



The transformative power of agrifood industry development: policies and tools for restructuring the agricultural sector towards greater added value and sustainable growth

Marlo Rankin, Siobhan Kelly, Eva Galvez-Nogales, Cora Dankers, Toshi Ono, Massimo Pera, Allison Marie Loconto, David Neven, Florence Tartanac, Emilie Vandecandelaere

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Authors: M. Rankin, S. Kelly, E. Galvez-Nogales, C. Dankers, T. Ono, M. Pera, A. Loconto, D. Neven, F. Tartanac, E. Vandecandelaere

Part 1: Introduction

It is commonly acknowledged that rapid transformation of agrifood systems¹ has been occurring around the world with important implications for economic development (Swinnen and Maertens, 2007; Reardon et al, 2009; Mergenthaler et al, 2009). During the past three decades, global trade in agriculture and food products quadrupled from US\$230 billion in 1980 to almost US\$1100 billion in 2010, accompanied by a shift in production structure in many developing countries towards increased production of high-value export commodities (fruits, vegetables, meat and dairy) and processed agrifood products (Maertens and Swinnen, 2014). Despite growth in trade figures, much of this period was characterised by historically low levels of public investment in agriculture worldwide. It was only in the aftermath of the food price crisis of 2007-8 that governments of developing countries and development agencies put agriculture squarely back on the agenda as food security again became an issue of global importance. The plight of smallholder farmers who make up some 70 percent of the population in many countries in Asia and Sub-Saharan Africa was also brought to the fore, and the powerful link between agriculture-led growth and poverty reduction was formally recognised calling for increased public and private investment into the sector (World Bank, 2007). Another outcome of the crisis was the renewed recognition in some parts of the world of the importance of staple crop production. In regions such as West Africa, government interventions were designed to stimulate production of staple crops (rice, maize and cassava) with the aim to reduce domestic reliance on imports in pursuit of self-sufficiency objectives (FAO and IFAD, 2013).

Yet an increased focus on agricultural production alone will not deliver on food security and nutrition objectives, nor create the transformative results required to allow rural communities to draw themselves out of poverty and set them on a pathway towards greater prosperity and growth. Lessons from countries such as Thailand, Malaysia and Chile have shown that successful transitions from agriculture-based to diversified economies are possible, with evidence of strong results along the way in achieving poverty reduction, increasing competitiveness and profitability of smallholders, and

¹ According to UNIDO, 2011 p28, **the agrifood system** “encompasses the interlinked set of activities that run from “seed to table”, including agricultural input production and distribution, farm-level production, raw product assembly, processing and marketing. It encompasses the value chains for different agricultural and food products and inputs and the linkages among them. The agrifood system is also a shorthand term for agriculture and related agro-industries”.

creating employment in rural areas. However, this cannot be achieved without embracing agribusiness and agro-industrial² development (World Bank 2007, 2013; UNIDO 2011).

The development of agrifood industries has, in many countries, helped to forge the necessary link between the agriculture and manufacturing sectors, which in turn has catalysed the development of broader manufacturing industries by providing material inputs for food-processing, textiles and biofuels (UNIDO, 2011). The agrifood sector is also often the main source of off-farm employment in rural areas of poor countries (ILO, 2008) and has been found to have positive effects on poverty reduction and empowerment of women in several countries where high-value agro-food exports are produced (Van den Broek et al, 2016, Maertens and Swinnen 2012, Maertens 2009). By creating off-farm employment opportunities in agro-industrial firms located in rural areas, direct and indirect income effects have been reported for rural households through wage employment and spillover effects that can increase on-farm agricultural productivity through greater liquidity to purchase inputs and increased capacity to adopt technologies (Maertens, Minten and Swinnen 2012, Maertens 2009, Neven et al, 2009).

Looking forward to 2024 and beyond, growth in the demand for agrifood products is anticipated to be driven primarily by developing countries where slowing population growth, increases in per capita incomes and higher urbanization are changing consumer diet preferences. Rapidly increasing demand for processed foods, animal products such as poultry, fish and dairy, and staples including cereals, roots and tubers for food, feed and biofuel are projected (OECD and FAO, 2015, World Bank 2015). This trend creates strong opportunities for developing countries to respond to emerging domestic and regional demand by pursuing diversification and value addition strategies. These strategies are essential for the development of agrifood industries that will contribute towards broader-based (and lower risk) economic growth, food security and nutrition and poverty reduction in rural areas.

This paper will further explore the long-standing arguments endorsed by the Food and Agriculture Organization of the United Nations (FAO) during the 2007, 2009 and 2012 Committee on Agriculture (COAG)³, and supported by its development partners the United Nations Industrial Development Organization (UNIDO) (FAO and UNIDO, 2009, UNIDO, 2011) and the World Bank (2007, 2013, 2015), that the development of national agrifood industries for both domestic and export markets can contribute to positive structural reform in rural areas by improving farm-to-market linkages resulting in productivity enhancing on-farm investments and off-farm employment creation. It will draw on examples of policies and practices uncovered by FAO normative work and through support to field projects from around the world, to highlight how the theory has been turned into practice, and where gaps in the measurement of impacts still exist.

The paper is structured as follows. Part 2 will provide further information on the global trends driving the development of agro-industries and the challenges associated with collecting and analysing empirical data. Part 3 will introduce a range of transformational tools and policies adopted by developing country governments in recent years, and analyse their ability to deliver on country-specific objectives related to restructuring of the agricultural sector towards greater value addition and sustainable growth. Part 4 will discuss the challenges that remain in order to fully maximise the potential of these approaches, and provide policy recommendations on how these may be addressed. Part 5 will conclude by identifying areas for follow-up by FAO in partnership with member-country

² According to FAO, 2013 p6, **agro-industry** “refers to the establishment of linkages between enterprises and supply chains for developing, transforming and distributing specific inputs and products in the agriculture sector. As such, it can be considered a subset of the agrifood system defined by UNIDO, 2011. Agribusiness and agro-industry both involve commercialization and value addition of agricultural and post-production enterprises, and the building of linkages among agricultural enterprises (FAO, 2007).

³ See References FAO (2007), FAO (2009a) and FAO(2012a and 2002b) for link to COAG papers.

governments to recognise the importance of agrifood industry-based growth as a key driver of rural transformation.

Part 2: Global agrifood industry trends and measurement challenges

Global transformations occurring the agrifood system mean that determining the overall importance of the agriculture sector to the economy has become more challenging. Simply measuring the contribution of agricultural production to economic growth grossly underestimates the sector's contribution to related agro-industries including fertilizer production, food processing and manufacturing, transport, wholesaling and retailing. For example, in Sub-Saharan Africa it is estimated that when agricultural production and agro-industry activities are combined, these contribute an average of around 45 per cent to the regional economy, with agribusiness activities contributing around 20 per cent of gross domestic product (GDP) while the share of agricultural production is around 24 per cent for low-income countries (World Bank, 2013). According to the United Nations Industrial Development Organization (UNIDO), agro-industrial sectors generally account for a substantial part of industrial output in developing countries compared to industrialized ones, yet the extent of these contributions vary significantly by country and region.

It is estimated that globally, agro-industrial activities account for 14 per cent of total manufacturing value added (MVA) in industrial countries and 27 per cent in emerging markets (UNIDO, 2013). In the developing world, agro-industry is estimated to account for 26 percent of MVA in the newly industrializing countries, whereas agro-processing industries accounted for 68 percent of total MVA in the least developed (agriculture based) countries (LDCs) (UNIDO, 2013, World Bank, 2007). According to the World Bank (2007) classifications, this percentage drops to 42 percent in countries undergoing transformation and 37 percent in urbanized developing countries (World Bank 2007). Although industrialized countries continue to account for the majority of global agro-processing value-addition, over the last decade there has been a marked shift away from industrialized countries to the developing world. Most of the developing world's large and growing share of global agro-industrial value added is accounted for by developing Asia and Latin America, with Africa accounting for a small, (yet increasing) fraction of agro-industrial value added (UNIDO, 2012, 2013).

The global importance of agro-industries can also be viewed from a value chain perspective. This helps to explain how agrifood chains are responding to meet the increased demand for processed foods as a consequence of increasing incomes, urbanization and diet change. Rapid transformation of the midstream (i.e. processing/wholesale/transport) and downstream (i.e. retailing) segments of agrifood chains in both Asia and Africa are being witnessed (albeit at different rates) in response to these trends (Reardon et al 2014; Reardon et al 2015, Tschirley et al, 2015). The midstream and downstream segments of the food supply chain in both regions are estimated to form 50-70% of the value added costs in the overall food chain, with an estimated 85% of food consumed and purchased from domestic markets now made up of: a) processed foods like processed grains and edible oils and b) semi-processed foods like meats and dairy (Reardon et al, 2014 & 2015). In urban markets of Africa, and both urban and rural markets in Asia, the demand for fresh fruit and vegetables is also increasing with horticultural products representing about 15% of total food expenditure in Asia (Reardon et al, 2014). These changes in demand trends provide significant opportunities for smallholders to diversify out of staples to higher value commodities which have higher return per labour day/hectare (Chapoto et al, 2013).

It is important to note that these trends are not limited to the middle class and urbanized populations, with Tschirley et al (2015) finding that poorest households in East and Southern Africa dedicate 66 per cent of their purchased food budget towards processed foods, with highest income households allocating 80%, while the share of processed foods purchased was found to be higher in rural areas compared to urban areas (71% vs. 68%) when processed maize is included. These findings are

consistent with Asia where Reardon et al (2014) found that 59% of the overall share of food purchases for rural populations are in processed food, compared to 73% for urban dwellers. As a reflection of this demand, investment in the midstream and downstream segments of the value chain has also grown, led initially by a wave of domestic small and medium enterprises (SMEs) providing transport, storage, processing and retailing services (Reardon, 2015). Formal and informal Small and Medium Agro-Enterprises (SMAEs) account for a major percentage of rural jobs and contribute significantly to the total value added for the agro-industrial sector overall (FAO, 2012c). SMAEs also play critical roles in the rural transformation processes through the quick adoption and spread of new value-adding technologies such as cold storage (Minton et al 2015).

Investment by SMEs was followed by increasing consolidation and foreign investment in large-scale food processing and retailing with the rise supermarkets (Reardon et al, 2013, 2015, Maertens and Swinnen, 2014). This in turn has had impacts for upstream procurement as evidenced by greater full and partial vertical integration of production, with processing firms investing in estate-owned farms and a sharp increase in contract farming arrangements throughout the developing world to meet the requirements for consistent supply of raw materials (Da Silva, 2005, Prowse 2012). The dramatic increase in both public and private food safety and quality standards over the past two decades is also a major factor driving the need for greater vertical coordination among all segments of the value chain to ensure compliance and reduce monitoring costs (Maertens and Swinnen, 2007, Swinnen and Vandeplas, 2011).

The above trends highlight the global importance of agrifood industry development to rural transformation and the need for consistent statistics to measure the growth and impact of these changes on social and economic development within developing countries. Yet gathering this empirical data is not without its challenges. To meet this need, the statistics division (ESS) of FAO, in partnership with UNIDO embarked on an ambitious project beginning in 2015 to develop an Agro-Industry Measurement (AIM) Database. The AIM database covers a list of 46 countries (mainly OECD and BRIC countries) and combines the economic indicators for the agricultural sector with some key components of the value chain. In the first stage of the AIM project development, the focus has been on the agro-processing industry given its relative importance to agro-industrial development, by measuring four key indicators: production, value added, employment and compensation of employees (FAO, 2016). From these indicators it is hoped that the database will be able to answer important questions for rural transformation such as where employment, income and value addition is created in downstream activities that rely on agriculture, forestry and fishery production, and whether current policies sufficiently drive the correct activities in agrifood value addition. One of the key challenges encountered in the design of the database was the need for a sound and consistent statistical definition of the agro-industry across countries, and the design of classifications to measure agro-industry – without this the database will be meaningless. The database also relies on official country data which may have data gaps that need to be filled.

The first set of findings from the AIM database (see FAO 2016a) cover data from 1970-2013. Findings show that agriculture share of GDP is now highest in Africa and continues to decline in Asia & Pacific regions where more rapid transformation of agrifood systems has occurred with the contribution of global agriculture value-added increasing from 35% to 50% between 1970 and 2013, while Africa's contribution remained at around 10%. However, since 2000, the levels of value-added agriculture, fisheries and forestry in Africa have grown rapidly and surpassed the contributions made to global agriculture value-added when compared to North America and Latin America. In support of the trends discussed earlier, the data from 1990-2013 also shows that food processing rises relative to agriculture as GDP per capita rises, confirming that overall purchases of processed foods have increased across countries and regions. It was also found that agriculture and food processing share of GDP vary by levels of economic development. Country level analysis has shown for example that value addition in

the food processing sector has increased in countries such as Ethiopia and Mexico, yet while there is evidence of changes in sectoral composition with the size of the food-processing sector increasing compared to agriculture in Mexico, in Ethiopia there has been no real shift (FAO, 2016a).

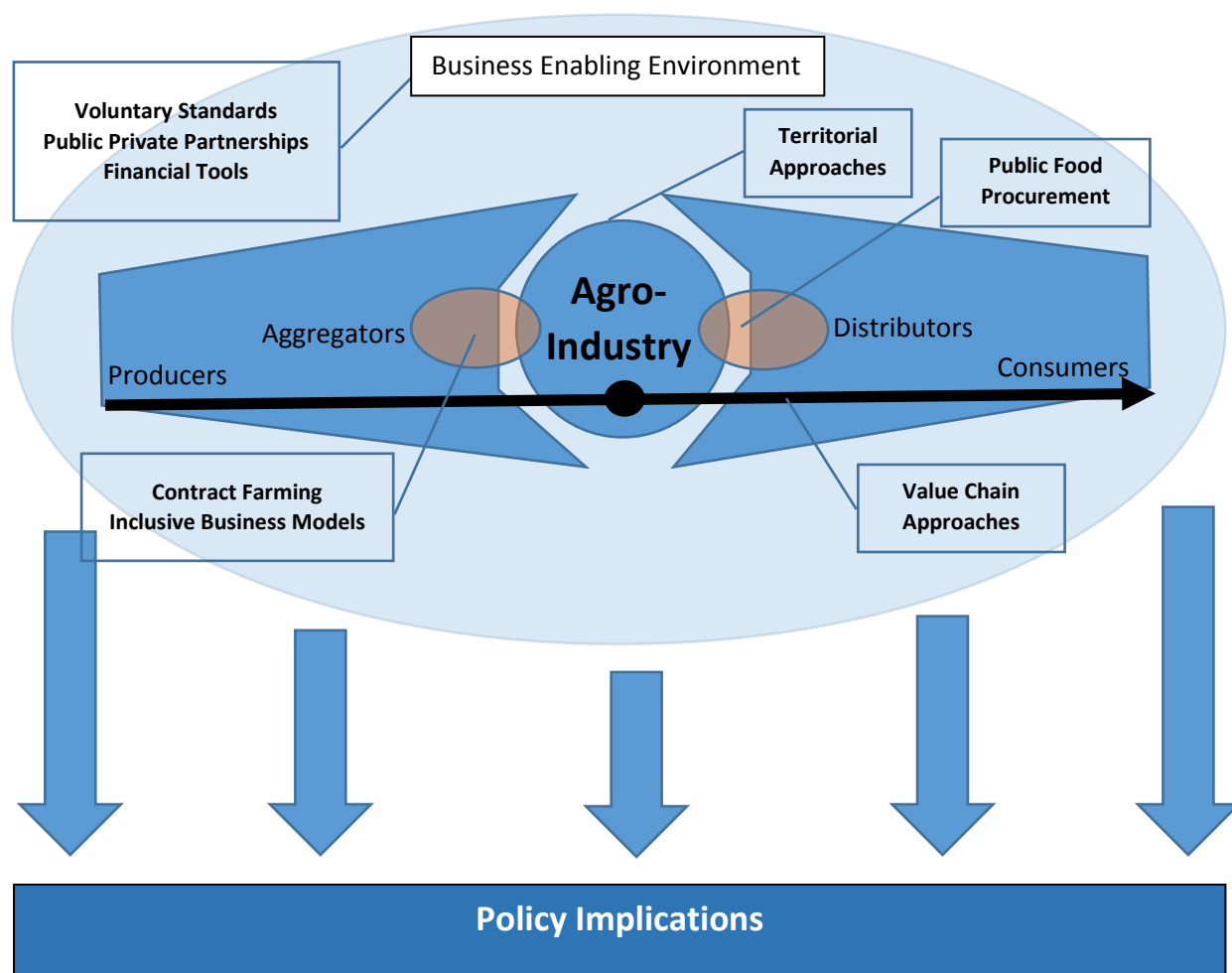
Moving forward with the project, the database will aim to expand coverage to include other (developing) countries, add additional variables including trade related data, disaggregate the food-processing sector data and include other relevant manufacturing sectors such as textiles and furniture manufacturing that use agro-inputs. In addition, to answer questions related to the low capital investment in agriculture compared to other sectors, a second Agricultural Capital Stock database is under development to look at the level of capital stock and investment in agriculture across countries and time, and assess how this level of investment can impact growth in agricultural productivity, value-added, food security and real incomes. While still in the early stages of development with both databases serving an analytical purpose and providing provisional data and indicators, the construction of these macro-economic databases aims to fill an important gap in existing information on global agrifood system transformations. It is hoped that as analytical work continues, findings from these databases will help to inform policy debate and garner support for agro-industry led development.

Part 3: Transformational policies and tools for implementation

In light of the trends discussed in Part 2 and in recognition of the need for tailored solutions to suit diverse stages of development, differing commodity chains and factor markets both within and across countries and regions, a range of policies and tools need to be mixed and matched to suit national conditions. The following section provides a description of some of the tools and policies identified by FAO, that have been used to stimulate agrifood industry development and support the inclusion of smallholder farmers and small rural food enterprises in rapidly transforming agrifood systems in developing countries. Where possible, country-specific examples are presented which highlight the impact of these approaches or the gaps in measurement of these impacts that need to be addressed for sound policy recommendations to be made.

Figure 1 provides a representation of the entry points along a value chain approach where some of the tools discussed below may fit from the conceptual perspective of upstream, midstream and downstream value chain activities. Other tools can be considered as cross-cutting and therefore influence the general business enabling environment for agrifood industry development (e.g. voluntary standards, public-private-partnerships and financial tools). As shown in the figure, the development of agro-industries plays a central role in building and sustaining the farm-to-market linkages by transforming agricultural products into consumer products that meet the increasing demand for diversified diets and value-added food products.

Figure 1. Tools to support the transformation of agrifood industries towards greater added-value and sustainable growth



Source: Authors' elaboration

- **Developing sustainable food value chains as a holistic approach to rural transformation⁴**

Agri-food value chains (VCs) as engines of growth, affect structural transformation directly and indirectly through at least five value-added pathways: salaries for workers (jobs); a return on assets (profits) to entrepreneurs and asset owners (including farmers); tax revenues to the government; a better food supply to consumers (nutritional impact); and a net impact on the environment, positive or negative. This value added sets in motion three growth loops that relate to economic, social and environmental sustainability, and directly influence rural poverty and hunger. The three growth loops are: (1) an investment loop, driven by reinvested profits and savings; (2) a multiplier loop, driven by the spending of increased worker income; and (3) a progress loop, driven by public expenditure on the societal and natural environments. The sustainable food value chain (SFVC) development approach (FAO, 2014) provides a flexible framework to address effectively the many challenges facing food-system development in rural and urban areas in a sustainable manner and in the long run. Agro-industries, linking producers to consumers, play a central role in SFVC development.

⁴ See **FAO**. 2014a. *Developing sustainable food value chains: Guiding principles*, by D. Neven. Rome. <http://www.fao.org/ag/ags/agsdivision/publications/publication/en/c/246162/>

The SFVC development framework implies a particular way of measuring, analysing and improving the performance of the food system. *Measuring performance* explores, as much as possible in quantitative terms, where the potential (or need) for improved performance can have the greatest impact along all dimensions of sustainability: economic (profits, jobs, taxes), social (inclusiveness, nutrition) and environmental (greenness). While challenging and costly to implement in practice, this approach helps assure that unintended impacts and needs for trade-offs between objectives are identified in a timely manner.

Analysing performance in the SFVC approach starts from its conceptualization of the value chain, from production over processing (agro-industry) to consumption, as the core of a complex economic, social and natural environment. The nature of this system determines the behaviour and performance of farms and other agri-food enterprises and as such directly affects structural transformation of the food system. The SFVC concept recognizes that VCs are dynamic, market-driven systems in which horizontal and vertical coordination (governance) are the central dimensions. The analytical approach is typically implemented at the commodity sub-sector level, holistically searching at each component of the system to identify what influences the capacities and incentives of the actors whose changing behaviour drives the structural transformation of food systems. This systems approach allows for the identification of root causes which typically are plural and which may not be located near the actor whose behaviour needs to change in order to promote sustainable structural transformation.

Methodologically, the analytical part of the SFVC approach typically involves a range of data and data-gathering techniques, depending on available resources, including secondary information (e.g., past project reports), statistical data, surveys, case-studies, key informants, focus groups and direct observation. As is common amongst VC approaches, the SFVC approach uses intensive stakeholder involvement, triangulation and corrections to attain internal consistency to exploit the potential to extract an understanding of that particular part of the food system to identify the root causes of problems, and the leverage points in the system that allow for impact at scale.

Improving performance, as the third cog in the SFVC approach, combines multi-stakeholder vision development with the analytical insights derived from the previous two stages to develop a holistic upgrading strategy and associated support program that represents an integrated solution to addressing all the critical constraints that need to be tackled simultaneously. This involves (pilot-) testing the commercial viability of business models (i.e. show the business case), making sure that social objectives can realistically be achieved (e.g. in terms of gender, youth, the rural poor) and assuring that the environmental impact is positive or if negative, remains within an acceptable range. It also involves a check on the potential impact of the strategy to be in line with the dimensions of the (national) vision established earlier. VC approaches work from the premise that the private sector is at the heart of the transformation of the food system (market-based solutions) while the public sector (including policies) aims to facilitate and guide the transformation process (but is not a direct actor in the VC). Key actors in the process are large agribusiness firms (channel captains in agro-industry and food distribution) who have the market power to drive innovation, entrepreneurs and their mostly small- and medium sized enterprises (SMEs) who have the nimbleness, drive and competitive need to introduce innovative food products or processes. The more commercially-oriented farmers, including smallholders, are seen here as key entrepreneurs in the system as well.

Policy-relevance

It is clear from the above that the SFVC model demands an interdisciplinary and multilateral approach throughout and affects policy in a broad way. Three examples are the following.

Better policy targeting is a first advantage of the SFVC approach. Both public resource constraints and the identification of root causes in SFVC development imply the need to more carefully target policy efforts. For example, in terms of public extension and public investment in research and development, great impact can be achieved by designing and implementing policies that stimulate extension workers and researchers to focus on innovations that address the critical constraints. Small investments can sometimes have big impacts under such a strategy. For example, In 2004, observing that the key bottleneck in the Burundi ndgala (a small sardine like fish) value chain was the drying of the fish directly on the sand along the beaches, an FAO project targeted this specific bottleneck by introducing raised wire-mesh drying racks and trained producers in how to build and use them (FAO 2013a). Relative to drying fish on the sand, drying them on the rack is more hygienic, much faster, less labour intensive and has less post-harvest losses. A review of the VC in 2013, nine years after the brief project ended, found the upgrade to be sustainable along all dimensions. Rack-dried fish sold for twice as much as sand-dried fish, post-harvest losses are far lower and the markets that can be reached are far wider. These benefits easily offset the cost of the racks and significantly increase the incomes of the producers. Producers increased the area devoted to rack-based drying from 1 to 5 hectares between 2004 and 2013, and the number of people directly involved in the drying operations, mostly women, increased from 500 in 2004 over the same time period.

Better policy alignment is another key objective facilitated by SFVC development. In order for a VC to perform better, to upgrade, to promote inclusive structural transformation, the policies of the various relevant ministries need to be well-aligned with each other (inter-ministerial alignment) and with the needs of the private sector (e.g. through PPPs). Often this is not the case. The ministry of agriculture may promote the production of agricultural products that are not the right ones for an agro-processing industry that is supported in its growth by the ministry of trade and industry. A great example of achieving alignment at scale is the salmon value chain in Chile where the various ministries and the public and private sector aligned their work to not only pilot-test salmon production and scale-up the industry to US\$2.4 billion in exports in 2008, but also to successfully overcome a potentially industry-lethal outbreak of an infectious disease amongst the fish.

Better policy sequencing is a third example of how SFVC development contributes to policy. The in-depth understanding of the food system (or the selected VC part of it) resulting from SFVC analysis, allows for the identification of which critical constraints are binding today and which will become binding once the first set of constraints has been addressed. Not taking this into account in the implementation may lead otherwise sound policies to fail simply because they were not preceded by specific complementary policies. This is well-illustrated in the rice value chain in Senegal. Following the 2008 world rice crisis, the Government of Senegal embarked on a national food self-sufficiency program aimed at displacing the large imports of rice aimed mainly at its urban markets. A study by Demont and Rizzotto (2012) found that policies solely focused on increasing production would likely not be successful. For domestic rice to reach urban markets, where consumers generally prefer imported rice for its superior grain quality, quality was the key binding constraint initially. It was important to get varieties, post-harvest grain handling, and processing equipment upgraded to where a quality competitive with imported rice could be achieved. Only once that is in place, does it make sense to design and implement policies focused on large-scale investments in productivity at the farm level.

- **Territorial approach as a means to attract transformative investments and coordinate cross-sectorial objectives**

Territorial planning coordinates or integrates the spatial dimension of sectoral policies through a spatial strategy that takes into account the interplay of three market forces: agglomeration economies, trade and specialization, and migration (FAO, 2016; IBRD & World Bank, 2009).

Enhancing FSN, sustainable rural transformation and agribusiness competitiveness may be achieved through territorial planning. Such an approach could be a critical part of the broader framework aiming at: improving infrastructure and rural services to enhance market access; creating off-farm employment opportunities; providing better social protection to help vulnerable populations; strengthening local governance and institutions; and ensuring more equitable access to land and other natural resources (OECD, FAO & UNCDF, 2016). One sub-approach to support the implementation of this framework is focusing specifically on the cross-sectoral linkages between agriculture and manufacturing, improving understanding of rural-urban demand patterns for food, and targeting investments in underperforming rural areas. Four policy tools that seem effective in doing so, and hence, are being increasingly used worldwide are: agro-economic corridors, agro-based clusters and special economic zones [SEZs], and agro-industrial parks, as summarized in Table 1 below. Although some of these tools tend to be located in urban areas, they exert a significant pull effort on rural settings, thus, fostering rural transformation.

Table 1. Prominent features of agro-territorial policy tools

	Overall purpose	Geographic scope	How tools attract investment
Agrocorridor	Integrated planning of infrastructure and agribusiness interventions	Regional, national or supranational (might encompass smaller spatial development initiatives [SDIs]); linear agglomeration spanning across hundreds or thousands of km	Coupling infrastructure investments with trade and regulatory policy reforms and sectoral development plans
Agrobased cluster	Network linkages	Regional or provincial agglomeration (revolving around production area); from hundreds to thousands of ha	Benefits of agglomeration economies and promotion of collective action
Agro-industrial park	Value addition by processing and innovation	Urban (accessible distance from production area); a few ha	Common infrastructure, logistics facilities and dedicated services
SEZ	Export and FDI promotion	Urban (possibly near to port area if it is an export promotion zone); a few ha	Advantageous economic and regulatory frameworks

Source: FAO, 2016b.

These tools have a large potential for catalytic impact on rural transformation, as they are designed to contribute to:

- (i) **Enhancing food security.** Although these tools tend to have a penchant for high-value agricultural products (e.g., biofuel, horticultural, animal and fisheries products), grains and roots are also consistently found as key crops promoted because of their importance for food security. From 2000 to 2014 the PRA corridors in Peru generated cumulative sales of goods and services (of firms working in the corridors) worth US\$397 million (vs. a project budget of US\$62 million), of which about half were of food security crops. In the case of the Greater Mekong Subregion (GMS) corridor programme, Gálvez Nogales, (2014) indicated that food crops (e.g. rice, maize and cassava) were mostly produced through contract farming in one corridor country to tackle unmet demand in a neighbouring country also connected to the corridor.

- (ii) **Attracting and concentrating agro-industrial investments as a way to enhance value addition, create jobs, increase exports and provide markets for new and existing producers.** From 2000 to 2014 the PRA corridors created over 100 000 new employment opportunities in agriculture and exports worth over US\$190 million (Galvez Nogales, 2014). Worldwide, the share of SEZ employment as a per cent of total formal employment is around 0.2%. (ODI, 2013), while the presence of agro-industrial firms in SEZ keeps on increasing.

These tools have also had a significant impact on trade. For instance, the size of intra-GMS trade increased at an average annual growth rate of 21.7 % between 2000 and 2009, from US\$13.9 to US\$81.2 billion, which excludes informal trade, estimated to be in the order of 20–30 % of total trade (Galvez Nogales, 2014). They also contribute to GDP and agricultural GDP growth. For example, in the GMS corridor improvements represented, GDP gains of 1.1–8.3 %. The impact was highest in the least well connected countries, and particularly in Cambodia, Lao People's Democratic Republic and Myanmar. The PRA corridors had also a sizeable effect on the agricultural GDP of subnational corridors, where PRA activities ranged from 4.5 to 8.7 % of the agricultural GDP (ibid).

- (iii) **Building agribusiness and agro-industrial competitiveness, while capitalizing on the benefits of urban-rural linkages.** Collective action in agro-based clusters is seen as a key driver for the upgrade and internationalization of high-value crop clusters. One case in point is the evolution of cut flower clusters that experienced a remarkable surge in their export revenues: tenfold increase in Colombia (1996-2006), fourfold in Ecuador (1996-2006) and twofold in Kenya (1995-2003) (Gálvez Nogales, 2010).

Furthermore, these instruments, and the investment that they generate, may contribute to enhancing regulatory frameworks, accessing new technologies, improving skills levels, encouraging new business formation and decentralization. For example, an important area of regional corridor cooperation in the GMS programme has been the improvement of regional regulatory systems for agricultural and food products, and the harmonization of the different national systems, notably the following:

- Modernize sanitary and phytosanitary (SPS) measures to facilitate trade in agricultural and food products in the Central Asia Regional Economic Corridors (CAREC); and improve SPS handling in the GMS Corridor Programme for Cambodia, the Lao People's Democratic Republic and Viet Nam.
- Harmonize food safety standards and the development of regional food traceability systems in the GMS.
- Introduce pesticide regulations and a partnership for pesticide management, notably the elimination of persistent organic pollutants in agricultural production in Central Asia.
- Promote voluntary standards (e.g. organic and fairtrade certified products), ecolabelling and pro-poor certification systems in the GMS (Galvez Nogales, 2014).

Effective planning and implementation of these instruments require public and private leaders to make sound choices that respect business and governance principles and follow the best practices in order to promote efficient and sustainable agrifood systems and rural economies. For example, success in encouraging agribusiness investment will depend to the extent that the barriers and transaction costs involved in business operation and investment are lowered, and good governance, and sound implementation and management are ensured. Ensuring public-private collaboration is paramount for the success of these initiatives. PPPs are a preferred way of starting and implementing them, as these partnerships provide a proxy or mechanism for desired government control, while at the same time placing management and operating responsibility in the more nimble hands of the private sector. The latest generation of agro-based corridors, SEZs and agro-industrial parks tends to be configured as PPPs (Gálvez Nogales, forthcoming).

Another good practice is ensuring that the value-for-money rule is met all throughout the life-cycle of the territorial tool. For instance, the PRA corridor Project in Peru introduced a cost-effectiveness rule for each intervention that required close monitoring but produced excellent results: every dollar spent in technical assistance to private investors, mostly agribusiness firms, resulted in US\$7.26 in new client sales. This achievement was due in part to the 5:1 rule applied to technical assistance. However, within this aggregate ratio there was broad variation. Agro-processed products were among the most cost-effective products, with primary products frequently being the least cost-effective ones. Likewise, for the infrastructure PPP component, every dollar invested leveraged US\$87 in private capital investments plus commitments to operate and maintain the infrastructure over the next 30 years (Gálvez Nogales, 2014).

Moreover, governments must balance legitimate political interests; economic growth objectives (including concepts of regional equality); sustainable rural transformation; social partnership objectives; decentralization and regional development objectives; tradition; philosophical perspectives; and much more. However, each commodity system has unique characteristics, and each country and region has its own history, topography, culture and economic philosophies, making it difficult to generalize about the application of best practice.

- **Contract farming for inclusive market access – do contract farming policies hinder or help?**

In response to the trend towards greater vertical coordination in supply chains discussed in Part 2, contract farming (CF) has emerged as a supply chain governance mechanism of increasing relevance throughout the developing world (Kirsten & Satorius, 2002; Da Silva, 2005; Bijman 2008; Prowse 2012). CF can be defined as *“an agricultural production system carried out according to an agreement between a buyer and farmer(s), which establishes conditions for the production and marketing of a farm product or products”* (FAO, 2012 p1). For agribusiness firms, CF offers a means to reduce the risks associated with spot market transactions by guaranteeing a consistent supply of good quality raw materials, yet without incurring the extensive investment costs (and risks) associated with full vertical integration including purchase of land and hiring of labour (Da Silva, 2005). According to Jia & Bijman (2013), three major trends are thought to have influenced the rapid expansion of CF in developing countries: (1) the rise of supermarkets in the past two decades in Asia and Latin America (Reardon and Berdegue, 2002) and more recently in Africa (Reardon and Gulati, 2008, Tschirley et al, 2013), that favour tighter coordination among producers, wholesalers and retailers to meet private quality standards; (2) the reduced role of the state in agricultural production and marketing as part of market liberalization policies; and (3) the ambition of donors, non-governmental organizations (NGOs) and governments of developing countries to strengthen smallholder access to markets.

Related to point three above, CF is largely promoted for its benefits in overcoming market failures in the provision of inputs, technology and financing to help smallholder farmers access new market opportunities that would otherwise be out of reach (FAO 2001; 2012, GiZ 2013; IFAD 2003; World Bank 2007). Several studies have shown the positive impacts of contracting on smallholder incomes and productivity for a range of commodities across a number of countries⁵, with contracting becoming more common not only for the production and marketing of high value crops, but also for staples and non-food products such as biofuels and forestry products (FAO, 2013b). Yet caution is needed when interpreting the results of these studies as they often neglect the time dimension and the entry-exit dynamics of farmers involved in CF schemes (Narayanan 2013). Key variables to determine farm incomes, such as product prices, productivity indexes and input prices are likely to vary from year to

⁵ See for example Miyata, Minot & Hu, 2009 for apple and onion contracting in China; Tatlidil and Akturk, 2004 for tomato production in Turkey; Saenger et al 2012 for dairy contracting in Vietnam and Wang et al, 2014 for a review of the empirical literature on contract farming in both developed and developing countries, using China as a special case.

year and for this reason an impact analysis may produce very different results, depending on when it is performed. Ideally, a successful CF scheme will last many years, therefore the evaluation of its impacts on participants should also consider the longer-term dynamics and how they affect selected performance variables (Da Silva & Rankin, 2013).

On a related note, the evidence to support the extent to which contracting is in fact inclusive of smallholders is mixed and inconclusive. For example, Freguin-Gresh and Anseeuw (2012) found that despite 80% of processed horticultural products in South Africa being grown under contract, only 5% were sourced from smallholders; similarly, the tomato sector in Senegal relies largely on procurement from large commercial farms or own estate production; yet more positive evidence exists for the involvement of smallholders in the pineapple and banana sectors in Cote d'Ivoire and in the vegetable sector of Ghana (Maertens, Minton & Swinnen, 2012). This is due to a number of contextual factors including land allocation and production structures within a specific country setting; extent of collaboration among smallholders; management, entrepreneurial skills and general education level of farmers; as well as a number of other commodity, market and location-specific factors that may increase the transaction costs associated with sourcing from smallholders. In these cases, firms may opt to contract with a few larger suppliers or pursue vertically integrated production strategies to gain full control over production practices to achieve food safety and quality standards. Indeed some studies have found that when firms pursue vertically integrated production strategies, the income effects resulting from the agro-industrial wage employment created on estates and in packaging and processing facilities can in fact deliver stronger benefits to the rural poor (and women in particular) when compared to contracting (Maertens, 2009).

While CF can be considered a useful tool to stimulate rural development, it is not without risks to both buyers and farmers. Potential for exploitative behaviour exists on both sides (e.g. side-selling by farmers; manipulation of quality standards and pricing formulas by buyers), particularly if negotiations have not been conducted in good faith and the resultant agreement is not based on trust. For successful implementation, contracts should be transparent and both parties need to have a common understanding of contractual terms and obligations, and the legal environment should provide at least a credible threat of contract enforcement (FAO, 2012d; USAID 2015).

In recent years, CF has become of a topic of particular interest to policy-makers, often with the objective to regulate the interactions between farmers and buyers in an attempt to promote a fair and equitable approach toward contracting that is more inclusive of smallholders. For example, in Vietnam, Decision 80 was first introduced in 2002 with the aim to improve market linkages for smallholders through contracts with stable buyers. Favourable access to finance was also offered to firms who engaged in contract farming with individual smallholders. Yet a review of the impact of this policy undertaken by the Institute for Policy and Strategy for Agriculture and Rural Development (IPSARD) in 2012, found that it had been largely unsuccessful in achieving its goals. In 2010, only 2.1% of rice, 13% of fisheries, 0.9% fruit and vegetables, 2.5% of coffee and 9% of tea was purchased under contracts (IPSARD, 2013). Contract enforcement was raised as a major issue for firms, with high levels of side-selling reported and significant monitoring costs due to the small size of landholdings of individual farmers.

In an attempt to address these challenges, a new policy (Decision 62) was introduced in 2012 to promote contracts between firms and producers to cooperate in large-field farming projects. This revised policy aims to reduce the transaction costs to the firm by encouraging farmers located in the same geographic area to form groups and work with entrepreneurs to set up specialized production zones. The policy also offers more supportive incentives including access to land for estate production and support services for farmer groups (e.g. public extension and research). Yet the challenge of contract enforcement remains an ongoing problem for all parties as very little credible threat of

contract enforcement exists - pursuing legal action can take up to 295 days and arbitration is only available in Hanoi and Ho chi minh City at a very high cost (Nhan and Takeuchi, 2012). In 2013, a law allowing for mediation at local level was introduced which may help to improve access to impartial, timely and affordable dispute resolution services for all parties. Time will tell what (if any) impact these revised policies will have on further achieving inclusiveness objectives and improving the sustainability of contract farming schemes.

Contract farming policies and laws are also emerging as a way to address other social concerns that have been plaguing specific agricultural commodity chains in developing countries. In Malawi for instance, in 2014 the Tobacco Industry Integrated Production Systems (IPS) Regulations were introduced to support the implementation of the country's CF model (i.e. IPS) for tobacco production and marketing. The current IPS is estimated to represent 80% of the tobacco produced and marketed in the country and has delivered strong benefits to farmers involved in the scheme including productivity gains and increases in income. The regulations outline the minimum terms that must be included in contracts as well as the means for identifying farmers to participate in the scheme and the manner for resolving disputes (UNIDROIT, 2014). They also require specific obligations to be written into the contract to ensure that both parties commit to production that is free from the use of child labour, with strict penalties for farmers who fail to adhere to this requirement and related obligations for the buyer to conduct on-farm monitoring. The regulations have helped to raise the issue of child labour that needs to be addressed not only in the tobacco industry but also in other commodity chains including tea. However, regulations alone will not solve other market-driven problems that continue to plague the industry and the smallholder farmers involved, in particular the declining global demand for tobacco. To achieve broad-based rural development objectives, government strategies need to support diversification out of tobacco production into other crops including staples (along with liberalization of the maize market), while encouraging investment in alternative agro-industries (Mills & Davis, 2016).

Even in countries such as Brazil, that have had a long (and mostly successful) relationship with vertical integration contracts for a range of commodities including poultry, hogs, citrus and tobacco, the government has recently seen the need to introduce a policy to promote and regulate contract farming agreements. The CF law introduced in May 2016 applies directly to contracts where inputs and services are provided by the contracting firm, and thus excludes simple forward delivery contracts and contracts already regulated by legislation on cooperatives. The law stipulates basic requirements for written contracts, contractual clarity, and outlines a number of compulsory issues that must be covered in contractual clauses – most of which are already adopted by the vast majority of CF operations in the country (Da Silva, forthcoming). Institutional innovations are however introduced through the promotion of farmer-buyer “monitoring, development and conciliation” commissions in each CF operation (the CADECs), and the creation of national integration forums (the FONIAGROs) for each of the agrifood chains where CF is practiced. The FONAGROs are proposed as a mechanism that will establish methodologies for the calculation of “reference values for the remuneration of farmers”, which in turn should be adopted by the CADECs.

While the intention of the FONAGROs and CADECs is no doubt to improve the bargaining power and fairness for smallholders entering into contractual negotiations with agribusiness firms by creating base reference prices, in practice, this approach is likely to face a number of challenges. The diversity of commodities under contract in Brazil means that contract prices are set depending on the buyer-specific requirements and the agreement reached between farmers and buyers under the freedom to contract principle. For example, farmers may prefer cost-plus pricing mechanisms that provide stability and shield them from market-price volatility, but it is unclear if this will be allowed under the proposed law if reference prices are to be linked to prevailing market prices. No further information has been detailed at this stage about how the law will be implemented, however the general

perception of CF practitioners about the impacts of this law is that it will mostly have a neutral effect on the way agrifood contractual relations function in Brazil given that good practices are already adopted by most CF operations in the country (Da Silva, forthcoming).

Based on the examples discussed above, some would argue that governments would do better to focus on addressing broad-based business enabling environment issues that make private sector investment in agriculture overall (not just contract farming) more risky than for other sectors. Addressing essential and important enablers such as land tenure and restrictive trade policies, hard infrastructure needs and general commercial laws and regulations amongst other factors (see FAO, 2013c, World Bank 2016), are likely to have a greater impact overall than aiming to directly intervene in private commercial agreements between farmers and buyers. It should also be remembered that while a conducive enabling environment is important for the successful implementation and sustainability of inclusive CF operations, innovative (private sector-driven) contractual design and operational modalities can also be instrumental in overcoming legal and regulatory constraints⁶.

One way that FAO promotes the adoption of good CF practices is by making available to national governments soft laws and voluntary guidelines (e.g. FAO's Guiding Principles for Responsible Contract Farming Operations (FAO, 2012d) and the UNIDROIT, FAO & IFAD Legal Guide on Contract Farming (UNIDROIT/FAO/IFAD, 2015) that help to improve the understanding of CF and its implications for all parties. Building the capacity of the intermediaries who can help to support the negotiations of contract farming agreements between smallholders and agribusiness firms is also a key strategy to ensure that all parties clearly understand their obligations with a view of working towards a long-term, mutually beneficial (and thus sustainable) collaborative business partnership (GiZ, 2013, USAID 2015). Under the support of an IFAD grant⁷, FAO is currently providing training-of-trainers and capacity building support at national and regional level in Asia, Africa and Latin America, not only in the practical and economic aspects of designing and implementing contract farming operations, but also in improving the understanding of all actors of the legal aspects of contract farming (FAO, 2016 forthcoming).

- **Inclusive business models – drivers of rural transformation⁸**

In developing countries, small farmers and rural enterprises operate primarily in informal or semi-formal economies occupying a significant proportion of land use, employment, and economic output (Bedegu   et al 2013). As such, they are key actors with the potential to drive the rural transformation process. Out of necessity they invest in small-scale institutional innovations to finance and circumvent value chain inefficiencies, and it is argued are more effective than macro trade and price-related policies (Barrett *et al.*, 2012). This section of the paper describes FAO's approach for supporting the role of these actors in rural transformation under its area of work on Inclusive Business Models.

Inclusive business models promote the integration of smallholders into markets, with the underlying principle that there are mutual benefits for poor farmers and the business community. Business models that link small farmers to markets include traders, artisanal processors, farmer organizations, local spot markets, and commercial farmers through contract farming (see FAO 2015a&b).

⁶ See for example Goel. V. 2013 *Impact of Contract Farming for basmati rice in the Punjab state of India*, in FAO, 2013 for a case-study that demonstrates how the contracting company (PepsiCo) was able to adapt their CF model to successfully overcome enabling environment constraints to expand their CF operations and secure supply from smallholders.

⁷ IFAD Grant No. 2000000988-FAO Grant Agreement for the *Implementation of the Legal Guide on Contract Farming*.

⁸ Adapted from Inclusive Business Models – Guidelines for improving linkages between producer groups and buyers of agricultural produce <http://www.fao.org/3/a-i5068e.pdf>

While these models provide farmers with market outlets for their produce, they may not necessarily be valid pathways out of poverty or 'inclusive', with benefits sometimes off-set by trade-offs. For example, a smallholder contract farming arrangement may in its first year of operation provide farmers with a viable living wage, yet as mentioned in the preceding section, in its second year the arrangement may not be as viable due to market price vagaries. In the meantime farmers may have become disconnected from local markets due to production diversification. However, new skills and technologies acquired during the contracting period may also create livelihoods diversification opportunities, that in longer-term improve household income generation. In this respect, FAO (2015a) provide criteria to help gauge the quality of the 'inclusiveness' of a business model.

Over the past decade under its field programme on integrating smallholders into agriculture value chains FAO has developed an approach to support governments, civil society and the private sector assess and develop inclusive business models. The approach, applied in more than 30 countries across staple food, high value and cash crops, has, while mainstreaming agri-business thinking and value chain tools and concepts, also tackled the development constraints that prevent smallholders from moving out of poverty. Building on smallholders' existing value chain linkages, the approach focusses on upgrading priorities that result in win-wins for farmers and their immediate customers.

Value chain development is supported by focussing on the first farmer-to-buyer commercial linkage (informal or formal) in the chain. The following describes some examples of contributions the approach has made to rural transformation as applied across a number of countries and crop categories. Lessons in particular discuss how benefits from low cost market-oriented adjustments to existing business models involving smallholders can permeate the rest of the value chain, related business models within the same farming system, as well as indirectly contributing to market-led production and overall to rural transformation.

In central Cameroon, for instance, the business model between members of three cooperatives, representing 600 smallholders, and one of the country's largest palm oil refiners, PAMOL was targeted. Constraints affecting both the inclusiveness and competitiveness of the business model, identified in a farmer-buyer forum, were transportation, product quality and pricing. Logistical and quality control innovations, including 'quality control brigades' which integrated collection points, harvest and transport schedules, and food safety controls were designed by cooperative staff in consultation with buyers. The results led to efficiency savings for farmers, higher-quality produce for the buyer and a reduction in post-harvest losses for the chain. The implemented activities cost very little, apart from fees for the quality control brigades, and were based on locally available knowledge and a transfer of skills from PAMOL to the cooperatives' management teams. The sharing of knowledge and skills led to spill-over benefits into various components of the value chain resulting in improved on-time delivery of inputs, scheduling of harvesting and aggregation of sales⁹.

To reinforce results from the oil palm cash crop, the business models of two industrial cassava agro-processing companies procuring from the same cooperatives were also targeted. With the intention of moving from informal to more formal trade, upgrading priorities strengthened buyers' business skills in contract management and the cooperatives' capacity to aggregate and standardize packaging. An innovative logistics mechanism was also designed by traders and cooperative management to circumvent the absence of adequate transport infrastructure linking central Cameroon to Yaoundé. Bus stops were identified that converged with pre-assigned collection points along the highway, where cooperative representatives would broker sales between smallholders and traders using the common public transport system.

While the initial intention of the support was to focus on the industrial animal food and bakery business models for cassava, findings showed that the targeted cooperative struggled to source

⁹ More information on this case can be found in annex 1 of the FAO, 2015, IBM guidelines. Link provided above.

sufficient quantities of cassava root from members to make investments in industrial equipment viable in the short term. Progress in capacity and innovations nonetheless spilled over into semi-formal business models. As such, the market intermediary turned its attention to the business models of four local traders supplying small restaurants, street food vendors, local and urban retail markets, and cross-border informal traders for markets in Gabon and Chad¹⁰.

In the eastern, western and Nianza provinces of Kenya the business models of four ginners with the potential to procure cotton from over 30,000 smallholders were targeted. Upgrading activities included developing a pricing mechanism for the business model, strengthening cooperative service provision to cooperative members, building ginners' managerial and operational management skills, and the identification of public and private financial investment sources to upgrade ginning technology. The pricing mechanism was designed under the guidance of farmer representatives, cooperative managers, ginners and the Cotton Development Authority (CODA) which brought the diverse actors together to agree on a formula. The mechanism acted as an incentive for farmers to deliver better-quality cotton based on prevailing market prices. In addition, while increasing production was not a primary objective of the business model upgrading, the improvement in cooperatives' service delivery to members, combined with harvesting and supply schedules developed with ginneries, and the pricing mechanism resulted in an increase in the volume and quality of production¹¹.

To support small actors in their role as drivers of rural transformation, it is also important to assess what doesn't work and why. For instance, in the small island state of Vanuatu, the business models of two of the largest horticulture companies were targeted, Vanuatu Direct and Teuma gardens. Business model upgrading supported the development of an outgrower scheme, an on-farm smallholder seed-enterprise and a knowledge transfer platform between buyers and smallholder outgrowers. Despite investments and upgrading, the business model struggled due to ongoing side-selling. Instead of delivering the contracted produce to the companies, farmers chose to sell produce at the market in Port Vila or at roadside markets, with reasons ranging from prevailing higher market prices, the immediate need for cash, to the tradition of travelling to the city on market days to meet friends. Familiar with the local culture and habits of small farmers, the side-selling was not a surprise to buyers.

The companies collaborated with smallholders, in part due to the need for supplementary supplies. Despite the negative experiences with side-selling, the companies reported that they would be likely to support similar initiatives in the future as they were keen to see small farmers become increasingly commercialized viable partners in the local economy. They understood that patience and a reiterative process was needed in their role as buyers¹². Indeed, many domestic firms in developing countries demonstrate a genuine 'social responsibility' drive which could be taken advantage of more systematically as a strategy to support rural transformation.

The above examples demonstrate that the nuances of local market product portfolios need to be considered in order to achieve rural transformation objectives. Highlighted above is the nexus between the local informal cottage industry and larger industrial domestic buyers, which should not be ignored particularly where food crops and food security are concerned. These closer-to-home markets are more familiar to smallholders with less demanding requirements compared with higher value retail or export markets. However, nor should the role of export markets be underestimated. Exposure to these markets is key to developing country economies for a number of reasons, not least for access to foreign currency. In addition, engaging with export markets provides national actors with

¹⁰ More information on this case can be found in annex 2 of the FAO, 2015, IBM guidelines. Link provided above

¹¹ More information on this case can be found in annex 3 of the FAO, 2015, IBM guidelines. Link provided above

¹² More information on this case can be found in annex 5 of the FAO, 2015, IBM guidelines. Link provided above

benchmark standards to emulate and transfer to domestic agri-food industrial development (Schneider et al., 2010).

To conclude, the results of FAO's work on IBM indicates that a balanced approach that supports the multifaceted, formal and informal nature of rural agro-enterprise development is needed, with tailored support and strategic policies targeting transformation that is already underway in rural communities.

- **Voluntary standards and certification schemes as a catalyst for enabling smallholder organization and markets for sustainable agriculture in developing countries**¹³

Since the 1980s, there has been a growing consumer demand for food and other agricultural products that possess specific characteristics linked to composition, origin, production method or terms of trade. Through private, civil society and public initiatives, we have seen a large increase over the past 30 years in the number of voluntary standards, labels and regulations associated with such products, the EcolIndex¹⁴ currently lists 465 labels in use. These standards provide rules for production, processing and sometimes trade, and seek to improve the food quality, food safety and sustainability (economic, environmental and social) of agricultural value chains.

This rapid expansion of the use of voluntary standards in international trade is often linked to the effects of globalization, in particular to the WTO's technical barriers to trade agreement, whereby the increased control of supermarkets over global value chains is coupled with food safety scares and consumer interest in social and environmental sustainability (Busch et al. 2008; Reardon et al., 2003; Santacoloma, 2014). While the market for certified products is still only a small fraction of international trade in agrifood products, they are increasingly becoming important for key tropical commodities such as coffee (39 percent), cocoa (30 percent), wild catch fish (20 percent), palm oil (22 percent), tea (18 percent) and forest products (10 percent) (Potts, et al., 2014). As these markets expand, global buyers are increasingly relying upon small-scale producers to source their supply.

According to a 2014 study published by FAO on the impact of standards on smallholders' access to markets, there is evidence of economies of scale in certified markets and a tendency for self-selection in these systems. This means that the farmers and exporters who have the means (financial, educational and infrastructural) to make the initial investments are the first to join voluntary standards schemes. This self-selection is strongly related to the evidence of exclusion found in standards that focus primarily on good agricultural practices and general food safety standards (FAO, 2014a). There is evidence of increased rural employment in certified value chains (cf. Maertens & Swinnen, 2014) and the literature suggests that this may be caused by a shift from smallholder agriculture to employed labour on certified farms. For example, with the increased global demand for certified tea due to significant public commitments made by lead tea blenders (e.g., Lipton, Tetley, Twinings, Sara Lee), employment opportunities in certified plantations can create valuable jobs in rural areas if employment programs are sensitive to the gendered conditions of labour (Loconto, 2015). However, the linkage between certified on-farm employment opportunities and the decrease of certified smallholder agriculture has not been sufficiently researched. Because of economies of scale and increased vertical coordination, smallholders can access certified markets only through group certification, particularly for standards like Fairtrade where the creation of a smallholder cooperatives is a requirement for certification. In standards like the Rainforest Alliance, the Global Coffee Platform,

¹³ Adapted from Impact of international voluntary standards on smallholders' market participation in developing countries: A review of the literature <http://www.fao.org/3/a-i3682e.pdf>; and Innovative markets for sustainable agriculture: Exploring how innovations in market institutions encourage sustainable agriculture in developing countries. <http://www.fao.org/3/a-i5907e.pdf>

¹⁴ The Ecolabel Index is the largest global directory of ecolabels, currently tracking 465 ecolabels in 199 countries, and 25 industry sectors. <http://www.ecolabelindex.com/>, accessed 30/05/2016

Bonsucro, GobarGAP and Organic agriculture, special group certification mechanisms have been developed. The desire to be included in voluntary standards schemes in order to gain access to lucrative export markets thus provide incentives for forming associations or cooperatives and for out-grower schemes through the use of contract farming arrangements (FAO, 2014a).

FAO (2014a) found international voluntary standards have a positive impact on smallholder access to markets when local institutions have the capacity to support smallholder adoption of standards. This means that there is a need for 1) national and/or regional legislation that enable the creation of cooperatives and other forms of smallholder organization, 2) national and/or regional regulations that officially recognize or facilitate a system of control and traceability for organic agriculture or good agricultural practices, 3) public policies (e.g. subsidies) that support the ecosystem services provided by sustainable agriculture or for family farmers in particular, 4) NGOs who provide support services, 5) effective extension Services (both public and private), 6) a corporate or sector-wide culture that is dedicated to rural development and investment in smallholder agriculture, 7) competent local certification bodies and 8) easily accessible testing laboratories. Public and private investment in the above infrastructure, particularly in siting some of these organizations and laboratories within rural areas, can improve the effectiveness of voluntary standards and also are themselves fundamental to stimulating rural transformations.

Within this context of international voluntary standards, we see that innovations are also occurring in value chains that use sustainability standards, particularly for organic agriculture. These innovations are providing opportunities for rural transformation within developing countries as they are providing opportunities to develop local food systems that can both produce and consume sustainably produced products. Based on two empirical studies that collected data from 22 different case studies in 21 countries, there is evidence that standards can incentivize the adoption of sustainable practices when they are used to create new roles and responsibilities between value chain actors working mostly in domestic markets (FAO, Forthcoming 2017, 2016). In these cases, the use of participatory guarantee systems, which is an alternative to third-party certification, has enabled small-scale farmers to create innovative market arrangements directly with consumers who live in the same socio-economic region. We also found that there are about 22 different market channels used in these initiatives that link small-scale producers with small-scale processors, retailers, and consumers. These alternative market channels are facilitating new ways of organizing value chains that are based on inclusiveness, short food supply chains and community embeddedness.

For example, since its founding in 1985, the Songhai Centre in Benin Republic has been investing in a rural transformation strategy, which they call 'green rural cities' that is based on the use of organic agriculture standards (Agossou, et al., 2016). The Songhai Centre is a well-established regional training, production, processing, research and development centre for sustainable agriculture that takes a holistic approach to linking producers and consumers in local and national level markets for organic labelled products. The Songhai integrated production model (crop, livestock, aquaculture and biogas production) provides a practical rural transformation strategy by incorporating three key sectors of the economy into a network of five regional training, production, processing and service centres across the country (Kétou, Kinwédji, Savalou, Parakou and Zagnanado). Each regional centre acts as a hub for a network of ex-trainees who are selling their production to Songhai's processing centres. No link functions without a relationship to one or more of the other links and the satellites are governed through a centralised, hierarchical, chain of command that permits horizontal linkages between network members. There is a central procurement and marketing service that organizes the procurement of raw materials for processing and the sales of processed products from the Porto Novo hub. However, each satellite is also responsible for local sales of their fresh produce and artisanal processed goods. 54% of the value of finished products was internal to the network and 46% constituted product sales with a value of US\$ 7,040,540, of which the off-farm sales of finished

products accounted for US\$ 2,579,830 in 2014. The Songhai centre trades only in organic products and enforces its own internal standards for organic via its training program and through its internal quality control system for the traceability of its products. Over its lifetime, the Songhai Centre has benefited about 152.000 people across Benin and has created a network of over 200 partners around the world, through which it maintains strong international and multidimensional relationships that contribute to the investment in this model.

Among the diversity of voluntary standards discussed above, geographical indication (GI), has also emerged as a specific driver of change towards more sustainable local food systems. GI is defined in the TRIPS agreement (1994) as a *name or sign associated to a geographical location that is used on products originating from this location and presenting some specific qualities or reputation because of their link to origin*. GI represents therefore a collective intellectual property right (IPR) (Bramley, 2011) particularly adapted to smallholders, who are often the ones involved in the production of traditional and origin-linked products in developing countries, especially in fragile or remote areas where intensive agriculture is not possible. In some cases, the GI process represents the only means of generating price premiums through market differentiation to cover the high costs of production in such areas (Barjolle et al. 2011).

GIs have a long history as they appeared with the first market exchanges of famous origin-linked foods in the Antiquity and were in fact regulated in the Middle Age in France (Marie-Vivien, 2015). They have however, recently become an important policy-making tool, especially in developing countries, following the TRIPS agreement that requires WTO member countries to protect GIs. Registered GIs are now internationally recognized as a consequence of globalization and the increased distance between producers and consumers. While the food distribution system is increasingly concentrated and characterized by international standards and branding, GI can offer producers the opportunity to organize themselves locally and maintain control of their products in the market as an attempt to capture more of the value created (Allaire, Sylvander 2011). Indeed, the GI strategy appears as a way to “*re-shape relationships along international supply chains*” and helps to balance power relationships within the chain (Quiñones-Ruiz et al., 2015).

While most voluntary standards and third-party certification schemes (e.g. Fair Trade, Organic, Rainforest Alliance) are developed by market actors from developed countries that have the potential to limit the local scope of decision-making and impose high transaction costs and/or exclude smallholders not complying with these requirements, GIs, on the other hand, can provide an alternative as local producers by themselves define their own standard and code of practice (CoP) for using the label (Quiñones-Ruiz et al., 2015). In addition, this tailored-made specification allows producers and local support actors such as local public authorities, with an opportunity to jointly identify the most sustainable practices to preserve local resources, and in particular to safeguard the specific local genetic traits that affect the quality of the GI product (Vandecandelaere, 2016).

When regulated under *sui generis* law, GIs represent a public standard that can generate interesting opportunities for public-private coordination and synergies in promoting and preserving the GI product and the associated local food culture. The GI process is a unique way to combine a market approach (collective IP and marketing tool) with the management of public goods (cultural and biodiversity heritage, quality, social cohesion, etc.). This very nature explains the capacity of GI processes to contribute to sustainable development in its three components (economic, social, and environmental) within a local food system approach (Vandecandelaere, 2016).

For these reasons, member countries in Africa are taking GIs into consideration as a tool for local sustainable development and food security, and on this basis, the African Union has called upon FAO to support the development of a Continental strategy on geographical indication. A first draft has been

discussed at a workshop held in Benin in May 2016, which will be followed by a plan of action for 2017-2022. This strategy foresees the development of an African approach to GI and builds upon the African experience in developing GI processes for products such as Penja pepper in Cameroon and Ziamamacenta coffee in Guinea. In order to gather further empirical evidence on the potential of GIs as a driver for sustainable development, FAO recently undertook a study to measure the economic impacts of GIs, based on ten case studies, with results forthcoming¹⁵.

- **Public-private-partnerships for enhanced growth and productivity outcomes¹⁶**

Innovative partnerships that bring together producers, agribusiness, 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 (MFA 2013; WEF and McKinsey and Company, 2013, IDS & IFAD 2015). Commonly referred to as public-private partnerships (PPPs) or public-private-producer-partnerships (4Ps), these initiatives are expected to contribute to the pursuit of sustainable agricultural development that is inclusive of smallholder farmers.

A recent review of 70 cases of agri-PPPs from 15 developing countries found that when carefully designed and executed, PPPs have the potential to deliver transformative improvements in growth and efficiency as major benefits (FAO, 2016d). From the 70 cases investigated, four common project types were 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. 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 Farmer Organizations, and generation of on- and off-farm employment. At the agribusiness firm level, benefits were reported in terms of increased sales and market shares and/or greater availability of raw material supplies. For public-sector partners, in addition to achieving socio-economic targets associated with the projects (e.g. value-addition, employment creation, food security), general benefits from involvement in PPPs included the strengthening of public-sector institutions and skills in project design and management.

Positive findings were identified to support the argument that PPPs as an institutional mechanism can help to pool and leverage funds from various sources to overcome the limited funding available in the public sector. The investment value of the PPP projects investigated ranged 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 used for pooling financing from both public and private sources were structured in different ways to suit the specific purpose of the PPP and included 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

¹⁵ This study builds on the results of the project GI-Econ-IMPACTS funded by FAO (2015) developed in collaboration with four Universities (ETH Zurich, Agricultural Economics Group; VetAgroSup, Clermont Ferrand; MontpellierSupAgro (MSA) and the School of Agricultural Studies of Angers within the specific framework of the Food Identity MSc). The project measured economic impacts of geographical indications through 10 case studies (Futog cabbage, Serbia - Taliouine Saffron, Morocco - Manchego cheese, Spain - Ryukyu Awamori liquor, Japan - Darjeeling Tea, India - Tête de Moine cheese, Switzerland - Poivre de Penja, Cameroon - Vale do Vinhos wine and Costa Negra shrimps, Brazil - Colombian coffee, Colombia - Kona Coffee, Hawai'i, U.S.A.).

¹⁶ Adapted from FAO, 2016 Public-Private-Partnerships for Agribusiness Development – A review of international experiences <http://www.fao.org/3/a-i5699e.pdf>

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. 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. However, not all studies have found the risk-management potential of agri-PPPs to be as positive. In their study of mega-PPP projects implemented in Africa, Oxfam (2014) found the potential for negative impacts on the rural poor to be high, with strong criticism of these projects for transferring unmanageable levels of risk to the most vulnerable partners in the agreement.

Overall, the findings were indeed less positive when the issues of inclusiveness and poverty reduction impacts were examined. While agri-PPPs can promote the inclusion of smallholders and SMAEs, based on the case-study findings, 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 were inconclusive as the cases investigated involved as few as five farmers and up to some 40 000 farmers each. 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 poorer farmers, rather than simply targeting those most capable of benefiting from partnership activities. The study confirmed that 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).

The success or failure of agri-PPPs was also found to be 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 SMEs are critical for the successful implementation of agribusiness PPPs. However, many of these issues fall outside of the purview of traditional PPP legislation, and 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 (FAO, 2014b).

Even in countries where a clear PPP institutional framework is in place, agribusiness PPPs might end up finding institutional venues other than the MOA such as the Ministry of Industry and Trade. 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. The cases confirmed that agri-PPPs struggle to fit into existing public institutional frameworks for PPPs which are often biased in favour of infrastructure projects. This difficulty is partly explained by the inherent traits of agri-PPPs, such as the lower scale of investment, less formal contractual arrangements and equity sharing, multi-stakeholder involvement and greater emphasis on social objectives, including food security and poverty reduction rather than value-for-money which is an essential selection criteria for other types of PPP projects in the health, education and infrastructure sectors.

However, as evidenced by the cases from Latin America, in particular the national agribusiness competitiveness programmes commonly referred to as “productive alliances” (*alianzas productivas*), a programmatic approach can have benefits over an ad hoc project approach (common for agri-PPPs identified in Africa and Asia), by reducing transaction costs and increasing transparency. 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 SMEs to leverage private-sector financial contributions and expertise. By using standardized procedures to reduce transaction costs, the formation of a critical mass of small- and medium-scale partnerships was achieved that would have been deemed too small and costly to be negotiated individually. These procedures helped the programmes to reach a larger farming and business base, thus reducing the risks of exclusion of small-scale actors including those located in post-conflict zones, and strongly contributing towards the achievement of rural transformation objectives including market access for smallholders and value-addition (CIAT, 2015).

- **Public food procurement as an enabler of rural transformation¹⁷**

Across developed and developing countries, public sector institutions such as schools, hospitals, strategic food reserve authorities, prisons, the military and development agency programmes procure vast amounts of food worth billions of dollars¹⁸.

Institutional procurement programmes (IPPs) are based on the premise that governments, using their authority and financial capacity to award public tenders, can go beyond the immediate scope of simply responding to the state’s procurement needs by, in tandem, also addressing social, environment or economic concerns of a state (Khi V. Thai 2009). In developing countries, IPPs are increasingly implemented to facilitate the transformation of local food systems. These programmes have, for the most part, focused on linking local production to national school feeding programmes, strategic food reserves and broader food security programmes. Notable IPPs in this regard are Brazil’s ongoing national school feeding programme (PNAE) and the Public Food Procurement Programme (PAA), and the United Nations World Food Programme’s (WFP) Purchase for Progress pilot initiative (P4P) (2008-2014).

This section of the paper summarizes analysis from eight country case studies based on the experiences of PAA, PNAE in Brazil and P4P in 7¹⁹ of its twenty pilot countries²⁰. The findings relate to

¹⁷ Adapted from FAO’s forthcoming publication on public food procurement and linkages to small actors in agriculture commodity value chains.

¹⁸ The government of Brazil for instance procured USD 1.7 billion in agricultural food commodities in 2013, using USD 278 million to procure food from 200,000 small local farmers and enterprises (Schwengber et al, 2015; Rovane Schwengber et al IPC Forthcoming).

¹⁹ Indicated by the countries in bold under footnote 20.

²⁰ Afghanistan, Burkina Faso, Democratic Republic of the Congo, **El Salvador**, **Ethiopia**, **Ghana**, **Guatemala**, Honduras, **Kenya**, Liberia, Malawi, Mali, Mozambique, Nicaragua, **Rwanda**, Sierra Leone, South Sudan, Uganda, **United Republic of Tanzania** and Zambia.

the policy, regulatory and institutional environment for IPPs, value chain bottlenecks in linking small actors to large public institutions, and implications for rural transformation.

Laying the foundations for IPPs – the role of policy, institutions and legal frameworks

Case evidence shows that three mutually reinforcing pillars that include (i) pro-poor national policies, (ii) aligned legislation and (iii) national multisectoral coordination platforms can help in laying a strong foundation for linking small rural actors to public food procurement programmes and accelerate rural transformation.

Since the 2008 food crisis, agriculture and development policies have increasingly placed rural small vulnerable actors at the centre of agriculture and development programmes, evidence of which has culminated in programmes such as the Comprehensive Africa Agriculture Development Programme (CAADP)²¹ or Guatemala's Zero Hunger Pact. The cases analysed showed that for IPPs and rural transformation more broadly, the effectiveness of these 'pro-poor' agricultural and development policies are hindered due in part to a lack of coordination between public institutions and national programmes. The Ghana²² and Tanzania²³ cases for instance reported complications for P4P operations due to overlaps in functions and mandates of Ministries and public institutions (FAO 2014c, d).

IPPs also typically have multiple objectives covering a range of goals that include food security, nutrition, market development, reducing post-harvest losses, and promoting sustainable production, emphasizing the need for a cross-sectoral approach. Brazil²⁴ and Rwanda²⁵ provide good examples in this regard. Brazil's Zero Hunger strategy, is a platform for coordinating numerous programmes on food security and rural development (FAO 2011). The platform was key in linking capacity building needs for small actors involved in the IPPs to ongoing national programmes²⁶ in the country. In Rwanda, good public coordination led to P4P participants receiving training from the government's ongoing National Post-Harvest Staple Crop Strategy, and also provided opportunities to supply the national strategic grain reserve beyond WFP involvement thus enhancing sustainability of the programme (FAO 2014e). In other countries where effective national coordination was absent, IPPs operated in isolation of national programmes and were obliged to invest more in direct capacity building for small actors, thus increasing the cost of the programmes to national budgets.

The importance of aligning 'pro-poor' national policies to procurement policies with necessary legal reforms was also highlighted. IPPs require a preferential policy linkage between public food procurement and the 'public good' goals of IPPs. To be actioned, practical changes to the national public procurement legal framework are often needed. For example Kenya's vision 2030²⁷ under CAADP, provided a clear 'pro-poor' policy reference for the creation of a preferential policy linkage between its Home-Grown School Feeding programmes and smallholder production. Schools have struggled to take advantage of the preferential linkage²⁸ however, due to the absence of accompanying legal reforms to national procurement policies which impose procedural obligations that smallholders are unable to meet²⁹ (FAO 2014f).

An enabling environment for IPPs, created by the alignment of the three pillars outlined above, can have spillover and catalytic benefits for other rural development programmes and for rural

²¹ More background and information on the CAADP process can be found at <http://www.nepad-caadp.net/>

²² The following provides the link to the Ghana case <http://www.fao.org/3/a-bc573e.pdf>

²³ The following provides the link to the Tanzania case <http://www.fao.org/3/a-bc576e.pdf>

²⁴ The following provides the link to the Brazil case <http://www.fao.org/3/a-bc569e.pdf>

²⁵ The following provides the link to the Rwanda case <http://www.fao.org/3/a-bc575e.pdf>

²⁶ Such as linkages to the National Programme for the Strengthening of Family Farming (PRONAF).

²⁷ More information on Kenya's vision 2030 strategy can be accessed at <http://www.vision2030.go.ke/>

²⁸ At the time of the case appraisal.

²⁹ The following provides the link to the Kenya case <http://www.fao.org/3/a-bc574e.pdf>

transformation as a whole. For instance, under the auspices Brazil's law on 'family farming,' a common definition for 'family farmer' was needed to support the implementation of the country's IPPs. This definition has also enabled more accurate alignment between broader development policies and farmers' needs, and more efficient programmatic targeting (FAO 2015c).

Matching supply and demand – lessons from IPP value chains

On the supply side of the value chain, one of the main differences for smallholders supplying an IPP, compared to other market outlets, is the 'soft' introduction to formal markets and the support provided to improve capacity to respond to public sector institutional demand. On the demand side of IPPs, value chain activities involve institutional procedures related to orders, tenders, contracts, storage, logistics, payment systems and catering in the case of schools. One of the main bottlenecks cited across all cases³⁰ was irregular demand on the part of the public buyer, due to a reliance on public funding. WFP for instance is dependent on donors' contributions linked to emergency situations, which make it difficult for the Organization to commit to regular orders from smallholders.

Linked not only to the 'red-tape' emblematic of public institutions, but also to the *modus operandi* of many large-scale private agribusiness retail firms, are the long payment processes which were highlighted as a challenge in all cases. Typically small rural actors in developing countries are accustomed to doing business on a 'cash-in-hand' basis. Transitioning to a system where payment may take 15 to 30 days, or longer following delivery is difficult to implement. Reasons identified for long payment processes included complex financial procedures designed for procurement from large traders, a lack of modern banking infrastructure and the informal financial status of small actors (e.g. no bank accounts)³¹ (FAO 2014f).

To conclude, case lessons demonstrate the valuable role that IPPs can play as learning paths for familiarizing small actors with the demands of formal buyers that can ultimately help them to transition into viable commercial actors with key roles to play in agrifood systems development. For example, WFP's final evaluation reported that based on data from 16 countries, commodities sold to markets by P4P participants beyond the WFP P4P period totalled over 156,000mt valued at US\$60 million (WFP and Oxford Policy Management 2014). IPPs were also found to contribute to the proliferation of 'farmer markets' in Brazil as an important addition to local food retailing (Sparovedk, Plata et al. 2007, Pandolfo 2008, Vogt and Suza 2009, Vannuchi and Reinach 2012 in FAO 2015).

IPPs can also act as important catalysts in transforming the policy and legal environment and food procurement norms originally designed for large private sector actors. This nexus is crucial if IPPs are to be sustainable drivers of rural transformation. But in doing so they need to be designed and implemented in close collaboration with the private sector, benefitting also from cross-sectoral coordination with other institutions and policies responsible for agri-food chain development.

- **Investment and financial tools as a catalyst for rural transformation**

As a cross-cutting tool of critical importance for stimulating rural transformation at all nodes of the value chain, this final section reflects on the current status of public and private investment in agriculture and the need for greater coordination between the domestic and foreign agribusiness sector, the formal financial sector, and the public sector to address financing needs. Some examples of the more innovative approaches toward financing are also given that have emerged to address some of the gaps in current service provision.

Investing in agriculture has historically been considered risky and unpredictable, due to a combination of inherent factors, such as the following: 1) agribusinesses are dependent on biological processes and climatic conditions that are difficult to mitigate and insure against; 2) the sector faces fragmented

³⁰ All cases can be accessed at <http://www.fao.org/ag/ags/ivc/institutional-procurement/en/>

³¹ See section 3.3 Access to finance of the Kenya case <http://www.fao.org/3/a-bc574e.pdf>

input and service markets that can lead to failures in coordination among value chain agents, over which investors have little control; 3) it has bulky, seasonal, and long-term financing requirements that financial institutions find hard to satisfy; 4) there are weak property rights for factors of production such as land and water; and 5) agriculture has a long history of political interventions that crowd-out the private sector.

Despite the risks, in recent decades agricultural investments have received increasing interest from domestic and foreign private actors, as a result of a variety of trends in developing countries discussed in Part 1, such as increased food demand due to population growth, growing urbanization rates and changing diets due to greater purchasing power, and an increase in bio-fuel consumption. All these elements have driven up food prices and subsequently increased the attractiveness of investing in agriculture.

The rising interest in agricultural investment from the public and private sector contrasts with the very limited role formal financial actors have played so far in providing financial services to agricultural actors, especially rural smallholders and small and medium agricultural enterprises (SMAEs). Considering the agricultural sector's importance in developing countries' economy, the relative low exposure of the formal financial sector to agriculture contributes to the notion that there are still many feasible investment opportunities which are not being seized by actors within agricultural value chains, due to the lack of appropriate funding. This translates into an aggregate underinvestment scenario, which affects most agricultural systems in developing countries.

Figure 2 at the end of this section shows a comparative dataset analysis of the sources of agricultural investment in selected low-and-middle income countries (LMIC). It is evident from the data that domestic private sector investment has the lion's share in overall investment in agriculture. It exceeds by four times the annual flows to agriculture from governments (the second largest category) in developing countries. The remaining categories, official development assistance to agriculture (ODA), foreign direct investment (FDI), and public spending on agricultural R&D, are all sizably smaller than either private domestic investment or public government spending. It has to be underlined how foreign direct investment, which plays a minor role as an investment source in the overall scenario, is usually associated with the largest individual investments, and as such is often the most evident and visible investment. This contrasts with the situation in the private domestic sector, which is normally composed of a fragmented constellation of micro, small and medium investments.

Local domestic actors tend to be those best able at identifying and seizing investment opportunities in the agricultural sector, since they possess critical information advantages about the complexities of agricultural markets and the various dynamics between value chain actors, deriving from their unique perspective from within the field. However, the composition of this group of domestic investors tends to be highly heterogeneous, consisting of smallholder farmers, as well as medium and large farmers, who are often neither well-organized nor able to effectively lobby domestic policymakers about their needs.

The growth potential in the agricultural sector can and should therefore be gained by closer coordination and interaction among different categories of actors: the domestic and foreign agribusiness sector, the formal financial sector, and the public sector. The lack of collaboration and information exchange among these actors generates missed investment opportunities that have the potential to generate increased benefits to SMAEs and smallholder families. Each of these categories of actors holds different competitive advantages when it comes to investing in agriculture; at the same time, they all need each other to compensate their inherent weaknesses in order to recognize and exploit the different investment opportunities that the agricultural sector offers. No single investor can cope with all the different pre-investment requirements in the sector, or benefit by itself from the public goods made available by governments and public agencies, since these most often go beyond his individual capacity. From a more general perspective, the lack of an enabling environment plays

an essential role in limiting collaboration between public and private actors, heightening the perception of risk associated to investing in the sector and discouraging investment.

Because of the challenges in financing and investing in agriculture, in many developing countries the increased demand for agricultural financial services, motivated by the growth in agricultural markets, has not generally been met by formal financial institutions. As already mentioned, the underserved agricultural financial market has been partially filled by non-financial actors within the value chain (e.g. wholesalers, processors, producer organizations). These actors can respond to the financing gap due to their unique informational advantage, resulting from their direct business engagement within the value chain. The downside, nevertheless, is that the lack of financial specialization of these actors has resulted in financial services which are expensive, neither diverse or flexible, and available only to a small part of the rural population linked to the respective value chains.

In recent years, an increasing number of pioneering financial institutions have begun to demonstrate that providing financial services to rural populations is both possible and profitable, when drawing on the informational advantage and specific expertise of value-chain actors and non-specialized financing agents. For example, by adopting a value-chain financing (VCF) approach, it is possible to develop innovative financial solutions to bridge the gap between formal financial institutions and value chain actors, thus overcoming the challenges in servicing underserved or excluded segments of the clientele within the agricultural sector.

The VCF approach considers the collective set of actors and processes within the totality of the value chain in order to make financing decisions, instead of focusing on the single lender-borrower relation as conventional finance does. In other words, the approach adopts a systemic viewpoint that takes into account the organic collective of the business relationships within the chain, more than the creditworthiness of the single actors. Value chain financing can be divided between internal finance (the financial flows between the chain actors), and external finance (the flows from financial institutions into the chain), as well as a combination of both (Miller and Jones, 2010).

An example of an innovative financial product and service that leverages the relationships within the value-chain is warehouse receipt financing. Warehouse receipt finance builds on the value chain financing methodology to provide post-harvest financing to smallholders. Through a warehouse receipt system farmers have the option after harvesting to store their crops in an independently controlled warehouse, pledging the crops to a bank or MFI in exchange for credit. The stored product that is used as guarantee for financing is backed by a receipt, which is redeemable for warehouse inventory of the same quality and value as what is written on the receipt itself. Without this system, farmers would normally have to sell their crop right after harvest, without benefitting from any price recovery. A warehouse receipt system therefore increases the negotiating power of farmers, who can decide to store their harvest in the case where current market prices do not satisfy their needs. The use of harvest as collateral benefits especially smaller traders, who typically do not possess adequate collateral as required for borrowing by conventional banks (IFC, 2011).

There are many benefits to this approach: management and mitigation of price risk; reduction of crop losses; increased flow of credit in supply chains; independent grading and quality certification of crops (performed by the warehouse operator when the commodity arrives); improved attention to crop quality given by farmers, due to the quality grading step. On the other side, the risk of fraud or collusion is particularly high, as well as storage risk and credit risk, especially if the legal environment of the host country is weak and does not allow for easy enforceability of the stored security.

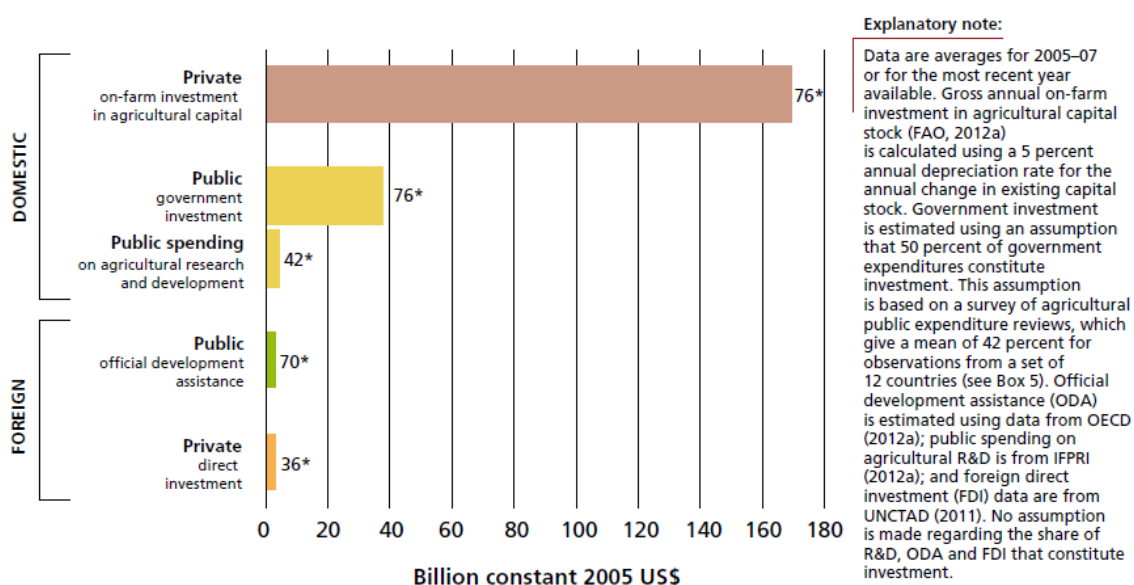
Besides warehouse financing, there are several other specific agricultural finance products, such as factoring and reverse factoring, leasing, insurance (especially index-based insurance), commitment savings, and repurchase agreements (Miller and Jones, 2010).

To conclude, an increasing number of innovative experiences can be witnessed in developing world agriculture related to the delivery of a wide set of agricultural financial products -and other investment vehicles- which are on average more inclusive of poorer rural families dependent on agriculture. Nevertheless, achieving this higher level of inclusion is greatly dependent on a set of pre-existing factors. These include the presence of enabling financial and agricultural environments, as well as the ability of a diverse set of stakeholders (such as formal financial institutions, producer groups, domestic and foreign agribusiness firms, and public agencies) to develop win-win collaboration models which can pool and channel the individual strengths of these actors, with the aim of delivering flexible financial services and properly managing investment risk.

However, these innovative experiences remain the exception rather than the norm in the context of developing countries, as systematic partnerships between stakeholders face strong constraints that curtail their creation. These barriers relate to the significant transaction costs faced by the public and private actors involved, who operate in widely different professional networks and are often incapable of recognizing the other parties' comparative advantages, thus finding it challenging to identify feasible collaboration models. As a consequence of this lack of collaborative efforts, the present-day scenario in agricultural investment remains one of major underexploited opportunities.

Figure 2.

Investment in agriculture in selected low- and middle-income countries, by source



* Number of countries.

Source: Lowder, Carisma and Skoet, 2012.

Part 4: Challenges and related policy recommendations

Discussion of the tools and policies presented in Part 3 clearly highlight a number of cross-cutting challenges that need to be addressed to further support smallholders, private agribusiness firms and governments in their plight to achieve rural transformation objectives associated with the growth of the agrifood industry. Without attempting to be exhaustive, some of the major cross-cutting issues identified can be summarized as follows:

- **Enabling environment issues restricting private sector investment**

Many of the tools identified in Part 3 make reference to the overly burdensome regulatory requirements placed on agribusiness firms, the incomplete legal framework to support inclusive commercial transactions in the sector (e.g. contract farming and smallholder involvement in IPPs) or the lack of supportive public goods (e.g. R&D, extension services and hard infrastructure) that many agribusiness firms in developing countries face when attempting to establish and grow their business. These factors (and others) contribute to a general lack of conducive environment for greater private sector investment in agriculture and related agro-industries and need to be addressed on a country-by-country basis (FAO, 2013c). The World Bank *Enabling the Business of Agriculture* indicators (2016) aim to measure regulations that impact firms in the agribusiness value chain and provide data and analysis that allows policy makers to compare their country's laws and regulations with those of others. The objective is to help countries to identify the enabling environment factors that are inhibiting potential growth outcomes associated with commercialization of agriculture and agro-industrial development and to promote smart regulations— i.e. regulations that strike the right balance in ensuring proper enforcement of essential safety and quality control while avoiding excessive regulatory burdens for value chain players (World Bank, 2016). Several of the tools highlighted in Part 3 such as the territorial approaches to agro-industrial investment, value chain development PPPs and public procurement programmes have reported positive effects on addressing some of the regulatory challenges faced by agribusiness firms by improving the first-hand experience and understanding of the public sector of these challenges through implementation of these programmes.

The role of SMAEs has been highlighted in various sections of this paper as critical drivers of rural transformation that greatly contribute to the inclusive commercialization of domestic value chains. However, being small actors, SMAEs face a number of specific enabling environment constraints. These may range from high costs of formal registration and other administrative procedures relative to their turnover, lack of specialized technical expertise to adopt food safety and quality standards and lack of access to financial and business services. One recommendation to government to ease the regulatory burden on SMAEs is to tailor the introduction of new registration or licensing requirements, stricter financial reporting rules or food safety and quality standards in phased stages to give small actors time to adjust to these policies (Kuyvenhoven, 2004). Supporting investments in infrastructure, agribusiness finance, risk management and capacity building should also accompany these changes to ensure a smooth transition towards regulatory compliance (Kuyvenhoven, 2004). Given the important role that they play in driving transformation in the sector, there is also a need for strengthening of national commodity and private sector associations for SMAEs and FOs to ensure that their voices are heard in policy debates and strategic planning exercises for the future growth of the sector (see FAO, 2009c).

- **Governance issues**

An FAO study of 17 cases of institutional models used by developing countries to provide public support for inclusive agribusiness development highlighted clearly that MoAs are increasingly struggling to rise to this challenge (FAO, 2014). The study found that there is a strong need for cross-ministerial coordination to formulate effective policies that target the entire agrifood system rather than maintaining an upstream focus on farm production. Similar challenges have been recognised regarding coordination between national and decentralized levels of government, with little evidence of feedback loops filtering upwards to national levels to inform policy makers of successes and failures from local-level implementation of agrifood development initiatives. In countries that are strongly pursuing decentralization strategies (e.g. several countries in Southeast Asia) this represents a major challenge for designing effective policies to govern the overall strategic direction of the sector. In addition, it is commonly acknowledged that much greater direct engagement in dialogue is required between the public and diverse agribusiness private sector actors (e.g. FOs, SMAEs, large-scale

domestic and foreign enterprises, private financial service providers) to better understand the issues inhibiting agro-industrial growth and improve the design and targeting of supportive policies along the various stages of the value chain.

- **Financing issues**

As highlighted in Part 3, to date, the formal financial sector has played a limited role in providing financial services to agrifood actors in developing countries with the vast majority of investment stemming from the domestic private sector. The lack of an enabling environment for private investment often means that risk and associated transaction costs are considered too high to stimulate the necessary investment to take advantage of emerging opportunities within the sector. Public-private-partnerships provide one mechanism to reduce some of the risks to private sector partners by allowing for the pooling of resources and transfer of some risk away from both producers and downstream agribusiness firms particularly when coupled with risk management tools such as contract farming and agricultural insurance. Value chain financing instruments have also emerged as private sector initiatives with the potential for delivering positive outcomes for agro-industrial growth, and as such should be supported by government through provision of necessary regulatory and legal systems which allow these tools to function without direct government intervention.

- **Need for market-oriented infrastructure**

Transformational trends occurring in the agrifood system translate into specific requirements for supporting market-oriented infrastructure at all levels of the chain. This includes farm-to-market roads, irrigation services, electricity grids for agro-processing, and market facilities such as wholesale markets, storage and collection centres that can be tailored to the needs of smallholders and SMAEs to consolidate products and reduce transaction costs. Again here, PPPs provide a useful institutional mechanism to address some of these challenges by reducing the public financial burden on governments and improving the potential for sustainability and acceptance by users by allowing for private sector management (FAO 2008, FAO 2016d).

- **Skills deficit limiting agro-industrial growth**

The upgrading of the agro-industry sector requires the modernization of agricultural curricula in universities and cross-sectoral collaboration between the Ministries of Education, Agriculture and Trade, farmer organizations, agro-industry representatives and tertiary institutes. Evidence from FAO's field programme on value chains shows that there is generally a lack of 'home-grown' agribusiness professionals which agro-enterprises can tap into in order to upgrade or complement in-house capacities. The bottom-up capacity building approach commonly applied by the agricultural sector is dependent on time and resource-bound projects and programmes. To improve the general supply of agribusiness professionals across the entire agricultural sector from farmer organizations and rural agro-enterprises up to public institutions, universities and agricultural colleges need to be included in the dialogue and strategic planning exercises for the sector.

This approach requires the modernization of agricultural curricula taught in universities and agricultural colleges so that young professionals are equipped with skills and knowledge to implement locally sensitive responses to meet the demands of the agrifood sector. To achieve this, the public sector could catalyse cross-ministerial dialogue between the Ministries of Education, Agriculture and Trade, in collaboration with farmer apex organizations, agro-industry representatives and tertiary institutes. Outputs from this dialogue could inform a long-term strategic vision which maps a modernization approach towards national curricula on agriculture and agribusiness which will respond to the needs of the sector.

- **Under investment in agricultural and food technology research**

As the midstream and downstream actors of the agrifood value chain strive to capitalize on market opportunities created by the increasing demands for processed food driven by urbanization and changes in diet, increasing pressure will be placed on upstream actors in developing countries to produce more from less. Public and private investment in research and development will be required at all levels of the value chain to develop innovative solutions to address challenges associated with climate change impacts, increased energy and water costs from food processing operations, and food technology solutions to preserve and improve the nutritional value of fresh fruit and vegetables, meat, fish and processed foods.

Part 5: Conclusions and the way forward

The diversity of agribusiness tools and policies discussed in Part 3 paint a somewhat mixed picture of their success in contributing towards the achievement of agrifood industry-based growth and rural transformation objectives including poverty reduction, employment creation and value addition. What is clear however, is that the demand trends discussed in Part 1 and 2 of this paper that are driving the emergence of these approaches, are unlikely to change in the future. Therefore any attempts (both qualitative and quantitative) to document and share learnings from context-specific experiences are likely to be beneficial in improving our understanding of the challenges associated with promoting, guiding and intervening in rural transformation processes designed to stimulate agrifood industry development.

In terms of the role to be played by FAO in supporting member countries to achieve agrifood industry transformation objectives, several entry points exist. Further normative research is needed in a number of areas to help member countries better understand the trends occurring in the midstream and downstream elements of the agrifood chain, and the potential that these trends have to drive productivity growth in the whole agrifood system if public policies and investments are carefully targeted and greater public-private collaboration can be achieved. Among a number of potential topics, this could include building the empirical evidence on the key role that SMEs can play in driving the transformation process in less developed countries, and the impact that vertical coordination mechanisms including contract farming, participatory guarantee systems and other inclusive business models can have on the achievement of inclusiveness and poverty reduction objectives. Similarly the role that public procurement and PPPs can play in helping less experienced smallholders transition into the role of more commercialized suppliers, is another area that warrants further analysis.

Direct technical support to agribusiness and agro-industry field projects as well as support to member-country governments for agro-industry policy analysis will continue to be delivered where possible, based on demand-driven requests from country and regional offices in line with FAO's Strategic Objective 4 to "Enable inclusive and efficient agricultural and food systems" and related implementation programmes. As part of this programme of work, greater integration could also be sought between the agribusiness (value chain and nutrition), rural finance and agro-industries policy work, the work on trade and markets and food safety and food quality to ensure that a holistic approach towards agrifood systems research is also achieved within the organization.

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