocated the inclusion of chaya as an ingredient in school menus in the department. The lobbying for chaya was supported by data demonstrating the benefits of this underutilized crop in Guatemala, including its nutritional profile, the ease and low cost of cultivation and local availability, as well as information regarding the way it should be cooked. It was argued that chaya leaves, which are highly nutritious, can play a role in combating malnutrition. Chaya contains double the values of protein, carbohydrates and healthy fats of similar leafy green vegetables, and has more than six times the amounts of vitamin A and vitamin C as spinach (Porres and Cifuentes, 2014). The vitamins and minerals in chaya make it an ideal complement for diets based mainly on maize and beans (Azurdia, 2016). During the meeting, Bioersity International shared a chaya recipe book developed by Miracles in Action that provides several suggestions for recipes that can be prepared in schools with locally available ingredients (Rambacher *et al.*, 2018).

MINEDUC evaluated all the various foods proposed for inclusion in school meals during the consultation in Chiquimula. Chaya was considered an excellent suggestion and was therefore approved as one of the ingredients in two of the twenty planned menus (see Figure 2) for the department's 2019 public school meals. Chaya was also suggested as a potential substitute for other nutritious vegetables that were already part of the school meal, including spinach, chipilín (*Crotalaria longirostrata* Hook. and Arn.) and black nightshade (*Solanum americanum* Mill.), in four dishes.

In October 2018, MINEDUC, MAGA and FAO, with the support of Bioersity International, organized an event where all 20 menus, including those made with chaya, were prepared and officially presented to parent-teacher associations from different public schools in Chiquimula. After the event, the parent organization of every school trialled the menus in preparation for their implementation, followed by a monitoring and follow-up process. MINEDUC reported that the monitoring had demonstrated children

had accepted chaya easily because of its pleasant and soft taste. The parents involved in the purchasing of ingredients and the preparation of school meals also liked chaya because it is easy to cook.

Figure 2 **Dishes with chaya included in the 2019 school feeding programme in Chiquimula**



Supply of chaya for the School Feeding Programme

The School Feeding Programme is a new initiative. Many producers in Chiquimula are unable to supply the quantities of healthy products that local schools require, nor are they able to issue an official invoice for their sales, as required by the Law on School Feeding. The process that suppliers must go through in order to issue official invoices is lengthy and costly, and thus constitutes a barrier to individual small-scale farmers who wish to become formal suppliers.

Various community-based organizations in Chiquimula have implemented initiatives to form a network of producers in each municipality to meet the schools' demands. For example, Bioversity International, Mancomunidad Copan Ch'orti' and UVG helped ten communities in Chiquimula to establish a local cooperative dedicated to the production, processing and marketing of chaya. The cooperative was established

legally in 2019 as the COREDCHORTI marketing cooperative. The 300 members of this cooperative, most of whom are women, were encouraged to cultivate chaya, first for their own consumption and then to commercialize any surplus fresh or processed (dehydrated or cooked) for local markets and schools. The same project also distributed more than 15 000 chaya cuttings, cultivated on the UVG campus, to farmers across Chiquimula to increase the supply of chaya and develop a robust marketing channel. Producers in the association have been encouraged to grow not only chaya but also other nutritious native plants and fruits that are included in the Government's official list of healthy foods.

Figure 3 Logo and mission of the COREDCHORTI marketing cooperative

Nuestros productos:
Comercialización de semillas y granos básicos, así como otros productos propios de la agricultura familiar (ej. Plantas nativas, flores, frutas).

CONTACTO: 3082 2062 Alfredo Amador
5731 0479 Benedito Amador

Redchorti @Redchorti.ab@gmail.com

Cooperativa Integral de Comercialización

Cooperativa integral de comercialización sin fines de lucro, constituida en la región Ch'orti', que promueve el desarrollo sostenible de las familias productoras en la región. **COREDCHORTI** busca brindar oportunidades, desarrollo e inclusión social y cultural a sus asociados fortaleciendo los vínculos productivos de la región.

Partners: Bioversity International, UVG (Universidad del Valle de Guatemala), Copan Ch'orti, IFAD (Investing in rural people), European Union, CGIAR (Research Program on Agriculture for Nutrition and Health), CCAFS (Programa de Investigación de Cambio Climático, Agricultura y Seguridad Alimentaria).

Source: banner developed by Bioversity International, COREDCHORTI and Mancomunidad Copan Ch'orti' on the occasion of the Nutrition and Family Farming Fair, 2018, Chiquimula, Guatemala.

29.4 Conclusion

The implementation of the Law on School Feeding in Guatemala involves all its stakeholders, including students, parents, teachers, different ministries, local authorities, local producers and other private actors. The law promotes the sourcing of healthy foods from producers participating in the Government's Family Agriculture Programme to stimulate inclusive rural development. It also seeks to slowly change families' eating habits and help motivate children to attend school (before the implementation of the law, schools did not provide meals). The structure of the law allowed Bioversity International to be part of the consultation process to select and introduce nutritious and healthy foods (such as chaya) in school meals.

A barrier to the realization of the intended benefits for family farmers is the requirement to provide official invoices, which most smallholder producers are unable to issue. The legal process required to issue official invoices thus constitutes a significant barrier to producers wishing to supply products to schools. Against this background, efforts to help farmers organize themselves and establish legal cooperatives are of critical importance. Indeed, they can help farmers overcome this challenge and thus promote integrated nutrition and economic development outcomes. The experience in Chiquimula has demonstrated that school feeding programmes can promote the use of local underutilized species, with important impacts in terms of nutrition, environmental sustainability and the conservation of cultural heritage. The lessons learned in Chiquimula are relevant to other regions of Guatemala and to other countries in Latin America and beyond that have adopted similar school feeding policies.

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30 LOCAL PROCUREMENT FOR SCHOOL FEEDING: THE HOME-GROWN SCHOOL FEEDING PROGRAMME OF THE WORLD FOOD PROGRAMME IN CAMBODIA

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ABSTRACT

In 2017, the World Food Programme (WFP) supported school feeding in around 1 220 primary schools in Cambodia, reaching 300 000 children. Of these schools, 84 had started procuring the food for the school meals locally (home-grown school feeding). To understand how home-grown school feeding works in practice, a survey was carried out in 18 selected schools in four provinces in the north of Cambodia by the Institute for Development and Peace at the University of Duisburg-Essen (Germany).

The results of the study show that the procurement of foodstuffs via local suppliers, the preparation of food by local volunteers and its distribution to the children all functioned smoothly. The school feeding not only had a positive impact on children's health; it also boosted school attendance and considerably improved the learning success of children. In addition, the school feeding programme stimulated the local production of vegetables and fish beyond the quantities required for the school feeding. It also improved cooperation between local administrations, schools and parents.

30.1 Introduction

Cambodia has seen significant reductions in its poverty rate and improvements in food security in recent years. However, the evolution of infant mortality and morbidity rates and of indicators for the mental and physical well-being of the elderly in Cambodia lags behind this overall positive development. In addition, there are striking

differences in development indicators for children between rural and urban areas, as well as between wealthier and poorer families (United Nations Children's Fund [UNICEF], 2019). This is due not only to poverty, but also to certain eating habits. Many people do not have breakfast before going to work, but instead buy cheap food of low nutritional value on the street. The cost of this food represents a burden on the household budget, and schoolchildren may be given a small amount of money to buy snacks on their way to school.

Cambodia has relatively high school enrolment rates; however, many children have to repeat grades, and many drop out of school altogether. Against this background, school feeding in the morning promotes success at school, especially for the poor. School feeding reduces school dropout rates and boosts the number of children from poor households who graduate to secondary schools.

The World Food Programme (WFP) helped around 1 220 schools in poor districts throughout the country to provide school meals in 2017–2018. The programme reached 84 schools in May 2017. Of these, 18 schools were included in a sample for a study by the Institute for Development and Peace (INEF) at the University of Duisburg-Essen (Germany).¹ These 18 schools were located in four provinces in north and north-central parts of Cambodia, where the “home-grown” component of the WFP programme was strengthened in comparison with other (slightly less poor) provinces. A special feature of the schools included in the sample was that the food needed for the school meals was procured locally. By 2019, 267 schools were procuring food for school meals locally. From 2020 onwards, Cambodia is to finance the measures on its own.

Even though the study was unable to collect any data on the health of the children, discussions with participants revealed a clear picture of success. The introduction of school meals was reported to have led to more regular school attendance. Previously, up to a third of all children used to disappear from class every day because they were hungry, and simply went home. After the introduction of the school meals, children were healthier and concentrated better during lessons; the rate of children repeating

¹ The first phase of the research project: Ways out of extreme poverty, vulnerability and food insecurity, ran from October 2015 until March 2020 and was funded by the German Federal Ministry of Economic Cooperation and Development. A second phase of the project started end of 2021 and will run until 2023. The project was implemented in Benin, Burkina Faso, Cambodia, Ethiopia and Kenya (for more information, see www.uni-due.de/inef/projekt_ave_en.php).

grades also decreased significantly. In addition, virtually no children were being taken out of school before finishing primary school.

The economic impacts of local procurement for school meals were equally clear. The reliable demand from schools for high-quality food (vegetables, fish, meat and eggs) led to an increase in the cultivation of vegetables in villages, with significantly more types of vegetables being planted than in the past. The number of participating producers who generated additional income was considerable. A secondary effect was that the wider supply, especially of vegetables and fish, led to increased demand from third parties, which in turn stimulated production. In addition, the menu served by the school feeding programme made people aware of “natural foods.” People started comparing the food served at school, with its various vegetables, meat, fish, eggs and condiments, with snacks served to children (at least to those from wealthier families) outside schools.

30.2 Background of the project

Cambodia has achieved successes, not only in the fight against poverty, but also in the area of food security in recent years. Between 2000 and 2010, levels of underweight in children under the age of five decreased, as did the proportion of children who had lost weight. However, improvements for all food security indicators lag behind those for income indicators. Manifest hunger (i.e. the lack of access to food) is less of a problem than undernourishment; however, problems of malnutrition due to deficient nutrition (with deficits mainly concerning protein, fat, vitamins and minerals) are especially dire. The consequences, especially for children under the age of five, are underweight and growth disorders (albeit against a background of decreasing infant mortality and morbidity), as well as mental and physical developmental delays at a more advanced age. This results in poor school performance and later on affects working ability and performance (UNICEF, 2013, 2016).

School meals in Cambodia are provided before classes begin. This holds especially true for primary schools, where children – without any social differentiation, to prevent discrimination – receive a warm meal. A large part of the cost of school meals was still covered by WFP at the time of reporting. A small part of the effort, in the form of firewood for kitchens and some local ingredients for food preparation, was

provided by parents or school support committees, which are supported by parents. In a meeting with the INEF research team, the Cambodian government stated that it is to expand the programme and provide the bulk of its funding by 2020.²

What makes the WFP school feeding programme so important in the context of the country's overall food security situation is that it provides an answer to two eating habits that are prevalent almost everywhere in Cambodia and have a negative impact on the nutrition of broad sections of the population. The first habit is that most Cambodians do not have breakfast at home before leaving for school or work. This is only inadequately compensated for over the course of the morning, with many people consuming simple and nutritionally inferior snacks sold on the street. The first more comprehensive (warm) meal in farming families is usually only served around lunchtime. The second eating habit is the consumption of large amounts of rice, which is the main component of the Cambodian diet, even in moderately wealthy to affluent families. Rice is supplemented by only a few ingredients containing protein and vitamins (i.e. vegetables, meat, fish and fruits). This affects especially (but not only) children, as it has a negative effect on growth and general health.

30.3 Overview of the objectives and activities of the project

The WFP programme for Cambodia builds on the experiences of other projects that originated (mainly) in Brazil in the early 1990s, and were later introduced in Africa and Asia. It should be noted that in countries with low school enrolment rates, school feeding programmes can only reach the extremely poor and contribute to their food security if schools are physically accessible and parents do not have to pay for their children's school attendance.³

School attendance rates in Cambodia are high, at least for primary schools (about 95 percent, with the exact figure depending on the source)⁴. School feeding

² The Phnom Penh Post stated on 3 December 2019 that "according to the ministry, with more funds from the government this year, the scope of the school feeding programmes will be expanded to six other provinces, and another 205 primary schools" (Dara, 2019).

³ On school feeding in general, see the important contribution of Chabite *et al.*, 2018.

⁴ See UNICEF, n.d.b.; Cambodia, Ministry of Education, Youth and Sport, 2015; UNESCO, 2019.

programmes therefore reach most of the children from the poorest households and can pursue three goals at the same time:

- improve the nutritional situation of children in primary schools, making them healthier and less or no longer inhibited in their physical development; thus
- they follow lessons better, and stay in school during the lessons; hence
- their school performance improves, which in turn leads to a much lower dropout rate and more children from poorer households graduating to secondary schools.

The main activity of the overall programme, which in May 2017 was being implemented in 1 219 schools, is the daily preparation and distribution of a nutritionally balanced warm meal before the start of school lessons. Since many people do not eat at home before leaving for work or school, the provision of breakfasts at school is essential to create a learning atmosphere and prevent children from poorer families (who cannot purchase snacks during the break) from leaving school after the first two lessons.

Meals are prepared by the schools themselves, while WFP assists them in the procurement of food on the national and international market. At the time of the study, 84 schools procured their food exclusively locally; this number had risen to 267 schools by July 2019. Local procurement implies that the supply of the food required by a small group of schools (mostly up to four schools) in a rural community is tendered out annually, to local traders. These traders procure the fresh foods (vegetables, meat, fish and eggs), as well as the staple food rice, from local producers in the villages of the municipality itself whenever feasible – or at least from producers in the surrounding region. Local procurement is less expensive than central procurement, which has higher transport and management costs.

The indirect aim of local procurement for school meals is to motivate local producers to grow a broader range of vegetables. A list of nutritionally valuable vegetables is presented by WFP; tenders take account of seasonality and price, so that traders can both respect their budget and always provide a balanced mix of vegetables.

Other basic activities of the programme include involving parents in the programme through school support committees (SSCs). These committees already existed

throughout Cambodia; they contribute either in-kind (e.g. they provide timber, bricks, gravel or labour for school maintenance) or with small amounts of money.⁵

School staff (principals and teachers) closely cooperate with staff from local authorities in the preparation of the menus and the corresponding procurement of food (tendering, payment of bills and revision). Local traders deliver the food in front of the school, in a corner of the school or even under a tree in the schoolyard. Since, previously, there were no canteens or canteen staff in schools, the entire school feeding process has to be organized jointly by school principals, teachers, SSCs and local authorities.

Figure 1 **Meeting with the members of the School Support Committee and a producer of vegetables for the school programme**



⁵ Supported by the donor community, the Cambodian government has launched various school support programmes over the past years. For instance, for the year 2016/2017, every primary school received USD 1 to 2 per child for smaller repairs and essential expendable items such as chalk, notebooks and pencils, or for the payment of electricity bills (for schools connected to the public grid). This money is managed by SSCs in an admirably transparent manner. However, the overall funding of schools by the government, including these extra programmes, is far from sufficient for even the most basic operations of a school (e.g. providing drinking water for children and teachers). Indeed, without the support from parents (and in many cases, of foreign donors, too), many schools in the country would stop operating.

30.4 Brief country background

Cambodia is at the bottom end of the list of countries classified as middle-income countries by the United Nations (United Nations Development Programme [UNDP], 2016, 2018, 2020). The country has made great progress in the fight against poverty over the past 15 years thanks to considerable foreign investment in the textile sector, the many public and private construction programmes and above all the remittances sent home by the considerable number of migrant workers (mainly to Thailand, as well as seasonal migration to the Cambodian capital Phnom Penh). However, vulnerable people, defined as those who have at most twice the income of poor households and can slide back into poverty at any time, still account for more than 50 percent of the population.

Poverty in Cambodia shows an extreme urban-rural divide. Around 90 percent of the poor live in the countryside. Rural poverty is exacerbated by inadequate social and physical infrastructure in rural areas. For example, access routes are often poor, and health services are difficult to reach (because transport is expensive) and offer services that are inferior to those offered in cities. The same applies to schools (long distances and inadequate staffing, often with unmotivated teachers). Nevertheless, almost all children are enrolled in school.

The UNDP's gender index rates Cambodia very poorly by global standards (UNDP, 2016, 2018). A comparison of incomes shows that women are at a disadvantage compared to men.⁶ At least, Cambodian women are not exposed to legally condoned discrimination, as Cambodia (like most other countries) has signed the United Nation's Convention on the Elimination of all Forms of Discrimination Against Women. However, domestic and sexual violence against women and girls is widespread, and reports of organized human trafficking (especially of women and girls) are repeatedly confirmed. Twenty-two percent of all households in the country are run by women, but they have less access to land and are much more vulnerable than households with male heads.

Most indicators point to the fact that girls in Cambodia are disadvantaged as far as school attendance and the graduation from primary to secondary education

⁶ See Asian Development Bank, n.d.; Cambodia and International Labour Organization, 2019.

is concerned. Research for this study, as well as research carried out for several other projects between 2015 and 2018, has repeatedly shown that girls are taken out of school faster than boys when they have problems learning, but also when their labour is needed.⁷ Thus, fewer girls than boys graduate to secondary school. Learning success and good educational performance can help girls overcome these structural disadvantages, which highlights the important role of school meals and their gender relevance.

30.5 Project impacts achieved to date

The schools involved in the programme reported a success rate of 100 percent in as far as the provision and uptake of services (i.e. the provision of school meals to children in primary schools) was concerned. In all 18 schools surveyed, no school meals had ever been cancelled at the time of the survey – even when cooks had been prevented from coming to work as a result of illness or important appointments.⁸ A teacher reported that, in a few urgent cases, a female teacher had replaced one of the cooks, “sometimes even after a phone call at 2 or 3 a.m.” Food was served in a very reliable manner by the older children themselves (mainly girls), under the supervision of a teacher.

The intended effects of the programme on the children included more diverse diets, better nutrition and health, and less growth-related and underweight problems. Due to budget and time constraints, as well as to the absence of baseline data for most schools, the study did not collect physical measurement data for the children. However, parents, teachers and representatives of the municipalities confirmed in interviews and rounds of discussion (which mostly took the form of separate focus group discussions in all 18 schools) that the health of both boys and girls had improved significantly, i.e. that the children were ill less often and were considerably more attentive and motivated in class.

⁷ Cfr. research by the author carried out in 2015 in Chad and in 2017 in Morocco.

⁸ There are two cooks for each school; they are volunteers who are selected from the poorer members of the village community and paid some 10 to 15 kg of rice per month by the SSC.

Respondents reported that the most important consequences of these direct effects were that:

- children no longer left school during lessons because of the warm morning food (previously, up to about one-third of pupils had left the school every day, mainly during the first break, after only two lessons);⁹
- a large number of children performed better at school;¹⁰
- the number of children repeating grades had decreased significantly;
- considerably more children, regardless of their social background, reached and completed sixth grade;¹¹ and
- the number of pupils graduating from primary to secondary school had risen considerably.

Sources outside of the project argue that school feeding programmes have considerable gender effects, as girls benefit more from them than boys (Food and Agriculture Organization of the United Nations [FAO], 2014). This may be because girls often are more diligent than boys, and therefore obtain better grades than boys if their motivation is increased equally.¹²

During the discussions, the schoolchildren said that they were very satisfied with the food that was served.¹³ They said they even got their favourite dishes more often (e.g. “koko,” a thick soup with many ingredients, or fried spinach with egg) and that there were hardly any dishes they did not like. The question about school attendance (“Do you like going to this school?”) was always answered with shouts of affirmation that were clearly not forced.

⁹ Documented by the attendance list kept by a child for every class.

¹⁰ Reported mainly by the principals and confirmed by many teachers.

¹¹ Reported by the principals and confirmed by statistical data available in most of the surveyed schools.

¹² An almost unanimous statement from teachers and headmasters, confirmed by some communal representatives responsible for education. Nikiema (2017) provides similar findings for a case study on a food-for-education programme in Burkina Faso; the study found that while school attendance of both boys and girls had increased, the number of newly enrolled girls was higher than that of boys.

¹³ The interviewer first asked the children of a class for their favourite dishes. In a second round, she presented the dishes mentioned (most often four to six dishes) and asked how many children would agree that dish was their favourite. As the interviewers could not find any differences in tastes between girls and boys during the first round, the answers were not registered separately by gender. One fact was obvious: the daily food given to the children at home is so monotonous and absolutely dominated by rice that almost all of the dishes served under the programme are seen as “special.”

Figure 2 **Food preparation, food distribution by older girls and “Koko” served with rice**



There was also an important effect for the parents involved in the programme. Poorer parents were relieved of a considerable financial burden, as they no longer had to give their children money for snacks on their way to school. The study found that parents who sent two children to school with a minimal monthly amount of money for snacks, saved between six and ten percent of their disposable income that would otherwise have been spent on snacks.

The secondary economic effects of the project’s home-grown school feeding approach were found to be considerable; this confirms the advantages of local procurement over procurement from international or national sources and central distribution. Without exception, the 18 schools visited procured the necessary rice and fresh produce such as vegetables, meat, fish and eggs locally or, at most, regionally in neighbouring districts. The most distant sources were markets with a butcher, located up to 20 km from the trader’s place of business supplying the school. However, the eggs offered could possibly have come from a market in a neighbouring district – the remotest source in the entire home-grown system.

Vegetables were being produced in sufficient quantities in the villages around the schools themselves (mostly by women), and production was increasing – even in places where there had been only subsistence production of water spinach, pumpkins and a few other vegetable types before the procurement of food for school meals began.

Apart from a few larger producers (“large” here means cultivating around one hectare), the vegetables bought by the suppliers (in quite a few cases in addition to their own production) come from small farmers who cultivate 200 to 1 000 m² of land intensively.

This means that a good 20 farming families can all supply a single trader. As far as rice is concerned, 20, 30 or in some cases more households supply a single trader, each thus generating an additional income (see Box 1).

Interestingly, many of the small producers were not only growing vegetables for schools at the time of the survey, but had also started to produce surpluses to sell at local markets. They were now producing vegetable types that had previously not been available locally and fetched relatively good prices.

No particular developments with regard to meat production were observed as a direct effect of the school feeding programme. However, the number of fishponds was found to have increased. Most of these ponds belong to the suppliers themselves, who reported they had financed the creation or expansion of ponds with profits made from supplying schools. It was observed that the first fish producers had begun producing more fish than demanded by schools, to sell at the local market.

Box 1. The role of producers

School A is among four schools in one commune that are supplied under one public tender. There are three contractors (suppliers) for school A. One of these suppliers produces vegetables herself, the second is a trader who is also a professional pisciculturist, and the third supplier also works as a butcher. For the other 17 school supply packages, meat has to be purchased either at the market or directly from butchers. Most suppliers have one to three main butchers, as markets are more expensive and, in most cases, also far away (up to 25 km in one sample).

The four schools together need 21 tonnes of rice annually; the rice comes from about 20 producers, who each supply an amount ranging from a few sacks of 50 kg to 5 tonnes each. A similar situation applies for vegetables, meat, fish and eggs, for which the four schools have most recently issued an annual contract for a total volume of 5.28 tonnes. The products are provided by three butchers, a fish trader and around 60 households, which can only provide a small amount of vegetables each.

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Two women have an outstanding position among the suppliers of school B; they each cultivate vegetables intensively on around 400 to 500 m². Both have their own well with a hand pump and can supply about 10 kg of vegetables per day, which provides them with a net profit of about USD 50 each per month. One of the women, who has no cows (and therefore also has no cow dung), is proud of the fact that she only uses certified organic fertilizer. In another commune, one supplier cultivates two hectares of land (one hectare of which is planted with vegetables). With an annual harvest of four to five tonnes, he has a profit of almost USD 2 000 per year, in addition to the profit he gains as a trader supplying the school. He sells around 40 percent of his harvest to schools, and delivers the rest to local markets.

One of the suppliers of school B acquired two large pools, which he has been using since 2015/2016 for the cultivation of fish. A production of four tonnes of fish was expected for 2016/2017. The supplier raises fish in his pond without using any antibiotics; only traditional treatment techniques based on plant extracts are used, if needed.

The number of producers of both vegetables and fish is increasing in the villages. Many suppliers and producers are now producing more food than what is needed for the schools, and have begun selling in the local market. Moreover, the range of locally produced vegetables has broadened considerably. Where previously only morning glory (water spinach) was cultivated – which some of the children interviewed would consequently *not* describe as their favourite food – the two women supplying vegetables to school B alone produce eight kinds of leafy vegetables in every crop year.

Source: Bliss, F. 2018. Results of a survey into school feeding in Cambodia conducted in 2017-2018 in the framework of the project: Ways out of poverty, vulnerability and food insecurity (First project phase)" of the Institute for Development and Peace, University of Duisburg-Essen. (Unpublished)

30.6 Success conditions for home-grown school feeding programmes

All primary school children in the programme schools received a free hot meal every morning, regardless of the socio-economic situation of their parents. This facilitates the implementation of the programme and avoids bureaucratic burdens for the

voluntary participants (school staff and parents). It also avoids discrimination against children who receive free food, and possibly envy on the part of those who are just above the threshold for free participation. In addition, the question of which children in a family take part in school meals does not arise, which would probably be the case if parents had to pay for the meals.

The local procurement of food for school meals has two basic advantages. First, children have at least a basic knowledge of the food that is offered, either because they know it from their homes or because their teachers have explained about the food as a part of the programme. The children all like the food unreservedly, which, in addition to the physical effect, creates a feeling of satisfaction. This promotes school attendance and school performance.

The second advantage is that procurement of home-grown school food combines local economic development with elements of community development.¹⁴ The fact that a large number of families can earn (additional) income by producing and selling rice and vegetables (and, increasingly, also fish) to schools leads to exceptional public support for the programme beyond the schools. Part of the commitment of the heads of school and of the local authorities is explained by the importance of the programme for economic development. Both the heads of school and the representatives of the communes received comprehensive training and were continuously monitored by the programme for about five years (between 2015/2016 and 2020). As a result, the interviewees were confident that procurement would continue smoothly even after the withdrawal of WFP from the programme.

In all schools, close cooperation between the school (headmasters and teachers), parents (through SSCs) and the community solved all organizational challenges. Such challenges arose again and again; they concerned the supply of firewood and ingredients, as well as the availability of cooks.

¹⁴ Many teachers and some of the parents reported that food from local suppliers was “very good,” “clean” and “free from chemicals,” compared with food “from the market.” However, this point was not examined in detail during the survey. The statement may reflect the fact that many producers use mainly or only organic production techniques, and that this is widely known amongst stakeholders. Indeed, the representatives of some of the communes (which share control with the headmasters over tendering, deliveries and payment) highlighted the “predominantly organic production of vegetables.”

The local government was explicitly involved as a stakeholder in the implementation of the programme from the outset. In a country where governance tends to be problematic, this has led to considerable support from staff members of municipalities. The participation of all stakeholders guaranteed perfectly smooth food procurement and food preparation, at least in the 18 schools that were surveyed. In a number of schools, there are plans to further increase the participation and responsibilities of the municipality (for example by putting the cooks, who are paid only with free rice, on the official wage list of the municipality).

Local procurement under the programme led to an increase in the supply of vegetables, as producers started producing more than what was demanded by schools and selling this surplus on local markets; the quality of the vegetables supplied also improved.¹⁵ This had a positive effect on food security, the significance of which has not yet been investigated. Centralized procurement would have had absolutely no primary or secondary impacts on local production.

30.7 Conclusion

The provision of free school meals in primary schools is probably the best way to reduce children's nutritional deficiencies in the age group between 6 (or 4, in preschool) and 12 years.¹⁶ By including preschools (as is often the case in the schools covered by this programme), this spectrum can be extended to children from the age of two or three. School meals are very inexpensive in comparison with their multiple overall benefits.¹⁷ Unlike alternative actions (above all educational work through health centres or women's groups), school feeding programmes directly reach all children enrolled in school, and thus almost all households in a country (depending on their objectives). Discussions about food at school with parents, and especially

¹⁵ This is confirmed by almost all of the approximately 40 suppliers interviewed in the framework of the study.

¹⁶ This is one of the conclusions of a meeting with various ministries in Phnom Penh at the end of 2018, where the findings of this study were presented.

¹⁷ This conclusion is limited to the context in Cambodia. The discussion about the costs and benefits of school feeding in general is ongoing. For instance, Galloway *et al.* (2009) highlights school feeding's high costs per outcome when compared with much simpler school health and nutrition interventions. However, this study does not capture the full range of outcomes (such as social protection and educational achievement) that potentially result from school feeding. In the present Cambodian case study, these additional outcomes include positive impacts on the local economy, effects on nutrition in general (e.g. the increased availability of fish and more types of vegetables on the village markets) and last but not least impacts on the cooperation and cohesion between teachers/headmasters, parents and representatives of the communes (see Kristjansson *et al.*, 2016).

mothers, are likely to slowly change families' eating habits; thus, small children will indirectly benefit from the programme, too.¹⁸

School meal programmes are based on three decades of experience, with programmes having been evaluated many times, especially in Latin America (Brazil in particular).¹⁹ The strengths and weaknesses of the approach are thus well known. It has been demonstrated that the approach does not reach extremely poor people if enrolment rates are low and primary schools are lacking or difficult to reach. Conversely, school meals are an excellent way of helping children from poor households who have started school; by improving their nutrition, school feeding improves their health and allows them to be more successful at school.

School meals help ensure that parents in extremely poor contexts send their children (and especially girls) to school at all. In countries with poor governance and inadequate school systems, school meals may be the only motivation for poor parents to send their children to school (if schools are at least accessible). In countries like Chad, (rural) Ethiopia, Mauritania, Niger, the United Republic of Tanzania or Sudan, school feeding programmes ultimately represent the only chance to guarantee children a (minimal) degree of success at school.²⁰

In countries where the nutritional situation of the population, and especially children, is poor compared to its income situation, school meals can make an important contribution to healthier nutrition, and thus to reducing underweight and delayed growth among pupils. This applies not only to Cambodia, but also to neighbouring Laos or to Tajikistan in Central Asia, for example, where poverty rates are declining but nutritional indicators for children and women fail to improve accordingly.²¹

¹⁸ This was suggested during in-depth interviews by female teachers in three schools who also work in community development and enter houses for consulting services. It was also confirmed during interviews with boys and girls, who were asked if they could make proposals at home for the preparation of food. Some typical answers were "yes, ma listens to me, and she has also started preparing koko and eggs with spinach for our family" or "I am now helping ma prepare the same food we got at school in the afternoon."

¹⁹ See Sidaner, Balaban and Burlandy, 2012; FAO, 2014; Kitaoka, 2018.

²⁰ See WFP, 2019a and 2019b for several examples. For Burkina Faso, see Nikiema, 2017; for Ethiopia, see WFP, 2018b; for the United Republic of Tanzania, see Maijo, 2018. See also Jomaa, McDonnell and Probart, 2010; Molinas and de la Mothe, 2010; and Kristjansson, 2016.

²¹ Based on research by the author to prepare a research project proposal for the German Federal Ministry of Food and Agriculture (2019). For Tajikistan, see <https://globalnutritionreport.org/resources/nutrition-profiles/asia/centralasia/tajikistan/> and www.usaid.gov/sites/default/files/documents/1864/Tajikistan-Nutrition-Profile-Mar2018-508.pdf

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31 DIVERSIFICATION OF THE PUBLIC DISTRIBUTION SYSTEM IN INDIA

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ABSTRACT

In 2013, the Indian Government approved the National Food Security Act, which included small millets in the country's Public Distribution System (PDS). This represents a major policy change for the world's largest procurement system, which since its establishment in 1939 has focused largely on rice and wheat. This chapter offers reflections on challenges, needs and opportunities linked to this important policy, with a view to contributing to its sustainable and socially equitable implementation. The decision to include small millets was made based on the multiple strategic benefits that these underutilized species can offer in terms of resilience, nutrition, income generation and empowerment of smallholder farmers. However, seven years after the approval of this policy, its effective implementation is slow and challenged by several issues. Several recommendations are made to help realize the societal benefits of the distribution of millets through the PDS.

31.1 Introduction

The inclusion of small millets in the Indian Public Distribution System (PDS) in 2013 represents a major policy change for the world's largest procurement system, which has historically focused on rice and wheat. The decision to include small millets was made based on the multiple strategic benefits that these underutilized species can offer in terms of resilience, nutrition, income-generation and empowerment of

smallholder farmers. This chapter traces the background of this policy change and discusses some of the challenges, needs and opportunities for its implementation.

The Public Distribution System in India

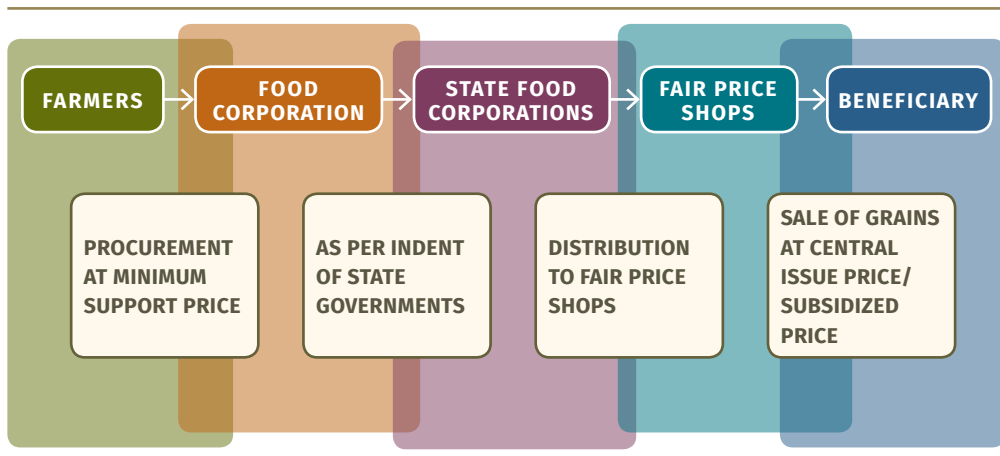
The Indian PDS was created as an official continuation of the rationing system adopted by the British during World War II. It started in 1939 in Bombay and later extended to other cities and towns; by 1946, it reached as many as 771 cities and towns (Nawani, 1994). For close to 40 years, it was universal in nature. In 1997, it evolved into the Targeted Public Distribution System (TPDS). Under TPDS, beneficiaries were divided into two categories: households below the poverty line, and households above the poverty line. The poverty line was set for each state based on price estimates, following the method defined by an expert group chaired by Professor D.T. Lakdawala (More and Singh, 2014). Throughout its evolution, the PDS maintained its nature as a deliberate social policy of the government to pursue three main objectives to:

- provide food grains and other essential items to vulnerable sections of the society at reasonable (subsidized) prices;
- have a moderating influence on the open market prices of cereals; and
- attempt socialization of the distribution of essential commodities, i.e. their distribution to the whole community, irrespectively of differences in social order (Nawani, 1994).

Today, the scheme continues to represent an important effort in India's strategy for poverty eradication by providing a safety net for more than 330 million poor who are nutritionally insecure, making it the largest system of its kind in the world. Until 2013, items supplied by PDS were limited to rice, wheat and basic commodities such as sugar, edible oil and kerosene oil. Under the PDS scheme, each family below the poverty line is eligible to receive 35 kg of rice or wheat every month for free, while a household above the poverty line is entitled to 15 kg of food grains on a monthly basis at a subsidized rate. Households above the poverty line can also purchase wheat and rice at government prices in quantities that vary according to their income level, although different rules exist for each state (India has 28 states and eight union territories).

The Food Corporation of India (FCI) is a corporation owned by the central Government that is in charge of procurement, storage, transportation and bulk allocation of commodities under the PDS scheme. FCI is also responsible for distribution through a network of fair price shops, which numbered 513 000 in 2013 (India, Ministry of Consumer Affairs, Food and Public Distribution, 2013). FCI is managed at ground level by the state governments, while the fair price shops are managed by cooperative societies or the government. FCI is in charge of identifying families that are below the poverty line, issuing ration cards and supervising and monitoring the fair price shops. Apart from purchasing grains for immediate distribution, FCI is also responsible for maintaining minimum buffer reserves of food stocks for emergencies.

Figure 1 **Main actors and process steps of the Public Distribution System in India**



Source: Authors' own elaboration.

Figure 1 shows the process of and main actors involved in the procurement and distribution of grains in PDS from farmers to beneficiaries. The process begins with the FCI centre, which is responsible for purchasing grains from farmers. The grains are purchased at the minimum support price (MSP) that is declared by the Commission for Agricultural Costs and Prices (CACP). Grains are procured either directly from farmers by FCI or they are procured on behalf of FCI by state/union territory agencies. Typically, the MSP for procured grains is set higher than the market price as an incentive to farmers to augment their production. Upon receiving an order for grains

from a state/union territory, FCI supplies them for storage in warehouses managed by FCI/state food corporations. The state food corporations in turn distribute the grains to fair price shops. The fair price shops distribute the grains according to the entitlements of the beneficiaries at the central issue price or subsidized price, as per the PDS policy of the state in question. Fair price shops are given a small retailers' margin as service charges for distribution, which in the case of millet amounts to INR 100 per quintal (100 kg).¹

The National Food Security Act (2013)

An important change was made to PDS in 2013 to strengthen food and nutrition security in the country. That year, the Government of India approved a legislative act that changed PDS from a system targeting food security to a system targeting nutrition. This historical amendment was realized through the National Food Security Act (NFSA), passed by Parliament on 12 September 2013. A key element of the NSFA act was the inclusion of coarse cereals (maize, sorghum, pearl millet and small millets) in PDS to strengthen nutrition security in the country. Sorghum (jowar, *Sorghum bicolor*) and pearl millet (bajra, *Pennisetum glaucum*) are considered major millets because they are widely cultivated and used compared to small millets. The small millet species included in PDS are finger millet (ragi or mandua, *Eleusine coracana*), foxtail millet (kangani or kakun, *Setaria italica*), proso millet (cheena, *Panicum miliaceum*), kodo millet (kodo, *Paspalum scrobiculatum*), barnyard millet (sawa, or sanwa or jhangora, *Echinochloa frumentacea*) and little millet (kutki, *Panicum sumatrense*), as well as two pseudo-millets, which are buckwheat (kuttu, *Fagopyrum esculentum*) and amaranth (chaulai, *Amaranthus* spp.). Full-fledged acceptance of the inclusion of coarse cereals into PDS was granted by the central Government in 2018. All households eligible under PDS will be able to purchase coarse cereals at INR 1 per kilogram.²

Karnataka is the first state in India to have started sourcing and distributing millets through PDS at a large scale, and specifically finger millet in south Karnataka and sorghum (jowar) in north Karnataka. This was realized in 2013/2014 through a scheme entitled *Anna bhagyadinda Krishi Bhagya* (food and farmers' welfare).

¹ INR 100 is equivalent to USD 1.36, according to the UN Operational Rates of Exchange on 31 December 2020.

² Equivalent to USD 0.014, according to the United Nations Operational Rates of Exchange on 31 December 2020.

The introduction of sorghum and pearl millets in PDS was piloted in the states of Rajasthan, Andhra Pradesh, Telangana and Chhattisgarh between 2009 and 2017. Most recently, the Government of Odisha initiated large-scale procurement of finger millet in 2018; it started introducing finger millet through PSD at a broad scale in 2019.

31.2 Analysis and discussion

Inclusion of millets in PDS

The inclusion of small millets in PDS by way of the NSFA deserves special attention because of their great capacity to adapt to climate change, rich nutritional profiles and high relevance for India's traditional food culture. Small millets are small-grained cereals that are important sources of food and fodder in semi-arid regions around the world. In India, they have been cultivated predominantly by farmers in hilly regions and dry lands, including many tribal communities. Small millets are well adapted to poor soils, hot weather and limited rainfall conditions. Thus, they grow well in drylands, helping millions of male and female subsistence farmers combat harsh growing conditions with the help of few external inputs. Today, small millets can continue to play a strategic role by strengthening nutrition security in the face of climate change, as well as by providing a relevant source of income for millions of farmers and value chain actors across India. The contribution of small millets to the empowerment of women and vulnerable groups has been well documented (King and Padulosi, 2017).

Historical decline in small millets

It is worth recalling the reasons behind the marginalization of small millets. Their steady decline started in the aftermath of the Green Revolution, at a time when high-yielding varieties of wheat and rice started to replace all other cereals in farmers' fields in India (as in other countries across Africa and South Asia) and dietary habits started to change (Chera, 2017). Small millets lost the competition with wheat and rice due to their low productivity, tedious postharvest operations and lack of attractive farm-gate prices. The fact that the Green Revolution did not focus on these species caused them to fall behind the major cereals in terms of productivity, harvest and

postharvest technology and value chain efficiency. Furthermore, the easy availability of rice and wheat through PDS contributed to a shift in food consumption patterns in millet-producing regions. With the exception of finger millet, which benefited from fast advances in technology and crop improvement, the drudgery of hulling small millets discouraged their household use. Inadequate investment in product development and commercialization, as well as the low social status associated with small millet foods, are other disabling factors. The lack of knowledge – especially among young consumers – regarding ways to use small millets in daily diets has played an important role in their declining use. Poor availability of small millet food products in local markets and high prices also have worked against their popularization.

Inclusion of millets in PDS: challenges and possible solutions

Although the Indian Government achieved a major milestone by including small millets in PDS through the NFSA, a number of challenges are hindering the effective implementation on the ground of this policy. The following paragraphs describe bottlenecks in implementation that have emerged to date, along with suggestions as to how these bottlenecks may be tackled. A specific analysis of experiences in Odisha is presented in Box 1.

Box 1. The Odisha Millets Mission

Established in 2017, the Odisha Millets Mission is aiming to increase the household consumption of millets by 25 percent from 2017 to 2022, enhance the nutrition security of households and create more demand for millets, with a special focus on women and children. Under current subsistence conditions, growers in Odisha tend to store most of their millet harvests to meet family needs, leaving only a small portion of the harvests for the market. The introduction of a MSP of INR 28.97/kg for finger millet has motivated farmers to sell their millet to agricultural markets regulated by the Agricultural Produce Marketing Committee and then buy millet at a much cheaper price from fair price shops.* Though farmers thus receive subsidized finger millet, there are concerns about the quality of the grains, as the millet in the fair price shops is of much lower quality.

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In Odisha, the grain procurement system is rigid. It involves a number of checks that are time-consuming and tiring for farmers, and thus lead to corrupt practices by intermediaries. For instance, Koraput is one of the districts where grain procurement is lowest, which has caused numerous complaints from citizens. In 2018, the procurement target for finger millet for the district administration of Koraput was 200 tonnes, but only 89 tonnes were procured. Finger millet is procured not from farms but from mandis (rural markets), where farmers have to bring their products, thus incurring transportation costs, and where they have to wait long hours before sales are concluded.

The procurement system for millet in Odisha is called the Millet Procurement Automation System (MPAS). It is similar to the procurement system of rice, with some differences in the details. In the case of finger millet, the government has set up finger millet procurement centres (small subcentres) at the local level, to ensure that the distances between those centres and areas where finger millet is grown are less than 20 km. This intervention was necessary due to the fact that the mandis that were established for rice are not suitable for finger millet, as finger millet fields and paddy fields tend to be located in different areas. In addition, the government understood that the procurement of finger millet required the mobilization of communities; to this end, it partnered with civil society organizations and created separate structures. These efforts ensure that information on the procurement of crops such as millet reaches people in remote areas. Unlike for paddy procurement, the MPAS system used for millets ensures that farmers receive their money within only three to seven days. The programme of the Odisha Millets Mission is being implemented in the seven districts where tribal populations are predominant. Both millet production and consumption are concentrated in the Koraput and Rayagada districts.

* INR 28.97/kg is equivalent to USD 0.394/kg, according to the UN Operational Rates of Exchange on 31 December 2020.

Source: Odisha Millets Mission. 2018. *Annual Report 2018-19*. Bhubaneswar, India. (Also available at www.milletsodisha.com/resources/publications).

Procurement policy versus the diversity of millet species

The inclusion of millets in PDS and the encouragement of their local sourcing is a key measure proposed by the 2013 NFSA. According to the act, the price of millets/coarse cereals in PDS should not exceed INR 1/kg.³ The procurement rate is the MSP that is declared by the CACP on a regular basis. However, to date there has been a huge gap between the MSP and the actual cost of production of various millet grains, which demotivates farmers from producing and supplying the grains to PDS. A separate MSP policy should ideally be developed for each small millet species, because the production environment, processing requirements, transactions and market demand vary greatly across species, and the production and consumption of many species are currently very localized. MSPs set by the respective states, instead of a centrally established MSP, would be a key driver towards effective operationalization. In addition, different species of millets are consumed in different parts of the country; a decentralized mechanism of procurement and distribution is thus required to make the process more efficient. Decentralized procurement and local level processing and supply through a block-level PDS is needed to offer diversified millets in fair price shops.⁴

Research on product diversification and productivity enhancement

Low productivity and low prices discourage farmers from allotting more land to millets. Improving varieties and promoting small millets as climate-smart crops would encourage farmers to grow millets in a sustainable way. High-yielding varieties and locally adaptive and preferred varieties are especially needed. Rural advisory services involving non-governmental organizations and farmer producer organizations are also needed for the promotion of millets among farmers.

³ Equivalent to USD 0.014, according to the UN Operational Rates of Exchange on 31 December 2020.

⁴ Blocks are the smallest administrative division in rural areas of India, below district and subdistrict levels.

Improved transparency and effective payments of the minimum support price

Procurement prices should be announced well before the sowing season, to ensure that farmers allocate adequate land to millet crops. Farmers must feel assured that the MSP will indeed be paid at the time of harvest. Farmers have to be assured of immediate payment to ensure that they sell to government procurement agencies.

Tailored processing

In Karnataka, sorghum and finger millet have been made available through PDS as whole grains (Rajshekar and Raju, 2017). Consumers can have these small millet species pulverized at local flour mills to enable their consumption. This is not the case for little millet, foxtail millet, barnyard millet, proso millet and kodo millet, since the grains of these species must be dehulled (i.e. the several hard layers enveloping the seeds must be removed) prior to pulverization. For PDS to be more effective at promoting the use of these nutritious crops, dehulling must be done before selling the grains in fair price shops. The lack of local/regional processing infrastructure in millet growing zones represents an important bottleneck that calls for swift attention and action. The establishment of regional integrated-processing units (with destoners, graders, dehullers and pulverizers) by the government is very much needed. The creation of such units would have very positive effects, as it would promote the production of various types of millets and boost local and regional consumption through PDS.

Processing technology must be optimized to dehull different small millet species, which have different grain sizes. More research is needed to improve the separation mechanism in hullers, so that grits and other usable materials can be removed. The sieving efficiency of graders must also be improved. Equipment must be tailored to the use by communities or small and medium enterprises, to encourage decentralized procurement and support local food culture.

Improving the shelf-life of produce

Another area that calls for state support is increasing the shelf-life of millet rice, semolina, flour and value-added products without compromising their quality and nutritional value. Additional research is needed into ways to increase the

bioavailability of micronutrients in small millet products; new techniques must be promoted among suppliers. Soaking the grains, for example, helps reduce anti-nutritional compounds such as phytic acid and reduces phytase activity, which inhibits the bioavailability of minerals.

Quality standards

Codex Alimentarius standards are available for rice and wheat;⁵ however, there are currently no standards for millet concerning the level of bran retention or the presence of broken or shattered kernels and semi-filled grains that procurers, processors and stockers must adhere to. It is common to find millet rice in the market that contains non-dehulled grains, seeds of weeds or small stones or that is infected with pests. Thus, there is a need for product standards for the procurement and processing of millet, with a focus on nutrition and food safety; such standards would ensure product quality and product differentiation. As many millet species have a short shelf-life once processed, quality standards are key to improving the inclusion and adoption of millet in PDS.

Nutrition awareness

Most importantly, strong policy support and political will would provide a push for the promotion of millets through PDS. Raising awareness among the general population of the benefits of millets is of strategic importance; it would particularly benefit women (especially anaemic and pregnant women), children (especially wasted or malnourished children) and those with medical conditions such as diabetes, high blood pressure and obesity. Different sections of society can be targeted through the provision of school meals through the Mid Day Meal Scheme of the Ministry of Education or of food for children in *anganwadi* (rural childcare centres), or by divulging diet plans for pregnant women in primary health centres. Nutrition awareness campaigns for these target groups are needed to promote millet rice as a nutrient-dense food that can help tackle the triple burden of malnutrition (i.e. the coexistence of overnutrition, undernutrition and micronutrient deficiencies) facing the country today (Meenakshi, 2016).

⁵ The Codex Alimentarius is a collection of international food standards, guidelines and codes of practice that contribute to the safety, quality and fairness of international food trade. For more information, see www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en

31.3 Conclusion

Small millets have long been neglected and underutilized species (Padulosi *et al.*, 2015). The inclusion of millets into India's PDS represents a major policy change for building a more resilient and nutrition-secure future for the people of India. Yet, seven years after the approval of this policy, many issues have arisen that hamper its effective implementation. Many of the states where millet is grown have yet to act upon it; in many of these states, the MSP for millets is low or not yet fixed. If the situation continues as is, farmers may not be inclined to grow millets at a large scale.

Technological solutions for the processing of different millet species must be fine-tuned to promote the consumption of millet by households. In addition, more efforts are needed to make consumers aware of the health benefits of eating millet. Although PDS is a government-led food scheme, all civil society actors should be equally involved in the policy and contribute to the promotion of millet production and consumption.

The inclusion of small millets in PDS through the NFSA represents an important signal of change in the way neglected and underutilized species are being viewed by decision-makers today. The case of small millets will hopefully set an example for other supportive policy interventions to bring highly valuable crops that are currently being marginalized by markets and risk being lost, into mainstream agriculture and food systems.

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32 SUBSIDIES-BASED FOOD PROCUREMENT IN THE UNIVERSITY INSTITUTIONAL FOOD SERVICES SECTOR IN CHINA

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ABSTRACT

Overall sales in China's institutional food service sector (IFS) in 2015 were estimated at nearly USD 216.7 billion. The university institutional food services (UIFS) sector is a very important part of IFS; it receives substantial subsidies from the Chinese Government. With its enormous purchasing power, subsidies-based institutional food procurement brings both benefits and challenges. This case study aims to explore the impact of subsidies-based institutional food procurement in China's UIFS. The main finding of the study is that food procurement for UIFS brings benefits: it creates market opportunities for smallholders, ensures that poor students have access to a basic intake of food and prioritizes food safety. However, there are also challenges related to food procurement for UIFS, including barriers for smallholders to participate in supply chains for UIFS, the focus on cost reduction at the expense of nutrition, and the massive amount of food waste that results from low food prices.

32.1 Introduction

China's rapid economic growth, increasing urbanization and accelerated integration into the world market has led to the rapid expansion of the food service sector in the country in recent years. In 2015, sales revenues of the catering industry stood at CNY 3.6 trillion (USD 577.85 billion),¹ accounting for 4.8 percent of gross domestic product (China, National Bureau of Statistics, 2016). The institutional food service (IFS) sector is an important part of the hotel, restaurant and institutional sector in China. In 2015, overall sales revenues of the IFS sector were estimated at CNY 900 billion (USD 144.46 billion); they accounted for 30 percent of the sales revenues of the overall HRI sector (China Cuisine Association, 2015).

All kinds of universities in China have canteens to provide food services. In 2018, there were 2 663 universities in China, most of which are public (70 percent). There were a total 38.33 million university students in the country, with an average of 10 605 students per university. Considering the large number of students that the university institutional food services (UIFS) sector serves, food prices and management attract much attention from the Chinese Government and from society. The Government provides a huge amount of subsidies to UIFS providers to keep food prices low (Xu and Sun, 2011).

With huge subsidies and enormous purchasing power, subsidies-based institutional food procurement brings both benefits and challenges. The case study in this chapter aims to explore its impact in the UIFS sector in China. First, the chapter provides an overview of UIFS in China and explains the reasons why the Government subsidizes UIFS. Second, the chapter introduces the food procurement model used for UIFS. Third, the chapter analyses the benefits and challenges faced by subsidies-based food procurement for UIFS. The chapter concludes by highlighting experiences that other countries might replicate.

¹ The exchange rate used in this paragraph is USD 1 = CNY 6.23 (International Monetary Fund, 2020).

32.2 Overview of university institutional food services

An economic reform of UIFS was proposed in 1985, and UIFS officially entered a market-oriented reform stage in 1999 (Lyu, Wang and Zhu, 2016). From 2007 to 2012, China's economy developed rapidly, and so did the sector of UIFS, with UIFS prices surging. After 2012, the sector entered a stage of stable development.

The reform stage (1999–2006)

The implementation of the market-oriented reform of UIFS by the central Government started in 1999, heralding the beginning of a new phase. The aim of the reform was to transform UIFS from an administrative entity that was subordinate to universities into a private enterprise. To help UIFS's transformation, the central Government formulated a range of policies and regulations, stipulating that UIFS be publicly financed. During the reform period, many universities set up commercial logistics groups to manage UIFS; these groups operate independently. In 2002–2004, the Ministry of Education and other ministries proposed to continue subsidizing UIFS. In addition, they formulated some specific management elements, such as bidding.

The development stage (2007–2012)

During the reform stage, the funds dedicated to UIFS increased substantially. After the reform, subsidies were gradually cut. However, with China's economy developing rapidly, the prices of agricultural products surged, and the costs of UIFS increased sharply. In 2008, the Ministry of Education set up an urgent special fund to stabilize food prices and required provincial governments to give subsidies to their universities in an effort to maintain food price stability in UIFS. The municipal authorities of Beijing and Shanghai provided subsidies of CNY 102 million (USD 14.47 million) and CNY 8 million (USD 1.15 million),² respectively (Zhao *et al.*, 2008). In 2011, the central Government issued a policy stating that universities should maintain low food prices and not profit from UIFS. It required them to set up food price stabilization funding (FPSF) to cope with the rising costs of agricultural products.

² The exchange rate used is USD 1 = CNY 6.95 (International Monetary Fund, 2020).

The stable development stage (2012 to present)

Today, China's UIFS are a public good, and their business purpose is to help the development of universities, not to make profits (Lyu, Wang and Zhu, 2016). UIFS are managed by commercial logistics groups and are subsidized through FPSF. Although the reform attempted to allow commercial logistics groups to operate in a market-oriented manner, most of the groups are still managed by universities and the government. Thus, UIFS are still dominated by a model that is partially driven by public authorities, and partially by the market (Cui, Liu and Luo, 2000). Public funds from central and local governments help universities set up FPSF to offset UIFS deficits. More precisely, universities allocate funds to FPSF at a relatively fixed percentage or amount every year; commercial logistics groups then use FPSF to offset UIFS deficits. For example, the municipal authorities of Beijing stipulated that all their universities had to provide FPSF of no less than CNY 150 (USD 24.19) per student; the total subsidy received by the universities to do so stood at CNY 90 million (USD 14.52 million) in 2013 (China, Beijing Municipal Finance Bureau, 2013).³

33.3 Subsidies-based food procurement in university institutional food services

The government requires UIFS to:

- provide food and service to students at a stable and low price;
- provide basic living security for poor students; and
- meet the diverse needs of students (Hou, 2010).

These three requirements have become the main goals of UIFS.

The government requires that food procurement for UIFS use tenders to select suppliers. To achieve the business objectives and meet government requirements, UIFS use two main procurement methods: contract procurement and decentralized procurement. Box 1 presents a specific case of food procurement for UIFS.

³ The exchange rate used is USD 1 = CNY 6.20 (International Monetary Fund, 2020).

Under contract procurement, the commercial logistics group that manages the UIFS signs a contract with suppliers. Contract procurement is mostly used for food to which specific national standards apply and whose supply tends to be bound by contracts (e.g. rice, flour and meat). There are two types of tendering: normal tendering and joint tendering. Under normal tendering, the logistics group issues tender notifications, and eligible companies submit bidding documents. Then, the group signs procurement contracts with the successful bidders. Meanwhile, under joint tendering, several logistics groups work together for tendering, and the selected supplier can deliver foods to different UIFS providers. The advantages of joint tendering are a reduction in transaction costs and the avoidance of rent-seeking behaviour.

Decentralized procurement is mostly used for fresh vegetables, for several reasons. First, there are many types of vegetables in China, but no specific product standards, which make it difficult to purchase vegetables through contracts. Second, logistics groups may need to sign many contracts, because each farmer only produces a small number of vegetables during each growing season. Third, decentralized procurement is more flexible and allows procurers to change suppliers if a quality problem arises, without contract disputes.

Box 1 **How do universities purchase agricultural products in China?**

Sichuan University (SU) has a total of 15 canteens, located on three campuses. In 2017, Sichuan University's IFS served around 80 000 people a day. Rice, noodles, cooking oil and meat are all purchased by the university's purchasing centre. Two procurement methods are used: contract procurement and decentralized procurement.

Contract procurement

First, the SU logistics group issues a tender notification on its website (the tender issued in December 2015, for example, included rice, flour, cooking oil and pork). Second, qualified enterprises submit tender documents and provide samples. Third, a third party selects the winning bidder, i.e. the bidder that meets all of the logistics group's requirements and offers the lowest bidding price. Fourth, the logistics group signs the procurement contract with the winning bidder. The tender of December 2015 included specific product criteria e.g. the indica rice had to be grade II indica rice.*

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Decentralized procurement

The SU logistics group mainly purchases fresh products such as vegetables and fruits through decentralized procurement. About 15 000 kg/day of vegetables are required. Most are purchased from the wholesale market near the canteens; some of the seasonal vegetables are purchased from the local agricultural enterprise, which offers them at a relatively low price.

*There are four grades of rice quality, the first grade is the highest quality and the fourth grade the lowest.

Source: Chen, Q. 2017. Interview by Cheng, X., Chen, K. and Hu, S. of Chen, Q., deputy general manager of Sichuan University Logistics Group on 5 April 2017 in Chengdu, China. Transcript by Cheng, X.

32.4 Benefits of subsidies-based food procurement

Link to smallholders

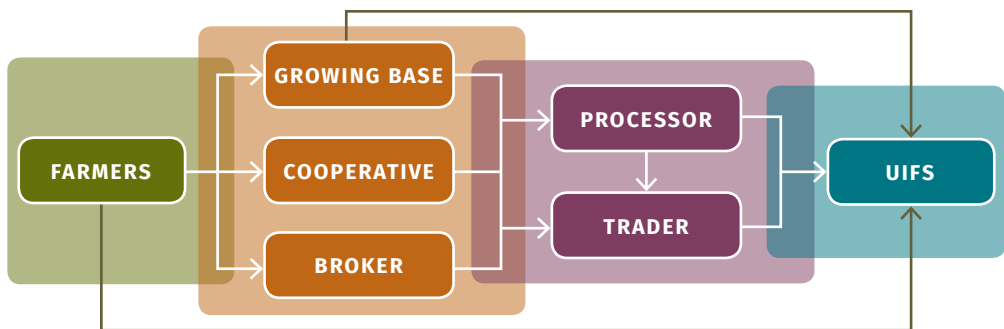
The expansion of UIFS has strengthened agricultural value chains, which is beneficial to farmers who sell food to UIFS. Information is provided regarding the demand from UIFS to farmers, which helps them adjust their planting scale and crop structure. For example, a manager at the Xinfadi wholesale market in Beijing said the demand from UIFS had led to an increase in the number of brokers in urban and suburban areas (Hu, 2017). These brokers transmit information regarding the demand from UIFS (e.g. price, type and quality standards), which guides farmers' production behaviour and improves their market access capacity. In poverty-stricken areas, the development of UIFS has improved the organizational ability of local cooperatives. For example, Pengzhou County (Sichuan) has established specialized cooperatives such as the Fengxia specialized cooperative for vegetable production and sales, which helps farmers plant and sell.

There are various types of beneficial linkages between smallholders and UIFS (see Figure 1). First, farmers may participate in UIFS supply chains by signing supply contracts with large enterprises and thus become part of these enterprises'

growing base. These leading enterprises place orders with farmers, so that sales are guaranteed. Second, farmers may enter UIFS supply chains through cooperatives. Cooperatives offer certain benefits when linking smallholders to new markets; they share information and may provide processing services, such as splitting and packing. For example, the Fengxia cooperative splits and packs its members' vegetables uniformly to ensure sales at a good price. Third, farmers may enter supply chains for UIFS through village brokers. Brokers play a very important role in product sales in remote rural areas, where there is a lack of market information. Brokers are specialized in selling agricultural products, so that farmers can focus on production.

Under decentralized procurement, smallholder farmers may trade directly with UIFS providers. Fresh vegetables, which are perishable and come in many types, are purchased mainly through decentralized procurement. This allows farmers to trade directly with the UIFS providers.

Figure 1 **Smallholder farmers' participation in supply chains for UIFS**



Source: authors' elaboration.

Nutrition

The low food prices in UIFS ensure that the basic nutritional requirements of students are met, irrespectively of their socio-economic status. One of the important objectives of providing public subsidies for UIFS is to reduce the cost of attending university. Low food prices help poor students meet their basic nutritional needs.

The government requires UIFS providers to keep food prices 15 to 20 percent lower than outside campuses, which significantly reduces students' living costs. For an example, see Box 2.

In 2018, there were 352 000 Dibao recipients in rural areas, and 100 800 Dibao recipients in urban areas in China.⁴ People in rural areas have lower incomes, and most of which goes towards buying food. In 2012, the net per capita income of rural residents was CNY 7 917 (USD 1 254.68),⁵ while the Engel's coefficient stood at 39.3 percent (see Table1).⁶ Meanwhile, the disposable income of urban residents stood at CNY 24 565 (USD 3 893.03) per capita, and the Engel's coefficient was 36.2 percent. The lower income levels of rural populations affect their nutritional intake.

Indeed, rural populations have a lower level of overall nutritional intake than urban populations. In 2012, the average per capita protein intake of rural populations stood at 63.6 g per day, while that of urban populations stood at 65.4 g. Meanwhile, the fat intake of rural populations stood at 76.2 g/day/capita, which was lower than that of urban populations (83.8 g).

Table 1 **Income and nutrition indicators in China, 2012**

	CHINA	URBAN AREAS	RURAL AREAS
Average intake of protein (g)/day/capita	64.5	65.4	63.6
Average intake of fat (g)/day/capita	79.9	83.8	76.2
Average intake of calories (kcal)/day/capita	2 172	2 053	2 286
Disposable net income (CNY)	—	24 564.7	7 916.6
Engel's coefficient (%)	—	36.2	39.3

Source: China, Bureau of Disease Prevention and Control, 2016.

⁴ Dibao is a poverty alleviation programme that provides a basic living allowance for the extremely poor in China.

⁵ The exchange rate used in this paragraph is USD 1 = CNY 6.31 (International Monetary Fund, 2020).

⁶ Engel's coefficient is the proportion of household income spent on food.

Box 2 How does a university ensure students' nutrition in China?

In 2018, students at Sichuan University spent about CNY 6–7 (USD 0.91–1.06)* per meal for lunch or supper, and about CNY 3 (USD 0.45) for breakfast in regular canteens, which accounted for 70 percent of total canteens. The average student spends about CNY 5 000 (USD 755.29) each academic year on food (30 days per month, nine months in a year), which is equivalent to 18 percent of the average per capita disposable income of the national population in 2018 (CNY 28 228) (USD 4 264.05), and close to 35 percent of the average per capita disposable income of rural residents (CNY 14 617) (USD 2 208). This means that the low-priced, subsidized food at UIFS is affordable for most students from rural areas.

* The exchange rate used in this box is USD 1 = CNY 6.62 (International Monetary Fund, 2020).

Sources: **Chen, Q.** 2017. Interview by Chen, K., Cheng, X. and Hu, S. of Qi Chen, deputy general manager of Sichuan University Logistics Group on 5 April 2017, in Chengdu, China. Transcript by Cheng, X.

China, National Bureau of Statistics. 2018. *China statistical bulletin on national economic and social development in 2018*. Beijing. (in Chinese). (Also available at www.stats.gov.cn/tjsj/zxfb/202002/t20200228_1728913.html).

Food safety

Ever since 2001, the Chinese government has been attaching great importance to food safety. In 2002, it issued regulations for safety management at university canteens. In 2015, after numerous food safety incidents, the Government issued the Food Safety Law of the People's Republic of China. This law is considered the strictest food law in the country; it aims to ensure the safety of food and thus enhance consumer confidence in food (Chen, Wang and Song, 2015). Article 57 of the law specifically emphasizes the safety of food in IFS.

Primary product safety is the first step to ensure food safety. Pesticide residues are the greatest concern for vegetables and fruits in UIFS. UIFS procurers require suppliers to meet relevant standards; the products must typically be traceable, “pollution-free” and “green.”⁷ Inspection reports issued by a third party for each batch of products are also required. For an example of product requirements for UIFS, see Box 3.

⁷ Pollution-free agricultural products strictly follow standards for production and processing (e.g. high air, water and soil quality and a lower use of fertilizers and pesticides) and are certified by the Ministry of Agriculture and Rural Affairs. Green products follow stricter standards than pollution-free food in production and processing. Green products require excellent air, water and soil quality, while the use of highly toxic pesticides is prohibited. The standards for green food are implemented by agricultural enterprises and farmers' cooperatives; and certified by the Ministry of Agriculture and Rural Affairs.

Box 3 How do universities in China ensure food safety when purchasing food?

The logistics group at Sichuan University (SU) has strict criteria for food items. Bidding enterprises must provide certificates to prove that their products are traceable, “pollution-free” and “green,” as well as third-party inspection reports for each batch of products. The logistics group has established a special rapid testing laboratory, where all food materials are tested before delivery to the canteens. As an example, suppliers of pork meat are required to provide the following documents:

- business license, tax registration certificate, organization code certificate;
- livestock slaughter certificates;
- animal epidemic prevention certificate;
- third-party inspection report;
- proof of the traceability of the food; and
- proof that their registered capital is more than CNY 20 million.

Source: Chen, Q. 2017. Interview by Chen, K., Cheng, X. and Hu, S. of Qi Chen, deputy general manager of Sichuan University Logistics Group on 5 April 2017, in Chengdu, China. Transcript by Cheng, X.

32.5 Challenges of subsidies-based food procurement

Barriers for smallholders

A first barrier for smallholders who want to supply the UIFS sector is that there are often imbalances between the demand from UIFS and the supply from smallholders. UIFS require large amounts of agricultural products, while smallholders only have a limited production. In addition, UIFS typically purchases many types of products at a time, whereas individual farmers generally only grow a limited range of crops. Moreover, agricultural products produced by small farmers vary in quality and generally fail to satisfy UIFS food safety and quality requirements for providers.

Second, the transaction costs of dealing with numerous smallholders are very high. Due to the small production scale of smallholders, UIFS purchasers must link up with many smallholders to purchase sufficient volumes and many types of products. It has been observed that UIFS procurers only buy directly from smallholders when a product is offered at an unusually low price (Chen, 2017). For example, the logistics group at Sichuan University only bought lettuce from farmers when the price in Pengzhou

County fell from CNY 1.8 (USD 0.29) per kg in 2015 to CNY 0.4 (USD 0.06) per kg in 2017.⁸ Third, tendering processes often exclude smallholders. Only officially registered enterprises can be added to the list of suppliers to UIFS providers. Some smallholders come together and establish cooperatives to overcome this barrier. However, cooperatives still face many challenges in rural China, such as poor access to financing, limited processing capacity and weak linkages to new markets. As a result, it is hard for cooperatives to meet the UIFS tender requirements. For example, the Fengxia specialized cooperative for vegetable production and sales cultivates about 600 hectares of vegetables; however, it still mainly sells through wholesalers, rather than supplying directly to UIFS providers.

Finally, delayed payments from UIFS providers are a challenge for smallholders. UIFS providers settle accounts within 30 to 45 days. This means that suppliers do not get paid promptly. However, smallholders often are faced with financial shortages and thus find it difficult to deal with such delays.

Shortages of nutritious food

Although governments and the public in China have begun focusing on food and nutrition, the attention paid to nutrition in UIFS is limited. The consumption of the meals typically provided in UIFS could potentially lead to an inadequate intake by students of vegetables, beans or bean products, aquatic products, fruits and dairy products. Since the government requires UIFS providers to keep food prices low, more attention is paid to the price of a product rather than its nutritional value. In 2018, Ren (2019) investigated three canteens at a university in Hebei. The canteens were found to serve mostly eggs, beans, fatty pork and poultry meat, and less beef, mutton, fish and seafood, which are more expensive. This may lead to an insufficient intake of trace elements, such as calcium and iron, and an excessive intake of fat by students.

In order to keep prices low, the vegetables provided in the canteens were mostly melons, eggplants, root vegetables and mushrooms; nutrient-rich green leafy vegetables were served less often. Many of the dishes served in the canteens were greasy, to make them taste better. However, this often meant that students' daily fat intake exceeded that

⁸ The exchange rates used are USD 1 = CNY 6.23 in 2015 and 1 USD = CNY 6.76 in 2017 (International Monetary Fund, 2020).

recommended. It has also been found that employees are hired cheaply, and therefore lack knowledge about nutrition; hence, their capacity to prepare nutritious meals for students is limited (Gao *et al.*, 2008). Li (2012) surveyed two university canteens in Shandong, and found that there were no nutritionists involved in UIFS.

Food waste

One of UIFS's biggest challenges is the high level of food waste that is caused by the low prices. On average, each university student wastes 73.7 g of food per meal (lunch and supper), amounting to 31.8 kg/year (Wu *et al.*, 2019). This level is much higher than that of household food waste, which has been estimated at 17.5 kg/year/capita (Song, Semakula and Fullana-i-Palmer, 2018). Cheng *et al.* (2012) estimates that each student in Beijing wastes about 0.36 kg/day on average in UIFS. The study, which gathered data on leftovers in several UIFS outlets in Beijing, found that one-third of the food bought by students was thrown away.

The low price of food in UIFS is the main reason for the high level of food waste (Deng and Liang, 2013). Food waste is highly correlated with students' budget for living expenses, and students who have a higher budget waste more (Wu *et al.*, 2019). The dining environment of UIFS is unsatisfactory, and the poor quality of the tableware (a result of low profits) contributes to the wastage of food (Fan, Liu and Li, 2016). The focus on low prices contributes to the food's poor taste, which is an important reason for the wastage of food by students (Wang, 2016; Wu *et al.*, 2019).

32.6 Conclusion

This study has produced a number of main findings. First, UIFS in China have been subject to a pro-market reform, and are currently dominated by a model that is partially driven by public authorities, and partially by the market. Second, UIFS providers must meet a range of government requirements, including the requirements to meet food safety standards and maintain stable food prices. As a result, UIFS providers have been paying more attention to food safety and impose stringent requirements on their suppliers (e.g. the requirement to supply pollution-free food or provide inspection reports by third parties).

Third, UIFS providers serve food to university students at low prices, which brings both advantages and challenges. The main advantages are the greatly reduced cost of going to university and the assurance that low-income students have access to a basic intake of food. The main challenges include the considerable amount of food waste (31.8 kg/year per student, according to Wu *et al.*, 2019) and the poor nutritional quality of many meals. Finally, while the expansion of UIFS offers opportunities for smallholders, they face a number of challenges to access the expanding market of UIFS in China.

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33 LINKING FARMERS AND SCHOOLS TO IMPROVE DIETS AND NUTRITION IN BUSIA COUNTY, KENYA

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ABSTRACT

Many children in poverty-stricken areas of Kenya suffer from malnutrition, a condition that is strongly associated with impaired physical and cognitive development. These same regions harbour locally adapted, indigenous crops that are highly nutritious and grow quickly with minimum inputs, thus offering advantages in terms of both human health and the environment. Despite their potential, these species are neglected in local diets and production systems. This chapter discusses the outcomes of a project that piloted a direct school procurement approach to improve children's diets and people's livelihoods while promoting biodiversity conservation. The pilot was launched in one school in 2016; by 2019, the farm-to-school network was providing healthy school meals to 5 500 pupils, creating employment opportunities for smallholder farmers. There is considerable potential to increase the scale of this initiative to bring nutritious indigenous products to a greater number of schools. However, additional research is needed to establish best practices and adaptability.

33.1 Introduction

The huge strides made in addressing malnutrition in Kenya are still far from solving food and nutrition insecurity in Busia County, situated on the western most edge of the country and bordering Uganda. Agriculture remains the largest source of employment and income in the county, with most farmers practicing subsistence

agriculture on mixed crop-livestock production systems of less than 0.6 ha (Kenya, Busia County, 2018). Rich in biological diversity and endowed with abundant seasonal rains and a favourable climate for growing a diverse range of food species, Busia faces critical environmental challenges and is among the poorest and most food insecure counties in Kenya. The Kenya Integrated Household Budget Survey 2015–2016 found that the poverty index in Busia was 69.3 percent; two out of three people, and particularly youth aged between 18 and 35, were unable to meet their minimum food requirements (Kenya National Bureau of Statistics [KNBS], 2018).

Although national progress towards meeting the global nutrition targets is on course (Global Nutrition Report, 2018), Busia's school-aged population is still heavily impacted by a complex set of factors, including poor dietary diversity (Eberwein *et al.*, 2016; KNBS, 2018). Critical micronutrient deficiencies exist for vitamin A, iron and zinc (KNBS and ICF International, 2015), and food poverty levels attained 64.6 percent in children aged 6 to 13 years and 66.1 percent in children aged 14 to 17 years in 2015–2016 (KNBS, 2018).

Changes in eating habits and preferences, the loss of useful nutritious genetic resources and a lack of access to quality seeds mean that most communities rely on a limited range of food crops, including maize and beans and – to a lesser extent – cassava, millet, sweet potatoes, groundnuts, sorghum, vegetables, fruits and sugar cane. This lack of agricultural diversity is reflected in the diets of the over 400 000 school going children (KNBS, 2019) in Busia County (see Table 1).

Where some form of school feeding is in place, school meals are generally monotonous. The typical school meal features a large portion of a carbohydrate staple such as ugali/posho (maize porridge), vegetable oil and a small portion of starchy legumes such as beans or green grams. Depending on the season, staples are complemented by kale or cabbage, which are preferred by schools over other more nutritious vegetables because they can be purchased in bulk at more convenient prices (United Nations System Standing Committee on Nutrition [UNSCN], 2017). Some seasoning is provided, but generally school meals are designed to meet little more than a child's basic energy requirements.

School meals are inadequate to meet the micronutrient needs of growing children. In addition, an important opportunity is currently being missed to promote learning

on the nutritional importance of consuming a diversified diet. Other foods, such as spider plant, cowpea leaves, finger millet, fruits, sweet potato, cassava, boiled banana, chicken, eggs and fish sometimes find their way into the school menu; they are normally provided to the school by parents as in-kind payments for school fees. Government support is provided only to schools for children with special needs; here, subsidies cover 90 percent of school fees, the remaining 10 percent being contributed by parents.

Table 1 **Examples of the frequency and diversity of school meals offered in Busia, by grade and funding source**

PRIMARY (6 TO 13 YEARS)		SECONDARY (14 TO 17 YEARS)		SCHOOLS FOR CHILDREN WITH SPECIAL NEEDS
PUBLIC	PRIVATE	PUBLIC	PRIVATE	
1 meal	3 meals (boarders) 2 meals (day students)	3 meals	3 meals (boarders) 2 meals (day students)	3 meals
Snacks allowed	Snacks allowed	Snacks allowed (2 snacks)	Snacks allowed	Snacks allowed
Maize Beans	Maize Beans Rice	Maize Beans Green grams Rice*	Maize Beans Rice	Maize Beans Rice
	Kale Cabbages Cowpeas	Kale Spider plant Ethiopian kale Amaranth Cowpea leaves African nightshade Slender leaf*	Kale Cowpea leaves	Kale Cowpea leaves Amaranth Spider plant*
	Fish (omena) Meat (beef)	Meat (beef) Milk Fish (omena)*	Meat (beef)	

* The greater diversity in meals offered in public secondary schools is attributable to in-kind contributions from parents.

Source: Wasike and Manjella, 2019.

Smallholder farmers report high levels of production uncertainty. Production is seasonal, quality seed is scarce and market infrastructure is poor. When they do produce, smallholders rely on narrow supply chains, and often have to sell their harvest at low prices to intermediaries and private vendors.

Despite these challenges, the outlook for Kenya's agricultural sector is encouraging. The new *Agricultural sector transformation and growth strategy* for 2019–2029 (Kenya, Ministry of Agriculture, Livestock, Fisheries and Irrigation, 2018) highlights the opportunities for smallholders to engage in the production of traditional crops and provides the Ministry's support for initiatives promoting the cultivation of traditional, drought-tolerant crop varieties and the rearing of non-traditional livestock. The document states “at the national level, the value chains of focus are maize and beans, but at the household level, value chains are region-specific and can include millet, sorghum, maize, beans.”

The policy document also pledges to support small and medium enterprises and farmer associations with a minimum participation of 33 percent of women and 30 percent of youth with “business expansion, management training, access to finance, sustainable value chain development and other skills intrinsic to results-oriented business accelerators in conjunction with the counties.” However, it fails to identify schools – or institutional procurement in general – as a predictable and reliable domestic food market for these crops, nor does it take into consideration the economic contribution and potential impact of local food purchases on farmers and schools alike.

Home-grown school feeding (HGSF) constitutes a school feeding model that is designed to provide children in schools with safe, diverse and nutritious food, sourced locally from smallholder farmers (World Food Programme [WFP] and Food and Agriculture Organization of the United Nations [FAO], 2018).

Alternative school feeding models such as home-grown school feeding (HGSF) offer a unique platform to realize multiple benefits for children, the communities in which they live and countries as a whole (Bundy *et al.*, 2009; Drake *et al.*, 2016; Gelli *et al.*, 2010, 2016; UNSCN, 2017). Procurement for school meals linked to local producers has been

shown to contribute to the diversification of diets, educational outcomes (Fernandes *et al.*, 2016) and economic development by ensuring the reliability of markets and promoting micro, small and medium enterprises. It can also promote greater crop diversity in supply chains, encourage diversification of agricultural landscapes and improve resilience and adaptation to climate change while simultaneously promoting biodiversity conservation and environmental sustainability (Morgan and Sonnino, 2008; Singh and Fernandes, 2018; UNSCN, 2017; Valencia, Wittman and Blesh, 2019). On a broader scale, the linking of farmers to school feeding provides an opportunity to bring together two out of the five ideas identified as triple duty actions to advance progress towards the Sustainable Development Goals (SDGs) (Global Nutrition Report, 2017).¹ Furthermore, diversifying food procurement for home-grown school feeding programmes by including and promoting underutilized, micronutrient-dense fruits, vegetables and pulses, as well as appropriate animal-sourced products, can help realize multiple benefits (Tartanac *et al.*, 2018; Mabhaudhi *et al.*, 2019).

Evaluations of HGSF programmes in other African countries have called for the adoption of a more strategic approach when linking farmers to existing school feeding programmes. Limitations have been identified when it comes to ensuring that smallholder farmers are able to effectively and efficiently produce enough food to satisfy increased demand from schools (Sumberg and Sabates-Wheeler, 2011). Ernst and Young (2012) and Suwa (2013) identify constraints faced by food producers (farmers) and by consumers/beneficiaries (schools/students) of school feeding programmes.

These constraints include a lack of trust on the part of farmers that schools will pay punctually and consistently, and farmers' lack of information and capacity to properly manage their businesses and enter into contracts with schools to supply food. On the consumers' side, schools lamented the lack of networks, contacts and structures to facilitate school-farmer negotiations (Gelli *et al.*, 2016). Furthermore, while local procurement initiatives such as HGSF have been around for some years now, efforts

¹ Triple duty actions are defined in the Global Nutrition Report (2017) as interventions that are mainly aimed at tackling malnutrition, but that can simultaneously help catalyse actions to meet the targets of the other SDGs. For example, nutrition-sensitive agriculture interventions are aimed at ensuring a more nutritious food supply, thus contributing to the achievement of the nutrition targets of SDG2 (Zero hunger). At the same time, by including nutrient-rich crops that are protective of human health and the environment, the interventions will also benefit SDGs 3 (Good health and well-being), 13 (Climate action), 14 (Life below water) and 15 (Life on land). If the focus of the intervention is also to increase the involvement of women and youth in all the stages of value chain development for these crops, this will help meet the targets for SDG 5 (Gender equality) and SDG 8 (Decent work and economic growth).

to encourage the integration of underutilized, micronutrient-dense crops have to date been limited (Hunter, Beltrame and Wasike, 2016; UNSCN, 2017). Local and national governments are currently implementing parts of the HGSF approach, but few are using an integrated methodology to realize the multiple potential benefits.

This case study illustrates a HGSF approach that was tested in Busia County, Kenya. The approach, whereby diets are diversified by including locally sourced indigenous vegetables, has shown a great potential to simultaneously promote social protection and agricultural growth at a small scale. This chapter first provides background information on the context in which the approach was developed. It then introduces the conceptual model underpinning the approach, which is followed by an analysis of the pilot's achievements and takeaway messages. Preliminary evidence suggests that the approach had positive downstream impacts on dietary diversity in school meals, the cultivation of neglected and underutilized species, and economic and social outcomes for the producers involved. The study also demonstrates how an enabling policy environment is key to the realization of successful HGSF programs. However, additional research is needed to assess the impacts and effectiveness of the Busia approach if used elsewhere in Kenya and in different geographic locations.

33.2 The approach – creating a virtuous circle

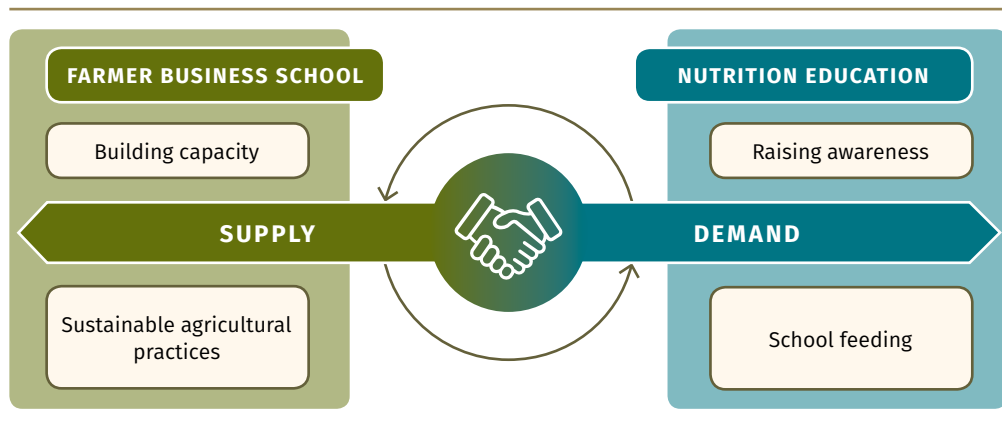
In 2013, the Kenya Agricultural and Livestock Research Organization carried out a survey in Busia County under the framework of the Biodiversity for Food and Nutrition (BFN) project.² The survey identified pockets of small-scale farmers (mostly women and youth) who were growing African indigenous vegetables (AIV) – a group of water-efficient, underutilized vegetables with great potential to improve diets and incomes in resource-poor settings. Small-scale entrepreneurs from the community-based organization Sustainable Income Generating Investment Group (SINGI) aspired to increase their production of organically produced AIVs but faced significant challenges related to the production and market demand for these commodities.

² The Biodiversity for Food and Nutrition (BFN) project was a project supported by the Global Environment Facility (GEF) that ran from 2012 until 2019, led by Brazil, Kenya, Sri Lanka and Turkey; it was coordinated by Bioversity International, and its implementation was supported by the United Nations Environment Programme (UNEP) and the Food and Agriculture Organization of the United Nations (FAO). Additional support for the project was provided by the CGIAR Research Program on Agriculture for Nutrition and Health. The project contributes to the Convention on Biological Diversity's Cross-cutting Initiative on Biodiversity for Food and Nutrition.

Major constraints included the limited range of improved varieties available, the lack of sufficient quantities of quality seed, limited market access, insufficient information on the nutritional value of AIV as well as poor knowledge of post-harvest handling, food safety and hygiene practices. SINGI farmers also lacked the basic skills to manage their farms as a business and to negotiate contracts and participate in supply tenders. Based on a conceptual model that aimed to boost both supply and demand for AIV (see Figure 1), a pilot study was launched in 2014, funded jointly by the BFN project and the Australian Centre for International Agricultural Research. The study was to test how schools and community health units could offer predictable and stable markets for smallholder farmers.

Figure 1 illustrates the conceptual model that underpinned the pilot HGSF programme in Busia. The approach simultaneously addressed constraints on the supply and on the demand side of the supply chain for school feeding. Indeed, it aimed to increase the capacity of smallholder farmers to produce and supply local, underutilized and micronutrient-rich crops, and at the same time create desirability and informed demand for these foods, particularly through school feeding programmes.

Figure 1 **The conceptual model underpinning the pilot HGSF programme in Busia**



Source: authors' elaboration.

The HGSF programme in Busia also supplied improved seeds and provided training on sustainable agricultural production, integrated pest management and the use of seasonal calendars to plan and guide production. This ensured that farmers were able to guarantee a steady supply of AIV. In addition, the setting up of an adapted farmer business school (FBS) and the provision of training on group cohesion, collective responsibility, value-addition and marketing ensured that farmers' groups were able to maintain new market linkages and improve the profitability of their agricultural enterprises. On the demand side, cooking demonstrations, nutrition education and activities to raise awareness of the nutritional value of AIVs ensured an increased demand for these crops, particularly from schools.

The success of the approach led to the creation of important feedback loops to increase government support for such initiatives. While the buy-in and support from the local administration was key to the pilot's success in the first place, the information and experience generated during the implementation of the pilot contributed to the formulation of Busia's Biodiversity Conservation Policy – a first among Kenya's 47 counties. This policy emphasizes the economic and nutritional potential of underutilized crops to support more sustainable local food systems. The policy is currently being implemented through Busia's County Integrated Development Plan (and budget) for 2018–2022. The plan acknowledges the use of school meals as a social protection mechanism and recognizes the need to promote the sustainable use of indigenous biodiversity for conservation purposes. Unfortunately, the plan fails to make an explicit link between smallholder farming enterprises and direct procurement of indigenous biodiversity products; it does make provisions to empower women, youth and indigenous communities to sustainably manage natural resources (Kenya, Busia County, 2018).

33.3 Successes to date

Economic benefits

The farmers' groups that received training under the pilot project gained confidence in their business skills; they became better organized and improved their ability to penetrate markets, participate in and win tenders from institutional buyers, and cope

with competition from other suppliers. Five of the 25 farmers' groups that received training signed contracts with eleven schools and one hospital for the supply of quality AIV, while three youth groups won tenders to supply food to three schools (see Table 2). The quantities supplied vary between 10 kg per week to six times that amount, while the agreed price per kilogram varies between KES 30 (USD 0.30) and KES 50 (USD 0.50), depending on the season. The average profits for one smallholder farmers' group, which supplied 91 kg of AIV to a school per week, amounted to USD 0.15 per kilogram supplied. This translates into weekly profits of USD 13 and yearly profits of USD 540. The more resourceful farmers generated additional income by preparing their own manure and selling it at USD 10 per bag; they also promoted sustainable agricultural practices and helped neighbouring farmers set up their own kitchen gardens, at a cost of USD 15 per household.

Schools saved up to USD 0.10 per kilogram of AIV purchased during the dry season, when market prices for leafy greens are higher. This sums up to weekly savings of approximately USD 9 and yearly savings of USD 360. In some instances, farmers and schools chose to establish a year-round fixed price for the supply of AIVs, to prevent both parties from being affected by possible seasonal market fluctuations. Other interesting arrangements include the provision of land belonging to schools to farmers, to grow vegetables directly on school property. This not only reduced transport costs for the farmers, but also solved perishability issues in hot weather and ensured a constant and regular supply of fresh greens to the school kitchen. It also meant that the schools were assured that the vegetables they received were pesticide-free. It was reported that this deal reduced the school's annual expenditures for vegetables alone by 12 percent. Table 2 lists those farmers' groups that were able to sign contracts with neighbouring schools to supply AIV following FBS training. The table provides quantities of vegetables supplied per week and unit costs in Kenyan shillings (KES).

It is clear that the implementation of the project resulted in an increase in the demand for indigenous vegetables in schools. Specific tenders for AIV were issued for the first time. In 2017, the original farmers' groups won tenders to continue supplying vegetables at a slightly increased price during the dry season, and they expanded their production to include sweet potatoes and pumpkins. Supplied quantities doubled, from 67 kg per week to 128 kg per week, with obvious economic advantages.

Table 2 Farmers' groups supplying African indigenous vegetables to schools under the pilot programme

GROUP	SUBCOUNTY	SCHOOLS WITH WHICH SUPPLY CONTRACTS WERE SIGNED	QUANTITIES SUPPLIED (kg/week)	UNIT COST (KES/kg)
Katamakisi Kadumutu Self-Help Group (SHG)	Teso South	St Jacob's Kaliwa Secondary School	60	30
Umoja SHG	Nambale	Esibembe Secondary School	45	45
Nasewa Mothers' Union	Matayos	Kisoko Girls' High School	20	50
Konjera Farmers SHG	Butula	Tingolo Secondary School	12	50
		Esibina Secondary School	10	40
Muungano Community-Based Organization (Otakhwenya Women's Group, Matunda SHG, Busijo table banking SHG)	Samia	Busijo Secondary School	20	40
		Nangina Girls' Secondary School	16	35
		Nangina Hospital	20	35
		Bumbe Institute	14	35
		Bujung'a Secondary School	10	35
Agong'et New Generation Youth Group, Osia Jitahidi Youth Group and Hillstar Youth Group	Teso North	Kamuriai Secondary School	60	35
		Albert Ekirapa Secondary School	60	35
		St. Thomas Amagoro	60	35

Source: authors' elaboration.

Dietary diversity and health

The pilot was launched in Busia in mid-2016, in one school that caters for 410 students. By 2019, the farm-to-school network in Busia was providing healthy school meals to approximately 5 500 pupils. Trained cooks ensured that vegetables are prepared with nutrient preservation in mind (for example, by reducing the amount of water used in cooking and reducing the cooking time), and school meals included a variety of highly nutritious local crops such as cowpea (*kunde*), amaranth (*dodo*) and slender leaf (*miroo*). Initial reports from schools indicated that students with special dietary needs and those suffering from stomach ulcers had reduced their intake of medication and were able to enjoy more varied meals.

Education

The pilot helped promote sustainable agricultural practices in schools and health clinics.³ Farmers were trained to prepare and cultivate plots using diverse, innovative and sustainable agricultural practices to minimize water use and reduce the need for external inputs. Growing vegetables directly on land belonging to schools opened up important opportunities for the creation of educational gardens (see Figure 2). As part of their syllabus, students gained hands-on experience regarding the sustainable growing of local crops, while also learning about nutrition and economics. For example, students at Mundika Girls' school were helped by SINGI to establish their own AIV plots using sustainable agricultural practices as part of their school curriculum (see Figure 2).

Figure 2 **Educational plot for African indigenous vegetables at Mundika Girls' School**



Students from Mundika Girls' school proudly showing African indigenous vegetables growing in a mandala garden plot.

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³ Health clinics have (a) gardener(s) to cultivate various AIVs in kitchen gardens at the site of the clinics; these gardens serve as a practical teaching tool for mothers attending antenatal clinics.

The mandala garden, formed by concentric rings planted with different AIVs, is a popular permaculture design for vegetable plots that is promoted widely by SINGI.

Environment

Promoting the use of AIV in agricultural landscapes plays an important role in enhancing the diversification and resilience of agroecosystems, improving their capacity to withstand the impacts of predicted climate change scenarios. Most traditional crop varieties are hardier and more resilient to biotic and abiotic stresses than non-native crops. Many are also drought-tolerant and mature faster than exotic crops, thus representing an important food option if rains fail or become more erratic – one of the predicted outcomes of climate change.

Furthermore, the sustainable agricultural practices promoted in Busia – such as raised beds, keyhole and mandala gardens – help prevent soil erosion and preserve soil moisture under drought conditions, thus putting less pressure on available water resources, one of the most important limiting factors that hinder scaling up the model to other parts of Kenya and elsewhere. Composting, also promoted as part of the training, helps improve soil quality and increase plant nutrient uptake. This is especially important in areas such as Busia, where soil fertility is steadily declining due to the absence of crop rotation on limited arable land. With the introduction of organic matter, soils better retain moisture and resist compaction, thus reducing erosion and run-off. As no chemicals and pesticides are used in the production of AIV, water pollution is also significantly reduced.

Social impacts

The creation of vegetable plots on school land and the use of plots as education tools renewed interest in sustainable agriculture as a profitable business venture, and raised awareness of environmental issues among younger generations. The linking of farmers' groups to schools and health clinics created employment opportunities for farmers, who now had a steady market for their produce, and improved nutrition in schools and clinics. Meanwhile, schools saw it as part of their social responsibilities to link to farmers. The biggest return of the project, however, was farmers' renewed sense of empowerment. "I never imagined I could go out and find my own market," said a female farmer from Busia (Monyani, 2017).

33.4 Takeaway messages

The survey into the implementation of the HGSF pilot project in Busia found that the project had produced a number of important achievements; however, it also identified challenges and needs for further action. The capacity of farmers to produce safe, high-quality indigenous vegetables in sufficient amounts to satisfy increasing market demands remained limited. Infrastructural, political and financial mechanisms need to be in place to support farmers to respond to demand for traditional crops from public procurement. Furthermore, linking farmers to institutional markets requires constant and sustained engagement with actors on both the supply and the demand side of supply chains for school feeding programmes. This engagement may take the form of capacity building activities for farmers focusing on a range of topics, such as negotiation skills, group dynamics, market surveys, good agricultural practices and procurement procedures. Training should also be provided on water harvesting techniques, as lack of water remains a critical concern during the dry season.

On the demand side, the engagement of policy influencers and champions at all levels is paramount to raising awareness and appreciation among different stakeholders (for example farmers, policymakers, parents and students) of the nutritional and environmental benefits of indigenous vegetables. By integrating neglected and underutilized species into the food system, their conservation can be assured. Reliable data on the nutritional value of targeted biodiversity products are needed to generate consumer and market demand for these products. Although Kenya's efforts to date to provide nutritional data have been recognized at the global level, further efforts are needed to collect nutrition information on a wider-range of neglected and underutilized species. Food composition data are indispensable in the fields of agriculture and nutrition. In nutrition, they are needed to determine the nutrient adequacy of populations' diets, identify nutrient requirements and implement measures to improve nutrition (e.g. by fortifying foods and changing food labelling practices). In agriculture, food composition data can be used to guide the production of locally available nutrient-dense foods and inform agricultural policies, research and programmes.

It is still early days to determine whether the links established in Busia can be sustained in the long-term elsewhere in Kenya or in other locations. Although the initial results are promising, additional research is needed to determine whether the

approach adopted in Busia is able to improve incomes and boost entrepreneurship – and thus engender lasting social and nutrition outcomes – in other local communities.

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34 HOME-GROWN SCHOOL FEEDING PROGRAMMES AND THE CHALLENGE OF EMBEDDEDNESS: THE CASE OF LOCAL FOOD NETWORKS AND THE GHANA SCHOOL FEEDING PROGRAMME

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ABSTRACT

Home-grown school feeding (HGSF) programmes aim to “kill two birds with one stone” by using the power of public food procurement to stimulate local agricultural development. This chapter uses the Ghana school feeding programme as a case study to discuss the mixing of economic and non-economic activities under HGSF programmes. The chapter argues that HGSF programmes are embedded in sociocultural relationships, and that their outcomes are therefore the result of negotiation processes among various actors. The implementation of HGSF programmes should be flexible enough to take advantage of the lessons that are drawn from these embedded negotiation processes.

34.1 Introduction

Home-grown school feeding (HGSF) programmes are part of broader efforts to harness the power of public food procurement to impact positively on local economies by helping smallholders transition from subsistence to commercial agriculture (Morgan and Sonnino, 2013). The attention to smallholder development has heralded a new era in the history of school feeding programmes, which hitherto focused on education and nutrition outcomes (Fisher, 2007). HGSF is based on the

notion that social protection and smallholder agricultural development objectives can be pursued in a single intervention; it was identified as one of the win-win interventions towards achieving the then Millennium Development Goals (Sumberg and Sabates-Wheeler, 2011).¹ This chapter uses the Ghana School Feeding Programme (GSFP) as a case study to discuss the mixing of economic and non-economic activities in HGSF programmes. The chapter argues that such programmes are embedded in sociocultural relationships, and that their outcomes are therefore the result of ongoing negotiation processes among various actors (see Chapter 1 and Chapter 5 for additional analysis of Ghana's experiences).

34.2 Embeddedness: a theoretical exposition

The term “embeddedness” is used by economic sociologists to describe the mixing of economic and non-economic activities, the latter influencing the process, cost, outcomes and available techniques of the former (Granovetter, 2005; Hinrichs, 2000). Thus, the extent to which economic action is influenced by non-economic factors is the defining feature of embeddedness as a concept (Granovetter, 2005). The notion of embeddedness has its roots in the work of Polanyi (2001), who argues that all economies are embedded and enmeshed in social relations and institutions. Granovetter (1985) uses the concept of economic embeddedness to extend Polanyi's argument and provide insights into the issue of social embeddedness. According to Granovetter, concrete interpersonal relations and networks that arise from these relations help generate trust and discourage malfeasance in economic transactions. Granovetter (2005) outlines three arguments about why and how social networks affect economic outcomes. First, social actors believe information from people they know more than information from people they do not know because of the difficulty of verifying subtle and nuanced information independently. Second, social rewards and punishments have the greatest impact among people who personally know each other, rather than among people who only know each other casually. And third, trust that may facilitate economic transactions is more likely to develop among people who know each other personally and interact at different levels and scales.

¹ The Millennium Development Goals (established following the Millennium Summit of the United Nations in 2000) expired in 2015; they are now replaced by the Sustainable Development Goals.

Thus, the role of social relationships in economic transactions is crucial for the sharing of information, access to credit, the prevention and handling of breaches of contract and conflicts, the regularity of trade flows and risk mitigation (Fafchamps, 2004).

The literature on alternative food networks has focused its analysis on how territory is used to create an image of quality for agricultural products by producers who want to distinguish their products from those in more conventional and globalized agrifood chains (Sonnino, 2007); thus, they create a niche market for such products. The territorial embeddedness of food is generally seen as a distinguishing feature of different food systems, whereby some food systems are considered embedded, and others disembedded. Parrott, Wilson and Murdoch (2002) distinguishes between the food cultures of the Global North, which are considered disembedded because of their focus on economic efficiency, and those of the Global South, which are considered as embedded in place, culture and society. The quality label of embeddedness is created by emphasizing the link between production and territory, which “re-embed a product in the natural processes and social context of its territory” (Barham, 2003, p. 130). In this sense, embeddedness in the food sector has been associated with the notion of food quality, which competes with price.

34.3 Methodology

This chapter is based on a PhD thesis for Wageningen University and Research defended on 2 June 2016, entitled *Under the lens of embeddedness: a sociocultural perspective on home-grown school feeding in Ghana* (Sulemana, 2016). The study was conducted in the Northern Region of Ghana and included the Tamale metropolis and the then Tolon/Kumbungu district between 2011 and 2013.² The extended case study design guided the collection and analysis of data. Data collection methods included key informant interviews, in-depth interviews, focus group discussions and participant observations (see Sulemana, 2016, for a detailed description of the methodology).

² Tolon and Kumbungu are now two separate districts.

34.4 The Ghana School Feeding Programme in perspective

The Ghana School Feeding Programme (GSFP) began in September 2005 in ten pilot schools, one in each of the then ten administrative regions of the country.³ The basic aim of the GSFP is to provide each kindergarten and primary schoolchild with one hot, nutritious meal per day, using locally grown foodstuffs. One of the immediate objectives of the GSFP is to boost domestic food production by helping farmers increase productivity and reduce postharvest losses, and thus improve national food security. It was expected that greater demand for food crops, efficient procurement and marketing practices and improved storage of food crops, all considered fundamental to the programme, would greatly benefit smallholders. Eighty percent of the feeding costs of the programme were targeted to enter the local economy (Ghana, 2006). The inclusion of multiple beneficiaries – and especially farmers – in GSFP’s third objective of boosting domestic food production is what differentiates the programme from similar programmes implemented earlier in the country. To ensure that GSFP benefits smallholders, the programme was designed to purchase food from local farmers and facilitate the access to credit from rural banks and other financial institutions for farmers involved in the programme (Ghana, 2006).

Food procurement under GSFP does not follow strict tendering procedures, and school food caterers procure food from individual farmers, traders and on the spot market. The literature on HGSF considers the decentralization of food procurement as strategic, since it avoids tendering requirements that most smallholders would find difficult to meet; as such, decentralized procurement in communities can boost local food production (Espejo, Burbano and Galliano, 2009). Under GSFP, food is procured at the level of individual schools, which means that the quantities required are considerably smaller than those that would have been required at the district or national level – and can therefore be supplied by smallholders or groups of smallholders. Decentralized procurement was also chosen to empower actors at the level of schools, who would work to bring local food into school kitchens (Morgan and Sonnino, 2013).

³ Ghana now has sixteen administrative regions.

34.5 Embeddedness in food procurement under the Ghana School Feeding Programme

The interviews carried out in the Northern Region of the country between 2011 and 2013 demonstrated that the outsourcing of procurement to individual schools under GFSP brought on board different dynamics of local food procurement. School food caterers were obliged to pay for purchases themselves when government funding was not forthcoming. This created a disconnection between the profit-seeking behaviour of private caterers and the objective of supporting smallholders, as the latter were not always the most profitable option for sourcing products. Tight school feeding budgets and delays in payments to school food caterers forced the latter to adopt a least-cost approach to procurement and purchase food on credit, using their social networks. This allowed them to secure regular supplies of food in relatively large quantities, thus reaping economies of scale.

School food caterers dealt with people they could trust, so that they were assured of regular supplies and were not harassed for unpaid debts while waiting to be paid by the government. The social networks that caterers relied on comprised largely of family members and friends. The relationships of trust in these networks meant that caterers could rely on their suppliers even under unfavourable business conditions. The use of the networks enabled caterers to procure cheaper food; however, it also constrained efforts to procure school food from smallholders, since the latter largely fell outside of caterers' social networks. As such, the arrangement – while ensuring the smooth running of the programme in the face of the irregular releasing of funds by the government – did not contribute towards the local food procurement objectives of the programme. Indeed, school food caterers preferred to work with local food traders, in spite of the popular view that those traders give both farmers and consumers a bad deal (Sitko and Jayne, 2014).

Smallholders participating in the school feeding market sold their surplus output piecemeal, which afforded them flexibility. While this flexibility reinforced their autonomy, it also constrained the practical execution of the notion of structured demand (Sumberg and Sabates-Wheeler, 2011), proposed as one of the mechanisms of change of HGSP. The notion of structured demand requires that smallholders produce

and sell their products according to the demands of the programme. However, under GSFP, farmers produced and sold their produce according to their own needs. This meant farmers only sold small quantities of products at a time, which did not correspond with the procurement arrangements of school food caterers. However, the long-standing relationships of trust that existed between smallholders and local food traders enabled farmers' piecemeal selling approach to work. Indeed, due to the social relationships between farmers and traders, and the latter's continuous presence in farming communities, the farmers trusted the traders. The social relationships gave smallholders the confidence that they would get money for their surplus farm products anytime they needed it; they also made it possible for traders to advance money to smallholders when they needed it.

While the practices of both farmers and school food caterers constrained local food procurement under GSFP, local food traders played a more enabling role by connecting school food caterers and smallholders. Indeed, both school food caterers and smallholders worked with local food traders in an effort to deal with their problematic situations (Long, 2001). Thus, the role played by local food traders, i.e. to connect smallholders to markets, served GSFP's objective of procuring food locally well. This was especially true for sub-collectors, who bought small quantities of food from smallholders, to sell them on in larger volumes to wholesalers. Subcollectors represented a major opportunity to obtain surplus products from smallholders to school kitchens. Field interviews indicated that this bulking function was needed to link smallholders to school food procurement. A key informant stated that:

With a volunteer, somebody within the community taking up the role of trying to aggregate, working directly with the farmers and also with the caterer, to aggregate produce towards the school feeding programme, it will be a more sustainable method. Where the matron is just left alone (...) once he/she doesn't have a good working relationship with farmers, it will be difficult, but the volunteer is going to be within the community and would be a pivot on which all these facilitations would be hinged (Sanyare, 2011).

The historical focus on the nutrition and education objectives of school feeding has affected actors' perspectives on school food procurement: it does not matter where

the food comes from, as long as the schoolchildren are well fed. School food caterers thought that their only mandate was to feed schoolchildren, even though they were required to procure from smallholders. As noted by Quaye (2012, p. 108):

It is apparent that the way the caterers view their roles in the GSFP contributes to the limited involvement of local farmers. Although most caterers are aware of the poverty reduction objective of the programme, they see themselves solely as food providers for the school children rather than partners responsible for achieving GSFP-smallholder farmers' linkages. Consequently, caterers look for the most economical and efficient way to provide the meals, with the practical benefits of buying food from the market and suppliers largely explaining the way food is purchased.

Of course, stimulating local agriculture through local procurement should not take precedence over providing adequate, safe and nutritious food to schoolchildren. However, if caterers had a more positive view of local food procurement, they would procure more products locally.

The Ghanaian Government and its local authorities had the objective of leveraging the purchasing power of GSPF to stimulate smallholder agriculture. Thus, they aimed to engage in procurement activities that were situated towards the embeddedness extreme of Block's embeddedness-marketness continuum (Block, 1990). Ideally, under the circumstances in Ghana, school food purchasing would focus on supporting smallholders, more than on economic instrumentalism (Block, 1990). However, private caterers wanted to make a profit, which disembedded their procurement activities from the objective of providing support to farmers. Indeed, only caterers with some level of consideration for local farmers or the local food system would make the extra effort required for local procurement. In other words, for such caterers, the decision to buy locally grown food was "more than a business decision" (Izumi *et al.*, 2010, p. 89). Most other school food caterers only procured local food if the price was cheaper than that of food procured elsewhere.

34.6 Conclusion

The practices of the actors involved in GSFP were determined by their sociocultural relationships; these practices in turn affected the realization of the local food procurement objective of GSFP. Smallholders used their sociocultural networks to relate with markets in a flexible way, reinforcing their autonomy. Meanwhile, school food caterers used their social networks to secure cheap, regular and convenient supplies of food for their school kitchens. Local food procurement only happened if and when the social networks of smallholders intersected with those of school food caterers. Local food traders played an enabling role in the provision of local food to school kitchens; however, they often came into the picture only because of their social relationships with school food caterers. The role of local food traders was not recognized in the design of GSFP, as their activities were seen as contrary to the objectives of the programme – when in fact, they were doing exactly what the programme set out to do. Thus, the outcome of the implementation of the GSFP – namely that food is largely procured *outside* school feeding communities – is the result of the negotiation between conflicting interests, based on the sociocultural relationships of the actors involved.

The caterer model, also described as the decentralized third-party model (Food and Agriculture Organization of the United Nations [FAO] and World Food Programme [WFP], 2018), is, in theory, conducive to the procurement of food from smallholder farmers because of the lack of formal tendering procedures. However, the caterers contracted under GSFP were not embedded in local sociocultural and economic relationships. As a result, they found it difficult to tap into the trade relationships that existed between smallholders and local food traders in beneficiary communities to bring local food into school kitchens. This situation was made worse by the tight budget for school feeding and the late release of funds by the Government.

To realize the objective of HGSF programmes, of enhancing the livelihoods of smallholders by improving their market access opportunities (FAO and WFP, 2018), programme planners and implementers must consciously involve local food traders who are already working with smallholder farmers, to benefit from these existing embedded relationships. To do this, the Ghanaian Government must find ways to better involve local beneficiary communities in the selection of food caterers, for

example through school committees responsible for the implementation of school feeding programmes. This would enhance community ownership of HGSF programmes and help realize their local food procurement objective. The Government should also create a fund dedicated exclusively to school feeding, to ease the financial barriers that prevent caterers from procuring food locally.

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35 EVALUATING THE IMPACT OF HOME-GROWN SCHOOL FEEDING PROGRAMMES AND COMPLEMENTARY AGRICULTURAL INTERVENTIONS: THE CASE OF ZAMBIA

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ABSTRACT

Starting in 2011, Zambia's school feeding programme has gradually transitioned to the Home-Grown School Feeding (HGSF) programme, whereby food for primary schools is procured within the country itself.

The Conservation Agriculture Scale-Up (CASU) project started in Zambia in 2013; it ran until late 2017, reaching some 20 000 lead farmers and 227 534 follower farmers. The CASU project promoted conservation agriculture by providing agronomic training, extension support and farm inputs; its overall aim was to increase the production and productivity of crops to improve food security and boost farmers' incomes.

This chapter documents the results of an impact evaluation by the Zambian HGSF programme and the CASU project to quantify the effects of each programme, both in isolation and in combination with one another. The chapter focuses on three groups of outcomes: farm production and income-generating activities, food and nutrition security (FNS), and education outcomes.

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35.1 Introduction

School feeding (SF) programmes are social protection interventions that aim to alleviate hunger while supporting education, food security and health. Worldwide, some 368 million children are being fed daily at school through SF programmes, which are run to varying degrees by national governments (Food and Agriculture Organization of the United Nations [FAO], 2017). Evidence on the impacts of SF programmes on pupils' nutrition and education is relatively abundant (Alderman and Bundy, 2012; Gelli *et al.*, 2012; Jomaa, McDonnell and Probart, 2011; Kristjansson *et al.*, 2016).

The Zambian School Meals Programme started in 2003; it provides a warm, nutritious, high-energy meal with protein supplements to children attending classes. Starting in 2011, the programme has transitioned gradually to a home-grown school feeding (HGSF) programme, procuring food locally to stimulate local economic activity and agricultural production. The programme uses the World Food Programme's (WFP) Purchase for Progress (P4P) platform to procure the commodities that make up the school meal. The P4P mechanism purchases staple food commodities (cereals, pulses and blended foods) from smallholders to distribute them as food assistance in the same country or elsewhere in the world. P4P promotes the development of agricultural markets and creates opportunities for smallholders to sell their food surpluses at a fair price, thus increasing their incomes (see Chapter 8 for an overview of the WFP and P4P experiences).

The P4P programme operates in 24 districts across six of Zambia's ten provinces. The food basket is limited to cereals, pulses (beans and peas) and cooking oil; of these, only pulses are procured directly from Zambian farmers, while the cooking oil is imported and cereals are bought from the Food Reserve Agency.

Zambia's HGSF programme is currently managed and partially funded by the Zambian Government. The main goals of the programme are to increase school attendance and retention rates and reduce rural poverty by improving the economic situation of local households and providing reliable markets for local farmers. The programme provides one warm meal per day to children enrolled in preschools and primary schools in targeted districts throughout the school year. The daily ration for each child contains 120 g of maize and 60 g of pulses. The HGSF provides meals in both

public and community schools in 38 out of Zambia's 105 districts, in all ten provinces. In 2016, the programme reached 977 000 beneficiaries in 2 591 schools (out of a total of 8 800 schools in the country), accounting for 25 percent of all children enrolled in preschools and primary schools.

Aggregators play a central role in connecting smallholders to HGSP purchasing. In some districts, farmers' cooperatives act as aggregators by buying products from their members, while in other districts, it is dealers who aggregate products from local farmers. Both types of aggregators sell the collected produce in different markets. One of these markets is WFP's P4P platform, which uses part of its purchases for HGSP programmes and distributes the other part as in-kind assistance, either in Zambia or abroad.

From 2013 until 2017, FAO implemented the Conservation Agriculture Scaling-Up (CASU) project in 31 districts (11 of which were also included in the HGSP programme), with support from FAO. The CASU project aimed to stimulate the adoption of conservation agriculture (CA) by providing training to farmers on CA practices, mechanization and business management. To this end, extension officers from the Ministry of Agriculture received training in these three areas; the officers in turn trained "lead" farmers, who passed the knowledge and skills on to other "follower" farmers. Demonstration plots set up and managed by farmers allowed them to gain practical experience. The overall objectives of the CASU project were to reduce hunger, improve food security and boost incomes by increasing crop production, productivity and diversification.

A total of 21 000 lead farmers were involved in the CASU project; each of these lead farmers conducted demonstrations for 10 to 15 other farmers. The lead farmers were given e-vouchers to purchase bicycles (to facilitate their movement) and to have access to CA inputs, equipment and mechanization services. The e-vouchers promoted the involvement of suppliers of inputs in the project: CA-appropriate inputs were registered and channelled through selected agridealers in various locations to allow farmers to access them.

In some areas, farmers that were beneficiaries of the HGSP programme could also receive production-related support through the CASU programme; conversely, CASU beneficiaries could benefit from the market access offered by the HGSP programme. Programme implementers on both sides tried to coordinate their efforts and target

the same areas (down to the level of farming blocks) to trigger synergies between the two programmes.²

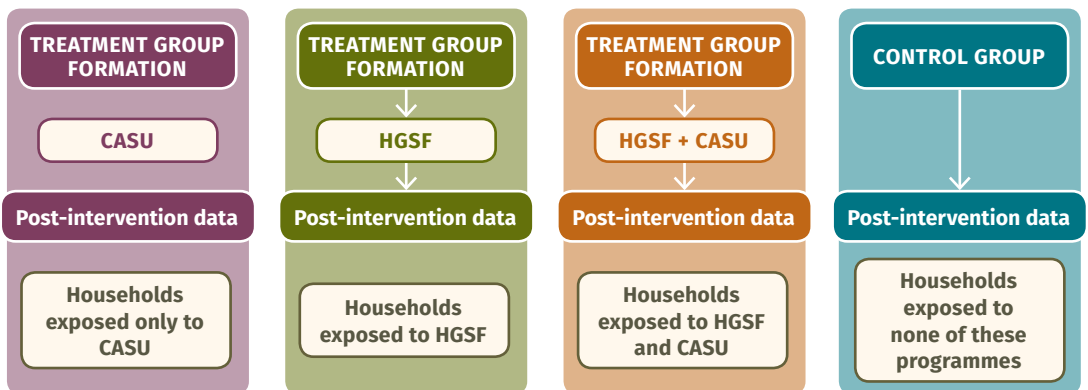
However, the synergies between the two programmes, which were targeted during the programming stage only, partially translated into concrete, coordinated actions during the implementation stage. In addition, synergies between the two programmes at the level of households were not systematically pursued. As a result, some – but not all – farmers who benefited from the HGSF programme also benefited from the CASU project.

This chapter analyses the impacts of Zambia’s HGSF programme and of the CASU project, both separately and combined. The evaluation is based on a post-test only, non-equivalent control group design with only one wave of post-intervention data.

35.2 Research design

The impact evaluation design of the combined HGSF and CASU is an example of an “after only, non-equivalent control group” type of quasi-experiment. In this design, no baseline (pre-intervention) data are collected, and treatment arms are only compared post-intervention.

Figure 1 “After only, non-equivalent control group” design for impact evaluation



Source: authors’ elaboration.

² Zambia’s territory is divided into provinces, which are further divided into districts. In each district, urban communities or towns are called *bomas*, while the rural areas of the district are organized in farming blocks, which in turn include several agricultural camps. Each agricultural camp includes several villages.

There are four treatment arms in this combined impact evaluation study: the HGSF-only arm, the CASU-only arm, the HGSF+CASU arm and the control arm. In this setup, it is impossible to distinguish the effects of single components of the HGSF programme, i.e. the market access component and the school meals component (this would require an extra arm, with households benefiting from the provision of school meals but not from local purchasing). As such, the study compares outcomes for farm households in areas that benefit from both P4P's local purchasing and the provision of school meals, with outcomes for similar households in control areas that benefit from neither; the evaluation thus captures the impacts of the entire HGSF programme i.e. the market access component and the school meals component. The geographical coverage of the study (districts) is as follows: the HGSF-only arm: Luwingu, Kawambwa, the CASU-only arm: Chongwe and Chibombo, the HGSF+CASU arm: Katete; the control arm: Kafue, Kasempa and Mporokoso.

The HGSF-only treatment arm is composed of households that sold to cooperatives selected by the P4P programme and lived in districts where school meals were provided under the HGSF programme. The CASU-only arm is composed of households that only received support for CA. The HGSF+CASU intervention arm is operationally defined as households that received support for CA and lived in farming blocks covered by the HGSF programme, both in terms of procurement and in terms of school meals. The control group is composed of households that were eligible to benefit from public food procurement under the HGSF programme (because they were members of cooperatives in control districts) but were not covered by the intervention, as well as of households that were eligible for support under the CASU programme (because they owned at least 0.5 ha of land) but did not take part in the programme. Table 1 shows the sample size for each treatment arm and the geographical distribution in terms of districts.

The collection of data started in October 2017. Throughout that month, interviews were conducted with nearly 75 percent of the households in the sample, leaving out only the HGSF+CASU treatment arm. The data collection was interrupted during November and December because rainfall made some areas inaccessible; the remaining households were interviewed in early January 2018.

Table 1 Sample size by treatment arm and district (number of households)

DISTRICT (COUNT)		CHIBOMBO	CHONGWE	KAWAMBWA	LUWINGU	KATETE	KAFUE	KASEMPA	MPOROKOSO	TOTAL
HOUSEHOLD TYPE	CASU only	404	363	0	0	0	0	0	0	767
	HGSF only	0	0	612	200	0	0	0	0	812
	HGSF + CASU	0	0	0	0	467	0	0	0	467
	Control HGSF eligible	0	0	0	0	0	275	312	238	825
	Control CASU eligible	0	0	0	0	0	186	159	154	499
	Ineligible	13	5	57	112	0	38	10	34	269
	TOTAL	417	368	669	312	467	499	481	426	3 639

Source: FAO, 2017a.

35.3 Results

This section presents quantitative findings from the impact evaluation, focusing on four main outcome groups: farm production, the adoption of conservation agriculture, food security and nutrition, and schooling. Table 2 provides a summary of the results.

Table 2 Summary of the results of the impact evaluation

	CASU	MEALS PER SE	HGSF	BOTH
Farm production	++		+/-	++
Crop production	+/-		+/-	+/-
Crop sales	+/-		++	+/-
Livestock production	++		--	++
Total gross income	0		--	++
CA adoption	+++		0	+++
FNS	+++	++	---	++
Schooling	0	++	0	---

Notes: +++: the majority of impacts are positive; ---; the majority of impacts are negative; 0: no impacts. CA: conservation agriculture, FNS: food security and nutrition, CASU: Conservation Agriculture Scaling-Up, HGSF: Home-Grown School Feeding Programme.

Source: authors' elaboration of the results of the impact evaluation.

Farm production

The CASU project is associated with an increase of 68 percent in the production of maize by households. Under the HGSF programme, maize production falls by 33 percent (643 kg on average), while the production of sorghum falls to zero from an average of 25 kg per household. For maize, the combined impact of both interventions is an increase of 607 kg (or 31 percent).

The average herd size increases by 0.5 tropical livestock units (TLU) in the CASU-only arm. In the HGSF arm, the number of farmers dealing with livestock decreases by 23 percent, while the average herd size reduces by 88 percent. The impacts in the combined arm are similar to those in the CASU-only arm, with even larger changes in the herd size, which expands by 102 percent.

The CASU-only arm is associated with an increase in average revenues from the sale of maize on the market of 39 percent, while revenues from the sale of beans fall by 87 percent. Total crop revenues increase by almost 70 percent. The HGSF-arm leads to an increase in revenues from the sale of beans and groundnuts, which increase by a factor of 2.3 and 2.9, respectively. Total revenues from crop sales increase by almost 50 percent in this group. Results for the combined group show a similar pattern to that of the CASU-only group: a significant reduction in revenues from beans sales (down 71 percent) and an increase in sales revenues from groundnuts (up by a factor of 4.9). There are no impacts on maize sales. Total crop revenues almost double, putting the combined group at the top in terms of commercial benefits.

The HGSF-arms shows to a reduction in total gross income of 40 percent, while the arm that combines both programmes shows an increase in income of 42.8 percent. The CASU programme alone has no impacts on gross income.

Conservation agriculture

Both the CASU project on its own and the combination of the CASU project and the HGSF programme greatly stimulate the adoption of CA practices across virtually all crops. A greater diffusion of these techniques is observed for maize and groundnuts. The CA practices that are most commonly adopted, and also stimulated the most by CASU, are zero tillage and leaving crop residues in the field.

Food security and nutrition

The provision of school meals has a positive impact on the FNS indicators in the study. In particular, providing meals at schools improves children's dietary diversity score by 60 percent. However, the impact of the HGSP programme as a whole (i.e. as a combination of school meals and improved market access) on FNS indicators is negative. The CASU project is associated with an improvement in both the dietary diversity for children and women and reduced food insecurity indicator (FIES) for households. The combined programmes also have positive effects on children's and women's dietary diversity.

Schooling

Meals *per se* have a positive impact on schooling outcomes. They increase attendance rates (up 5.4 percentage points) and help keep children in school from one year to the next, thus reducing the dropout rate (down 3.5 percentage points). The HGSP programme as a whole, however, has no impact on educational outcomes. Likewise, the CASU project does not have significant impacts on the main schooling indicators for children in primary or secondary schools. The combination of the programmes seems to have unintended detrimental effects on most schooling indicators, and especially on attendance rates.

35.4 Conclusions

The findings of the study discussed in this chapter show that the provision of school meals meets its objective of improving dietary diversity for school-going children; the improvement in dietary diversity scores for women shows that it also improves the diets of other household members through probable spillover effects. School meals also help bring children to school and keep them there, as shown by the increase in attendance rates and the reduction of dropout rates, and results in improvements in literacy and grade progression.

The improvements in food security, nutrition and educational outcomes induced by the provision of school meals are not only sizable for the average beneficiary; they also reach the vast majority of children in a district and have the potential to trigger

long-term development processes through human capital improvements, especially in health and education. However, while school meals *per se* have a positive impact on both FNS and educational outcomes, this was not the case for the HGSF programme in its entirety, i.e. including its local purchasing component. Indeed, the HGSF as a whole decreased dietary diversity (for both women and children) and increased food insecurity (as measured by the FIES indicator).

Local purchasing of legumes under the P4P project may have unintended detrimental impacts on FNS and education. Indeed, on the one hand, the findings further suggest that improving farmers' market access for legumes leads to an increase in their production and sales; as such, the HGSF programme meets its strictly defined objectives of creating a market for legumes and increasing farmers' revenues. On the other hand, however, the evidence regarding the impacts of local purchasing on the overall economic situation of farming households suggests that the increased production of beans has a number of unintended consequences, including a reduction in the production of other crops (e.g. maize) and livestock, and in wage income. This pattern of results suggests that the HGSF programme results in a reallocation of resources within the farming economy. Indeed, the extra demand for pulses may provide an incentive to farmers to reallocate land, labour and other resources from the livestock sector to the crop sector and, within that sector, from the production of maize to the production of beans.

A key question is thus whether the farming households that are currently targeted by the HGSF programme are able to satisfy the extra demand from public food procurement without sacrificing other types of farm production (e.g. other crops, livestock activities) or compromising their own welfare (e.g. food security, schooling). Therefore, public purchasing should target smallholders who are already producing a surplus of the required crops or who are able to increase production and meet the extra demand. Farmers with limited production capacities should be supported with targeted interventions to help them to realize their potential.

Several supply-side constraints may prevent the designated smallholder beneficiaries of HGSF programmes from meeting the extra demand generated by the programmes. Such constraints include limited access to land, variable inputs, technology and knowledge, a lack of market information, and insufficient liquidity – in addition

to high transaction costs. These constraints should be taken into account at the planning stage of the programme. If supply-side constraints are not eased, HGSF programmes may cause a reallocation of resources within the farming economy and have detrimental effects in terms of welfare (e.g. FNS, schooling) (Gelli *et al.*, 2015).

Since the beneficiaries of the HGSF programme in Zambia currently do not seem to be in a position to meet the extra demand for legumes from the programme without reallocating resources or compromising their welfare, the HGSF programme should be linked to interventions that ease supply-side constraints. In addition, the internal coherence of the HGSF programme should be reconsidered. Several studies analyse the issue of internal coherence in terms of coordination risk (Sumberg and Sabates-Wheeler, 2011). Coordination risk is “the risk of failure of one player’s investment due to the possible absence of complementary investments by other players in different stages in the supply chain” (Dorward and Kydd, 2004, p. 8). Coordination risk is particularly high where markets are thin and institutions weak (Sumberg and Sabates-Wheeler, 2011). From the perspective of pro-poor agricultural development in sub-Saharan Africa:

*the central coordination challenge (...) is (...) how to develop supply chain systems that provide smallholders with access to the range of pre-harvest services that they require at the same time as enhancing their access to remunerative output market opportunities” (Dorward *et al.*, 2005, p. 8).*

Barrett (2008) states “one thus has to get institutions and endowments, as well as prices, “right” in order to induce market-based development” (cited in Sumberg and Sabates-Wheeler, 2011, p. 8).

HGSF programmes should consider how to best link smallholders to complementary interventions that address supply-side constraints (FAO, 2017b). Such interventions may be built into the HGSF programme itself, or they may result from the combination of HGSF programmes with other livelihood support programmes (such as the CASU project or other agricultural programmes that are currently being implemented in Zambia). Increased coherence among programme components or between separate programmes targeting the same households is required to ensure synergy and mitigate any unintended negative impacts on key outcomes. Coherence within and between programmes is not automatic. The accidental overlap between two

interventions in the same area does not guarantee coherence. Programme coherence requires intention; it is greatly promoted by the involvement of all stakeholders and coordination between them, from planning to implementation.

The combination of the HGSF and CASU programmes has had positive impacts on a number of farming and FNS outcomes. In particular, the combination of training and support for CA with the HGSF programme led to increased crop production and sales and encouraged farmers to accumulate livestock and produce more livestock by-products. As a result, total gross income increased considerably more in the combined group than in the CASU-only group. The HGSF programme *per se* had both positive and negative FNS effects; when combined with the CASU project, the effects often became positive. This may be explained either by the prevailing of the impacts of the CASU treatment or by the synergies triggered by the combination of both programmes.

Overall, each programme or programme component considered in the study fulfils its own stated objectives: the provision of school meals improves primary school-aged children's food security and educational outcomes, public food procurement boosts the production and sales of pulses, and the CASU programme stimulates the adoption of CA and boosts farmers' incomes. More needs to be done to increase coherence within and between programmes, i.e. to ensure that the combination of the components of a programme or of two separate programmes does not produce conflicting impacts on the intended outcomes. This can be done by ensuring the design and implementation of programmes takes better account of the objectives of other programmes, so that improvements in terms of income generation do not come at the cost of food security or educational outcomes.

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