Food and Agriculture Organization of the United Nations

Public–private partnerships for agribusiness development

A review of international experiences

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Executive summary

Against a background of limited government resources and expertise, innovative partnerships that bring together business, government and civil society actors are increasingly being promoted as a mechanism for improving productivity and driving growth in agriculture and food sectors around the world. Commonly referred to as public–private partnerships (PPPs), these initiatives are common in sectors such as infrastructure, health and education, but their application in the agriculture sector is relatively new. Agri-PPPs are broadly promoted as having the potential to help modernize the agriculture sector and deliver multiple benefits that can contribute towards sustainable agricultural development that is inclusive of smallholder farmers. However, the motivation behind this approach and the loose manner in which the concept is defined raise many unanswered questions about the types of project that may be suitably governed by agri-PPPs.

To improve understanding of both the potential benefits and the challenges of agri-PPPs, the FAO has gathered 70 case studies from 15 developing countries along with evidence from field-based support to PPP initiatives for agribusiness development in Central America and Southeast Asia. This publication provides a review of this wealth of practical information. Its primary objective is to draw lessons that can be used to provide guidance to FAO member countries on how to establish effective partnerships with the private sector to mobilize support for agribusiness development. Particular attention is therefore given to analysing the existing enabling environment for agri-PPPs, the expected benefits to be achieved from these partnerships, the roles and functions of the partners, major challenges encountered, and the performance and development outcomes that resulted. Attention is also given to defining the types of public skill and the institutions required to support agri-PPPs and the circumstances under which PPPs are likely to be the best modality for achieving agribusiness outcomes.

For the purpose of this study, an *agri-PPP* or a *PPP for agribusiness development* is defined as a *formalized partnership between public institutions and private partners designed to address sustainable agricultural development objectives, where the public benefits anticipated from the partnership are clearly defined, investment contributions and risks are shared, and active roles exist for all partners at various stages throughout the PPP project lifecycle*.

From the 70 cases investigated, a typology of four common project types was identified: i) partnerships that aim to develop agricultural value chains; ii) partnerships for joint agricultural research, innovation and technology transfer; iii) partnerships for building and upgrading market infrastructure; and iv) partnerships for the delivery of business development services to farmers and small enterprises. This classification gives government officials an idea of the types of agribusiness projects that can be governed by the PPP mechanism and demonstrates the diversity of models and the scope for PPPs in the agriculture sector of developing countries.

The cases investigated involved collaboration between one or more public entities and one or more agribusiness companies, but they also involved financial institutions, non-governmental organizations (NGOs), small and medium agro-enterprises (SMAEs), farmer organizations (FOs) and individual farmers. Depending on the design of the PPP project, farmers may play dual roles, as both private partners in their own right, and beneficiaries of the PPP project.

In practice, agri-PPPs may involve either formal (contractual) or informal (collaborative) arrangements, and tend to favour simpler, less complete contract modalities, such as memoranda of understanding, when compared to traditional PPPs for infrastructure. The cases show that a single contract can be made between the public partner and the lead private partner only, or among multiple partners, including NGOs and FOs. As well as the main document formalizing the partnership, there are typically a series of bilateral agreements among the parties. These include contract farming/outgrower agreements between the company and farmers; confidentiality agreements; agreements related to ownership of intellectual property (IP) rights/licensing agreements; and financial service contracts. These types of bilateral agreement were common in all agri-PPP typologies and were used alongside the main partnership agreement to implement project activities.

Agri-PPPs offer a number of potential benefits deriving from the combination of the operational and economic efficiency typical of the private sector with the public sector's role as the creator of an enabling environment and regulator to ensure that social interests are considered. PPPs of all types reported improvements in efficiency as major benefits. For smallholder farmers, many of the partnerships showed evidence of positive impacts on net income through improved market access, increased productivity, improved product quality or reduced costs through the adoption of new technologies, increased capacity of FOs, and generation of on- and off-farm employment. For public-sector partners, in addition to achieving socio-economic targets associated with the projects, general benefits from involvement in PPPs included the strengthening of public-sector institutions and skills in project design and management. At the firm level, benefits were reported in terms of increased sales and market shares and/or greater availability of raw material supplies.

The PPP mechanism is designed to address the issue of affordability by pooling funds from various sources to overcome the limited funding available in the public sector. The study findings demonstrate that the pooling of public and private funds is occurring through PPP projects that range from small initiatives of less than US$20 000 for innovation projects to multi-million dollar projects for the construction and management of market infrastructure. The mechanisms for achieving this goal can be structured in different ways to suit the specific purpose of the PPP and may include co-equity investments, in-kind contributions, matching grants and concessions for the private sector. However, few comprehensive conclusions can be drawn about the shares of total investment contributed by public and private partners because of the poor practice of not valuing in-kind contributions and the limited disclosure of financial information by both parties.

The risk management function of PPPs is another particularly attractive feature for the agriculture sector in developing countries, where uncertainty and risks are common. The PPP model provides governments with the opportunity to decide how to handle these risks – retain them, share them or transfer them to the private

partners, depending on who is best able to manage them. Agri-PPPs were found to reduce the commercial risk for the private sector by offering fiscal incentives and institutional measures to reduce transaction costs, such as by organizing farmers into groups, and ensuring exclusive purchase rights for raw materials. In-kind contributions such as the provision of public extension services, supporting infrastructure and use of government facilities also helped to reduce the risks associated with a challenging business environment. More specifically, the cases found that the market risk is typically carried by the lead private partner (agribusiness firm), while the production risk can be borne by farmers alone or shared by farmers and the public partner through the provision of subsidized agricultural insurance or the co-funding of contingency funds in case of *force majeure*. Risks may also be distributed differently among partners at various stages of the project lifecycle, depending on which partner is best able to bear the risk during that phase of the partnership.

Several limitations of agri-PPPs were also identified. The success or failure of agri-PPPs is highly dependent on the enabling environment and the governance strategy designed to support the implementation of these partnerships. Legislation and regulation concerned with land access, enforceability of contract farming agreements, protection of intellectual property and other essential issues such as natural resources management, food safety, agricultural insurance, arbitration, and regulations to support SMAEs are critical for the successful implementation of agribusiness PPPs. However, many of these issues fall outside of the purview of traditional PPP legislation. In the countries studied, the Ministries of Agriculture (MOAs) were also generally less prepared than other line ministries, to meet the challenges of partnering with the private sector. Even in countries where a clear PPP institutional framework is in place, agribusiness PPPs might end up finding institutional venues other than the MOA. This situation raises questions about how PPPs are defined under national policies and laws, and about what gaps exist in the governance and institutional frameworks designed to support this type of arrangement in the agriculture sector.

Another main challenge is the lack of guidance in the design phase of PPP projects. As a consequence, important issues such as transparency in the selection of private partners, risk sharing and mitigation mechanisms to protect small farmers, as well as conflict resolution strategies have often been overlooked. Inadequate market assessment and feasibility studies during the initial stages of developing the PPP arrangement also contributed to financial challenges encountered during the implementation phase. Several partnerships reported slower than expected payback periods, lower than expected returns on investment, an inability to achieve scale over the short and medium-term, and difficulty in sustaining activities that require investment beyond the partnership period.

Despite its widespread promotion, the PPP mechanism is only one of many approaches that can contribute towards the achievement of sustainable agricultural development goals. Agri-PPPs may be applicable only in specific circumstances (where markets fail) because they involve high transaction costs and are very complex. Ideally, when deciding whether or not to engage in agri-PPPs, policy-makers should make sure that the partnerships will add value by generating greater public benefits than could otherwise have been achieved through any of the alternative modes of public procurement or private investment alone.

The conclusion reached is that while there is evidence of agri-PPPs making positive contributions to sustainable agricultural development objectives, several outstanding issues associated with the impact of PPPs on poverty reduction and inclusion still need to be addressed to ensure the delivery of more effective partnerships.

Eight key take-away lessons were identified:

1. *To be successful, agribusiness partnerships need to align the partners' disparate interests and visions and reach consensus, particularly on public-sector objectives and priorities for promoting PPPs.*
   Public partners and policy-makers need a clear understanding of the rationale for promoting a PPP approach over other mechanisms of public-sector support, and need to be able to identify the types of project where PPPs will be most effective in addressing market failures sustainably. Potential PPP projects should be able to demonstrate value-for-money and, ideally, should generate public benefits that exceed those that could have been achieved through alternative modes of implementation such as direct public funding, outsourcing or privatization. Partnerships should aim to leverage financing from both partners to achieve common goals that have high potential for socio-economic spillover effects. There should also be potential to achieve scale in the longer-term by learning from implementation of the PPP and, as a result, creating the conditions for an enabling environment that will facilitate future private-sector involvement and sectoral growth without continuing government intervention.

2. *The role of each partner should be clearly defined according to the unique skills and expertise that each can bring to the agri-PPP, with appropriate incentives designed to reward these roles.*
   The case studies show that the benefits of agribusiness PPPs accrue to various stakeholders in different ways, which means that the right mix of responsibilities and incentives for each partner must be built into the partnership agreement in order to generate sufficient commitment to produce these benefits. At the same time, all partners should have a pressing need to succeed, but be unable to do so alone – i.e. interdependency is key. Complementarity of skills is also essential in providing opportunities for shared learning and capacity development.

3. *Effective agri-PPPs share risks fairly among partners and include risk management mechanisms to protect the most vulnerable.*
   The study found that risk management measures – both hard and soft – are being adopted, including agricultural insurance schemes, guarantees, subsidized loans for small-scale farmers and firms, secure purchasing contracts, business management training for FOs and SMAEs, and risk sharing stipulations in case of *force majeure*. An agri-PPP agreement can also consider measures to control the risks of creating market power imbalances (including monopolistic behaviour) and introducing potential new risks for small-scale farmers and firms.

4. *There is ample scope for the involvement of financial institutions as an additional core partner in agri-PPPs.*
   Many of the PPP schemes studied would not have worked without the involvement of a public or private financial institution. By incorporating financial institutions into the partnership agreement and coupling them with risk management mechanisms such as government guarantees and subsidized credit, access to finance for smallholders was improved, enabling them to afford the investments required to participate in the PPP. While this can be considered a positive outcome, consideration must be given to the design of the specific credit products to ensure that smallholders are capable of managing these loans and are not exposed to greater risks than they can manage.

5. *While agri-PPPs can promote the inclusion of smallholders and SMAEs, they are unlikely to have an impact on the poorest of the poor.*
   Several of the cases analysed had built-in clauses to promote inclusion through the provision of incentives for smallholders and SMAEs to help them secure financing and legal landownership. However, findings regarding the achievement of scale for inclusiveness objectives are inconclusive. Very few cases measured the impact of the PPP project on women and youth, which is an obvious weakness given the importance of these groups to achieving rural transformation goals. Similarly, for poverty reduction objectives, baseline poverty indicators were rarely given, making it difficult to assess the extent to which the partnerships actually benefited the poorest farmers, rather than simply targeting those most capable of benefiting from partnership activities. A certain level of skills and assets are required to be a suitable candidate for participation in agri-PPPs. This will likely exclude the poorest unless heavy investment is made in long-term capacity development.

6. *Collective action is an essential feature of all agri-PPPs and helps both to promote inclusion and to reduce transaction costs.*
   Linked to lesson 5, the study found that while agri-PPPs aim to encourage inclusive growth, the transaction costs associated with sourcing from numerous smallholders are high. Fostering collective action and capacity building increases the participation of smallholders in modern value chains while reducing the transaction costs for lead private partners. The four types of agri-PPP identified in this review aimed to foster collective action. Public partners, including the donor community and civil society actors (e.g. NGOs), often provided support to the formation of groups and the capacity building of smallholders to help them become more equitable partners for the private sector.

7. *Sound institutional and regulatory frameworks are essential factors in the design of well-performing PPPs.*
   A judicious land governance system and transparent decision-making and budgetary processes for selecting PPP projects and private partners are critical factors that must be considered in the governance of agri-PPPs. The cases highlighted throughout this publication confirm that agri-PPPs struggle to fit into existing public institutional frameworks for PPPs. This difficulty is partly

explained by the inherent traits of agri-PPPs, such as the lower scale of investment, multi-stakeholder involvement and greater emphasis on social objectives, including food security and poverty reduction. The prevailing institutional set-ups for PPPs are often biased in favour of infrastructure projects, which have very different characteristics from those of the most common types of agri-PPP. However, as evidenced by the cases from Latin America, a programmatic approach can have benefits over an ad hoc project approach in reducing transaction costs and increasing transparency.

8. *There is a pressing need to improve the monitoring and evaluation (M&E) of agri-PPPs.*
   There is need for the public sector, including donors, to invest more in M&E of agri-PPPs to create a solid evidence base that provides guidance on the effective design and implementation of agri-PPPs and measures their impacts over the long term. The available information on the performance and development outcomes of PPPs, other than those for innovation and technology transfer, was relatively weak. In many cases, this was because of poor M&E systems, which were unable to align the objectives of public and private partners and develop a set of comprehensive performance indicators to measure the benefits that accrue to each partner.

Abstract

High levels of investments are required to unleash the potential of agriculture for sustainable development and poverty reduction in developing countries, but low public budgetary allocations to the sector have slowed growth. To address this problem, innovative partnerships that bring together business, government and civil society actors are increasingly being promoted as a mechanism for pooling much-needed financing while mitigating some of the risks of doing business in the agriculture sector. Commonly referred to as public–private partnerships (PPPs), these initiatives are expected to contribute to the pursuit of sustainable agricultural development that is inclusive of smallholder farmers. However, there remain many unanswered questions about the types of project that may suitably be governed by PPPs and about the partnerships' effectiveness in delivering on these objectives. To improve understanding of the potential benefits and challenges of agri-PPPs, this publication provides an analysis of 70 PPP cases gathered from 15 developing countries, together with evidence from FAO's support to the review of PPP policies for agriculture in Southeast Asia and Central America. Four common project types are identified: i) partnerships that aim to develop agricultural value chains; ii) partnerships for joint agricultural research, innovation and technology transfer; iii) partnerships for building and upgrading market infrastructure; and iv) partnerships for the delivery of business development services to farmers and small and medium enterprises. The main lessons are synthesized, including the public skills and institutions required to enable more effective partnerships with the private sector, and the circumstances under which PPPs are likely to be the best modality for achieving sustainable development outcomes. The conclusion reached is that while there is evidence of positive contributions to sustainable agricultural development objectives, there remain several outstanding issues associated with the impact of PPPs on poverty reduction and inclusion, which still need to be addressed. When deciding whether or not to engage in an agri-PPP, policy-makers should aim to ensure that the partnership will represent value for money and generate public benefits that exceed those that could be achieved through alternative modes of public procurement or through private investment alone.

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Acronyms

4P	public–private–producer partnership
ADB	Asian Development Bank
AFD	French Development Agency
AGRA	Alliance for a Green Revolution in Africa
AGS	Rural Infrastruture and Agro-Industries Division (FAO)
ASF	Agribusiness Support Fund (Pakistan)
APEC	Association of Producers and Exporters of Watermelon (Peru)
BDS	business development service(s)
BOO	build-operate-own
BOT	build-operate-transfer
CA	contracting authority
CFS	Committee on World Food Security
DBO	design-build-operate
DFID	Department for International Development (United Kingdom)
EAGC	Eastern Africa Grain Council
EU	European Union
FEG	farmer enterprise group
FNC	National Federation of Coffee Growers (Colombia)
FO	farmer organization
FONDOEMPLEO	National Fund for Occupational Training and Employment Promotion (Peru)
FONDEPYME	Integrated Project for Development of the Productivity and Competitiveness of Micro-, Small and Medium Enterprises (Ecuador)
GAP	good agricultural practice
GIZ	German Agency for International Cooperation
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IP	intellectual property
ITT	innovation and technology transfer
LA	Latin America
M&E	monitoring and evaluation
MI	market infrastructure
MOA	Ministry of Agriculture
MOFEP	Ministry of Finance and Economic Planning (Ghana)
MOU	memorandum of understanding
MS	multi-stakeholder collaboration
NAADS	National Agricultural Advisory Service (Uganda)

NGO	non-governmental organization
NMB	National Microfinance Bank (United Republic of Tanzania)
NVAT	Nueva Vizcaya Agricultural Terminal (Philippines)
ODA	official development assistance
PFAU	Project and Financial Analysis Unit (Ghana)
PPP	public–private partnership
PRONERI	National Inclusive Rural Business Programme (Ecuador)
PROSAAMER	Programme of Support Services to Promote Access to Rural Markets (Peru)
R&D	research and development
ROI	return on investment
RSP	registered service provider
SIDA	Swedish International Development Cooperation Agency
SMAEs	small and medium agro-enterprises
SMEs	small and medium enterprises
SOE	State-owned enterprise
TAGMARK	Tanzanian Agricultural Market Development Trust
TRIT	Tea Research Institute of Tanzania
UNIDROIT	International Institute for the Unification of Private Law
UIRI	Uganda Industrial Research Institute
USAID	United States Agency for International Development
VCD	value chain development
WEF	World Economic Forum
WRS	warehouse receipt scheme

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Part I

Introduction

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Chapter 1
Introduction

1.1 WHY PUBLIC–PRIVATE PARTNERSHIPS (PPPs) IN AGRICULTURE?

Against a background of limited government resources and expertise, innovative partnerships that bring together actors from business, government and civil society are increasingly being promoted as a mechanism for improving productivity and driving growth in the agriculture and food sectors around the world. Commonly referred to as public–private partnerships (PPPs), these initiatives are common in such sectors as infrastructure, health and education, but their application in the agriculture sector is relatively new.

The surge in interest in agri-PPPs is clearly reflected in recent development literature (e.g. Spielman, Hartwich and von Grebmer, 2010; Boland, 2012; STDF and IDB, 2012; Brickell and Elias, 2013), in development agency strategies promoting private-sector engagement (BCLC, 2009; MFA, 2010; IFAD, 2012; GIZ, 2011; FAO, 2013c), and in the design of country-level PPP policies and laws (Government of Uganda, 2010; Government of Peru, 2012) and national agricultural development strategies (Government of Pakistan, 2008; Government of Kenya, 2010).

Agri-PPPs are broadly promoted as having the potential to help modernize the agriculture sector and deliver multiple benefits that can contribute towards the pursuit of sustainable agricultural development that is inclusive of smallholder farmers (WEF, 2011; WEF & McKinsey and Company, 2013). However, the motivation behind this approach and the loose manner in which the concept is defined raise many unanswered questions about the types of project that may suitably be governed by this mechanism, and about the mechanism's effectiveness in delivering on sustainable and inclusive agricultural development objectives. Cross-fertilization of theoretical contributions from other disciplines also appears to be limited, despite the plethora of literature on PPP topics from disciplines that include economics, public administration and management science (Horton, Prain and Thiele, 2009).

This publication describes the efforts made by the Rural Infrastructure and Agro-Industries Division (AGS) of FAO to understand both the potential benefits and the challenges of agri-PPPs. It synthesizes a wealth of information on agri-PPPs gathered from 70 cases from 15 developing countries and from field-based support to PPP initiatives for agribusiness development in Central America and Southeast Asia. The objective of this synthesis is primarily to identify the types of public skill required to support agri-PPPs and to provide policy-makers with guidance about when and how to engage in such partnerships.

1.2 DEFINITION OF PPPs FOR AGRIBUSINESS DEVELOPMENT

First, it is important to note that there is no single definition of PPP, leaving room for loose interpretation when applying the concept. Nonetheless, valuable elements

can be assembled from the definitions given by various sources, which help to clarify the concept.

A useful conceptualization is provided in the Asian Development Bank's (ADB's) PPP handbook (ADB, 2008), which sees PPPs as a mechanism for improving the delivery of public goods and services by partnering with the private sector while retaining an active role for government to ensure that national socio-economic objectives can be achieved. PPPs are thus defined as:

> *a framework – that while engaging the private sector – acknowledge and structure the role for government in ensuring that social obligations are met and successful sector reforms and public sector investment achieved* (ADB, 2008: 7).

The handbook further states that a partnership should be designed in a way that:

- allocates *tasks, obligations* and *risks* among public- and private-sector partners in an optimal way;
- recognizes that the public and private sectors each have *comparative advantages* relative to each other in performing specific tasks;
- aims to *minimize costs while improving performance* in terms of relevance, efficiency, effectiveness, impact and sustainability. This implies that by working together, the public and private partners generate more value for money than the government could by single-handedly delivering the public good/service (see section 7.5 for a more complete definition of value for money).

Recent application of the term PPP in the development community has been somewhat broader, encompassing the complete range of both formal and informal collaborative arrangements among the public sector, the private sector and their intermediary partners, including non-governmental and civil society organizations and international donors. Less emphasis is given to the notion of deriving clearly defined public goods or socio-economic benefits from public investment contributions, and the concept of sector reform and value for money is noticeably absent. For example, the World Economic Forum (WEF) refers to the concept of PPPs as simply involving "business and/or not-for-profit civil society organizations working in partnership with government agencies, including official development institutions. [The PPP concept] entails reciprocal obligations and mutual accountability, voluntary or contractual relationships, the sharing of investment and reputational risks, and joint responsibility for design and execution" (WEF, 2005: 8).

While national PPP policies and laws generally prescribe predetermined and transparent project design, bidding and selection processes, accompanied by a specific set of legal and regulatory guidelines, the promotion of PPPs for agricultural development to date has placed limited emphasis on the enabling environment and conditions necessary to support the formation and implementation of these types of partnership beyond the project period. Thus, in line with the WEF definition, virtually any form of collaboration (formal or informal) between the public (including donors) and private sectors (and their related partners) can be labelled a PPP, often with only limited detail on the selection process for private partners, the direct benefits for public partners and the distribution of costs, revenues and risk.

In light of this blurred picture, AGS has made significant efforts towards defining clearly and precisely what constitutes a PPP for agribusiness development, as presented in Box 1.

1.3 RATIONALE

From a public administration perspective, the traditional rationale for partnerships between the public and private sectors is linked to market and policy failure in the delivery of public goods such as roads, education and health services (Richter, 2004; Hodge and Greve, 2007). Similarly, the emergence of PPPs in agriculture responds to the failed delivery of a public good, such as food security, environmental protec-

BOX 1
Definitions of key terms

For the purpose of this study, an *agri-PPP* or a *PPP for agribusiness development* is defined as a *formalized partnership between public institutions and private partners designed to address sustainable agricultural development objectives, where the public benefits anticipated from the partnership are clearly defined, investment contributions and risks are shared, and active roles exist for all partners at various stages throughout the PPP project life cycle*.

Essential related concepts include the following:

- *Public partners* include national and decentralized government agencies, publically funded research and education institutions, State banks and State-owned enterprises (SOEs). International donors are also considered to be public partners.
- *Private partners* include agribusinesses, farmer associations, individual farmers and non-governmental organizations (NGOs). A more detailed definition of public and private partners is offered in section 2.2.
- *Public benefits* are the expected (positive) outcomes from public-sector support to the partnership as defined by the goals and objectives outlined under national agricultural policy and strategy documents. Examples of public benefits include rural employment and income generation; food safety and food security; and environmental protection.
- *Agribusiness enterprises* are any firms or business entities that produce or provide inputs, produce raw materials and fresh products, process or manufacture food or other agricultural products, transport, store or trade agricultural production, or retail such products. In this study, family farms and micro- and small enterprises that operate in the informal sector are not included in the target set of agribusiness enterprises.
- *Formal agreement* is agreement for which consent alone is not enough, i.e. the agreement has to be embodied in a written document. Such agreement can range from project-level documents such as a memorandum of understanding (MOU), to formal contracts, equity arrangements and the establishment of new companies specifically for the purpose of the PPP.

tion and the viability of rural areas. In these cases, by combining the resources and complementary capacities of both public and private partners under a well-defined legal and regulatory framework, governments can obtain *economic and social benefits from public investments* that they would have been unable to achieve alone because of limited technical expertise and management skills and/or a lack of resources.

At the same time, the PPP framework can be used to design a set of market incentives to encourage private-sector participation in activities that would otherwise be considered of marginal commercial value and/or high risk.

More concretely, PPPs appeal to policy-makers and practitioners of agricultural development for four main reasons:

- *Potential to leverage financing:* High levels of investment are required to unleash the potential of agriculture for sustainable development and poverty reduction in developing countries, but low public budgetary allocations to the sector over past decades have slowed growth (World Bank, 2007; FAO, 2012). For example, in 2003 the Maputo Declaration called on all African Union countries to increase investments in agriculture to at least 10 percent of their national budgets (African Union, 2003). Despite the relative rise in public-sector finance for agriculture globally during the period 2000–2008 (Beintema *et al.*, 2012), budget allocations are still insufficient and the scale of the investments required is beyond the means of the public sector alone. High national debt levels in many developing and middle-income countries also make it necessary to seek alternative funding options that do not lead to an increase in public debt. The mobilization of additional resources from the private sector is therefore considered necessary to supplement both public financing and official development assistance (ODA).
- *Risk sharing:* The high (actual and perceived) risks of doing business in the agriculture sector of developing countries often deter the private sector from investing alone. These risks include low returns on investment; limited access to productive inputs including land; high transaction costs and production risk associated with dealing with numerous small-scale producers; and political risk associated with government interference in agricultural markets. On this basis, PPPs are promoted as a useful mechanism for risk sharing through which the barriers to entry for the private sector can be lowered. A combination of market incentives and institutional mechanisms can be incorporated into PPP projects to provide greater certainty for investors and to help overcome the lack of an enabling regulatory environment.
- *Innovation and market access:* For public partners, the added value of agricultural PPP projects results from tapping into the powerful innovation and efficiency of the private sector while promoting the pursuit of sustainable agricultural policy objectives. This added value includes access to innovative technologies and superior management and marketing skills to achieve greater efficiency in the production and delivery of agrifood products and services.

  In many developing countries, particularly in Asia and Latin America, PPPs have long been applied in advanced agricultural research and development (R&D) projects. These projects aim to address the complex problems inhibiting productivity gains, such as pest and disease outbreaks, climate change impacts, post-harvest losses, poor product quality and food safety, and low value addition. PPPs for R&D are commonly used to develop, commercialize and

drive adoption of improved seed varieties, equipment, machinery and agronomic practices. They are by far the most documented type of agri-PPPs, and there are case studies from more than 200 R&D projects around the world (IFPRI, 2007; Spielman, Hartwich and von Grebmer, 2010). A set of guidelines for practitioners has been developed on how to design, implement and evaluate PPPs for agricultural innovation (IFPRI, 2008).

BOX 2
Examples of mega-agricultural PPPs

The New Alliance for Food Security and Nutrition of the Group of Eight (G8), and the New Vision for Agriculture initiative[1] promoted by the WEF are global multi-stakeholder partnerships that aim to accelerate the flow of investments into agriculture. These initiatives, although not covered by the present study, are worth mentioning because of the impact they have had on popularizing the concept and application of the PPP model in the agribusiness sector of many developing countries.

Several countries covered by this study are participating in the New Vision platform: Ghana, Kenya and the United Republic of Tanzania (indirectly through the Grow Africa regional partnership),[2] and Indonesia and Viet Nam (directly affiliated to New Vision).

At the country level, New Vision is implemented through multi-stakeholder partnerships. For example, in the United Republic of Tanzania a partnership was formed in 2010 to promote development of the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). In Indonesia, the Partnership for Indonesia Sustainable Agriculture (PISAgro), formally established in April 2012, regulates collaboration between the Indonesian Government and a number of domestic and international companies on strengthening smallholder livelihoods, increasing food security and improving sustainable production of target commodities: cocoa, dairy, maize, palm oil, potatoes, rice and soybean. In Viet Nam, the Public–Private Task Force on Sustainable Agricultural Growth, co-led by government and industry, was formed in 2010 to develop and test agricultural models in priority crops with the potential for rapid scaling up (WEF and McKinsey and Company, 2013).

[1] The New Vision brings together governments and the multinational agribusiness companies that are Industry Partners of the WEF to address three imperatives: ensuring food security; spurring agricultural production in an environmentally sustainable manner; and engendering inclusive economic growth. The 28 global companies that champion the initiative at the global level are AGCO Corporation, A.P. Møller-Maersk Group, BASF, Bayer CropScience, Bunge, Cargill, CF Industries Holdings, The Coca-Cola Company, Diageo, DuPont, General Mills, Heineken International, Metro Group, Mondelez International, Monsanto Company, The Mosaic Company, Nestlé, Novozymes, PepsiCo, Rabobank International, Royal DSM, SABMiller, Sinar Mas Agribusiness & Food, Swiss Reinsurance Company, Syngenta, Unilever, Walmart and Yara International (WEF and McKinsey and Company, 2013).

[2] Grow Africa is a global initiative to mobilize partnership and investment in Africa, which is jointly convened by the African Union and the New Partnership for Africa's Development (NEPAD).

In other instances, partnerships have been formed to catalyse the development of a specific value chain or subsector. Private-sector interests in such partnerships are usually related to ensuring a consistent and supply of good-quality raw materials for marketing and processing requirements (Boland, 2012; Poulton and Macartney, 2012). Public-sector interests include improving access to export markets for farmers, developing a domestic industry as part of an import substitution policy, encouraging compliance with food safety and quality standards, and increasing rural incomes and employment opportunities through diversification and value addition.

- *Food security and inclusion:* In line with the value chain development partnerships mentioned in the previous paragraph, the introduction of "mega-agricultural PPPs" is a recent phenomenon that is contributing to the rising popularity of the PPP concept and its application to agriculture. Mega-PPPs are global multi-stakeholder partnership platforms created to promote very large-scale investments in agriculture with a view to fostering smallholder inclusion and food security in low- and middle-income economies.

1.4 INITIAL REFLECTIONS

Despite general acceptance of the potential role of PPPs in advancing development goals in agriculture, the lack of evidence-based results means that these partnerships also face numerous *criticisms and potential downfalls*. To some stakeholders, PPPs run the risk of distorting market conditions and creating unfair first-mover advantages for individual private firms as a result of the public sector subsidizing private business interests. Other stakeholders question the possibility of reconciling the profit-oriented goals of the private sector with the socio-economic responsibilities of the public sector. One of the most common criticisms faced by agri-PPPs that involve large-scale investments (e.g. mega-PPPs) is the lack of transparency in selecting private partners and allocating land and/or granting land-use rights/concessions (Oxfam, 2014; Wilson, Rai and Best, 2014). These issues reflect the real risk of land grabbing, with the potential for displacement of smallholder farmers being a priority concern. Application of the principles for responsible investment in agriculture and food systems of the Committee on World Food Security (CFS) is particularly relevant in reducing the potential risk associated with land grabbing (CFS, 2014).

Several factors related to public administration are also considered to restrict significantly the development of results-oriented agricultural partnerships, despite the prevalence in recent years of national policies and strategies that promote agri-PPPs. These factors include the limited capacity of public partners (notably ministries of agriculture [MOAs] and their decentralized institutions) to engage in PPPs, given the diverse skill set required for effectively evaluating the potential benefits and risks of, and the alternatives to, using this mechanism for public financing of projects. The absence of a holistic approach to supporting public partners in the design and implementation of agri-PPP programmes is another cause of concern, as is the inadequacy of the prevailing governance and institutional frameworks in the agriculture sector to fit this type of arrangement.

Despite the surge of recent interest in agri-PPPs, there is still *limited rigorous analysis and systematic information available* on the current experiences and best practices for using these types of partnership to support agricultural development,

and on how PPPs differ from the private-sector engagement strategies that came before them. There is little in-depth analysis of the real potential for PPPs to deliver on commonly stated social and economic objectives, including rural employment and income generation, food security and increased agricultural competitiveness and inclusion. Given the loose definition of what constitutes a PPP in the agriculture sector, there is also significant variation in the types (and purposes) of the partnerships, which increases the challenge of drawing conclusive findings (MFA, 2013).

1.5 OBJECTIVES AND METHODOLOGICAL APPROACH OF THE STUDY

As a contribution towards closing this knowledge gap, during 2011–2013, AGS initiated a series of appraisals of PPPs in 15 African, Asian and Latin American countries.[3] The PPPs studied were designed to improve productivity and drive growth in the agriculture sector. Experiences from these appraisals form the basis of this synthesis report.

The primary objective was *to learn from the field and draw lessons* that can be used to provide guidance to FAO member countries[4] on how to partner effectively with the private sector to mobilize support for agribusiness development. Thus, particular attention was given to analysing the enabling environments for agri-PPPs, the expected benefits to be achieved from the partnerships, the roles and functions of the partners, major challenges encountered, and the performance and development outcomes that resulted.

From the definition of agri-PPP used for this study, a series of *selection criteria* can be derived. The following are the main criteria to which PPPs in the study had to conform:

- Each *PPP must involve an agribusiness enterprise*.
- A *formalized relationship* must exist between specific public and private partners.

The following additional selection criteria were also taken into account:

- The partnership must have been operating for at least two years.
- The investment mobilized should be US$100 000 or more.
- The partnership should stimulate increased investment and profitability or reduced risk for the target agribusiness enterprise.
- There should be an expectation of positive societal impacts (i.e. public benefits) such as increased rural income, employment generation and/or value addition.
- The agreement should include ongoing dialogue/roles in governance and implementation for both partners (government and private-sector).

PPPs involving only transfers, concessions or guarantees were excluded as they would not provide the necessary insight into partners' roles and required competen-

[3] Country-level reports (FAO, 2013a) covered the following countries: Africa – Ghana, Kenya, Nigeria, Uganda and the United Republic of Tanzania; Latin America – Chile, Colombia, Ecuador, Guatemala and Peru; Asia – China, Indonesia, Pakistan, the Philippines and Thailand. They are available at http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/

[4] Primary targets for the findings from these appraisals are MOAs, related ministries and other government institutions that deal with private-sector engagement in the agriculture sector.

cies. Priority selection was given to non-donor PPPs to enhance understanding of the roles of public partners; and a pre-selection bias for non-infrastructure PPPs was adopted, as ample studies of infrastructure PPP projects already exist.

Local consultants were recruited in each country to tap into the local insight needed to identify approximately 20 potential cases per country, and then investigate in-depth the four or five cases that best fitted the selection criteria. It is important to note that in many countries it was not easy to identify cases that fitted the criteria, particularly regarding the scale of the investment and the duration of the partnership. This challenge is perhaps an indication of how PPPs operating in the agriculture sector are still limited and are in the early stages of development in many developing countries. It is also possible that the term PPP is yet to be adopted by some countries, despite the existence of collaborative efforts between the public and private sectors, albeit under less formalized arrangements than those prescribed by the selection criteria for this study. Data collection relied on two main sources: site visits and semi-structured interviews with key informants engaged in the partnerships; and secondary literature review of documents specific to the PPP cases and of economic and policy documents that provided an understanding of the context for PPP development within the agriculture sector of each selected country.

In addition to the case study research, this publication also takes into account field-based support to PPP programmes provided in Viet Nam and the Philippines since 2013 and in Central America in 2014. FAO has provided technical support to reviews of existing policy frameworks to support agri-PPPs in the countries, and to the delivery of awareness raising and capacity building for MOA and decentralized staff on the PPP concept and its application to the agriculture sector. The combination of case study research and field-based technical support has helped to anchor the findings from this global synthesis to the realities faced by partners on the ground that are involved in the design, implementation and evaluation of these types of project.

The report builds on previous FAO work, such as an appraisal of PPP models for market-oriented agricultural infrastructure (FAO, 2008). FAO's ongoing work on the institutional models used by developing countries to provide public-sector support for inclusive agribusiness development has also been instrumental in building understanding of how public–private collaboration fits into broader institutional and policy frameworks for agriculture and rural development (FAO, 2014b).[5] Its current work on sustainable value chain development (FAO, 2014a) and contract farming (FAO, 2013b) is essential in contextualizing and improving the understanding of public–private efforts in these areas.

1.6 STRUCTURE OF THE REPORT

The report is structured in three parts. Part I deals with introductory concepts and is composed of the present chapter and Chapter 2, which presents an overview of the cases, discussing the typologies identified, roles and contributions of partners, financing structures and the formality of partnership arrangements.

[5] The series of 17 country case study reports included in *Public sector support for inclusive agricultural development – an appraisal of institutional models* can be found at http://www.fao.org/ag/ags/ags-division/publications/en/

Part II presents findings from the cases, structured under the four PPP typologies identified in Chapter 2:

- Chapter 3 – partnerships for value chain development;
- Chapter 4 – partnerships for innovation and technology transfer;
- Chapter 5 – partnerships for developing agricultural market infrastructure;
- Chapter 6 – partnerships for delivering agribusiness development services.

Part III presents cross-cutting findings and conclusions:

- Chapter 7 studies governance and management processes in agri-PPPs, including findings from country assessments of the enabling environment required to support such PPPs.
- Chapter 8 deals with cross-cutting benefits and challenges encountered in the promotion of agri-PPPs.
- Chapter 9 presents conclusions and identifies limitations and areas for future research.

The report finishes with two annexes. Annex 1 provides a comprehensive list of the PPP cases identified in each country. Annex 2 provides the case appraisal form used to compile the individual case studies from key informant interviews and secondary data.

REFERENCES

ADB. 2008. *Public–private partnership (PPP) handbook*. Manila, Asian Development Bank (ADB). http://www.adb.org/documents/public-private-partnership-ppp-handbook (accessed February 2016)

African Union. 2003. *Maputo Declaration. Assembly of the African Union Second Ordinary Session, Maputo, Mozambique, 10–12 July 2003.* http://www.fao.org/docrep/meeting/007/j1604e.htm#8

BCLC. 2009. *Partnering for global development. The evolving links between business and international development agencies.* Washington, DC, Business Civic Leadership Centre (BCLC). https://www.uschamber.com/sites/default/files/legacy/press/09partneringreport.pdf (accessed February 2016)

Beintema, N., Stads, G.J., Fuglie, K. & Heisey, P. 2012. *ASTI global assessment of agricultural R&D spending. Developing countries accelerate investment.* Washington, DC, International Food Policy Research Institute (IFPRI). http://www.ifpri.org/sites/default/files/publications/astiglobalassessment.pdf (accessed February 2016)

Boland, W.P. 2012. *An analysis of the hidden variables influencing the challenges and opportunities of implementing R&D and value-chain agricultural public–private partnerships in the developing world.* Prepared for Syngenta Foundation of Sustainable Agriculture and International Development Research Centre. http://www.valgen.ca/wp-content/uploads/Boland_ValueChainPPPs_Final.pdf (accessed February 2016)

Brickell, E. & Elias, P. 2013. *Great expectations: Realising social and environmental benefits from public-private partnerships in agricultural supply chains.* London, Overseas Development Institute (ODI). http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8500.pdf (accessed February 2016)

CFS. 2014. *Making a difference in food security and nutrition. Principles for responsible investment in agriculture and food systems.* Committee on World Food Security (CFS) Forty-first Session, Rome, 13–18 October 2014. http://www.fao.org/3/a-ml291e.pdf (accessed February 2016)

FAO. 2008. *Market-oriented agricultural infrastructure: appraisal of public-private partnerships*, by M. Warner, D. Kahan and S. Lehel. Agricultural Management, Marketing and Finance Occasional Paper No. 23. Rome. http://www.fao.org/docrep/011/i0465e/i0465e00.HTM (accessed February 2016)

FAO. 2012. *The State of Food and Agriculture 2012. Investing in agriculture for a better future.* Rome. http://www.fao.org/docrep/017/i3028e/i3028e.pdf (accessed February 2016)

FAO. 2013a. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Nigeria, Uganda, United United Republic of the Tanzania; Latin America (in Spanish): Chile, Colombia, Ecuador, Guatemala, Peru; Asia: Indonesia, Pakistan, Thailand. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

FAO. 2013b. *Contract farming for inclusive market access,* edited by C.A. Da Silva and M. Rankin. Rome. http://www.fao.org/3/a-i3526e.pdf (accessed February 2016)

FAO. 2013c. *FAO Strategy for Partnerships with the Private Sector*. Rome. http://www.fao.org/docrep/meeting/027/mg048e.pdf (accessed February 2016)

FAO. 2014a. *Developing sustainable food value chains: Guiding principles,* by D. Neven. Rome. http://www.fao.org/ag/ags/ags-division/publications/publication/en/c/246162/ (accessed February 2016)

FAO. 2014b. *Public sector support for inclusive agricultural development: an appraisal of institutional models*. Series. Rome. http://www.fao.org/ag/ags/ags-division/publications/en/ (accessed February 2016)

GIZ. 2011. *Development partnerships with the private sector.* Bonn, Germany, German Agency for International Cooperation (GIZ). Available at: https://www.giz.de/de/downloads/giz2011-en-public-private-partnership.pdf (accessed February 2016)

Government of Kenya. 2010. *Agricultural Sector Development Strategy 2010–2020*. Nairobi. http://www.finland.or.ke/public/download.aspx?ID=107015&GUID=%7BCE7EA0C9-18D4-41ED-B169-5AE7DAD3B6B5%7D (accessed February 2016)

Government of Pakistan. 2008. *National Agricultural Sector Strategy.* Islamabad: Ministry of Food, Agriculture and Livestock.

Government of Peru. 2012. Ley que Modifica el Decreto Legislativo 1012, que Aprueba la Ley Marco de Asociaciones Público-Privadas para la Generación de Empleo Productivo y Dicta Normas para la Agilización de los Procesos de Promoción de la Inversión Privada. *Law No. 30167*. Lima. (in Spanish) http://www.teleley.com/normas/marzo14/517945.pdf (accessed February 2016)

Government of Uganda. 2010. *Public–private partnership framework policy for Uganda*. Kampala, Ministry of Finance, Planning and Economic Development. http://www.perds.go.ug/ppp/index.php/publications/book/1-public-private-partnership-framework-policy-for-uganda/1-default-category (accessed February 2016)

Hodge, G.A. & Greve, C. 2007. Public–private partnerships: an international performance review. *Public Administration Review*, 67(3): 545–558. http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6210.2007.00736.x/epdf (accessed February 2016)

Horton, D., Prain, G. & Thiele, G. 2009. *Perspectives on partnership: A literature review*. Social Sciences Working Paper No. 2009-3. Lima, International Potato Center (CIP). http://cipotato.org/wp-content/uploads/2014/08/004982.pdf (accessed February 2016)

IFAD. 2012. *Private-Sector Strategy. Deepening IFAD's engagement with the private sector*. Rome, International Fund for Agricultural Development (IFAD). http://www.ifad.org/pub/policy/private/2012_e.pdf (accessed February 2016)

IFPRI. 2007. *Building public–private partnerships for agricultural innovation in Latin America. Lessons from capacity strengthening*, by F. Hartwich, M.V. Gottret, S. Babu and J. Tola. IFPRI Discussion Paper No. 00699. Washington, DC, International Food Policy Research Institute (IFPRI). http://cdm15738.contentdm.oclc.org/utils/getfile/collection/p15738coll2/id/39322/filename/39323.pdf (accessed February 2016)

IFPRI. 2008. *Building public–private partnerships for agricultural innovation*, by F. Hartwich, J. Tola, A. Engler, C. González, G. Ghezan, J.M.P. Vázquez-Alvarado, J.A. Silva, J.J. Espinoza and M.V. Gottret. *Food Security in Practice Technical Guide Series*. Washington, DC, International Food Policy Research Institute (IFPRI). http://www.ifpri.org/publication/building-public-private-partnerships-agricultural-innovation (accessed February 2016)

MFA. 2010. *A guide to public-private partnerships (PPPs): A practical handbook on launching an effective public-private partnership*. The Hague, Ministry of Foreign Affairs of the Netherlands (MFA). http://www.minbuza.nl/binaries/content/assets/minbuza/en/import/en/key_topics/development_cooperation/partners_in_development/public_private_partnerships/a-guide-to-public-private-partnerships (accessed February 2016)

MFA. 2013. *Public–private partnerships in developing countries: A systemic literature review*. IOB Study No. 378. The Hague, Ministry of Foreign Affairs of the Netherlands (MFA). http://www.oecd.org/dac/evaluation/IOBstudy378publicprivatepartnershipsindevelopingcountries.pdf (accessed February 2016)

Oxfam. 2014. *Moral hazard? 'Mega' public-private partnerships in African agriculture,* by R. Willoughby. Oxfam Briefing Paper No. 188. Oxford, UK, Oxfam International. http://policy-practice.oxfam.org.uk/publications/moral-hazard-mega-public-private-partnerships-in-african-agriculture-325221 (accessed February 2016)

Poulton, C. & Macartney J. 2012. Can public–private partnerships leverage investment in agricultural value chains in Africa? A preliminary review. *World Development,* 40(1): 96–109.

Richter, J. 2004. *Public-private partnerships and international health policy-making. How can public interests be safeguarded?* Helsinki, Ministry of Foreign Affairs of Finland.

Spielman, D.J., Hartwich, F. & von Grebmer, K. 2010. Public–private partnerships and developing country agriculture: evidence from the international agricultural research system. *Public Administration and Development*, 30(4): 261–276. http://www.future-agricultures.org/farmerfirst/files/T2a_Spielman.pdf (accessed February 2016)

STDF & IDB. 2012. *Public–private partnerships to enhance SPS capacity: What can we learn from this collaborative approach?* Geneva and Washington, DC, Standards and Trade Development Facility (STDF) and Inter-American Development Bank (IDB). http://www.standardsfacility.org/sites/default/files/STDF_PublicPrivatePartnerships_EN_1.pdf (accessed February 2016)

WEF. 2005. *Building on the Monterrey Consensus: The growing role of public–private partnerships in mobilizing resources for development*. Geneva, World Economic Forum (WEF).

WEF & McKinsey and Company. 2011. *Realizing a new vision for agriculture: A roadmap for stakeholders*. Geneva, World Economic Forum (WEF). http://www.weforum.org/reports/realizing-new-vision-agriculture-roadmap-stakeholders (accessed February 2016)

WEF & McKinsey and Company. 2013. *Achieving the new vision for agriculture: New models for action*. Geneva, World Economic Forum (WEF). Available at: http://www3.weforum.org/docs/IP/2016/NVA/New_Models_for_Action.pdf (accessed February 2016)

Wilson, E., Rai, N. & Best, S. 2014. *Sharing the load: Public and private sector roles in financing pro-poor energy access*. London, International Institute for Environment and Development. http://pubs.iied.org/16560IIED.html (accessed February 2016)

World Bank. 2007. *World Development Report 2008. Agriculture for development. Washington, DC.* http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf (accessed February 2016)

Chapter 2
Overview of the case studies

Through preparation of the 15 country reports, 70 individual agri-PPP case studies were profiled with details provided on the circumstances that led to their formation, their management, and their performance to date. Particular attention was given to identifying the specific roles and functions of each partner, including roles in governance, implementation and monitoring; the main drivers behind these arrangements; and the incentives for partners' involvement in the PPP. This chapter provides an overview of findings from the cases based on the key selection criteria identified in section 1.5 (related to the purpose, partners, investment and formal agreement).

2.1 TYPOLOGY OF THE PPP CASES

From the 70 cases investigated, a typology of four common project types was identified:

- partnerships that aim to develop agricultural value chains (VCD);
- partnerships for joint agricultural research, innovation and technology transfer (ITT);
- partnerships for building and upgrading market infrastructure (MI); and
- partnerships for the delivery of business development services to farmers and small enterprises (BDS).

While not exhaustive, this classification gives government officials an idea of the types of commonly occurring agribusiness projects that can be governed by the PPP mechanism. It also demonstrates the diversity of models and the scope for PPPs in the agriculture sector of developing countries. For each of these project types, a clear rationale for adopting the PPP approach emerged from the analysis of cases and support to projects in the field. These justifications are discussed in subsequent chapters (Chapters 3–6) and help to reinforce the usefulness of the typology as a means of identifying entry points for PPP projects in the agriculture sector.

The scope of each type of PPP for agribusiness development is summarized in Box 3.

The majority of the cases studied were VCD PPPs (57 percent), followed by ITT PPPs (23 percent), BDS PPPs (11 percent) and MI PPPs (9 percent). The distribution of cases in each category varied greatly from region to region. While the PPPs identified in Latin America (LA) fell into the VCD and BDS categories, those in Asia were more diverse, with equal numbers of VCD and ITT cases, and more MI cases than in the other regions. In Africa, VCD partnerships were dominant, followed by ITT (Figure 1).

BOX 3
Scope of agri-PPP typologies

VCD PPPs are designed to:
- develop specific value chains to provide access to domestic or export markets, often with a focus on achieving quality certification within the chain, such as good agricultural practice (GAP), organic and fair trade certification;
- revitalize stagnating commodity sectors such as rubber and sugar;
- stimulate broad-based subsector development such as for oil-palm and biofuel.

ITT PPPs are designed to:
- commercialize innovative technology to improve productivity and/or market access, such as through new seed varieties and small-scale technology such as plant disease test kits, fans for livestock production, and biogas systems;
- deliver specialized extension services such as sustainable integrated farming techniques and youth training in the development of high-technology agricultural enterprises.

MI PPPs focus on the development of market trading centres, commodity storage facilities, transport or logistics systems for agricultural products, and agrifood parks.

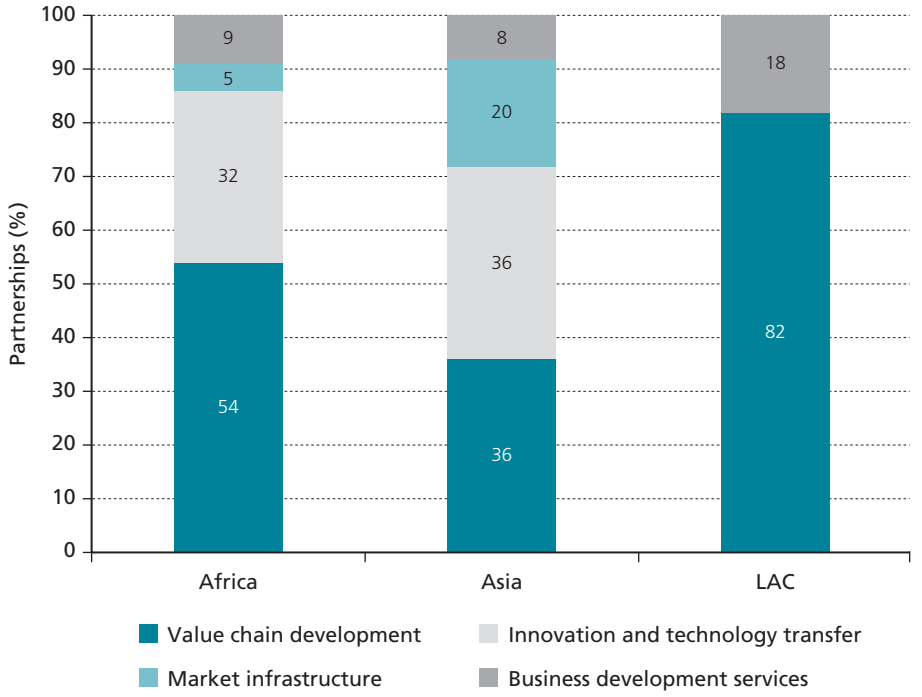
BDS PPPs include those for the development of market information systems; management training for agrodealers; matching grants for farmers' access to BDS to support value addition on the farm or for small groups; and subsidized BDS for small and medium agro-enterprises (SMAEs).

2.2 PARTNERS

For the purpose of this study, the *public sector* comprises all government-owned and -run agencies and institutions operating at the national or decentralized level. The public-sector category includes both national governments and international donors.

The type of public partners involved in the PPPs varied from country to country and often reflected the level of government decentralization and the extent of State involvement in the agriculture sector, as shown in Figure 2. Public partners included:
- central-level ministries such as the MOA or other related ministries such as the ministry of industry and trade;
- regional- and local-level government representative offices (state, province, district, etc.);
- State banks/guarantee funds involved in financing rural development.
- State-owned enterprises (SOEs) such as seed companies and agroprocessing facilities;
- publically funded research institutions, marketing boards and universities;
- international development organizations – in the absence of a capable public-sector partner, donors often filled this role.

FIGURE 1
Typology of PPP cases by region



Source: authors' elaboration based on FAO, 2013.

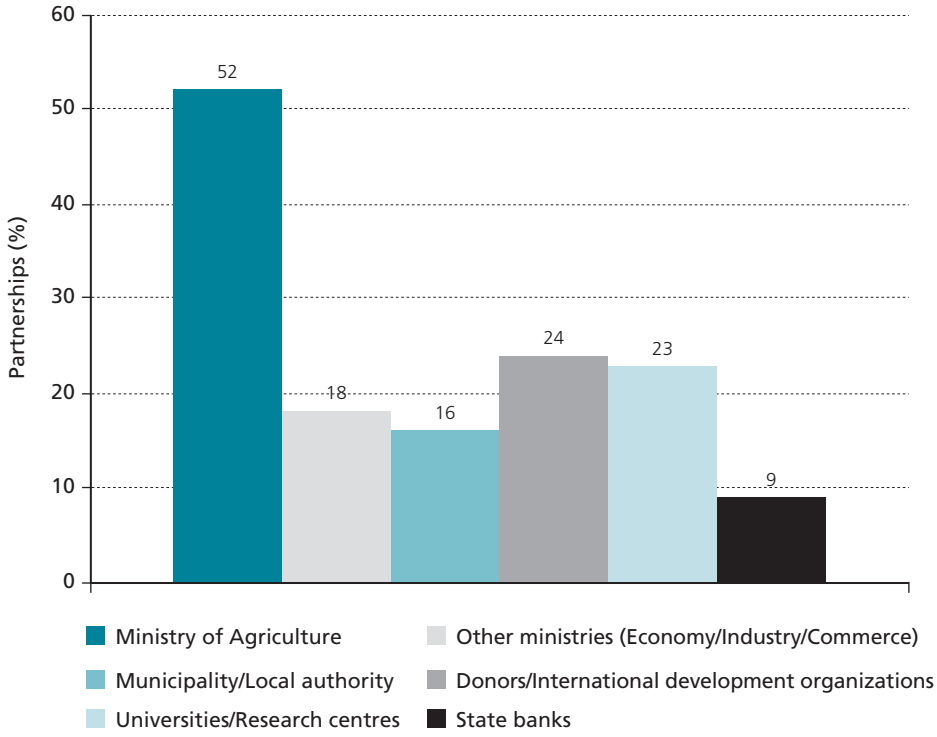
The most recurrent public partner in agri-PPPs is the MOA, which participated in three out of four of the cases appraised. Donors and public knowledge/research institutions were present in one out of three cases, and line ministries other than the MOA in one out of four. Public financial institutions were present almost exclusively in VCD PPPs.

The *private sector* encompasses all for-profit businesses that are not owned or operated by the government, such as agribusiness firms and farmer organizations (FOs). The concept of agribusiness enterprises encompasses both multinational and large domestic companies, as well as SMAEs. NGOs, charities and other non-profit organizations that are not owned or operated by the government are also considered as part of the private (voluntary) sector.

The case studies revealed that private-sector partners were as diverse as public-sector ones and that they too reflected the level of development of the agribusiness sector and the openness of the sector to private investment in each country. Private partners included:

- agroprocessing firms;
- input supply companies;
- agriproduct exporters, traders and retailers;

FIGURE 2
Public partners involved in the PPP cases

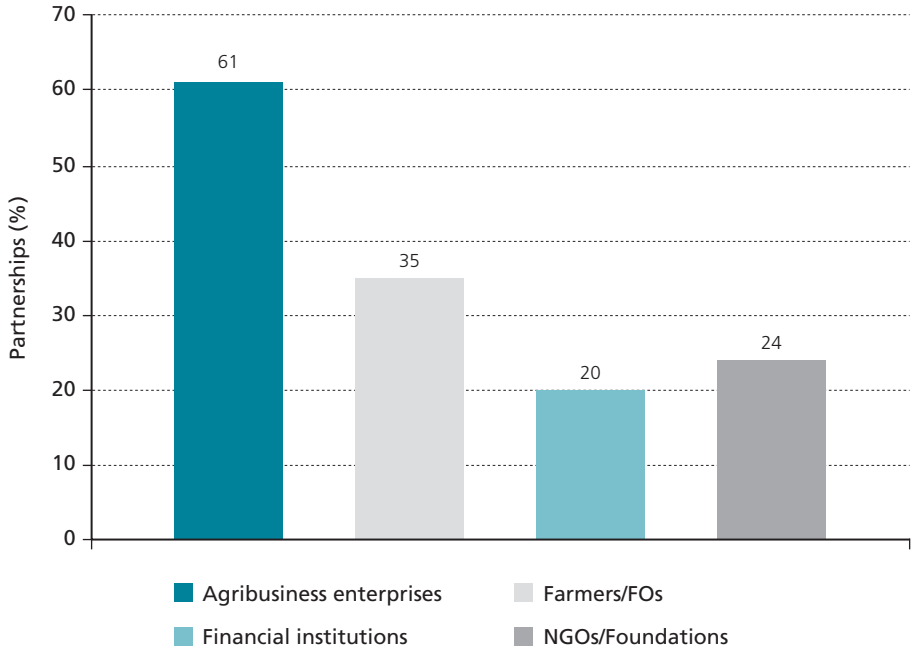


Source: authors' elaboration based on FAO, 2013.

- FOs, including cooperatives and other producer or commodity associations;
- individual farmers;
- international and domestic financial institutions;
- NGOs;
- third-party contractors (e.g. for construction of equipment and certification).

Agribusiness companies were obviously involved in almost all the cases, in conformity with the case selection criteria (Figure 3). Individual farmers or their organizations participated in one out of two of the PPPs studied; in many case studies, farmers were considered to be beneficiaries of the partnership agreement rather than private partners, but the situation varied depending on the partnership type. For example, in ITT PPPs, farmers were most often seen as end users of research outputs, whereas in VCD PPPs, farmers (and their organizations) were considered to be private-sector partners, often involved through formalized contract farming agreements. Commercial banks also partnered the public sector in several cases.

FIGURE 3
Public partners involved in the PPP cases



Source: authors' elaboration based on FAO, 2013.

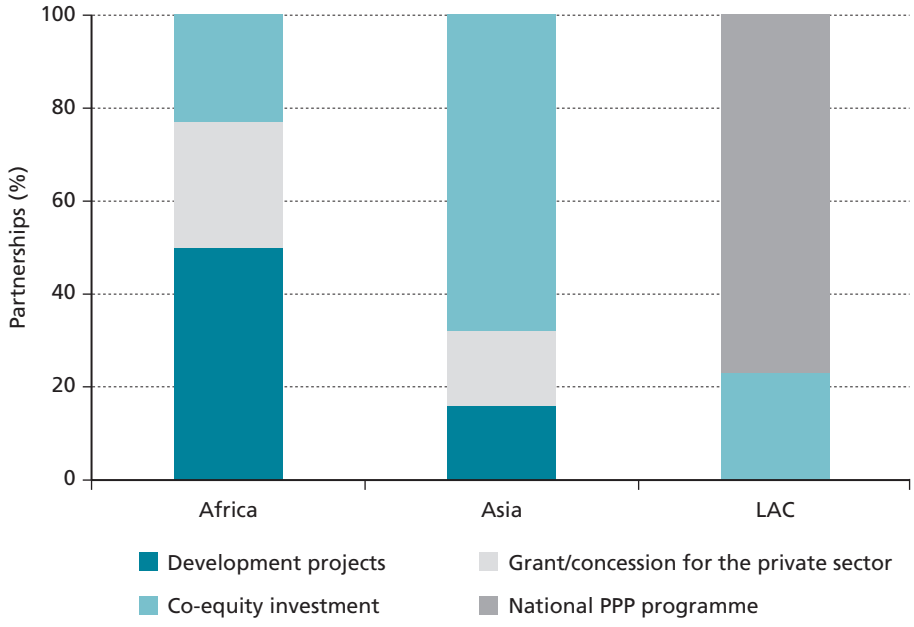
2.3 FINANCING STRUCTURE, SCALE AND SHARES OF INVESTMENTS

The *financing structures* associated with the PPP cases can also be classified into four categories, as shown in Figure 4:

- co-equity investments, in which the total value of the financial contribution (both actual and in-kind) made by each partner is clearly specified (40 percent of cases);
- grants/concessions for the private sector, in which in-kind contributions from the private sector remain largely unvalued in monetary terms (15 percent);
- development projects involving financial contributions from donors and in-kind contributions from other partners – most prevalent in Africa, with some in Asia (22 percent);
- nationally funded, PPP programmes driven by the public sector and involving grants and co-equity investments that target FOs and SMAEs – a common approach in Latin America (23 percent).

Financial institutions were involved in 14 of the 70 partnerships analysed (20 percent): State banks or national financial institutions participated in three cases (4.3 percent); commercial financial institutions in eight (11.4 percent); and private or public financial institutions in three (4.3 percent). There were several cases in which *non-financial*

FIGURE 4
PPP financing structure by region



Source: authors' elaboration based on FAO, 2013.

institutions (e.g. public- or donor-supported programmes, private foundations and farmer cooperatives) provided financial services.

The *scale of investment* varied significantly depending on the type and complexity of the PPP project implemented. For example, the value of the investment for the Asian PPPs[6] ranged from US$14 300[7] for a PPP pilot project in the seed industry in Pakistan, to US$178 million for the construction and operation of a flower trading centre in Beijing, China.

In LA,[8] the value of national PPP programmes was high, ranging from US$25 million for the Programme of Support Services to Promote Access to Rural Markets (PROSAAMER) in Peru, designed to support SMAEs in increasing competitiveness and market access; to US$100 million to support the Productive Partnerships Sup-

[6] An overview of the Asian cases can be found at http://www.fao.org/docrep/field/009/ar849e/ar849e00.htm

[7] While the selection criteria required an investment of US$100 000 or more, in some countries only donor-funded development projects reached this threshold. Thus, for the sake of diversity, some cases below the threshold were included.

[8] An overview of the Latin American cases can be found at http://www.fao.org/docrep/field/009/ar859e/ar859e00.htm

port Project in Colombia over a period of more than 12 years; and US$126 million for Ecuador's National Inclusive Rural Businesses Programme (PRONERI), which began in 2010. The individual PPP projects within these programmes also varied significantly, from small projects of approximately US$13 000 in Ecuador to support an SMAE developing new products made out of bamboo, to a total investment of US$30 million in the Nestlé coffee partnership in Colombia.

In Africa,[9] investments ranged from US$200 000 to set up a laboratory for the production of organic fertilizers in Kenya, to US$156 million to increase domestic vegetable oil production in Uganda.

Few comprehensive conclusions can be drawn about the *shares of investment* between public and private partners in agri-PPPs, because of the poor practice of not valuing in-kind contributions and the limited disclosure of financial information by both partners. However, while contributions varied from case to case, some general findings can be drawn. The share of investment contributed by the private sector was often dictated by the design of the PPP programme or the grant conditions (as seen in the cases from Latin America) or by government regulations and laws related to PPPs, which sometimes required that the private partner contributed a minimum share of total investment in the project (e.g. 50 percent). The degree of risk in the partnership and how this risk was allocated also had some bearing on the investment contribution made by each partner.

For example, in most VCD cases (Chapter 3), the private partner provided more than 50 percent of the investment, albeit often through in-kind contributions. In the absence of project design criteria stipulating compulsory contribution levels, this large share may depend on the driver of the partnership and the potential benefits to be accrued by the lead private partner. In general, PPPs aim to address competitiveness issues for both farms and firms by ensuring a consistent supply of raw materials and increasing on-farm value addition. The ultimate benefits for the lead private partner that warrant the investment include increased profitability and competitiveness in downstream markets. In these cases, investment by the private sector is usually channelled to farmers through contract farming agreements, in the form of inputs, low-cost loans and technical support. In the MI cases too (Chapter 5), an investment share of more than 50 percent from the private sector was common and is often stipulated by law for infrastructure PPPs.

For the ITT partnerships (Chapter 4), the shares of investment tended to vary depending on the degree of risk involved in developing the technology, the right to retain ownership of the intellectual property (IP), and the stage of development of the project (e.g. piloting versus commercialization). Contributions by each partner were tailored to the project design and could therefore vary significantly. For example, as seen in the ITT cases from Thailand, the private sector contributed 85 percent of the investment towards development of a new disease-resistant okra seed variety, but retained the IP and thus the option to commercialize the technology. However, in another case involving the development of low-cost disease test kits for the sugar cane industry, the public partner provided 100 percent of the

[9] An overview of the African cases can be found at http://www.fao.org/docrep/field/009/ar848e/ar848e00.htm

investment during the initial development phase, while the private partner covered the full costs of the commercialization phase.

For the BDS cases (Chapter 6), the share of public investment was generally at least 50 percent because these partnerships focused on stimulating the development of small and medium enterprises (SMEs) through matching grants or subsidized access to business development services.

2.4 FORMALITY OF THE ARRANGEMENT

One of the criteria used to select the PPP cases was the existence of a written agreement between a public and a private partner. However, there was significant variation in the types of agreement used, as described in Box 4.

Compared with traditional infrastructure PPPs, which generally involve complex formal contracts and equity arrangements, agri-PPPs tend to involve simpler contract modalities. Most of the PPP agreements analysed took the form of a project MOU – this was particularly the case of development projects. Most of the partnerships within the framework of the national PPP programmes seen in Latin American countries (Colombia, Ecuador and Peru) were developed through standardized,

BOX 4
Formats of partnership agreements

An *MOU* or *letter of intent* is a written record that details an agreement between two or more parties, expressing a convergence of wills between them and indicating an intended common line of action. These modalities are often used in cases where the parties either do not imply or cannot create a legally enforceable commitment.

A *contract* is an agreement creating obligations that are enforceable by law (LII, no date). When facing complex transactions, the involved parties will often sign an MOU or letter of intent containing the terms of the agreement reached so far and stating their intention to provide for the execution of a legally enforceable document at a later stage (UNIDROIT, 2010).

An *equity arrangement* refers to the financial contributions invested by the public and private partners in the PPP project, which reflect the partners' ownership stakes in the project and have impacts on their decision-making control. One such arrangement is the "joint venture", in which the parties have joint control over and rights to the net assets of the arrangement.

A *public–private company*: The PPP partners can form a "special purpose vehicle" to channel funds to and implement the partnership. This vehicle represents a separately identifiable financial structure with its own legal entities. The setting-up of a new company is a common requirement in countries with a national PPP law, as it helps to overcome potential institutional issues associated with combining public and private equity under State budget laws

basic contracts between the PPP programme (as the public partner) and the private partner. In a few cases the main PPP agreement was a formalized contract, officially registered with the appropriate national authority (e.g. in Chile, Kenya and Thailand). In exceptional cases, a public–private company was created, as in China, Pakistan and the Philippines. Unsurprisingly, the MI PPPs were the most similar to traditional PPP projects in terms of the contract forms used, which included concessions and build-operate-transfer (BOT), build-own-operate (BOO) and management contracts.

The cases show that a single contract can be made between the public partner and the lead private partner only, or among multiple partners, including NGOs and FOs. As well as the main document formalizing the partnership, there are also typically a *series of bilateral agreements* among the parties. These include contract farming/outgrower agreements between the company and farmers; confidentiality agreements; agreements related to ownership of IP rights/licensing agreements; and financial service contracts. These types of bilateral agreement were common in all agri-PPP typologies.

Findings from the case studies provide further validation of the argument that the degree of *formality of the PPP arrangement* depends on several factors (Horton, Prain and Thiele, 2009):

- The investment scale of the partnership: The larger the investment in the partnership, the more structured and formal the format chosen.
- The nature of the partners: For example, donor-sponsored agri-PPPs tend to be governed by MOUs between partners, in line with ODA guidelines.
- The intensity of the relationships among partners: When the ties among the parties intensify, the agreements tend to become more formal.
- The complexity of the transaction: The more complex the transaction, the more likely that the option chosen is towards the formal end of the spectrum (e.g. an equity or PPP company).
- Whether partnership proposals are solicited or unsolicited: Solicited PPP proposals tend to result in more formal PPP arrangements, because their legal modality is often fixed or predetermined *a priori* according to the design of a public initiative or programme.
- The level of efficiency of the judicial system in the country/region of the agri-PPP: When the judicial system is slow (making legal disputes lengthy and costly), corrupt or biased against private parties, less emphasis is placed on developing formalized agreements that are unlikely to be enforced.

A factor that is missing from this list is the issue of *risk allocation*, which was also found to influence the degree of formality of the relationship. Partnerships that transferred greater risk to the lead private partner were more likely to be governed by formalized contracts than those in which the majority of the risk was carried by the public partner.

Chapter 7 provides more detailed analysis on the governance mechanisms involved in agri-PPPs; in general, findings from the cases suggest that *agri-PPPs tend to evolve from less to more formal arrangements*. With the introduction of new PPP policies and legislation and the mainstreaming of PPPs, it seems likely that the use of informal, ad hoc agreements will give way to a more formalized approach in which standardized and regulated agreements become the common approach for PPP implementation across sectors.

REFERENCES

FAO. 2013. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Nigeria, Uganda, United United Republic of the Tanzania; Latin America (in Spanish): Chile, Colombia, Ecuador, Guatemala, Peru; Asia: Indonesia, Pakistan, Thailand. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

Horton, D., Prain, G. & Thiele, G. 2009. *Perspectives on partnership: A literature review*. Social Sciences Working Paper No. 2009-3. Lima, International Potato Center (CIP). http://cipotato.org/wp-content/uploads/2014/08/004982.pdf (accessed February 2016)

LII. no date. Contract. Ithaca, New York, USA, Cornell University Law School, Legal Information Institute (LII). https://www.law.cornell.edu/wex/contract (accessed February 2016)

UNIDROIT. 2010. *UNIDROIT Model Law on Leasing*. Study LIXA, Document No. 24. Rome, International Institute for the Unification of Private Law (UNIDROIT). http://www.unidroit.org/english/documents/2010/study59a/s-59a-24-e.pdf (accessed February 2016)

Part II

Typology of agribusiness partnerships

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Chapter 3

Partnerships for value chain development

This and the following three chapters present findings from a selection of case studies clustered under the four main themes identified in section 2.1:

- value chain development (VCD);
- innovation and technology transfer (ITT);
- market infrastructure (MI);
- business development/advisory services (BDS).

For each type of PPP, the following elements are analysed in-depth:

- rationale for adoption of the PPP approach;
- partnership objectives and expected benefits for agriculture development goals;
- main roles and functions of the partners;
- performance and development outcomes of selected cases;
- main challenges faced;
- success factors and lessons specific to the type of PPP.

3.1 RATIONALE FOR VALUE CHAIN PARTNERSHIPS

One of the prominent transformational challenges for the agriculture sector in developing countries is the transition to increasingly market-based agricultural systems that take into account current and future demand trends for food, raw materials and labour. In response to these trends, a high level of coordination among all actors involved in the supply chain is necessary to produce differentiated agrifood products that meet the demands of consumers in a way that guarantees food safety and environmental sustainability. At the same time, ensuring that these chains are developed in a way that achieves national food security, promotes inclusiveness of smallholder farmers, stimulates broad-based industry development and encourages equitable sharing of value created along the chain is in the interest of government partners and in line with national socio-economic objectives. There is therefore clear interdependency between the objectives of the public and private partners.

To address these challenges, increased dialogue and coordinated action are required, as one partner alone cannot solve all the issues. The rationale[10] for promoting PPPs for value chain development is thus as follows:

- Downstream private-sector actors recognize that market opportunities and potential for growth depend on the consistent supply of raw materials that meet specific quality standards. However, these actors may lack the necessary technical skills, local knowledge and trust-based networks to organize raw material suppliers, engage them in production agreements and connect them to support services such as finance. Public partners (often supported by NGOs) can act as facilitators to help bridge the gap between farmers and companies (including SMAEs) to address some of these issues, while promoting inclusiveness agendas and broadening the potential for impact at the industry level.
- Driven by consumer concerns, international and domestic firms are under increasing pressure to demonstrate responsible sourcing practices, traceability and product safety by complying with international private standards such as GlobalGAP, fair trade and organic certification (among others). At the same time, governments have an interest in protecting domestic consumers and their own reputations in international markets by ensuring that international sanitary and phyto-sanitary standards are met.
- In most cases, the private partner is seen as driving the partnership to maximize market opportunities by securing supplies of raw materials and leveraging financing and complementary knowledge and skills from the public sector. These activities are often carried out in the pursuit of first-mover advantages in underdeveloped markets. However, in some cases, the public partner can act as the driver of the partnership by creating the conditions necessary for the development of specific commodity chains through the design of national programmes or territorial approaches.[11] These programmes typically include mechanisms for addressing issues in the enabling environment (e.g. through streamlined regulations and tax incentives) and/or promoting broader inclusion of the private sector through mechanisms such as competitive grant schemes for SMAEs and FOs.

3.2 PARTNERSHIP OBJECTIVES AND CHARACTERISTICS

The 39 VCD PPPs analysed aimed to address three common high-level objectives:

- productivity growth for market access and development;
- improved quality and efficiency at all levels of the chain;
- enhanced managerial and business skills for SMAEs and FOs.

[10] This rationale is closely aligned with concepts in the emerging literature on "inclusive business models" that aims to promote, characterize and evaluate business models in which private companies (i.e. willing buyers) help to link smallholder farmers to markets through sustainable trading relationships. Relevant references include CIAT (2010), Oxfam (2010) and FAO (2012b). The main difference in the PPP approach is the additional focus on the role of the public partner in catalysing and supporting linkages through the provision of concrete financial and non-financial resources under a formalized partnership agreement in the pursuit of national socio-economic development objectives.

[11] Territorial-based approaches to agribusiness development cover a vast array of strategies, policies and tools that have in common the promotion of agro-industrial growth and investment in specific territories. Such territorial tools include agro-based clusters, economic corridors and agro-industrial parks and special economic zones.

Two subsets of value chain PPPs were identified – *meso-level and micro-level* – depending on the following factors:

- the scale of demand for raw materials and the availability of nationally produced supplies;
- the capacity of smallholders;
- the level of sophistication of the target market.

The approach adopted varied according to whether the PPP was a *meso-level* or a *micro-level* partnership:

- Meso-level VCD PPPs generally focus on large-scale commodities and place more emphasis on the upstream (production) end of the chain, with the aim of increasing productivity and quality levels to meet strong domestic or global demand.
- Micro-level VCD PPPs tend to involve a specific value chain in an established subsector where a level of production skill already exists, but the food safety risk is higher than average (e.g. horticulture and livestock products) and/or consumer demands are more exacting and thus require enhanced traceability and certification of environmentally sustainable production and responsible sourcing (e.g. bananas, coffee and cocoa).

Given the number and diversity of the value chain cases, there were examples that exhibited elements of both categories and fell somewhere between the two.

Meso-level value chain partnerships

The overriding public objectives of these partnerships are to enhance farmers' livelihoods and address food security issues, stimulate rural and/or regional economies, and encourage greater private-sector investment in the subsector as a whole (i.e. "crowding-in" investment), rather than to upgrade an individual micro-level chain. Consideration is also given to long-term environmental sustainability through adherence to international standards such as the Roundtable on Sustainable Palm Oil, or through more localized national initiatives such as reforestation of vulnerable areas.

Case study examples include partnerships to develop commodity chains for both industrial and food crops, including oil-palm (Colombia, Ghana, Indonesia, Uganda), sunflower (Uganda), jatropha (Indonesia), sorghum (Ghana), rubber (Ghana), sugar (Nigeria and the United Republic of Tanzania) and rice (Nigeria).

In meso-level VCD PPPs, the role of the public sector is to promote, organize and support smallholders in either establishing a new crop or expanding/revitalizing existing production areas. The private partner is responsible for all downstream activities, with minimal interference from the public partners.

These partnerships are more likely to be well supported by national policy incentives and programmes and a favourable regulatory environment, such as streamlined partnership procedures, including preferential access to land for the establishment of nucleus estates[12] (as in Indonesia with the oil-palm PPP) and associated tax incen-

[12] A *nucleus estate* is usually established and managed by a private company engaged in contract farming and is used to guarantee commitments to downstream customers in the case of shortfalls from producers supplying to the company. Nucleus estates can also be used for research, extension and/or breeding purposes (FAO, 2001).

tives. They may also be replicated in other parts of the country with several diverse private partners.

Value chain PPPs often involve formalized (contractual) partnership agreements among lead private companies, national or local-level government units and financing institutions. Financing is often made available to smallholders through a subsidized interest rate agreement with the public partner, in which the private company acts as the guarantor for loans. Governance mechanisms may also exist at either the national or the local level to help structure these partnerships and promote accountability.

Micro-level value chain partnerships

In micro-level value chain partnerships, the primary objective is to increase value addition and product differentiation through the adoption of improved technologies and production practices along the chain, to minimize inefficiencies, increase traceability and gain access to specialized target markets for certified products. Interventions target different points in the chain (rather than focusing on upstream productivity issues), and commonly include post-harvest interventions to improve the bulking and handling of commodities, processing and packaging. Co-funding or grants are generally provided to farmers or their organizations for implementation of quality standards on-farm and associated certification costs. Access to support services, including technical skills and training, may be provided by either partners or outsourced.

Contract farming agreements (forward production contracts) between the lead private partner (buyer of raw material) and farmers (or their collective organizations) are common across both types of value chain PPP.

Case study examples include partnerships to develop GlobalGAP or certified organic fruit and vegetable chains (Chile, Colombia, Indonesia, Kenya, Pakistan, Peru and the Philippines), and product chains that demonstrate compliance with environmental sustainability and responsible sourcing practices such as those of fair trade and the Rainforest Alliance (cocoa in Ghana and Ecuador, and coffee in Colombia).

In LA, most of the micro-VCD PPP cases selected were from national competitiveness programmes, commonly referred to as "productive alliances" (*alianzas productivas*). Under these programmes, private partners (SMAEs) submit innovative proposals to a government-managed programme for co-funding. Such programmes have been in operation for more than ten years in some countries (e.g. Colombia), and have demonstrated positive results, particularly in terms of improving smallholders' access to markets (CIAT, 2015).

In Southeast Asia and Africa, many of the micro-VCD partnerships identified appeared to be more ad hoc in nature, with one lead private company driving the partnership (a multinational or domestic firm). Several of these partnerships fall into the category of "sustainability initiatives"[13] and often involved a broader set of public and private actors, including donors, multinational companies, SMAEs, NGOs

[13] Including those under the WEF New Vision for Agriculture initiative, which can be consulted at http://www.weforum.org/projects/new-vision-agriculture

and FOs. Partnership agreements were generally less formalized than in meso-level partnerships or the programmes in LA, and were usually governed by some form of MOU between partners for the duration of the project, often within the framework of ODA guidelines if donors were involved. As a consequence, in these partnerships, there was less transparency in how private partners were selected, and total investment costs in terms of actual and in-kind contributions from partners, along with expected returns on investment were also more difficult to identify or were not specified in the partnership agreements.

3.3 OVERVIEW OF THE CASES

A total of 39 value chain PPP cases were identified from the 70 case studies analysed, representing 57 percent of the total cases. Eleven of these VCD cases can be classified as meso-level PPPs, with the remaining 28 representing micro-level PPPs with a focus on value addition. The following subsections present findings from eight of these cases:[14] four meso-level and four micro-level value chain PPPs.

Meso-level VCD PPPs

Four meso-level PPPs are presented in Table 1. The two palm oil cases aimed to stimulate rural economic activity by establishing plantations in regions that were remote (Indonesia) or socially instable (Colombia). The Ghanaian rubber case aimed to revitalize a stagnating export commodity sector with potential for strong social benefits including climate change mitigation and inclusion of women. The Ugandan sunflower oil case had the objective of intensifying national production to address import substitution and poverty.

All of the cases involved a national-level public partner in a funding and/or supervision/monitoring role, and local-level public partners that supported implementation on the ground by providing farmers with technical assistance and coordination. The partnerships from Colombia and Ghana were supported by bilateral aid agencies: the United States Agency for International Development (USAID) and the French Development Agency (AFD), respectively. The lead private partners were large-scale national conglomerates or individual companies. Their responsibilities are primarily to secure the market, provide technical assistance in some cases, and assist in linking farmers to business development services such as financing (e.g. by acting as guarantor). For the Colombian and Indonesian cases, raw materials were sourced directly through FOs with contract agreements between companies and FOs. In the Ghanaian and Ugandan cases, farmers were contracted individually but coordinated through FOs.

Micro-level VCD PPPs

All four of the micro-level VCD PPPs presented in Table 2 aimed to add value through product differentiation either by implementing food safety and quality standards to satisfy specialized export markets (Colombia, Indonesia and Peru), or through agroprocessing of raw materials to supply the domestic market (Kenya).

[14] These cases were selected based on the completeness of the information provided by the case study authors, in accordance with the case study appraisal framework.

TABLE 1
Overview of meso-level VCD PPP cases

	Colombia	Ghana	Indonesia	Uganda
Partnership duration	1999 ongoing	1995–2014 (4th phase began in 2010)	2002–2027 (25-year agreement)	2007–2009
Product	Palm oil	Rubber	Palm oil	Sunflower oil
Public partners' objectives	Building social stability in a conflict area Creating financial mechanisms for land acquisition by smallholders	Revitalization of a deteriorating industry Forestation and mitigation of climate change Land access for smallholders Increased incomes for farmers Employment generation, particularly for women Increased export income Upgraded rural infrastructure	Empowerment of village unit cooperatives Increased incomes for farmers Creation of new economic growth centres in remote areas	Food security Import substitution Poverty reduction Development of FOs with direct links to markets
Public partners	MOA's Agricultural Guarantee Fund Agricultural Finance Fund MOA's Productive Partnerships Support Project	Ministry of Food and Agriculture's Programme for the Promotion of Perennial Crops Agricultural Development Bank of Ghana National Investment Bank AFD loan facility for the Agricultural Development Bank	State-owned bank PT Bank Rakyat Indonesia TBK Local government authority Oversight by MOA's Directorate General of Plantations Ministry of Cooperatives and SMEs	National Agricultural Advisory Services (NAADS) under MOA Plan for Modernisation of Agriculture
Private partners	Indupalma and cooperatives of associated workers	Ghana Rubber Estates Ltd and associations of rubber outgrowers and agents	PT Sampoerna Agro TBK and village unit cooperatives	Mukwano Group of Companies
Total investment	US$5.9 million: 21% public 65% private 14% other actors – 2 USAID-financed programmes: Municipal-Level Alternative Development and Sustainable Alternative Development	US$37 million (3rd and 4th phases): 100% public to establish 7 000-ha estate Credit line to 1 750 farmers, 280 km of farm and feeder roads In-kind private (undisclosed) for training and inputs	US$16.7 million: 37% public through subsidized loans to farmer cooperatives 63% private for establishment costs of nucleus estate	US$850 000: 41% public as reimbursement for private-sector services (e.g. training, inputs) 59% private

TABLE 1
(continued)

	Colombia	Ghana	Indonesia	Uganda
Driver	Public partner	Public partner	Private partner	Public partner
Incentives for private sector	Incentives for capitalization (40% of production costs) Subsidies for land purchases by farmers Subsidies from USAID programmes	Loan subsidies for farmers (with private partner as guarantor) Tax breaks Reimbursement for services 100% of raw material supply for delivery to private partner guaranteed	Loan subsidies for farmers (with private partner as guarantor) and land concessions for estate 100% of raw material supply for delivery to private partner guaranteed	Strong domestic demand Tax exemptions on agro-inputs and sale of by-products Reimbursement of service costs 15% buffer fund against losses

Source: authors' compilation based on FAO, 2013a country reports.

All the cases aimed to enhance competitiveness in specific value chains by providing assistance to smallholder farmers through development of improved production and post-harvest management skills and strengthening of FOs. The PPPs also improved access to specialized infrastructure such as greenhouses and fertigation equipment[15] (Indonesia), collection centres and collective coffee washing stations (Colombia), and a packing house and cottage processing plants (Kenya).

The public partners in these cases varied in their roles and levels of engagement. In the Kenyan and Peruvian cases, the public actors were programmes that were overseen by the MOA. In Peru, the national Programme of Support Services to Promote Access to Rural Markets (PROSAAMER) was designed to support SMAEs in increasing competitiveness and market access with support from the Inter-American Development Bank (IDB). In Kenya, the PPP Africa Facility of the German Agency for International Cooperation (GIZ) aimed to strengthen private-sector development in agriculture by providing private partners with grants for the provision of technical services and co-financing of infrastructure. The Indonesian case also represents a donor-supported project (Government of the Netherlands), where the main national public actor (in addition to the MOA) was a research institute that provided technical services and training to producers.

In Colombia, the public partner was the National Coffee Fund, a public-sector development fund that is managed by the National Federation of Coffee Growers (FNC). Several ministries provided inputs into decisions on how FNC is managed, and the fund implements activities such as co-financing of infrastructure and provision of technical assistance to producers through its extensive network. The partnership with Nestlé was considered to be an extension of an existing public–producer partnership (between FNC and the National Coffee Fund) to integrate a downstream, large-scale private actor into the framework for cooperation with the public sector and FNC.

[15] Fertigation is the injection of fertilizers, soil amendments and other water-soluble products into an irrigation system.

TABLE 2
Overview of micro-level VCD PPP cases

	Colombia	Indonesia	Kenya	Peru
Partnership duration	2004 ongoing	2003–2010	2005–2008	2006–2011
Product	High-quality coffee (Nespresso AAA Sustainable Quality Program with Rainforest Alliance certification)	Sweet peppers (GlobalGAP certified)	Mango processing and marketing	Bananas (certified organic)
Public partners' objectives	Protection of environment Improved social conditions for workers Improved rural infrastructure Higher incomes for smallholders through quality-differentiated coffee	Food safety Stimulation of local economic development by increasing competitiveness of FOs in fulfilling local and export market demands Promotion of co-innovation between public R&D centres and farmers	Poverty reduction through employment creation and local economic development Increased production and quality improvement to reduce imports Improved access to markets through value addition and reduced post-harvest losses	Increased competitiveness of FOs/SMAEs through market access and business skill development Stimulation of networks and agreements between experienced private-sector actors and farmers/SMAEs
Public partners	National Coffee Fund managed by FNC	MOA Agency for Agricultural Research and Development Indonesian Vegetable Research Institute Ministry of Agriculture Nature and Food Quality of the Netherlands Wageningen University and Research Centre, the Netherlands	MOA in partnership with the GIZ PPP Africa Facility	PROSAAMER
Private partners	Nespresso Rainforest Alliance (third-party certification) FNC's decentralized FOs	PT Alamanda Sejati Utama (exporter) Rabobank (loans for greenhouses) Mitra Sukamaju and Dewa cooperatives	KEVIAN Co. Farmer groups associated with the Kenya National Federation of Agricultural Producers	Consortium of the Chira Valley Banana Producers (second-tier farmer association) Peruvian Organic Bananas FO
Total investment	US$30 million: 39% public 58% private 3% other	US$5.5 million public (donor and government, including loan subsidies) Undisclosed private (construction of packaging)	US$234 000: 53% public 41% private 6% farmer groups	US$480 000: 10% public 90% private

TABLE 2
(continued)

	Colombia	Indonesia	Kenya	Peru
Driver	Private partner	Public partner	Public partner	Private partner
Incentives for private sector	Co-financing for technical assistance and on-farm processing infrastructure Access to extensive network of FNC producers, for coordination experience and related institutions	Loan subsidies for farmers to build greenhouses (with private partner as guarantor) Technical support from research centres 100% of production for delivery to private partner guaranteed if quality standards are met and independently verified	Substitution of imported raw material Reduction of import costs Reduction of foreign exchange expenditures Increased self-sufficiency	Grants for business services and training

Source: authors' compilation based on FAO, 2013a country reports.

The lead private actors in the micro-level case studies were mainly agro-industrial enterprises and exporters, with the exception of the consortium of FOs in Peru.

3.4 MAIN ROLES AND FUNCTIONS OF PARTNERS

Public partners' roles

The most common roles played by the public partners in the eight case studies selected are described in the following. Public partners play similar roles in both micro- and meso-level VCD PPPs; differences between the two are specified only in cases where they exist:

- *Creating a supportive regulatory environment with appropriate incentives for private-sector investment and inclusion of smallholders*: This role is particularly relevant in meso-level VCD PPPs. For example, Indonesia estate laws and MOA regulations state that any oil-palm plantation company willing to form partnerships with smallholder farmers will gain access to a land area of at least 20 percent of the total plantation area and will have a business licence for 35 years; under an MOA decree, any plantation company wishing to expand must establish partnerships with farmers, with each farmer having a minimum of 2 ha of land. In the Colombian palm oil case, the contract agreement between the government and the private company guaranteed supplies of oil-palm from smallholders for 28 years. In both Colombia and Ghana, public investment incentives provided to small-scale farmers for purchasing land to establish plantations included a subsidy of up to 40 percent of the land investment and a guarantee for the remaining plantation loans. Tax exemptions on inputs and sales of raw and value-added commodities were other common incentive mechanisms that benefited all private partners.
- *Developing programme concepts in alignment with national socio-economic and sector development priorities*: The aim is to design programmes or identify specific thematic areas for ad hoc partnerships in which public investments, when

combined with private-sector resources or skills, will achieve greater impact towards the achievement of national priorities while reducing the potential for dispersion of scarce public resources (Box 5).

- *Designing detailed programme guidelines and transparent partner selection criteria*: The case studies from Colombia (palm-oil), Peru (bananas) and Uganda (sunflowers) applied an open bidding process for the selection of private partners. This process involved first defining eligible applicants (e.g. trading companies, input and/or service suppliers, exporting firms, NGOs, FOs and SMAEs) and requesting each to submit a business plan as part of the project proposal. In Peru, a detailed business plan format was specified and included guidelines for valuing in-kind contributions (e.g. labour, inputs, and raw materials from farmer groups), expected costs and profitability, details of smallholder beneficiaries, identification of the advisory services required, assessment of social and environmental issues, and a rigorous analysis of market demand.
- *Promoting the incorporation of risk sharing/mitigation in the design process*: In meso-level PPPs, public partners may also ensure that some risks are transferred from smallholders through risk sharing between the public and the lead private partners. Bank guarantees and subsidized interest on loans to smallholders, when coupled with secure purchasing contracts and business management training for FOs, help to reduce the risk of default. Other risk sharing options available for incorporation in the design of partnerships include agricultural insurance and contingency funds. For example, in the Ghanaian case, as part of the purchase agreement with smallholder rubber producers, subsidized insurance was made available for wind and fire outbreaks, and an income protection fund was set up in case of low market prices for rubber. In the Indonesian oil-palm case, the (State) bank lender and the nucleus company set up a contingency fund capped at 10 percent of the farmers' income to prevent the risk of default on loans during heavy rainy seasons, which may delay harvest and delivery (and thus payment for raw materials) for several months. To prevent the potential for private partners to exert undue influence over smallholders, in both the oil-palm case from Indonesia and the banana case from Peru, companies were required to demonstrate evidence of previous mutually beneficial partnerships with FOs (i.e. free from unresolved disputes and involving long-term, trust-based relationships) as part of the selection criteria.
- *Managing evaluation and selection processes for partnership proposals*: Regardless of whether a national programme exists or the proposal is for an ad hoc partnership, the highest-level public partner that provides oversight of the PPP (e.g. NAADS in Uganda, PROSAAMER in Peru and the MOA in Colombia, Ghana, Indonesia and Kenya) normally manages the evaluation and selection process. Only in Peru was a two-step process employed whereby private firms first applied to become accredited suppliers, and then submitted proposals for evaluation. The evaluation procedure could then be managed in-house or outsourced to an external panel of independent technical experts to select the business plans with the greatest potential. This approach adds an additional layer of rigour, transparency and accountability to the selection process, and is also more likely to address the value-for-money question raised in section 1.2, through

BOX 5
Aligning agri-PPPs with national priorities

It is good practice for governments to align agri-PPPs (either individual partnerships or those established under an umbrella PPP programme) with their own priorities, at both the national macroeconomic and sectoral levels. The following are examples of such alignment:

- In Colombia, the overall PPP programme (the Productive Partnerships Support Project) aims to generate social cohesion, employment and competitiveness in prioritized sectors and geographical regions by supporting FOs and their alliances by partnering them with commercial enterprises. The Colombian palm oil PPP deployed in the framework of this PPP programme sought to facilitate the economic recovery of a region affected by conflict while enhancing industry competiveness.
- In Peru, the PPP competitive grant scheme was designed to help redistribute some of the market power accumulated by large agro-industrial producers that had benefited disproportionately from restructuring incentives in the 1990s. The scheme directs support to FOs and SMAEs to stimulate investment in and increased competitiveness of these actors. The banana PPP established in the framework of this scheme helped a second-tier FO to implement organic standards and develop the trade and negotiation skills needed to participate in direct exportation of bananas, thus competing with two international trade corporations that previously controlled the export market for organic bananas from Peru.
- The Ugandan sunflower PPP helped to overcome low productivity in an attempt to promote import substitution, which is considered a high priority for achieving national food security. This end was to be achieved by selecting a company that could provide the necessary technical support services (in partnership with local government extension agents) to help farmers expand and upgrade their production practices.

independent review.[16] In the cases where donors were involved, proposal design, evaluation and selection were governed by donor-specific requirements, which vary from organization to organization and may or may not include an active role for the public partner in selection of the private company.

- *Coordinating negotiation and contract signing*: Tasks in this area include coordinating meetings and discussions with all partners (e.g. private companies, FOs, local government and NGOs) to agree on partnership terms, including the duration of the partnership, definition of roles and responsibilities for monitoring and evaluation (M&E), implementation of activities, funding and in-kind contributions, and payment release schedules. A single contract can be made between the public partner and the lead private partner only, or among multiple partners, including FOs, financing institutions and NGOs (i.e. a

[16] Chapter 7 provides a more detailed analysis of the concepts of transparency (section 7.4) and value for money (section 7.5).

multipartite agreement). In the Indonesian oil-palm case, three sets of agreements were made between the State-owned bank and the company (acting as guarantor for the loans), the bank and the heads of the village unit cooperatives (on repayment of loans), and the cooperatives and the company (supply contracts). In the Peruvian and Colombian cases, the public partner defined the terms and conditions of the arrangement in accordance with established procedures under the PPP programme guidelines. Standard management tools were used in the partnership contract agreements, including a logical framework and an annual work plan. In the PPPs involving donors in Indonesia and Kenya, MOUs were established among partners in accordance with ODA guidelines.

- *Ensuring regulatory compliance, including the enforcement of land rights*: Public partners must ensure that contracts at all levels meet legal requirements, such as proof of legality of landownership by both companies and smallholders, and formalized cooperative/FO status that recognizes the cooperative/FO as a legal entity able to engage in contractual agreements. During project implementation, this responsibility also involves ensuring that private parties provide only quality inputs that are nationally registered (seed, fertilizer, agrochemicals), and verifying the legal status of third-party certifying bodies and other service providers.
- *Providing funding*: To ensure timely delivery of funds, the level of funding to be contributed by each partner needs to be determined, and the funding release schedule agreed on with the private partner, during the negotiation phase. The agreement should also cover the provision of any inputs or materials supplied in-kind by either partner. In the Indonesian cases and the rubber case from Ghana, this responsibility also involved supporting cooperatives in preparing applications for subsidized loans, distributing credit to cooperatives according to the disbursement schedule, and collecting/ensuring loan repayments to the bank. In Uganda and Peru, public funding was earmarked for technical and advisory services that were either outsourced or delivered directly by the private partner on a cost-recovery basis. Funds were often released in accordance with monitoring schedules.
- *Linking private partners to local public institutions and services*: This responsibility involves using decentralized public-sector networks to connect private partners to the necessary infrastructure, FOs, research institutions, extension services and production areas. In all cases, local-level government or field representative offices played a key role in facilitating the implementation of partnership activities. In Indonesia, the local government authority witnessed and approved agreements between village unit cooperatives and the company and ensured that all regulatory requirements were met by both partners. In Uganda, NAADS' has representatives in all subcounties who identified potential areas for the expansion of sunflower production and its promotion to farmers. Similarly, the local networks of FNC in Colombia were used to link the private partner to the extensive network of FOs with pre-existing arrangements for access to extension services and technical assistance and participation in ongoing R&D activities coordinated by FNC. In Ghana, the Department of Feeder Roads collaborated with the private partner to identify roads to be rehabilitated, while district assemblies provided maintenance of the road networks and helped to resolve any land disputes.

- *Providing technical and managerial assistance*: Local extension officers and public research institutes help to mobilize farmers to form farmer groups, promote new crops or improved varieties for production, and provide technical production training from basic agronomic skills to improved practices in preparation for third-party certification. In two of the cases (palm oil in Indonesia and sunflowers in Uganda), this public-partner role was particularly important in the early stages of the partnership to help build trust between farmers and the company; the public partner's role was then gradually reduced to monitoring as more specific technical training was required, which could be delivered better by the private partner. In the case from Colombia (oil-palm), the company provided most of the technical training from the outset (in partnership with local extension networks); in Peru (bananas), technical training was outsourced to other private-sector service providers.
- *Monitoring and evaluating the partnership at both the national and local government levels*: National programme officers are involved in field visits and review of the (self-) monitoring reports submitted by private partners to verify execution of business plans as per agreed work plans, with approval designed to trigger fund release. They also monitor the certification status of private companies. Local monitoring is often conducted by government field officers or by a monitoring and supervision agency established specifically for the partnership and based in the local government authority. In the oil-palm case from Indonesia, the role of this agency was to supervise the partnerships between cooperatives and companies in the field, monitor prices of raw materials, and attend annual meetings of cooperatives to share information on new regulations or policies related to subsector development in the region. Evaluation of the partnerships was generally weak in all the cases reviewed, with neither the public nor the private partner taking a particularly active role. M&E is an area where public partners could take the lead, by demanding and assisting the coordination of independent evaluations.

Private partners' roles

The main roles played by the lead agribusiness enterprise and partnering FOs are outlined in this subsection.

Lead agribusiness partners: Common roles of the lead agribusiness enterprise are:

- developing business plans with thorough financial and market analysis;
- contributing funding or in-kind resources as agreed;
- leading implementation of partnership activities and delivering results;
- providing professional management;
- securing markets for end products and procuring raw materials from farmers through contract farming agreements;
- providing technical assistance and business management training for FOs;
- disseminating inputs and technology;
- linking farmers to business development services (BDS) such as financing and third-party certification;
- supporting the monitoring of partnership activities.

BOX 6

The experience of cooperatives in the oil-palm PPP in Indonesia

Village unit cooperatives were involved in the four major stages of the partnership agreement: preparation; construction; loan installation and completion; and post-loan completion. They acted as the main intermediaries between farmers and the nucleus company and provide all the necessary services for coordination among farmers, the company, the State bank and other government and regulatory bodies.

The management teams from village unit cooperatives explained the project to smallholders, provided an inventory of members' landholdings; collected the names of interested farmers and their administrative documents; helped farmers and the company to obtain official measurements of the land, as required for certification from the National Land Board; monitored and oversaw progress in plantation development by the company; helped the company to obtain equipment; explained the management system to the farmers; conducted site visits for the bank with the company and an independent monitoring consultant; set up the funding system for estate upkeep and maintenance, with the company's assistance; provided coordination for all farmer groups in activities related to harvesting and transport; acted as farmers' representatives in price negotiations; and administered loans for each group

Source: FAO, 2013a: *A country report of Indonesia*, p. 17.

Roles of farmer organizations/cooperatives: It is important to note that in VCD PPPs, FOs play a critical and often complex role in the implementation of partnership activities. They therefore require support in developing the specific management and technical capacity associated with these functions. In countries where the government lacks the necessary capacity, NGOs sometimes take on this coordination role.[17]

Training to develop FOs' capacity can be provided by either the public or the private partners involved in the agreement, or be outsourced to specialized BDS providers.[18] Common roles of FOs are:

- acting as a central intermediary among farmers, private partners and local government;
- helping farmers to understand and negotiate contract farming agreements;
- coordinating raw material supply for delivery to private partners;
- supporting members in the implementation of quality standards;
- providing business administrative services (e.g. record-keeping) for farmers, private partners, banks and other government and regulatory bodies.

[17] For examples in which NGOs played a coordinating role between farmers and agribusiness firms see the FAO (2013a) country reports from Ecuador (cocoa) and Colombia (hot pepper) available at http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/

[18] See Chapter 5 for examples of partnerships designed specifically for delivering BDS to FOs and SMAEs.

The oil-palm case study from Indonesia (Box 6) highlights the important roles of FOs/cooperatives at all stages of the partnership.

Recently, the term public–private–producer partnership (4P) has emerged, highlighting the integral role that producer organizations can play in PPP projects for value chain and agricultural innovation. The term has been adopted in developed countries such as Canada (VALGEN, 2012; OECD, 2014; Syngenta, 2014) to acknowledge the contribution of producer organizations to coordinating and co-financing PPP activities through levies collected from members. The incorporation of the fourth "P" also acknowledges the political power of FOs in many countries and recognizes their capacity to influence government policy and programmes.

A clear finding from the VCD PPP case studies analysed by the FAO study is that FOs played an essential role in reducing the transaction costs associated with dealing with small-scale farmers for the lead private partner. Government partners can also promote collective action under rural development strategies that aim to improve smallholders' access to markets.

On this basis, it is anticipated that policy-makers and donor agencies will increasingly adopt the 4P terminology in the future, as seen in recent examples from IFAD (2014; IDS and IFAD, 2015). The case studies from Colombia (coffee) and Peru (bananas) could also be considered as 4P examples. In these cases, the role of FNC in Colombia and the second-tier banana growers' association in Peru extended beyond simply securing raw material supplies from farmers, to include providing significant financial contributions to the partnerships and playing a critical role in implementation of the partnerships by coordinating the activities of decentralized FO members.

3.5 PERFORMANCE AND DEVELOPMENT OUTCOMES

One of the key challenges associated with assessing the potential impact of agri-PPPs and the contribution they make towards sustainable agricultural development objectives is the often weak information available on performance and development outcomes. Evaluation metrics (both qualitative and quantitative) vary greatly from one partnership to another in terms of depth, and often reflect the clarity of the goals and objectives defined by the public partner (or donors) at the outset of the partnership. The extent to which M&E needs are considered during the planning and design phase of the partnership also heavily influences the quality of the performance metrics adopted and the associated budget for M&E. These findings are consistent with other studies reviewing PPP projects in developing countries (MFA, 2013), and support the call for improved results-based evaluation of partnerships that goes beyond simply measuring the amounts of financial resources leveraged or the numbers of smallholder farmers involved (USAID, 2010; DCED, 2014). Tables 3 and 4 provide a summary of the main performance outcomes for each of the partners involved in the selected cases.

At a minimum, the partnerships attempted to measure the numbers of smallholder farmers involved, the land areas covered, the numbers of jobs created, and increases in smallholders' income and productivity compared with baseline results. Given the focus of the meso-level VCD PPPs on broader-based subsector development, the benefits to public partners and farmers were also measured in terms of

TABLE 3
Summary of meso-level VCD PPP performance

	Indonesia	Colombia	Ghana	Uganda
Achievements	2 500 oil-palm farmers in 5 cooperatives 5 000 ha plantation	1 300 oil-palm workers and 300 smallholders purchasing land 3 716 ha plantation	3 880 rubber outgrowers contracted 14 785 ha plantation	250 lead farmers trained 45 000 sunflower outgrowers contracted
Benefits for public partners	Coordinated estate planning in compliance with independent sustainability standards Application of integrated pest management reducing pollution and chemical use Reduced rural poverty Increased education enrolments	Creation of conditions for social stability Employment generation pilot experience for establishing PPPs in the country	Increased participation of women in cash crop farming (30% of all farmers involved) Employment generation – more than 6 000 farmers employed Environmental benefits including reforestation Increased foreign exchange earnings through exports Improved contract farming regulations	Delivery on mandate to provide demand-driven, farmer-led extension services Food security improved Tax income generated from subsector (US$1.4 million in 2008) New investment generated in maize processing (rotation crop with sunflower)
Benefits for private partners	Consistent supply of raw materials at reduced transaction cost New customers and increased market share Reduced risk for long-term investment For cooperatives: Management skills and accounting methods New local business opportunities, including grocery stores and loan funds	Increased and stable raw material supply Expansion of industry capacity Addressing of workers' union issues	Consistent supply of raw materials at reduced transaction cost Control over quality of inputs and production practices Reimbursements for provision of technical services 15% increase in exports 30% increase in company profitability	New processing plant established Increased supply of raw materials, from 32 000 to 40 000 tonnes per annum staff extension skills developed Increased market share, from 9% to 35% Diversification into maize processing Flow-on effects for logistics companies and market intermediaries in maize and soybeans
Benefits for farmers	Technical knowledge in oil-palm developed Market secured at fair prices Cooperative management skills Access to finance Gross annual income of US$2 800/ha Permanent houses constructed and crime reduced Diversification into rubber plantations and bird raising	Increased production, from 2 400 tonnes in 2004 to 39 000 tonnes in 2010 Increased income, from US$196/ha to US$6 314/ha	Access to land for rubber cultivation (4 ha per farmer) Low-interest loans Improved planting materials and other inputs Free technical support Market secured at fair prices (income protection fund) Annual income increased to US$1 150/ha by year 12 Daily rate for wage labour increased 6-fold in rural areas	Income increase of 138% or US$217/ha Market secured for output Technical training and support from field-based site coordinators Opportunity to become lead farmer/site coordinator Payment incentives from the company

Source: authors' compilation based on FAO, 2013a country reports.

TABLE 4
Summary of micro-level VCD PPP performance

	Colombia	Indonesia	Kenya	Peru
Achievements	4 000 coffee growers Rainforest Alliance-certified	50 farmers exporting GlobalGAP-certified sweet peppers 150 jobs created in downstream value addition	450 small-scale mango growers linked to agroprocessing firm 2 collection centres established creating 14 jobs 8 cottage processing facilities established	284 farmers exporting certified organic bananas
Benefits for public partners	Environmental benefits associated with reduced water use Increased farmers' incomes and production quality Additional investments (US$3.2 million for the Nescafé programme)	Benefits of cluster promotion strategy demonstrated Cooperation among research institutes, farmers and private partners on adoption of improved technology (greenhouses) Increased farmers' income, technical and business management skills through adoption of good agricultural practices and repayment of loans Employment generation	Mango value chain development strategy finalized and subsector coordination working group established under leadership of KEVIAN Co. Demonstration of model for small-scale value addition to reduce post-harvest losses and increase rural income and employment opportunities on- and off-farm	SMAE sector stimulated Market power redistributed Increased farmers' incomes and entrepreneurial capacity Employment generation Workers' safety improved through international standard accreditation (organic)
Benefits for private partners	Half of raw material needs secured – in 2011 50% of worldwide raw material supply for Nespresso coffee came from this PPP	Increased availability of produce meeting quality standards for export Lower risk for investment in packaging plant through increased supply of raw materials Increased profits and sales (undisclosed)	Reduced import costs through increased availability of domestic raw materials Packaging infrastructure and technologies introduced at plant Improved post-harvest transport resulting in 25% reduction in waste Increased profits and sales (undisclosed)	Status as leading domestic exporter of organic bananas New supply contracts for the European Union (EU) market 40% increase in net profits from association Direct exports achieved Consistent supply of certified organic bananas Investigation of alternative markets for non-compliant production
Benefits for farmers/FOs	Increased earnings – farmers receive 75% of selling price	Increased production of cooperatives, from 150 kg to 3 tonnes/ week Increased revenue, from US$165 to US$3 300/week 20 new greenhouses established Decreased local crime rate through employment generation	Farmers' incomes increased by 42% Losses at farm level reduced by 40% Employment creation Enhanced skills in semi-processing, packaging and transport management	Incomes increased by 33% Skills developed in negotiation and international trade (management, legal advice and accounting) Productivity and quality control skills to achieve international standards Market exposure through participation in trade fairs

Source: authors' compilation based on FAO, 2013a country reports.

alignment with national socio-economic development objectives. For example, in the Colombian oil-palm and Ghanaian rubber cases, assessment included the achievement of social stability as measured by land allocation and legal ownership for smallholders, and women's participation in the newly developed outgrower schemes. In the Indonesian and Ugandan cases, qualitative measures were used to assess the achievement of objectives related to poverty reduction and improved livelihoods, including the extent to which the PPP stimulated new on- and off-farm business opportunities in Indonesia (e.g. as evidenced by increases in permanent houses, farmer-owned grocery stores and savings funds), and additional private-sector investment in complementary activities beyond the partnership in Uganda (e.g. establishment of processing facilities for the maize grown as part of the sunflower crop rotation plan).

Other social and environmental indicators were assessed in both the meso- and the micro-VCD cases, such as improvements in environmental practices through reduced pesticide use, reforestation, adoption of crop rotation practices, reduced food waste and water savings; and "soft" skills for FOs, such as improvements in negotiation skills and business management.

None of the VCD partnerships assessed calculated the return on investment (ROI) for the public (or private) funding contributed, and this failure should be considered a weakness. There is currently no way of assessing the opportunity costs associated with investing in agri-PPPs compared with other forms of public spending (see section 7.5 for discussion of value for money and public-sector comparator concepts). Only the Ugandan case provided an estimation of increased tax revenue associated with the partnership outcomes. Both the Ghanaian and Indonesian vegetable cases resulted in unplanned rural infrastructure upgrades, but the value of the additional investments in infrastructure stimulated by the partnerships was not provided.

Because of these limitations, findings regarding the impacts of the PPP cases assessed are inconclusive; however, positive results can be seen in relation to achievement of the high-level objectives identified in section 1.3 (increased productivity, improved quality and strengthening of FOs and SMAEs). The meso-level PPPs contributed most to increased productivity through the expansion of production areas and the involvement of larger numbers of smallholder farmers. They were also found to stimulate greater employment generation and complementary investments in value-adding activities, rural community services and business development. The micro-level VCD PPPs generally involved smaller numbers of farmers, with performance outcomes measured in terms of increased income associated with product quality improvements and access to higher-value markets.

3.6 MAJOR CHALLENGES IN VALUE CHAIN PARTNERSHIPS

Given the complexity of value chain PPPs and the number of diverse partners involved, it is unsurprising that a number of challenges were reported, many of which are common to all four typologies of agri-PPP presented in this synthesis. Both the problems and recommendations for overcoming some of the general challenges associated with the regulatory environment, design, implementation and sustainability of agri-PPPs are described in Chapter 8. Challenges that are specific to value chain partnerships are highlighted in the following subsections.

Regulatory environment challenges

One of the main challenges related to the regulatory environment for VCD PPPs is *enforcement of contract farming*. Issues in this area include side-selling (farmers selling to market actors outside the contractual agreement) and inadequate risk sharing mechanisms to deal with incidences of *force majeure* (e.g. uncontrollable disease outbreaks and adverse weather conditions). All the case study examples involved production contracts between the lead agribusiness enterprise and individual farmers or FOs in addition to the main PPP agreement between the public partner(s) and the lead agribusiness firm.

A sound legal framework for contract farming is essential for the success of VCD PPPs. FAO's *Guiding principles for responsible contract farming operations* (FAO, 2012a) and the *UNIDROIT/FAO/IFAD legal guide on contract farming* (UNIDROIT, FAO and IFAD, 2015) both provide recommendations that can be implemented to promote good business practices in the design of legally sound contract farming agreements that maintain an atmosphere of trust and respect among the contracting parties. FAO's *Contract farming for inclusive market access* (FAO, 2013a) also provides real-world case examples from several countries where contract farming schemes involving smallholder farmers have been successfully implemented.

Where the legal environment for contract enforcement is weak, private partners should look for ways of incentivizing farmers' loyalty, such as by providing high-quality inputs and technical support services and ensuring that contracts are easy to read and transparent in relation to prices and quality determination clauses. Public partners and representatives from FOs should be involved in the negotiation phase with the enterprise, to lobby for fair and equitable clauses and to ensure that producers have a clear understanding of contractual conditions prior to signing. Ways of minimizing the potential for side-selling can also be considered during the design phase, such as the introduction of monitoring mechanisms, flexible market-based pricing clauses and rapid payment for farmers on delivery. Transparent and independent mechanisms for settling disputes must also be considered, such as resorting to a neutral third party to seek mediation or arbitration when contractual disputes arise.

Extreme weather and other *force majeure* events have a negative impact on production and can thus affect farmers' ability to deliver on commitments to private partners and repay loans to financial institutions. The public partner will usually limit its risk exposure by taking responsibility only for monitoring and verifying problems as they occur (e.g. through laboratory tests) and by linking farmer groups to (publically subsidized) agricultural insurance products, where these exist. The private partner often shares risk with contract farmers, such as by covering some or all input costs in the case of *force majeure.* Risk mitigation mechanisms such as agricultural insurance and contingency funds can be built into the partnership design to help address these issues (as seen in case examples from Ghana and Indonesia). However, in order to do so, many developing countries need to address a number of legal, regulatory and market-based challenges associated with the operation of agricultural/crop insurance (World Bank, 2010). The market for agricultural insurance may also be available only to larger-scale farmers as the associated costs may be beyond those that many smallholder farmers can afford. For this reason, several countries (e.g. China and Turkey) have introduced pilot PPP projects for agricultural insurance, which complement existing VCD PPPs and are subsidized by

government to increase the access to and affordability of insurance for smallholders (Xing and Lu, 2010; FAO, 2014).

Technical and operational challenges

Value chain partnerships also face very specific technical and operational issues. The first of these challenges is the *failure to comply with quality standards or maintain certification*. This can be a particular problem for value chain PPPs that focus on high-value markets in which all raw materials must be certified. When certification lapses or farmers are unable to achieve compliance, end markets may be lost and private-sector partners may look for alternative sourcing arrangements with lower transaction costs (e.g. by contracting large-scale farms only or by vertically integrating production operations). Continuous monitoring and technical support for farmer groups are essential for building capacity and ensuring that compliance issues can be addressed. Forward planning is also required to ensure that funding is available for maintaining certification beyond the partnership period.

A second operational challenge pertains to *recruiting and retaining a qualified workforce*. While not unique to VCD PPPs, the loss of capable people represents an increased risk to the overall success of the partnership. This is a particular challenge for FOs given their important role in promoting and protecting smallholders' interests in VCD PPPs. FOs need skilled professionals in their management teams to negotiate, coordinate and support farmers in the execution of VCD PPP agreements, and these professionals are often older, more experienced farmers. Succession planning is needed to train younger farmers to take on future roles in FO committees and to ensure that some form of compensation is available for the time contributed to these roles. Labour shortages during peak harvesting periods were also reported as increasing the risk to the private partner through losses associated with deterioration of product quality and the operation of processing equipment below capacity. These risks can be overcome by companies and FOs working together to design production and harvesting schedules that include cyclical rotation of machinery and labour, where applicable, and to set harvesting quotas that match the company's daily processing/collection capacity. Similarly, as pressure on the rural labour force increases, all partners should be looking to support the design and implementation of strategies for improving on-farm labour productivity.

Financial challenges

Value chain partnerships were found to face two crucial financial issues: *inability to achieve scale and return on investment* over the short and medium-term, and difficulty in sustaining activities that require *investment beyond the partnership period*. Other financial challenges faced by agri-PPPs in general, such as limited funding and escalating costs, are described in Chapter 8.

Profit margins for private partners may be low to begin with, so achieving scale is important. However, creating FOs and building farmers' capacity in production and quality assurance practices take time. For this reason, partnerships involving farmers in already established commodity chains (as in the micro-VCD PPP cases) are more likely to achieve short- or medium-term targets, but potentially run the risk of excluding smaller, less experienced farmers. For instance, in the Colombian coffee case, the PPP arrangement for producing high-quality certified coffee for

Nestlé built on the existing experience of FOs that had received technical assistance and support services through FNC for more than 60 years. Conversely, longer-term partnership agreements with more flexible time horizons and potentially greater initial public-sector contributions may be needed for meso-level PPPs, where the inclusion of large numbers of less experienced smallholder farmers is a top priority to stimulate broad-based growth in a commodity subsector.

Many value chain PPP cases reported limited funding as a problem, particularly in relation to the reinvestments required to maintain certification of FOs or to renew operations beyond the partnership period, during which matching grants or subsidises may have been available. To overcome this challenge, forward planning can be built into the partnership design. In the Indonesian oil-palm case, while the company covered the first plantation phase, farmers had to pay for the second phase, during which they received no income for four years. To address this issue, the company, in partnership with cooperative leaders, began awareness raising early, encouraging farmers to start saving from the outset to cover replanting costs, and to diversify into other activities to generate income during the project's second phase. The State bank also assisted by setting up savings accounts for members. Similarly, as seen in the micro-VCD PPPs, group certification costs for FOs must also be factored into the business models and contract farming agreements between farmers and firms to envisage the time beyond the PPP period, when public funding is likely to be phased out.

Private partners' perception of limited first-mover advantages: In some cases, a specific challenge reported by private partners was the perception of limited first-mover advantages. One of the key driving forces for private partners to enter into VCD PPPs is to take advantage of market opportunities and potentially to gain first-mover advantages in previously unexploited markets. However, these advantages may be short-lived and are by no means a guaranteed outcome of a partnership.

The establishment of local supply networks and capacity development of related rural institutions lower the market barriers for new competitors to enter the market. This factor was a specific issue for the Ugandan sunflower oil PPP as the private partner actually lost access to raw materials towards the end of the partnership because of new competitors entering the market. The firm felt that its commitment and high-risk upfront investment were insufficiently rewarded.

Challenges related to social and environmental sustainability

The negative impacts of challenges related to social and environmental sustainability were also reported in the value chain PPP cases. Further analysis is required to verify the validity of these claims and to quantify the negative impacts; however, the PPP cases identified in this study are not unique in raising this issue.[19] These and other sustainability challenges are appraised in more detail in Chapters 7 and 8.

Social and political challenges included *land grabbing* and the *exclusion of smallholder farmers.* Land tenure issues are particularly important to this type of

[19] For further discussion of the negative impacts associated with sustainability in VCD PPPs see Oxfam, 2014.

BOX 7

The challenge of land grabbing and potential solutions: evidence from Indonesia

The rapid growth of oil-palm cultivation in Indonesia has created a high-risk situation in which land disputes between communities and processing companies are common. To avoid land grabbing and to strengthen the relationships between companies and communities, a series of mechanisms were introduced in the Indonesian oil-palm PPP appraised in this study:

- A nucleus estate scheme was adopted, which integrates smallholder farms into a large-size, modern plantation company.
- Collaboration between local government units and village unit cooperatives was strengthened to ensure that land titling and land transfers were legal and that farmers engaging in partnership activities were doing so willingly and with their own legally owned land.
- The National Land Agency – the government agency responsible for registering land titles, supervising landownership and ensuring that decision-making over land is inclusive and transparent – was invited to participate in implementation of the PPP.

PPP, and are therefore worth mentioning here. Accusations of land grabbing and the relocation of indigenous people were reported in the oil-palm case from Colombia. Land was reportedly taken away from indigenous communities during the expansion of large-scale commercial oil-palm operations. Similar issues were faced in the Indonesian oil-palm PPP, but measures were taken to prevent land disputes, as reported in Box 7.

Environmental concerns included such issues as the impact on national food security of the expansion of monoculture, export or non-food crops, and the clearing/deforestation of land as demand for new production areas increased. While no concrete evidence/evaluation of these impacts was available from the case studies, measures were adopted in some partnership agreements to address these concerns. For example, in Uganda, private partners encouraged farmers to plant trees around their farms to act as windbreaks and mitigate climate change effects, and nurseries were set up to provide farmers with trees as a means of addressing these issues while diversifying farm activities and income sources. A similar approach was adopted in Colombia in the coffee case, in partnership with the Rainforest Alliance. In Indonesia, the private company had to maintain certification from the Roundtable on Sustainable Palm Oil for the duration of the partnership as a requirement for receiving support from the MOA.

3.7 SUCCESS FACTORS AND LESSONS

Based on the 70 cases assessed by this study, a number of common factors can be identified that have the potential to positively influence performance of agri-PPPs. While these factors are discussed more broadly in Chapter 8, the following are some that were found to be particularly relevant to VCD PPPs:

- *Conducting value chain analysis studies to identify appropriate commodity chains, intervention points and market demand for the outputs of VCD PPPs*: In most of the cases documented, value chain analysis studies formed a critical component of the pre-feasibility assessment during design of the partnership. These studies were essential in determining domestic, regional and/or export market demand for the projected increase in production/value addition of raw materials, and in identifying the intervention points that were best suited to public, private or joint implementation of activities to address bottlenecks.
  It is important to note that not all value chain upgrading projects will be suited to a formalized PPP approach in which public partners take a more active (and interventionist) role to ensure that public objectives are met in line with national socio-economic development goals. In some instances, private partners alone will be more effective in partnering directly with FOs and other value chain partners with limited direct interference by the public sector. This is particularly the case where commercial interests predominate and farmers are adequately skilled to engage as independent business partners.
- *Adopt a participatory approach during the design phase*: Multi-stakeholder meetings/consultations are important for VCD PPPs. These partnerships require buy-in at all levels of the chain and negotiations need to be transparent about expected costs, revenues, return on investment, market demand forecasts, and the expectations of participating actors. Having senior-level staff from both sides of the partnership lead the consultations is seen as useful in demonstrating the importance of the partnership to all actors. Support from local government was also found to be critical for the success of PPPs.
- *Promoting the roles of FOs in intermediation and capacity development*: The important role of cooperatives/FOs as intermediaries among farmers, the company and the public partners has been highlighted and should be fostered. Public partners can play a major role in increasing farmers' ability to forge links with private businesses by transferring much-needed technical and managerial knowledge and skills to farmers through support to FOs. Building and strengthening FOs appears to have particularly good results when drawing on existing social capital in particular regions. Private partners can also help to build FOs' skills in business administration and thus transfer some of the administrative tasks associated with the partnership to the field. This skill building will increase the professional capacity of farmer groups while also reducing monitoring costs.
- *Creating an active (and rewarding) role for local authorities*: In many countries, decentralization policies have transferred authority and new responsibilities in delivering public services to local authorities, but public budgetary resources and capacity are often stretched. Active roles for local authorities in the design, implementation and monitoring of VCD PPPs were found to be particularly important to the sustainability and potential for impact of the partnership. Job satisfaction and commitment to the partnership were dramatically improved when opportunities were created for training and capacity development of local partners, and when some degree of control over partnership funds was built into the partnership agreement. Incorporating minimal economic incentives (e.g. adequate per diems for fieldwork, and small performance-based salary increases) also proved valuable in helping to retain commitment.

At the central level, a mechanism should be put in place for recognizing public institutions that demonstrate strong delivery on their roles in partnerships, in line with their mandates to provide demand-driven services to support growth of the private sector. This mechanism can be particularly effective when tied to future budget allocations from the State based on annual institutional performance reviews.

- *Rewarding private partners' commitment through exclusive supply agreements*: Such rewards can be considered somewhat controversial, as rewarding the private partner may act against the public partners' objectives (and public opinion) if it is seen as disproportionately distorting market conditions to the exclusion of other private-sector enterprises. While the ideal situation is to avoid creating a monopoly through the PPP, good partners should be rewarded for their willingness to partner through exclusive supply agreements, at least for the duration of the partnership. PPPs also have the potential to stimulate the development of complementary markets and linkages between subsectors, so the benefits accrued by the private partner should not be viewed in isolation, but also in terms of the potential for spillover effects. For example, in the Ugandan case, increased production of sunflower stimulated the development of beekeeping enterprises, with beekeepers requesting agreements with the agroprocessing company to allow their hives to be placed in farmers' fields. Recommendations on using maize as a rotation crop with sunflower also stimulated investment in maize processing plants.
- *Creating synergies with other public-sector programmes and/or networks*: In addition to collaboration with the core public partners involved in the agreement, linkages to other public-sector networks such as research institutions and trade promotion agencies were also highly valued by private partners. Where such linkages were possible, the private sector considered them a positive externality of the PPP. That is, the link with the initial public partner opened avenues for the private partner to obtain access to other public services previously unavailable/unknown to it.
- *Monitoring and evaluating key partnership indicators, including farmgate prices*: M&E was generally weak across all the cases, particularly in terms of reporting against economic and investment indicators for the partnership. However, in the palm oil case in Indonesia, transparent price monitoring and reporting helped to improve partners' commitment by reducing the potential for price disputes and side-selling. An M&E team comprising representatives from the local government and the estate department, staff from the private company and farmer representatives monitored prices once every two weeks and shared this information with all partners so that they were well informed on how prices were set and revenues shared.
- *Addressing issues in the enabling environment to improve the potential for long-term impact*: To achieve broader-based impact from value chain PPPs, a supportive regulatory environment with appropriate financial and non-financial incentives for private-sector investment needs to be developed in conjunction with PPP programmes or through the learning-by-doing process associated with the PPP. The meso-VCD PPP examples from Indonesia and Uganda were more successful than others in identifying these conditions and creating the necessary regulatory frameworks to ensure not only that the individual companies involved in the PPPs benefited in the long term, but also that other private companies (including

SMAEs) were encouraged to enter the market or replicate the partnership in other parts of the country. In the Ugandan case, during the PPP implementation period, an additional 23 new sunflower processing companies entered the market as a result of the expanded raw material supply base and the favourable regulatory environment created by the PPP.

REFERENCES

CIAT. 2010. *LINK methodology: A participatory guide to business models that link smallholders to markets*, by M. Lundy, G. Becx, N. Zamierowski, A. Amrein, J.J. Hurtado, E.E. Mosquera and F. Rodriguez. Cali, Colombia, International Center for Tropical Agriculture (CIAT). http://www.value-chains.org/dyn/bds/docs/838/LINK_Methodology.pdf (accessed February 2016)

CIAT. 2015. *Productive partnerships: An effective instrument for the inclusion of vulnerable population groups in diverse contexts of Colombia*, by M. Lundy, R.I. Parra-Peña, C.L. Jaramillo, A. Amrein, J. Hurtado and C. Gonzalez. Policy Brief No. 24. Cali, Colombia, International Center for Tropical Agriculture (CIAT). https://cgspace.cgiar.org/bitstream/handle/10568/67730/PB24_PRODUCTIVE_PARTNERSHIPS.pdf?sequence=1 (accessed February 2016)

DCED. 2014. *Demonstrating additionality in private sector development initiatives. A practical exploration of good practice for challenge funds and other cost-sharing mechanisms*, by M. Heinrich. Cambridge, UK, Donor Committee for Enterprise Development (DCED). http://www.enterprise-development.org/page/download?id=2400 (accessed February 2016)

FAO. 2001. *Contract farming. Partnerships for growth*, by C. Eaton and A.W. Shepherd. FAO Agricultural Services Bulletin No. 145. Rome. www.fao.org/docrep/014/y0937e/y0937e00.pdf (accessed February 2016)

FAO. 2012a. *Guiding principles for responsible contract farming operations*, by C. Pultrone, C.A. da Silva and A. Shepherd. Rome. http://www.fao.org/docrep/016/i2858e/i2858e.pdf (accessed February 2016)

FAO. 2012b. *Smallholder business models for agribusiness-led development: good practice and policy guidance*, by S. Kelly. Rome. www.fao.org/docrep/015/md923e/md923e00.pdf (accessed February 2016)

FAO. 2013a. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Uganda; Latin America (in Spanish): Colombia, Peru; Asia: Indonesia. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

FAO. 2013b. *Contract farming for inclusive market access*, edited by C.A. Da Silva and M. Rankin. Rome. http://www.fao.org/3/a-i3526e.pdf (accessed February 2016)

FAO. 2014. *Options for public–private partnerships in agri-food sector development in the BSEC region*, by D. Oze. Budapest, Hungary, FAO Regional Office for Europe and Central Asia. http://www.fao.org/fileadmin/user_upload/Europe/documents/Events_2014/BSEC/ppp1_en.pdf (accessed February 2016)

IDS & IFAD. 2015. *Brokering development: enabling factors for public–private–producer partnerships in agricultural value chains*, by J. Thorpe and M. Maestre. Brighton, UK, Institute for Development Studies (IDS) and Rome, International Fund for Agricultural Development (IFAD). https://www.ifad.org/documents/10180/3533bdf5-ee8c-49a9-9aa5-c3254a3d1507 (accessed February 2016)

IFAD. 2014. *IFAD and public–private partnerships: Selected project experiences.* Rome, International Fund for Agricultural Development (IFAD). https://www.ifad.org/documents/10180/451226eb-1fc6-4474-b39d-f3cafed5164a (accessed February 2016)

MFA. 2013. *Public–private partnerships in developing countries: A systemic literature review*. IOB Study No. 378. The Hague, Ministry of Foreign Affairs of the Netherlands (MFA). http://www.oecd.org/dac/evaluation/IOBstudy378publicprivatepartnershipsindevelopingcountries.pdf (accessed February 2016)

OECD. 2014. *Public–private partnerships for agricultural innovation: 6th meeting of the Food Chain Analysis Network, 13–14 October 2014.* Paris, Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/site/agrfcn/Agenda_PPP%20meeting_13-14%20October%202014%20FINAL.pdf (accessed February 2016)

Oxfam. 2010. *Think big. Go small. Adapting business models to incorporate smallholders into supply chains.* Briefings for Business No. 6. Oxford, UK, Oxfam International. https://www.oxfam.org/sites/www.oxfam.org/files/b4b-think-big-go-small.pdf (accessed February 2016)

Oxfam. 2014. *Moral hazard? 'Mega' public–private partnerships in African agriculture.* Oxfam Briefing Paper No. 188. Oxford, UK, Oxfam International. http://www.oxfam.de/sites/www.oxfam.de/files/bp188-public-private-partnerships-agriculture-africa-010914-en.pdf (accessed February 2016)

Syngenta. 2014. *Syngenta part of innovative public, private, producer partnership (P4) to improve wheat breeding through double-haploid technology.* Guelph, Ontario, Canada. (press release 7 October 2014). http://www.farms.com/news/innovative-initiative-accelerates-wheat-breeding-82546.aspx (accessed February 2016)

UNIDROIT, FAO & IFAD. 2015. *UNIDROIT/FAO/IFAD Legal Guide on Contract Farming.* Rome, International Institute for the Unification of Private Law (UNDROIT), FAO and International Fund for International Development (IFAD). http://www.fao.org/3/a-i4756e.pdf (accessed February 2016)

USAID. 2010. *(Re)Valuing public-private alliances: An outcomes-based solution*, by J. Saul, C. Davenport and A. Ouellette. Washington, DC, United States Agency for International Development (USAID), Private Sector Alliances Division. https://www.usaid.gov/sites/default/files/documents/1880/RevaluingPublicPrivateAlliances.pdf (accessed February 2016)

VALGEN. 2012. *Public private producer partnerships in Canada.* Policy Brief No. 39. Saskatoon, Saskatchewan, Canada, Value Addition through Genomics (VALGEN) and GE3LS. http://www.valgen.ca/wp-content/uploads/Policy-Brief-39-Dec-20121.pdf

World Bank. 2010. *Government support to agricultural insurance: challenges and options for developing countries*, by O. Mahul and C.J. Stutley. Washington, DC. https://openknowledge.worldbank.org/bitstream/handle/10986/2432/538810PUB0Gove101Official0Use0Only1.pdf?sequence=1

Xing, L. & Lu, K. 2010. The importance of public–private–partnerships in agricultural insurance in China: based on analysis for Beijing. *Agriculture and Agriculture Science Procedia, 1: 241–250.* http://www.sciencedirect.com/science/article/pii/S2210784310000318# (accessed February 2016)

Chapter 4

Partnerships for innovation and technology transfer

4.1 RATIONALE FOR INNOVATION AND TECHNOLOGY TRANSFER PARTNERSHIPS

There is little doubt that if developing countries are to achieve their objectives related to sustainable agricultural development, improvements need to be made to the existing agricultural innovation system and approaches to technology transfer in many countries. Achieving the targets for agricultural growth and rural poverty reduction set out in national socio-economic development plans requires advances in agricultural productivity, labour efficiency and value addition. None of these targets are likely to be met in the absence of innovative applied research solutions that address complex problems such as pest and disease management, climate change impacts, post-harvest losses, poor product quality and food safety, and low value addition. The question of how to ensure that appropriate technologies are available to the people who need them most – the remote and rural poor – is also a major challenge that needs to be addressed. This chapter discusses the potential for agricultural innovation and technology transfer (ITT) PPPs to address such challenges.

The use of PPPs for ITT and R&D is not new and its prevalence in both developed and developing countries is predicated on the following reasons (Spielman *et al.*, 2010; IFPRI, 2008; Boland, 2012):

- Innovation theory holds that through collaboration, interdependencies among institutions are established, which foster innovation. PPPs provide a framework for coordinating the financial, R&D and governance activities of innovation systems by organizing researchers, service providers and farmers into networks that enhance the demand-driven nature of research solutions and facilitate more efficient transfer of innovative technologies to farmers.
- Global public-sector funding for agricultural research followed a downwards trend during the 1990s, but gradually increased during the 2000–2008 period, from US$26.1 billion to US$31.7 billion, representing an average annual growth rate of 2.4 percent[20] (Beintema *et al.*, 2012). Despite this renewed positive trend, the public sector no longer has the necessary finances to assume sole responsibility

[20] Nearly half (49 percent) of the global increase in public spending (US$5.6 billion) on R&D during 2000–2008 came from China and India, followed by the United States of America (~9 percent) and with countries such as Brazil and Japan also significantly increasing contributions. At the time of preparing this report, 2008 was the latest year for which reliable data on public R&D spending were available, according to the Agricultural Science and Technology Indicators (ASTI) initiative (ASTI, 2012).

for developing and disseminating improved cultivars and production techniques for farmers, nor does it necessarily have the advanced technical and management skills required. Many developing countries face human resource challenges, despite efforts to reform public agricultural research systems in recent decades. Common challenges include an ageing cadre of research scientists, little succession planning, and high staff turnover because of low salaries and limited training opportunities for entry- and mid-level professionals.

- Global private-sector investment in agricultural research and food processing has also steadily increased, from US$12.9 billion in 1994 to US$18.2 billion in 2008 (Beintema *et al.*, 2012). From 2000 to 2008, private investment increased by 26 percent to represent 21 percent of total global agricultural R&D spending (excluding food manufacturing research) in 2008. In India and China, private-sector investment accounts for up to 19 percent and 16 percent respectively of total agricultural research spending. When food processing research is included, it is estimated that the private sector accounts for between 39 and 45 percent of total global investment in food and agricultural R&D (Fuglie *et al.*, 2011).
- These increases in both public and private research spending, particularly in downstream research into food manufacturing, are well aligned with the rationale for the value chain PPPs discussed in section 3.1, and highlights the growing demand for value-added food products, driven by newly emerging market opportunities. The rationale for VCD PPPs also acknowledges that the globalization of food and agricultural systems calls for a reduction in productivity differences among nations and regions so that farmers can compete in increasingly integrated markets. This reduction requires research and technology solutions that extend beyond the traditional public or private R&D investment models for agricultural inputs into other demand-driven research areas including food manufacturing and biofuels.

In general, partnering with the private sector often provides an opportunity for the public sector to leverage investment and gain access to cutting-edge technology, research methods and management skills to develop the products of research from the conceptual phase through to commercialization and adoption at various stages of the value chain. Such partnerships may also provide opportunities to earn much-needed additional income from licensing of new varieties and royalties, which can be channelled back into applied research to bridge the gaps in public funding. For private partners, PPPs provide an opportunity to reduce the risk associated with entering new and emerging markets by sharing investment costs, drawing on local technical skills and genetic materials, securing a level of protection over intellectual property (IP) and plant breeders' rights, and tapping into extensive public-sector rural networks that can be used to support product distribution and adoption.

4.2 PARTNERSHIP OBJECTIVES AND CHARACTERISTICS

Eighteen cases were classified as ITT PPPs based on findings from the FAO PPP country reports (FAO, 2013) – 26 percent of all the cases. These 18 cases represent a diverse range of projects designed to develop, commercialize and drive adoption of inputs for enhancing agricultural productivity, post-harvest value addition technologies and new agronomic management systems.

While the purposes of ITT PPPs may be diverse, each of these partnerships was designed to address a specific national problem and related economic, social and/or environmental concerns. Common high-level partnership objectives were to:

- address *national food security* concerns related to staples, including rice, maize and wheat (case examples from China, Indonesia, Kenya, Pakistan, Thailand and Uganda);
- overcome *loss of (or limited) market access* resulting from pest and disease problems (Kenya and Thailand) or environmental degradation (Pakistan and Thailand);
- generate *rural employment and increasing labour productivity* through adoption of new farming methods and models in Africa (China's Zimbabwe case, and Nigeria).

The cases can be categorized as follows:

- *traditional R&D PPPs for the development and commercialization of agricultural inputs*, including new seed and plant varieties with specific genetic traits such as pest and disease resistance and climate adaptation (nine cases);
- *PPPs that develop and commercialize new small-scale, value-adding technologies* for adoption by SMAEs (four cases);
- technology transfer PPPs that are designed to *demonstrate and stimulate demand for new technologies*, such as agricultural machinery, and adoption of advanced integrated farming practices, such as sustainable farming systems (three cases);
- *4P (public-private-producer partnership) national research programmes to enhance the demand-driven nature of research for agro-industry development* (two cases).

Two case studies from the United Republic of Tanzania fit the 4P model, in which FOs play an active role in the partnership alongside downstream private actors through the contribution of funding via research levies on sugar and tea outputs. FOs also provide inputs into the setting of research agendas for industry through participation as members of the Sugar Board of Tanzania and on the Board of Directors of the Tea Research Institute of Tanzania (TRIT), see Box 8. These models have been adopted based on evidence of positive experiences in developed countries including Australia and Canada.[21] In both these countries, 4P initiatives began in the 1990s, and positive impacts from the 4P model have been verified in terms of returns on investment for research and the delivery of economic and social benefits for farmers and industry, which can be considered as contributing to the public good.

[21] See the funding structure of the Australian Grains Research and Development Corporation – https://www.grdc.com.au/About-Us/Investment-Process; the research programme of the Saskatchewan Pulse Growers in Canada – http://www.saskpulse.com/research-development/overview; the programme for agriculture of the Australian Cooperative Research Centres Association – http://crca.asn.au/about-the-crc-association/about-crcs/; and Agriculture and Agri-Food Canada's AgriInnovation Program – http://www.agr.gc.ca/eng/?id=1354301302625

BOX 8

4P research partnerships for sugar and tea in the United Republic of Tanzania

The sugar research PPP was formulated when sugar cane growers with old and low-yielding cane varieties needed research results to obtain new, high-yielding and improved varieties that could thrive in different cane growing areas of the country. Sugar cane outgrowers also faced difficulties with poor sugar cane husbandry, lack of proper irrigation systems and fertilizers, and weak pest management and control. All these issues called for research. Sugar research programmes were thus undertaken by the Sugarcane Research Institute in Kibaha through a PPP arrangement – the government provided infrastructure and paid the researchers' salaries while sugar industries contributed research funds. The private partners in the sugar research PPP are associations of millers and growers. It was agreed that for every tonne of sugar produced, TSh 1 000 would be deducted from the price and used for research activities. With sugar production estimated in the region of 250 000–300 000 tonnes/year, this translates into an average of TSh 275 million (~US$150 000) available for research each year.

TRIT was funded by a statutory cess (tax) levied on all tea producers and grant aid from willing donors until 2006, when the government abolished the cess, opting instead to contribute directly to tea research. However, stakeholders continued to support TRIT through a voluntary contribution of TSh 5 for each kilogram of processed tea. TRIT obtains support from the government (public sector) for approximately 70 percent of its staff wages and 20–30 percent of operational costs. Its mandate is to support continuous development of the tea industry and of both large- and small-scale producers through the transfer of high-quality, cost-effective R&D results to ensure sustainability of the industry. Research priorities are determined by the stakeholders, represented by a Board of Directors.

Source: FAO, 2013: United Republic of Tanzania country report.

4.3 OVERVIEW OF THE CASES

This section presents findings from nine cases selected from the 18 ITT PPPs:

- The five cases highlighted in Table 5 are seed production and commercialization PPPs, which represent the most commonly reported technology model for agri-PPPs in developing countries.
- Table 6 highlights PPPs for developing and commercializing small-scale technologies to support SMAEs.

Four of the five cases presented in Table 5 were implemented specifically to address *national food security* concerns associated with the production of food staples by ensuring affordable access for smallholders to certified seed varieties adapted to local conditions. The example from Pakistan used the PPP model to target a drought-prone area that was previously considered unprofitable for commercial seed production and marketing. The PPPs also played a role in *regulating the seed market* by ensuring that the seed produced under the partnership agreement met national standards.

TABLE 5
Overview of ITT PPP cases

	Indonesia	Kenya	Pakistan	Thailand (1)	Uganda
Partnership duration	1997 ongoing	2005 ongoing	2010–2012 Pilot project implemented in accordance with 2010 PPP policy framework	2004–2007	1999 ongoing
Product/ service	Certified high-quality rice seeds	Herbicide-coated, insect-resistant maize seed (striga weed infestation)	Drought-resistant wheat seed	Disease-resistant okra seed (yellow vein virus)	Certified high-quality maize, rice, cotton and sorghum seeds
Public partners' objectives	Food security Capacity building for farmers in seed production and harvesting Increased incomes and welfare for smallholder farmers Reduced role of illegal lenders through provision of inputs in-kind	Food security Poverty reduction Reduced grain losses from striga weed infestation, by 20–80% – ~300 000 tonnes/year of maize lost, valued at US$9.5 million	Food security through geographic targeting of rural poor Provision of appropriate and affordable technology adapted to local conditions Environmental benefits – soil conservation Business growth for local seed dealers	Seed import substitution Reduced farming losses and chemical use Restoration of high-value export market – exports reduced by 22% in 2000 because of yellow vein virus	Food security Poverty reduction Support to development of private-sector seed market through certified quality seeds
Public partners	State-owned enterprise PT Pertani Persero Seed control and certification services agency Rice research agency Oversight by MOA and Ministry of State-Owned Enterprises	African Agricultural Technology Foundation Rockefeller Foundation Kenya Agricultural Research Institute Maseno University International Maize and Wheat Improvement Center Weizmann Institute of Science (Israel) NGOs – Forum for Organic Resource Management and Agricultural Technologies, and Resource Project Kenya	Sustainable Land Management Programme Barani Agricultural Research Institute Associated agencies – Federal Seed Certification and Registration Department and Punjab Seed Corporation Oversight by PPP Unit in Planning and Development Department of Punjab	National Center for Genetic Engineering and Biotechnology	National Agricultural Research Organisation National seed certifying authority Mubuku irrigation scheme

TABLE 5
(continued)

	Indonesia	Kenya	Pakistan	Thailand (1)	Uganda
Private partners	Farmer groups	BASF East Africa Ltd Western Seed Company	Zamindara Seed Corporation	Uniseeds Co Ltd (seed producer and okra exporter)	Farm Inputs Care Centre Ltd
Investment	US$662 000 per annum: Public funding to subsidize 20% of market prices of seed inputs All other costs (80%) covered by private partners	US$450 000 grant from Rockefeller Foundation for initial phase In-kind contributions from all other partners (undisclosed)	US$14 300: 48% public 52% private	US$114 000: 15% public 85% private	Public: Unspecified in-kind – technical assistance and land lease Private – 25% of seed profits returned to public partner
Driver	Public partner	Public partner	Public partner	Private partner	Private partner
Incentives for private sector	Contract farming system offering secured market Price stability Subsidized inputs Technical assistance	Subsidized R&D phase IP rights to herbicide-resistant seed (BASF) Exclusive distribution rights under licence in Kenya Use of adoption networks (via NGOs) Tax waivers on production and processing equipment	Subsidized market entry Exclusive access to new seed varieties and rights to distribute (IP remains with the research institute) Access to pre-existing farmer and trader networks All profits from seed sales	Access to public-sector technology Ownership of seed IP	Exclusive access to new seed varieties and rights to distribute (IP remains with the research institute) 20% vertically integrated production allowed No value-added tax on agro-inputs

Source: authors' compilation based on FAO, 2013 country reports.

The typical ITT PPP model involves a *public research institute* as the provider of the foundation seed or improved technology, a private seed company responsible for multiplication and commercial distribution of the seed under an exclusive licensing agreement, and contract farmers who produce the seed under buy-back agreements with the private partner. However, there are variations on this model, as highlighted in the Thai example in Table 5. In this case, the public research institute provided diagnostic services to develop a testing method for screening seed for disease resistance, while new variety development, multiplication and distribution were vertically integrated into the operations of the private seed company (without the use of contract farmers), which retained full rights to the IP. In Uganda, the standard model was introduced to support liberalization of the seed industry, which had previously been under a government monopoly. In the Indonesian case, State-owned enterprises remained responsible for protecting and commercializing rice seed varieties developed by national research institutes, but had to enter into

production partnerships with farmer groups. The Kenyan example represents the most complex form of PPP management – multi-stakeholder collaboration. This model was considered necessary because of the scale of the problem associated with striga weed infestation in wheat, and the technology and adoption challenges associated with developing and commercializing a difficult product.[22]

The ITT PPP model for SMAE development (Table 6) presents a more heterogeneous set of cases, but all of them involved a national research institution that developed innovations in partnership with SMAEs. Each partnership was designed to solve a specific technology constraint that inhibited productivity or efficiency and limited competitiveness of the agriculture sector. For example, Chilean case 1 for pisco (an alcoholic drink from grapes) aimed to develop alternative, high-value products and identify market opportunities for a sector that had lost competitiveness in the country. Innovations were introduced along the entire value chain with the aim of stimulating value addition: new plant varieties were developed to produce more aromatic grapes, processing plants were built and new products were developed (vodka and non-alcoholic drinks) in partnership with SMAEs. On the marketing side, new packaging, branding and recipes for the preparation of pisco cocktails were created with the aim of targeting export markets. The PPP in Chilean case 2 developed and introduced new varieties of olive trees adapted to the climate conditions of a marginal region. The partnership also worked with newly established SMAEs to introduce small-scale technology for processing olive oil in the region, thus stimulating both the production and value-addition aspects of a new value chain in an attempt to deliver economic benefits to a marginalized region.

Thai case 2 was designed as part of a national strategy for increasing productivity and reducing the risk of avian influenza in the poultry sector. The partnership resulted in the development of small-scale air-control fans that were tested in poultry feeding houses in partnership with SMAEs. This new technology filled a gap in the market, which was previously served only by expensive imported fans that were not suited to local conditions. Adoption by SMAEs resulted in significant savings in terms of upfront investment, energy costs and productivity gains. Thai case 3 was designed to develop and promote the adoption of biogas technology in poultry slaughterhouses. By using wastewater from slaughter operations to produce biogas, the overall aim of the partnership was to improve community health by reducing pollution and greenhouse gas emissions in line with national commitments, while reducing the production costs associated with energy spending.

[22] The PPP resulted in the development and commercialization of Strigaway seed, which is an insect-resistant maize seed coated with a low dose of herbicide (imazapyr) that prevents the phytotoxic effect of striga on maize. Because of the herbicide coating, a separate seed production line had to be established, and farmers are advised to wear gloves when planting the seed and to avoid contact between Strigaway and other seeds, which the herbicide would affect. The product should also be used as part of an integrated pest management system.

TABLE 6
Overview of ITT PPP cases for SMAE development

	Chile (1)	**Chile** (2)	**Thailand** (2)	**Thailand** (3)
Partnership duration	2009 ongoing	2000–2010	2005–2009	2008–2013
Product(s)/ service(s)	New varieties, processing and product development of pisco	New varieties of olive trees Small-scale agroprocessing technology for olive oil	Air-control fans for poultry feeding houses	Biogas systems for operation in poultry slaughterhouses
Public partners' objectives	Revitalization of an economic subsector in two regions Inclusion of smallholder producers	Recovery of marginal land areas Employment generation	Energy savings, with reduced energy and therefore production costs Increased productivity Reduced risk of avian influenza Import substitution	Control of wastewater pollution Reduced greenhouse gas (methane) emissions Reduced crude oil use, with savings on energy costs Recycling of wastewater Education of actors on benefits of biogas production
Public partners	Foundation for Agricultural Innovation Agricultural Research Institute	Foundation for Agricultural Innovation Chilean Economic Development Agency	National Science and Technology Development Agency	Energy Research and Development Institute
Private partners	9 pisco processing companies	Initially 3 companies, with another 47 joining after 5 years	B. International and Technology Company Ltd, a subsidiary of Betagro Group	Betagro Land Company Ltd GFPT Nichirei (Thailand) Company Ltd F&F Thailand Bangkok Produce Company Ltd
Investment	US$2.4 million: 75% public 25% private	US$1.3 million: 77% public 23% private	THB 2.16 million: 42% public 58% private	THB 24 million: 30% public 70% private
Driver	Public partner	Public partner	Public partner	Public partner
Incentives for private sector	Co-investment for market development and certification	Pre-investment and feasibility analysis Access to irrigation subsidies	Stimulation of domestic demand to replace imported technologies Possibility for replicating technology in other sectors Tax deductions	Reduced energy costs Shared investment in biogas infrastructure

Source: authors' compilation based on FAO, 2013 country reports.

4.4 MAIN ROLES AND FUNCTIONS OF PARTNERS

Public partners' roles

The most common roles for public partners in ITT PPPs can be classified as follows:

- *Leading the preparatory phase*: The public partner designs the PPP concept independently or with the private partner, depending on the driver and the degree of formality of the partnership. For most formal PPPs, once the PPP concept has been developed, the public partner manages the bidding and evaluation process for selecting private partners, in partnership with relevant institutions such as the MOA, local government and PPP units/departments. For less formal PPP agreements, the public partner is responsible for drafting the working letter/MOU in accordance with laws.
- *Conducting or commissioning feasibility studies*: Such studies may include assessment of land availability and suitability for seed multiplication; market analysis to determine demand for uptake of new technologies and absorption capacity of end markets for increased output or value-added products; assessment of the environmental impact associated with technology dissemination; estimation of economic benefits for all partners; assessment of the financial feasibility of partners undertaking investments; and verification of SMAEs' willingness to adopt innovative technologies.
- *Facilitating negotiations*: This role involves entering into negotiations with private partners over such issues as ownership of IP rights for seeds or new technologies; inclusion of smallholder farmers in seed production; risk allocation in case of *force majeure* under contract farming agreements; terms of sale, including maximum price ceilings for new technologies and numbers of distribution outlets to ensure accessibility; and non-disclosure agreements for third-party contractors participating in technology development.
- *Ensuring regulatory compliance*: The list of tasks for this role can encompass issuing licences to private partners for use of plant varieties; ensuring seed purity in accordance with national testing and certification bodies; vetting contract farming agreements on behalf of smallholders; promoting measures to limit the sale of fake inputs on the market (e.g. import bans, fines for agrodealers who sell fake inputs); and issuing decrees to support local-level implementation, where necessary, including policy related to energy and environmental protection.
- *Providing funding*: The public partner typically determines funding levels and the schedules for releasing funds, in partnership with the private partner, to ensure timely delivery of funds and avoid delays in activities. It also acts as the guarantor of commercial bank loans.
- *Providing coordination and oversight*: For complex multi-stakeholder partnerships, one public partner is usually responsible for coordinating the activities of all partners. This role involves streamlining regulatory approval for the partnership; overseeing project management and the flow of funds; coordinating partners' activities at all stages of the process, from upstream technology development to downstream dissemination of technology; and marketing of products to end markets. Oversight may also involve selecting and monitoring third-party contractors for technology development.
- *Acting as facilitator*: This role involves supporting access to necessary public infrastructure (e.g. irrigation systems, connecting roads) and land; linking to

pre-existing extension networks; identifying suitable farmer groups and SMAEs to work with private partners; and providing support to the development of new farmer groups and agro-enterprises.

- *Providing technical assistance to support the commercialization of public technology*: This role may involve providing private partners with access to foundation seed or other technology under licence; offering guidelines on multiplication or application procedures; and supporting field trials and providing technical advice, as required, during the multiplication/replication phase. The public partner may also provide technical assistance to support the development of new small-scale technologies by working with the private partner during the various stages of technology development, from initial conceptualization to piloting. The extent of technical assistance provided will vary depending on the stage of the process and the skills of the public partner. For example, in Thai case study 1, the public partner led the first phase, when a new biotechnology virus screening technique had to be developed for screening okra samples; in the second phase, the private partner developed and field tested new hybrid seed varieties, which were then screened by the public partner to select for resistance, prior to field trials for commercialization. The public partner provided similar technical support to the lead private firm and SMAEs during the design, construction, operation and adoption of environment-friendly technologies such as air-control fans for poultry feeding houses (Thai case 2) and biogas systems (Thai case 3).
- *Leading research*: In the cases in Chile, the Foundation for Agricultural Innovation set up a territorial development programme to improve the competitiveness of selected geographical areas. For Atacama and Coquimbo regions, the national Agricultural Research Institute was commissioned to develop improved grape varieties and new processing technologies for the pisco value chain.
- *Monitoring the partnership*: The public partner is often tasked with M&E activities such as tracking progress in project implementation; ensuring that private partners adhere to seed multiplication guidelines; monitoring relationships between private partners and farmer groups/SMAEs; and performing field checks throughout seed production stages (vegetative, generative and pre-harvesting), in partnership with seed certification authorities. When the public partner retains ownership of the IP, it will also likely be involved in monitoring the private partner's sale of seeds/small-scale technologies under licence, and will require the submission of sales records as the basis for calculating royalty payments.

Private partners' roles

As a complement to the public partners' roles, the main roles played by the *lead agribusiness enterprise* are:

- undertaking market analysis to determine the demand for new technologies and the potential for returns on investment;
- contributing funding or in-kind resources as agreed;
- participating in/leading the testing of new technology in the field prior to commercialization;
- negotiating IP ownership issues, licensing and sales agreements;

TABLE 7
Summary of ITT PPP performance

	Indonesia	Kenya	Pakistan	Thailand (1)	Uganda
Achievements	2 new varieties commercialized 20 000 ha under contract 450 farmer groups employed	51 280 farmers planted seeds 107 demonstration sites 30 field days 82 000 additional tonnes of maize produced, worth ~US$17 million	90 000 kg of drought-resistant seed produced 4 seed distribution points established 5 farmers contracted Operation taken over by private partner	6 varieties developed – 2 commercialized Farmers' incomes increased Export market growth	9 new seed varieties commercialized More than 200 contract farmers (individuals and groups) with land of 16–60 ha
Benefits for public partners	Contribution to national food security programme Quality, quantity and continuity of seed production secured Improved logistics and storage End customer needs met through product traits developed (varieties for McDonald's) Market share increased to 34% nationally and up to 80% in some provinces	Contribution to national food security and poverty reduction programme New skills developed in striga weed biology and control, weed-resistant seed technology can be transferred to other crops Enabling environment for investment created New contract farming agreements Revolving funds	Contribution to national food security and poverty reduction programme Improved seed variety available at affordable rates in local area Reduced soil erosion through increased planting areas Increased income for research institute through sale of basic seed under licence Effectiveness of PPP model demonstrated	Value of supporting private-sector innovation demonstrated to national government – likely to be rewarded with allocations of additional public funding Experience gained in okra breeding New virus examination technique developed – can be applied in other projects Recognised by the private sector as a valuable partner for future projects	Fulfilment of government's mandate to support growth of liberalized seed sector Royalties from breeding activities generated can be reinvested in research Improved quality and quantity of seed available for distribution
Benefits for private partners	Access to high-quality inputs Seed production, harvesting and business management skills developed Income secured Access to formal credit facilities	New product and market entry Sole distributor of weed-resistant maize variety	New market entry Sole distributor of drought-resistant varieties 55% return on capital invested 24% sales margin	Supply of disease-free okra for export of consistent quality Additional revenue from seed sales (IP wholly owned by Uniseeds) Reduced risk for long-term investment – reduced default on export contracts	Turnover increased from US$250 000 to US$3 million 120 new jobs created in company Seed supply secured

TABLE 7
(continued)

	Indonesia	Kenya	Pakistan	Thailand (1)	Uganda
Benefits for farmers	20–40% yield increase Net income of US$4 600/ha per season – much higher than GNP per capita of US$3 000	300–400% yield increase in some areas, averaging 1.1 tonnes/ha Reduced costs associated with weeding and herbicide spraying	46% yield increase in drought-prone areas 76% increase under irrigation Net income for seed production US$660/ha Improved seed available at US$0.44/kg	56% yield increase compared with standard varieties Net profit increase of US$2 545/ha for export crop	50% increase in revenue under contract Improved availability of seeds to suit local conditions (drought-resistant etc.)

Source: authors' compilation based on FAO, 2013 country reports.

- leading the commercialization phase and the dissemination strategy for new technology, including by setting up distribution points for marketing to remote farmers and SMAEs;
- providing after-sales technical support services to the adopters of new technologies;
- supporting the monitoring of partnership activities.

Roles of farmer organizations/cooperatives

Common roles of the partnering *FOs, cooperatives and SMAEs* are:

- acting as contract outgrowers for new seed varieties produced under buy-back agreements;
- participating in field trials of new varieties and prototypes;
- adopting new technologies.

4.5 PERFORMANCE AND DEVELOPMENT OUTCOMES

A summary of the main performance outcomes for each of the partners involved in the ITT PPPs is provided in Tables 7 and 8. Compared with the VCD cases presented in Chapter 3, the ITT case studies generally had more detailed evaluation findings on partnership outcomes. As mentioned in section 4.1, this is possibly because of the greater maturity of this type of arrangement in developing countries, and also because of the more rigorous and disciplined design process associated with technology R&D projects. The inherent life-cycle phases of these projects (i.e. technology development, piloting, commercialization, dissemination and adoption) are also likely to contribute to more rigorous project design, which is reflected in the M&E data collected. The requirement for partners to negotiate IP ownership issues from the outset, and the financial implications of these agreements, may also explain the availability of more detailed quantitative data on economic benefits, including return on investment and gains in market share.

Performance outcomes were frequently reported in terms of success in developing and commercializing new technologies, extent of uptake of the technologies,

TABLE 8
Summary of performance of ITT PPPs for SMAE development

	Chile (1)	**Chile** (2)	**Thailand** (2)	**Thailand** (3)
Achievements	Exports increased by 20% 2 700 smallholders linked to markets Smallholders' income increased Installation of new processing plants Development of new brands and products	Introduction of new olive varieties adapted to a non-agricultural area Processing technology adopted, initially by 3 companies, then 47 after 5 years	Commercialization of PowerTECH air-control fans and systems for use in poultry feeding houses and other applications	5 biogas systems designed, installed and operating in poultry slaughterhouses Economic benefits of energy savings and environmental benefits demonstrated
Benefits for public partners	Increased national competitiveness Support to smallholder producers Recognised by the private sector as a valuable partner for future projects.	Development of marginal area not suitable for other agricultural endeavours Development of technical and commercial skills of farmers and entrepreneurs Increased employment opportunities for qualified people Decreased imports and increased national consumption of olive oil	Reduced risk of avian influenza outbreaks Increased competitiveness and productivity in a core economic sector Employment creation in manufacturing sector Import substitution Positive example of local technology development	Improved environmental and community health – greenhouse gas emissions reduced by 41.6 million kg/year, water conservation and reduction of wastewater pollution Job creation in manufacturing sector Demonstration of benefits of biogas to the public and to private actors in other sectors
Benefits for private partners	Entry to export markets Formation of associations Increased competitiveness of firms	14% internal rate of return Development of new business opportunity Development of new skills and markets Increased profitability Market access for high-quality product	Increased domestic and export demand for air-control fans 10% increase in export revenue Tax deductions Parent company promoting contract farmers' adoption of fans by providing loans for instalment	Subsidized biogas infrastructure Reduced oil and electricity cost – crude oil savings of 2.72 million litres/year, worth THB 49 million (US$1.6 million), liquid petroleum gas savings of 2.28 million kg/year, worth THB 45.5 million (US$1.5 million), and savings on energy costs for wastewater treatment of THB 13.5 million (US$450 000)
Benefits for farmers and SMAEs	Sustainable linkages to markets Increased profitability	As above for SMAEs 14 000 new jobs created	50% lower upfront investment than for imported fans 20% savings on energy costs in feeding houses	As above – private partners were medium-scale slaughterhouses

Source: authors' compilation based on FAO, 2013 country reports.

and economic gains for both the lead private firm and the adopters (farmers and SMAEs). For public partners, benefits were measured in terms of contributions made towards high-level socio-economic and environmental objectives such as ensuring food security, reducing environmental damage, and increasing the competitiveness of a priority sector through productivity gains made at the farm/SMAE-level. Improvements in public partners' technical and project management skills were also noted.

4.6 MAJOR CHALLENGES IN INNOVATION PARTNERSHIPS

In common with other PPPs, innovation PPPs face a host of challenges that are described in Chapter 8. Specific challenges that set them apart from other types of agribusiness partnership are poor enforcement of IP rights and technology failures.

The *lack of enforcement of IP regulations* in domestic input markets makes it possible to sell low-quality substitutes/fakes, which detract from the value of the new products/seed varieties developed. While this risk is difficult to overcome in full in developing countries, working with the private sector and appropriate authorities to monitor and report problems and enforce penalties at downstream levels can help.

Technical challenges include the following:

- *Long lead times for the development of new technology*: Innovative research work comes without guarantees of short-term success, and delays are sometimes inevitable if the technology takes longer to develop than expected, or needs to be refined over several growing seasons. It is therefore essential to manage partners' expectations throughout the technology development process, particularly those of private partners, which may be more familiar with operations under shorter time horizons in which returns can be more readily realized. A well-designed legal and regulatory framework for the partnership is also needed, and must be flexible enough to allow for time extensions and amendments; however, extension periods should be limited, and be based on joint decision-making by the project management team, with the use of third-party evaluators as required. Regular communication is also key to managing expectations and sustaining commitment. In Thai case study 1, initial attempts to develop the virus testing technique by the public partner failed, significantly delaying the screening and selection of disease-resistant varieties for commercialization until a new method could be determined. Six-monthly progress audits and meetings were held to ensure that all partners were aware of problems as they arose and could make joint decisions on how to move forward.
- *Innovation adoption failures:* Disappointing uptake and poor sales results after the commercialization of products can lead to losses or dramatically reduced returns on investment for all partners. This problem affected the striga-resistant maize seed partnership in Kenya, in which the cost of the technology (three to four times higher than that for non-resistant seed) and the complex handling procedures for the product acted as disincentives for adoption by farmers. This issue can usually be overcome through advocacy and awareness raising campaigns to help farmers understand the benefits of adoption through field

trials, workshops and training sessions that clearly explain the economic cost–benefit ratio of investing in improved seed varieties. Similarly, in the technology cases targeting SMAEs in Thailand, although there were clearly identified productivity benefits and cost savings from adoption of the biogas systems and domestically produced air-control fans by poultry feeding operations and slaughterhouses, the upfront investment costs were still considered too high by many smaller operators. This challenge was partly overcome by providing credit facilities under contract farming agreements, with loans to be paid back over a realistic timeframe once the productivity gains from the technology had started to demonstrate the economic benefits of adoption. Thorough market analysis prior to commencing the partnership is also necessary to assess the size of the potential market for the technology and to manage private partners' expectations. Realistic timelines for adoption also need to be drawn up when planning the PPP.

There are also specific technical constraints associated with traditional ITT partnerships for the production of new seed varieties:

- *Limited access to land and exclusion of smallholders*: Gaining access to land to support commercialization of seed technologies (i.e. field demonstration sites and land for seed multiplication) was an issue in some cases. This challenge can be overcome by leasing public land to private partners for field demonstrations, and linking private partners to suitable farmer groups. Private partners may prefer to work exclusively with larger-scale farmers to reduce transaction costs, or to vertically integrate seed production into their own operations. However, to achieve social objectives, public partners have sometimes mandated that a minimum percentage of seed production be undertaken in partnership with smallholder farmers, and have provided assistance to reduce coordination costs.
- *Technology failures associated with seed multiplication*: Challenges can arise when farmers under contract do not follow growing procedures correctly. The private partner can overcome this problem through regular monitoring and farm visits; employing more experienced farmers as part-time farmer liaison officers; and requesting additional technical assistance from the public partner for further training and extension support.
- *Dealing with* force majeure *(weather impacts)*: Linked to the previous challenge, the question of how responsibility is shared when on-farm losses associated with weather impacts occur is important for farmers who are under contract to produce seed. The public partner usually limits farmers' risk exposure by taking responsibility for monitoring and verifying problems as they occur (through laboratory tests, etc.) and by linking farmer groups to (publically subsidized) agricultural insurance products, where they exist. The public partner can also help by overseeing contract farming agreements on behalf of smallholders to ensure that mechanisms are in place for distributing risks associated with *force majeure*. The private partner usually shares the financial risk with contract farmers during the seed multiplication phase by covering some or all of the input costs in the case of *force majeure*.

4.7 SUCCESS FACTORS AND LESSONS

Factors determining the success of performance include the following:

- *Strategic selection of partners:* All partners must have pressing personal or institutional motives and interests that they are unable to achieve alone – interdependency through the alignment of partners' objectives is essential. The private-sector partners selected should have demonstrated prior success in commercializing upstream technology and establishing linkages to downstream supply partners and markets, where possible. Public partners should also seek to identify prospective private partners with experience and skills that can be shared to enhance the capacities of national scientists, improve the project management skills of public institutions, and provide opportunities for application in other projects. Careful selection of farmers for inclusion in seed multiplication partnerships is also critical. The rice seed case from Indonesia shows that involving young farmers as early adopters of technology helps to drive programme expansion, while retaining the same farmers over several seasons helps to increase autonomy and trust, which results in reduced monitoring costs. In some cases, the contracting of third-party expertise may be necessary for a particular phase of the technology development. Thai cases 2 and 3 relied on third-party national experts contracted to the partnerships during the design phase of the technology; in Chilean cases 2 and 3, international experts were contracted to provide processing and marketing advice.
- *Clearly defined roles and responsibilities:* The role assigned to each partner must be based on the partner's specific expertise and prior experience: public partners should provide only the services and skills that private partners cannot or have no incentive to undertake, such as providing local genetic materials/technologies, facilitating access to supporting infrastructure, forming farmer groups, and ensuring compliance with regulations. If the private partners have skills in upstream areas that are traditionally considered to be in the public domain (e.g. field trials, farmer group formation, and provision of technical assistance), they should be encouraged to take on these roles, with assistance from public partners as required. In general, public partners should not be involved in commercialization of the technology once developed – private partners should be left to handle marketing and distribution while public partners can add value by aiming to minimize negative interference from the regulatory environment.
- *Transparent and output-oriented partnership agreements:* Contracts must include clearly defined roles, financial contributions, expected outcomes, management responsibilities, and agreements related to ownership of IP rights/licensing. Output-based contracts should be used to guide the project through phased stages that are connected to funding release, such as laboratory work and field trials to select the best seed varieties; multiplication and purity testing of seeds; advocacy and awareness raising; and commercialization and distribution of technology.
- *Advocacy and awareness raising campaigns* are critical for successful dissemination of technology and larger-scale adoption. Projects should tap into local networks where they exist (NGOs, public extension systems) and use both education (e.g. field demonstrations) and marketing mechanisms (e.g. strategically selected local distribution points, bundled service packages) to stimulate adoption. For

innovations in industrial technologies, policy incentives such as tax exemptions or subsidies are often made available to encourage adoption, particularly of technologies that create positive externalities, such as biogas systems.

- *Comprehensive evaluation of potential impacts:* While the evaluation of financial benefits derived from the partnership is important (e.g. return on investment), it does not take into account the potential impact of long-term "soft" benefits such as the creation of R&D networks, rural institutions (FOs/cooperatives and more efficient distribution systems), environmental benefits, and changing public-sector mindsets regarding private-sector engagement. These benefits are important in the long term but hard to measure within the limited timeframe of a partnership.

REFERENCES

ASTI. 2012. *ASTI database*. Washington, DC, Agricultural Science and Technology Indicators (ASTI), led by the International Food Policy Research Institute. http://www.asti.cgiar.org/ (accessed February 2016)

Beintema, N., Stads, G.J., Fuglie, K. & Heisey, P. 2012. *ASTI global assessment of agricultural R&D spending. Developing countries accelerate investment.* Washington, DC, International Food Policy Research Institute (IFPRI). http://www.ifpri.org/sites/default/files/publications/astiglobalassessment.pdf (accessed February 2016)

Boland, W.P. 2012. *An analysis of the hidden variables influencing the challenges and opportunities of implementing R&D and value-chain agricultural public–private partnerships in the developing world.* Prepared for Syngenta Foundation of Sustainable Agriculture and International Development Research Centre. http://www.valgen.ca/wp-content/uploads/Boland_ValueChainPPPs_Final.pdf (accessed February 2016)

FAO. 2013. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Nigeria, Uganda, United Republic of the Tanzania; Latin America (in Spanish): Chile, Colombia, Ecuador, Guatemala, Peru; Asia: Indonesia, Pakistan, Thailand. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

Fuglie, K.O., Heisey, P.W, King, J.L, Pray, C.E., Day-Rubenstein, K., Schimmelpfennig, D., Wang, S.L. & Karmakar-Deshmukh, R. 2011. *Research investments and market structure in the food processing, agricultural input and biofuel industries worldwide*. Economic Research Report No. 130. Washington, DC, United States Department of Agriculture (USDA). http://www.ers.usda.gov/publications/err-economic-research-report/err130.aspx (accessed February 2016)

IFPRI. 2008. *Building public–private partnerships for agricultural innovation*, by F. Hartwich, J. Tola, A. Engler, C. González, G. Ghezan, J.M.P. Vázquez-Alvarado, J.A. Silva, J.J. Espinoza and M.V. Gottret. Food Security in Practice Technical Guide Series. Washington, DC, International Food Policy Research Institute (IFPRI). http://www.ifpri.org/publication/building-public-private-partnerships-agricultural-innovation (accessed February 2016)

Spielman, D.J., Hartwich, F. & von Grebmer, K. 2010. Public–private partnerships and developing country agriculture: evidence from the international agricultural research system. *Public Administration and Development*, 30(4): 261–276. http://www.future-agricultures.org/farmerfirst/files/T2a_Spielman.pdf (accessed February 2016)

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Chapter 5

Partnerships for developing agricultural market infrastructure

5.1 RATIONALE FOR MARKET INFRASTRUCTURE PARTNERSHIPS

PPPs for agricultural market infrastructure are the category that comes closest to traditional infrastructure PPPs, including PPPs for the development of rural roads and ports, and irrigation systems (FAO, 2008; GIZ, 2013). Agricultural market infrastructure comprises both on-farm elements (e.g. for irrigation, on-farm transportation, energy and pre- and post-harvest storage) and off-farm structures and facilities for agricultural marketing and processing (FAO, 2008).

However, this synthesis report adopts a narrower definition of market infrastructure (MI). Partnerships for developing on-farm infrastructure are excluded, as they are covered extensively in the literature (see, e.g., World Bank, 1994; Pinstrup-Andersen and Shimokawa, 2006; FAO, 2008; Poulton and Macartney, 2012). Transport infrastructure PPPs, which are widely known and standardized, are also excluded. The study therefore focuses on *off-farm infrastructure* dedicated to:

- *value addition though agroprocessing*, including manufacturing and packaging facilities;
- *agricultural marketing*, such as wholesale and/or regional markets and agricultural trading centres or hubs – this category includes "all physical structures and related facilities for the primary and secondary storage, assembly, trading and pre-distribution of agricultural inputs, produce and livestock. This includes wholesale markets, market yards, crop and livestock auction points, crop collection points, producer assembly and packaging facilities, shared pre- and post-harvest storage and warehousing, as well as the various ancillary components of such facilities. These would include: weighbridge, cold storage, washing and packaging services, vehicle and machinery servicing, livestock sheds, veterinary services, telecommunication and logistics management services, and laboratories for quality testing" (FAO, 2008: 95).

Because of the narrower definition used, the study classifies only six PPP cases in this category. These cases deal with the development and management of a flower exhibition/trading centre in China; a grain storage network in Kenya; and an abattoir and meat processing plant, two marketing/trading centres specialized in vegetables and a mariculture industrial park in the Philippines. Such infrastructure is especially beneficial to smallholder producers with dispersed production bases, and plays a significant role in strengthening agrifood value chains, building effective marketing channels and smoothing urban–rural linkages.

A number of the cases selected for this study that included a component for improved access to specialized infrastructure have been classified as VCD PPPs. These cases include the Kenya mango processing and marketing PPP and the Colombian coffee PPP described in Chapter 3. The reason for classifying these as VCD PPPs is that the partnerships extended into activities beyond the development and management of infrastructure.

In recent years, the number of MI partnerships has grown in tandem with efforts by many developing countries to boost agricultural productivity and facilitate the flow of surplus farm produce from the farmgate to consumers. Consequently, governments in developing countries have sought to undertake comprehensive upgrading of agriculture-related market infrastructure and facilities for improving off-farm activities (processing and marketing/distribution). Such market-oriented infrastructure is often meant to complement other public services and goods such as roads and utilities, which are essential for agricultural development and overall economic growth and competitiveness. However, the PPP activities for infrastructure development in the agriculture sector covered in this publication are smaller in terms of their investment requirements (vis-à-vis transport infrastructure) and do not necessarily imply construction of new physical structures.

The rationale for MI PPPs in the agriculture sector is well established:

- As the name suggests, the main rationale is to facilitate access to markets, especially to support commercialization of smallholder agriculture. Availability of market infrastructure allows collective marketing of smallholders' produce, which has the potential for significantly reducing transaction costs, thereby increasing incomes for smallholder farmers. Input trading centres also contribute to bringing economies of scale to the distribution of seeds, fertilizers and other agricultural inputs. Availability of post-harvest facilities such as storage and trading structures prevents food loss and waste and is instrumental in addressing price fluctuations (FAO, 2008).
- MI PPPs can also be instrumental in ensuring that small-scale farmers and traders are able to enter into the formal economy and compete better in value chains as they are modernized and become increasingly competitive. First, through augmented market absorption capacity, these partnerships provide incentives for farmers to increase their productivity and product quality, and for traders to add value by engaging in primary processing and storage, taking advantage of the volumes assembled and the facilities and services provided. Second, the infrastructure object of the partnership is often used as a platform for implementing the food quality and safety standards required for access to demanding markets. Third, these facilities are easily integrated into related business development services (BDS) for smallholders and SMEs, such as value chain financing (e.g. warehouse receipts).
- MI PPPs also play a role in enhancing market transparency for agricultural commodities through improved dissemination of price information.

5.2 PARTNERSHIP OBJECTIVES AND CHARACTERISTICS

The six case studies identified in the category of MI PPPs shared the common overall objective of generating income and employment in rural and peri-urban areas. Specifically, these PPPs pursued goals related to:

- *enhancing food security*, by reducing food losses (grain warehouse in Kenya, fruit and vegetables in the Philippines) and providing facilities for production, storage and marketing (aquaculture in the Philippines), increasing farmers' income and therefore their ability to purchase food (Kenya and the Philippines), generating employment and improving fishers' livelihoods (the Philippines), and providing alternative market outlets to absorb surplus produce (the Philippines);
- *ensuring food safety* (vegetables in the Philippines) by selling produce in a clean, safe and controlled trading environment, instead of along the highway where produce sales cause traffic congestion and public safety issues;
- *removing logistics bottlenecks* that hinder the performance and competitiveness of the entire value chain (horticulture/flowers in China, slaughterhouse and fruit and vegetables in the Philippines);
- *increasing value addition through processing* – all the cases in the Philippines included some degree of processing, either primary (cleaning, grading and packaging of horticultural produce) or secondary (processing of meat and marine products).

MI PPPs do not necessarily require the development of new market infrastructure. Their targets can include putting into use existing public market infrastructure that is idle, by:

- modernizing and upgrading it – for instance the cases of establishing a triple A abattoir[23] in the Philippines and upgrading warehouses in Kenya to meet stringent market requirements;
- bundling its operations into broader programmes, such as by integrating an isolated, underperforming municipal market into a regional/national network of agricultural market centres and trading facilities, as seen in the Philippines and China;
- repurposing existing market infrastructure by using it in a new way – for example, in the Kenyan warehouse receipt scheme (WRS) case, private operators used the warehouses of the National Cereals and Produce Board (a public entity), which were previously used for storing crops for food security or price stabilization purposes.

MI PPPs often involve formalized partnership agreements between national or local-level government units and private firms, including financing institutions. As described by FAO (2008), typical contractual arrangements used for MI PPPs include build-operate-transfer (BOT), build-operate-own (BOO), design-build-operate (DBO), leasing, concessions, joint ventures, and management contracts, as defined in Box 9.

The decision to use one form of contract rather than another depends on:

- the risks involved – lease, management and service contracts are often used when facing relatively high risks;
- the level of user demand – BOT contracts are preferable in situations of low user demand as they enable returns on investment over a long period;

[23] A triple A abattoir has accredited facilities and operational procedures that are appropriate for the slaughtering of livestock/fowl to meet the requirements of highly demanding markets.

- the extent of public subsidy – higher subsidy levels often translate into concession agreements.

BOX 9
Contractual arrangements for infrastructure PPPs

- A *BOT* arrangement refers to "a form of project development in which the government grants a concession of a defined and limited duration to private sector sponsors to build a project, hold an ownership position in it, arrange the balance of financing from third parties and operate the project for the life of the concessions. Usually the concession is shorter than the economic life of the project and ownership transfers to the government at no cost after the concession term" (FAO, 2008: xiii). A BOT contract is typically used to develop a new individual asset rather than a network.
- *BOO* arrangements are similar to BOT ones, with the exception that the concession is granted to the private company for as long as the expected economic life of the facility (typically 30 to 50 years) (FAO, 2008).
- A *concession* is an agreement between a host government and a private company or sponsor to permit the construction, development and operation of a particular project (FAO, 2008).
- *DBO*: In this type of project, the public partner owns and finances the construction of new assets, while the private partner designs, builds and operates the assets to achieve certain agreed levels of output (World Bank, 2015).
- The term *joint venture* refers to an agreement entered into by private- and public-sector parties with a view to facilitating cooperation in a specific infrastructure project or to the joint implementation of a related economic activity on a more or less durable basis.[24] Joint ventures may be either contractual or corporate, depending on whether the partners wish to rely on their contractual agreement(s) alone or decide to set up a new entity – usually a corporation – as the legal form through which to pursue their shared undertaking.
- A *lease* refers to a transaction in which one party (government) provides another party (private company) with the right to possess and use an asset (market infrastructure) for a specific term in return for rental (UNIDROIT, 2010: 9).
- In a *management contract* the public partner engages a private contractor to manage a range of activities related to a market infrastructure or facility for a relatively short period (three to five years) (UNESCAP, 2011). The agreement can range from the simplest case, in which the public partner pays the private operator a fixed fee for performing specific tasks, to a full-blown operation and maintenance agreement, which may involve the operator taking on more risk (e.g. risk of asset condition) and responsibility for replacing minor components and equipment.

[24] http://www.unidroit.org/310-instruments/commercial-contracts/unidroit-principles-2010/unidroit-principles-2010-overview/1575-issues-relating-to-multilateral-contracts-in-particular-corporate-contracts

An overview of the characteristics of these contractual forms is provided in Table 9.

The contractual arrangements used in the cases studied included joint ventures (the Philippines), leasing (Kenya) and BOO contracts (China and the Philippines). The national or local public authorities involved contributed to the partnerships by providing finance, public facilities, licences, permits and land rights and training. The private-sector partners served as operators of the market facilities, provided training, and contributed financing for part of the project. In one case, donor institutions were involved in the partnership. Farmers and their organizations can be considered as either partners of the PPP, particularly if they subscribe shares in the facility (as in the Philippines), or beneficiaries, when they simply make use of the facilities (as in China).

The cases show that investing in market infrastructure implies changing not only the physical configuration of agricultural producing areas but, more important, also introducing innovative marketing and financing practices for the adequate development, management and operation (including maintenance) of market infrastructure. However, finding a balance between maximizing the financial performance of the market infrastructure and at the same time ensuring that it is accessible to smallholders and SMEs requires careful attention.

5.3 OVERVIEW OF THE CASES

Of the six MI PPPs identified from the country studies, four were in the Philippines and one each in China and Kenya. Three of these cases are presented in Table 10. Of these, two dealt with the development of trading/marketing centres for perishable crops (horticultural produce), while the third case involved the rehabilitation of existing public grain warehousing facilities (and equipment) for commercial use. In all cases, the infrastructure was developed in strategic locations to absorb raw materials from the main producing areas (Kenya and the Philippines) or close to national demand centres (capital city) and international transportation hubs (Beijing International airport, China).

TABLE 9
Contractual forms of PPP and allocations of responsibilities

Contract form	Asset ownership	Operation and maintenance	Capital investment	Commercial risk	Contract duration
Service contract	Public	Public or private	Public	Public	1–2 years
Management contract	Public	Private	Public	Public	3–5 years
Lease agreement	Public	Private	Public	Shared	8–15 years
Concession	Public and private	Private	Private	Private	20–30 years
BOT	Public and private	Private	Private	Private	2–30 years
Divestiture	Private or public and private	Private	Private	Private	Indefinite or limited by licence

Source: FAO, 2008: 51.

Each case applied a different model for developing and operating the market infrastructure, reflecting whether it was a green- or a brown-field investment:

- In the case from China, the BOO contract among the parties clearly specified the distinct roles of each partner. The private partner was responsible for building and operating the flower centre, while the government counterpart helped the company to obtain the necessary land rights and, in return, could use all the buildings and facilities of the centre free of charge during the Seventh China Flower Expo in 2009.
- A corporate joint venture model was chosen in the Philippine case: a joint PPP company with the legal status of a private corporation (the Nueva Vizcaya Agricultural Terminal – NVAT Inc.) was established to build and operate a provincial trade terminal. The necessary capital was raised through contributions from the public sector and the sale of shares to private partners, including farmer cooperatives, SMEs and individuals.
- The Kenyan warehouse initiative took the form of leasing contracts through which the Government of Kenya leased public warehouses to private operators in the framework of public–private collaboration that engaged other stakeholders, including the regulatory/supervisory agency of the Eastern Africa Grain Council (EAGC), depositors (farmers), private financial institutions and various donors, such as the Department for International Development (DFID) of the United Kingdom of Great Britain and Northern Ireland, the Swedish International Development Cooperation Agency (SIDA) and USAID. The duration of lease contracts was five to ten years.

In two cases, a national-level public partner was involved in the partnership. In Kenya, the government, through the MOA, was committed to developing a WRS and an appropriate legal framework to support it, and provided its own facilities and expertise to private operators through the parastatal National Cereals and Produce Board. In the Philippines, the Department of Agriculture provided financing, technical training and equipment grants. In this case, however, the provincial government was the main player, conducting pre-feasibility studies and leading the development of the agricultural trade terminal (NVAT). The Land Bank of the Philippines[25] was also involved. In the Chinese case, local governments and municipalities were the main public partners; their role pertained to initiating the partnerships and setting the rules.

The lead private partners were private firms who were responsible for day-to-day management and operation of the facilities. Other private partners were FOs, commercial banks and private individuals.

The amounts invested by the parties ranged from a minimal (undisclosed) value in the Kenyan case, in which only slight improvements were needed to upgrade and certify existing facilities, to US$226 million spread over two phases in the case from China. The private contribution to the partnership accounted for two-thirds of the total investment in the Chinese case and half in the Philippine one.

[25] Land banks manage areas of land that are available for investment, as determined by local land-use plans. Potential investors can select from the land areas available (Theting and Brekke, 2010).

TABLE 10
Overview of MI PPP cases

	China	Kenya	Philippines
Partnership duration	2007–2010 hand-over	2008 ongoing	2001–2009
Product	Flower exhibition, production, logistics and trading centre	Grain warehouse operation within the framework of a WRS	Provincial agricultural terminal (NVAT) market for fruits, vegetables and spices
Public partners' objectives	Economic growth and employment generation Green logistics	Food security	Food safety Reduced post-harvest losses Public safety
Public partners	Government of Shunyi District Beijing Municipality	Government of Kenya through the Financial Sector Deepening programme supported by donors (e.g. DFID, SIDA and USAID) MOA National Cereals and Produce Board (parastatal)	Provincial Government of Nueva Vizcaya 15 municipalities in Nueva Vizcaya province Department of Agriculture Land Bank of the Philippines *Banco Lagawe*
Private partners	Beijing Shunxin Agricultural Company and its subsidiary, Beijing Shunxin Maofeng Flower Logistic Company, formed for managing the construction and operation of the flower centre	EAGC-Kenya Company – WRS regulator and supervisor Lesiolo Grain Handlers Ltd and the Export Trading Company – warehouse operators Equity Bank – commercial financial institution	Cooperatives Farmer association Private individuals
Investment	US$177.7 million – first phase, including land cost: 36% public – US$64.6 million (land) 64% private – US$113.1 million (initial investment) plus US$48.5 million (second-phase upgrade post-PPP completion)	Total value undisclosed: Public – donor funding for warehouse certification, insurance and farmer training Private – in-kind, unvalued construction/rehabilitation of warehouses, grain equipment, management fees	US$1.38 million: 43% public – US$0.6 million 57% private – US$0.78 million
Driver	Public partner (Beijing Municipality)	Private partner (EAGC)	Public partner (Provincial Government of Nueva Vizcaya)
Incentives for private sector	Land concession Tax holidays One-off award of 3–5% of private investment in the first year Subsidies for greenhouse construction	Warehouse lease Grants and tax holidays Subsidized warehouse certification fees Awareness raising and advocacy on WRS among maize producers Financial and technical support to Equity Bank from Financial Sector Deepening programme	Grants for equipment, e.g. cold storage facilities and refrigerated vans Rental fees waived for the first two years of operation In-kind contributions for infrastructure construction Facilitation of soft loans

Source: authors' compilation based on FAO, 2013 country reports.

5.4 MAIN ROLES AND FUNCTIONS OF PARTNERS

The development of market infrastructure is a complex issue that benefits from the comparative advantages of both public and private actors. Government officials can offer their valuable expertise in rural and peri-urban planning, regulatory matters and environmental management, while private partners can contribute through their skills in the efficient execution and management of construction projects and their ability to integrate market infrastructure into the overall functioning of supply chains.

Public partners' roles

The roles of the public partners in the three cases outlined in Figure 10 were diverse and included initiating the partnership and creating an enabling environment for its implementation. Specific roles were as follows:

- *Initiating the PPP and encouraging private-sector participation*: In two of the three cases, the public sector initiated the partnership and provided incentives for participation of the private sector. The exception was the Kenyan case, where the partnership was initiated by a non-profit membership-based organization, EAGC, which convinced the National Cereals and Produce Board to lease out existing State-owned warehouses to commercial operators for the piloting of a grain WRS, thereby significantly reducing the initial capital outlay for the project.
- *Managing the selection of private actors*: In the Chinese case, Beijing Municipality managed the tendering process for construction and operation of the market infrastructure. This process included issuing a call for tender, ensuring a transparent private-sector bidding and selection process, and publicly notifying the winning company according to regulations. In the Kenyan case, selection of private sector operators was handled by EAGC – a non-State actor.
- *Performing quality assurance and due diligence*: The public sector commissioned feasibility studies to assess key financial elements of the project (e.g. income projections, returns on investment and payback periods), environmental impact assessments and market analyses (including value chain analysis). In the Kenyan case, the condition that private warehouse operators had to be debt-free to participate in the WRS was established to protect depositors (farmers) from fraud and mismanagement.
- *Coordinating multi-stakeholder consultations and meetings*: The public partners convened discussions of existing challenges in the marketing channel and assessed the commitment of communities to using trading terminals as a possible solution; negotiated agreements among partners; and reviewed implementation progress, making adjustments to project terms and conditions as required.
- *Contributing funding*: The public partners made equity and/or in-kind contributions to the PPP. In the Philippine model, the Provincial Government of Nueva Vizcaya received initial seed capital from the national Department of Agriculture as prize money for good performance. They used this capital to set up the PPP company and raised the remaining necessary funds through the sale of shares to private partners, including farmer cooperatives, SMEs and individuals. The local government units of the 15 municipalities of Nueva Vizcaya purchased shares,

while the two State banks in the PPP made financial contributions. Levels of investment were determined based on feasibility studies, and private partners' co-contributions were agreed through negotiations. The Kenyan PPP relied on donor funding.

- *Raising awareness and building capacity among smallholders and SMAEs*: The public partners raised farmers' awareness of the available facilities and provided support to the formation of farmer groups/cooperatives to satisfy quality and bulking requirements and reduce transaction costs. Similar campaigns were directed to traders and other SMAEs to promote the benefits of the new infrastructure (and associated first-mover incentives) and encourage relocation to new facilities. The public partners provided technical training for farmers and cooperatives in post-harvest management and quality control to meet criteria for storage or supply to market trading centres.
- *Facilitating the inclusion of smallholders*: This role involved ensuring that the infrastructure was accessible and affordable to its intended beneficiaries by raising awareness of the benefits of using the facilities, building capacity (as mentioned in the previous paragraph) and regulating the costs associated with using the services.
- *Fostering access to additional services and resources for the private sector*: The public partners either fostered access to credit facilities for farmer cooperatives/SMAEs through State banks (or links to private banks), or provided small grants for investment in equipment, such as cold storage facilities or refrigerated trucks, through existing local and national programmes to support value addition activities. In the Philippines, the local government also provided additional services such as traffic management and supportive regulations (e.g. prohibiting vending on side streets, which would compete with legitimate stallholders). The municipality was also responsible for processing licences and permits for traders and operators, and collecting taxes. In China, the public partner helped the company to obtain the land rights needed for construction of the facilities, and sold the land at an agreed price under the condition that the district government could use all the buildings and facilities free of charge during the flower exhibition in 2009.

Private partners' roles

In all the cases studied, the roles of private partners included providing professional management of the day-to-day operations of the facilities and implementing business activities as agreed. Private partners also made equity contributions to the PPPs, which were often in-kind and purpose-specific. In exceptional cases, the private partners fulfilled a role that is typically considered as being in the public sector realm, as noted in Box 10.

Roles of farmer organizations/cooperatives

In two of the cases, farmers were not only the beneficiaries of the PPP but also acted as partners. In the Philippines, more than 40 farmer cooperatives owned shares in NVAT. In Kenya, the promoter, driver and main partner of the PPP – EAGC – represented the three main sectors of the grain value chain, including farmers.

BOX 10

The role of private partners in the Kenyan WRS partnership

In the Kenyan case study, the private warehouse operators were in charge of *operating the (public-owned) warehouses* participating in the WRS. They also invested in upgrading existing infrastructure (through *unvalued, in-kind contributions*) to meet the criteria specified by EAGC for participating in the scheme.

The commodity association EAGC (another private partner) played a *regulatory role* that would normally be considered the responsibility of a public partner and so is worth highlighting. EAGC provided regulatory functions to the partnership by ensuring that participating warehouses had suitable infrastructure and systems in place for warehouse receipting, including sufficient insurance to protect the owners and financiers of warehouse receipts. EAGC also organized periodic inspections to verify grain volumes and quality and to ensure that all stakeholders were following WRS rules and protocols. EAGC was instrumental in designing the rules and protocols for the WRS partnership and was responsible for selecting warehouses for certification, in conjunction with a reputable third-party inspection firm. EAGC also provided arbitration and dispute resolution services in the case of claims made against the warehouse operators.

5.5 PERFORMANCE AND DEVELOPMENT OUTCOMES

The performance of MI PPPs for agricultural products is measured mainly in terms of the following:

- *Utilization and capacity use of the infrastructure*: In the Philippine case, at the time of the study, the terminal had achieved daily throughput levels of 400 tonnes of horticultural produce, and had high occupancy levels of more than 180 stalls and 16 bay areas. This favourable occupancy rate was attained through a modular growth solution, with new stall spaces being added as demand increased and a flexible policy of charging low stall fees during the first years of operation to encourage traders to relocate to the new facility. In Kenya, by 2013, EAGC had certified ten warehouses with capacity of more than 63 000 tonnes; and more than 25 000 tonnes of produce was deposited in 2012–2013. The performance of the Kenyan partnership is also measured in terms of access to credit by depositors: a total of US$1 million of warehouse receipt financing was advanced to more than 12 500 farmers in 2013.
- *Improved access to markets and improved marketing*: A covered market, such as the one developed in the Philippines, provides the opportunity for enhancing agricultural marketing to serve urban markets better by improving the handling/storage of products (including cold storage), food safety and market information. The Philippine project was designed to enhance market access for farmer cooperatives and associations by guaranteeing a secured market for produce at transparent prices, as outlined in Table 11. The terminal market in Nueva Viscaya also helped to reduce illegal roadside selling, which contributed to reducing road congestion and addressing road safety issues. However, not all the PPPs studied delivered on their promise to enhance marketing: the Beijing flower

centre project stalled, reportedly because of low margins at the wholesaler level, which discouraged stallholders from relocating to the facility. The additional investment required post-partnership to make the trading centre fully functional was also grossly underestimated.

- *Improved price transmission*: Wholesale markets and other trading centres bring the forces of comparative pricing to bear on agricultural sales, enhancing the prospect of farmers securing fairer deals than might be achieved by purchasing or selling through single traders. The users of the Nueva Viscaya terminal in the Philippines benefited from a market information system that provided information on the throughput (400 tonnes of vegetables per day) and prices of the agricultural products sold in the market. Farmers and traders who relocated to the terminal also gained important knowledge about product quality and packaging requirements, which helped them to begin supplying directly to markets in Metro Manila.
- *Additional income from public asset management/development*: The Municipality of Bambang, where the Nueva Viscaya market is located, gained income through its participation in the PPP company by leasing stalls to traders and farmers (for US$70–135 per month, depending on the stall area) and charging fees for entrance to the market, parking and use of the terminal's transport facilities and services. The Beijing flower centre was expected to generate post-partnership tax revenue of US$5.6 million per annum for the city of Beijing, but it is unclear whether this has been achieved because of problems associated with the initial underinvestment.

Weaknesses in the M&E of performance outcomes for MI PPPs were identified in the following areas:

- *Assessment of value for money*: Although, in theory, PPPs for public infrastructure provision are a means of improving efficiency and value for money (i.e. assuring that PPPs are the best procurement option in terms of value added for the public money invested), the value-for-money concept was not used in the cases studied. This is probably because in the countries concerned, meeting the growing demand for infrastructure is regarded as more important than economic efficiency.[26]
- *Measurement of employment creation and environmental impact*: M&E systems rarely shed light on actual versus expected achievement of development outcomes associated with employment creation and environmental impact. In most cases, these indicators were not adequately monitored (if at all) during the implementation phase; even when they were monitored, the information was seldom made publicly available.

A summary of the main performance outcomes for each of the partners involved in the MI PPPs is provided in Table 11.

[26] For a deeper discussion of value for money and related concepts, see Chapter 7.

TABLE 11
Summary of MI PPP performance

	China	Kenya	Philippines
Achievements	Facilities built in time for the China Flower Expo in 2009 Bottlenecks in flower logistics overcome, with resultant increases in domestic and export trade	First WRS pilot model introduced for maize 10 warehouses certified by 2013 More than 25 000 tonnes of grain stored in 2012–2013	Private corporation established for trading of horticultural products 400 tonnes of vegetables traded daily Private-sector investment stimulated, with 47 cooperatives, 37 farmers' associations and 479 individuals holding shares
Benefits for public partners	Outsourcing of the construction of necessary facilities Access to facilities free of charge for duration of the flower expo Tax revenue of US$5.6 million per annum post-partnership Employment generation Environmental benefits through implementation of green logistics system	Commercial use of dormant, underperforming infrastructure Capacity building of farmers in post-harvest practices Farmers and FOs linked directly to markets Value addition through drying, storage and security	Formalized trading system established Improved food safety and quality Reduction in traffic accidents Investment and formalization of SMAEs stimulated Revenue for local government Employment creation
Benefits for private partners	Access to land Tax concessions Soft loan of US$152 million from State bank Expected benefits: annual income of US$42.8 million from flower trading and logistics Profit after tax of US$16.9 million ROI of 15.2% Investment capital returned after 8.7 years*	Access to infrastructure Revenue from grain storage of US$1.50/month per 90 kg bag EAGC electronic platform for trade links established New customers Growth in sales of insurance products	Access to safe, clean and convenient trading stalls Reduced transport costs through creation of a central marketing hub Income generated for shareholders through leasing of stalls, parking fees, truck rentals and interest from microloans
Benefits for farmers	Indirect benefits through overall growth of the horticultural subsector and improved logistics and trading system for flowers in Beijing	WRS: Reduced post-harvest losses through value addition services Access to credit and financial management training More stable market prices	Assured market – all products entering NVAT are sold Transparent pricing system Access to low-interest loans Yearly dividends on shares

* However, there were actual losses in the first years post-partnership.
Source: authors' compilation based on FAO, 2013 country reports.

5.6 MAJOR CHALLENGES IN MARKET INFRASTRUCTURE PARTNERSHIPS

While there is strong potential for benefits arising from the development of market infrastructure under the PPP mechanism, these partnerships are not without challenges. Specific challenges include those related to the enabling environment for infrastructure development, and operational and financial issues.

Challenges in the business environment

Challenges associated with an unsupportive environment include the following:

- *Inadequate supporting infrastructure for PPP projects*: For example, in PPPs for developing horticultural trading centres, clean water and waste management systems are critical in preventing food safety risks, and connecting roads are essential for reducing post-harvest losses in transit. If these elements are not addressed, the performance of the centre will suffer.
- *Inconsistent and fragmented local administrative frameworks*, which can increase costs and the compliance burden, create uncertainty about the responsible government authority, and generate impediments to information sharing. In China the absence of a national legal and administrative framework for PPPs leaves room for local authorities to issue their own regulations related to the bidding and selection process for PPP projects. This situation can lead to inconsistencies among provinces and confusion regarding which government departments have authority to negotiate and sign contracts with private partners.
- *Inadequate or incomplete regulatory frameworks*: In Kenya, implementation of the WRS PPP was slow because of the lack of a legal framework for warehousing. EAGC took the lead role in drafting WRS regulations that governed the operations of partners in the PPP. The lack of an appropriate legal environment was probably the most important constraint that hindered the participation of banks and the acceptance of farmers. The banks concerned (Kenya Commercial Bank, the Cooperative Bank of Kenya and Family Bank) called for the establishment of a legal system to support warehouse receipts as secured collateral for borrowing. EAGC also lobbied for this system.

Operational challenges

Operational issues are sometimes overlooked in MI PPPs, where the focus is on timely and efficient delivery of infrastructure. MI PPPs should look beyond the construction period to address potential operational challenges, such as the following:

- *Low acceptance or participation rates of farmers and traders in the new/upgraded facilities*: Low user demand for wholesale markets and other types of trading centre is a genuine risk, but strategies can be used to minimize this risk by raising awareness and generating stakeholders' buy-in from the beginning, as in the Philippine case. As seen in the WRS case in Kenya, participation was initially slow, with only ten large-scale farmers participating in the first year. This low level of participation was caused primarily by fears of losing control over raw materials, preference for cash-on-delivery rather than credit through the formalized banking sector, and deposit/insurance cover arrangements that required a minimum of 100 tonnes of produce, which only large-scale farmers were able to meet. Awareness raising campaigns, stakeholder consultations

and technical assistance are required to build trust in a new marketing system, particularly when previous government-run facilities have been mismanaged in the past.
- *Lack of traceability and emergence of quality control issues* associated with bulking produce from diverse farmers: The cases show that post-harvest training and support for farmer group management are required to overcome this challenge.

Financial challenges

There is evidence to suggest that financial issues may significantly inhibit the performance of PPPs for developing agricultural market infrastructure. Examples of financial problems include the following:
- *Delays in construction and overspending*: In the Philippines, it took three years from signing the project document to constructing NVAT and related facilities. For the flower centre in China, raw material costs were 18 percent higher than the original budget and additional investments had to be made by the private partner for the facilities to meet the required standards.
- *Limited cost recovery and fee collection*: Turning informal traders into formal traders is key to the success of market facilities developed via PPPs. This shift can take time and requires incentives such as fee waivers and tax reductions during the start-up period. However, significant resistance can be faced later, when fees are increased to a sustainable level for cost recovery and revenue generation after the initial period of incentives. Awareness raising and incremental fee increases can be a way of dealing with this challenge.
- *Disappointing profits and long time horizons required for return on investment*: The actual profit of the Beijing flower centre was lower than anticipated during the first years of operation, and additional upfront investment was required. The company therefore had to accept a longer payback period than originally planned (8.7 years).

5.7 SUCCESS FACTORS AND LESSONS

Successful implementation of MI PPPs hinges on the presence of an enabling economic and regulatory environment, and on careful attention to the operational aspects highlighted in the previous section. Factors that yielded positive results in the three cases studied included the following.

Enabling environment

Establishing appropriate legal and regulatory frameworks is particularly important for this type of PPP – large-scale investments are often required to set up and manage market infrastructure, so participants need to be reassured that their investments are governed by appropriate legal frameworks:
- *Good market feasibility studies* based on the potential for creating strong upstream and downstream linkages with limited competition: For example, in the NVAT case (the Philippines), the province had strong potential to increase vegetable production because the favourable agroclimatic conditions and geographical location facilitated the servicing of large downstream markets in Metro Manila and surrounding provinces without direct competition with production from northern provinces.

- *Investment in supporting infrastructure*: Market infrastructure can operate successfully only if it is appropriately supported by parallel investment in utilities infrastructure, including well-maintained connecting roads, reliable electricity, a clean water supply, drainage and waste management.
- *Provision of fiscal and non-fiscal incentives*: As part of the design of the Philippine case, the local government waived rental fees for the first two years to encourage informal traders and other SMEs to relocate and use the facilities, thereby also formalizing their operations.
- The potential for market infrastructure to *stimulate complementary investment in value-adding activities and related services* such as cold storage facilities, food processing plants and transport should be considered and built into government strategies. This can broaden the impact of the PPP at the industry level, once the facilities have been established and are being well managed. For example, plans for NVAT in the Philippines included additional cold storage, sorting, packaging and processing plants; food stalls; mechanical repairs to service transport vehicles; and a petrol station.

Operational issues

A rule of thumb to ensure the smooth operation of MI PPP projects is for the public partner to play a more active role initially, and then transition towards a more hands-off approach once the infrastructure has been established. In the Chinese and Kenyan cases, the role of the public partner ceased after the facilities were constructed and leased. In the Philippines, once NVAT was operational, the public role shifted towards creating an enabling environment to promote use of the facility and support its users. Major operational issues that help increase the success of MI PPPs include the following:

- *Professional management of the infrastructure*: An arrangement that often works well is to have the private partners assume sole responsibility for day-to-day operations of the infrastructure, with minimal interference from the public partners, and a board of directors (including public and private representatives) established to oversee strategic decision-making.
- *Strengthening of FOs* is important so that they can participate more directly in using the facilities and co-invest in new entrepreneurial activities. In the Philippine case, for example, FOs fulfilled a dual role as users of and potential investors in the market infrastructure.
- *Coupling of infrastructure with finance and risk mitigation mechanisms* often bears fruit. For instance, providing insurance for warehouse operators helped to spread risk and encourage long-term investment in the Kenyan partnership. Linking SMAEs and farmer groups to formal financing through the framework of the market infrastructure's operations was well received in all three cases studied.
- *Strong and consistent local government support*: In the Philippine example, the local government authority played a core role in promoting the facilities and ensuring the legitimacy of the trading centre by issuing supportive regulations; reducing tax revenue during the initial operating phase; and providing farmers and cooperatives with technical and financial assistance through linkages to extension services and national programmes.

REFERENCES

FAO. 2008. *Market-oriented agricultural infrastructure: appraisal of public-private partnerships*, by M. Warner, D. Kahan and S. Lehel. Agricultural Management, Marketing and Finance Occasional Paper No. 23. Rome. www.fao.org/docrep/011/i0465e/i0465e00.HTM (accessed February 2016)

FAO. 2013. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Kenya; Asia: China (unpublished), Philippines (unpublished). All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

GIZ. 2013. *Market infrastructure for agricultural products.* Rural Development and Agriculture. Briefing Note. Eschborn, Germany, German Agency for International Cooperation (GIZ). http://www.giz.de/expertise/downloads/Fachexpertise/giz2013-en-briefing-note-market-infrastructure-for-agricultural-products.pdf (accessed February 2016)

Pinstrup-Andersen, P. & Shimokawa, S. 2006. *Rural infrastructure and agricultural development*. Presented at the Annual Bank Conference on Development Economics, 29–20 May 2006, Tokyo. http://siteresources.worldbank.org/INTDECABCTOK2006/Resources/Per_Pinstrup_Andersen_Rural_Infrastructure.pdf (accessed February 2016)

Poulton, C. & Macartney J. 2012. Can public–private partnerships leverage investment in agricultural value chains in Africa? A preliminary review. *World Development*, 40(1): 96–109. http://www.sciencedirect.com/science/article/pii/S0305750X11001471 (accessed February 2016)

Theting, H & Brekke, B. 2010. *Land investments or land grab? A critical view from Tanzania and Mozambique.* Oslo, Spire. http://spireorg.no/files/spire/documents/Land_investment_or_land_grab08112010.pdf (accessed March 2016)

UNESCAP. 2011. *A guidebook on public-private-partnership in infrastructure.* Bangkok, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). http://www.unescap.org/sites/default/files/ppp_guidebook.pdf (accessed March 2016)

UNIDROIT. 2010. *UNIDROIT Model Law on Leasing*. Study LIXA, Document No. 24. Rome, International Institute for the Unification of Private Law (UNIDROIT). http://www.unidroit.org/english/documents/2010/study59a/s-59a-24-e.pdf (accessed February 2016)

Winch, G.M., Onishi, M. & Schmidt, S. 2012. *Taking stock of PPP and PFI around the World*. Summary of Research Report No. 126. London, Association of Chartered Certified Accountants. http://www.accaglobal.com/content/dam/acca/global/PDF-technical/public-sector/rr-126-001.pdf (accessed February 2016)

World Bank. 1994. *World Development Report 1994: Infrastructure for development*. New York, Oxford University Press. https://openknowledge.worldbank.org/bitstream/handle/10986/5977/WDR%201994%20-%20English.pdf?sequence=2 (accessed February 2016)

World Bank. 2015. *Concessions, build-operate-transfer (BOT) and design-build-operate (DBO) projects.* http://ppp.worldbank.org/public-private-partnership/agreements/concessions-bots-dbos#contractual (accessed February 2016).

Further reading

ADB. 2008. *Public–private partnership (PPP) handbook*. Manila, Asian Development Bank (ADB). http://www.adb.org/documents/public-private-partnership-ppp-handbook (accessed February 2016)

Bennett, E., Grohmann, P. & Gentry, B. 1999. *Public–private partnerships for the urban environment. Options and issues.* PPPUE Working Paper Series Volume I. New York, UNDP/PPPUE and Yale University. http://www.ucl.ac.uk/dpu-projects/drivers_urb_change/urb_infrastructure/pdf_public_private_services/UNDP_PPPUE_Joint%20Venture_1.pdf (accessed February 2016)

Brickell, E. & Elias, P. 2013. *Great expectations: Realising social and environmental benefits from public-private partnerships in agricultural supply chains.* London, Overseas Development Institute (ODI). http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8500.pdf (accessed February 2016)

FAO. 2012. *Report: Twenty-seventh FAO Regional Conference for Africa.* 23–27 April 2012, Brazzaville, the Congo. http://www.fao.org/docrep/meeting/025/md950e.pdf (accessed February 2016)

Hodge, G.A. & Greve, C. 2007. Public–private partnerships: an international performance review. *Public Administration Review*, 67(3): 545–558. http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6210.2007.00736.x/epdf (accessed February 2016)

Hodge, G.A. & Greve, C. 2009. PPPs: The passage of time permits a sober reflection. *Economic Affairs*, 29(1): 33–39. http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0270.2009.01864.x/pdf (accessed February 2016)

WEF. 2005. *Building on the Monterrey Consensus: The growing role of public–private partnerships in mobilizing resources for development*. Geneva, World Economic Forum (WEF). http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2119.pdf (accessed February 2016)

WEF & McKinsey and Company. 2013. *Achieving the new vision for agriculture: New models for action*. Geneva, World Economic Forum (WEF). Available at: http://www3.weforum.org/docs/IP/2016/NVA/New_Models_for_Action.pdf (accessed February 2016)

World Bank. 2015a. *A World Bank resource for PPPs in infrastructure*. http://ppp.worldbank.org/public-private-partnership/ (accessed February 2016)

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Chapter 6

Partnerships for delivering agribusiness development services

6.1 RATIONALE FOR BUSINESS DEVELOPMENT PARTNERSHIPS

The term business development services (BDS) generally refers to the "software" component of the services provided to make farming a business, such as knowledge and skills, compared to the "hardware" component which comprises money, seed, fertilizers and others tangible items (FAO, 2013b). Under this definition, business services include a range of soft activities such as support to the development of new commercial entities, group training, individual counselling and advice, information provision, business networking and policy advocacy (FAO, 2007). A broader definition, which perhaps reflects more accurately the reality of BDS provision in developing countries, also includes the hardware component. For instance, according to the Small Enterprise Education and Promotion guide to BDS, the supply of inputs, and the provision of infrastructure and finance can be considered as types of BDS (Esim, 2001; Lusby, 2004). For the purposes of this review, the broader definition has been adopted which includes both hard and soft components.

In developing countries, the provision of BDS is often crucial in facilitating the transition of smallholder farmers from subsistence to commercial agriculture, and in fostering smallholders' integration into more intensified or specialized agrifood systems. Participating in modern food systems demands upgraded business and management skills (Webber and Labaste, 2010), which in turn call for effective, equitable, sustainable and inclusive business services that suit the needs of smallholder producers. Business services are also essential in facilitating the modernization and expansion of SMAEs, which are often referred to as the "missing middle" – the rapidly transforming middle segments of agrifood chains (processing, logistics and wholesale). This middle stream accounts for up to 30–40 percent of the value-added of agrifood chains in developing economies (Reardon, 2015).

However, the agriculture sector in many developing countries is characterized by limited availability of agribusiness and entrepreneurship services, which are poorly tailored to the needs of smallholder farmers and SMAEs. According to the World Bank (2012), both the public and the private sectors have focused on providing advisory services based on agricultural production rather than on meeting farmers' demand for market-oriented services. For years, the primary focus of BDS was achieving national food security by applying a top-down approach through the transfer of technology for staple food crops to relatively resource-rich farmers who could help spread innovations (FAO, 2008). Only recently, has the focus of both public and private advisory services shifted to human capital development and more market-oriented solutions (FAO, 2008).

Throughout its history, the provision of BDS has been led by different actors. While provision of these services has traditionally been considered a government prerogative, structural adjustment policies starting in the 1980s have resulted in the phased withdrawal of the public sector from BDS delivery (FAO, 2013b). It was assumed that the private sector could replace government in the provision of these services and that market-based solutions would be more efficient. However, in many developing countries, the private sector failed to take these services over completely and effectively. In particular, two distortions were produced. First, private service providers were, at best, able to reach the well-off farmers, but poorer farmers were often excluded. Private sector-led advisory services were primarily available only to producers located close to the markets and well served by market and economic infrastructure (FAO, 2007). Second, to respond to farmers' demand, service providers started selling a range of products (hardware), but with limited technical and management capacity (software) to advise on them.

NGOs have tried to fill the gaps in service provision, but have often been unable to assure sustainability over time as they depend heavily on project funding for their work. Donor and development agencies that have also sought to fill the gap have had varied levels of success, primarily because of adopting a supply-driven approach in which funds are channelled to service suppliers, regardless of the existence of market demand for the services provided. This approach has resulted in additional distortions, including the dependence of service providers on subsidies and an inability to meet clients' demands.

When agribusiness services are fully subsidized by the public sector, donors or NGOs, they have a high probability of failing to meet consumers' demand and achieve sustainability; on the other hand, when they are left to the mercy of the market, inclusiveness may not be assured (World Bank, 2012). In either case, the lack of the right mix of knowledge and incentives can lead to inefficient and incomplete results. Problems also exist on the demand side, where smallholder farmers and small businesses may not recognize the value of BDS, and may therefore be unwilling to pay for them or unable to conceive of how they could be used.

Mainstreaming of BDS delivery therefore requires an appropriate mix of both demand- and supply-driven incentives which require new forms of public-private collaboration. An increasingly adopted solution for strengthening BDS delivery is to promote PPPs that use a two-pronged approach, in which actions are taken to improve the demand for, and access to services for end-users, while also building the capacities of local BDS suppliers to increase their chances for sustainability.

Based on the case studies identified in this review, PPPs for BDS can be established to *create new BDS providers and/or strengthen the capacities of existing providers*. They can be set up with the specific purpose of improving the delivery of agribusiness development services to clients – smallholders and SMAEs- in terms of enhanced access and quality, and may typically target only one level of the value chain, such as FOs or SMAEs, to improve the efficiency and effectiveness of commercial operations at this level.

A BDS PPP can be an *independent intervention* or it can be considered as a *building block in a broader VCD partnership*, as discussed in section 3.4. Given the important role that FOs play in VCD PPPs, they need to be supported with services for developing the skills and capacities that will allow their members to be effective

partners with downstream private-sector actors. BDS PPPs can increase the accessibility and relevance of these services to FOs, which in turn can help to deliver on broader VCD PPP objectives.

6.2 PARTNERSHIP OBJECTIVES AND CHARACTERISTICS

Seven BDS PPPs were identified from the cases studied for this synthesis report: one each in China, Pakistan, Peru, Uganda and the United Republic of Tanzania, and two in Ecuador. All of these PPPs shared the common high-level objective of enhancing the competitiveness of the agribusiness sector by providing BDS to farmers and SMAEs to increase productivity, market access and income levels.

The scope of the services provided through the partnerships varied. In two cases (China and one in Ecuador), public–private collaboration was established to deliver a specific business service. In the Chinese case, a transregional information centre was established to provide market information and services to farmers (on weather, market prices, agricultural machinery for hire, etc.). In the case from Ecuador, the PPP was designed to provide marketing services for agro-based handicrafts by facilitating access to alternative markets and promoting direct commercialization networks and fair purchase initiatives. The remaining five cases provided a range of business services – financial support, technology transfer, training in management and marketing, business mentoring, etc. These cases have been selected for further analysis based not only on the complexity of the interventions, but also on the completeness of the information available.

PPP interventions can be made at two levels, according to the main target. BDS PPPs can either *target BDS providers*, which in turn deliver business services to FOs and SMAEs; or *support SMAE development directly*.

Partnerships for developing service providers

In the cases from China, Pakistan, Peru and the United Republic of Tanzania, the main target of the PPP was the BDS provider itself. This group of PPPs aimed to:

- enhance the capacity of BDS providers to reach the most vulnerable clients and deliver more varied and effective services;
- assist service providers in increasing their client base, reducing dependency on external funding and achieving sustainability over time.

By supporting the development of BDS providers, these partnerships contribute *indirectly* to improving the economic and social conditions of farmers, who are the ultimate users of the services.

The roles of the public sector in such PPPs are primarily to: i) support the upgrading of the technical capacities of service providers through training; and ii) help service providers to achieve financial sustainability through matching grants and/or enhanced access to credit. The private-sector partners are the providers of technical assistance and training to farmers and their organizations, or to other local-level service providers. Under this arrangement, the BDS providers can be considered to be both partners in and beneficiaries of the PPP. In some cases, private financial institutions participate in the PPP arrangement to provide funding to the BDS providers. In a few cases, FOs – the ultimate beneficiaries of these partnerships – are also directly engaged in the PPP agreement. The majority of these partnerships involve

formalized agreements among the service provider, the national government unit or public/donor-funded programme (usually within the MOA), and in some cases a financial institution and/or an FO.

Partnerships that target smaes directly

The PPPs in Ecuador (agro-based handicrafts and bamboo bicycles) and Uganda targeted SMAEs as the recipients of BDS. The objectives of these partnerships were to boost agribusiness entrepreneurship and the industrialization of agriculture through the provision of financial and technical support to emerging and potentially successful SMAEs. These partnerships can be considered as opportunities for infusing technology and value addition into the local/indigenous agribusiness sector as a step towards promoting on- and off-farm business-oriented agriculture. Through the partnerships, the supported agribusinesses were expected to increase their capacity to produce high-quality, marketable products and to expand their supply base.

The role of the public sector was to provide training and technical assistance directly to the SMAEs, which in turn contributed funding to the partnership and established sourcing agreements or broader alliances with smallholder farmers as part of the conditions of the partnership. Partnerships of this kind are likely to be supported through national programmes that use a competitive process to select partner SMAEs with matching grants offered as the main mechanism for implementation. Such partnerships are formalized through MOUs or standard contracts with the national programme under which the PPP is developed.

6.3 OVERVIEW OF THE CASES

A total of seven BDS PPPs were identified from the 70 case studies analysed, representing 10 percent of the total cases. As explained in section 6.2, five cases were selected for further discussion and are summarized in Table 12. They represent diverse typologies in terms of scale of investment, arrangements and services offered.

Of the five cases, three targeted BDS providers. The Tanzanian case focused on creating a network of village-level agro-input dealers and strengthening the dealers' skills and access to working capital and trade credit through a guarantee fund.[27] As a result, the agrodealers were able to meet smallholders' demands for inputs, group organization, extension services and/or marketing skills and information, in line with the overall objective of the partnership, which was to increase the productivity of small farmers living in remote areas and to improve food security. The partners included:

- the Ministry of Agriculture, Food Security and Cooperatives, through its regional and district administrative secretariats;
- the Tanzanian Agricultural Market Development Trust (TAGMARK), a non-profit private organization specialized in enterprise-based agricultural development initiatives, which provided training to the agrodealers, with financial support from the Alliance for a Green Revolution in Africa (AGRA); and

[27] A government can use a guarantee fund to limit its liabilities for support to PPP projects to the value of its capitalization of the fund. Establishing a guarantee fund involves creating a fund of liquid assets that can rapidly be mobilized in the event of a contingent liability being realized during the life of the PPP.

- the National Microfinance Bank (NMB), a private financial institution, which provided loans to the agrodealers trained by TAGMARK.

The aim of the Pakistani partnership was to improve and expand the BDS market by providing matching grants to BDS providers (ten in the first phase of the project) to enhance their capacity to reach small-scale agribusiness firms (more than 1 000) and farmer enterprise groups (FEGs – 2 000 groups) in the horticulture, dairy and livestock value chains. Partners were the Agribusiness Support Fund (ASF), created under the Ministry of Food, Agriculture and Livestock in collaboration with other ministries; NGOs; and other privately registered service providers (RSPs). The FEGs were considered to be both beneficiaries of and partners in the project. The public partner (ASF) provided financial and technical assistance to selected service providers so they could offer a wider range of business services to FEGs and agribusiness firms more effectively.

Similarly, in the Peruvian case, the MOA's Programme of Support Services to Promote Access to Rural Markets (PROSAAMER) offered financial and technical support to private operators (previously qualified by the programme) that provided BDS to strengthen FOs' entrepreneurial capacities and leadership. The case study investigated an individual partnership that took place within the PROSAAMER framework, in which an input-commercialization company (Dimas Medina EIRL) provided BDS to the Association of Producers and Exporters of Watermelon (APEC) and upstream partners, as the beneficiaries of the partnership. The ultimate objective was to deliver training and services to APEC to consolidate its capacity as a producer and exporter of high-quality watermelons.

In all three cases, a national-level public partner and at least one private service provider were involved. The private partners included: i) the BDS providers that supplied inputs, extension and/or entrepreneurship services to producers after being trained and/or financially supported as part of the PPP agreement; ii) the upstream FOs, which were both beneficiaries of and partners in the PPP (Pakistan and Peru); and iii) a private financial institution (United Republic of Tanzania). In addition, the partnerships could be supported by an international organization that backed or complemented the public-sector financial resources, such as AGRA in the United Republic of Tanzania and the Asian Development Bank (ADB) in Pakistan.

The other two cases presented in Table 12 (Ecuador and Uganda) focused on providing direct support to SMAEs. In these cases, while the focus was on SMAE development, the public partner still expected improvements in farmers' conditions as an indirect benefit of the PPP. The Ugandan case adopted a business incubation model designed to boost industrialization and local entrepreneurship through linkages to research, innovation and local businesses. The business incubation programme was hosted by the Uganda Industrial Research Institute (UIRI), the government's leading agency for industrialization (created under the Ministry of Tourism, Trade and Industry).[28] The private partner, Derekorp – a fresh fruit processing company working with smallholder farmers – was selected by UIRI as an incubatee. A BDS

[28] The ministry has since been split into the Ministry of Trade, Industry and Cooperatives and the Ministry of Tourism, Wildlife and Heritage.

TABLE 12
Overview of BDS PPP cases

	Ecuador	Pakistan	Peru	Uganda	United Republic of Tanzania
Partnership duration	2010–2012	2006–2008	2009–2011	2005–2010	2008–2012 (period analysed 2008–2010)
Products	Bamboo bicycles	Processed milk products, vegetables and fruits	Watermelons	Processing of fresh fruits	Agro-inputs for maize and rice production
Public partners' objectives	Support to small entrepreneurs in the agribusiness sector	Enhanced productivity, production and market diversity of farmers' produce Increased farmers' income and profitability Support transition from subsistence to commercial smallholders	Enhanced inclusion in and access to dynamic markets for smallholders	Industrialization and entrepreneurship development Employment generation Increased incomes	Increased food production and sustained income for smallholders living in remote rural areas
Public partners	Ministry of Production, Employment and Competition, through EmprendEcuador	ASF of the Ministry of Food, Agriculture and Livestock Ministry of Industry Ministry of Commerce ADB	PROSAAMER under an MOA programme	UIRI of the Ministry of Tourism, Trade and Industry	Ministry of Agriculture, Food Security and Cooperatives Regional and district administrative secretariats
Private partners	Booframe Focus-Q	10 NGOs/RSPs as BDS providers FEGs	Dimas Medina EIRL APEC	Derekorp	TAGMARK, affiliated to the Citizen Network for Foreign Affairs AGRA NMB
Total investment	US$10 000: 80% public 20% private – Booframe plus US$3 500 initial investment from Booframe partners	US$6 million: 63% public through funds for capacity building and matching grants 37% private in matching grants from FEGs	US$501 500: 10% public 56% company 34% APEC (in-kind)	Lending of processing facilities, coaching and training from UIRI Running costs of business incubator from Derekorp (no monetization of these services)	US$1.1 million guarantee fund Up to US$5 million in loans
Driver	Public partner	Public partner	Public partner	Public partner	Public partner

TABLE 12
(continued)

	Ecuador	Pakistan	Peru	Uganda	United Republic of Tanzania
Incentives for private sector	Business services and technical assistance Co-financing	NGOs: 50% matching grants for implementing enterprise development activities Increased customer base Increased profits FEGs: 100% grants to cover capacity development costs Improved technical and managerial skills	Dimas Medina EIRL: Increased customer base Funding Increased profits APEC: Increased commercial and technical skills to take advantage of market opportunity	Free use of UIRI's processing plant and administrative installations Training and technical support Networking support	TAGMARK: Opportunity to obtain results in accordance with its mandate to promote enterprise-based agricultural development initiatives Funding AGRA: Opportunity to obtain results in accordance with mandate to improve African agriculture NMB: Greater demand for and profit from financial resources by increasing customer base

Source: authors' compilation based on FAO, 2013a country reports.

PPP agreement was reached based on a detailed business plan that defined the contributions and tasks of each partner. In the Ecuadorian case, an emerging company producing bamboo bicycles, called Booframe, applied to a national programme – EmprendEcuador, under the Ministry of Production, Employment and Competition – which provided support to local entrepreneurs through access to financial and non-financial business services.

Both the Ecuadorian and the Ugandan partnerships were developed within the framework of a national programme, through which the public partner provided training, technical assistance and technology, and monitored and co-financed the PPP arrangement. In Uganda, UIRI's contribution was exclusively in-kind, encompassing incubation services and access to physical premises, including a processing plant, laboratories and machinery. In the Ecuadorian PPP, the public partner, EmprendEcuador, also provided technical assistance and co-financed Booframe activities. However, preparation of the business plan for Booframe was outsourced to an NGO (Focus-Q) under a third-party contract. In this instance, the NGO implemented specific activities under contract and cannot be considered a genuine partner in the PPP as it did not share the risks or costs of the partnership.

The private partners in both cases were individual agroprocessing companies whose role was to create sound business opportunities for highly marketable products, for which the raw material was sourced from smallholders.

6.4 MAIN ROLES AND FUNCTIONS OF PARTNERS

Public partners' roles

In BDS partnerships, many of the public partners' roles during the design, implementation, monitoring and evaluation of the arrangement are similar to those for the other typologies of PPP. The following are functions that are specific to BDS PPPs:

- *Selecting private partners in accordance with evaluation criteria stipulated in the programme guidelines*: In the Peruvian case, PROSAAMER followed a selection process that was based on the robustness and accuracy of the business plans submitted by potential private partners. In the Ecuadorian case, after training hundreds of entrepreneurs on business development, EmprendEcuador selected those with the most potential to turn their business ideas into functioning ventures through PPP arrangements. In Uganda, UIRI used a competitive process to select the private company that would receive business incubation services.
- *Supporting BDS providers by developing their managerial skills*: In the Pakistani case, the organizational and managerial skills of BDS providers were strengthened during the first phase of the project to enable them to assist producers in enterprise development. The Peruvian PPP programme co-financed and trained the selected BDS operators that would be responsible for providing market information, training and technical assistance services to FOs.
- *Developing incubation services to support agribusiness start-ups*: Such services included the following:
  - *Finance and business training and mentoring, and technical support for preparing business plans*: In the Pakistani case, the RSPs mobilized farmers to form groups (FEGs) and helped them to develop business plans. They also supported both new and existing agribusiness firms with the objective of adding value through processing and improved logistics in the horticulture, dairy and livestock value chains. In Ecuador, the EmprendEcuador programme provided business and financial assistance in setting up the company Booframe and preparing its business plan. In Uganda, UIRI provided technical and business training to Derekorp, supervised the plant production process, evaluated business performance, and provided financial assistance such as working capital to increase the supply of fruit from farmers and the purchase of equipment (e.g. blenders) on behalf of Derekorp.
  - *Support for innovation and R&D*: In Uganda, UIRI provided two full-time technical staff members to deal specifically with research into new products related to the core business of Derekorp. In Ecuador, Booframe received training in developing an innovative and differentiated product (bamboo bicycles) that could meet demand in a niche market.
  - *Shared facilities and services*: In the Ugandan case, UIRI granted the incubatee, Derekorp, access to its premises (e.g. processing plant, offices, storage space and a laboratory) and services.
- *Providing incentives and risk mitigation tools such as guarantee funds to facilitate access to financial services for service providers and producers*: In the Tanzanian case, the government, together with AGRA, established a fund to support loans issued by the private bank (NMB) to agrodealers. In Pakistan, various ministries created a fund (ASF) backed by ADB to support the formation and funding of FEGs.

- *Monitoring partnership implementation and tracking delivery on agreements*: In the Tanzanian case, the MOA ensured that inputs under the agrodealers support programme reached the targeted farmers. In Pakistan, ASF carried out quarterly monitoring of the technical and financial progress of the project and the performance of FEGs. In Ecuador, a staff member of the ministry was in charge of monitoring the performance of Booframe to ensure that it remained in line with the targets of the support programme. In Peru, M&E consisted of random visits from PROSAAMER personnel to supervise operation of the PPP, with periodical follow-up reports prepared by the BDS operators.

Private partners' roles

To complement the public partners' roles, the main roles of private partners were:

- identifying and helping to develop sound business opportunities for highly marketable agricultural products for which raw materials could be sourced from smallholders;
- providing technical and managerial assistance to support the formation and strengthening of farmers' enterprises and groups, including assistance in preparing business plans;
- project implementation and day-to-day management of operations;
- preparing M&E reports and submitting them to the public partner;
- providing BDS providers with loans and training (in cases where financial institutions were involved).

Roles of farmer organizations/cooperatives

In the cases from Pakistan and Peru, in which the FOs participated in the partnerships as both beneficiaries and partners, their role was to apply the new knowledge, procedures and techniques learned.

6.5 PERFORMANCE AND DEVELOPMENT OUTCOMES

The main achievements of the BDS PPPs are highlighted in Table 13. In all cases, the public benefits encompassed: i) improved delivery of BDS to small-scale farmers and firms, often with corresponding increases in income/profits; ii) strengthening of private BDS providers serving rural areas; iii) creation of employment opportunities; and iv) development of the agribusiness ecosystem through the creation of start-ups and the consolidation of small-scale agribusiness companies.

The private partners generally benefited from the BDS PPPs by increasing their turnover and profits. Service providers were able to increase their customer bases and enhance their performance from a qualitative point of view. For example in the United Republic of Tanzania, the PPP stimulated forwards and backwards linkages for the agrodealers, some of which also opted to differentiate their business models by becoming produce buyers. Agribusiness entrepreneurs also benefited from the PPPs through the financial and technical support provided to help set up a company or put in practice a business idea. The nature of the business services received depended on the specific circumstances of the firm and the design of the BDS programme/initiative.

Farmers and their organizations benefited from BDS PPP arrangements in two ways: i) improved access to BDS services; and/or ii) more stable sourcing arrangements between FOs and SMAEs.

TABLE 13
Summary of BDS PPP performance

	Ecuador	Pakistan	Peru	Uganda	United Republic of Tanzania
Achievements	New agribusiness launched Employment for 200 bamboo producers and 18 bamboo artisans	2 000 FEGs formed 20 000 smallholder farmers trained 1 121 micro-agribusiness enterprises created 26 138 new jobs	21 farmers trained Increased exports Increased productivity	Agribusiness start-up strengthened Employment for 7 employees and 30 farmers	2 626 agrodealers trained Inputs worth US$2.5 million sold in 2 years
Benefits for public partners	Improved value addition Employment generation	Creation of decent jobs Reduced poverty and improved quality of life Reduced risk of smallholders' exclusion Forwards and backwards linkages Increased income for BDS providers	Employment generation, particularly for women Income generation for smallholders	Employment and income generation for processors and farmers Business incubator model tested	Increased agricultural production and self-sufficiency Higher incomes for smallholders Improved skills and increased forwards and backwards linkages for agrodealers
Benefits for private partners	Increased sales – more than 30 personalized bicycles Income increased by US$1800/ month	NGOs/RSPs: Increased customer base FEGs: Increased job opportunities Improved technical skills	Dimas Medina EIRL (RSP): Increased customer base, sales of inputs and profits APEC: Increased quality and quantity of produce and timely deliveries Increased sales and profits	Sales increased, from approximately US$5 000 to US$10 000/ month Technical and managerial skills developed Self-confidence acquired	TAGMARK & AGRA: Objectives achieved according to its mandate NMB: Increased demand for financial resources supported by a guarantee fund Agrodealers: Increased working capital and sales turnover Increased linkages to farmers
Benefits for farmers/FOs	Indirect effect: Employment opportunities for 200 bamboo producers and 18 bamboo artisans	20 000 smallholder farmers trained 2 000 FEGs formed 165% increase in profit of FEGs 139% increase in employment: 26 139 people with direct employment and 9 935 with indirect employment	Exports increased by 50% Productivity increased by 42%, from 35 to 50 tonnes/ha	Indirect effect: Increased income of farmers through stable market linkages to Derekorp	Smallholders: Augmented productivity from agri-input use Increased incomes

Source: authors' compilation based on FAO, 2013a country reports.

6.6 MAJOR CHALLENGES IN PARTNERSHIPS FOR BUSINESS DEVELOPMENT SERVICES

BDS PPPs face many of the challenges that are common to all the PPPs studied. These include issues such as institutional instability, poor targeting and overly bureaucratic procedures that can affect the scope and effectiveness of the partnership (Chapter 8). The following are challenges that are specific or highly relevant to BDS PPPs, along with some suggestions of how these challenges can be addressed:

- *Overreliance on the public sector* is a problem with particular effects on start-ups and emerging SMAEs that are supported by incubation services, and on firms and farmers that rely on financial assistance and subsidized business services. In Uganda, Derekorp relied heavily on its partner UIRI, especially in identifying and negotiating with suppliers of raw material and in purchasing machinery. In the last period of the partnership, to address this issue, UIRI decided to reduce its brokering role and coached Derekorp to build the skills required to become self-sufficient. This challenge was also relevant to BDS providers receiving financial support through the PPPs in the Tanzanian and Pakistani cases. Linked to this challenge is the *absence of an exit strategy* that ensures the sustainability of the service provider and/or the access to business services. At the end of the Derekorp/UIRI partnership, Derekorp was insufficiently prepared to exit the partnership. To address this overdependence of the incubatee, the public-sector partner tried gradually to reduce its role, as mentioned in the previous section. However, the phasing out of support should have been considered in the design of the PPP arrangement. Conversely, the EmprendEcuador programme had a clear exit strategy that envisaged three phases through which companies passed before the end of the partnership: i) establishment of the company; ii) consolidation; and iii) exit through linking the company to a network of "angel investors" or entrepreneurs interested in investing in the company, and negotiating favourable conditions with financial and credit institutions to ensure access to finance over the long term.
- *Operational challenges associated with supporting agribusiness start-ups and newly formed FOs*:
  - *Inadequate feasibility studies and planning*: These issues may result in a poorly designed intervention with an over-narrow focus when a more holistic approach may have been required. For example, in the Booframe partnership (Ecuador), the PPP strategy did not foresee interventions to support upstream value chain segments to increase the quality and quantity of the bamboo produced. As a result, Booframe had to deal with uncertainty in securing raw materials that met its requirements. In response to this difficulty, the company decided to provide training to bamboo producers, but this incurred higher transaction costs than expected and diverted resources from other important areas of work. To avoid these challenges, a comprehensive intervention strategy based on the findings of value chain and stakeholder analysis is needed.
  - *Lack of appropriate technological solutions*: When starting up a new agroprocessing activity, limited expertise and budget constraints may induce partners to select inappropriate technological solutions. When the private company is locked into using the wrong technology, performance can be compromised.

Replacing technology requires an additional outlay of finances that may not be feasible, and may cause disruption to existing processing and marketing activities – a potentially fatal situation for a new or start-up company. In the Derekorp/UIRI parnership, the processing equipment initially purchased was inadequate. Production was therefore repeatedly disrupted by breakdowns, and some of the product lines initially planned had to be foregone. This impasse affected the ability of both parties to achieve their objectives within the planned timeframe. Such problems could have been avoided through a more thorough analysis of the appropriateness of the technology prior to purchase.

- *Marketing failure* is usually associated with inadequate market assessment during the initial stages of developing a PPP arrangement. For instance, Derekorp targeted hotels and restaurants as its primary customer base, but demand for its product was not generated because hotels found it cheaper to produce their own fruit juices. Derekorp therefore resorted to establishing its own direct distribution points. Farmers' scepticism regarding the usefulness of BDS and the benefits of commercial farming can also be a major setback for the uptake of business services. In the Pakistani PPP, a major implementation challenge was farmers' limited interest in participating in the programme based on their negative perceptions of the usefulness of BDS. Convincing farmers of the benefits of moving from subsistence farming to commercial production was also challenging. These risks were mitigated by using partners with existing linkages to farming communities and by undertaking participatory planning and capacity building activities with the FEGs.

- *Emerging new risks for smallholders*: Although the BDS PPPs in Pakistan helped to reduce the risk of smallholders' exclusion from the market by enabling them to identify market opportunities and exploit these through collective action, the transformation into market-oriented producers exposed the smallholders to new risks such as price fluctuations, requirements for conforming with food safety standards, and tax policies to which they had not previously been exposed. Conducting a thorough risk assessment during the design phase of the partnership can help identify the possible consequences of an intervention on the targeted smallholders. Performing a cost–benefit evaluation can also be a way of identifying whether the gains for smallholders expected from the partnership justify the risks associated with the intervention.
- *Long-term preferential treatment of the supported firms and FOs* may undermine competition. In the Ugandan case, concessional elements of the incubation arrangement gave Derekorp exclusive rights to use UIRI's processing plant and equipment during the five-year period of the partnership. This meant that these facilities were not available to other potential agribusiness start-ups during this time.

6.7 SUCCESS FACTORS AND LESSONS

When effectively designed and implemented, BDS PPPs have the potential to engender a long-run multiplier effect by enhancing the capacities of business operators and providing smallholders and FOs with specialized services that would otherwise not be available in remote rural areas. All the BDS PPPs analysed facilitated the

integration of FOs and SMAEs into value chains by improving their uptake of business support services and/or strengthening their capacity to deliver quality services themselves (e.g. business services offered by FOs to their members). The following are some of the success factors in the partnerships studied:

- *Sound project definition*: This is by far the most important factor in determining the success of a BDS PPP as a poorly defined project runs the risk of repeating the supply-push approach that has been a common weakness of BDS projects in the past. The Pakistani case is a good example of a programme that followed a structured approach in defining a PPP intervention, from the generation of an idea through to its appraisal, approval and implementation. It took MOA and ADB six months of collective analysis to decide that the project should revolve around the formation of FEGs by certified BDS providers.
- *Clear selection criteria*: The selection of BDS operators needs to be based on clear criteria such as rigorous and well-informed business plans. In the Peruvian case, a well-developed business plan was the main criterion for the selection of private enterprises. Essential elements of the business plans included thorough market identification, clearly defined target beneficiaries, and an offer of services that was realistic in relation to the resources available to support the partnership and the time available for implementation. Other selection criteria included the level of organization and synergies of the operator with other partners, and the implementation of a sound environmental and social feasibility study.
- *Capacity building of BDS providers*: In both the Tanzanian and Pakistani cases, a two-phased approach was adopted under the PPP whereby the BDS providers were first trained and then certified by the PPP managers as reliable business and entrepreneurial service providers. During the second phase, matching grants were awarded to the certified providers, enabling them to provide a range of business services to smallholder producers based on approved business plans. This process was particularly valuable as it required the service providers to be highly committed to first improving the quality of their service provision through training and certification, and then demonstrating their capacity to put into practice what they had learned in the field by working with FOs.
- *Capacity building of FOs*: In several cases, capacity building of FOs was the main justification for creating and strengthening BDS providers. In both the Pakistani and Tanzanian cases, group formation was considered a critical element of the partnership in reducing transaction costs and ensuring the uptake of business services at sufficient scale to make the partnership worthwhile.
- *Focus on value addition*: In several cases, one of the goals was to add value to existing products and business relationships through the provision and use of specialized business services. This emphasis on value addition can be seen in the processed products developed under the Ugandan and Ecuadorian cases (processed fruits and bamboo bicycles respectively), and in the expansion of business relationships demonstrated in the Peruvian Pakistani cases.

REFERENCES

Esim, S. 2001. *See how they grow: Business development services for women's business growth.* Washington, DC, International Center for Research on Women (ICRW). http://www.icrw.org/sites/default/files/publications/See-How-they-Grow-Business-Development-Services-for-Womens-Business-Growth.pdf (accessed February 2016)

FAO. 2007. *Business services in support of farm enterprise development: case studies*, by D.G. Kahan. Agricultural Management, Marketing and Finance Working Document No. 13. Rome. http://www.fao.org/docrep/016/ap306e/ap306e.pdf (accessed February 2016)

FAO. 2008. *Global review of good agricultural extension and advisory service practices*, by B.E. Swanson. Rome. http://www.fao.org/3/a-i0261e.pdf (accessed February 2016)

FAO. 2013a. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Nigeria, Uganda, United Republic of the Tanzania; Latin America (in Spanish): Chile, Colombia, Ecuador, Guatemala, Peru; Asia: Indonesia, Pakistan, Thailand. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

FAO. 2013b. *The business of agricultural business services: Working with smallholders in Africa*, edited by M. Wongtschwski, J. Belt, W. Heemskerk and D. Kahan. Rome, Royal Tropical Institute, FAO and Agri-ProFocus. http://www.kit.nl/sed/wp-content/uploads/publications/2080_the_business_of_agricultural_business_services.pdf (accessed February 2016)

Lusby, F. 2004. *Terms used in enterprise development: Rethinking "BDS". A thinkpiece from the SEEP Network. Arlington, Virginia, USA, Action for Enterprise.* http://www.bdsknowledge.org/dyn/bds/docs/396/Lusby%20SEEP%20BDS%20Terminology.pdf (accessed February 2016)

Reardon, T. 2015. The hidden middle: the quiet revolution in the midstream of agrifood value chains in developing countries. *Oxford Review of Economic Policy*, 31(1): 45–63.

Webber, M. & Labaste, P. 2010. *Building competitiveness in Africa's agriculture: a guide to value chain concepts and applications.* Agriculture and Rural Development series. Washington, DC, World Bank. https://openknowledge.worldbank.org/bitstream/handle/10986/2401/524610PUB0AFR0101Official0Use0Only1.pdf?sequence=1 (accessed February 2016)

World Bank. 2012. *Agricultural innovation systems. An investment sourcebook.* Agriculture and Rural Development series. Washington, DC. http://siteresources.worldbank.org/INTARD/Resources/335807-1330620492317/9780821386842.pdf (accessed February 2016)

Part III

Cross-cutting findings and conclusions

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Chapter 7

Good governance and management of agribusiness partnerships

7.1 GOVERNANCE AND MANAGEMENT OF AGRIBUSINESS PARTNERSHIPS

As highlighted throughout the previous chapters, the underlying principle behind PPPs is that through collaboration, public and private partners can achieve objectives that they could not achieve alone, and create benefits for the partners, the stakeholders and – ideally – the wider community. However, to achieve this objective, an enabling environment needs to exist with adequate structures in place for both the governance and management of agri-PPPs. Using the case study framework, FAO has collected information and identified principles and practices for good governance and management of agribusiness PPPs. This chapter presents a synthesis of these findings and draws on existing work by other organizations dealing with the topic.

Governance

Governance is essentially concerned with "*doing the right thing*". According to FAO (2014b: 1), governance embraces "all the formal and informal rules, institutions and organizations and processes through which public and private actors articulate their interests; frame and prioritize issues; and make, implement, monitor, and enforce decisions".

PPP governance provides the accountability framework in which the partners make decisions and lead and control their functions to ensure that the partnership is run in a way that achieves objectives effectively and transparently. For OECD (2014: 3), good governance adds value and ensures that "public funds are well used and that the PPP approach is the best option. Governance covers a range of areas from the selection of projects and participants, the organization and management of PPPs, and the evaluation of outcomes".

The focus of this chapter is on the *public dimension of governance of agribusiness PPPs*. Intuitive understanding of public governance suggests that a transparent, participatory, stable and responsive political landscape promotes adherence to rule of law and due process. In such a scenario, private companies are more likely to feel confident about investing in agriculture, knowing that their investments will be protected, contract farming agreements will be upheld, and undue political interference into legitimate business activities is unlikely to occur. Conversely, bad governance increases the risks and costs of doing business in the agriculture sector thus reducing the attractiveness of investing. It can also create political instability and provide incentives for rent seeking and corruption.

Public governance covers both *general governance principles* and *implementation issues* that are crucial to ensuring well-performing PPPs (OECD, 2012; FAO, 2014b), including PPPs in the agriculture sector. These principles and implementation issues include:

- promoting *sound institutional frameworks* that support agri-PPPs;
- ensuring that good legislative and regulatory frameworks – *rule of law* – are in place and enforced;
- fostering *prudent and transparent selection and budgetary processes*;
- guaranteeing the *affordability and value for money* of PPPs as the best option for achieving stated public-sector objectives;
- designing adequate *exit and adjustment strategies*.

Governance principles should be applied throughout the partnering process, from the selection of projects and partners, to the design, implementation and management of the PPP and the M&E of outcomes.

Management

Management is concerned with "*doing things in the right way(s)*" in the day-to-day operations of the PPP. Managerial decisions need to be aligned with the strategies, policies, processes and procedures that have been established in the PPP governance structure.

7.2 PROMOTING A SOUND PUBLIC INSTITUTIONAL FRAMEWORK

Agribusiness PPPs often emerge as a way to solve failures in the delivery of public goods, as noted in Chapter 1. However, only when the right institutional capacities and processes are in place are PPPs able to deliver on their promise of public goods. Having an adequate institutional set-up for engaging in agribusiness PPPs entails having a legitimate, clear and predictable institutional framework that is supported by well-resourced and competent public organizations (OECD, 2012).

In many of the cases documented, the optimal institutional framework is far from being realized. In broad terms, while some developing country governments may have gained experience in applying the PPP mechanism to infrastructure, mining, health and education in recent years, its application to agriculture is quite new. This novelty is reflected in the relatively weaker public institutional arrangements for agribusiness PPPs and the significant gaps in public-sector resourcing and capacity that were evidenced from the case studies, even though – as noted in Chapter 1 – ITT and VCD PPPs are not necessarily new, but were previously not called PPPs. The introduction and popularization of the PPP concept in agriculture has forced a reconceptualization of approaches to engaging with the private sector, which is reflected in the institutional changes occurring at the country level.

The cases highlighted throughout this publication confirm that agri-PPPs often do not fit easily into the overall existing public institutional framework for PPPs, which is defined in Box 11.

This difficulty in fitting agri-PPPs into the existing institutional framework for standard PPPs is partly explained by the inherent traits of agri-PPPs, including their lower scale of investment, their multi-stakeholder involvement and their greater emphasis on social objectives such as food security and poverty reduction. The

BOX 11
Definitions and roles of the public institutions involved in PPPs

The overall PPP framework defines the various public institutions involved in PPPs and their division of labour:

- The *contracting authority (CA)* is the public organization – state, regional or local – or body governed by public law that directly enters into agreements with the private sector. It is the authority ultimately responsible for the PPP project.
- A *PPP unit* is a public organization tasked with the provision of advice and support to the various CAs engaged in PPPs.
- A *PPP committee* encompasses representatives of various public institutions and often also includes private-sector representatives. Its main functions involve granting approval to the partnership projects submitted by the CAs and providing oversight to all existing PPPs. PPP committees work at a higher level than PPP units, which are more concerned with the operational aspects of PPPs.
- The *central budget authority* is responsible for scrutinizing PPPs to ensure that they are affordable, offer value for money and are aligned with fiscal targets.
- The *supreme audit institution* assesses the effective management of the risks of PPPs.
- *Sector regulators* monitor compliance with sector standards throughout the duration of the partnership.

processes for feasibility assessment and partner selection are also much more flexible and simple for agri-PPPs. The prevailing institutional set ups for PPPs are often biased in favour of infrastructure projects, whose characteristics in terms of scale of capital investments, commercial risk and contractual arrangements are completely different from those of the most common types of agri-PPP.

Table 14 provides a summary of the differences between agribusiness and traditional PPPs. Understanding these differences is essential for ensuring:

- adequate design of individual agribusiness PPPs and PPP programmes;
- alignment of the definition of PPPs in the agriculture sector with existing legislation designed primarily to support infrastructure PPPs;
- development of a specific legal and regulatory framework for the agribusiness sector, if needed.

From an institutional perspective, there are three ways in which agri-PPPs fall outside the conventional institutional structure for governing PPPs:

- Not all the public entities described in Box 11 intervene in the design and implementation of agri-PPPs. Evidence from the cases suggests that:
  - CAs and PPP units play key roles in this type of partnership, as explained in the next subsection.
  - Agri-PPPs often work "outside the box", escaping the control of central budget, audit and regulator institutions. Exceptions occur when the central budget authority is involved for large-scale investments, mostly in MI PPPs. This outsider quality is particularly noticeable in countries where PPP gov-

ernance is fairly new and evolving and where regulatory and organizational adjustments are still needed to improve accountability.

- Other institutional options that are relevant for agri-PPPs include:
  - *multi-agency governance models*, which can be defined as organizational systems that involve shared responsibility among various ministries and agencies – both centralized and decentralized;
  - *agribusiness PPP programmes*, which are public-sector schemes for packaging and structuring services, incentives and instruments such as counterpart funding, to leverage private-sector financial contributions and expertise for agribusiness development.

The characteristics and functions of these two institutional options, together with CAs and PPP units, are analysed in more details in subsequent sections.

TABLE 14
Agri- versus traditional PPPs

Feature	Traditional PPPs	Agri-PPPs
Scale of investment, cost and risk sharing and estimation of revenues	Investments of 8–9 figures are common The public partner must make in-kind or monetary contributions The private partner must contribute equity The private partner receives ROI from the revenue/user fees associated with the project The private partner generally bears all of the commercial risk	Lower scale of investments (minimum mobilized investment of US$100 000 stipulated for this study) No requirement for financial equity investments in the partnership – in-kind contributions (often unvalued) may be sufficient Private revenues are not necessarily estimated Risks may or may not be shared between private and public partners
Partners	A government entity and 1 or more private companies	May also feature SMAEs, FOs and other community groups working on joint initiatives with particular government agencies (donors and/or international technical agencies) and agribusiness firms 4Ps and multi-stakeholder partnerships are common
Formalization of arrangements	Formal contractual agreement between 1 core public and at least 1 core private partner More advanced contract modalities are favoured	May involve informal or formal arrangements Simpler modalities are used e.g. MOU Use of supporting contracts such as contract farming agreements common
Governance and management processes involved	Pre-feasibility and feasibility studies conducted prior to partner selection and contract negotiation Transparent bidding process applied to select private-sector partners Unsolicited bids discouraged	Feasibility studies conducted to assess potential for economic, social and environmental impact, usually involving value chain analysis Open bidding encouraged, but unsolicited bids from the private sector are possible, particularly in relation to innovation projects

Source: authors' elaboration based on FAO, 2013 case studies.

- The public institutions involved in agri-PPPs often move away from the "standard" application of governance principles:
  - Ideally, the government partner should ensure that the agri-PPP is affordable and transparent and represents value for money, as explained in section 6.3.
  - The cases show that in agribusiness partnerships, emphasis on social objectives (food security and poverty reduction) and additionality (delivery of a public good or service that would not have been obtainable without the private sector's contribution) can outweigh economic concerns (value for money).

Contracting authorities for agribusiness PPPs

CAs can range from line ministries to State research institutions, public universities, local governments and investment promotion agencies, among the others noted in Table 15. This authority is ultimately responsible for the partnership contract/MOU and operation of the PPP, while other public entities may be responsible for the approval, monitoring and oversight of PPP projects.

There can be more than one CA in each partnership, with one taking the lead. The leading institution is often the one with a specific sectoral mandate, such as the MOA for agribusiness PPPs. Alternatively, this role is played by public bodies with higher levels of political influence and resources, such as the ministry of finance and industry.

MOAs are frequently the leading CAs for agribusiness PPPs. MOAs played the lead role of CA in 30 percent of the cases analysed across all three regions, preceded by an array of other ministries and followed by knowledge institutions and local authorities (Table 15). MOAs are involved in one out of two agribusiness

TABLE 15
Leading contracting authorities in agribusiness PPPs, by region (percentages of cases)

Contracting authority[1]	Africa	Asia	Latin America	Overall
MOA[2]	30	30	30	30
Knowledge institution[3]	30	20	2	15
Local government unit[4]	17	20	4	13
Other ministries	6	12	48	31
Commodity board	10	3	2	4
Public bank	7	3	2	3
Entrepreneurship and competitiveness agency	–	–	10	4
Total	**100**	**100**	**100**	**100**

[1] Some partnerships have two or more CAs.
[2] Including affiliated agencies and projects housed in the MOA.
[3] Including public universities and research institutes focusing on agriculture, forestry and specific commodity chains.
[4] State, provincial and municipal government units.
Source: authors' elaboration based on FAO, 2013 country case studies.

PPPs (47 percent of VCD, 29 percent of ITT, 67 percent of MI and 75 percent of BDS PPPs). Their role as CA can be summarized as follows:

- *CA functions*: As lead CA, MOAs are responsible for identifying public–private investment opportunities in agriculture, providing information to private partners, screening partners and negotiating with them to develop partnership agreements.
- *Specialization*: MOAs are often the lead CA in VCD PPPs, particularly meso-level ones; in micro-level VCD PPPs, there is more diversity in the contracting public entities because of the greater emphasis on value addition objectives. MOAs are less likely than local governments to lead the implementation of MI PPPs, because of the requirement for local stakeholder consultation and buy-in to ensure the use of MI facilities by smallholders and SMEs, and the need for conformity with existing local infrastructure and support services (e.g. feeder roads and water supplies). MOAs are even less involved in ITT PPPs, in which agencies specialized in innovation and R&D take the lead, with the MOA providing a supportive role if any.[29]
- *Housing arrangements*: MOAs may exercise their CA functions through a division, department or unit; an affiliated agency, such as the Agricultural Development Institute and the Foundation for Agricultural Innovation attached to the Chilean MOA; and/or programmes or projects, such as the Indonesian partnerships managed by the MOA under the palm oil development programme, or within an individual donor project agreement, such as the sweet pepper supply chain project.

The majority of agribusiness PPPs (70 percent of those studied) are handled by CAs outside the public institutional framework for agriculture, particularly by the following:

- *Line ministries other than the MOA* (e.g. ministries of industry, social development, trade/commerce, production/employment, and natural resources/environment) often engage in agribusiness PPPs, particularly in LA (48 percent, Table 15). Ministries of social development, economy and production often participate in BDS PPPs, again especially in Latin America.
- *Public knowledge institutions* are involved mainly in the implementation of ITT PPPs. They play a significant role in agribusiness PPPs in Africa (30 percent) and Asia (20 percent). These knowledge organizations are set up under a ministry with mandates in innovation and knowledge sharing and creation. Examples include the Chilean innovation PPPs promoted by the Production Development Corporation, which is located in the Ministry of Economy; and the Thai research PPPs fostered by the National Science and Technology Development Agency and the National Center for Genetic Engineering and Biotechnology, both housed in the Ministry of Science and Technology.

[29] These conclusions regarding the role in the CA and the specialization of the MOA are quite consistent with the findings of the 17 country case study reports conducted by FAO (2014) on institutional mandates. These studies noted that MOAs still focused primarily on the production end of the value chain, with other ministries/public institutions dealing with many of the downstream/post-farmgate issues.

- *Local government units* serve as CAs for agribusiness PPPs in countries with a federal system or where decentralization processes are well entrenched, such as China, Indonesia, Nigeria and the Philippines. Local governments are frequently the leading agencies in MI PPPs, in collaboration with MOAs and other ministries.
- *Agricultural commodity boards* play a role in agribusiness PPPs in Africa, but less so in Asia and Latin America.

PPP units

PPP units can either be lead entities working across sectors or have a sectoral scope, such as when they are situated within the MOA. In some cases, sectoral PPP units with complementary mandates (e.g. agriculture, trade and industry) are clustered together or coordinated (e.g. via a committee or task force).

Many countries have established a single lead national PPP unit to achieve consistency and ensure the replication of best practices across all sectors, ministries and administrative levels. The PPP unit is usually housed in the ministry of finance, the prime minister's office or some other high-level agency. For example, the Kenyan PPP Unit (established in March 2010) is based in the Ministry of Finance, the Ugandan PPP Unit is in the Ministry of Finance, Planning and Economic Development, and the Philippines PPP Center is attached to the National Economic and Development Authority. One reason for this involvement of finance ministries is that PPPs typically involve large-scale infrastructure investments with significant commitment of public funds, so they must conform to national budget and tax laws and review processes that fall under the mandate of the ministry of finance.

The basic mandate of lead PPP units is to support PPP arrangements throughout the project cycle (pre-feasibility, formulation, negotiation, planning, implementation[30] and M&E). The units assess PPP proposals to ensure that government objectives are met and may receive funds for the conduct of feasibility studies. They may also be responsible for the management of viability gap funds.[31] PPP units can act as "one-stop shops" or centres of excellence that gather the skills and expertise required for fostering and entering into PPP arrangements. Additional functions may involve streamlining regulatory approval for partnerships, and supervising and providing oversight to PPPs in all sectors; in some countries, a PPP committee performs these functions.

Although PPP units are expected to provide support and advice to MOAs and other CAs responsible for agribusiness PPPs, there is little evidence to date from the cases studied or from FAO fieldwork of this advisory/mentoring relationship occurring, with a few exceptions.

Within the lead PPP agency, an agriculture sector board or task force may be established to provide advice on agribusiness partnerships. This is the case of the Kenyan PPP Unit and may be a more effective approach than establishing a separate PPP unit within the MOA. In the Philippines, in recent years, the PPP Center has also begun providing training to local government units in the identification and

[30] PPP units are rarely directly involved in the implementation of PPP projects, which is usually led by private-sector and local-level public partners, but they do coordinate implementation.

[31] Viability gap funds provide financial support in the form of grants (one-time or deferred) to projects undertaken through PPPs with a view to making them commercially viable.

design of PPP investment opportunities for market infrastructure, in line with current agricultural development priorities under the MOA.[32]

For countries with a federal system, such as Pakistan, it may make more sense to have PPP units at the provincial, state or department level, rather than the central level. In line with the national PPP policy of 2010, a PPP unit was created in the Planning and Development Department of Punjab province, and other units are likely to be set up if suitable projects are identified. This Punjab unit provided support for streamlining the formalities of PPP agreements (open bidding, screening of potential partners and vetting of contracts) and set an example for future PPP endeavours.

Sectoral PPP units within the MOA: Some MOAs are reportedly considering the option of centralizing the processes related to agricultural PPPs through a sectoral PPP unit; however none of the 15 countries covered in this case study review have adopted this structure to date.

The benefits of establishing a PPP unit within the MOA can be multiple: better alignment with sectoral strategy; reduced bureaucratic processes for lower-scale investments; and concentration of critical skills to ensure value for money and manage the complexity and heterogeneity of agribusiness partnerships under a single entity.

However, there are also potential deterrents, such as the insufficient critical mass of agribusiness PPPs because of limited public-sector funding opportunities, the relative lack of political power and expertise of MOAs in designing and providing oversight to PPPs (compared with other ministries that are more familiar with the PPP approach), and the shortage of financial and human resources to manage such a unit. Another risk that should be considered is the potential for this approach to create silos within sectoral ministries, which could reduce transparency, limit interministerial coordination and further reinforce the narrow mandate of the MOA as focusing primarily on production-related agri-PPP projects.

Multi-agency governance models for agribusiness PPPs

Multi-agency governance systems that share responsibilities among various ministries and other public bodies are common. Examples of how these entities interact are given in Table 16.

For example, the Ghanaian PPP model governs the interaction of a constellation of entities dealing with PPPs:

- The Project and Financial Analysis Unit (PFAU) under the Ministry of Finance and Economic Planning (MOFEP) holds CAs to the highest standards of PPP screening, planning and procurement practices.
- The PPP Advisory Unit, also within the MOFEP, ensures that public entities have access to advice and capacity building related to PPP development and management. PFAU and the advisory unit are supported by two other MOFEP

[32] This training was supported by the World Bank's Mindanao Rural Development Programme Phase 2 and was a new activity for the PPP Center, whose efforts had previously focused only on the national level. With the introduction of a new set of guidelines on PPPs for local government units in 2012, capacity building has become essential to support a decentralized approach for smaller-scale PPP investment projects.

TABLE 16
Models of the institutional set-up for agri-PPPs

Country	Public institutional set-up
Chile and Thailand	Contracting authority
Pakistan	Contracting authority and PPP unit at the provincial level
Kenya	Contracting authority, single lead PPP agency and PPP committee
Ghana	Contracting authority, cluster of PPP agencies and PPP committee
Peru	Contracting authority, single lead PPP agency and approving body
Philippines	Contracting authority, single lead PPP agency and cluster of central and local review and approving bodies
Uganda	Contracting authority, single lead PPP agency and Cabinet/ Ministry of Finance approval

Source: authors' elaboration based on FAO, 2013 country cases.

divisions that ensure fiscal sustainability and the inclusion of PPP-related financial commitments into annual budgets.

- The PPP Approval Committee is chaired by the MOFEP and comprises representatives from various ministers, including the MOA. The PFAU serves as Secretariat to the committee.

In Indonesia, responsibility for agribusiness PPPs is shared among the Coordinating Minister for Economic Affairs, the State Minister of National Development Planning and the Minister of Agriculture.

In Peru, the mandate of the Private Investment Promotion Agency has been expanded to include a PPP Unit, while PPP projects involving public guarantees require the involvement of the Ministry of Economy and Finance, which has the necessary fiscal responsibility and budgetary capacity.

The institutional set-up in the Philippines encompasses an array of CAs, the PPP Center (in an advisory and support role) and several review and approval bodies at the central (Inter-Agency Investment Coordination Committee and National Economic and Development Authority Board) and local levels (local government units).

These examples refer to the mandate of PPP units without entering into a discussion of their effectiveness to date. Many of these units have been set up very recently, with some established only after the PPP project studied for this review had been completed. In addition, although it is useful to highlight the structure of PPP units and notice their growing role in developing countries, their relevance to the development of agri-PPPs is still not clear, particularly in smaller-scale investment partnerships.

Agribusiness PPP programmes

whereas in Africa and Asia most of the agribusiness partnerships studied were ad hoc arrangements, in Latin America they tended to be part of specific PPP programmes. Such programmes (under the direction of the MOA or other line ministries) have

become the prevailing governance structure for the promotion of agribusiness PPPs in LA, particularly for VCD and BDS partnerships.

PPP programmes are designed as vehicles for packaging and structuring existing agribusiness public support services (e.g. extension and research services), incentives and instruments (e.g. competitiveness, innovation and training funds) and channelling them to farmers and firms to leverage private-sector financial contributions and expertise (Table 17). For example, three of the four cases appraised in Colombia took place within the framework of the World Bank-supported Productive Partnerships Support Project. In Ecuador, three of the four cases analysed were supported by PPP programmes: EmprendEcuador for competitiveness of small and medium-scale entrepreneurs, including those in agriculture; the Integrated Project for Development of the Productivity and Competitiveness of Micro-, Small and Medium Enterprises (FONDEPYME); and PRONERI for inclusive rural businesses. In Peru, all five cases presented in the study were implemented within the framework of two PPP programmes: PROSAAMER and the National Fund for Occupational Training and Employment Promotion (FONDOEMPLEO).

PPP programmes have a specific governance framework to regulate all their selected projects, which is based largely on the (project) steering committee model. The committee evaluates all proposed partnerships against a set of criteria, and uses clearly defined processes for the approval, formalization and monitoring of agreements.

PPP programmes reduce transaction costs while increasing transparency, which facilitates the formation of a critical mass of small- and medium-scale partnerships that would have been deemed too small to be negotiated individually. By using standardized procedures, the programmes can reach a larger farming and business base, thus reducing the risks of exclusion of small-scale actors. The programmatic approach also has the advantage of building the capacities of a wealth of small operators and service providers.

On the other hand, findings from the African and Asian case studies highlight the predominance of stand-alone PPPs. These ad hoc partnerships generally involve fewer small or medium-scale private partners, probably partly because of the more complex negotiation and project planning processes and the less transparent guidelines for partner selection. As a result, the transaction costs associated with each project are higher and the private actors tend to be multinationals or large domestic firms. This aspect should be considered in terms of the inclusiveness objectives for agribusiness PPPs, which are discussed further in Chapter 8.

Challenges facing institutional frameworks for agribusiness PPPs

Among the challenges identified in the study were the following:

- In the countries studied, MOAs were generally less prepared than other line ministries, such as those of transport and health, to meet the challenges of partnering with the private sector. Several MOA officials interviewed recognized that they do not "speak the language" of private agribusiness investors, nor do their ministries have the financial resources or skill sets needed to assess the affordability and value for money of different partnering options.
- The complexity of the institutional frameworks for engaging in agribusiness partnerships makes them susceptible to duplication and coordination issues.

- The overall institutional set-ups for PPPs show a bias in favour of infrastructure PPPs, and do not envisage the types of partnership that are common in agriculture, which are smaller in scale and in size of private partners, have more flexible implementation modalities, and have larger numbers of, and more varied, stakeholders and beneficiaries.
- Although governance remains in the public sector, management can be effectively shared, as seen in the operate-and-manage contracts that appear to be successful in MI and irrigation PPPs. However, the public sector is often reluctant to relinquish control over management of the partnership, even though it is widely acknowledged that private partners have considerably more experience of managing most types of PPP project than their public peers. Public pressure may also favour ongoing public-sector management, even in cases where this results in high levels of inefficiency. This is particularly the case when the public has a strong negative perception of private-sector involvement in the provision of agri-based services such as irrigation.
- Even in countries where a clear PPP institutional framework is in place, agribusiness PPPs might end up finding institutional venues other than the MOA. Many of the PPP projects and programmes identified in the FAO study were in fact operating outside (or alongside) existing national policy and regulatory frameworks designed to govern PPPs or promote broader private-sector engagement in the sector. This situation raises questions about how PPPs are defined under national policies and laws, and about what gaps exist in the governance and institutional frameworks designed to support this type of arrangement in the agriculture sector.
- In particular, donor-sponsored PPPs (Box 12), in which the term PPP is used loosely to describe donor–private-sector collaboration projects, may have little (if any) direct connection to the policy and regulatory frameworks designed to encourage genuine investment PPPs across a range of sectors, as defined in existing policies and laws. Moreover, these PPPs, like any other donor project, usually have to go through the ODA framework approval process, which was not designed for this type of co-contribution project and can thus be subject to heavy delays and unnecessary bureaucracy.

TABLE 17
PPP programmes in Latin America relevant to the agriculture sector

Country	No. of PPPs analysed	Programme	Programme location
Colombia	3 out of 4	Productive Partnerships Support Project	Ministry of Agriculture and Rural Development
Ecuador	1 out of 4	EmprendEcuador	Coordinating Ministry for Production, Employment and Competitiveness
	1 out of 4	PRONERI	Ministry of Agriculture, Livestock, Aquaculture and Fisheries
	1 out of 4	FONDEPYME	Ministry of Industry and Productivity
Peru	3 out of 5	PROSAAMER	AgroRural/MOA
	2 out of 5	FONDOEMPLEO	Ministry of Labour and Employment Promotion

Source: authors' elaboration based on FAO, 2013 country cases.

BOX 12

Donor-sponsored PPPs operating outside the established institutional channels

The donor community and the private sector have driven a large number of the agribusiness PPPs studied in Africa that were initiated via unsolicited proposals[33] and so did not pass through the formal PPP proposal and appraisal process. This situation is consistent with the findings of an Oxfam (2014) report, which highlights the emerging trend for establishing very large PPPs in Africa, particularly mega-agricultural PPPs involving large multinational investors, which have become a priority focus for ODA and government spending. In FAO's 2013 studies, the involvement of national PPP units (in the countries where they existed) was close to nil, and the MOAs (as sectoral counterparts) often had little or no say in shaping the partnerships, despite the relevance of the projects to the agriculture sector.

For example, of the four agribusiness PPPs appraised in Kenya, the MOA was involved in only one (for mango processing). In the other three cases the public partner was either a research and knowledge institution or a commodity trade organization. The PPP Unit (or its predecessor at the time) was not consulted, despite the statement that it should provide oversight of all PPPs for infrastructure and development projects, including those in the agriculture sector.

This situation highlights the "looseness" of the PPP definition applied to these types of project, as discussed in section 1.2, and the potential challenges that this loose definition raises in terms of the roles of and opportunities for public partners in building skills in good governance and management of PPP initiatives at the national or local level beyond the duration of donor project interventions.

7.3 ENSURING THAT GOOD LEGISLATIVE AND REGULATORY FRAMEWORKS ARE IN PLACE AND ENFORCED

A supportive legal framework provides assurance to private-sector partners at all levels (large-scale national/multinational firms, SMEs and farmers) that their investments will be protected and channelled towards agreed activities, and that partnership agreements will be upheld in the face of disputes during implementation. To be "supportive", the framework must have *a clear, transparent and enforceable regulatory system in place*.

The success or failure of agribusiness PPPs is highly dependent on enabling legislation and regulation concerned with land access, enforceability of contracts,

[33] An unsolicited proposal can be defined as any idea or proposition presented to a public institution that is outside the institution's established/standardized procurement process, and therefore does not respond to a call for proposals, a bid or a similar mechanism. A solicited proposal is submitted in response to a formal solicitation or request issued by a responsible public entity, as when an MOA or local development unit identifies priority projects for agribusiness development in the framework of a programme or initiative.

protection of intellectual property (IP) and other essential issues such as natural resource management, food safety, agricultural insurance, arbitration, and regulations to support SMAEs. Many of these issues fall outside the purview of traditional PPP legislation but are critical for successful implementation of agribusiness PPPs. Of particular importance is ensuring the establishment and enforcement of a *transparent and judicious land governance system* that recognizes tenure rights for local communities to minimize the potential for land grabbing (Oxfam, 2014; and section 3.6). Potential solutions for preventing land grabbing include the establishment of a land bank, as seen in the MI PPP to establish a terminal for horticultural products in the Philippines, and engaging with local governments responsible for land-use planning decisions at the start of the PPP negotiation process/pre-partnership phase. Local government units can play a critical role in ensuring that only legally registered land is included in PPP schemes. Through rigorous review of all the land title documents involved in partnership agreements, the legality of landownership and the willingness of farmers to participate can be verified. In the Indonesian oil-palm PPP described in Box 7, this role was carefully managed by the local government authority in partnership with the village unit cooperatives, and all documents were submitted for registration to the National Land Authority.

Equally important is the presence of a sound *legal framework for contract farming* for maintaining trust and respect among the contracting parties involved in VC PPPs, as seen in section 3.6. Enforcement of this legislation is critical in minimizing the likelihood of side-selling and providing access for all parties to cost-efficient and timely dispute resolution mechanisms (as highlighted in UNIDROIT, FAO and IFAD, 2015). *Protection of the IP rights* associated with new products developed under ITT PPPs also needs to be explicitly addressed in accordance with supporting regulations and laws.

Many countries have enacted *specific legislation on PPPs*. However, such legislation often focuses exclusively on large-scale infrastructure PPP projects and the related governance institutions, as discussed in section 7.1. In many cases, this narrow focus on large-scale investment projects makes the PPP legislation unsuitable for governing the small-scale, often semi-formal and multilateral, public–private collaboration arrangements that occur in the agriculture sector in developing countries. Several Latin American countries currently face this situation of loose/unclear regulation of agriculture-related PPPs. For example, Chile, Colombia and Guatemala have concession/PPP laws[34] that focus exclusively on infrastructure development and operation. The programmatic approach has been widely adopted in the region, largely because it helps to overcome this regulatory gap in an efficient way.

Second-generation PPP legislation seeks to overcome these pitfalls by broadening the scope of regulations to include categories other than infrastructure development (e.g. public services and development interventions), and other forms of contractual arrangements in addition to concessions.[35] For example, Kenya passed a national PPP Bill in 2012 (Government of Kenya, 2012) to regulate participation of the

[34] Chile Concession Law of 1996, Guatemala PPP Law of 2010, and Colombia PPP Law of 2012.
[35] A concession gives an operator the long-term right to utilize all the utility assets specified, including responsibility for all operation and investment (World Bank, 2015).

private sector in not only infrastructure but also government development projects (including agribusiness projects). However, as highlighted in Box 12, application of this law to date appears to be limited outside the scope of infrastructure projects. The United Republic of Tanzania passed a similar Public Private Partnership Act in 2010 (followed by PPP regulations and a Public Procurement Act in 2011) and Uganda prepared a PPP bill in 2012 (Government of Uganda, 2012). Based on findings from the FAO cases from both of these countries, there appears to be limited applicability of these laws to agribusiness PPPs. New legislation on PPPs was also developed in Peru in 2008 and 2012, which maintains a focus on infrastructure PPPs, but also opens up room for other types of partnership.

Other countries have a more fragmented regulatory approach to PPPs. In China, apart from some specific regulations related to infrastructure-only PPPs at the central level, there is no national legal and administrative framework for PPPs. This leaves local governments with the authority to issue their own regulations for the bidding and selection of PPP projects, which can create inconsistencies among provinces and confusion regarding which government departments have authority to negotiate and sign contracts with private partners (Cheng and Wang, 2009).

Other countries have introduced *PPP policies*. This is the case of the United Republic of Tanzania and its National PPP Policy, launched in November 2009 to serve as a guideline for the formulation and implementation of PPPs in all sectors. Ghana followed suit in 2011 with its National PPP Policy (Government of Ghana, 2011). Although not limited to infrastructure, the Ghanaian policy has a clear bias in favour of this type of PPP, but leaves room for the preparation of sector-specific PPP policies to accommodate different sectoral needs, as long as these policies are consistent with the overall PPP policy. Pakistan approved a national policy on PPPs in January 2010, after which some provinces (e.g. Punjab) promulgated specific acts to support PPP implementation at the decentralized level.

Despite their importance, these policies and laws on PPPs are so recent (with the first dating from 2009) that very few of the agribusiness PPPs appraised by this study were developed in accordance with them. For example, only one of the cases studied in Pakistan was implemented in line with the 2010 PPP Policy: a partnership for promoting the commercialization of improved, drought-tolerant wheat seeds in Barani district of Punjab.

7.4 FOSTERING PRUDENT AND TRANSPARENT SELECTION AND BUDGETARY PROCESSES

Governments need to put in place a process for selecting PPP projects and private partners that is transparent and grounded in value for money. *Transparency* refers to the creation and public dissemination of criteria and procedures for the selection of projects and private companies to participate in co-financing opportunities through PPPs. Transparency is critical in minimizing the opportunities for corruption, political capture and rent seeking behaviour.

The cases analysed were heterogeneous in terms of selection processes adopted. Some cases made use of *competitive bidding* in which all eligible bidders were provided with detailed terms of the proposed partnership (e.g. the scope, timelines, expected contributions and risk distribution). In others, *limited competitive bidding* was the method used: the government selected one private partner from

among the few that qualified, without public advertisement. *Direct selection* took place in a large number of cases, especially in Africa. The use of one selection process or another will also depend on the level of development of the private sector in the country, measured in quantitative and qualitative terms. The number of potential private companies available (either domestic or international) to choose from can make a difference: in countries where there are very few agribusiness companies, direct selection might make more sense; conversely, in contexts where there are many eligible private-sector partners, competitive bidding is preferred. Qualitative factors are also important, particularly the capacity of potential private partners to contribute strategically, financially and in terms of managerial and marketing skills.

In a large number of the VCD and BDS PPPs documented, governments based the selection of eligible private applicants on information submitted in the form of business plans. The presence of compulsory elements for the design of these plans was found to facilitate the evaluation and ranking of private partners. These elements included stipulation of the level of funding offered by the private partner (both in-kind and cash contributions); willingness to enter into contractual arrangements with smallholder farmers (supporting evidence of a good track record in collaborating with farmers); details of the type of technical assistance to be provided by the company and any additional advisory services required; expected costs and profitability of the partnership; and strategies for addressing social and environmental issues. For BDS partnerships, it was also important to take into account the level of organization of the service provider as an indicator of its capacity to reach smallholders in remote areas; and synergies between the operator and other value chain partners such as input providers and financial institutions. In micro-level VCD PPPs, special attention was given to assessing private partners' expertise in implementing voluntary standards and their track record in supporting smallholders to achieve and maintain third-party certification (e.g. organic, GlobalGAP and environmental standards).

In ITT PPPs, depending on the scope of the partnership and the number of qualified private candidates, the public partner either organized an *open bidding or tendering process* or resorted to a *direct selection procedure*, often as a result of receiving unsolicited bids from the private sector. Selection criteria included demonstrated prior success in commercializing similar innovations/technologies; previous experience in managing contract farming arrangements (e.g. for the production of seed); strength of the partner's commercial network for disseminating the innovation or technology (e.g. number and geographic scope of commercial distribution outlets); and complementarity of the company's previous R&D efforts and services.

For MI PPPs, it is common practice to issue calls for tender, followed by a transparent private-sector bidding and selection process, with the winning firm being publicly notified. Among the criteria applied when selecting partners were the ability to integrate the market infrastructure into the existing value chain; a track record in developing and managing similar forms of infrastructure; willingness to involve farmers and small traders in operating the infrastructure (e.g. provision of licences to operate stores in wholesale markets, introduction of WRS); and proposed investments in complementary value-adding activities (e.g. cool chain storage facilities and transport).

The VCD, BDS and ITT PPPs represent a significant departure from the traditional PPP model for the infrastructure sector. In MI PPPs, open bidding processes for selecting private-sector partners are applied in almost all cases, and unsolicited bids are discouraged. However, some agribusiness PPP arrangements are not entirely suitable for open bidding, and unsolicited bids from the private sector are possible in these cases. Unsolicited proposals are more common in agriculture, particularly for ITT PPPs. There may be only one private company with access to the technology, process or genetic material required to develop innovative products and, as seen in the cases from Thailand (for developing disease-resistant okra seed), the company may approach a public research institution directly to request support in solving a pressing market problem that the company is unable to solve alone. The debate over whether to allow direct selection/unsolicited bidding often reflects the negative consequences associated with the potential for corruption and the favouring of larger-scale domestic and international private partners. While these concerns are valid, the opportunity to encourage (and reward) existing firms for putting forward innovative ideas that have the potential to benefit numerous smallholders should not be overlooked. Unsolicited proposals should therefore be considered on a case-by-case basis.

7.5 GUARANTEEING AFFORDABILITY AND VALUE FOR MONEY OF PARTNERSHIPS

The PPP mechanism is inherently designed to address the issue of *affordability* by pooling resources from various sources to overcome the limited funding available in the public sector. Findings from the cases show that the majority of agri-PPPs involve modest investments, often of in-kind contributions made by public partners. While affordability may not present a serious challenge to the design and implementation of the partnership, the need for timely disbursement of funds constitutes a challenge for many agribusiness partnerships, as does the issue of recurring costs after the PPP investment period, as discussed in section 3.6.

The *value-for-money* concept refers to the utility derived from the total public money invested in the partnership, compared with that derived from alternative forms of investment such as direct public funding, outsourcing or full privatization. Box 13 explains how governments can assess – as accurately as possible – which PPP projects are likely to yield the most value for money. Only with such an assessment can the PPP proposals be selected and prioritized at the national or local levels of government to make best use of scarce budget resources.

To assess whether a partnership project can be considered good value for money, several aspects of the project design should be benchmarked and evaluated. This evaluation will include estimation of contributions and revenues for each partner; assessment of the costs and risk factors; and consideration of alternative procurement options. In agribusiness PPPs, the analysis of these characteristics is less rigorous than that performed for traditional infrastructure or health partnerships. For example, in an agribusiness partnership, private revenues are not necessarily estimated, while in infrastructure partnerships the private partner usually receives a return on investment from the revenue/user fees associated with the project or through management fees. Regarding equity contributions, in agribusiness partnerships in-kind contributions (often unvalued) appear to be common, whereas in the

infrastructure sector, contributions are always valued. In addition, risks may or may not be shared among partners in agribusiness partnerships, while in infrastructure PPPs the private partner generally bears all the commercial risk.

In the large majority of cases studied *pre-feasibility and feasibility studies* were conducted prior to partner selection and contract negotiation. These studies assessed the potential for economic, social and environmental impact and usually involved *value chain analysis* as the methodological approach of choice. For VCD PPPs, the value chain analysis focused on identifying bottlenecks in the chain, and costing and designing interventions to overcome these bottlenecks. Private partners were then selected based on their abilities to deliver specific intervention activities. In the ITT PPPs, the feasibility studies performed often included assessment of land availability and suitability for seed multiplication and technology adoption; estimation of economic benefits for all partners; assessment of the financial stability of partners undertaking investments; market analysis to determine input market demand and end markets for increased outputs; and environmental impact assessment associated with technology dissemination. In the MI PPPs studied, the public sector commissioned feasibility studies to assess major financial elements of the project (e.g. income projections, returns on investment and payback periods), environmental impact assessments, and market analyses based on the potential for creating strong upstream and downstream linkages.

The weaknesses associated with assessments of value for money of agribusiness PPPs are most likely partly a result of governments committing only fairly small

BOX 13

Value for money and related concepts

Value for money: An agri-PPP project represents value for money if it yields a net positive gain to society that is greater than that which could be achieved through any of the alternative modes of procurement. Carrying out a value-for-money analysis (essentially a cost–benefit analysis) as part of the partnership design is good practice.

Such value can be benchmarked against the best alternative public-sector project that is feasible or by using tools such as the Public Sector Comparator, which is a quantitative tool that calculates the total costs for the public sector of delivering (developing and operating) a public good and/or service (Cruz and Marques, 2013). Governments can use this comparator to make decisions by testing whether a public–private investment proposal offers value for money in comparison with the most efficient form of public procurement.

Additionality: This concept is frequently used in arguments in favour of PPPs and means that the contribution of each partner is indispensable for carrying out the activities of the partnership project (NCG, 2008: 2; DCED, 2014). In other words, the synergy effects of the cooperation among the partners are critical for enabling agribusiness investments that contribute to wider social and economic gains that would not otherwise have been possible or would have been delayed.

amounts of public money to each partnership, and of the greater emphasis placed on social over economic/financial objectives. In fact, it was difficult to find cases that met the minimum threshold of US$100 000 established for the study. This figure is far lower than the significant sums dedicated to traditional PPPs in health and infrastructure and, as a consequence, less attention is given to the accounting and fiscal practices used to plan and monitor public expenditures made in relation to agribusiness PPPs than for those in other areas. The PPP programmes analysed in Latin America are addressing this challenge through the programme framework, but in countries where agribusiness partnerships are rare and in-kind public or private contributions common, there is still ample room for improving fiscal transparency.

Governance of agribusiness PPPs relating to the principle of value for money needs to be adaptive. It should be acknowledged that although public–private co-financing is often important, it may sometimes make more sense for the government to finance and deliver a specific public good on its own, or to outsource delivery to the private sector rather than establishing a PPP arrangement. However, PPPs are being promoted as the main mode of operation in some developing economies, regardless of the specific circumstances of projects. The value-for-money principle as applied to agribusiness PPPs therefore requires further consideration to ensure that there is hard evidence to support the adoption of a PPP approach over other modes of public or private investment. The generation of this evidence could be supported by the development of a set of value-for-money indicators suited to the common agribusiness PPP typologies identified in this study.

7.6 DESIGNING ADEQUATE ADJUSTMENT AND EXIT STRATEGIES

Like all development projects, every agribusiness PPP should be developed with an expiry date. Partners should set objectives to be achieved within a certain period, and when these objectives have been attained, the partnership should be dissolved and any ongoing responsibilities be handed over to the appropriate partner(s) to ensure sustainability. In some cases however, the predetermined goal(s) prove to be unattainable, calling for difficult decisions to be made to mitigate failure and minimize losses. All agribusiness PPP projects should therefore include a *clear definition of the targets* to be achieved by partners and arrangements for *course correction*, if insufficient progress is being made, and *eventual exit* when targets cannot be achieved or where the handover of responsibilities is required. Having a sound *M&E system* in place is critical for rapidly adjusting the course of the PPP project when necessary.

Unfortunately, the cases examined show a pervading lack of exit strategy across the four typologies of agribusiness partnership. VCD and BDS PPPs were the worst affected, as the ITT and MI PPPs usually needed to address, at a minimum, post-project issues associated with ownership of IP and continuing maintenance of hard infrastructure. When no explicit information is provided in the partnership agreement, it is difficult to know how supporting the infrastructure, knowledge and skills generated during the PPP will be sustained.

The situation regarding adjustment strategies is more positive, and the good design practices identified for smoothly correcting the PPP strategy include:

- defining decision points and benchmarks for assessing progress and deciding whether to continue or terminate the partnership;

- specifying mechanisms within the partnership agreement for dispute resolution, renegotiation and refinancing;
- incorporating risk management strategies into project designs, such as agricultural insurance and the setting up of contingency funds; and
- allocating a fixed percentage of the overall budget to serve as a buffer fund to cover inflation and other cost-increasing factors.

Examples of adjustment strategies that were adopted during implementation of the PPPs studied included simplifying bureaucratic procedures that delayed PPP implementation, and using advocacy and awareness raising campaigns to address low uptake of a technology promoted in the framework of an ITT PPP (section 4.6). Other strategies, such as the provision of training for public partners in soft skills such as management and negotiation, can be useful when the disparate managerial styles of public and private partners have been identified as a hindrance to the smooth operation of the agribusiness PPP.

As well as the systematic monitoring of agri-PPP performance, *strategic evaluation efforts* (e.g. evaluations at the mid-term of projects and, particularly, before the renewal of funding) should become an integral part of the governance and management of these partnerships. Mechanisms that promote regular sharing of experiences and assessment of results are also crucial for enhanced learning and better management of PPPs. As seen in section 7.2, PPP programme frameworks for agribusiness development can offer some distinct benefits. They provide a systematic approach to evaluating partnerships that reduces transaction costs while stimulating cross-learning and the scaling up of best practices and lessons learned.

7.7 CONCLUSIONS ON GOVERNANCE

Tying together all the elements of governance (identified in section 7.1) to ensure the successful development of PPPs in the agribusiness sector poses many challenges to developing country governments. However, much progress has been made in the past five years in the strengthening of regulatory and institutional frameworks. New PPP laws and policies that envisage application of the PPP model to the agribusiness sector are emerging. Related to these developments, public institutional frameworks are being revised to meet the challenges of the rising number of PPPs in agriculture through the development of sectoral task forces in national or decentralized PPP units, the involvement of MOA representatives in PPP committees, and the training of relevant public staff on these issues.

The most substantial governance challenge pertains to the creation of processes that are transparent and based on value-for-money concepts to select and account for agribusiness PPPs, which is exacerbated by the limited skills of public-sector personnel. Agri-PPPs are so different in nature from traditional PPPs in other sectors that several adjustments are required. In some countries, existing processes are gradually being streamlined, standardized and improved thanks to the emergence of PPP programmes and better integration of procedures across all sectors.

REFERENCES

Cheng, C. & Wang, Z. 2009. *Public private partnerships in China: making progress in a weak governance environment.* University of Nottingham China Policy Institute Briefing Series No. 56. Nottingham, UK, University of Nottingham. https://www.nottingham.ac.uk/cpi/documents/briefings/briefing-56-chengchen-ppp.pdf (accessed February 2016)

Cruz, C.O. & Marques, R.C. 2013. *Infrastructure public-private partnerships: Decision, management and development*, Chapter 2, pp. 21–51. Berlin and Heidelberg, Springer-Verlag. http://www.springer.com/cda/content/document/cda_downloaddocument/9783642369094-c2.pdf?SGWID=0-0-45-1393804-p174969376 (accessed February 2016)

DCED. 2014. *Demonstrating additionality in private sector development initiatives. A practical exploration of good practice for challenge funds and other cost-sharing mechanisms*, by M. Heinrich. Cambridge, UK, Donor Committee for Enterprise Development (DCED). http://www.enterprise-development.org/page/download?id=2400 (accessed February 2016)

ECOSOC. 2006. *Definition of basic concepts and terminologies in governance and public administration.* Committee of Experts on Public Administration, Fifth session, 27–31 March 2006, New York, Document No. E/C.16/2006/4. New York, USA, United Nations Economic and Social Council (ECOSOC). http://unpan1.un.org/intradoc/groups/public/documents/un/unpan022332.pdf (accessed February 2016)

FAO. 2013. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Nigeria, Uganda, United Republic of the Tanzania; Latin America (in Spanish): Chile, Colombia, Ecuador, Guatemala, Peru; Asia: Indonesia, Pakistan, Thailand. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

FAO. 2014a. *Inclusive Business Models Expert Workshop Report* 1–3 October 2013, Rome. Rome, Rural Infrastructure and Agro-Industries Division. http://www.fao.org/fileadmin/user_upload/ivc/PDF/IBMworkshop_Oct2013_Proceedings.pdf (accessed February 2016)

FAO. 2014b. *Ministerial Meeting on Governance and International Commodity Markets, 6 October 2014, Concept note.* Rome. http://www.fao.org/3/a-ml297e.pdf (accessed February 2016)

FAO. 2014c. *Public sector support for inclusive agricultural development: an appraisal of institutional models*. Series. Rome. http://www.fao.org/ag/ags/ags-division/publications/en/ (accessed February 2016)

Government of Ghana. 2011. *National Policy on Public Private Partnerships (PPP).* Accra, Ministry of Finance and Economic Planning. http://www.mofep.gov.gh/sites/default/files/reports/ppp_policy.pdf (accessed February 2016)

Government of Kenya. 2012. *Public Private Partnerships Bill.* Nairobi. http://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/Kenya_Public_Private_Partnerships_Bill__2012.pdf (accessed February 2016)

Government of Uganda. 2012. *The Public Private Partnerships Bill.* Kampala. http://parliamentwatch.ug/wp-content/uploads/2015/03/public-private-partnerships-bill.pdf (accessed February 2016)

Horton, D., Prain, G. & Thiele, G. 2009. *Perspectives on partnership: A literature review*. Social Sciences Working Paper No. 2009-3. Lima, International Potato Center (CIP). http://cipotato.org/wp-content/uploads/2014/08/004982.pdf (accessed February 2016)

NCG. 2008. *Evaluation study: public–private partnership programme*. November 2008. Taastrup, Denmark, Nordic Consulting Group (NCG). http://www.oecd.org/derec/denmark/42211210.pdf (accessed February 2016)

OECD. 2012. *Recommendation of the Council on principles for public governance of public–private partnerships.* Paris, Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/governance/budgeting/PPP-Recommendation.pdf (accessed February 2016)

OECD. 2014. *Public–private partnerships for agricultural innovation: 6th meeting of the Food Chain Analysis Network*, 13–14 October 2014. Paris, Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/site/agrfcn/Agenda_PPP%20meeting_13-14%20October%202014%20FINAL.pdf (accessed February 2016)

Oxfam. 2014. *Moral hazard? 'Mega' public–private partnerships in African agriculture.* Oxfam Briefing Paper No. 188. Oxford, UK, Oxfam International. https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/oxfam_moral_hazard_ppp-agriculture-africa-010914-embargo-en.pdf (accessed February 2016)

UNIDROIT. 2010. *UNIDROIT Principles of International Contracts 2010*, Article 2.1.13 Conclusion of contract dependent on agreement on specific matters or in a particular form, pp. 54–56. Rome, International Institute for the Unification of Private Law (UNIDROIT). http://www.unidroit.org/english/principles/contracts/principles2010/integralversionprinciples2010-e.pdf (accessed February 2016)

UNIDROIT, FAO & IFAD. 2015. *UNIDROIT/FAO/IFAD Legal Guide on Contract Farming.* Rome, International Institute for the Unification of Private Law (UNDROIT), FAO and International Fund for International Development (IFAD). http://www.fao.org/3/a-i4756e.pdf (accessed February 2016)

World Bank. 2015. *Concessions, build-operate-transfer (BOT) and design-build-operate (DBO) projects*. http://ppp.worldbank.org/public-private-partnership/agreements/concessions-bots-dbos#contractual (accessed February 2016).

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Chapter 8
Benefits and challenges of agribusiness partnerships

Chapters 3 to 6 provided a detailed assessment of the performance and development outcomes (including benefits) associated with the four typologies of agri-PPP investigated in this study. Specific challenges associated with design, implementation and evaluation have also been considered. Chapter 7 examined the issue of governance of agri-PPPs and identified some of the common pitfalls and best practice approaches for addressing these challenges from a public-sector perspective, bearing in mind the existing legal and regulatory environments that may influence these types of partnership. The purpose of this chapter is to reflect on the rationale for PPPs identified in Chapter 1, and to consider how well the agri-PPP cases investigated in the FAO study delivered on their promises. In doing so, the authors aim to assess whether the hype regarding the PPP concept as the preferred vehicle for stimulating agribusiness development actually matches realities in the field, and where there remain gaps between theory and practice. The concluding Chapter 9 discusses the relevance of the PPP mechanism, and the circumstances under which agri-PPPs may be considered the best modality for achieving agribusiness development outcomes.

8.1 POTENTIAL BENEFITS OF AGRIBUSINESS PARTNERSHIPS

Agri-PPPs offer a number of potential benefits deriving from the combination of the operational and economic efficiency typical of the private sector with the public sector's role as the creator of an enabling environment and regulator to ensure that social interests are considered. An assessment of the most commonly promoted benefits of the PPP mechanism is given in the following subsections.

Pooling of financial resources and potential to leverage funding

Chapter 2 provided an overview of the scales and shares of investment contributed by partners in the cases studied. The findings demonstrate that public and private funds were being pooled through PPP projects for initiatives that range in size from less than US$20 000 for ITT PPPs, to multi-million dollar projects for MI PPPs. The mechanisms for achieving this *pooling of funds* can be structured in different ways in the partnership agreement to suit the specific purpose of each PPP and may include co-equity investments, in-kind contributions, matching grants and concessions for the private sector. In some cases, the public sector and/or the donor community used the PPP mechanism to leverage investment from the private sector by implementing a competitive bidding process and requiring compulsory contribution levels of more than 50 percent. Such contributions are commonly required by law for infrastructure PPP projects, and there is evidence of their gradual adoption in

some agri-PPP typologies, such as MI, ITT and some VCD projects. In other cases, the situation was reversed and the private sector can be considered as having leveraged access to public and/or donor funds. VCD partnerships provide examples of this leverage when the lead firm in the partnership claimed reimbursements from the public sector/donor for expenses related to inputs and training and organizing smallholder farmers as part of developing its own supply chain for raw materials.

In addition to the pooling of financial resources from core public and private partners (agribusiness firms), *improving smallholders' access to financing* through the incorporation of financial institutions into the partnership agreement was found to be another critical benefit of agri-PPPs. Financial institutions were involved in 14 of the 70 partnerships analysed (20 percent), and smallholder farmers' access to and uptake of credit was improved in the framework of PPP projects. While this can be considered a positive outcome, consideration must be given to the design of the specific credit products to ensure that smallholders are capable of managing these loans and are not exposed to greater risks than they can manage (Oxfam 2014, IDS and IFAD 2015).

Public financial institutions were present almost exclusively in VCD PPPs, as seen in Chapter 3. These institutions provided credit to small producers for expanding their production areas, shifting to new crops, investing in technology/machinery, and complying with national and international standards and obtaining certification. Examples include the following:

- In the Indonesian oil-palm PPP, a State-owned bank – Bank Rakyat Indonesia – provided subsidized loans to farmers (at 16 percent interest per annum, 9 percentage points lower than the commercial rate of 25 percent) through village cooperatives, guaranteed by the nucleus company, a private plantation company called Sampoerna Agro.
- In the Colombian Indupalma PPP, the commercial bank Megabanco used its own resources, backed by a 40-percent guarantee from the Colombian Agricultural Guarantee Fund, to provide credit to growers for the purchase of land. Megabanco also managed a credit line provided by the (public) Agricultural Finance Fund, which facilitated access to working capital and investment capital for purchasing machinery and establishing oil-palm plantations.
- In Guatemala the Guatemalan Federation of Coffee Producers Cooperatives, the government-owned National Agricultural Development Bank and Bancafé (the private coffee bank, which is now bankrupt) provided credit to coffee growers interested in obtaining the certification required for access to international markets.

Among the MI PPPs, there was only one case – establishment of the Neuva Vizcaya Agricultural Terminal (NVAT) in the Philippines – in which a public financial institution was involved: the Land Bank of the Philippines (section 5.3). This entity, which promotes rural development, participated in the partnership/joint venture by purchasing shares in NVAT, together with local government units, farmer cooperatives and other private rural banks.

Private financial institutions were also involved in several cases in all PPP categories, with the exception of ITT PPPs. They played heterogeneous roles but often provided credit and insurance services to farmers and SMAEs, as in the following examples:

- *Credit to farmers*: Credit was provided to farmers participating in VCD PPPs, as in the Indonesian sweet pepper VCD PPP, in which Rabobank provided credit for setting up greenhouses and using technical support services to improve the quality and add value to farmers' produce (Chapter 3); or as part of a warehouse receipt scheme (WRS), as in the Kenyan MI PPP (Chapter 5).
- *Working capital and trade credit to SMAEs*: In the Tanzanian agrodealer support partnership (Chapter 6), credit was provided to agrodealers to improve access for farmers to agricultural inputs by strengthening the network of rural agrodealers.
- *Equity financing*: In the Nigerian Shonga Farms VCD partnership, five commercial banks owned a 45-percent share of Shonga Farms Holding Ltd, farmers owned 40 percent and the State owned 15 percent. Once the banks had obtained investment returns, farmers could acquire bank shares and largely own their farms (FAO, 2013: Nigeria country report).
- *Insurance services for farmers*. The Nigerian VCD PPP which aimed to improve rice quality and add value, also included insurance services provided by a private financial institution (FAO, 2013: Nigeria country study).

In several cases, *non-financial institutions*, such as public- or donor-supported programmes, private foundations and farmer cooperatives, provided financial services. For example, in the MI PPP in the Philippines for developing a tramline to help improve the delivery and post-harvest quality of fresh vegetables, a non-profit organization (SPPAQ Foundation) provided growers with production loans to purchase agricultural inputs. Another case was the provision of soft loans and grants to graduates of the Enugu Songhai Initiative to invest in integrated farming, under the framework of the World Bank-funded Commercial Agriculture Development Project for Nigeria.

Risk sharing and risk management mechanisms

The risk management function of PPPs is particularly attractive to the agriculture sector in developing countries, where uncertainty and risks are common. The PPP model provides governments with the opportunity to decide how to handle these risks – retain them, share them or transfer them to the private partners, depending on who is best able to manage them. For instance, in traditional PPPs for infrastructure, commercial risks are often transferred to the private partner.

Types of risk: PPP projects are exposed to a wide range of risks as highlighted throughout Chapters 3 to 6. These may include commercial, financial, political, environmental, regulatory/institutional, operational and technological risks. The case studies also documented an array of agricultural risks including: production risks such as adverse weather conditions, natural disasters, pest and disease outbreaks and management failure; market risks such as volatility in output prices, input prices and exchange rates, counterpart and default risk; and risks related to the business enabling environment, such as regulatory risk, crop substitution, infrastructure risk, and political risks, including government interference in agricultural markets. Such high risks often deter the private sector from investing in the agriculture sector of low- and middle-income economies.

In this context, the PPP framework can be used to offer market incentives that encourage private-sector participation in agribusiness activities that would otherwise be considered high-risk and/or of marginal commercial value. Institutional mechanisms can also be used to provide greater certainty for investors. For example, agri-PPPs can reduce the commercial risk for the private sector of entering a new market by offering fiscal incentives (e.g. tax holidays) and institutional measures (e.g. organizing farmers into groups to reduce transaction costs, and ensuring exclusive purchase rights for the raw materials produced). In-kind contributions such as the provision of public extension services, supporting infrastructure and use of government facilities may also be offered to help make up for a challenging business environment. However, a balance needs to be reached between lowering the barriers to entry for private agribusiness investors and ensuring that some of the risk is transferred away from smallholders and shared fairly between the public and the lead private partners.[36]

Risk sharing: Analysis of the 70 PPP cases shed light on how risks are shared among the partners:

- *Market risk* is typically carried by the lead private partner; for example, the buyer involved in contract farming agreements is responsible for securing the market for outputs, as are private partners involved in the development of new technologies and those responsible for managing market infrastructure.
- The allocation of *production risk* varies; this risk can be carried by the farmers alone, or be shared with the public partner. In the cases studied, public partners sometimes established mechanisms for transferring some of the production risk away from farmers (e.g. by providing subsidized agricultural insurance, or co-funding contingency funds in case of *force majeure*), or sought to limit risk exposure by taking responsibility only for monitoring and verifying problems as they occurred (e.g. through field visits by public extension officers and laboratory tests associated with quality problems). In some circumstances, production risk may even be shared with the lead private partner, but this arrangement is less common. For instance, in ITT PPPs for the development of new seed varieties, the private partner usually shared some of the risk with contract farmers during the seed multiplication phase (e.g. by covering some/all of the input costs in the case of force majeure).
- *Risks may be distributed among partners in different ways at various stages of the project lifecycle*: For example, in ITT PPPs, the public partner may carry the risks associated with developing the new technology during the first phase of the agreement, while the private partner is responsible for commercialization of the technology developed. Similarly, for MI PPPs, depending on the partnership agreement (e.g. operate-and-manage contracts), construction risk for the new infrastructure may be the responsibility of the public partner, with commercial risk for operating and managing the facilities transferred to the private company.

[36] Oxfam (2014) expresses concerns that some agriculture mega-PPPs in Africa have been doing the opposite –transferring the risks of the partnership to the weakest links (farmers and SMAEs).

- *Agri-PPPs often allow joint management and sharing of critical risks*: As seen in the micro-level VCD PPPs, food safety risks for value chains such as horticulture and livestock can be shared between public and private partners, as both have vested interests in ensuring traceability and quality assurance of products for final consumers.

Risk management: Risk management and mitigation mechanisms were also found to be built into the design of some partnerships:

- *Agricultural insurance and contingency/guarantee funds* can help deal with incidences of extreme weather or *force majeure* events, which can have a negative impact on production and thus negatively affect harvests and farmers' ability to deliver on their commitments to private partners and to repay loans. This type of measure was particularly relevant in VCD, ITT and BDS partnerships. Other risk management options include a combination of subsidized loans for small-scale farmers and firms, secure purchasing contracts, and business management training for FOs and SMAEs.
- *Environmental risk assessments and mitigation plans*: The risk of environmental problems emerging needs to be assessed and solutions incorporated into partnership agreements to prevent/manage these risks. For example, in the Ugandan VCD PPP for sunflower oil, environmental risks associated with land clearing were identified as being a result of the expansion of sunflower oil production. To address these risks, private partners encouraged farmers to plant trees around their farms to act as windbreaks and mitigate climate change effects. Nurseries were set up to provide trees to farmers as a means of addressing these issues while also encouraging the diversification of farm activities and income sources. A similar approach was adopted in the Colombian coffee VCD case in partnership with the Rainforest Alliance. For the MI PPPs, strategies for dealing with disposal of waste (e.g. waste water, packaging etc.) were also incorporated into some of the partnership agreements.
- *Measures for reducing the risk of market power imbalances (including monopolistic behaviour)*: For example, in the Pakistan ITT PPP case for development of a drought-resistant seed variety, the partnership agreement included stipulations related to the setting of a price ceiling for the sale of seed for a fixed term (three years) and a requirement for maintaining four distribution outlets in remote areas. These mechanisms aimed to ensure that the new technology was affordable and accessible for remote rural poor people, even though the private partner had sole distribution rights to the seed. In the VCD palm oil case from Indonesia, a price monitoring team comprising representatives of the local government and the private company helped to reduce the potential for price disputes and side-selling by providing fortnightly reports to FOs on how prices were set and revenues were shared.

Improvements in efficiency

PPPs of all four typologies reported improvements in efficiency as major benefits. These improvements were associated mainly with the adoption of new technologies by smallholder farmers and SMAEs involved in ITT PPPs; with improved market access resulting from increased production, improved quality management systems

and stronger supply chain relationships in VCD PPPs; and with reductions in post-harvest losses in MI PPPs. Through their focus on improving the competitiveness of farmers and SMAEs, the BDS PPPs helped to support the delivery of all three of these efficiency gains – productivity, market access and reduced post-harvest losses.

Innovation: As seen in Chapter 4, the PPP framework can act as a mechanism for coordinating the financial, R&D and governance activities of innovation systems by organizing researchers, service providers, farmers and SMAEs into networks that improve the demand-driven nature of research solutions and facilitate more efficient transfer of new technology to end users. As the longest-established of the four types of agri-PPP studied, the benefits from ITT partnerships are also the best documented and provide the strongest evidence to support the rationale for cooperation. In the ITT cases studied, partnerships were developed to address a range of production and environmental problems through commercializing new seed varieties and piloting new small-scale technologies. Significant gains in productivity and efficiency were reported as resulting from the adoption of new technologies: yield increases of 40–50 percent or more from the uptake of new seed varieties; and significant cost-savings for SMAEs associated with reductions in the use of energy and labour. Innovations were also introduced through the VCD PPPs, with new production, post-harvest and marketing practices introduced to farmers and technical support provided to encourage adoption, in the framework of the partnership agreement. Innovations in the provision of financing and risk management mechanisms to smallholders were also identified in several cases, as discussed in the previous subsection, through the use of guarantee funds, contingency funds, WRS and agricultural insurance.

Market access: All four types of agri-PPP reported benefits associated with improved market access. These benefits generally accrued at two levels: for the lead private firm, and for farmers/SMAEs. In the ITT PPPs, lead private partners benefited directly from commercialization of the new technologies and from increased adoption by end users (increased sales). In two cases from Thailand, a new market was created for less costly, domestically produced technology (air-control fans for the poultry industry) where previously only imported products were available; or access to export markets was regained as a consequence of overcoming trade barriers associated with plant disease (through the production and cultivation of disease-resistant okra seed). The greatest claims of improved market access for smallholder farmers came from the VCD PPPs, with gains measured in terms of increased income associated with greater sales of raw materials. Both the meso- and the micro-level VCD PPPs were designed to improve on-farm productivity and quality management, with the end goal of securing access to more stable or lucrative markets for outputs. The increased engagement of smallholder farmers in contract farming agreements can also be considered as a proxy indicator of improved market access, as can the increase in purchase orders received by SMAEs for sales of value-added products (e.g. processed mango in Kenya). New domestic markets were also created as a result of the VCD PPPs designed to address import substitution, as seen in the VCD PPP for sunflower oil in Uganda. MI PPPs were found to improve market access for both farmers and SMAEs by reducing post-harvest losses and

improving product quality through the integration of infrastructure designed to better meet consumer demands (e.g. cool storage for vegetables and flowers, grain storage for food and feed).

BDS PPPs delivered both direct and indirect benefits associated with market access. They led to direct increases in demand for BDS services from, and thus revenue for, local firms providing these services in the framework of the PPP. They also contributed indirectly by preparing farmers and SMAEs to be better partners to downstream customers in both domestic and export markets by improving the business management skills and capacity to organize of the farmers and SMAEs. The contribution that enhanced access to finance made in helping smallholders to achieve market access should also be noted. In three of the four PPP typologies (VCD, BDS and MI), the incorporation of financial instruments into partnership agreements had beneficial effects for smallholder farmers and SMAEs, particularly in terms of achieving sufficient scale and sophistication of operations required to partner effectively with downstream private firms.

Social and environmental benefits

Agri-PPPs claim to create wider and more sustainable social, economic and environmental gains than would otherwise be achieved. These gains are usually aligned with national socio-economic and environmental development objectives and include the following.

Food security: Gains in food security were reported as a major benefit across all four agri-PPP types. However, it should be noted that it is not easy to capture changes in food security and that an increase in food supply does not always correspond to an improvement in food security. With this caveat in mind, examples of ITT, VCD and MI PPPs can be considered as having contributed to enhanced food security by increasing the production of outputs (e.g. 82 000 additional tonnes of maize produced in Kenya using a seed variety that was resistant to striga infestations); developing domestic production and marketing of previously imported food products (e.g. sunflower oil in Uganda); and reducing post-harvest losses through improved market infrastructure (e.g. a modern vegetable trading terminal in the Philippines, and grain warehousing in Kenya).

Inclusion: Inclusiveness refers to mechanisms for ensuring that small-scale actors (SMAEs and smallholder producers) women and youth are included in agri-PPPs. There are high transactional costs associated with sourcing products from numerous small-scale producers, but the exclusion of these producers from value chains curtails development of the agriculture sector in developing countries. Consequently, most of the VCD, BDS and ITT partnerships aimed to foster collective action by farmers, thereby allowing their participation in modern value chains. Support to achieve this goal was often provided by public partners, including the donor community and civil society actors (e.g. NGOs). However, in terms of achieving scale and inclusiveness objectives, the findings were inconclusive. The cases investigated involved as few as five farmers and up to some 40 000 farmers each, with some evidence of potential for replicability of models associated with technology transfer and VCD. Very few cases measured the impact of the PPP project on women and youth, which is an obvious

weakness given the importance of these groups to achieving rural transformation goals. In Ghana (the rubber VCD PPP), women's participation in cash crop farming increased, with women representing 30 percent of the farmers involved. In Peru (BDS PPP for watermelon exports), the employment opportunities created through the PPP project were especially advantageous for women.

Consolidation of findings regarding inclusiveness highlights the following:

- Several meso-level VCD PPPs (Chapter 3) had clauses for promoting inclusiveness through the provision of incentives to both small producers (e.g. through government-provided guarantees and subsidies for land investments) and the private actors that partner smallholder farmers and firms (e.g. through access to land, and tax exemptions on inputs and sales of commodities).
- Many of the Latin American PPP programmes promoted inclusive VCD/BDS partnerships by making matching grants available to FOs and leading firms that were willing to collaborate in contract farming/outgrower schemes.
- BDS PPPs made non-financial services available to smallholder farmers and SMAEs, which helped to build their business management skills and improved their capacity to negotiate equitable partnerships with downstream value chain actors in the future.
- ITT PPPs sought to bring new technologies and other agribusiness innovations to smallholder farmers and SMAEs in remote rural areas to help solve production and market issues that were limiting the development of these farmers and SMAEs and their access to higher-paying markets.
- MI PPPs could be instrumental in ensuring that small producers and traders were able to enter the formal economy and remain in competitive value chains. Such PPPs provided incentives for farmers to increase their productivity and product quality, and for traders to add value by engaging in primary processing and storage, taking advantage of the volumes assembled and the facilities and services provided.

Governments tend to emphasize the inclusiveness aspect of agribusiness PPPs. However, in reality, a degree of exclusiveness is inevitable if private-sector partners are to reap the rewards of investing and sharing their knowledge. While the ideal situation is to avoid creating a monopoly as a result of the partnership, good partners should be rewarded for their willingness to collaborate, at least for the duration of the partnership.

This need for adequate reward is particularly strong in ITT PPPs, in which incentives to encourage private partners' commitment are incorporated into the innovation planning process (Chapter 4). Ways of rewarding private co-investments in R&D include lump-sum payments once the technology has been commercialized, outright ownership of property rights, and limited-time ownership (OECD, 2014). In the VCD PPPs, private partners' commitment was usually rewarded through the signing of exclusive supply contracts with participating farmers for the duration of the partnership agreement.

Poverty reduction: Linked to the benefits associated with innovation and market access, poverty reduction gains were reported in terms of increases in smallholders'

income and improved livelihood. All ITT PPPs reported increases in farmers' incomes as a consequence of the yield increases and reduced costs associated with the adoption of new technology. All of the eight VCD PPPs analysed in Chapter 3 showed increases in farmers' income associated with improved market access. In the Indonesian oil-palm and Ugandan sunflower oil VCD cases, qualitative measurements were also used to assess the achievement of objectives related to poverty reduction and improved livelihoods (e.g. numbers of permanent houses constructed by contracted farmers, increases in school enrolment, and establishment of new farmer-owned businesses. In all but a few cases, baseline poverty indicators were rarely given, which makes it difficult to assess the extent to which the partnerships actually benefited the poorest farmers rather than simply targeting those more capable of benefiting from partnership activities. The relatively short time horizon for the majority of the cases suggests that the latter is most likely accurate. A certain level of skills and assets are required to be a suitable candidate for participation in agri-PPPs. This will likely exclude the poorest unless heavy investment is made in long-term capacity development (PBL, 2015).

Creation of decent rural employment:[37] The strengthening of rural communities through the creation of decent on- and off-farm employment is one of the main social benefits proposed as an outcome of many agri-PPP projects. The case study findings showed evidence of cases where this goal had been achieved in terms of new jobs created, but evidence on the quality of the employment created was lacking. For example, under the ITT PPPs, new jobs were created through the establishment of distribution outlets for new technologies (e.g. 120 jobs created in Uganda in the private company responsible for commercializing and distributing nine new seed varieties) and in newly established processing facilities (e.g. 14 000 new jobs created in olive oil processing in Peru). Under the VCD PPPs, consistent on-farm employment was created through engagement in contract farming agreements (e.g. 3 880 contracted rubber growers in Ghana) and new off-farm jobs were created in downstream value addition (e.g. 150 new jobs in Indonesia in packing sweet peppers for domestic and export markets). In the MI PPPs, new jobs were created to support the functioning and management of the MI and related services (e.g. inventory management of grain stored in warehouses in Kenya, and jobs created in restaurants and parking facilities at the agricultural terminal in the Philippines). In the BDS PPPs, jobs were created within SMAEs as a result of improved competitiveness (e.g. more than 26 000 people were employed by newly established agribusiness enterprises in Pakistan, and 218 jobs were created in the manufacture of bamboo bicycles in Ecuador).

Social stability: Some PPPs reported improvements in social stability as a consequence of increased legal ownership of land by smallholders (e.g. the Colom-

[37] According to FAO (2015), the term "decent rural employment" refers to any activity, occupation, work, business or service performed for pay or profit by women and men, adults and youth, in rural areas that: i) respects the core labour standards defined in ILO conventions; ii) provides an adequate living income; iii) entails an adequate degree of employment security and stability; iv) adopts minimum occupational safety and health (OSH) measures, which are adapted to address sector-specific risks and hazards; v) avoids excessive working hours and allows sufficient time for rest; and vi) promotes access to adapted technical and vocational training.

bian oil-palm and Ghanaian rubber VCD cases), and reduced crime resulting from increased employment and income opportunities (e.g. the Indonesian oil-palm and sweet pepper VCD cases).

Institutional changes and sector reform: The rationale for PPPs is based on the idea that the PPP mechanism can stimulate sector reforms and improve the efficiency of underperforming public investment. Several of the agri-PPPs investigated were found to have stimulated profound change in public institutions. For example, two of the cases from Uganda were specifically designed with this purpose in mind: the seed production and commercialization ITT case (Chapter 4) was developed to drive liberalization of the seed industry, which was previously under government monopoly, through a model that would also generate income for reinvestment in public research activities; and the sunflower oil VCD case (Chapter 3) aimed to address import substitution under the MOA's plan for modernizing agriculture and as a result, generated tax revenue and demonstrated that the delivery of demand-driven, farmer-led extension services was possible. Both of these cases required a dramatic shift in attitude and approach by the public sector, which would likely not have been possible without the PPP intervention.

Environmental improvements: Environmental benefits were reported in the ITT, VCD and MI cases. These gains were associated with reductions in pollution and the use of chemicals, reforestation, adoption of new crop rotation practices, reduced food waste and energy consumption, and water savings. Several VCD PPPs also supported the adoption by farmers and agribusiness firms of voluntary standards that are considered to be environmentally sustainable, such as certification by the Roundtable on Sustainable Palm Oil and the Rainforest Alliance.

Concluding remarks on benefits

Based on the discussion in this subsection, the supporting evidence demonstrates that agri-PPPs have the potential to deliver on some of the promised benefits. For smallholder farmers, many of the partnerships showed evidence of positive impacts on net income through improved market access, increased productivity, improved product quality, reduced costs, increased capacity of FOs, and direct on- and off-farm employment generation. For the public-sector partners, in addition to achieving socio-economic targets associated with the PPP projects, general benefits included the strengthening of public-sector institutions and skills in project design and management. At the firm level, benefits were reported in terms of increased sales and market shares and/or greater availability of raw material supplies. However, limited information was available on the return on investment for capital contributed by either public of private partners. It is clear that the benefits of agribusiness PPPs accrue to various stakeholders in different ways, which means that the right mix of responsibilities and incentives for each partner must be built into the partnership agreement in order to generate sufficient commitment required to produce these benefits.

While PPPs have the potential to positively impact on economic growth at the national level through the multiplier effects of the above-mentioned benefits, it is difficult to tell whether the same gains could have been achieved through initiatives

funded purely by the public sector targeting smallholder farmers and SMAEs, or through private initiatives with no public-sector intervention. This further highlights the weaknesses associated with limited assessment of the value-for-money concepts discussed in section 7.5, and the challenges associated with measuring the additionality that occurs as a result of a PPP.

A summary of the performance gains reported across the four PPP typologies is provided in Table 18.

TABLE 18
Benefits of agribusiness PPPs

Indicator	VCD PPPs	ITT PPPs	MI PPPs	BDS PPPs
Efficiency	Increased productivity of farmers and SMAEs Improved access to finance Improved competitiveness Increased exports/domestic sales Private-sector investment stimulated			
	Increased management skills of FOs and SMAEs Improved technical skills of farmers Increased supply/ delivery of raw materials Market linkages strengthened Increased value addition Decreased post-harvest losses New technologies introduced	Increased access to quality inputs for farmers New technologies introduced Increased yields Growth of seed sector Improved logistics and storage	New market facilities built, or dormant/ underperforming facilities made operational Improved knowledge of post-harvest practices among farmers Market linkages strengthened and formalized trading systems established Improved logistics, storage and value addition Improved market information sharing and transparent price systems promoted	Improved technical and managerial skills of farmers Increased forwards and backwards linkages of agrodealers and other service providers
Sustainability	New jobs created Increased income for farmers and SMAEs Environmental benefits Improved food security			
	Reduced social instability and criminality Improved safety for workers Environmentally sustainable agricultural practices applied	Reduced soil erosion Decreased use of pesticides Enhanced conservation of water resources	Improved safety and cleanliness of trading stalls Implementation of green logistics systems	

Source: authors' elaboration based on FAO, 2013 country cases.

While the pre-selection of case studies for the FAO study was biased towards those with evidence of achieving commonly described benefits associated with the promotion of agri-PPPs, not all agri-PPPs realize their objectives. The following section discusses common challenges that can inhibit the achievement of benefits.

8.2 COMMON CHALLENGES OF AGRIBUSINESS PPPS

The specific challenges for each PPP typology are discussed in Chapters 3 to 6. This chapter summarizes challenges that are common to all typologies. These challenges can be classified into five main categories as presented in Table 19: an unsupportive environment, and design, operational/technical, financial and sustainability issues. Not all challenges are equally relevant at all phases of the life cycle of an agribusiness partnership.

Unsupportive environment

One of the main challenges facing agribusiness partnerships is the lack of guidance and support offered to both public and private partners in the design and implementation of PPP projects. As highlighted in Chapter 7, this lack is because most PPP policies and strategies are designed for mega-infrastructure programmes. As a consequence, important issues such as risk sharing and mitigation mechanisms to protect small farmers, as well as conflict resolution strategies have often been overlooked in the design of partnerships, with no guidance available on how to address these issues if problems occur.

Negative public perceptions of PPPs may also make it more difficult to gain support for the use of this mechanism. If public funding is seen as supporting and strengthening the business activities of an individual private company, questions of transparency and preferential treatment arise, particularly when public objectives and outcomes are not clearly articulated to the general public. Competing agribusiness firms may also suffer as a consequence of these agreements, further diminishing public perceptions. Transparency in the process for selecting private partners is crucial in addressing this issue (see the following subsection on Design issues), as is clearly communicating the public good element of the partnership.

The following are some of the problems that commonly arise when supporting laws and regulations for agri-PPPs are lacking and existing laws are poorly enforced:

- *Land tenure issues*: Outdated and inconsistent legal systems for land tenure, and lack of enforcement of land laws often constrain the smooth implementation of agri-PPPs. This is a burning issue in VCD PPPs, in which land grabbing was identified in some cases, but it is equally important when finding land for innovation partnerships, or developing agricultural market infrastructure through PPPs. For the ITT PPPs, gaining access to land to support commercialization of seed technologies was an issue in some cases. Leasing public land to private partners for field demonstrations and linking private partners to suitable farmer groups helped overcome this challenge.
- *Failure to enforce existing regulations*: For example, lack of protection of IP, or failure to regulate against the sale of fake substitutes are problems for ITT PPPs, while poor enforcement of contract farming agreements, resulting in side-selling, is a particular issue for VCD PPPs.

TABLE 19
Major challenges affecting the performance of agri-PPPs

Area	VCD PPPs	ITT PPPs	MI PPPs	BDS PPPs
Unsupportive environment	Issues with enforcement of contract farming Public measures distorting the market	Lack of enforcement of IP regulations (not maintaining IP/preventing substitutes)	Unregulated activities (e.g. lack of supporting legal framework for warehouse receipts) Inconsistent local administrative framework creating confusion about roles and responsibilities Public measures distorting the market Inadequate supporting infrastructure hindering performance of PPP infrastructure	
Design	Lack of transparency in partner selection, and preferential treatment to specific firms Market power imbalance and creation of monopolies by providing first-mover advantages Market failures associated with inadequate market assessment Emerging new risks for small-scale actors Dependency of beneficiaries			
	Lack of stipulations on dealing with force majeure	Lack of stipulations on dealing with force majeure		
Operational and technical	Bureaucratic/inflexible operational procedures creating delays Lack of coordination and oversight bodies Incompatible attitudes and understanding of public and private partners Institutional instability Poor capacity and motivation of public partners			
	Failure to comply with standards and maintain certification Problems with recruiting (e.g. labour shortages during harvest periods) and maintaining human resources (qualified professionals and experienced farmers)	Technology failures of innovations Long lead times for the development of new technology Adoption failures – low uptake of technologies and processes	Low uptake of new facilities Problems with upgrading processes to take advantage of new facilities (e.g. traceability and quality control issues)	Lack of appropriate technological solutions
Financial	Delays in funding, and overspending			
	Problems with achieving scale and longer than expected time horizon for ROI Limited funding for sustaining activities beyond the partnership period		Delays in construction Problems with achieving scale and longer than expected time horizon for ROI Limited cost-recovery and fee collection	

TABLE 19
(continued)

Area	VCD PPPs	ITT PPPs	MI PPPs	BDS PPPs
Social and environmental sustainability	Risk of exclusion of small-scale actors			
	Land grabbing Environmental concerns (e.g. monocropping)	Concerns regarding land access (e.g. field demonstration sites, land for seed multiplication)	Land grabbing Environmental concerns (e.g. traffic congestion and waste disposal)	

Source: authors' elaboration based on FAO, 2013 country cases.

- *Lack of regulations* can result in unregulated activities that are carried out without the legal framework to protect investments. For example, in the MI case from Kenya (Chapter 5), the lack of a legal framework to support the use of warehouse receipts as secured collateral for borrowing made financial institutions (and farmers) less willing to become directly involved in the WRS.
- *Unforeseen policy directives* such as import/export restrictions and price setting can distort the market, with negative impacts on the commercial performance of the partnership. Clear examples of such government interventions arise when a government introduces directives that aim to protect consumers from soaring food prices (e.g. by banning exports), but end up distorting food markets and dramatically reducing incentives associated with the PPP objectives. This is a particular challenge for VCD and MI PPPs.
- *Poor infrastructure and limited delivery on public-sector upgrading commitments*: This issue can significantly hinder the performance of VCD and MI agri-PPPs, because bad connecting roads and supporting infrastructure lead to delays in harvesting, with resultant post-harvest losses. In one VCD case, the private partner was forced to maintain the road leading to the processing plant itself, because of ongoing delays in the local authorities' scheduled road works. In collaboration with FOs, private partners should lobby local government for improved infrastructure.

Design issues

Several challenges that arise during the design phase were identified. Lack of transparency and preferential treatment in the *selection of partners* have already been discussed in section 7.4. However, even when transparency and due diligence are applied in the selection process, the risk of creating *market power imbalances* and monopolies by providing first-mover advantages to individual private domestic and multinational firms is an important challenge. It is also difficult to achieve the right balance in this area. While private partners need to be rewarded for taking risks that they would not otherwise consider feasible outside the framework of the PPP, some VCD cases reported that the first-mover gains were too short-lived and barriers to competition too low, which reduced the incentive for private partners to enter into or sustain their involvement in VCD PPPs. Potential solutions are complex because although accepting a degree of short-lived market protection is an option, the benefits to the private partner have to be weighed against the costs to development of the subsector as a whole.

Another recurrent challenge pertains to *market failure associated with inadequate market assessment* during the initial stages of developing the PPP arrangement. This challenge is relevant to all four PPP typologies and has the potential to undermine significantly the success of a PPP project. For example, in the Ugandan BDS case, the target market's low acceptance of the product affected the profitability of the SMAE and delayed the implementation of partnership activities while alternative markets were sought.

Incomplete contracts: Many of the partnership agreements studied lacked stipulations on how to deal with *force majeure* and disputes. Extreme weather can have a negative impact on production, reducing harvests and farmers' ability to deliver on their commitments to private partners and to repay loans. The issue of how to share responsibility in the face of on-farm losses associated with weather impacts is important, particularly for VCD, some ITT and BDS partnerships, but it was not always addressed in partnership agreements. Similarly, very few contracts mentioned dispute resolution processes and support mechanisms (e.g. arbitration) available to partners in case of conflict.

Lack of adjustment and exit strategies (see section 7.6) and of *sound M&E frameworks*: M&E systems need to be able to measure key performance indicators of public benefits (e.g. employment generation, environmental impacts). Several cases reported problems because of misaligned monitoring systems among partners. Private partners often had quantifiable objectives that were easier to track, while the public-sector objectives tended to be more long-term, and thus harder to measure. M&E systems therefore need to be designed to take into account the reporting requirements of the diverse partners.

Operational issues

Challenges during the implementation phase include the following:

- *Poor capacity and motivation of public partners*: The cases studied provided examples of public partners lacking the necessary skills to complement the implementation activities of private partners in the field (e.g. inadequate technical skills to address pest and disease problems), or demonstrating limited interest in executing their partnership roles (e.g. monitoring and support of FOs). Gaps in the attitudes and expectations of public and private partners were also frequently reported. It is not uncommon for government partners to believe that private partners are interested only in profit generation and are not committed to achieving high-level, socio-economic objectives, or for private partners to see government as bureaucratic, corrupt and slow. Compounding this situation, institutional instability such as changes in the public leadership in charge of the PPP can create further delays and have negative effects on the delivery of partnership outcomes. As highlighted in Chapter 7, efforts to build the skills of relevant public staff so that they understand the mind-set of agribusiness investors, and ensuring institutional stability over time are two critical issues for the success of agri-PPPs.
- *Lack of a coordination and oversight body* poses critical problems for agri-PPPs with multiple stakeholders. The more partners involved, the more challenging it becomes to manage the inputs of individual partners and ensure delivery on responsibilities. This problem was faced in the ITT PPP in Kenya (striga-

resistant maize seed), which had eight public and two private partners involved in implementation.

- *Weaknesses in the organizational framework*: Weaknesses such as complex bureaucracy and/or inflexible operational procedures can considerably delay the formalization and operationalization of partnerships and, particularly, the release of funds.
- *Human resource challenges* such as difficulties in retaining qualified professionals or labour shortages during harvesting periods were a particular problem for VCD PPPs.
- *Technical issues* during implementation may include innovation failures, pest and disease outbreaks that cannot be controlled, negative impacts of weather, low uptake of technology by farmers, and lack of traceability and quality control procedures.

Financial issues

Financial challenges common to all types of PPP include slower than expected payback periods, lower than expected returns on investment, limited funding for renewing operations, disappointing profits, and escalating costs resulting from inflation. Accurate estimation of costs can be difficult, particularly when inflation increases above the level foreseen in the partnership agreement. To address this issue and prevent costs from spiralling out of control, meetings should be held to renegotiate the contributions of both partners to acceptable levels. In the sunflower oil VCD case in Uganda, additional government funding was capped at a maximum of 15 percent of the government's total funding of the partnership agreement, to avoid the escalation of public-sector commitments. Another common financial problem that leads to implementation delays is *late release of funds to the partnership*. Particularly for ITT PPPs for seed commercialization, the timely flow of funds is critical because of the seasonal nature of activities. Delays in releasing funds have flow-on effects for the next stages of research, and may result in delays in the provision of inputs, harvesting and payments to farmers, threatening partners' commitment and the ultimate success of the partnership. Output-based PPP contracts with investments paid in phased instalments can help address this challenge.

Social and environmental sustainability issues

Risk of excluding small-scale actors, such as smallholder farmers and SMAEs, is always a possibility in agribusiness partnerships. Private partners may prefer to work exclusively with larger-scale farmers to reduce transaction costs, or may opt for the vertical integration of production into their own operations. To achieve social objectives, in some cases, public partners mandated that a certain percentage of production be undertaken in partnership with smallholder farmers, and provided assistance to reduce coordination costs. Other programmes, such as the PPP competitiveness programmes in Latin America, specifically targeted the inclusion of SMAEs and FOs.

Potential for creating dependency of beneficiaries: This risk can be a critical challenge, particularly in BDS PPPs in which subsidies for service providers may create dependency if insufficient market demand for the services is developed during the lifespan of the PPP project.

Most of the cases studied lacked adjustment strategies for addressing *environmental risks*. In VCD PPPs, environmental risks include degradation and/or overuse of land and water resources. In MI PPPs, problems can occur with waste disposal, pollution, and traffic congestion, while ITT PPPs may have unintended negative environmental impacts associated with the adoption of innovations. Solutions to these problems are highly context-specific and vary in effectiveness. For example, the Indonesian MOA required the adoption and maintenance of certification by the Roundtable on Sustainable Palm Oil as a prerequisite for supporting oil-palm partnerships. Nevertheless, only 12 percent of palm oil production is currently certified.

REFERENCES

FAO. 2013. *Agribusiness public–private partnerships: country reports*. Rome. Africa: Ghana, Kenya, Nigeria, Uganda, United Republic of the Tanzania; Latin America (in Spanish): Chile, Colombia, Ecuador, Guatemala, Peru; Asia: Indonesia, Pakistan, Thailand. All available at: http://www.fao.org/ag/ags/ags-division/publications/country-case-studies/en/ (accessed February 2016)

FAO. 2015. *Understanding decent rural employment.* Factsheet. Rome. http://www.fao.org/3/a-bc270e.pdf (accessed April 2016)

IDS & IFAD. 2015. *Brokering development: enabling factors for public–private–producer partnerships in agricultural value chains*, by J. Thorpe and M. Maestre. Brighton, UK, Institute for Development Studies (IDS) and Rome, International Fund for Agricultural Development (IFAD). https://www.ifad.org/documents/10180/3533bdf5-ee8c-49a9-9aa5-c3254a3d1507 (accessed February 2016)

OECD. 2014. *Public–private partnerships for agricultural innovation: 6th meeting of the Food Chain Analysis Network*, 13–14 October 2014. Paris, Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/site/agrfcn/Agenda_PPP%20meeting_13-14%20October%202014%20FINAL.pdf (accessed February 2016)

Oxfam. 2014. *Moral hazard? 'Mega' public-private partnerships in African agriculture, by R. Willoughby. Oxfam Briefing Paper No. 188. Oxford, UK, Oxfam International.* http://policy-practice.oxfam.org.uk/publications/moral-hazard-mega-public-private-partnerships-in-african-agriculture-325221 (accessed February 2016)

PBL. 2015. *Public-private partnerships in development cooperation: Potential and pitfalls for inclusive green growth*, by J. Bouma and E. Berkhout. Policy Paper No. 1810. The Hague, PBL Netherlands Environmental Assessment Agency (PBL). http://www.pbl.nl/sites/default/files/cms/publicaties/PBL_2015-public-private-partnerships-in-development-cooperation-1810.pdf (accessed February 2016)

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Chapter 9
Conclusions and the way forward

This chapter presents the main messages and conclusions that can be drawn from the wealth of practical information derived from the cases and the analysis provided in previous chapters. It draws conclusions related to FAO's definition of PPPs (section 1.2), and summarizes the circumstances under which agri-PPPs may be considered the best modality for achieving agribusiness development outcomes. Lessons of particular relevance are also synthesized.

The final part of the chapter (section 9.4) highlights some limitations of the study and recommendations for future research and follow-up activities.

9.1 DEFINITION OF AGRI-PPPS

There are many different, often inconsistent, definitions of PPP. Finding a description that fits the diversity of PPPs occurring in the agriculture sector is nearly impossible. For this reason, the definition adopted by this study is in line with the set of criteria developed for the selection of the cases. If we revisit the definition presented in section 1.2 (and repeated below), it is possible to draw conclusions about the elements and distinctive characteristics of agri-PPPs based on the findings from this study. Table 20 provides a comparison of the commonly defined elements of traditional PPPs versus those of agri-PPPs.

Formality of the PPP arrangement

Under the traditional definition, a PPP involves a formal contractual arrangement between a government entity and one or more private companies, in which the distribution of roles, costs, revenues and financial risk among the parties is clearly specified. In contrast, agri-PPPs may involve either informal or formal arrangements,[38] and tend to favour simpler, less complete contract modalities than traditional PPPs.

> An *agri-PPP* or a *PPP for agribusiness development* is defined as a *formalized partnership between public institutions and private partners designed to address sustainable agricultural development objectives, where the public benefits anticipated from the partnership are clearly defined, investment contributions and risk are shared, and active roles exist for all partners at various stages throughout the PPP project lifecycle*.

[38] In this study, only formalized PPPs are taken into account.

The majority of the PPP agreements analysed in the FAO study took the form of a project MOU. Bilateral contracts between the lead private partner and participating farmers (e.g. contract farming arrangements) or between the public partner and other service providers were also used alongside the main partnership agreement to implement project activities. With the introduction of new PPP policies and legislation that aims to mainstream the use of PPPs, it seems likely that the past use of more informal, ad hoc agreements will give way to a more formalized approach whereby standardized and regulated agreements become the norm for PPP implementation across sectors. Partnerships developed in the framework of the national agri-PPP programmes seen in Latin American countries (Colombia, Ecuador and Peru) seem to have followed this trend by developing standardized, basic contracts between the programme (as the public partner) and private partners.

Range of partners

As seen in section 2.2, agri-PPPs involve collaboration between one or more public entities and one or more agribusiness companies, but they also involve financial institutions, NGOs, SMAEs, FOs and individual farmers. Depending on the design of the PPP project, farmers may play dual roles, as both private partners in their own right, and beneficiaries of the PPP project. The term public–private–producer–partnership (4P) has recently been introduced and adopted by development agencies, such as the International Fund for International Development (IFAD), in line with some developed country governments (e.g. Canada). The term 4P reflects the role that farmers and their organizations play in contributing financing and sharing risk within the framework of a PPP arrangement.

Partnerships objectives

The traditional rationale for using PPPs is related to market failures in the delivery of public goods and services. This rationale is broadened in agri-PPPs, in which public objectives are most commonly defined in line with national socio-economic development plans and sustainable agricultural development policies. Agri-PPPs therefore aim to contribute towards the achievement of public goals such as food security and poverty reduction, food safety, employment generation in rural areas, increased productivity and value addition, enhanced market access for smallholders and SMAEs, and environmental improvements and social stability. These goals are not unique to agri-PPPs and may also be addressed by other public-and private-sector programmes and initiatives – despite its widespread promotion, the PPP mechanism is only one of many approaches that can contribute towards the achievement of sustainable agricultural development goals.

Feasibility assessment and partner selection

These processes are much more flexible and simpler in agribusiness than traditional PPPs. Feasibility analyses are carried out in both types, but their contents, depth and details vary greatly. *Value chain analysis* and *business plans* often suffice for agri-PPPs, whereas detailed value-for-money analysis is carried out for traditional PPPs. Open bidding is the rule for traditional PPPs, but in agri-PPPs competitive bidding may or may not be enforced, leaving room for unsolicited partnership proposals. This situation can have negative consequences for transparency, but may provide

more flexibility, particularly in innovation PPPs, where only one private company may have access to the technology, process or genetic material required to develop innovative products that will ultimately benefit smallholders and SMAEs. As discussed in Chapter 7 (section 7.4), the choice of selection method is closely linked to the objectives of the partnership and the level of development of the private sector in the country where the partnership takes place.

Investment contributions

The study findings demonstrate that the pooling of public and private funds is occurring through PPP projects that range from small initiatives of less than US$20 000 for innovation projects to multi-million dollar projects for the construction and management of market infrastructure. The mechanisms for achieving this goal can be structured in different ways to suit the specific purpose of the PPP and may include co-equity investments, in-kind contributions, matching grants and concessions for the private sector. Few comprehensive conclusions can be drawn regarding the *shares of total investment* contributed by public and private partners in agri-PPPs because of the poor practice of not valuing in-kind contributions and the limited disclosure of financial information by both partners. The share of total investment contributed by the private sector is often dictated by the design of the PPP programme, the grant conditions, or government regulations and laws related to PPPs. The degree of risk in the partnership and how this risk is allocated also have a bearing on the investment contributions made by each partner.

Risk sharing

Agri-PPPs were found to reduce the commercial risk for the private sector by offering fiscal incentives and institutional measures to reduce transaction costs, such as by organizing farmers into groups, and ensuring exclusive purchase rights for raw materials. In-kind contributions such as the provision of public extension services, supporting infrastructure and use of government facilities also helped to reduce the risks associated with a challenging business environment. More specifically, the cases found that the *market risk* is typically carried by the lead private partner, while the *production risk* can be borne by farmers alone or shared by farmers and the public partner through the provision of subsidized agricultural insurance or the co-funding of contingency funds in case of *force majeure*. Risks may also be distributed differently among partners at various stages of the project lifecycle, depending on which partner is best able to bear the risk during that phase of the partnership. A more detailed discussion of risk sharing in agri-PPPs is presented in section 8.1.

Partners' roles

The following is a synthesis of the most commonly applied (and effective) roles in all PPP typologies.

Public partners' roles:

- developing PPP project/programme concepts in alignment with national socio-economic and sector development priorities;
- conducting or commissioning feasibility studies, including value chain analysis;

- designing detailed programme guidelines that outline transparent selection criteria for private partners and risk sharing/mitigation mechanisms that must be included in partnership proposals;
- managing evaluation and selection processes for partnership proposals;
- coordinating multi-stakeholder consultations and meetings during the partnership negotiation phase;
- leading negotiations with private partners (with external support as required) to ensure that issues associated with the inclusion of smallholders and SMAEs and the ownership of IP are addressed;
- ensuring the regulatory compliance of PPP agreements (and supporting contracts) with national laws and policies;
- contributing funding at agreed levels, in accordance with release schedules;
- facilitating access to supporting infrastructure, FOs, public research and extension networks, additional public funding sources, including State banks, and local government support services;
- providing coordination and oversight of implementation of partnership activities;
- providing advocacy and awareness raising to mobilize farmers to form farmer groups, grow new crops or adopt improved technologies, and providing similar services for SMAEs, to encourage use of new market infrastructure and business development services;
- providing direct technical assistance to farmers or reimbursement/matching grants to private partners for the delivery of technical services;
- undertaking M&E of PPP agreements.

In addition to these responsibilities, the public sector is also responsible for *creating the enabling environment* for successful implementation of partnerships. This role calls for:

- enacting national and local government regulations and laws to safeguard private-sector investment;
- enforcing land laws to protect smallholder land rights and facilitate legal land leasing for private partners;
- limiting market interference by minimizing trade distorting policies;
- decentralizing authority to local governments and streamlining the administrative procedures for partnership formation;
- enforcing standards and regulations related to food safety and the protection of IP.

Private partners' roles (lead agribusiness enterprise):

- undertaking market analysis and developing business plans;
- contributing funding or in-kind resources as agreed;
- leading implementation of partnership activities and delivering results;
- providing professional management;
- securing markets for end products (technologies and value-added products);
- procuring raw materials from farmers through equitable and inclusive contract farming agreements;
- providing technical assistance and business management training to FOs;
- linking farmers, FOs and SMAEs to business development services such as financing and third-party certification;

- commercializing and disseminating technological innovations;
- supporting the monitoring of partnership activities.

Roles of farmer groups/cooperatives:

- serving as a main intermediary among farmers, private partners and local government (in some countries, NGOs assume this role);
- coordinating raw material supply for delivery to private partners or direct trade through market centres;
- participating in field trials of new varieties and piloting of small-scale technologies;
- supporting members in the adoption of new technologies and the implementation of quality standards;
- providing business administration services for farmers.

TABLE 20
Agri- versus traditional PPPs

Feature	Traditional PPPs	Agri-PPP
Formalization of arrangements	Formal contractual agreement between one core public and at least one core private partner More advanced, standardized contract modalities are favoured	Either informal (collaborative) or formal (contractual) arrangements Simpler contractual modalities, including MOUs and letters of intent Use of supporting contracts including contract farming agreements is common
Partners	Agreement between a government entity and one or more private companies	May also feature SMAEs, FOs and other community groups, including NGOs, working on joint initiatives with government agencies (including donors and international technical agencies) and agribusiness firms 4Ps and multi-stakeholder partnerships are common
Scale and share of investment; risk sharing and estimation of revenues	Investments of 8–9 figures US$ are common Public partner must make in-kind or monetary contribution Private partner must contribute equity, usually at a fixed level (> 50%) Private partner receives ROI from the revenue/user fees associated with the project Private partner generally bears all commercial risk	Lower scale of investments – minimum of US$100 000 stipulated for this study Financial equity not always invested in the partnership – in-kind contributions (often unvalued) may be sufficient Shares of investment between public and private partners vary depending on objectives of the partnership Private revenues not necessarily estimated Risks may or may not be shared among partners
Governance and management processes	Pre-feasibility and feasibility studies prior to partner selection and contract negotiation with compulsory value-for-money analysis Transparent bidding process to select private-sector partners Unsolicited bids discouraged Exit and adjustment strategies (e.g. dispute resolution, renegotiation and refinancing) defined by regulations and laws governing PPPs	Feasibility studies to assess potential for economic, social and environmental impact, usually rely on findings from value chain analysis Open bidding encouraged but unsolicited bids from the private sector possible, particularly in innovation projects Business plans as main tool guiding implementation Exit strategies and dispute resolution procedures often unclear

Source: authors' elaboration based on FAO, 2013 country cases.

9.2 WHEN ARE PPPS THE BEST APPROACH FOR ACHIEVING AGRIBUSINESS DEVELOPMENT OUTCOMES?

The cases studied clearly demonstrate the diversity of models and scope for PPPs in the agriculture sector of developing countries. Four types of agri-PPP were identified: i) those for developing agricultural value chains at both the meso- and micro-levels; ii) those for agricultural research (innovation) and technology transfer; iii) those for building/upgrading and operating agricultural market infrastructure; and iv) those for delivering business development services to farmers and/or SMAEs. This classification gives government officials an idea of the types of agribusiness projects that can be governed by the PPP mechanism, but it does not necessarily indicate the effectiveness of these partnerships, as alternative modes of delivery were not assessed or compared.

In most contexts, the applicability of PPPs for developing country agriculture is appropriate only in specific circumstances (where markets fail) because they involve high transaction costs, are complex and diverse, and can be difficult to replicate. Even in cases of market failure, it may sometimes make more sense for the government to finance and deliver a specific public good on its own or to outsource delivery to the private sector, rather than choosing a PPP arrangement. Ideally, when deciding whether or not to engage in agri-PPPs, policy-makers should make sure that the partnerships will add value by generating greater public benefits than could otherwise have been achieved through any of the alternative modes of public procurement. Thus, the concept of *additionality* becomes essential when deciding which agribusiness development initiatives can be funded using the PPP approach, as highlighted in sections 3.1, 4.1, 5.1 and 6.1.

Agri-PPPs are most appropriate when feasibility studies indicate that a project has high potential for socio-economic spillover effects and when the private sector has advantages in management and marketing skills, but the project carries high risks or low returns. In these cases, PPPs offer an opportunity to stimulate agribusiness development while ensuring the inclusion of smallholders. However, it will be necessary to include *specific design features* in the partnership agreement to transfer some risk away from smallholders while allowing them to retain ownership of productive activities through participation in FOs. Inclusive behaviour by private partners should then be rewarded through a combination of direct incentives and public-sector support to reduce transaction costs. There should also be *potential to achieve scale* in the longer term by learning from implementation of the PPP and creating the enabling environment conditions that will allow for future private-sector involvement and sectoral growth without requiring continuing government intervention.

In each of the PPP typologies there was at least one good example of an agri-PPP project that conformed with these conditions and demonstrated the principle of additionality through the outcomes achieved. Among the VCD cases presented in Chapter 3, the meso-level cases generally presented stronger justifications for PPP interventions than the micro-level ones. For example, the Ugandan sunflower oil VCD case had clearly defined (and measured) public objectives for addressing market failures to promote food security and import substitution. These objectives could not have been achieved with public funding alone. The risks and investment costs for private partners were also too great to warrant solely private investment given farmers' lack of experience in cultivating sunflowers in many parts of the

country, and the costs associated with training and organizing farmers into groups. As a result, the PPP generated tax income of more than US$1 million for the public sector and dramatically increased the income of more than 40 000 farmers. Implementation of this PPP also had positive externalities including new investments in maize and soybean processing, logistics services and environmental benefits.

Similarly, in the Indonesian oil-palm VCD case, the public objective of creating new economic growth areas in remote rural areas could not have been achieved with public financing or outsourcing alone. Private partners were needed to secure the market for production outputs and invest in local processing plants, while an active role for local government was critical to ensure that each participating farmer had legally registered land and agreed to be included in the scheme based on informed consent. The incorporation of risk sharing and management mechanisms into the design of the agreement – such as strengthening the business management skills of farmer cooperatives, and providing guarantees for loans linked to supply contracts for smallholders, agricultural insurance and contingency funds – also helped transfer some of the risk from smallholders, while allowing them to participate as full partners in control of their own production and investment decisions.

In addition, the meso-VCD PPPs were often supported by regulatory frameworks designed to ensure not only that the individual companies involved in the PPP benefited in the long term, but also that other private companies could enter the market or replicate the partnership in other parts of the country (potential to achieve scale). In the Ugandan case, during the PPP implementation period, an additional 23 new sunflower processing companies entered the market as a result of the favourable regulatory environment and the increased raw material supply base created through the PPP. While in Latin America, the programmatic approach helped to achieve scale by increasing transparency and streamlining partnership procedures. These improvements reduced transaction costs and enabled the formation of a critical mass of small- and medium-scale (micro-VCD) partnerships that would have been deemed too small to be negotiated individually.

ITT PPPs (Chapter 4) were particularly effective in addressing market failures related to low productivity. This success was achieved by designing partnership agreements in ways that ensured access to productivity enhancing innovations at affordable prices for both smallholders and SMAEs. Financial risks for private partners entering new markets were minimized by creating sufficient incentives through transfers of ownership of IP rights or through fixed returns on investments with guaranteed buy-back agreements during the piloting phase. In this way, public partners were able to leverage co-investment for cutting-edge research and effectively move products from the conceptual phase through to commercialization and adoption.

The MI PPPs (Chapter 5) were the closest to traditional PPPs and therefore contributed towards addressing market failures associated with inadequate infrastructure and logistics facilities to link farmers to markets and reduce post-harvest losses. The larger-scale investments required and the limited capacity of the public sector to manage these operations effectively made them suitable candidates for PPP projects. The coupling of financial innovations alongside the infrastructure component (e.g. WRS, access to reduced-cost loans, and sale of shares to FOs and SMAEs) also helped to reduce risk and increase ownership for participating farmers and SMAEs.

The BDS PPPs (Chapter 6) were the newest category of agri-PPPs and had the weakest supporting evidence to justify a PPP approach. However, of the BDS cases identified, those that adopted a two-pronged approach by improving the outreach of BDS to smallholders while also strengthening the capacity of local BDS providers were found to be the most successful in terms of achieving inclusiveness and sustainability objectives. In this context, the PPP approach can be justified provided that the BDS services are made accessible to the most vulnerable clients (remote, rural poor people) and that sufficient market demand from smallholders and SMAEs can be created in the longer term to sustain private business operations.

9.3 TAKE-AWAY LESSONS

Eight main take-away lessons were identified.

1. *To be successful, agribusiness partnerships need to align the partners' disparate interests and visions and reach consensus, particularly on public-sector objectives and priorities for promoting PPPs.*
   Public partners and policy-makers need a clear understanding of the rationale for promoting a PPP approach over other mechanisms of public-sector support, and need to be able to identify the types of project where PPPs will be most effective in addressing market failures sustainably. Potential PPP projects should be able to demonstrate value-for-money and, ideally, should generate public benefits that exceed those that could have been achieved through alternative modes of implementation such as direct public funding, outsourcing or privatization. Partnerships should aim to leverage financing from both partners to achieve common goals that have high potential for socio-economic spillover effects. There should also be potential to achieve scale in the longer-term by learning from implementation of the PPP and, as a result, creating the conditions for an enabling environment that will facilitate future private-sector involvement and sectoral growth without continuing government intervention.

2. *The role of each partner should be clearly defined according to the unique skills and expertise that each can bring to the agri-PPP, with appropriate incentives designed to reward these roles.*
   The case studies show that the benefits of agribusiness PPPs accrue to various stakeholders in different ways, which means that the right mix of responsibilities and incentives for each partner must be built into the partnership agreement in order to generate sufficient commitment to produce these benefits. At the same time, all partners should have a pressing need to succeed, but be unable to do so alone – i.e. interdependency is key. Complementarity of skills is also essential in providing opportunities for shared learning and capacity development.

3. *Effective agri-PPPs share risks fairly among partners and include risk management mechanisms to protect the most vulnerable.*
   The risk management function of PPPs is particularly valuable to the agriculture sector in developing countries, where uncertainty and risks are prevalent. The PPP model gives governments the opportunity to decide what to do with these risks: retain them, share them or transfer them to private partners,

depending on which partner is best able to manage them. The study found that risk management measures – both hard and soft – are being adopted, including agricultural insurance schemes, guarantees, subsidized loans for small-scale farmers and firms, secure purchasing contracts, business management training for FOs and SMAEs, and risk sharing stipulations in case of *force majeure*. An agri-PPP agreement can also consider measures to control the risks of creating market power imbalances (including monopolistic behaviour) and introducing potential new risks for small-scale farmers and firms.

4. *There is ample scope for the involvement of financial institutions as an additional core partner in agri-PPPs.*
   Many of the PPP schemes studied would not have worked without the involvement of a public or private financial institution. By incorporating financial institutions into the partnership agreement and coupling them with risk management mechanisms such as government guarantees and subsidized credit, access to finance for smallholders was improved, enabling them to afford the investments required to participate in the PPP.

5. *While agri-PPPs can promote the inclusion of smallholders and SMAEs, they are unlikely to have an impact on the poorest of the poor.*
   Several of the cases analysed had built-in clauses to promote inclusion through the provision of incentives for smallholders and SMAEs to help them secure financing and legal landownership. However, findings regarding the achievement of scale for inclusiveness objectives are still inconclusive. Similarly, for poverty reduction objectives, baseline poverty indicators were rarely given, making it difficult to assess the extent to which the partnerships actually benefited the poorest farmers, rather than simply targeting those most capable of benefiting from partnership activities.

6. *Collective action is an essential feature of all agri-PPPs and helps both to promote inclusion and to reduce transaction costs.*
   Linked to lesson 5, the study found that while agri-PPPs aim to encourage inclusive growth, the transaction costs associated with sourcing from numerous smallholders are high. Fostering collective action and capacity building increases the participation of smallholders in modern value chains while reducing the transaction costs for lead private partners. The four types of agri-PPP identified in this review aimed to foster collective action. Public partners, including the donor community and civil society actors (e.g. NGOs), often provided support to the formation of groups and the capacity building of smallholders to help them become more equitable partners for the private sector.

7. *Sound institutional and regulatory frameworks are essential factors in the design of well-performing PPPs.*
   A judicious land governance system and transparent decision-making and budgetary processes for selecting PPP projects and private partners are critical factors that must be considered in the governance of agri-PPPs. The cases highlighted throughout this publication confirm that agri-PPPs struggle to

fit into existing public institutional frameworks for PPPs. This difficulty is partly explained by the inherent traits of agri-PPPs, such as the lower scale of investment, multi-stakeholder involvement and greater emphasis on social objectives, including food security and poverty reduction. The prevailing institutional set-ups for PPPs are often biased in favour of infrastructure projects, which have very different characteristics from those of the most common types of agri-PPP. However, as evidenced by the cases from Latin America, a programmatic approach can have benefits over an ad hoc project approach in reducing transaction costs and increasing transparency.

8. *There is a pressing need to improve the monitoring and evaluation (M&E) of agri-PPPs.*
   There is need for the public sector, including donors, to invest more in M&E of agri-PPPs to create a solid evidence base that provides guidance on the effective design and implementation of agri-PPPs and measures their impacts over the long term. The available information on the performance and development outcomes of PPPs, other than those for innovation and technology transfer, was relatively weak. In many cases, this was because of poor M&E systems, which were unable to align the objectives of public and private partners and develop a set of comprehensive performance indicators to measure the benefits that accrue to each partner.

9.4 STUDY LIMITATIONS AND AREAS OF FUTURE RESEARCH

Interest in and support of agribusiness PPPs is growing in many developing countries. However, there are still many unanswered questions about the practicalities of designing and implementing such projects. While this study has documented useful insights on the potential benefits and limitations of agri-PPPs, there is need for more systematic impact evaluation of such projects, including the drawing of lessons from failed cases.

There is need for in-depth research on:

- additionality and opportunity cost (value for money) of agribusiness PPP projects, to aid governments in comparing partnerships with other modes of pursuing sustainable agriculture development goals;
- partnership performance in terms of efficiency, effectiveness, impact and sustainability, with indicators based on quantitative data;
- governance issues, mainly transparency, accountability and inclusion of small-scale actors and women – NGOs also raise concerns about the transfer of risk to the weakest links in the partnership (farmers and SMAEs), which deserves further attention;
- risk management mechanisms for agribusiness PPPs, which have only been touched on in this publication but have been identified as a key component of successful agri-PPPs;
- potential for replication and scaling up, such as through the increased use of PPP programmes targeting the agribusiness sector – studies assessing the viability of adopting a programmatic approach in Asia, sub-Saharan Africa and other regional contexts would be a welcome addition to the body of knowledge on agribusiness partnerships.

Annex 1
Agribusiness partnership cases analysed

Country	Typology	Commodity/subsector	Target/objective
Thailand	ITT	Vegetable seed (okra)	Disease-free variety for export access
	ITT	Poultry	New technology (fans) developed to increase production efficiency and reduce disease risk
	ITT	Sugar cane	Commercialization of plant disease test kits to reduce production risk
	ITT	Poultry	Biogas technology developed to utilize wastewater from slaughterhouses, to reduce greenhouse gas emissions and improve community health
	ITT	Maize seed	Identification of high-performing hybrids adapted to specific geographic conditions
Indonesia	VCD	Oil-palm	Development of oil-palm industry
	ITT	Rice seed	Certified rice seed to increase farmers' income and address food security risk
	VCD	Jatropha	Promotion of application of renewable energy for industrial purposes as per government regulation
	VCD	Vegetables/sweet pepper	Value chain development for exports to Singapore
	VCD	Vegetables	Secure supply for domestic retailers (supermarkets) and building of agribusiness advisory skills in rural communities
Pakistan	VCD	Fruit/citrus	Value chain development through certification (GlobalGAP) for export access
	VCD	Fruit/mango	Value chain development for export access
	VCD	Dairy	Competitiveness and productive alliance
	BDS	Enterprise development	Agribusiness grant programme to support value addition by producers
	ITT	Wheat seed	Drought-resistant, certified seed to increase productivity and food security

Country	Typology	Commodity/subsector	Target/objective
China	VCD	Poultry	Value chain development for domestic market
	MI	Horticulture (flowers)	Market infrastructure for increased export access
	ITT	Agricultural machinery	Technology transfer and market development for Chinese machinery in Zimbabwe
	ITT	Rice and maize seed	Development (and commercialization) of certified rice and maize seed to increase productivity and address food security risk
	BDS	Agricultural market information	Development of regional information service to provide information to farmers on weather, market prices, agricultural machinery services etc.
Philippines	MI	Fruit and vegetables	Development of an agricultural terminal (market infrastructure) to assist producers in surrounding provinces by improving profitability through affordable provision of post-harvest services and marketing facilities
	MI	Aquaculture	Development of infrastructure, equipment and a favourable investment climate to promote mariculture as a major livelihood for coastal fishers
	VCD	Fruit/mango	Domestic and export value chain development
	MI	Livestock	Improved production and value addition of cattle and hogs through state-of-the-art slaughterhouse.
	MI	Fruit and vegetable logistics	Improved efficiency and reduction of post-harvest losses through vegetable tramline system for transporting upland produce to the lowlands
Ghana	VCD	Cocoa value chain	Commodity enhancement for external markets
	VCD	*Allanblackia*	Development of a new raw material for the food industry
	VCD	Sorghum	Transformation of food produce into an industrial crop
	VCD	Rubber	Revitalization of a moribund industry for the export market
	VCD	Oil-palm	Improved growth of an agro-industry to improve raw material supply
Kenya	MI	Warehousing	Development of a grain storage system and enhancement of grain trade in the region
	ITT	Organic fertilizer	Commercialization of organic fertilizer from public research institute
	ITT	Striga-resistant maize	Eradication of striga weed for increased maize yields and farm productivity
	VCD	Mango processing	Promotion of mango value addition and marketing

Country	Typology	Commodity/subsector	Target/objective
Nigeria	VCD	Dairy, poultry and mixed farming	Creation of a commercial farming hub in Kwara State
	VCD	Sugar	Establishment of a sugar industry covering the entire value chain
	VCD	Rice	Achieve self-sufficiency in rice production and promote demand-driven production / value addition of rice
	ITT	Poultry/aquaculture	Youth empowerment scheme – Agric- YES
	ITT	Sustainable integrated farming	Integrated and sustainable rural/agricultural development – propagation of the Songhai model
United Republic of Tanzania	ITT	Sugar cane	Resuscitation of sugar industry to enhance value chain performance
	BDS	Agrobusiness	Improvement of agrodealing business by strengthening management, technical and related practices
	ITT	Tea	Private-sector collaboration with public research to enhance research performance in tea industry
	VCD	Forestry	Sustainable supply of forest products and services for local and international markets
Uganda	VCD	Sunflower	Boosting of sunflower production for industries
	ITT	Seeds	Provision of licensed seed varieties from research institute for commercialization
	BDS	Fruit processing	Business incubation to enhance capacity for fresh fruit processing
	VCD	Oil-palm	Development of oil-palm industry for export market
Ecuador	VCD	Cocoa value chain, chocolate by-products and final products	Consolidation of commercial agroproductive alliances that guarantee fair access to markets
	VCD	Cocoa value chain	Increased competitiveness and productivity
	BDS	Bamboo chain	Support to the development of dynamic business initiatives through co-funding and other forms of direct support
	BDS	Handicrafts	Facilitation of the creation of alternative markets by promoting direct commercialization networks and fair purchase initiatives

Country	Typology	Commodity/subsector	Target/objective
Guatemala	VCD	Maize chain, white corn	Production-related objectives: added value, market connections, better use of resources, diversification of resources
	VCD	Coffee chain, dry coffee beans for export	Improved marketing of coffee through organic certification strategies and fair trade
	VCD	Cardamom and pepper chains for export	Improved quality of life for farmers through implementation of better crop management and post-harvest practices to enhance competitiveness in international markets
	VCD	Medicinal plant extracts chain	Improved conditions for rural communities and promotion of crop diversification
Peru	VCD	Organic bananas for export	Direct exportation of organic, fair trade bananas
	BDS	Fruit/watermelons for export	Organizational capacity and leadership development for watermelon producer organization
	VCD	Sugar cane by-product (panela) for export	Invigoration of productive and entrepreneurial management of sugar farmer associations
	VCD	Beekeeping for domestic market	Productivity and value chain development for beekeeper organizations
	VCD	Alpaca breeding for domestic market	Competitiveness of alpaca breeders through organizational strengthening and improved technical abilities to face market development
Colombia	VCD	Oil-palm chain for export	Extension of oil-palm cultivation into conflict-affected areas
	VCD	Vegetables/hot-pepper chains	Sustained increases in small producers' productivity and firms' competitiveness levels
	VCD	Cocoa chain, by-product transformation	Increased quality of nationally produced cocoa to supply firms' demand
	VCD	Coffee chain for export	New production scheme and high-quality coffee supply
Chile	ITT	Pisco chain	Competitiveness and productive alliance
	VCD	Milk chain	Competitiveness and productive alliance
	ITT	Olive by-product chain	Development of the olive by-product chain
	VCD	Fruit chain for export	Development of the fruit chain in the region of Araucania
	VCD	Potato chain	Improved competitiveness

Annex 2

PPP case appraisal form

Case short title: _____

Part One: Characterization of PPP arrangements

1. What was the stated purpose (and specific outputs if relevant) of the PPP, particularly with respect to agribusiness investment and development of agribusiness enterprises?

2. Who were the direct beneficiaries and what was the nature of expected benefits, particularly benefits related to expected increases in agribusiness enterprise profitability, levels of investment or returns on investment, and any stated social and developmental outcomes?

3. What were the nature and levels of financial support, concessions, or other services (such as technical assistance and training) provided by the public and private partners in support of the beneficiary agro-enterprise(s)?

4. (If relevant) What public-sector incentives, commitments or other benefits were offered to the private partners that provided support to beneficiary agro-enterprises?

5. What were the roles and specific functions provided by each of the partners, including roles in governance, implementation, monitoring and evaluation of the agreements, and – as relevant – governance of the beneficiary agro-enterprise(s)?

6. How was the agreement formalized, i.e. legal and contractual status, if any, or otherwise?

Part Two: Development of PPP arrangements

1. When was the partnership developed, and what were the circumstances that led to the development of the partnership?

2. Who/what were the main drivers (people or units) behind development of the arrangement and what were the specific roles of these drivers?

3. What were the main reasons put forward by the drivers to convince senior managers (public and private) as well as partners about the value of the arrangements?

4. What procedures and criteria were used to identify and assess the market opportunities and prospects of the target agribusiness enterprise(s) to be assisted?

5. How and over what time frame did the partners negotiate the deal?

6. How were the levels, nature and timing of partner contributions determined?

7. How were expected costs, revenues and returns on investment estimated for the target agribusiness enterprises?

8. How were expected private and public benefits estimated?

9. Which aspects (if any) of the enabling environment with potential for impact on the partnership were appraised and how were they appraised? (legal frameworks, relevant policies, etc.)

10. How were decisions made on the roles of each partner in strategic and day-to-day management and implementation of the arrangement?

11. What steps were followed to obtain approval by senior managers of the public and private partners and what steps were required for subsequent formalization of the arrangements?

12. Which formal tools (analytical, financial, participatory, etc.), if any, were used to support the negotiation and planning processes?

Part Three: Management and operations

1. What were the roles of each partner in strategic and day-to-day management and implementation of the arrangements; actual relative to planned or anticipated?

2. What materials, technology and/or services were procured and delivered under the arrangement?

3. What new expertise was required for implementation; how was it obtained or developed?

4. What (if any) were the managerial procedures for outsourcing and subcontracting?

5. What were the main performance monitoring and appraisal mechanisms? What uses were made of monitoring information for improving implementation, performance and impacts?

6. What were the main risks with respect to implementation of the arrangement as planned, and what actions were taken to mitigate these risk(s)?

7. What additional support was received from other public and private partners (beyond those directly identified in the partnership arrangement)?

8. What were the key challenges faced by public- and private-sector officials and managers during implementation?

9. What were the main problems encountered in maintaining partnership relationships and what actions were taken to address these?

Part Four: Performance and development outcomes

1. What were the increases (measured or estimated by respondents) in investment, revenues, rates of returns to investment, or employment?

2. To what extent was additional agribusiness investment stimulated? What is the nature of the additional investment stimulated?

3. What product or process innovations were introduced under the arrangement or as a direct consequence of the arrangement?

4. What risks facing the beneficiary agribusiness enterprise(s) were mitigated as a result of the arrangement? What new or additional risks might have been created, if any, for the beneficiary agribusiness enterprises as a result of the arrangement?

5. How did trade, tax, land and other policies affect benefits – what helped, what hurt?

6. How did the legislative and regulatory frameworks affect benefits – what helped, what hurt?

7. How did agriculture sector institutions and services external to the arrangement affect benefits – what helped, what hurt?

8. To what extent has performance improved in markets (profitability, market share)? What is the nature of the improved performance?

9. What do the key informants consider to be the medium-term prospects for commercial viability and sustainability?

10. Are there indications or expectations among key informants of forwards and backwards linkages (e.g. to new customers/markets or primary producers)? Do the expectations appear to be realistic?

11. Are there indications or expectations among key informants of improvements in rural income and employment? Do the expectations appear to be realistic?

12. What are the expectations of key informants with respect to longer-term societal and developmental impacts?

Public–private partnerships for agribusiness development

A review of international experiences

High levels of investments are required to unleash the potential of agriculture for sustainable development and poverty reduction in developing countries, but low public budgetary allocations to the sector have slowed growth. To address this problem, innovative partnerships that bring together business, government and civil society actors are increasingly being promoted as a mechanism for pooling much-needed financing while mitigating some of the risks of doing business in the agriculture sector. Commonly referred to as public–private partnerships (PPPs), these initiatives are expected to contribute to the pursuit of sustainable agricultural development that is inclusive of smallholder farmers. However, there remain many unanswered questions about the types of project that may suitably be governed by PPPs and about the partnerships' effectiveness in delivering on these objectives. To improve understanding of the potential benefits and challenges of agri-PPPs, this publication provides an analysis of 70 PPP cases gathered from 15 developing countries, together with evidence from FAO's support to the review of PPP policies for agriculture in Southeast Asia and Central America. Four common project types are identified: i) partnerships that aim to develop agricultural value chains; ii) partnerships for joint agricultural research, innovation and technology transfer; iii) partnerships for building and upgrading market infrastructure; and iv) partnerships for the delivery of business development services to farmers and small and medium enterprises. The main lessons are synthesized, including the public skills and institutions required to enable more effective partnerships with the private sector, and the circumstances under which PPPs are likely to be the best modality for achieving sustainable development outcomes. The conclusion reached is that while there is evidence of positive contributions to sustainable agricultural development objectives, there remain several outstanding issues associated with the impact of PPPs on poverty reduction and inclusion, which still need to be addressed. When deciding whether or not to engage in an agri-PPP, policy-makers should aim to ensure that the partnership will represent value for money and generate public benefits that exceed those that could be achieved through alternative modes of public procurement or through private investment alone.

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