



RURAL INFRASTRUCTURE AND
AGRO-INDUSTRIES DIVISION

Country case studies

Africa



AGRIBUSINESS
PUBLIC-PRIVATE
PARTNERSHIPS

A country
report of
Kenya





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Preface

It is recognized that high levels of investments are required to unleash the potential of agriculture for sustainable development and poverty reduction in developing countries. However, in recent decades, many countries have decreased their relative budget allocations to the agricultural sector, yet at the same time, the expected increase of private sector investments and the associated efficiency improvements have not been forthcoming. The high risk (actual and perceived) of doing business in agriculture often deters private sector participation in agrifood sector investments. Against this backdrop, public private partnerships (PPPs) are being promoted as an important institutional mechanism for gaining access to additional financial resources, sharing risks, and addressing other constraints in pursuit of sustainable and inclusive agricultural development.

While various forms of collaboration between the public and private sector have existed for some time, there is limited systematic information available about the current experiences and best practice for using PPPs to initiate agricultural programmes. In addition, despite a surge of interest in PPPs in the agricultural sector in recent years, there remains significant variation in the type of partnerships involved; and poor documentation of the real potential for PPPs to deliver on commonly stated objectives associated with rural employment and income generation, food security and increased agricultural competitiveness.

In 2010, FAO initiated a series of appraisals of PPPs implemented in 15 countries in Africa, Asia and Latin America. The primary objective was to draw lessons that can be used to provide guidance to member countries on how to partner effectively with the private sector to mobilize support for agribusiness development. On this basis, a specific sub-set of PPPs were selected which conformed to two key criteria: each PPP must involve an agribusiness enterprise; and a formalised relationship between specific public and private partners must be in place. There should also be an expectation of positive societal impacts as a result of the partnership.

Seventy individual case studies have been profiled and details provided on the circumstances that led to their formation, management and performance to date. The partnerships analysed cover different topics and intervention areas and involve different types of arrangements and actors. Particular attention was given to the identification of specific roles and functions for each of the partners, including roles in governance, implementation and monitoring. Key results of the study include identification of the factors that influence success or failure in the development and implementation of PPPs, and best practices for creating an enabling environment for increased investment in agriculture through the PPP mechanism.

FAO is publishing this series of case studies of agribusiness PPPs as a contribution to enriching knowledge and sharing information on this type of mechanism for informed decision making on investment promotion for engendering agrifood sector development.

Executive summary

With Africa's growth in GDP being benchmarked on agribusiness development, the time is opportune to accelerate agribusiness PPPs as proposed in the African Agribusiness and Agro-industries Development Initiative. The Declaration of the High Level Conference on African Agribusiness and Agro-Industries (HLC-3A) in March 2010 in Abuja called for concerted efforts to accelerate agribusiness development by developing institutional mechanisms in the form of agribusiness public private partnerships (PPPs). But PPPs in most African countries are stronger in the energy and infrastructure sector and are still an evolving concept in agribusiness. Thus, the purpose of this study was to appraise selected agribusiness PPPs in Kenya as a contribution towards an African-wide study on agribusiness PPPs commissioned by The Food and Agriculture Organization of the United Nations (FAO) in collaboration with the United Nations Economic Commission for Africa (UNECA).

This appraisal will guide the development of practical guidance for technical officers in both the public and private sector for successful development and implementation of agribusiness PPPs. Case studies are selected from five African countries: Ghana, Kenya, Nigeria, Tanzania, and Uganda. In Kenya, four agribusiness PPPs were selected for appraisal; they were reasonably advanced in the provision of inputs, value-addition through agro-processing, technology transfer through commercialization and contracting and warehousing. The cases are:

- The Warehouse Receipt System (WRS) – a partnership between East African Grain Council (EAGC), donors, Equity Bank, warehouse operators and depositors, insurance firms, and the National Cereals and Produce Board (NCPB). The PPP involved warehouse receipting as an alternative approach to grain marketing in the East African region. Contractual law has been utilized here to manage the system.
- The BIOFIX project – a commercialization PPP which involved licensing of a private fertiliser company (MEA Ltd) to undertake mass-production and marketing of a technological output from a public institution (University of Nairobi). The partnership was brokered by the British Council, which also provided funds in the form of grants, to both University of Nairobi (UoN) and MEA. The PPP exemplified a model for deploying technologies from public research institutions that could spur agribusiness and create employment.
- Striga eradication project – which is a consortium of public research institutions (international and local), NGOs and private companies (multinationals and a local company), which have put resources together to deploy technology from a collaborative project. This case study highlights evolving partnerships and cascading innovations, to optimize new opportunities or overcome challenges as a result of implementing this PPP.
- KEVIAN Fruit Processing – this PPP involves two key stakeholders, the public (a donor agency) and a local private company. Co-financing of various activities led to the sustainability of this PPP.

All the reviewed case studies are relatively concentrated in three main areas: commercialization, value-chain development and contracting. The main goals advanced by these four PPPs include: increased employment, improvement in rural incomes and poverty reduction.

The PPP oversight mechanism is still a thorn in the flesh for all the reviewed PPPs. The regulator, coordinator, and leadership role seem to have been overlooked. Yet this role is crucial for successful implementation. Findings show that the party which bears most risks takes the leadership role, which is often the private sector. Except for the WRS PPP, it is still not clear how the co-ordination and regulation of the selected agribusiness PPPs is organized. Consequently, there is a lack of consistency in collecting and collating quantitative data to measure impact despite performance measurements in the project design.

It is still challenging to develop binding contracts due to the inability to quantify risks associated with coordinating diverse partners and interests; protecting the distinct mandates, missions and centres and firms reputations; and exchanging proprietary knowledge assets between the public and private sectors. In addition, the agribusiness PPPs also face risks which are difficult to explicitly specify before signing

contracts, which often leads to non-binding contracts. These risks include: supply risks, demand risks, payment mechanisms (in terms of regularity and price stability) and compensation risks (for example, in the case of product loss or market rejection). The effectiveness of a given PPP is not only based on its implementation but also sustainability elements built in the PPP from the preliminary stages of its development. These include: an appropriate legal and regulatory framework, suitability assessment, selection of the PPP type, structure and design, agreement of the oversight body, funding, competitiveness of the procurement process and the actual implementation.

In terms of legal basis of PPPs, the Kenyan study has revealed variance between the legal definition of PPPs and the actual agribusiness PPP appraised models, creating a bone of contention towards narrowness of the government's definition of PPPs. Another regulatory requirement which agribusiness PPPs in Kenya seem to move away from, is that the line ministries initiate, develop, and steer PPP projects until they are approved and then open them to competitive bidding to potential private parties to achieve value for money, spread benefits and ensure cost-effective risk allocation. None of the selected four case studies complied with this requirement. The intermediating body (often the financier or the party which mobilizes most resources) seems to not only initiate the process but also end up undertaking the coordination role, which in the government's prescription should have been undertaken by an independent PPP oversight body. This situation leads us to the question: How should financing for agribusiness PPPs be organized to include commercial viability and sustainability elements? Despite the failure to comply with all PPP guidelines as set out in the Public Procurement and Disposal Act (PPP regulations of 2009), all the agribusiness PPPs reported having signed formal partnership agreements with formal institutions, but left room for development of other agreements such as sub-contracting to private parties.

The study has shown that donor or government support (or "upstream" support) may be necessary for initial technology development. Alternative financing, such as credit access, should be considered downstream for eventual deployment and sustainability of the PPP initiative beyond the project life. On the other hand, during implementation of one agribusiness PPP to address a particular challenge, other challenges and opportunities sprang up due to the various expected but also unforeseen outcomes. This resulted in new partnerships and entrepreneurship.

Achieving effective partnerships requires strong political support and government's commitment through policy and supportive infrastructure development such as roads, ports, irrigation infrastructure, cereal banks, warehouses, acquisition of machinery and others. Stakeholders are optimistic that the government's support will help the development and enactment of a policy and legal framework for PPPs, and warehousing and agribusiness policy in general. The government has conceptualized flagship PPP projects in Vision 2030. For others PPPs the partners are at the initial stages of implementation. These projects will indirectly trigger agribusiness development and eventual PPPs in the agriculture sector.

The PPPs in Kenya are still an evolving concept and must be adapted to the specific characteristics of the sector in question. Although common spaces should be identified, the PPP should leave room for the changes inherent in agribusinesses and new opportunities that emerge. The public sector sees potential for raising additional capital from the private sector to reverse the continuing trend of reducing budgetary allocation to the agriculture sector. In contrast, the private sector is a bit sceptical about its involvement in agribusiness ventures unless the government shifts its role from intervening through inappropriate policy directives which alter supply and demand to create the necessary institutional framework for efficient markets. The shift should trigger linkages, lead to development of the entire commodity value chains, and eventual growth in agribusiness.

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Acronyms

3ADI	African Agribusiness and Agro-industries Development Initiative
AATF	African Agricultural Technology Foundation
ADI	African Agribusiness and Agro-industries Development Initiative
AKTP	African Knowledge Transfer Programme
ARDAP	Appropriate Rural Development Agricultural Program
ASCU	Agricultural Sector Coordination Unit
ASDS	Agricultural Sector Development Strategy
CAADP	Comprehensive African Agricultural Development Programme
CGA	Cereal Growers Association
CIMMYT	International Maize and Wheat Improvement Center
EAGC	East African Grain Council
ECA	Economic Commission for Africa
ERS	Economic Recovery Strategy for Wealth and Employment Creation
ESP	Economic Stimulus Program
FIST	Farmer Investment in Striga Technologies package
FORMAT	Forum for Organic Resource Management and Agricultural Technologies
FSD	Financial Sector Deepening Trust
GDP	Gross Domestic Product
GoK	Government of Kenya
GTZ	German Technical Cooperation
HLC-3A	The Declaration of the High Level Conference on African Agribusiness and Agro-Industries
IPR	Intellectual Property Rights
IR	Imazapyr-Resistance
IT	Information Technology
KACE	Kenya Agricultural Commodity Exchange
KAPAP	Kenya Agricultural Productivity and Agribusiness Program Agricultural SHoMAP Innovation Program, Smallholder Horticulture Marketing Project
KARI	Kenya Agricultural Research Institute
KCC	Kenya Cooperative Creameries
KEBS	Kenya Bureau of Standards
KENFAP	Kenya Federation of Agricultural Producers
KEPHIS	Kenya Plant Health Inspectorate Services
KEPSA	Kenya Private Sector Alliance
KMDP	Kenya Maize Development Program
LARMAT	Department of Land Resources Management and Technology
M&E	Monitoring and Evaluation
MESPT	Micro Enterprise Support Programme Trust
MIRCEN	Microbial Resources Centre Network
MoA	Ministry of Agriculture
NAAIAP	National Accelerated Agricultural Inputs Access Programme
NCPB	National Cereals and Produce Board

NGO	Non-Governmental Organization
NMK	Njaa Marufuku Kenya, “Eliminate hunger in Kenya”
NSE	Nairobi Stock Exchange
PPPs	Public-Private Partnerships
PS	Permanent Secretary
PSDA	Private Sector Development in Agriculture
PSDS	Private Sector Development Strategy
R&D	Research and Development
RATIN	Regional Agricultural Trade Intelligence Network
RPK	Resource Projects Kenya
SARI	Savannah Agriculture Research Institute
SHDP	Smallholder Horticulture Development Project
SHOMAP	Smallholder Horticulture Marketing Project
SRA	Strategy for Revitalizing Agriculture
STEP	Striga Technology Extension Package
ToR	Terms of References
UNECA	United Nations Economic Commission for Africa
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UoN	University of Nairobi
USAID	United States Agency for International Development
WEMA	Water Efficient Maize for Africa
WRS	Warehouse Receipt System
WSC	Western Seed Company

Chapter 1

Introduction

The central role of agriculture in African economies has informed the agenda for many and varied stakeholder forums within Africa and beyond, and national and ministry-level strategic plans. Investment in agriculture is expected to spur economic development since it would generate funds to invest in other sectors of the economy. This would lead to wider gains for the economy as a whole. African governments endorsed the Abuja declaration of March 2010, to support implementation of African Agribusiness and Agro-industries Development Initiative (3ADI)¹.

The main objective of 3ADI is to increase private sector investment flows going into the agriculture sector by mobilizing resources for agribusiness and agro-industrial development from domestic, regional, and international financial systems². The 3ADI initiative is located in Pillar II of the Comprehensive African Agricultural Development Programme (CAADP), whose theme is “improving rural infrastructure and trade-related capacities for market access.” The need to pursue public-private partnerships (PPPs) is considered fundamental, whereby synergies are drawn from both public and private sectors to accelerate agribusiness development. PPPs are envisaged to overcome challenges facing Africa’s agriculture which include inefficient production and marketing systems, limited value-addition and limited storage capacity. These factors make Africa’s exports less competitive on the global market.

In Kenya, the Agricultural Sector Development Strategy (ASDS 2010-2020) states that the PPP approach will be embraced to accelerate growth in agribusiness and economic development. The agricultural sector is among the six priority economic sectors identified in Kenya’s Vision 2030 where 21 flagship projects will be implemented. Agricultural projects cut across the agricultural

value chain, policy and legal frameworks and institutional reforms (Kenya Investment Authority, 2006). Since the PPP methodology was adopted, there has been a general push for formation of apex bodies by traders, producers and exporters, through which PPPs would be implemented. In addition, the government and donor organizations have given funds for capacity-building forums for stakeholders to increase the number of PPPs. Although the PPP concept has been internalized in Ministry of Agriculture (MoA), it is yet to be operationalized – partly because the public element is still unclear within the government.

The formal PPP models started in late 1980s and early 1990s in the developed world largely in the transport, water, waste management and energy sectors. Increasingly, developing countries have embraced the PPP approaches. Developing countries have mainly used PPPs to develop physical infrastructure such as road infrastructure and energy schemes. The countries are in the process of formulating appropriate legal and regulatory frameworks to create enabling environment for PPPs (Ong’olo, 2006).

Although there are few examples of agribusiness PPP initiatives in Africa, there is a general consensus among the heads of states to support agribusiness PPPs development and thus minimize the risks facing agribusiness enterprises. In this regard, FAO/UNECA, among other key stakeholders, saw the need to translate the general principles behind PPPs into practical guidance for the technical officers of ministries of agriculture, ministries of commerce, and finance that deal with the agribusiness sector. The officers can learn from existing agribusiness PPPs which is the purpose of this study in Kenya.

1.1 OBJECTIVES AND SCOPE OF THE STUDY

The Kenyan study focuses on four agribusiness public-private partnerships which cut across the agricultural value chains – involving enhanced input access, warehousing and value-addition through processing. The selected case studies have been in existence for 2-4 years, contribute to agribusiness development, have mobilized resources

¹ The participants in the High Level Conference on Development of Agribusiness and Agro-industries in Africa were FAO, UNECA, UNIDO, IFAD, African Union Commission, African Development Bank and the hosts, Government of the Federal Republic of Nigeria.

² <http://www.HLCD-3A.ORG>

of not less than US\$100 000 and involve some degree of contractual and equity (including joint ownership) arrangements between public entities and private agribusiness enterprises. Each case study is appraised in terms of its key features, development of the PPP, management and operations and its performance and development outcomes. These four case studies will be discussed in detail in chapter four.

1.2 METHODOLOGY

This study was based on reviews of secondary data and key informant interviews. The desk reviews focused on appropriate government publications, research publications of PPPs, legal documents, project reports and communications. The key informant interviews were conducted with representation from key stakeholder groups (the Ministry of Agriculture's Agricultural Sector Coordination Unit and the Agribusiness department, the PPP unit housed in the Ministry of Finance, the Agriculture Sector Board of Kenya Private Sector Alliance (KEPSA) and representatives from various stakeholders for each of the selected agribusiness PPP). Key informant interviews analyzed the contributions of stakeholders in the PPP process and also provided an overview of the facilitative or prohibitive policies that have influenced the PPPs and their outcomes.

1.3 ORGANIZATION OF PAPER

This paper is organized into six chapters. Chapter one is the introduction. This is followed by a characterization of the sectoral policy context in chapter two. The third chapter is a case by case characterization of the selected agribusiness PPPs. Chapter four explains the development of the PPPs. Chapter five is a synthesized appraisal of the four case studies, which takes a comparative approach. Chapter six presents key principles to consider in developing agribusiness PPPs. This chapter is based on the case studies and literature, lessons learned during implementation, and reflections on the potential of PPPs as tools for agribusiness development.

Chapter 2

Characterization of agricultural policies

2.1 BACKGROUND INFORMATION

Sub-Saharan Africa (SSA) is highly dependent on the agriculture sector for growth through exports and employment creation. In 2009, the Kenyan economy registered declines in the key sectors of agriculture and manufacturing, with agricultural output contracting by 2.6 percent. The decline was attributed to unfavourable weather affecting outputs of tea, sisal, pyrethrum and horticultural produce. Medium-term prospects suggested that the economy had the potential to attain a 7 percent growth trajectory last registered in 2007 and an estimated growth of 4-5 percent in 2010. In addition to agriculture, other significant sectors for the recovery of Kenya's economy were wholesale and retail trade, transport and communication and manufacturing which together contributed 53.7 percent of GDP in 2009 (Ministry of Agriculture, 2010).

The agricultural sector is among the six priority economic sectors identified in Kenya's Vision 2030 with a majority envisioned to be modeled as PPPs. The other priority sectors are manufacturing, tourism, wholesale and trade, business process outsourcing, and financial services. Under the Ministry of Agriculture (MoA) alone, 17 projects were designed to be implemented through the PPP financial framework with an estimated value of US\$3 851 million (Kenya Investment Authority, 2006)³.

In terms of the overall business climate, the World Economic Forum's Country Competitiveness Index 2009 ranked Kenya 98 out of 133 countries. Kenya was nevertheless ranked ahead of Tanzania (100) and Uganda at 108 (World Economic Forum's Country Competitiveness Index 2009). This rank was five places lower than the previous year, a situation associated with weakening institutional environment, inefficient public institutions, undue government influence, corruption, and insecurity. These challenges are also likely to hurt agribusiness PPPs given that they affect the overall business environment for private sector.

However, the high innovative potential coupled with public-private collaboration in research and development and enhanced access to financial services were expected to lead to improvement in Kenya's competitiveness.

2.2 SECTORAL OVERVIEW AND TRENDS⁴

Agriculture is an important source of livelihood and a key sector in the Kenyan economy. Agriculture accounted for 23 percent of the GDP in 2009. The average agricultural GDP growth rate between 2005 and 2009 was 4.92 percent. The lowest rate (2.2 percent) was recorded in 2007, followed by a 3.6 percent growth in 2009. Crops and horticulture had the highest contribution to agricultural GDP (at 17.6 percent), followed by livestock farming (4.6 percent), forestry and logging (0.8 percent) and lastly, agricultural and animal husbandry services at 0.4 percent (Government of Kenya, 2009).

The various sub-sectors had a mixed performance. For instance, the value of horticultural exports was down 3 percent from Kshs 74 billion in 2008 to Kshs 72 billion in 2009. Tea production had a 9 percent decrease in 2009 compared to 2008. On the other hand, coffee and sugarcane production rose by 19.5 percent and 6 percent respectively between 2008 and 2009.

In general, agricultural output contracted by 2.6 percent in 2009. This was attributed to unfavourable weather affecting outputs of tea, sisal, pyrethrum and horticultural produce. The results were however better than the of 4.1 percent reduction registered in 2008, which indicated gradual recovery. The performance of the agricultural sector in 2010 was expected to be much better, at 5 percent. This increase was expected due to the favourable weather conditions and specific policy interventions under the government's economic stimulus program for agriculture.

Global coffee and tea prices improvements were expected to contribute to a rebound of the

³ Related ministries (Fisheries, Water & Irrigation) have 13 PPP projects, valued at US\$ 2 492 million

⁴ Information sources for this section are Statistical Abstracts, Economic Review of Agriculture, 2010 and Economic Survey, 2009.

sector. However, horticultural exports continued to shrink, for the third year consecutively –due to the slow economic recovery in Europe, which was the main market for Kenya’s horticultural exports (World Bank, 2010).

Vision 2030 identified four major challenges for the agricultural sector: low productivity of crops and livestock, under-utilization of land, limited access to markets for inputs and output and limited value addition. To overcome these challenges, thirty PPP flagship projects were to be implemented by the following lead agencies: MoA (17 projects), Ministry of Water and Irrigation (11 projects), and the Ministry of Fisheries Development (2 projects). These projects will rely on the PPP financial framework. Specified value chains will be considered for financing through bank guarantee systems and low interest loans for the private sector. PPPs in value-added agriculture have received great attention in Vision 2030, with an expected investment of US\$ 231 million in MoA and US\$ 15 million in fisheries development. In MoA, investments in value-addition projects are ranked third after agricultural extension (at US\$ 1538 million) and agricultural research and development (at US\$ 769 million).

Despite investment in agricultural policy, there is minimal governmental commitment to improve budgetary allocation to the agriculture sector. Investments should be at least 10 percent of national budgets, in line with the Maputo

Declaration (2003), as a first step towards curbing food insecurity in SSA. The financial allocation to agriculture as a proportion of total government budget has been on a downward trend over the last four financial years as shown in Table 3. There was an allocation of 6.2 percent in 2006/07, 4.8 percent in 2007/08, 4.3 percent in 2008/09 and an all-time low of 2.8 percent in 2009/10.

For all the years under review, more than half of the allocations to the ministry of agriculture are still dedicated to recurrent expenditures as opposed to expenditure on development programs/projects.

2.3 SCOPE OF PPPS IN AGRICULTURE

In addition to the Vision 2030’s flagship projects, the Government of Kenya supports agribusiness PPPs through collaborative projects including: Njaa Marufuku Kenya, “Eliminate hunger in Kenya” (NMK), Kenya Agricultural Productivity and Agribusiness Program (KAPAP), Agricultural Innovation Program, Smallholder Horticulture Marketing Project (SHoMAP), Smallholder Horticulture Development Project (SHDP), Private Sector Development In Agriculture (PSDA), National Accelerated Agriculture Input Access Program (NAAIAP) and the Smallholder Dairy Commercialization Programme. As mentioned above, most of these projects are donor-supported and target smallholder farmers with the aim of promoting the transition from “subsistence” to commercial

TABLE 1
Expenditure for the Ministry of Agriculture (Kshs Million 2006/07-2009/010)

Item	2006/2007		2007/2008		2008/2009		2009/2010*
	Printed	Actual	Printed	Actual	Printed	Actual	Printed
Recurrent budget	5 850.50	5 464.50	7 068	9 510.60	7 805	7 530.20	7 799
Development budget	3 654.80	3 104.30	5 225.70	4 044.90	5 289.90	5 608.40	5 674
Total expenditure	9 505.3	8 568.80	12 293.7	13 555.60	13 094.9	13 138.60	13 473
Total expenditure as a percent of GDP	0.73	0.56	0.82	0.75	-	0.52	-
Total expenditure as a percent of total GoK expenditure	2.44	2.19	2.37	2.17	2.17	1.52	1.56
Development as percent of total expenditure	38	36	43	29.84	40	42.7	42.2
Recurrent as percent of total expenditure	62	64	57	70.2	60	57.3	57.8
Budget to Agriculture Sector	24 288.0	-	22 514.8	-	25 757.1	21 933.3	23 930.0
Agriculture as percent of total budget	6.2	-	4.8	-	4.3	-	2.8

Source: Economic Review of Agriculture, 2010.

* Provisional

farming. Following the establishment of the PPP secretariat, the actual development of the PPP projects rests with the public sectors (line ministries) themselves. Apart from the collaborative projects mentioned above, other ongoing PPPs in agriculture, in the year 200/2011 include: the Tana Delta Irrigation scheme and the Warehouse Receipting for Rice and Maize. The Warehouse Receipting PPP received government funding of Ksh 500 Million (personal communication with the Director of PPPs, Ministry of Finance, 17 Dec, 2010).

2.4 AGRICULTURAL POLICY AND STRATEGIES FOR AGRIBUSINESS DEVELOPMENT

Over the last decade, Kenya has made important strides in establishing the prerequisite policies and legislation necessary for the emergence of vibrant PPPs in various sectors of the economy. The main policy reforms necessary for development of agribusiness PPPs are summarized in table 2.

The Public Procurement and Disposal Act establishes procurement procedures which are applicable to PPP frameworks including concessions, design competitions, and contract

management. In the the Privatization Act No. 2 of 2005, PPPs are given recognition in the description of the methods of privatization. The institutional structure for implementing PPPs is also established and referred to as the PPP Secretariat. This would be part of the privatization programme for government institutions, as PPPs tend towards privatization than towards public procurement.

In 2003, the Kenyan government drafted the economic recovery strategy for wealth and employment creation. This strategy prioritized revamping the agricultural sector and institutions which had collapsed. The institutions that were earmarked for revival were: the Kenya Meat Commission, the Kenya Cooperative Creameries (KCC), the Kenya Seed Company, the Agricultural Finance Corporation, and the Agricultural Development Corporation. This move was expected to trigger backward and forward linkages and thus private sector participation.

The Strategy for Revitalizing Agriculture (SRA) was launched in 2004. The SRA set out to transform agriculture from a subsistence to a

TABLE 2

Summary of main reforms for agribusiness development

Policy/bill/act/strategic intervention	Relevance for agribusiness	Remarks
The Public Procurement and Disposal Act No.3 of 2005.	Outlines procurement procedures e.g. contracting and procurement.	Launched in 2005.
Privatization Act No. 2 of 2005.	PPPs recognized as a means of privatization; establishes institutional structure for implementing PPPs –PPP Unit & Secretariat.	Launched in 2005.
Public Procurement and Disposal (Public Private Partnership) regulations, 2009.	Establishes a PPP Steering Committee and a secretariat charged with promotion & development of PPPs.	PPP unit serves as the focal reference point for technical advice & approval of PPPs.
Economic recovery strategy for wealth and employment creation.	Revival of selected agricultural institutions and investment in research and extension.	Launching pad for Strategy for Revitalizing Agriculture.
Strategy for Revitalizing Agriculture.	Policy, legal & institutional reforms, enhanced market access (inputs, output & financial services), food security programmes.	Transformation of agriculture from subsistence to commercial sector.
Agricultural Sector Development Strategy 2010-2020.	Revival of agriculture through well-coordinated partnerships, Establishment of Agricultural Sector Board under PPP secretariat.	Agricultural Sector Board advises on priority sub-sectors for PPPs.
Vision 2030	Identified flagship PPP projects to address productivity, land use, markets and value-addition challenges in agriculture.	Extension, R&D and value- addition takes centre stage.
Agribusiness Strategy	Prioritizes value addition and commercialization.	Undergoing review by stakeholders
PPP Bill	Legal framework for PPPs.	At preliminary stages of development.

Source: Government publications, 2010

commercial focus – thus improving agribusiness through six major interventions:

- Review and harmonize the legal, regulatory and institutional frameworks.
- Restructure and privatize core functions of agricultural ministries.
- Improve the delivery of research, extension, and advisory services.
- Improve access to quality inputs and financial services.
- Improve access to both domestic and external markets.
- Formulate food security policies and programmes.

The SRA implementation was successful. It yielded positive agricultural growth at an average annual rate of 3.1 percent between 2003 and 2007. Other achievements of the SRA included: a reduction of food insecurity by over 12 percent and a 10 percent reduction in poverty over the same period. There was also increased productivity of main commodities such as tea, maize, sugar, milk, and meat by an annual average of over 6 percent. The SRA led to development of 15 policies and 6 pieces of legislation which included the Seed Policy, the Food Security and Nutrition Policy, the National Dairy Development Policy, the National Agricultural Sector Extension Policy, the Cotton Act 2006, and the Cooperatives Policy. The SRA also helped revival of many agricultural institutions and the establishment of the Agricultural Sector Coordination Unit (ASCU), which coordinated agribusiness activities of agriculture ministries.

Once the PPP secretariat was in place, the government needed to develop regulations to guide the move towards public-private partnerships. This culminated in the passing of the Public Procurement and Disposal regulations, 2009. These regulations considered PPP agreements where the private party performs a public function or provides a service on behalf of the procuring entity, in turn, the private party receives a benefit for performing the function. These benefits include:

- i. Compensation from a public fund;
- ii. Charges or fees collected from users or customers of a service provided to them; or
- iii. A combination of such compensation and such charges or fees.

The regulations also established a Public Private Partnership Steering Committee and a secretariat charged with the responsibility of spearheading PPP policy development, promoting awareness, technical assistance, approval of PPPs, and regulatory functions. The Steering Committee was

made up of the Permanent Secretary (PS) to the treasury, the Attorney General, the PS Office of the Prime Minister, the PS Ministry for Planning, the National Development and Vision 2030, and three representatives from private sector bodies approved by the cabinet. Agriculture is represented in the committee by the Kenyan Federation of Agricultural Producers (KENFAP), through the Kenya Private Sector Alliance (KEPSA). The committee normally meets once a month or as needed. By December 2010, the committee had only received one request for technical support in designing a value-addition agribusiness PPP.

The Kenya Vision 2030 was launched in June 2008 as a long-term development blueprint. It aimed at transforming Kenya into a “newly industrialized, middle income country by the year 2030.” The vision has identified four major challenges that continue to face the agricultural sector regarding productivity, land use, markets and value-addition. It has also developed flagship projects to address challenges under the Public Private Partnership framework. These projects are in sync with the Agricultural Sector Development Strategy (ASDS) 2010-2020. ASDS outlines agricultural policies, institutional reforms, programs and projects that the Government will implement in the short and long-term to achieve sectoral growth and contribute to poverty reduction and food security. With the diminishing budgetary allocation to agriculture, PPPs are viewed as an alternative means of financing agribusinesses, as long as the right incentives for the private sector investment are in place. In addition to the above strategies and policy developments, agribusiness PPPs will also benefit from legislation of the PPP Bill and the Agribusiness Strategy.

2.5 IMPORTANCE OF AGRIBUSINESS PPPS IN KENYA

The importance of agribusiness in Kenya’s agricultural development cannot be overemphasized. Agribusiness development is included in the Agricultural Sector Development Strategy (ASDS) 2010-2020 whose mission is innovative, commercially-oriented and modern agriculture. In the ASDS, the Government commits to strengthening the complementarities and interdependence of the agricultural sector with agribusinesses by promoting forward and backward links and prioritizing rural industrialization.

This commitment is in line with CAADP’s pillar 2 regarding improving rural infrastructure and trade-related capacities for market access. While more sup-

port and investments are required from the public sector for agribusiness growth, the private sector also played a pivotal role in its growth through production, processing, marketing, value-addition and financing activities. Since agricultural development is influenced by diverse and yet important stakeholders (the ten ministries related to agriculture⁵, the government, the private sector, development partners and non-state actors), strong partnerships are needed to implement the ASDS to achieve its stated goal of achieving an average growth rate of 7 percent per year over the next 5 years.

The flagship projects in Kenya's Vision 2030 are directly linked to agribusiness development. These projects include projects that increase access to agricultural inputs and financial services and provide value-added agriculture (such as horticulture, industrial crops, livestock, and fisheries products). It is important to note that these flagship projects are not stand alone but are supposed to stir other related projects in agribusiness and related industries.

Although most agribusiness PPPs in Kenya are still in the initial stages, their importance is being taken into consideration in the development of the PPP bill and sub-sectoral legal frameworks. For instance, implementing the Warehouse Receipting PPP has been slow due to lack of the Warehousing Legal framework. Stakeholders have little confidence in the system. Secondly, commercialization of agricultural technologies through PPP models is faced with legal drawbacks, especially relating to ambiguities in Intellectual Property Rights of technology owners. The Agriculture Sector Board serves as a focal point on various consultations and functions under the PPPs implementation framework⁶. The board also generates lobby issues for inclusion in the PPP bills.

2.6 PROBLEMS THAT AGRIBUSINESS PPPS ARE EXPECTED TO ADDRESS

The contribution of agriculture to GDP has been declining over the years, partly due to the nature of our agriculture and agribusiness. According to Kenya business indicators from the World Bank

(2007), the three major constraints to investment and doing business as perceived by firms in Kenya are: high tax rates; tax administration (i.e. the number of permits and approvals that businesses need to obtain, and the time it takes to obtain them, are expensive and time consuming); and the number of firms operating in the informal sector which pose unfair competition to the formal sector and limit access to finance opportunities. This creates difficulties in meeting short-term payments for labor and supplies as well as longer-term investments. The agriculture sector in Kenya is however on the recovery path following the implementation of several infrastructural projects under the Economic Stimulus Program (ESP).

The agriculture sector is expected to gain immensely from regional trade, once the East African Community common markets protocol takes effect. To accelerate the recovery process, agriculture and agribusinesses have to address core challenges in its development. Since these challenges cut across the value chain and some even beyond the realm of the sector, this section will only highlight challenges that can be addressed through agribusiness PPPs as discussed by key informants and backed-up by desk reviews of emerging initiatives under the PPP framework.

Insufficient budgetary allocation: Despite the Maputo Declaration by Heads of States in 2003 and the recent commissioning of the 3ADI earlier this year to increase the budgetary allocation to agriculture to at least 10 percent, Kenya's agriculture sector received 4.5 percent of the budget in 2008, which is way below the required minimum. This has reduced human resources and service delivery by Government institutions. It is expected that agribusiness PPPs will attract both local and foreign investors with the government's commitment to create an enabling business climate and address policy issues.

Low uptake of improved technologies: This has led to inefficient production systems and thus less than optimal farm yields. Already, there are efforts in this direction involving multinational companies, a few local companies, international research institutions, local government agencies, universities and the donor community. Examples of on-going PPP initiatives are Monsanto's Water Efficient Maize for Africa (WEMA) project, African Agricultural Technology Foundation (AATF's) StrigAway project, and BIOFIX (an extension of the Nairobi MIRCEN project) that involves production of bio-fertilizer by MEA Ltd.

⁵ These are: Ministries of Agriculture, lands, livestock development, environment and mineral resources, fisheries development, water resources and irrigation, regional development authorities, forestry and wildlife, development of Northern Kenya and other arid areas and ministry for cooperative development.

⁶ KEPSA is represented in the PPP steering committee by three nominees from its member organizations.

Limited access to capital and access to credit: This challenge limits investment in agriculture and expansion. The government has made attempts to address this challenge through the Agriculture Development Fund administered by the Agricultural Finance Corporation and its new micro-finance unit. However, the impact is still low due to its limited focus on traditional cash crops. Agribusiness PPPs are emerging to address this challenge, notably Kilimo Biashara, under National Accelerated Agricultural Inputs Access Programme (NAAIAP). Another off-shoot of Kilimo Biashara is the Warehouse Receipting (which is still in the pilot phase).

Post-harvest losses: This problem is aggravated by poor post-harvest handling, poor storage facilities and poor road infrastructure. The problem is more serious for perishable commodities such as horticultural products, milk, and fish. Initiatives taking the PPP approach are: Technoserve's Dairy Business Hubs, Fruit Processing projects by GTZ/Private Sector Development in Agriculture (PSDA), Technoserve, Coca-Cola Co. Ltd and USAID projects, and the Thika Highway expansion project that is expected to open up Central and Eastern Kenya and enhance regional marketing.

Inadequate disaster preparedness and response capacity: Our low disaster preparedness and limited coping mechanisms has often led us to complete losses, overreliance on food relief and input subsidies after disaster. Although crop and livestock insurance is considered a highly risky venture, a PPP model, "Kilimo Salama" or "Safe Agriculture" has been developed in Kenya to address this challenge and is being piloted among wheat and maize farming communities.

Overreliance on rain-fed agriculture: This challenge has existed for a long time and is expected to worsen with the effects of climate change. However, the government has designed PPP models under water and irrigation sub-sectors to expand water harvesting, storage, and irrigation infrastructure. One such model in the initial stages of implementation is the Tana Delta Irrigation project. There are six other ambitious flagship projects expected to address this challenge as outlined in Vision 2030. These projects' values ranged from US\$15 million to US\$909 million.

Inadequate markets and market infrastructure: Kenya's domestic markets are poorly organized. This problem is aggravated by poor utilization of market information. Kenya's Vision 2030 Flagship projects under wholesale and retail trade are

expected to address this challenge so that Kenya can be better positioned to take advantage of the domestic and regional markets. Other emerging initiatives to overcome this challenge are the use of information technology (IT) platforms for information exchange. For example, the initiatives under mobile telephony to pass market information on inputs (KEPHIS) and output prices under Kenya Agricultural Commodity Exchange (KACE).

Inadequate agricultural extension services: Agricultural extension services play a key role in technology delivery, development of farmer-researcher linkages for demand driven research, and feedback mechanisms. However, this service is constrained by limited allocation of funds to operations and low ratio of human resources to the population, making it ineffective. There have been calls for private extension service delivery but it has attracted few service providers. Examples of agribusiness PPPs which have taken up this function include KEVIAN fruit processing which facilitates farmer training on fruit quality control and post-harvest handling. The initiative by Bayer Crop Science Ltd "Green World Agro-vets" trains agro-vets on extension service delivery, not limited to their inputs.

Inappropriate legal and regulatory framework: This challenge coupled with multiple taxation has led to an increased cost of doing business in Kenya and enhancing avenues for corruption. Agribusiness PPPs are expected to contribute to policy reviews and seal legal loopholes. For instance, GTZ supports a technical advisor in policy matters at the Agricultural Sector Coordination Unit (ASCU) as part of its contribution towards agribusiness development in Kenya. A main outcome of its efforts is the formulation and enactment of the Potato Act and the National Horticulture Policy.

In implementing a PPP to address a particular challenge, other challenges and innovations spring up (as will be seen in chapter three). Thus, the potential for agribusiness PPPs is under-exploited.

Chapter 3

Characterization of agribusiness PPPs

3.1 OVERVIEW

Four agribusiness PPPs were selected for being reasonably advanced in the following activities: providing inputs; value-addition through agro-processing; technology transfer through commercialization; contracting and warehousing. These projects are: the Warehouse Receipt System (WRS), the BIOFIX project, the StrigAway eradication project and the KEVIAN Fruit Processing (see Table 3 below). The selected PPPs are located in Nairobi (the StrigAway Maize Initiative and the WRS), Murang'a (KEVIAN Fruit Processing) and Nakuru (BIOFIX Project). The suppliers and customers are nonetheless spread throughout the country.

The selected case studies have existed for the past 2-4 years. The level of investments is above US\$200 000. The WRS, BIOFIX and StrigAway PPP are in the initial phases of commercialization while the KEVIAN Fruit processing is fully commercialized. The public partner plays a minimal role after the project closure. In all the selected

PPPs, the donors provided funding. The donors were especially involved in the initial phases of formulation, private partners' selection, and project monitoring and evaluation.

None of the PPPs were an initiative of the Ministry of Agriculture. This would be expected under Kenya's PPP framework (the ministry is supposed to initiate PPPs in their sub-sectors). The ministry provides technical support mainly in form of "unquantified" grass-roots extension services and with no specific resource allocation coming from the ministry. This departure from the expected practice is explained by the ministry's perspective on agribusiness PPPs (see Box 1 below).

3.2 CHARACTERIZATION OF THE KEVIAN FRUIT PROCESSING PPP

The mango fruit processing PPP was a three-year project, which started in 2006 and ended in 2008. The company still has its fruit value-addition activities. The main challenges that would be addressed

TABLE 3
Selected case studies

Agribusiness PPP	Nature of PPP	Year start	Overall objective	Actions undertaken	Public Partners	Private Partners
KEVIAN Fruit Processing project	Grants, concessions, tax holidays for private sector (government/donor)	2005	Promotion of mango marketing and value addition / sector development	Value addition of mangoes	Kenya Gatsby Trust, ICIPE and UNDP, GTZ, and KENFAP	KEVIAN Company
BIOFIX Project	Co-financing investments - Public/Private	2008	Commercialization of a technological product from a public institution for soil improvement	Supply organic fertilizer	University of Nairobi, British Council, AKTP	MEA Ltd, Seed companies & networks
StrigAway Maize Initiative	Development programme - Private sector	2005	Eradication of StrigAway weed for increased maize yields and farm productivity	Supply Striga resistant maize seed (IR maize)	AATF, Rockefeller Foundation, NGOs,	BSF, Western Seed Company,
Warehouse Receipt Scheme	Grants, concessions, tax holidays for private sector (government/donor)	2008	Develop grain storage structures and enhance grain trade in the region	Supply secure warehouses for storing grain	The Eastern African Grain Council (EAGC), NCPB, the Financial Sector Deepening (FSD) Trust and SIDA.	Equity Bank, growers, transporters, traders, storage managers, processors, millers

Source: Authors' compilation, 2010

BOX 1

Ministry's perspective of PPPs

According to the MoA, agribusiness PPPs include all collaborative projects that aim to promote growth of agribusiness. Thus, a project is considered a PPP as long as it involves farmer/trader groups and agro-dealers in the commodity value chain. The ministry takes leadership in project conceptualization at the national level (mostly, in consultation with donors).

The ministry's district offer technical advice (to the target groups) on how to develop proposals and business plans that they submit for competitive bidding in the "agribusiness PPP" projects. For instance, the Agribusiness Innovation Fund, run by Agricultural Sector Coordinating Unit (ASCU) was implemented under the management of Micro Enterprise Support Programme Trust (MESPT).

Source: Key informant interviews with Ministry's Agribusiness Department, 2010

by the PPP include poor production practices (which lead to low quality produce), inadequate storage facilities, financial constraints and limited access to markets. The PPP would contribute to a more sustainable use of smallholder mangoes as raw material for cottage industry and local processing of frozen concentrated mango juice for the domestic, regional and overseas markets.

The direct beneficiaries of this PPP would be small-scale mango farmers in specific districts in the Eastern, Central, Coastal and Rift Valley provinces. In relation to Millennium Development Goals (MDGs), this PPP project aims at poverty reduction through employment creation and local economic development. The PPP was of major relevance for the private company with regard to substituting imported semi-finished products (mango concentrate) with local raw material, thus saving on cost due to reduction in imports, reduction of foreign exchange expenditures and an increase of self-sufficiency of the domestic mango industry.

The PPP was initiated by the German Technical Cooperation (GTZ) PPP Africa Facility. The private partner was KEVIAN Company Limited, a fruit processing company. The national farmers' association, the Kenyan Federation of Agricultural Producers (KENFAP) represented farmers during the design phase and also in mobilizing farmer groups to participate in the PPP. The level of investment by both public and private partners, on a co-financing basis was approximately €159 000 (US\$233 411) (see Table 4 below). These funds were for activities ranging from training, equipment, packaging materials, collection centres, and personnel

The company purchased a fruit processing plant in Thika, Murang'a County. This plant receives produce (mangoes) mainly from Eastern and Central provinces through farmer groups and out-grower associations.

The PPP received an initial grant from the main financier and public partner, GTZ/PSDA to set up the fruit processing line on the condition that the company raised 50 percent of the investment, in cash and in kind (Chege, personal commu-

TABLE 4
Financial contribution of partners in Kevian Fruit Processing PPP

Total costs		Amount in Thousands €	% share
	Total Contribution of the Private Partner	50	46%
	Total Public Contribution:	50	46%
	Total Contribution of Others:	9	8%
	Total volume of the project	109	100%
Elements of support	Contribution Contract with PPP Partner:	15	30%
	Public Consultancy with:		
	Organisation – GTZ	35	70%
	Total	50	100%

Source: Adopted from Project Proposal, 2010

nication, 2010). The farmer groups would also contribute in cash or kind (the 8 percent tabulated above) in setting up the collection centres and cottage industries. This would ensure commitment and ownership of the project.

Roles and functions of partners

Apart from co-financing infrastructural development, KEVIAN Co. was supposed to liaise with farmer groups and the out-growers for quality control and also in organizing collection of produce. In addition to fruit processing, KEVIAN establish forward linkages with potential consumers through wholesale or retail trade. KEVIAN promoted domestic consumption of fruit juices, which were facing stiff competition from other soft drinks.

The specific roles of the other partners were:

GTZ: GTZ contributed approximately Euros 50 000 for training, equipment, packaging materials, collection centres, and personnel. GTZ was also active in the sector's policy processes by fully supporting a technical officer based at Kenya's Agricultural Sector Co-ordination Unit (ASCU). Policy support was not directly connected to this PPP; the main policy closely related to this PPP is the development of the Horticultural Policy and harmonization of county council levies (Personal Communication, Chege, 2010).

KENFAP: KENFAP contribute to organized farmers into farmer groups and associations, trained farmer groups on agribusiness and assisted them in drawing up business plans and networking farmer groups with other stakeholders such as input suppliers, financiers, and the standardization body (Kenya Bureau of Standards, KEBS).

Ministry of Agriculture: Trained farmers on technical aspects of mango production, harvesting, post-harvest handling and marketing.

Performance incentives

The expected impact of this PPP was increased employment in agriculture and related business as well as improved incomes for participating actors along the mango value chain. This would be enhanced by increases in production in small and medium-sized farms, quality improvement, improved access to markets and reduced post harvest losses. Other targets included:

- Establishing five collection centres with cottage industry facilities.
- Guaranteeing markets and prices for at least 70 percent of produce.
- Reducing the rejection rate by 30 percent by the end of 2007.

- Packaging and transporting arrangements improved by April 2007.
- Training at least five group members at each collection centre in mango processing by end 2008.
- Developing business plans for each processed product by 2008.
- Setting up of smaller cottage industries for processing various mango products by the end of 2008.

Commitments on policy changes

GTZ would support the sector's policy processes by fully supporting a technical officer based at ASCU. All the partners would participate in developing the horticultural policy, harmonizing the county council levies and developing and refining of mango value chain intervention strategy.

Monitoring and oversight mechanisms

All partners were involved in monitoring and evaluating the PPP based on: number and types of trainings offered; farmer knowledge assessment, increase in yields, quantity delivered through the channel, reduction in post harvest losses, price offered, value-added products (quantity and value), returns on investment, established feedback mechanisms and forums (Project Final Report, 2010).

Expected and realized rates of return on investment Since its inception in 2006, the PPP has led to improvements in the marketing position of 450 small-scale mango growers. The outcomes are shown in Table 5 below.

In the past, the farmers sold only 25-40 percent of their fruit at the height of the season: with the PPP, they now sell 60 percent (Personal Communication, Ngugi of PSDA, 2011). Another achievement⁷ is that a mango value chain intervention strategy was developed and refined in 2007. A mango value chain coordination working group of 15 members was established in 2007 under the leadership of KEVIAN Co. to coordinate linkages and activities of different actors in the mango sub-sector. Committees under this working group coordinated activities within the value chain. This leads to improved cooperation, communication, and trust among the actors.

⁷ Source: <http://www.gtzpsda.co.ke/> "Building Capacities in Private Enterprises to Support Access to Markets" and meeting summary for meetings held between mango PPP groups and KEVIAN K. Ltd on 7 November 2007 at KEVIAN Factory, Thika.

TABLE 5
Outcomes of the Kevian fruit processing PPP

Target	Actual	Remark
5 collection centres with cottage industry facilities established at farm group level by end 2008.	2 collection centres were established through shared contribution with the farmer groups (45%).	Increased contribution of groups from anticipated 8% to 45%.
Guaranteed markets and prices for at least 70% of produce.	The range of fresh produce offered by exporters was increased from Kshs 20 - 24 /kg and processors by Kshs10 -12/kg who buy in large quantities (tonnes).	Led to increased incomes for farmers, by an average of 42%.
Rejection rate at plant gate of 9 farmer groups reduced by 30% by the end of 2007.	Training on improved orchard and farm management for 11 farmer groups where losses at farm level reduced by 40%.	Losses at farm level reduced by 40%.
Packaging and transport arrangements improved by April 2007.	Packaging structures and technologies by the processor put in place by end of 2007. Training on good transport practices and post harvest handling conducted.	Reduction in wastage by 25%.
Set up small cottage industry for processing various mango products by end 2008.	Cottage industries set up at group and individual level. Employment created for at least 7 members at each collection centre in 2007/2008 season.	Reduced wastage from the farms and at the processing plant by up to 40%.
At least 5 group members/staff at each collection centre should be trained in mango processing by the end of 2008.	Training on value addition was carried at group level for 11 mango producer groups.	
Business plans for each processed product developed by 2008.	Business plans developed at individual and group level. Training on record keeping and farming as a business were conducted for 11 farmer groups. 2 groups and 6 individuals farmers (group members) awaiting KEBS certification.	Established a link between the producer groups and association with the processor.

Source: Compiled by authors, 2010

Conclusion

The objective of the PPP project was to develop and test a replicable concept for sustainable use of smallholder mangoes. These mangoes can be used as raw material in the cottage industry. Frozen concentrated mangoes can also be locally processed to make mango juice and mango products for the domestic, regional and overseas markets. Some aspects of the PPP are replicable. For example, the co-financing, matching of resources, partners and partners roles, and encouraging innovativeness in related businesses such as micro-processing.

The private partner was selected based on the ability to raise at least 50 percent of the funds needed to set up a processing line and acquire equipment. This selection was meant to ensure successful implementation and sustainability. The role of grants was to increase the volume of available finances from the private sector. However, the group approach remains a challenge.

This is especially true for where certain quality standards have to be attained, right from the farm level. Hence, it is better for large-scale farmers to move towards individual contractual arrangements. If this is done, the goal of rural poverty reduction will be more limited, since such a PPP reaches few people, who in most cases are more resource-endowed.

3.3 CHARACTERIZATION OF THE BIOFIX PPP Overview of the PPP

The new Rhizobium Inoculant (BIOFIX) fertilizer project started in 2008 as an effort to support increased accessibility of low-cost organic fertilizers to smallholder farmers in Kenya. The Rhizobium inoculants were technological outputs of over two decades of research by the Department of Land Resources Management and Technology (LAR-MAT), under the Nairobi Microbial Resources Centre Network (MIRCEN's) project funded by UNE-

SCO since 1977⁸. The inoculants have applications in common beans, lucerne, soybean, desmodium and other minor legumes to maximize their yields. However, the technology had very limited adoption among legume farmers in the country because more emphasis was laid on scientific research and human resource training and less on technology deployment, as per the initial plans. Despite massive awareness creation through trade fairs and exhibitions, there was limited access to the legume product, since customers were expected to purchase the product from a central location, based at the university pilot plant, in Nairobi (Odame, 2002).

Commitment to policy changes

The initiators of the project, Professor Keya⁹ and his team attempted to have elements of the technology privatized to enhance diffusion. However, progress was hampered by institutional challenges and a lack of an appropriate legal framework, especially with respect to intellectual property and patent laws. Despite the low uptake of this technology, there were concerns that privatizing this technology would deviate from the mandate of university's mandate to generate knowledge to the public for free. This conflict of interest has limited uptake of many other technologies from public research institutions.

Implementing this PPP required reshaping the public institutions' policies. For example, the university's policy within National Agriculture Systems was to provide free generation and dissemination of research findings. This process was facilitated by the AKTP/British Council who brokered the technology. Thus, the licensing of this technology was done for mass production, distribution, and marketing.

Performance incentives

The government's goal was to enhance food production. The UoN's mandate was to develop and deploy appropriate and affordable technologies. They decided that Nairobi MIRCEN project

should embrace effective deployment vehicles: the BIOFIX PPP was thus created. The university decided to collaborate with UK academic institutions such as the African Knowledge Transfer Programme (AKTP) of the British Council.

The MIRCEN project received an annual maintenance fee, paid by the private company, MEA Ltd. This annual fee went towards supporting LARMAT's research activities. Thus, the PPP led to capacity building for university research staff and technicians. It also enhanced production and preservation of inoculants for future training, and provided research output from the labs to intended users (farmer fields).

AKTP also achieved its goal to building the capacity of its associate (a young professional), who appreciated the significance of research in economic development. The associate was based at MEA Ltd and was fully supported by the AKTP programme and MEA Ltd. MEA Ltd could access technology and gain new skills which could lead to product diversification.

Through various negotiations between the Nairobi MIRCEN programme team, MEA Ltd and AKTP in 2008, the PPP was launched. Under the PPP, UoN licensed MEA Ltd to produce, market, and distribute the legume inoculant under the trade name, BIOFIX. The university was in charge of quality control and continued researching new aspects of the inoculant and its utilization.

Commercializing BIOFIX was expected to increase its accessibility to farmers (Annual Report, College of Agriculture and Veterinary Sciences, 2010). This PPP enabled MEA Ltd to translate research into profits. It also improved productivity through continued access to scientific knowledge, technology and skills available through the Nairobi MIRCEN project (AKTP, 2010). Through this partnership, MEA also sought to diversify application of inoculant from grains and legumes to other crops such as French beans, normal area beans, high temperature area beans, peas (garden, snap, snow), groundnuts, green grams, hyacinth beans (*dolichos lablab*), and lucerne.

Through this PPP, researcher-farmer-company linkages have been established. Stronger linkages have opened up feedback mechanisms for better technology and new product development.

Principle sources of additional investment and expertise

The PPP invested in a large production facility called the BIOFIX laboratory in Nakuru. The facility cost US\$200 000. Most of the

⁸ <http://www.bdt.fat.org.br/bin21/ws92/mircen.html>. The Nairobi MIRCEN project supported research efforts to develop and transfer technologies that were ecologically sound, cost-effective and appropriate to smallholder farmers in developing countries. The then high prices of petroleum-based agro-chemicals such as inorganic nitrogen fertilizers and pesticides led to research on Biological Nitrogen Fixation (BNF) and thus Rhizobium inoculants.

⁹ Professor Keya is the Coordinator of the Nairobi MIRCEN Programme.

TABLE 6
Source of funds for BIOFIX PPP

Equipment (No.)	Cost per unit Kshs (US\$)	Placement	Source of funds
Desktop computer	65 000 (945)	UoN	British Council
pH Metre	45 000 (654)	UoN	British Council
Incubators (5)	135 000 (1 964)	UoN	British Council
Weighing balance	25 000 (363)	UoN	British Council
BIOFIX Laboratory	1 374 570 (200 000)	MEA Ltd	British Council

Source: Compiled by authors, 2010

TABLE 7
Employment creation in BIOFIX PPP

Type of employee	Number of staff members	Percentage of time spent on the project (per month)
Researchers	5	40
Technicians	4	100
Support staff	4	100
PhD students	2	30
M.Sc. students	4	30

Source: Compiled by authors, 2010

additional investments were provided by the British Council.

New expertise was required at UoN and MEA Ltd to ensure adequate supply of quality inoculants in the market. The PPP employed two technicians at UoN to work on the project full-time. The PPP also supported six PhD and MSc. students (see Table 7).

The staff members' skills have been developed through training sessions on Rhizobiology, production, quality-control and marketing the inoculants¹⁰. Students carried out research to strengthen the product relevance in the industry and also published research papers for a wide audience (Mwangi *et al.*, 2009).

Since MEA Ltd also needed new expertise on how to produce and multiply the bacterium, the company supported an apprenticeship program whereby an AKTP associate would be attached at MEA Ltd. The UoN provided technical support. Consequently, an associate with inoculant production and marketing expertise was hired.

Outcomes : According to Olembo, (2002) and Odame, (1997), the Nairobi MIRCEN project targeted production of Rhizobium strains for the following crops: common bean (47 percent), lucerne (23 percent), soybean (14 percent), a legume fodder, desmodium (9 percent), and other minor legumes (7 percent). Due to limitations in production capacity, human resource and marketing, the project achieved a maximum annual production of 2 000 kg of inoculants.

The project manager at MEA Ltd. asserted that the PPP was on schedule and was likely to achieve the set goals within half of the projected time. The laboratory was constructed at a cost of US\$200 000 and launched in May 2010. The company has strains for French beans, normal area beans, high temperature areas beans, local isolates (for all Kenyan regions) in, peas (all types- cow, garden, snap, snow), groundnuts, green grams, hyacinth beans (dolichos lablab), Lucerne, desmodium and soybeans. Minor changes have been made on the product. MEA also designed new packaging and acquired certification of the newly-branded product.

¹⁰ <http://www.aktp.org>. Date accessed, 13 January, 2011.

Unlike the university which sold only 2 000 sachets of the inoculants annually, MEA Ltd had sold over 8 000 sachets within the first six months in operation (Mwangi et al, 2009). The production was expected to increase with the launch of BIOFIX laboratory at the factory. In the current year 2010, MEA Biofix laboratory produces 400 sachets of BIOFIX every week. The sachets cost US\$2.5 per sachet. MEA Biofix wants to upscale production to 1 000 sachets per week over the next few years. Central Kenya has the greatest demand for inoculants, though the company is trying to market it in other parts of the country (Muriuki, personal communication, 2009 and email communication with AKTP associate, 2010).

The university's LARMAT department has already gained from this PPP through the annual maintenance fee. The department also got additional equipment under the partnership. The equipment supports inoculant production. The maintenance funds paid by MEA Ltd are used to train scientists and carry out more research. The UoN has also established links with a UK academic institution, enhancing knowledge exchange and learning.

In terms of capacity building, research staff, technicians and AKTP associates have benefited from training and interactions with researchers and corporate partners (ibid). With the increased demand of inoculants in Kenya, Uganda and Tanzania, MEA Ltd stands to gain immensely from its existing regional distributional networks for inorganic fertilizers. The company is also negotiating partnership agreements with two established seed companies that not only produce seed for the targeted crops but also diversify crops.

Monitoring and evaluation

MEA Ltd was put in charge of market research, monitoring, and evaluation. Market research is done to ensure that the products meet farmers changing needs. The results have been used to improve production of the inoculants, design better farmer outreach strategies, and meet the different needs of farmers growing different legume crops.

On the other hand, M&E is done on a 2-week basis. The findings shared through printed reports, meetings and workshops (personal communication, Muriuki, 2009 and an AKTP Associate, 2010). This role was vested on MEA because it had been in the fertilizer marketing before launch of the PPP. Hence it had built human resource capacity to undertake necessary market research associated

with new product development and monitoring of product performance. This capacity would come in handy in assessing performance of BIOFIX.

Conclusion

The Rhizobium inoculant (BIOFIX) PPP has demonstrated the important bridging role played by the private sector in improving access to technology for smallholders. The university's policy of free generation and dissemination of research findings impeded technology deployment for over two decades. There was also an unclear legal framework on intellectual property rights. With AKTP/British Council's intervention, licensing was done for mass production, distribution, and marketing of the technology. This technology should yield improvements in bean production. If yields improved there would be better food security, better livelihoods, and also diversified incomes for the producing company and seed companies.

3.4 CHARACTERIZATION OF THE WAREHOUSE RECEIPT SYSTEM PPP

Overview

The Warehouse Receipt System (WRS) PPP was developed in response to cereal marketing difficulties. These constraints include inadequate on-farm storage facilities, post-harvest losses, and limited capacity of farmers to gain access to alternative market outlets. These challenges often prompt farmers to offload all their produce in the market soon after harvests. In many cases, their produce fetched low prices due to excess supply. Unfortunately, farmers' immediate household needs such as food, school fees, and health care required income that were inconsistent with cash inflows, as the farmers relied on one crop per year.

Warehouse receipting was introduced in Kenya at a time when the main staple food maize went from a period of excess supply to a period of shortages. Low producer prices shifted to high consumer prices and impromptu government directives which, in most cases, distorted the maize market. The maize growers in most parts of Kenya were receiving bountiful harvests from the government's inputs program, NAAIAP. It devised maize marketing interventions to extend the gains of the program (personal communication, Agribusiness Manager, Equity Bank, 2010).

The main commodity market in the country is the Kenya Agricultural Commodity Exchange

(KACE). It was underutilized despite its huge potential in trading in cereals, maize, potatoes and horticultural produce. The East African region was considering opening up common markets under the East African Community. The envisaged commodities exchange market would be operated by trading in the warehouse receipts on the same principle as shareholders at the Nairobi Stock Exchange (NSE) trade in shares. This would create a new investment opportunity for all Kenyans (Regional Agricultural Trade Intelligence Network, RATIN, 2010).

Under WRS PPP, warehousing facilities were provided to farmers for a period not exceeding twelve months. Within this period they can fetch higher prices for their produce from diverse markets. The warehouse receipts can be used as collateral for credit from participating banks. Thus, WRS was intended to simultaneously increase access to finance, reduce post-harvest losses, and stabilize produce prices. Other studies believe that warehousing shortens marketing chains by allowing producer groups to sell directly to processors, large traders, exporters and importers (Onumah, 2003; Coulter and Onumah, 2002).

The Eastern Africa Grain Council (EAGC)'s WRS was rolled out in April, 2008 on a pilot basis for maize grains. There were intentions of introducing other commodities such as wheat, beans, fertilizer and other agricultural inputs at a later date. This would ensure that more farmers access better prices and sustain warehousing system operations throughout the year. The most active months for cereal warehouses in Kenya are between December and March – this is the harvest period when warehouse operators have recorded highest maize deposits.

Principle sources of funds

EAGC's warehousing initiative is being supported by the Financial Sector Deepening Trust of DFID, SIDA, the USAID's Kenya Maize Development Program (KMDP), and the Regional Agricultural Trade Expansion Support (RATES). The support was in the form of grants for different activities:

- i. SIDA has been offering financial support since August 2008. The unspecified funds have enabled the Council to develop, promote, and influence structured grain trading systems in Eastern Africa.
- ii. USAID-RATES and its successor

USAID-COMPETE programs have supported capacity building of farmers and traders with the intent of reducing barriers to grain trade and helping stakeholders adopt international quality standards that make them more competitive in regional and global markets.

- iii. The DFID-led Financial Sector Deepening Trust (FSD) program has also played a significant role in financing the Grain Warehouse Receipt System in Kenya.
- iv. The Kenya Maize Development Program (KMDP) was instrumental in supporting the EAGC and in linking small-scale maize producers directly and through their organizations to markets.

The principal sources of the “un-quantified” operational revenues are the warehouse certification fee and the warehouse receipt registration fee. In addition to these sources, the fee charged for grain storage and maintenance added up to the operational revenue. On average, farmers pay Sh12 (US\$1.50) per month to store one 90 kg bag of grain and for value-adding services such as drying, storage and security (EAGC, 2010).

Other partners in the WRS PPP include the Equity bank, the National Cereals and Produce Board (NCPB), the warehouse operators (Lesiolo Grain Handlers and Export Trading Co. in Eldoret and Kitale), and insurance firms and farmers/depositors.

Roles of partners

East African Grain Council (EAGC)

A self-regulatory members body, the Eastern Africa Grain Council (EAGC) is charged with regulating the commodities warehousing scheme, setting the rules, and admitting new members. EAGC led stakeholders in following WRS rules and protocols. EAGC undertakes two main regulatory functions:

- i. Ensuring that participating warehouses are suitable both in infrastructure and systems, have sufficient insurance in place to provide protection to those who own warehouse receipts and those who finance warehouse receipts, and to organize periodic inspections to verify grain and warehouse receipts.
- ii. Ensuring that EAGC warehouse receipts are issued in accordance with the warehouse receipt protocols, maintaining a register of warehouse receipts including

ownership and lien information¹¹, and transferring warehouse receipts into new ownership.

Warehouse operator

There are two current warehouse operators certified under the WRS PPP - Lesiolo Grain Handlers and the Export Trading Co. They operate warehouses in Nakuru, Eldoret and Kitale. The operators have certified warehouses complete with structures, grain equipment, staff and insurance cover for the stock while in storage. Currently, Lesiolo Grain handlers have leased warehouses from the National Cereals and Produce Board. The warehousing facility is then used by depositors (individual farmers, farmer groups or traders) to store their grains at a fee.

The fees charged covers value-adding services such as drying, storage, and security. The operator issues warehouse receipts to the depositors subject to laid down rules and procedures. The depositors can access their stocks once they have identified markets. The receipts can be used as collateral banks. However, their acceptability as collateral mainly depends on the country's legal and regulatory framework and the financial status and integrity of the warehouse operator (Höllinger *et al.*, 2009).

Depositors

Depositors are responsible for ensuring that the produce meets the recommended grain standards before it is accepted in the warehouse.

Financial Institutions

The lack of access to credit is a severe constraint for many farmers. Warehouse receipts are an important and effective tool for creating liquidity and easing access to agriculture credit. The financial institutions participate in WRS by issuing credit against the warehouse receipts. At present, only Equity bank participates in the PPP. The bank also trains farmers on financial management to encourage proper utilization of loans and appropriate investments.

Insurance firms

Insurance firms have insurance policies for warehouse operators, as laid out by the EAGC. The insurance must cover both the Warehouse Risks and the Warehouse Owner Risks.

Nature and level of performance incentives

Maize grain is currently the only acceptable product under this PPP. Warehouse operators must ensure that their warehouses meet the set certification criteria. Warehouses should meet criteria regarding physical facilities, capital adequacy, liquidity, managerial qualities, insurance and bonding cover (UNCTAD, 2009). Warehouses should also be free of financial liabilities (the latter protects depositors against fraud and mismanagement). This makes public warehouses ideal for warehousing services.

NCPB holds storage capacities of more than 20 million bags of 90 kg which consist of conventional stores and silo bins. Some of these facilities are not fully utilized and can be leased out to a third party. The rates vary from region to region but are basically driven by market demand (NCPB, 2011). Hollinger *et al.*, (2009) add that for warehouse receipts to be accepted as collateral, it has to be issued by a credible warehouse operator. In addition, the banks needs to be satisfied with the technical and financial conditions for storage of the commodity used as collateral. Banks needs to verify that the limits of the insurance cover provided by the warehouse operator give them an adequate level of coverage. Under the WRS PPP, each warehouse receipt is worth 100 MT of maize grain. Small-scale farmers willing to participate in WRS are required to consolidate volumes so that they can meet this requirement.

According to KACE's Managing Director, James Kundu, the main challenge, however is group quality control, which is the ideal for warehoused commodities. In addition, the practicality of using the common receipt as collateral for bank loans is still unclear in cases where not all members are interested in the loan facility (africanagricultureblog.com, 2010). However, it is possible to pursue group guaranteeing model of lending as applied in microfinance.

In the WRS PPP specific commodities are held in storage and remain attributable to that depositor. The commodities may or may not be of a recognizable grade but must meet storage criteria. The EAGC provides training for small-scale grain traders and farmers, to enable them meet the criteria for commodity storage. Establishing the Grain Trade Institute is also an incentive in this PPP, because it will provide agribusiness training and capacity-building to high-impact stakeholders in the grain value chain. In addition, commercial trade linkages have been enhanced through the EAGC Trade Link System, which

¹¹ Lien information relates to the rights granted to EAGC, by depositors, to sell the collateralized stock of depositors who fail to meet the obligations of the loan contract.

was launched in April, 2009. The trade link system engages sellers and buyers of grain through an electronic grain trading platform and direct linkages. Optimal use of the electronic trading platform is hampered by limited harmonization of methodologies of data collection, analyses and dissemination, a challenge that EAGC and its partners (donor partners, members, WFP and other agricultural MIS providers) are addressing (the Regional Agricultural Trade Intelligence Network, RATIN, 2010).

By the end of 2010, there were three EAGC certified warehouses run by Lesiolo Grain Handlers in Nakuru and Export Trading Co. in Eldoret and Kitale. Twelve NCPB warehouses have been inspected and have been issued provisional certification. The certified warehouses received approximately 1 000 MT of maize in 2010 from ten farmers. In 2009, the Grain Trade Institute and the Cereals Growers Association worked together and held successful (maize/dairy) business fairs recording 20 000 participants and 100 exhibitors.

The Equity Bank had disbursed loans to six of these large-scale farmers using warehouse receipts as collateral. People have become more confident in the system as there has been a 100 percent repayment rate on loans disbursed through the system. The Equity Bank argues that the good repayment rate can be associated with good financial management skills, which is a characteristic of large scale farmers.

Other incentives to attract partners to participate in the PPP were to subsidize the warehouse certification fee and reduce the minimum tonnage to earn a warehouse receipt (see Table 8 below). The decisions were appraised by the lead agency, stakeholders, and open forums with farmer groups. Awareness-creation was also done through business fairs in conjunction with the Kenya Maize Development Program and the Cereal Growers Association (CGA).

Charges would increase the income of EAGC to approximately US\$11 700 if 80 000 MT passed through the system, per annum.

The 80 000 MT projection might not be achievable in the short run, unless the government minimizes intrusion in grain trade through inhibitive trade policies. Another hurdle that the EAGC has to overcome is the low acceptability of farmers (both large-scale and small-scale) to trade through the WRS.

Providing capacity building and technical assistance to farmers is prudent since it demystifies the suspicions of using the system (which seems to remove their crop from their control). In reality, the objective of WRS was to increase farmers' control over their produce and enhance their decision-making regarding marketing options.

The warehouse receipting PPP has led to backward and forward linkages in the maize sub-sector, which strengthen the maize value chain. Forward linkages with millers, traders, and other organizations that procure grain (such as food aid agencies) will be strengthened once the warehousing concept takes root in Kenya's agricultural marketing. Backward linkages with farmers are still weak because farmers have little confidence in the system. This is especially true for small-scale farmers, who feel that using warehousing facilities reduces their control over own produce. They have this perception from past mismanagement of NCPB warehousing facilities.

The EAGC encountered difficulties in selling the concept to farmers. Farmers find the system rather sophisticated since they are still accustomed to a situation where the National Cereals and Produce Board (NCPB) sold the cereals on their behalf. The WRS enables farmers to decide when to sell and in which market. This is possible only if farmers properly monitor market prices. Prices are currently available through print and electronic media. For instance, EAGC, through the

TABLE 8
Suggested charges for various services in WRS

Suggested charges	Fee (US\$)
Warehouse certification	4 800
Additional tonnage	1.45 / MT
Warehouse receipt registration	1.00 / MT
Warehouse receipt transfer	20
Warehouse receipt confirmation	25

Source: Email communication with EAGC, December, 2010.

Regional Agricultural Trade Intelligence Network (RATIN) provides timely and accurate regional grain trade information including wholesale prices, supply and demand projections, and regional cross-border grain trade flows.

However, optimal use of the RATIN's trade information has been hampered by disparities in data collection, analysis and dissemination. Locally, the Kenya Agriculture Commodity Exchange (KACE) provides daily prices for a variety of commodities from different parts of the country. The prices are also available through mobile telephone for registered users. In addition, when growers needed instant cash they sold maize at their farm gate to middlemen, at a throwaway price instead of marketing the produce through Warehouse Receipts. Similar observations (of rice, maize and wheat farmers) have been made in the recently introduced WRS by the government. It is therefore prudent that EAGC invests more in spreading awareness of the benefits of their warehousing model.

A major incentive of warehousing was to enable farmers to make fully-informed decisions about when and where to sell and at what market price. However, price determination of the stored grain is not based purely on supply and demand but also it can be distorted by volatile government policy directives (e.g. a ban on imports or exports, lowering the rate of duty on imports from countries that are not zero-rated, most notably South Africa). UNCTAD (2009) argued that government interventions were largely driven by immediate political concerns, particularly during the last two years. This is exemplified by the raising of producer prices prior to the December 2007 elections, and efforts to moderate consumer prices in late 2008, in the aftermath of the post-election deficit and high world food prices. These unstable prices often ruined incentives for warehousing.

Commitments on policy changes

When the WRS PPP was conceived, Kenya did not have a legal framework for warehouse receipting to govern its intended warehousing, trading, and financing services. Therefore, EAGC, a self-regulatory body, took the lead role in drafting WRS regulations that would govern the operations of the partners in the PPP.

The output here was the EAGC Warehouse Receipt Protocol, 2008 and the EAGC Warehouse Operator Agreement which specified commodity care and management rules. The regulations were based on contract law. The lack

of an appropriate legal and maize policy environment was probably the most important constraints that hindered the participation of banks and acceptance by farmers. The other interested banks (Kenya Commercial Bank, Cooperative and Family banks) called for a legal system to be established that supported warehouse receipts as secured collateral for borrowing.

The situation in other East African countries is similar. Banks have been reluctant to fund against grain warehouse receipts (UNCTAD, 2009). However, recent developments in adopting electronic documentation through the Structured Grain Trade System in Kenya and Uganda may build more confidence in the system (RATIN, 2010 and UNCTAD, 2009). UNCTAD (2009) further noted that Kenya's political situation and policy constraints have made establishing WRS take much longer than anticipated.

The government, through the Ministry of Agriculture, was committed to developing the WRS. The government made attempts to bring partners together to develop the appropriate legal framework. An appropriate legal system must support warehouse receipts as secure collateral for borrowing. This legal framework should clearly define the following:

- Legal status of the warehouse receipt as a document of title or pledge.
- Rights and obligations of the depositor and the warehouse operator.
- Protection of security interests (registration of the warehouse receipt or pledge).
- Protection of the warehouse receipt against fraud, and financial performance guarantees.
- Priority of the holder's claims on the warehouse receipt in case of borrower default or bankruptcy.
- Clear procedures in case of bankruptcy of the warehouse operator and for financial performance guarantees.
- Provide storage insurance programs against fire and theft.

Monitoring and oversight mechanisms

EAGC is the recognized regulator, sets the rules, and manages the system. It is also in charge of admitting new members and arbitration in case of disputes. The EAGC hired a credible inspection firm in selecting warehouses for certification, based on the set EAGC criteria covering: structures, equipment (handling and laboratory), staff skills, lease, audited records, past records and insurance cover. Other WRS partners were also free to hire services of inde-

pendent but credible firms and laboratories to justify claims for appropriate dispute resolution.

The key stakeholders regularly hold review meetings to assess the best partners and systems for their operations. The Equity Bank is continuously reviewing mitigation mechanisms based on the level of risk anticipated (Personal Communication, Agribusiness Manager, Equity Bank, 2010).

Conclusion

The outlook of WRS is bright once the legal framework has been put in place and stakeholders gain confidence in the system. This calls for continued lobbying of the government to fully commit to formulating appropriate legal structures and promoting development of the maize/cereal sub-sector. The government should stop politically instigated policy directives which only distort the maize market.

The WRS model in Kenya is the beginning of a commodities exchange in Nairobi. It will provide useful lessons for establishing a successful regional commodity exchange market. Other commodities that have been considered under the WRS PPP include rice, beans, potatoes, vegetables, wheat and barley.

A successful regional commodity exchange can only be established if partners support the WRS system, make use of the electronic trading system, and build a strong network of certified warehouses, financial institutions, and insurance and risk mitigation agencies. Farmer organizations must be strengthened so that they can participate in warehousing under the WRS model.

Moreover, the receipts can be traded on secondary markets, such as commodity exchanges, thereby attracting a larger pool of capital into commodity financing, beyond bank lending. If stored commodities have been properly graded and quality standards have been adhered to in the warehouse, a tradable warehouse receipt may replace normal physical delivery. Therefore, the PPP has initiated the system but the ongoing sustainability of this system is still questionable unless challenges highlighted in the case study can be overcome.

3.5 CHARACTERIZATION OF THE STRIGAWAY MAIZE PPP

Overview

Cereal cropping in parts of Kenya and other parts of Eastern, Southern and Western Africa is adversely affected by Striga weed infestation. Striga is a parasitic weed that destroys cereal crops like millet, sorghum, upland rice, sugarcane and maize crops (where the greatest losses occur). Striga's

effects are diverse and long-lasting and cause food insecurity in thousands of households and limits rural development. In Kenya, the Striga infestation is more pronounced in the Western part of Kenya where it is present in an estimated 210 000 hectares of maize farmland (AATF, 2006). Yield loss due to Striga damage ranges from 20 percent to 80 percent in a given field. This results in total losses of about 300 000 tons of maize per year and Ksh 800 million per year (Manyong *et al.*, 2007).

To overcome the adverse effects of Striga infestation, the Striga eradication initiative came into effect in 2006. This initiative brought together stakeholders in developing best Striga control practices. Of the tested Striga management practices, the Imazapyr-Resistant (IR) maize demonstrated the highest maize yields and largest Striga resistance¹². The IR maize technology involves herbicide coated maize seed which provide chemical protection against Striga infestation. The IR maize technology is marketed as StrigAway® (AATF, 2006).

At the beginning of this project, a well-coordinated public-private partnership was considered vital for the success of the initiative. In 2006, the AATF noted "Striga eradication requires that very different partners work together toward a difficult common goal." Partners provided farmers with incentives to eradicate the Striga weed from their crop fields. A description of the partners and their roles in the PPP is summarized in Table 9 below.

Source of human and financial resources

The Rockefeller Foundation was instrumental in financing research into Striga management technologies, a project managed by AATF. The multinational private company, BASF, was also instrumental in providing the initial IR maize germplasm for research. BASF retained exclusive rights to license commercial production if research was successful. BASF also benefitted through sale of the chemical, Imazapyr, an herbicide used in coating the maize to provide chemical protection against Striga infestation.

The commercial seed producer had to invest in a project laboratory and a separate seed processing line, to avoid contact of Imazapyr with other seeds. BASF committed to support these additional investments, although there have been delays in honouring the commitment. This has forced the seed company to borrow money from

¹² For more information on other Striga management practices, see AATF, 2006.

TABLE 9
Roles of partners in StrigAway project

Partner/organization	Description of organization	Role in the PPP
AATF	Involved in agricultural technology deployment in Africa.	Streamlined regulatory approval, stewardship development and PPP management.
BASF	A multinational corporation with an agricultural division that develops, manufactures and distributes chemicals.	Provides Imazapyr herbicide, provided initial IR maize germplasm for research and issues commercial licences. Supported acquisition of machines by Western Seed Co.
CIMMYT	An international research and development institution.	Development of Imazapyr resistance in maize varieties.
Weizmann Institute of Science	Has expertise in coating seeds with herbicides including slow release formulations for prolonged activity.	Provided technical expertise in coating seed with Imazapyr.
The Rockefeller Foundation	An international donor organization.	Provided initial funding for testing 'best-bet' Striga management technologies
The International Centre for Insect Physiology (ICIPE)	An international research and development institution.	Development and deployment of push-pull technology which is combined with IR technology in suppressing Striga
Kenya Agricultural Research Institute (KARI)	A national research and development institution.	Establishment of two research facilities committed to Striga management in west Kenya. Development of Striga tolerant OPV (KSTP 94). Multiplied seeds for technology testing and plant breeding.
Maseno University	Public university with a botany and Horticulture department in the Faculty of Agriculture.	Investigates Striga management technologies and offers technical backstopping in demonstration fields
Western Seed Company (WSC)	Seed company based in Kenya with a regional market.	Produces Striga-tolerant (WH502) and IR (Ua Kayongo) maize varieties.
The Forum for Organic Resource Management and Agricultural Technologies (FORMAT)	Kenyan NGO specializing in agricultural information and communication.	Development and distribution of information materials, logistical support and production and distribution of Striga-suppressive legume seeds.
Resource Projects Kenya (RPK)	A Kenyan NGO creating farmer research and market linkages.	Assists farmer organizations to better access farm inputs and market surpluses in Striga-affected regions.
Farmer organizations	Those based in Striga-infested regions.	Provide peer support in technology uptake and collective action in input access and marketing of output.

Source: Compiled by authors from AATF, 2010.

other votes to finance this activity, a move which is claimed to have distorted the company's balance sheet.

For successful implementation of this PPP, new expertise was required regarding Striga biology, IR maize technology, seed production and dressing processes, understanding the product, product handling, business management and entrepreneurship. This meant that the funds needed to be allocated for training farmers, the seed company, agro-dealers, extension officers, and technical assistants. Expertise was provided by Ministry of Agriculture, Maseno University, Kenya Seed

Company and KARI-Kibos. The trainings were facilitated by AATF through the grants.

Nature and levels of performance incentives

The StrigAway PPP initiative was borne out of the need to overcome risks in production, input supply, food insecurity and diminishing rural incomes. The PPP was motivated by three main drivers. First, there was a need to devise an effective technology of controlling Striga given that other conventional methods of Striga control seemed less effective. Secondly, it was necessary to develop a technological package that would

not only suppress Striga but also lead to yield increases. Third, there was a need to involve private sector participation due to the envisaged potential for profitable investments in seed supply.

The benefits to be accrued by beneficiaries were estimated in terms of: total acreage under IR maize; level of Striga suppression; yield and productivity increases; increased awareness of effective methods of Striga management and returns

on investments by seed companies and farm input suppliers (AATF, 2006).

Stakeholders interviewed revealed that some of these benefits have been accrued (see Box 2 and 3), while others are yet to be realized owing to technical and logistical challenges in deployment.

Other positive outcomes of this project include rise in yields that have resulted in increased incomes and a reduction in the cost of production, as narrated by farmers using the StrigAway technology (see Box 3)¹³. Woomer and Savala (2008) estimated that yields have gone up from an average of ½ a bag (40 kg) per acre in the uncontrolled Striga field to 4 – 6 bags (480 kg) per acre in Striga controlled fields using IR maize. This has indicated an increase in household income. The average period that farmers have used IR maize is 6 years. On average, farmers buy 6kgs of IR maize and plant ¼ of an acre per season. For the other maize varieties, they buy 10 kg and plant 1 acre per season.

The factors that determine the quantities of IR maize planted each season are: 1) seed accessibility 2) the relative price for IR maize compared to other varieties 3) labour availability and 4) level of Striga infestation in the farming land.¹⁴

Farmers feel that the limited quantity of seed available in the market and also issued through farmer organizations limits the potential impact of the technology. The problem of inadequate seed supply has persisted since the technology was launched. Manyong *et al.* (2007) noted that some early adopters quit the technology altogether due to its limited access. An interview with WSC revealed that seed supply was a problem. The Kenya Seed Company needed more resources to facilitate the production of the IR maize in response to market demand. – Project funding has not yet been released as agreed. This forced the company to borrow money from other funds to run the technology.

Assessment of the enabling environment

Policy incentives are required to entice investment in seed production. Incentives include tax waivers on production and processing equipments for IR maize seed, devising appropriate maize marketing

BOX 2

StrigAway project outcomes

During 2008, the project delivered technology packages and extension services to 51 280 farm households, established 107 roadside demonstrations for \$56 each, and conducted 30 farmer field days for US\$0.45 per participant. 23 600 STEP* packages and 800 FIST** packages were distributed. Striga control technologies were established onto 655 ha resulting in about 1 108 tons of additional maize worth US\$367 120 with an estimated farmers' benefit to cost ratio of 2.8. Public awareness of Striga was promoted through several actions (Striga management instructions were provided in both English and Kiswahili, 200 posters, one video documentary, media broadcast on KBC, exhibition at the Nairobi International Show).

In 2008, the demand for IR maize was estimated to be 1.6 tons (Ksh 256 Million) while that of Imazapyr herbicide was 2.4 tons (Ksh 25 Million). The IR maize seed generated an additional production of 82 000 tons of maize with an incremental value of Ksh 1.44 billion.

Source: Compiled by authors from AATF annual report, 2009 and Woomer and Savala

*A STEP package is comprised of 250g IR maize seed (Ua kayongo), 1.5 kg fertilizer (1.0 kg of DAP and 0.5 kg of CAN) and user instructions. The package was intended for 100m² of Striga infested crop land.

** A FIST package consisted of 2.5 kg of IR maize seed (Ua kayongo), 10-20 kg of fertilizer.

The package was intended for 1 000m² of Striga infested crop land and distributed through a credit model.

¹³ Interviews with beneficiary farmers in west Kenya and notes from FGDs conducted in Nov-Dec, 2010. One bag weighs approximately 90kgs.

¹⁴ Summary report of two Focus Group Discussions held in December, 2010 with representation from beneficiary farmer groups.

BOX 3

Impact of StrigAway technology as narrated by beneficiaries

Farmer 1: “Initially, I could plant maize in ½ an acre and harvest 1 bag only, but after the introduction of IR maize, the same ½ acre where I used to harvest 1 bag, I was able to harvest 3-4 bags of IR maize. As well, weeding could be undertaken four times before harvesting, but weeding intervals came down to 2 or 3 times before harvest because Striga population decreased to a large extent.”

Farmer 2: “Striga was eliminated on my farm after eight continuous seasons of innovative, sound Striga control practices of combining IR maize-based and legume based technologies within an intensively managed cereal-legume intercrop.”

Farmer group: “Farmers cohesively work together as groups in establishing demos, organizing acquisition of IR maize seed and trainings. Besides, it is the only project that has brought the technical assistants of ARDAP and RPK closer to the farmer and through interactions with them; we have learned new farming ideas and accessed new information.”
The package was intended for 1 000 m² of Striga infested crop land and distributed through a credit model.

Source: author’s compilation, 2010

policies which will overcome market/economic risks, which were ranked as the most important constraints by WSC in this PPP.

Since the Striga problem is regional, there is high optimism that the new constitution, which provides for devolved governance, will reduce the problem. In this respect, stakeholders aim at engaging affected regional governments to anchor Striga eradication initiatives within the region’s rural development strategy. This intervention will strengthen the existing input access strategies such as credit extension to affected households, stockists, building capacity of farmer organizations for greater cohesiveness in technology adoption. The move will also enhance market development and regional collaboration for information sharing and learning.

Policy support would strengthen the value chain linking breeders, seed companies, seed inspectorates, farmers and markets. This would enhance full benefits of the IR seed technology and also position stakeholders to maximize emerging opportunities in Striga eradication. For example, IR seed technology can be used in other crops such as sorghum.¹⁵

Monitoring and oversight mechanisms

Since the project is still at the initial phase, the performance, monitoring, and appraisal mechanisms are still evolving. AATF is currently undertaking the role of monitoring in collaboration with the NGO FORMAT. FORMAT has been contracted to provide information and logistical support. The project manager at AATF stated that the most important monitoring mechanism will be based on production, sales, farm outputs and reducing Striga infestation in the farmers’ fields.

Conclusion

The StrigAway PPP exemplifies a “cascading innovation.” This means that the partners developed new arrangements to take advantage of new opportunities and to address challenges experienced in its implementation. For example, a new private-private partnership between BASF and WSC is being considered with an aim of developing a warning sticker for Imazapyr. This sticker would warn of the risks of handling the IR maize and other potential risks to crops and humans.

Some farmer groups saw an opportunity in seed supply and they sought training in seed production. These farmers now produce IR OPV maize seed which they sell to a local NGO, ARDAP. Here they fetch higher prices than producing maize for food. Another innovative strategy for the technology deployment, the FIST package, was developed to overcome the credit constraint which was found to limit access to inputs. These innovations exemplify the potential of PPPs in stimulating entrepreneurial behaviour and growth of agribusiness.

Another cascading innovation identified as a result of this PPP was the establishment of a revolving fund. This not only ensures long-term sustainability of IR maize seed supply but also empowers farmers to acquire additional farm inputs in the future (Omanya, 2010 and Woomer

¹⁵ The IR sorghum seed is undergoing performance trials.

and Savala, 2008). Further, this PPP has expanded from its original network of four formal institutions to include a network of many formal and informal organizations at different levels of the value chain, sometimes without any formal agreements, but all pursuing the goal of Striga eradication (Odame, 2002).

This PPP has the potential to trigger backward and forward linkages for increased production of breeder seed, Imazapyr herbicide, IR maize seed, and demand for additional farm inputs. For example, this PPP can trigger demand for fertilizers and herbicides, and consequently bring higher incomes to farmers, agro-dealers, maize traders and related businesses). There are high expectations for improvements in rural incomes if the challenges of seed supply and inadequate access to other additional farm inputs are addressed. The partnership's goals would surely be better advanced by paying greater attention to the concerns of bottom-end partners, strengthening the feedback mechanism and lobbying for facilitative maize marketing policies.

Chapter 4

Development of agribusiness PPPs

4.1 OVERVIEW

This chapter presents a case by case analysis of how the agribusiness PPPs were designed and developed. The elements considered are how the PPPs were appraised, the cost and revenue estimations, the models for implementation, the selection of partners, the assessment of the enabling environment and the risk assessment and allocation.

4.2 KEVIAN FRUIT PROCESSING CASE STUDY¹⁶ Appraisal of business models and project design

The PPP was conceived as a pilot project following a mango stakeholder workshop organized by the Kenyan-German PSDA (Private Sector Development in Agriculture) Programme. The aim of the PPP was to devise strategies to overcome challenges in all stages of the mango value chain. The private partner selection was based on the ability to raise at least 50 percent of the funds needed to set up a processing line and acquire equipments.

Kevian, the private partner, saw the opportunity and took leadership in developing the partnership concept. The company developed a business plan, which it presented to GTZ for consideration. The proposed project was in line with GTZ/PSDA's objective of supporting small and medium-size farmers and agricultural entrepreneurs in selected value chains. These farmers can participate more actively in the market and make use of their market potential. It was then necessary to liaise with the Kenyan Federation of Agricultural Producers (KENFAP), who had already mobilized and built the capacity of farmers groups in the Eastern, Central, Coastal and Rift Valley areas, for other projects and initiatives.

Partners initially focused efforts on organizational development. This involved mobilizing farmer groups and associations, and coordinating groups and committees charged with different mandates. The purpose was to enhance service delivery and marketing of produce. Many donor-supported agribusiness initiatives tended to use collective action in implementation.

Participatory analyses of the best path for the PPP development was employed throughout the project's life. This approach was intended to promote competitiveness and efficiency along the value chain while at the same time building trust and sharing experiences which would be vital for the project's success. These included project evaluation, workshops, field days, meetings with stakeholders and their representatives. The coordination groups participated in developing the Terms of References (ToRs) on how to supply of fresh mangoes and processed products. The two committees strengthened cooperation between KEVIAN and the farmer groups by monitoring production and coordinating supplies. KEVIAN was tasked with formulating market and price contract agreements between the processor and farmer groups/ out-grower associations.

Formal negotiations, through participatory analyses took the better part of 2005. The plant was scheduled to begin its operations by March 2006. A formal contractual arrangement (based on an approved business plan), was drafted and signed by the two key stakeholders (KEVIAN Co. Ltd and GTZ) in 2006. The other planning activities included:

- Developing standards for product quality and safety from farm to plant gate.
- Assessing challenges, cost drivers and opportunities between farm gate and plant gate.
- Assisting groups to elaborate business plans to determine their range of processed products.
- Training extension personnel, farmer groups, field officers and record keepers in quality assurance systems, and safety and marketing standards.

¹⁶ Sources of information for this sub-section include: personal communication with GTZ/PSDA personnel, and project proposals, <http://www.gtzipda.co.ke/> and <http://www.gtz.de/en/praxis/13687.htm>.

Assessment of the enabling environment, tax and trade policies

The PPP negotiation process got a boost from the Gazettement¹⁷ of mangoes and avocados as gazetted crops on June 11, 2006 by the government. Thus, development of these two crops was recognized as significant to economic development. The PPP also benefitted from the renewed GoK/GTZ contract on technical cooperation that ran between 2006 and 2013.

The PPP was also relevant to KEVIAN Ltd because the juice manufacturer used imported concentrate to produce fruit juices, which attracted high carrying cost of inventory and heavy taxation of imported concentrate. Thus, KEVIAN would be a ready market for local producers of raw mangos, passion fruits, and pineapples, which translated into increased income for the producers. Local sourcing also helped Kevian gain flexibility and improved their cost base¹⁸.

Policy-related challenges which were encountered during implementation include:

- i. Excessive taxation. Moving fruits from collection centres to the factory attracted excessive taxes from county councils. Thus, there is a need to harmonize taxes levied by county councils either by reduction the taxes, base levies on weights, or reviewing the Agricultural Act which gives authority to county councils to set own their own tax by-laws.
- ii. Associated with the first challenge was the that transporters often offered police bribes at various check points, which led to increased transportation costs. A standard newspaper report claimed that police demanded up to 500 Ksh1 (approximately USD18) for a lorry of goods at each check point. This practice reduced income margins of farmers (Standard Newspaper, 6 December 2010). Kevian assumed processing and market risks as opposed to risks associated with transporting the primary produce to the processing plant.

Risk assessment

The main risks identified in this PPP were production and market risks. The production risks emanated from the fact that mangoes were only available for about seven months in a year. Mango supplies were seasonal. Consequently, the factory processing capacity was under-utilized for about five months in a year. The other production-related risks were limited quality uniformity because the participating small-scale farmers produced many varieties of mangoes.

Another associated risk was the perishability of mangoes. This made it difficult to process mangoes in a continuous and regular way unless refrigeration facilities were utilized during transportation and storage. In this PPP, this challenge was overcome by establishing small-scale processing cottage industries, at points of production, to semi-process the fruits into pulp for further processing and solar-drying the mangoes into chips. Kevian then bought the processed products from farmer association for re-distribution. Another coping mechanism considered by different stakeholders was mobile processing and transporting the fruit in the form of pulp.

Generally, market risks came about due to acceptability of the product in the intended market. KEVIAN faced this market risk for two reasons: one, the majority of domestic consumers were unaware of the health benefits of natural fruit products; and two, there was high competition from imported and mango flavoured fruit juices and concentrates which were cheaper in the market.

Exit plans

The PPP was a pilot project that should have lasted three years (i.e. until 2008). To achieve broader impact, GTZ/PSDA facilitated the up-scaling process through capacity-building at farmer-level and facilitation of setting up related service structures. Kevian, on its part, intended to enlarge the market for locally produced and processed fruit juices and other mango products and thus initiated out-grower associations. These associations served as nucleus farms for the continuous supply of mangoes. Lastly, KENFAP facilitated organized and business-oriented farmers associations to acquire Kenya Bureau of Standards (KEBS) certification and quality assurance to enhance their market access.

¹⁷ Gazettement refers to bringing into law and public notice through a government publication such as the Kenya Gazette.

¹⁸ <http://www.gtz.de/en/praxis/13687.htm>. Accessed on January 14, 2011.

4.3 BIOFIX PPP CASE STUDY

Appraisal of business model and project design

The Nairobi MIRCEN programme team, MEA Ltd and the African Knowledge Transfer Programme (AKTP) of the British Council held several consultative meetings in 2008. These meetings culminated in the launch of BIOFIX PPP. Financial estimations of the required investment, output, and associated costs of production, potential sales and time frames were carried out by the proposed project partners and presented in a project proposal to the British Council in early 2008. After evaluating the proposal and holding of forums to negotiate models of implementation, the PPP was approved in September, 2008 and launched in October (Mwangi et al., 2009¹⁹).

A Memorandum of Understanding (MoU) was developed and signed by all partners to seal the partnership deal. The MoU stipulated supply and payment arrangements for the inoculant strains and payment of royalties by the company. Payments were done on a quarterly basis. In addition, a partnership Non-Disclosure Agreement was signed which prohibited unauthorized sharing of partnership information except for public information only. Apart from the initial agreement with UoN, MEA Ltd. developed other separate semi-formal agreements with suppliers to procure necessary materials (such as filter mud, adhesives, peat moss, and packaging materials).

MEA Ltd was selected as the private sector partner. The company had expressed the desire to diversify into organic fertilizers, to augment inorganic fertilizers, and to overcome soil fertility and pH problems. This was a good indication of the company's commitment for long-term improvement in soil fertility and agricultural productivity by providing a wide range of inputs for farmers.

Assessment of the enabling policy environment

As previously mentioned, the policy of providing findings from public institutions for free was an impediment towards deploying Rhizobium Inoculant technology. The legal framework on patents and intellectual property was also unclear.

On its own, the university had minimal resources for technology deployment and also lacked the capacity for large-scale commercialization.

However, the government's goals of enhancing food production and the UoN's mandate to develop and deploy appropriate and affordable technologies stimulated rethinking of the Nairobi MIRCEN project and thus, the BIOFIX PPP was created. This also meant reshaping the UoN's policy towards strengthening agricultural innovations for farmers.

Risk assessment

The company shoulders most of the risks in this PPP. The major were production and marketing risks. Odame (2002) identified some technical challenges encountered in the previous model. These challenges include:

- i. **Viability of the inoculants:** Seeds inoculated with BIOFIX have to be applied within 24 hours. This requirement along with the stickiness of the inoculated seeds puts pressure on the already limited labour. This problem was exacerbated by the exclusion of young children and the elderly in the planting the inoculated seed – for the fear of poisoning them.
- ii. **Size of the BIOFIX packages:** BIOFIX is still being marketed in the original packs of 100 g of inoculant and 15 g of adhesive, which is adequate to inoculate 15 kg of bean seed – needed for one acre. Yet, many farmers plant beans on less than one acre²⁰. Suggestions to reduce the original pack into sizes that reflect the land and labour use practices of farmers have yet to be adapted.
- iii. **Farmer acceptance:** Despite almost over 20 years of doing Rhizobium research and receiving public funding in Kenya and elsewhere in the world, there is very little to show, in Kenya in terms of yield increase, in order to spur farmers to accept the technology. Partners may need to set up field demonstration sites in various parts of the country to demonstrate the benefits²¹.
- iv. **Use of inoculant on leguminous crops only:** Researchers have been challenged

¹⁹ Mwangi et al., 2009. The Second Science with Africa Conference. Recent Strategies towards Science Technology and Innovation Transfer Commercialization and Partnerships in Kenya for Social Economic Development.

²⁰ Many smallholders plant common beans on an average of 0.25 acres.

²¹ There are claims that there is high demand of the inoculant within East Africa, although M&E reports were not shared due to the confidentiality clause.

to develop Rhizobium inoculant for other non-leguminous crops which are equally important to farmers but were facing low yields. However, farmers cannot afford the required chemical fertilizers. MEA pointed out that it was pursuing two local seed companies to undertake collaborative R&D work in addressing the challenge. The initiative was a good example of cascading innovations that were meant to address challenges that emanated from public-private partnerships.

4.4 WAREHOUSE RECEIPTING PPP

Appraisal of business model and project design

A self regulatory members' body, EAGC, took the leadership role in bringing stakeholders together to design the partnership. Stakeholders were engaged in developing strategic business plans through participatory processes. Higher level stakeholders, with representation from banks, Cereal Growers Association (CGA), insurance companies and warehouse operators organized consultative meetings to explore the system's potential. Benchmarking trips were also organized where stakeholders inspected warehouses, visited maize growing areas, and sensitized farmers on the upcoming grain marketing model.

Several international development agencies took interest in the partnership and have supported different aspects of the PPP since its launch. These agencies include DFID, SIDA and USAID. The local public sector agency, National Cereals and Produce Board (NCPB), had to either participate in the system by offering public warehousing services or lease out its facilities to the private sector warehouse operators. These operators made the facilities available for public warehousing. These facilities had to meet set criteria for certification under warehouse receipting.

Other WRS partners, for example, warehouse operators, depositors (farmers and traders), banks, and buyers, were free to participate in WRS subject to admission by EAGC. The warehouse operators had to prove the capacity to provide warehousing services and facilitate warehouse receipting. All warehouses had to be EAGC certified.

EAGC hired an independent inspection firm to inspect and certify warehouses. This added credibility to the PPP and potentially increased partners' sustainability and commitment.

The WRS business model was appraised and designed through a cost/benefit analysis of the warehouse receipt program. The expected costs

and revenues were estimated based on forecast variable tonnage flows through the WRS.

Assessment of the enabling environment

Grain trade (and especially maize trade) is often distorted by inappropriate government policies. This has been a major drawback in adopting warehouse receipting. Another related factor was the lack of a legal framework, which spelled out provisions for use of warehouse receipts as collateral, security of stock in the warehouse, and procedures for dispute resolution. The EAGC continued actively lobbying national governments, the East African Community (EAC), the Common Market of Eastern and Southern Africa (COMESA), and other regional organizations on matters related to grain sector policy, trading, and productivity.

Risk assessment

The key stakeholders held review meetings regularly to discuss how to work best together. EAGC, as the system's regulator, established rigorous regulations to guide WRS. EAGC also served as the oversight body which regularly inspected warehouses to ascertain that standards were being followed.

According to Esther Muiruri of Equity Bank, risk assessment was critical before engaging in the contractual arrangement. The Equity Bank therefore invested time and energy in understanding the WRS, developing policies and procedures, and undertaking training at branch and head office level.

4.5 STRIGAWAY MAIZE PPP CASE STUDY

Appraisal of business model and project design

The StrigAway maize initiative was developed with eight principles in mind for Striga eradication in Africa. These include:

- i. Prioritizing maize. Maize is a major food security crop and is at greatest risk of a Striga infestation.
- ii. Advancing Imazapyr resistance by combining it with other proven Striga suppressive technologies.
- iii. Involving national scientists by developing their capacity to characterize, map, monitor, and validate new technological approaches to combat Striga.
- iv. Promote commercial opportunities by creating an enabling environment for investors such as seed producing companies and input suppliers.
- v. Engaging and empowering affected farmers to use technology.

- vi. Disseminating the new technologies through existing organizations.
- vii. Advancing market-led paradigms for greater returns on investments
- viii. Avoiding coercive measures such as mandatory uptake of technologies which have succeeded elsewhere but are inappropriate for the local set-up.

Based on the above principles, different levels of partnership engagements were conceptualized across the agricultural value chain. These were in technology development, commercialization, input supply, technology dissemination, financing, marketing, monitoring and evaluation, and partnership management.

For “upstream” technology development and commercialization, both international and national public and private sector players were involved. Local organizations (NGOs and farmer groups) and firms (agro-dealers through their networks) were involved in “downstream” activities geared towards technology uptake. AATF invited those NGOs and farmer groups, under the NGO consortium, that had participated in other Striga eradication initiatives prior to the launch of the PPP.

Western Seed, the private seed company, was accepted into partnership after carrying out an independent study with a group of 10 000 farmers who planted the demos. The Company was approved to commercially produce IR maize seed. It took 12 months to formalize the whole initiative after approval by KEPHIS, and another 12 months to be allowed to start producing the maize and start marketing. This was so due to the conditions of multiple associated agreements, and which were officially signed this year (2010).

AATF is the overall coordinator of the PPP and works closely with FORMAT to capture and disseminate information on the progress of the PPP. Apart from initiating the PPP through proposal writing for funding and invitation of stakeholders on board, AATF also served as an “honest broker” and ensured that the intellectual property of BASF would be respected, and that technology would reach the intended beneficiaries.

Private benefits were estimated in terms of technology adoption rates which would trigger demand for seed and other farm inputs. Public benefits were estimated in terms of incremental maize production and acreages which were free from Striga infestation. This would contribute to the national goal of food security and poverty

eradication among rural households. Therefore, the indicators were estimated in terms of total acreage under IR maize production, yields, level of Striga control/suppression, and other benefits of the technology to the farmer.

To ensure continuous development and adoption of appropriate technology/technological packages, the two were linked through seminars, farmer field days, demonstration plots, training workshops, project backstopping from FORMAT, and technical backstopping by Maseno University. The Ministry of Agriculture’s extension wing was crucial in teaching farmers about the new technology. Grass-roots organizations also helped with technology deployment. Extensive sample surveys were undertaken between 2005 and 2006 to ascertain potential market demand for IR maize seed, yield improvements, and incremental value to farmers.

Assessment of enabling environment

The technology is still under research (the final stages), hence there is no sound regulations put in place. This might be done sometime after the technology is in place. Given that KEPHIS has already certified the technology, no more regulations should follow.

Risk assessment

Although this PPP was conceived with the motive of promoting agribusiness, the private seed company has borne substantial additional risk compared to participating farmers, farmer organizations, and input stockists. This is because the company’s return on investment is hinged on adoption, strong market networks, farmer repayment for input credit, and production risks, as well as stewardship risks associated with delays in release of funds for additional investment.²² To address the latter risk, the company has put more emphasis on confirming orders and down payments for the orders before the company produces the quantity ordered by the partner. This condition has often caused delays in providing seed to the agro-dealers and participating NGOs.

RPK, the NGO in charge of administering input credit on behalf of AATF had to deal with non-repayments and loan defaults which affected seed procurement for the following season.

²² WSC indicated that they had to borrow from other vote heads to run the technology since the company did not receive the funds pledged in 2006.

In addition, stakeholders reported that since the technology was highly dependent on good climatic conditions such as rainfall, the occurrence of drought could ruin the potential gains of the technology and all related agribusinesses. This called for policy support in devising affordable crop insurance schemes and investment in accompanying satellite weather stations to improve farmer's decision-making and uptake of agricultural technologies.

Conclusion

The potential benefits of IR maize are huge. Indeed, this is the only Striga control technology that permits farmers to simultaneously produce maize-legume intercropped and reduce Striga seed populations at the same time. If all 2.36 million ha of Striga-affected maize in Africa were planted in IR varieties, about US\$104 million of IR maize seed treated with 71 tons of Imazapyr worth US\$10.6 million would be required annually. Controlling Striga in smallholder maize farmers' fields can help African's economic recovery.

Chapter 5

Appraisal of agribusiness PPPs²³

5.1 OVERVIEW

The four agribusiness PPPs reviewed in this study were initiated by bodies other than the parent ministry. In itself, this revelation contradicts Kenya's PPP framework where the parent ministry should initiate a PPP project and private partners should be brought on board through competitive bidding. None of the reviewed PPPs announced tenders. Instead, the initiator relied on a priori knowledge about the industry players and sub-sectors and then approached them for negotiations on potential partnerships.

The private partner in all cases (except Kevian Fruit processing) received grants. The private partner's initial contribution was minimal. In the KEVIAN Fruit processing case study, the size of the grant was equivalent to the capital raised by the private partner (KEVIAN). Co-investment builds commitment and sustainability in a project in addition to placing the private partner in a good position to seek additional capital from financing institutions such as banks.

The heavy reliance on grants for the other PPPs is not viable for agribusiness development. This is because a commercially viable venture should be in the position to sustain itself beyond the project life. For instance, StrigAway does not yet emerge as a sustainable PPP because even with the introduction of a commercial model, the lead agency, AATF had to seek donor funds, which the project is still relying on. In addition, the market risks are high for the private seed company since the product has a limited market share.

There were minimal legal formalities for the agribusiness PPPs (except for the StrigAway PPP). Drafting and signing of MoUs between parties was considered adequate for the partnership to take off. However, in WRS, the StrigAway and Fruit processing PPP, the stakeholders recognized that they needed a legal framework through

which the PPP should be implemented. In the WRS and Fruit processing PPP, the contract law was applied in drafting contracts between various stakeholders. Unfortunately, the lack of an appropriate warehouse receipting legal framework in Kenya eroded confidence in the warehouse receipt system. The Intellectual Property Rights of the StrigAway multi-national company had to be legally safe-guarded. Partners in this PPP protected information to not violate IP arrangements.

The Ministry of Agriculture took a back seat for all the agribusiness PPPs reviewed here. They only provided extension services on technical issues and did not provide resources. Some PPPs mentioned that the Ministry regulated the PPP but discussions with stakeholders revealed this not the case. The Ministry was never involved in the PPP formulation stages. (This was the case in the fruit processing PPP).

According to the PPP framework, an oversight body for PPPs should be established before a PPP project starts. This body should be independently run and give guidance on implementation. It should also serve as the "voice" of the PPP. In the four case studies, there was no clear-cut boundary between the oversight body and the lead agency. In fact, where mentioned, the oversight body was the lead agency in implementation. Since donor funds had to be accounted for, the lead agency was forced to take up the additional role to ensure adherence to MoUs. StrigAway and WRS exemplified this scenario since AATF and EAGC performed both the roles of fund managers and oversight agencies.

The sustainability of a project is a main definition of its success. All the PPPs meet these criteria although in varying proportions. In the case of StrigAway, sustainability emerged as an after-thought later in the project's life during the testing of the commercial model for technology deployment. Establishing a revolving fund helped build sustainability and introduce over-dependency on donor funds.

In BIOFIX, also a technology deployment PPP, sustainability was considered in the initial stages and adhered to from the beginning. BIOFIX had

²³ Literature sources for this chapter include Ong'olo, 2009, Spielman et al, 2006, the European Commission's guidelines for successful PPPs, and legislation on PPPs in Kenya.

TABLE 10
Comparative matrix for appraised agribusiness PPPs

PPP	Nature of the PPP	Legal formality	Key partners	Oversight body	Defining policy moments	Sustainability elements	Cascading innovations
WRS	Grants	Contractual agreements with stakeholders (Warehouse operators and EAGC, Warehouse operators and farmer, warehouse operators and bank).	Local Public-NCPB, donors- SIDA, USAID, DFID; Private-EAGC, Warehouse operators, banks, farmers, insurance companies.	EAGC	Ministry's efforts in formulating a warehouse receipting legal framework.	Operational revenue, consultative decision making.	Formation of producer marketing organizations.
BIOFIX	Co-financing investment between private and public.	MoUs.	Local public-UoN, International donor agency-British council; Private- MEA Ltd.	Unclear	Amendment of university's policy to allow commercialization of its R&D product through licensing to a private company.	Enlarging market for BIOFIX, Stronger researcher-farmer-company linkages; capacity building through training and apprenticeship program.	Diversification into more legume crops, seeking partnership with seed companies; product re-branding.
StrigAway	Grants	IP rights protection, semi-formal agreements with NGOs and CBOs.	Local public development agency-AATF; A Multinational Private Company, BASF; donor org organization-The Rockefeller Foundation; Western Seed Co., Local NGOs (FORMAT, ARDAP, RPK), Farmer groups.	AATF	Recognition of Striga as a priority to be pursued in the county governments; Capital Investment allowance outside Nairobi.	Access to input credit, training of farmers on Striga control; establishment of a revolving fund.	Engagement of more stakeholders (agro-dealers, for product deployment; Development of a new product package –FIST.
KEVIAN Fruit processing	Co-financing investment between private and public.	MoUs, price and market agreements.	Donor organization-GTZ; Private-KEVIAN Co. Ltd; Farmer organization, KENFAP.	Unclear	Mangoes and avocados gazetted in June, 2006 as significant crops to economic development; renewed GoK/ GTZ contract on technical cooperation to run between 2006 and 2013.	Cost-sharing; Training on value addition, KEBS certification, coordination committees.	Individual farmers establishing own cottage industry; Establishment of a mango out-grower association.

Source: author's compilation, 2010

a maintenance fee, apprenticeship, and establishment of strong linkages between up-stream and lower-end stakeholders. *Skills development* is the most common sustainability feature in all PPPs. WRS is the newest PPP, and is setting the basis for sustainability by introducing fees to ensure operations run smoothly, even after donor funding has been terminated.

Innovativeness is a pre-requisite for growth and development. Innovativeness has been observed at down-stream as compared to up-stream levels. Capacity building at the grass-roots level for agribusiness development has high multiplier effects. Examples of innovativeness in the reviewed agribusiness PPPs include: product diversification, product re-branding, input credit, revolving fund, individual agribusiness ventures, out-grower associations and formation of producer marketing organizations.

These features are discussed in detail in the rest of the chapter under the following themes: effectiveness, competitiveness, effect on income and employment, legal and regulatory framework, sustainability, and challenges faced in implementation by technical officers.

5.2 EFFECTIVENESS OF PPPS - TYPES OF PPPS AND IMPACT

The effectiveness of a given PPP is also based on the preliminary stages of its development. These include: an appropriate legal and regulatory framework, suitability assessment, selection of the PPP type, structure and design, agreement of the oversight body, funding, competitiveness of the procurement process, and the actual implementation.

Kenya is setting up its legal structures and supportive institutions to guide PPPs. Kenya has established a PPP unit under the Ministry of Finance, a PPP steering committee, and a PPP secretariat. These institutions are charged with the responsibility of spearheading PPPs, policy development, approval of PPPs, technical assistance, and regulatory functions. One of the major achievements of these institutions is to pass the Public Procurement and Disposal (PPP) regulations of March 2009. Legislation supports this (The Public Procurement and Disposal Act No.3 of 2005 and the Privatization Act No. 2 of 2005).

The Director of PPPs in Kenya revealed that the PPP unit recommends that line ministries conceptualize PPP projects in compliance with PPP regulations and once approved, open it to competitive bidding to private sector partners. This takes care of the value for money, spread of benefits, and risk allocation.

Nevertheless, agribusiness PPPs appraised in this study did not necessarily follow all of these guidelines. The projects were steered by other agencies and not the line ministries. Some PPPs involved only one key public institution (or donor agency in some cases). They developed a partnership agreement with one private party selected a priori (case of KEVIAN fruit processing). Thus, government had minimal control of the PPP process and eventual outcomes. The Ministries' role was often not clear. The donor community and multinational companies greatly influenced the development of the four agribusiness PPPs. Donors mainly came in as financiers and provided grants. Multinational companies supported technology development and steered the direction of the PPP.

For all the PPPs, a formal partnership agreement was signed between the formal institutions, but development of other agreements for sub-contracting was left to the private parties. A good example is the KEVIAN PPP, where the formal partnership agreement was signed between KEVIAN and GTZ. KEVIAN and the mango PPP groups were involved in developing the ToRs, price, and market agreements.

Another finding from the case studies was lack of clarity in terms of oversight body for each of the PPPs. An oversight body played a key role in overseeing implementation, liaison with all partners, and encouraging consistent policy for the success of the PPP. Except for the Warehouse Receipt System where the EAGC acted as the oversight body, all the other PPPs were either unclear or failed to consider this element in the initial stages. Instead, there were attempts to set up steering committees/ PPP coordinating groups with representation from each partner. The private partner or the fund manager provided leadership in implementation, probably due to the high risk allocation on private partners and accountability. For instance, MEA Ltd and KEVIAN Co. Ltd initiated and lead most activities in the BIOFIX and fruit processing PPPs respectively. AATF, being the fund manager in the StrigAway PPP also acted as the oversight body, in addition to being the lead agency.

Achieving effective partnership required strong political support and government's commitment, more so when there were high risks and challenges in implementing the PPP. The GoK was a strong supporter of PPPs especially on infrastructure and energy in various ways: fast tracking legislation of PPP regulations, establishing supportive institutions, creating an enabling environment for investing in PPP infrastructure and concep-

tualizing PPP projects that were considered vital in achieving Vision 2030. In terms of sectoral support, the GoK spearheaded pilot agribusiness PPPs in irrigation, water, and warehousing. Stakeholders were optimistic about the government's support in developing and enacting policy and legal framework for warehousing, horticulture, and agribusiness policy.

Another measure of a PPP's effectiveness is the measurement and actual impact on the target groups. The main goals of the three PPPs include increased employment, improved rural incomes, and poverty reduction.

Although performance measurements were put in place for all the agribusiness PPPs, there was a lack of consistency in collecting and collating quantitative data to measure impact. It is not clear which of the partners was in charge of taking leadership in impact assessment, disseminating the same information to the public, or the legal clause which guides this activity.

5.3 RURAL INCOME AND EMPLOYMENT BENEFITS AND HOW THEY MIGHT BE ENHANCED

The four agribusiness PPPs are concentrated in three main areas: commercialization, value chain development, and contracting. Each of these orientations has unique goals and approaches to achieving these goals as explained below.

The BIOFIX and StrigAway PPPs exemplify commercializing partnerships where public research centres transfer research findings and materials to private firms for commercialization, marketing, and distribution. As for BIOFIX, MEA limited was licensed by the UoN for mass production and commercialization of BIOFIX. BIOFIX is an organic fertilizer that pays annual maintenance fees to the university to support future research.

In contrast, the StrigAway PPP involved issuance of a license by a multi-national company, BASF to WSC to commercially produce and distribute IR maize seed. However, in both cases, the private partner received or is scheduled to receive grants to support the additional investment that the companies would not raise otherwise. The PPP unit does not support such PPPs, since PPPs are not supposed to rely on grants but rather on business plans and cash flows that bring are sustainable after the project's life.

Grants provided important funding (for instance in setting up the BIOFIX laboratory and the seed processing line for IR maize seed). In both of the commercialization projects, the public partner did R&D while the private party was involved in prod-

uct deployment. Thus, the private party had major market and economic risks. The StrigAway PPP is slightly different because many NGOs helped with product deployment, and monitoring and evaluation, which improved public acceptance of the technology.

PPP commercialization focuses on cost reduction and effectiveness of a partner in undertaking a given role to achieve the set objectives. This is done by capitalizing on economies of scale and scope in research, exploiting complementary resources and capacities across the public and private sectors, and reducing transaction costs in the exchange of knowledge and technology.

The focus on poverty reduction was moderate as the impact indicators were measured by partners' goals regarding technology uptake, and company goals of returns on investment. Innovation was mainly market-led and based on market research. The private party handled product branding, the size of packages, establishing distribution networks and enhancing access through linkages with financing institutions.

MEA Ltd invested a lot in product and process innovation while WSC concentrated efforts in carving out a market niche for the new product line, IR maize seed. Although the public party was not very involved, these activities enhanced their research work.

Under contracting partnerships, public agencies contract their facilities or expertise to private firms to conduct portions of their business or research. A good example here is the Warehouse Receipt System (WRS) PPP that was implemented by EAGC. The contracts were designed to last 5-10 years. Although NCPB was invited to participate in the PPP as a warehouse operator, the NCPB warehouses were also contracted to private operators willing to store grains on behalf of farmers and other maize traders at a fee²⁴. Private companies opted to lease such public facilities because they had more capacity for grain storage than a private sector would invest in. Only slight improvements were needed to meet the standards set by EAGC for certification.

This arrangement should change following the government's policy measure of injecting Ksh500

²⁴ NCPB holds storage capacities of more than 20 million bags by 90kgs which consists of conventional stores and silo bins. Some of these facilities were not fully utilized and were leased out to third party. The rates varied from region to region but were basically driven by market demand (NCPB, 2011).

million in warehouse receipting in year 2011 to enhance small-scale farmer involvement in cereal warehousing. This move will likely enhance farmer's confidence in warehouse receipt systems and willingness to market grains through the system. Since the government is a participant in the marketing model, there's likely to be more commitment to overcoming challenges such as establishing a warehouse receipting legal framework. It is also expected that government will limit policy directives that distort maize market, in line with its commitment to improve farmers' positions in maize trade.

Although contracting partnerships are guided by the goal to reduce costs, the ultimate goal is to improve rural incomes. In the WRS PPPs earlier structure, it could only issue warehouse receipts of 100MT. Thus, only a few small scale farmers were able to participate, and this affected the intended impact. Reducing the minimum tonnage needed to issue a receipt would increase small-scale farmers' participation.

On a more limited scale, the KEVIAN Fruit Processing PPP had elements of contracting downstream. However, these contracts were designed for farmer groups and farmer associations instead of individual farmers as guided by GTZ. These contracts tried to strengthen farmer groups. The transaction costs within groups have been high to attract enterprising farmers who would prefer dealing on a one-to-one basis with the company. Furthermore, quality control in groups is often compromised since there are no proper monitoring mechanisms, thus negatively affecting incomes of both the farmers and the company.

The KEVIAN Fruit Processing PPP developed the entire commodity value chain. All partners contributed, though in different proportions towards R&D, planning, financing, product deployment, monitoring, and evaluation.

For the Kenyan case, the risk allocation was highest for the private company, followed by farmers. However, with proper implementation, the value chain PPPs triggered agribusiness innovation and had the highest potential for poverty reduction. The potential for rural poverty reduction is limited since private firms prefer to deal with large scale and commercially oriented farmers as opposed to farmer groups. It has been found difficult to attain set quality standards with farmer groups in addition to the likelihood of incurring high transaction costs in managing the groups.

For all the agribusiness PPPs reviewed, there was a need to improve the quality of analysis of

the impact indicators on how the PPPs led to improved well-being and livelihoods of target groups. This would help inform all stakeholders on approaches that work for the future.

5.4 RISKS IN AGRIBUSINESS PARTNERSHIPS

Agribusiness PPPs are beset by the same risks found in most research projects, including the possibility that (1) the research investment will not yield a successful product that is acceptable to its end-users; (2) the product cannot be developed within a time period that attracts sufficient investment; (3) the product cannot pass through the legal and regulatory hurdles needed to move from proof of concept to commercial deployment; or (4) the investment will fail due to changes in the wider social, political or economic environment in which the research is conducted.

The Public Procurement and Disposal (PPP) regulations of March 2009 stipulated that risks be allocated to the partner that can handle them in the most cost effective manner. The regulations also list ten major risks that a PPP project should take into consideration during planning and implementation. These risks are related to those mentioned in the above literature and include: design, construction, site, operating, demand, tariffs, collection, credit, *Force Majeure* and political risks. PPP theory proposes that all risks carry a price premium which is passed to the consumer. There are risks that are difficult to quantify could hinder successful implementation of a PPP.

For instance, risks associated with coordinating diverse partners and interests; protecting the distinct mandates, missions and reputations of centres and firms; and exchanging proprietary knowledge assets between the public and private sectors. These risks are particularly relevant with respect to agricultural biotechnology research undertaken by centres in partnership with leading multinational firms in the crop science industry. To overcome negative impact of these risks, coordination risks should not be ignored.

Risks inherent in agriculture research/deployment PPPs as in the case of StrigAway and the BIOFIX PPP should be minimized by appropriate IPR laws and patent rights which protect the interest of the technology developers. However, some schools of thought argue that stringency of such laws may limit technology deployment and lead to a dependency relationship with multinationals. This might increase the cost of the technology and thus, hinder local level development.

In addition to the above unquantifiable risks, discussions with stakeholders indicate that due

to the nature of agriculture, there are many risks inherent in agribusiness PPPs which are difficult to explicitly specify before signing the contracts, often leading to non-binding contracts. These risks include: supply risks, demand risks, payment mechanisms (in terms of regularity and price stability), and compensation risks (e.g. in the case of product loss or rejection in the market). For quantifiable risks, it is important to establish a cost effective risk transfer strategy that provides incentives to private sector participation, ensures quality of services and efficiency in operations.

5.5 LEGISLATIVE AND REGULATORY FRAMEWORK

An effective and sustainable legal and institutional structure is essential for identification, development, and implementation of successful PPPs. In Kenya, the supporting legal and institutional framework for PPP development is still evolving. The existing PPPs have benefited more from national legislation of the Public Procurement and Disposal Act No.3 of 2005 and the Privatization Act No. 2 of 2005 as opposed to sectoral legal frameworks. However, there have been efforts to ensure legality of engagements by formulating project-specific regulations and contractual documents. These documents specify all partners' obligations.

The responsibilities of all parties must be defined. Also, the regulator of the PPP and proper monitoring and evaluation of the PPP must be established to ensure transparency and value for money. The four case studies reviewed have clearly defined the roles of key partners, except for the role of the line agricultural ministries which are not well specified. However, except the WRS PPP, all the other agribusiness PPPs did not define the regulator or the oversight authority. Thus, it was difficult to monitor progress or to coordinate activities partly due to the risks of digressing from organization's distinct mandates, missions, and reputation.

Transparency is vital when preparing PPP agreements and contractual documents. In addition, all parties should understand the clauses before signing them. KEVIAN set a good example with the Mango PPP groups by involving a committee with representation from most groups in developing the terms of reference. Although the WRS PPP was developed at a time when there was no supportive warehousing legal framework, the initiator who is also the regulator, provided the required legal documents (The EAGC Warehouse Receipt Protocol, 2008 and The EAGC Ware-

house Operator Agreement). These documents specified commodity care and management rules. Since the EAGC WRS model is currently based on Contract Law, participating parties were also required to sign contractual agreements between the warehouse keeper and depositor, the warehouse keeper and EAGC and the warehouse Keeper, EAGC and bank agreements.

To protect the interests of the parties involved in a PPP, the key partners signed a non-disclosure agreement which required that information about the operations and management of the PPP be safeguarded and could only be shared with the public with the approval of all parties. This requirement seemed more stringent where agricultural biotechnology and multinational companies were involved (The case of StrigAway and BIOFIX PPPs) as opposed to the other PPPs. Hence, it was difficult to learn more about operationalization, management and implementation of these PPPs.

5.6 SUSTAINABILITY OF AGRIBUSINESS PPPS

The four case studies reviewed have one thing in common: they relied on grants for seed capital. This raises the question: can agribusiness PPPs achieve sustainability without grants, especially where the scale of investment is large? This issue requires reflection. The Vision 2030 outlines several agribusiness PPPs which specify the private party as the main financiers. Grants should be carefully matched to the actual needs of the project and beneficiaries to minimise any negative effects, ensure project viability and value for money. This was the case in the KEVIAN fruit processing PPP where the public party gave grants on a 50-50 cost sharing basis and also slotted in a beneficiary contribution of 8 percent in kind or cash.

In contrast, partners in the StrigAway PPP struggled with technology deployment since the initial subsidy was removed. Farmers complained that the price of IR Maize seed doubled. This price is way above the normal price of hybrid seed and thus not affordable to most. On the other hand, agro-dealers complained that on their own they could not raise the necessary capital to stock up the IR maize seed and associated inputs while the seed company. WSC revealed that the huge capital investment to set up the IR maize processing line was beyond their capability, considering that the market share of IR maize seed was small compared to other commercial seeds. The Kenya Seed Company noted that they are not interested in investing in IR maize seed

production unless the proponents fully support development of its infrastructure that is, physical and human resources (Ndambuki, personal communication, 2009).

Alternative models of financing agribusiness PPPs need to be considered in future. This calls for development of appropriate business plans and cash flows and also a sensitization for formal lenders to finance agribusiness. For instance, except for the Equity Bank which is a partner in WRS PPP, there was no other commercial bank that was directly involved in the appraised agribusiness PPPs. However, there was some interest in warehouse receipting only if the government fast-tracked appropriate legislation to give a legal backing to the venture. Apart from commercial banks, informal financing seemed to be the way to go for smaller investors such as agro-dealers and farmers. The StrigAway PPP exemplifies this approach where collective action offers a chance to access input credit. The extent of access is so limited that the more enterprising members wanted to opt out in search for opportunities that would offer them more capital.

In order for sustainability to be achieved in agribusiness PPPs, the stakeholders must be involved from the beginning. This calls for coordination with farmer associations, NGOs, consumer associations, and the public in general, through the line ministries if the PPP is conceptualized outside the government. This is because the general public plays a critical role in influencing acceptability of technology, products, and market risks. Thus, sustainability of these PPPs is not only influenced bottom-up but also top-down which calls for a participatory approach in design and implementation.

5.7 CHALLENGES FACED BY PUBLIC AND PRIVATE SECTOR OFFICIALS IN AGRIBUSINESS PPPS

Stakeholders raised three major challenges faced by public and private sector officials in agribusiness PPPs. These included: selling the PPP concept; non-specification of the PPP oversight authority; and a lack of supportive government policies and directives.

Selling the PPP concept: None of the PPPs studied above involved the PPP unit at any one point of implementation and yet, it was a government requirement for approval of a PPP in Kenya. In addition, the PPPs were developed using top-bottom approaches which in some cases forced the private partner to take more risks associated with demand and market risks.

Non-specification of PPP oversight authority: PPPs have coordination risks. Consequently, if one interested partner provides leadership while the others do not, this affects outcomes of the PPP.

Government policies and directives: Maize has often suffered inappropriate policy directives such as import bans, price setting, warehousing by NCPB, and government subsidy programmes which distort the seed trade. Instead of anchoring policies or programmes on existing interventions, many government programmes tried to re-invent the wheel and curtail efficiency gains. The initiatives should be integrated in overall national, sectoral or regional development programmes.

Chapter 6

Conclusions

6.1 KEY ISSUES TO BE CONSIDERED IN DEVELOPING AGRIBUSINESS PPPS

Public Private Partnerships are emerging as a new and important approach to achieving agricultural potential and promoting agribusinesses development in Africa. Several fundamental issues must be addressed: What scale of agribusiness is to be promoted? What policy and legal context needs to be put in place for attaining agribusiness PPPs? Are agribusiness PPPs likely to be sustainable in the long run? Do these agribusiness PPPs address the priority challenges facing the sector? Through the appraisal of four agribusiness case studies, five key principles have been identified to guide stakeholders in developing sustainable agribusiness PPPs. They include: strengthening the legal and regulatory framework, sub-sector/commodity prioritization, institutionalization of PPP oversight agency, building sustainability elements, defining partners' roles, and allocating resources.

6.1.1 Strengthening the legal and regulatory framework

There were minimal legal formalities for the appraised agribusiness PPPs. Drafting and signing the MoUs between parties was considered adequate for the partnerships to start. Other legal agreements cited in the four case studies included confidentiality/non-disclosure agreements, licenses for commercialization and application of contract law in managing contracts.

In addition, there have been efforts to ensure legality of engagements by making project-specific regulations and contractual documents that specify the requirements and obligations of partners. Transparency is vital when preparing PPP agreements and contractual documents. All parties should understand the clauses before signing them, which calls for participatory preparation. KEVIAN set a good example with the Mango PPP groups by involving a committee that had representation from most groups. Although the WRS PPP was developed at a time when there was no supportive warehousing legal framework, the initiator, who was also the regulator, provided the requisite legal documents (The EAGC Ware-

house Receipt Protocol, 2008 and The EAGC Warehouse Operator Agreement) which specified commodity care and management rules.

The lack of an appropriate warehouse receipting legal framework in Kenya eroded confidence in the warehouse receipt system, and posed a major constraint for stakeholders. As for Strigaway and BIOFIX PPPs, the Intellectual Property Rights (IPRs) of technology developers had to be safe-guarded by signing a non-disclosure agreement. This agreement stipulated that the information about the operations and management of the PPP be confidential and only be shared with the public with the approval of all parties.

This requirement seems more stringent where agricultural biotechnology and multinational companies are involved. This partially explains the limited information available to the public, with regard to PPP development. Hence, it is difficult to learn more about how to manage and implement these PPPs. Similar views have been expressed by (Spielman and Grebmer, 2004). They believe that continued ambiguity over IPR policy for PPPs impedes information sharing and subsequently, limits development of successful case studies for PPPs in agriculture.

In Kenya, parties that interested in developing agribusiness PPPs can receive guidance from the PPP secretariat, under the Ministry of Finance. To help partnerships, stakeholders in agribusiness expressed the need for formulation of an agribusiness policy and institutional framework to complement the PPP regulations. The agribusiness policy and institutional framework take into consideration sector-specific features and the dynamism inherent in agriculture and agribusiness.

The government has almost finished the agribusiness strategy. The strategy's priorities are to promote value addition and commercialization of agriculture. The agribusiness policy and institutional framework will be informed by the strategy, which is in the final stages of development (personal communication: Barno, 2011, Agribusiness Department, MoA).

The European Commission noted that early development of a conducive and consistent

national legislative and regulatory structure greatly facilitates the identification, development and implementation of PPPs (Guidelines for PPPs, European Commission)²⁵.

6.1.2 Sub-sector/commodity prioritization

Although PPPs help development in both highly-developed and resource-poor settings, PPPs are not a silver bullet for agribusiness growth in Africa. Stakeholders that were interviewed in Kenya reiterated that agribusiness PPPs will have the most significant impact in sub-sectors that have the potential for high value returns on their investment. The three priority sub-sectors for PPPs according to stakeholders include: irrigation for high value crops; value-addition; and agricultural insurance.

In an eConference on irrigation, the participants argued that rather than expanding the irrigated area, Africa needs to modernize and achieve efficiency in the irrigated area (Filip, 2010). Kenya's Vision 2030 has prioritized irrigation as a flagship project under the PPP model. However, the structure for cost recovery and the overall impact is still not clear. The demand for and willingness to pay for irrigation services is highest among medium-large scale farmers.

A related issue is agricultural insurance, which serves to minimize risks in agriculture and thus, builds the private sector's confidence in participating in agribusiness PPPs. A pilot insurance project in Kenya, called Kilimo Salama ("Safe Agriculture") offered farmers insurance policies (for maize and wheat. These policies shielded farmers from significant financial losses when drought or excess rain was expected to wreak havoc on their harvests²⁶. The public sector's contribution has been limited so far, just like in the reviewed case studies. To incentivize medium to large scale farmers and build confidence in the insurance system, the government has to establish satellite weather stations, provide accurate and timely information, and consider guaranteeing at least 50 percent of the insurance cost.

The Kevian Fruit Processing PPP exemplifies agribusiness PPPs in value addition. The Kevian

PPP was based on co-financing between the public and private sectors. Although the role of the public sector was limited to providing extension services and informing farmers, the government could create an enabling environment for investment in value addition. The most critical factors in creating an enabling environment for PPPs in value addition include: creating and enforcing laws related to land acquisition by foreign investors; providing tax breaks for investors, providing tax waivers on imported processing equipment and machinery, enforcing product quality standards to minimize counterfeiting, giving credit access for SMEs, and developing supportive infrastructure like roads and electricity.

6.1.3 PPP oversight agency

The need to establish a PPP oversight mechanism was emphasized by the government. The Public Procurement Oversight Authority coordinates with the PPP Steering Committee under the PPP secretariat. They ensure that best practices are adhered to during the tendering process. To effectively implement and manage the PPP, the procuring entity is also required to set up PPP nodes within the ministry. The nodes are expected to undertake M&E, liaisons, dispute resolution, day-to-day management, and reporting (Public Procurement and Disposal, PPP Regulations, 2009). The role of an oversight body goes beyond tender awards to cover PPP implementation and operations. Governments often establish dedicated, stand-alone state agencies or special purpose vehicles (SPV) with the sole responsibility of overseeing PPP projects (Guidelines for PPPs, European Commission).

Oversight of a PPP can also be undertaken by a neutral agency, even from the private sector. For instance in Africa, Tanzania, Malawi, Ghana and Mozambique had a privately run firm named "Prorustica" oversee for agricultural PPPs. The projects undertaken in the four countries include input and credit access, building centres of excellence in PPP expertise and setting up of agricultural growth corridors. Prorustica also played a neutral brokerage role in establishing networks, implementing projects, and coordinating activities in the partnerships²⁷.

The PPP oversight mechanism for all the reviewed PPPs had difficulties. Findings show that

²⁵ European Commission. Directorate-General, Regional Policy. Guidelines for successful Public Private Partnership.

²⁶ Partners in this PPP include Syngenta Foundation for Sustainable Agriculture, UAP Insurance, MEA Ltd, agro-dealers and telecoms operator, Safaricom.

²⁷ For more information, see <http://www.prorustica.com>. Accessed 15 September, 2011.

the party that bears the most risks usually takes up the oversight role (often this is the private sector partner). Thus, there is no clear-cut boundary between PPP oversight and a lead agency. This is because donor funds have to be accounted for and thus, the lead agency is forced to take up the additional role of oversight to ensure adherence to MoUs. StrigAway and WRS exemplify this scenario with AATF and EAGC acting as fund managers and also oversight agencies for the respective PPPs.

Without an independent oversight agency, it is difficult to coordinate activities and monitor progress. This is partly due to the risk of digressing from organization's distinct mandates, missions and reputation (Professor Gachene, Personal communication). Spielman et al., (2007), concurred with this finding. They pointing out that poor coordination and monitoring of PPPs impinges on conflict resolution and also affects analysis of the impact of the PPPs on livelihoods of the target population.

Establishing an agribusiness PPP oversight body is crucial in identifying appropriate sub-sectors and projects which would best be delivered as PPPs. The cost of oversight services should be factored in during the development stage. To ensure sustainability, the oversight body can double up as a centre of excellence in building the entrepreneurial capacity of agribusinesses through tailored courses and thus, raise additional revenue. It is recommended that the monitoring/oversight agencies seek participation of the civil society (NGOs, consumer associations, and public representatives) to ensure that the objectives of the partnership are being met without compromising public benefits (Guidelines for PPPs, European Commission).

6.1.4 Building sustainability of PPPs

The four case studies reviewed all relied on grants for seed capital. The critique about this mode of financing in Kenya is that, instead of promoting enterprise growth, over-reliance on un-matched grants reduces innovativeness in financing. It is however acknowledged that grants have the ability to finance projects which require heavy capital, which many commercial financiers cannot raise. To this end, grants should be viewed as tools that increase the value for money and the financing volume (Guidelines for PPPs, European Commission). In the Kevian Fruit Processing PPP, the volume of grants was matched with private partner's contribution.

Sustainability needs to be built in the initial stages of the PPPs. This principle is echoed by Kenya's PPP secretariat, which requires PPP partners to undertake a feasibility study outlining outputs of services or goods, demand analysis, technical and financial feasibility, economic feasibility, structure for risk allocation and preliminary legal, environmental, and institutional analysis. Once this requirement has been fulfilled, it becomes easier for financial institutions to appraise applications for credit to finance the PPP, since economic and financial viability are known.

Other than financing, sustainable success of PPPs can be enhanced by including civil society in the monitoring and oversight structures. This includes coordination with NGOs, consumer associations, and the public. The StrigAway PPP exemplifies this best, since NGOs were involved in awareness creation about the new technology and later, in technology dissemination activities.

An equally important sustainability element involves matching partner roles and resource allocations. This enhances fulfilment of obligations as well as building commitment to the achievement of the goal of the PPP. Contributions from partners should be flexible enough – allowing for cash and in-kind contributions, as established in the KEVIAN PPP. A related issue is awarding grants in a way that builds the capital base of the partner according to the capital needs. This is possible through evaluation of business plans and feasibility studies.

6.1.5 Partner's roles in agribusiness PPPs

The success of PPPs is dependent on partners executing activities with a view to accomplishing agreed-upon objectives while sharing the costs, risks, and benefits incurred in the process (Spielman et al., 2007). Of particular importance is the commitment to resource allocation criteria that matches the partners' role, to ensure value for money. The reviewed case studies have clearly defined the roles of key partners, save for the unclear role of the public sector and ambiguities regarding the PPP oversight. According to the European Commission, the private sector can play four principle roles in PPPs including providing:

- Additional capital;
- Alternative management and implementation skills;
- Value-added to the consumer and the public at large; and
- Better identification of needs and use of resources.

From the reviewed case studies, the private sector participated through co-financing (Kevian Fruit Processing and BIOFIX), commercializing publicly produced technologies (BIOFIX and StrigAway) and optimizing resources by addressing value chain constraints (StrigAway, Kevian Fruit Processing and WRS).

In addition to managing and regulating PPPs during their design, construction, and operation, the public sector may play three additional roles: i) oversight role, by transforming itself from being a service provider to an overseer of contracts ii) protecting the public's interest by acting as PPP "watchdogs" through independent consumer groups and associations and iii) development of private sector investment facilitation mechanisms. As such, the public sector becomes both a sponsor and developer of PPPs.

In summary, the four case studies appraised in this study exemplify that agribusiness PPPs are vital in a country's development, through their contribution to rural incomes, employment, food security, and general societal development. However, the PPP framework in Kenya, as is currently construed, seems to have only served as a guide, with the PPPs adjusted to fit the sub-sector in question.

Agribusinesses can gain immensely from capacity building initiatives, particularly access to capital, training, and apprenticeship programs. All the case studies reviewed had an element of financial support in the form of seed capital to set up infrastructure such as seed processing (in StrigAway), acquisition of processing equipment (Kevian Fruit processing), establishing a BIOFIX laboratory (BIOFIX), and establishing a Grain Trade Institute and an Electronic Trading System (WRS). An apprenticeship program was launched under the BIOFIX PPP. This program provided linkages and knowledge between research and the corporate world, bringing relevance of research to the industry. With time, the apprentice translates acquired skills into output and new products, and thus agribusiness growth.

6.2 LESSONS LEARNED ON SUCCESS FACTORS AND PITFALLS TO AVOID

One important lesson coming from this study was that agribusiness PPPs will only succeed where PPPs offer best alternative to achieve objectives of all parties, within a given time frame, and without excessive costs to the partners. The StrigAway PPP is still struggling with financing issues. These issues have limited production and availability of the seed and thus, lowered the expected impact.

The WRS PPP has been able to identify the common space for its partners and with appropriate WRS legislation. It is set to attract many more partners and bound to succeed.

In order to profit from the advantages of PPPs, all potential participants must enhance their understanding of the different approaches and methods to structure PPP projects. This requires participatory analyses and approaches for the design and measurement through M & E to improve the PPPs.

In the case studies there was a lack of an oversight body. This has affected co-ordination of the PPPs in general and lack of proper communication among partners and the public. Future PPPs should take this into consideration from the early stages and ensure regulation, activity co-ordination and feedback mechanisms among partners.

The municipal legislation for by-laws regarding taxation and tax levies need to be harmonized. As it is, excessive taxation limits returns to investors, especially where the commodity needs to be transported.

6.3 POTENTIAL AS A TOOL FOR ACCELERATING AGRIBUSINESS DEVELOPMENT

In Kenya, the PPP is an evolving concept and must be adapted to the specific characteristics of the sector in question, the actual project and the common space identified by its partners. For a PPPs to succeed, an effective legislative and regulatory framework should be in place and partners should recognize the objectives of the partnership and take up their roles and responsibilities towards achieving these goals.

Generally, PPPs seem to be more attractive in developing infrastructure rather than other aspects of agribusiness. The public sees potential for raising additional capital from the private sector for agriculture. The private sector is in turn a bit sceptical about its involvement in other agribusiness ventures. The private sector would like the government to shift its role from intervening in prices and inappropriate policy directives which alter supply and demand towards creating the necessary institutional framework for efficient markets. This, they say, will trigger backward and forward linkages and lead to development of the entire commodity value chains. In other words, the government should remain a regulator and support PPP policy development rather than distort the existing functions of the private sector.

At the bottom end, dynamism plays a vital role in the growth of agribusinesses. Therefore, agribusiness PPPs should have a flexible structure that gives room for innovativeness for producers and traders. Contractual agreements should be adjusted from time to time to minimize demand and market risks (which stakeholders considered to be the major risks in agribusiness PPPs).

Agribusiness PPPs in Kenya are gaining ground with even the government. The Government recognizes the need to promote a common understanding of their place in the country's development. An essential element in PPP implementation is coordination. PPPs should not be seen as the only possible course of action for agribusiness growth. Alternative means of financing agribusiness activities should be stimulated (such as shareholder equity, general obligation bonds, bank loans, and access to other public agency financing programs). In addition, an enabling investment climate (especially tax breaks for infrastructural development, tax waivers on imported machinery for agribusiness, and appropriate legislation) offers incentives for private partner's participation.

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Annex 1

List of interviewed stakeholders

Institution	Respondent	Position
POLICY		
Ministry of Agriculture	Henry Ndege	Deputy Director-Agribusiness
	Abraham Barno	Senior Ass. Director-Agribusiness
PPP Secretariat-Ministry of Finance	Stanley K. Kamau	Director, PPPs
BIOFIX		
British Council/AKTP	Teresa N. Wafula	AKTP Associate
MEA LTD	Eustace Muriuki	General Manager
University of Nairobi MIRCEN Project	Prof. C.Karanja	Director-MIRCEN Project
WRS		
East African Grain Council (EAGC)	Nsanya E. Ndanshau	Manager, Structured Trading System
East African Grain Council (EAGC)	Samwel Rutto	Structured Trading System
Equity Bank	Esther Muiruri	Agribusiness Manager
Cereal Growers Association	David Nyameino	CEO
KEVIAN FRUIT PROCESSING		
German Technical Cooperation (GTZ)	Patrick Chege	Program Officer
	Ashford Ngugi	Senior Program Officer
KENFAP	George Odhiambo	Head of Partnerships Lobby
STRIGAWAY		
AATF	Gospel Omanyia	Program Manager
ARDAP	Boniface Omondi	Striga Project Coordinator
Western Seed Company	Syed Osman Bokhari	Commercial Director
Maseno University	Prof. George Odhiambo	Co-ordinator, StrigAway Project
Western Agro-dealers Consortium	Charles Odero	Chairman
	Wahome Nderitu	Owner-Busia Agro-Vet
Farmers/Farmer groups	Bulala Self Help Group	Philip Opicho
	Ebachamani SHG	Salome Wesonga

AGRIBUSINESS
PUBLIC-PRIVATE
PARTNERSHIPS

A country
report of
Kenya



Public private partnerships (PPPs) are being promoted as an important institutional mechanism for gaining access to additional financial resources, sharing risks, and addressing other constraints in pursuit of sustainable and inclusive agricultural development. While various forms of collaboration between the public and private sector have existed for some time, there is limited systematic information available about the current experiences and best practice for using PPPs to initiate agricultural programmes.

In 2010, FAO initiated a series of appraisals of PPPs implemented in 15 countries in Africa, Asia and Latin America. The primary objective was to draw lessons that can be used to provide guidance to member countries on how to partner effectively with the private sector in order to mobilize support for agribusiness development. The outcome of FAO appraisals is presented in this series of Country case studies as a contribution to enriching knowledge and sharing information on PPPs mechanisms for informed decision making on investment promotion for engendering agrifood sector development.