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**AFRICA FOR RESULTS INITIATIVE**

*From the African Community of Practice on Managing for  
Development Results at the African Capacity Building Foundation*

# COMPENDIUM OF CASE STUDIES ON AGRICULTURE & FOOD SECURITY IN AFRICA



THE AFRICAN CAPACITY BUILDING FOUNDATION | FONDATION POUR LE RENFORCEMENT DES CAPACITES EN AFRIQUE  
Securing Africa's future through capacity development



AFRICAN DEVELOPMENT BANK GROUP



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Supported by



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<sup>1</sup> See the Case Studies matrix in Annex 1 to access all the full papers under this theme.

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This compendium is a joint work by the African Capacity Building Foundation (ACBF) and the African Development Bank (AfDB) in the framework of the African Community of Practice on Management for Development Results (AfCoP-MfDR). It intends to summarize good practices and key policy findings on MfDR. AfCoP knowledge products are widely disseminated and are available on the website of the “Africa for Results” initiative at: <http://afrik4r.org>.

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## List of acronyms

AATIF	:	Africa Agriculture and Trade Investment Fund
ACBF	:	The African Capacity Building Foundation
AfCoP	:	African Community of Practice
AfDB	:	African Development Bank
AISD	:	Agricultural Investment Support Directorate
ARECA	:	Cotton and Cashew Regulatory Authority
ARIPO	:	African Regional Intellectual Property Organization
AU	:	African Union
AU	:	African Union
CAADP	:	Comprehensive Africa Agriculture Development Program
CCI-CI	:	Chambre de Commerce et d'Industrie de Côte d'Ivoire
CFSVA	:	Comprehensive Food Security and Vulnerability Analysis
CFSVA	:	Comprehensive Food Security and Vulnerability Analysis
CIAT	:	Centre International d'Agriculture Tropicale
CILSS	:	Comité inter-État de lutte contre la sécheresse au Sahel
DUS	:	Distinct, Uniform and Stable
EAPP	:	East Africa Agricultural Productivity Program
ECOWAP	:	Regional Agricultural Policy for West Africa
ECOWAP	:	Regional Agricultural Policy for West Africa
ECOWAS	:	Economic Community of West African States
FAO	:	Food and Agriculture Organization of the United Nations
FARA	:	Forum for Agricultural Research in Africa
GDP	:	Gross Domestic Product
IAC	:	InterAcademic Council
Ibid	:	Ibidem
IFAD	:	International Fund for Agricultural Development
IFC	:	International Financial Corporation
IFPRI	:	International Food Policy Research Institute
IMF	:	International Monetary Fund
INS	:	Institut national de la statistique
INSAE	:	Institut national de la statistique et de l'analyse économique
IP	:	Intellectual Property
MfDR	:	Management for Development Results
NAFSN	:	New Alliance for Food Security and Nutrition
NCoS	:	National Centers of Specialization
NEPAD	:	New Partnership for Africa's Development

NGO	:	Non-Governmental Organization
PNUD	:	Programme des Nations Unies pour le développement
PVP	:	Plant Variety Protection
R&D	:	Research and Development
REC	:	Regional Economic Community
SONAPRA	:	Société Nationale pour la Promotion Agricole
SSA	:	Sub-Saharan Africa
TFPs	:	Technical and Financial Partners
THP	:	The Hunger Project
UniBRAIN	:	Universities Business Research in Agriculture and Innovation
UPOV	:	International Union for the Protection of New Varieties of Plants
USD	:	United States Dollar
WAAPP	:	West Africa Agricultural Productivity Program
WAEMU	:	West African Economic and Monetary Union
WECARD	:	West and Central African Council for Agricultural Research and Development
WFP	:	World Food Program
WIPO	:	World Intellectual Property Organization

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## SYNOPSIS

Africa is a continent of large uncultivated land and untapped water resources with the capacity to feed Africans and even export the surplus. Despite this abundance in natural resources, Africa spends tens of billions annually on food imports. This underperformance of African agriculture retains the continent in food insecurity with endemic food crisis and extreme poverty. With the African population projected to double by 2050, unlocking the potential of African agriculture has become critical for African countries. In 2003, in the framework of the 'Maputo Declaration on Agriculture and Food Security', African heads of state committed to achieve at least 6 percent annual agricultural growth. This commitment guided several actions and initiatives to stimulate agricultural growth through increased investment in agriculture and

development of agricultural led-innovations. To support these initiatives, the African Capacity Building Foundation and the African Development Bank developed knowledge products in the framework of the African Community of Practice on Managing for Development Results to share insights, good practices and success stories in agriculture and food security. This compendium attempts to compile these knowledge products in a succinct way, making the utilization of their content easier and faster. Key recommendations from the case studies include the need to (i) turn smallholder agriculture into commercial agriculture, (ii) promote science and technology to transform African agriculture, (iii) invest in capacity building of human resources in agriculture, (iv) ensure more political commitment and public investment in agriculture, and (v) close the infrastructure gap that supports the sector.

## 1. INTRODUCTION

In many African countries, agriculture is the predominant sector of the economy, accounting for up to 60 percent of Sub-Saharan African Gross Domestic Product and employing 65 to 70 percent of the population (World Bank 2013). The African agriculture has huge potential including large farmlands, untapped water resources, large scope for improvement in agricultural productivity, increasing demand in output products and untapped opportunities for investments. Unfortunately, despite its socio-economic importance and potential, the African agriculture is underperforming and fails to drive the economic transformation of the continent, capacity shortage being a main reason (ACBF 2012). Even if the agricultural production has increased these last decades, it has not kept pace with population growth; as a result, the continent remains largely net importer of food, spending in 2011 about USD 43 billion of agricultural commodities (Schaffnit-Chatterjee et al. 2014), mostly staples which are insufficiently produced in the continent. In the context of fast growing population, unlocking the African agricultural potential appears as an urgency for African countries. In 2003, in the framework of the Second Ordinary Assembly of the African Union in Maputo, African Heads of State and Government endorsed the “Maputo Declaration on Agriculture and Food Security in Africa”. The Declaration contained several important decisions regarding agriculture, but prominent among them was the commitment to the allocation of at least 10 percent of national budgetary resources to agriculture and rural development policy implementation within five years (One 2013). Since this time, African countries and regional economic communities were active on

defining national and regional agricultural policies, implementing initiatives, reforms, innovations to boost agricultural production. To support some of these initiatives, the African Community of Practice on Managing for Development Results (AfCoP-MfDR) developed and disseminated some case studies to promote the initiatives, supporting their upscale while proposing key lessons and policy recommendations. For faster and easier utilization, these knowledge products are compiled in a single document. This compendium aims then at summarizing and sharing the body of knowledge produced by AfCoP on agriculture and food security in Africa. The knowledge products considered in this compendium cover a wide range of themes as follows:

- National and regional efforts against food insecurity;
- Processing agricultural products for increased added value;
- Private investments and agricultural value chains;
- Innovation and technology in agriculture; and
- Reforms and conflicts management in agriculture and related fields.

This compendium on agriculture and food security in Africa was developed following four key steps: (i) literature review on agriculture and food security; (ii) collection and succinct summing up of relevant case studies on initiatives related to agriculture and food security in Africa; (iii) production of the compendium document; and (iv) review of the compendium.

The document is structured into five interconnected sections. The first section introduces readers to the problem, the objectives and methodological approach used for the production

of the compendium. The second section discusses a body of knowledge on the issues of agriculture and food security in Africa and related initiatives. Section 3 provides readers with some case studies of initiatives undertaken across the continent. In section 4, concluding remarks as well as some policy recommendations are formulated. Section 5 proposes a matrix of the knowledge products used as case studies.

## 2. BACKGROUND

Images and videos of starving and dying children, recurrent hunger epidemics, wars, diseases and migration epitomized in media, have given Africa a reputation for famine and poor continent. Africa indeed accounts for 23 out of the 30 poorest countries in the world (Gregson 2017). Additionally, Africa like any other region in the world, has experienced several extreme food crises in the last 20 years with thousands deaths and displaced. The share of undernourished people in Sub-Saharan Africa is estimated in 2014-16 to 217.8 million of people including 33 million children who go to sleep malnourished and hungry every night (FAO 2015a). Yet, African Agriculture has the potential to nourish Africa and transform its economies.

African agriculture is considered to have enormous potential (NEPAD 2013), with large land, untapped water resources and abundance of labor. According to McKinsey Global Institute report (Roxburgh et al. 2010), Africa has around 600 million hectares of uncultivated arable land, roughly 60 percent of the global total. While some large areas of the continent are arid or semi-arid, water resources are, on average, abundant and greatly underutilized (World Bank 2013).

Furthermore, the agricultural sector employs 65 to 70 percent of Africa's labor force (ibid), with a relatively low cost in comparison to other regions, which should encourage the production of labor-intensive farming-related products and services. However, despite this important potential, the African agriculture is underperforming, delaying the economic transformation, and contributing to higher poverty and food insecurity rates.

The Inter Academic report on “Realizing the promise and potential of African agriculture” (IAC 2004) and the World development report on agriculture for development (World Bank 2008) highlighted a set of features that prevent African agriculture to realize the green revolution as the one in Asia. These include among others:

- **Lack of a dominant farming system on which food security largely depends.** African farmers pursue a wide range of farming systems that vary both across and within the major agro-ecological zones. Seventeen distinct farming systems are identified in Africa and are characterized by weathered soils of low inherent fertility and high fragility, by a declining soil fertility due to population growth and a minimal use of external inputs, and by highly variable rainfall – especially in the drier rainfed systems.
- **Predominance of rainfed agriculture as opposed to irrigated agriculture.** Rainfed agriculture is the most common farming practice in Africa. It accounts for most of farmed land in sub-Saharan Africa. Unfortunately, in a context of increasing water scarcity and climate change rainfed agriculture is associated with uncertainties, particularly in arid and sahelian regions where the annual precipitation could be very low.

- **Low agricultural productivity.** Although African agricultural production has increased steadily (its value has almost tripled) and is almost identical to that of South America, there has been very little improvement in production factors including labor and land (NEPAD 2013). In comparison to others region in the world, Sub-Saharan Africa has the lowest agricultural labor and land productivity (Benin 2016, McCullough 2017) and showed the slowest growth with declining ratio of land to labor, so that while land productivity was rising, agriculture was becoming more labor intensive (Pardey et al. 2007). The low agricultural productivity has resulted in increasing demand on food imports. Africa has remained a net importer of agricultural products in the last three decades (Rakotoarisoa et al. 2011). In 2011, Sub-Saharan Africa imported USD 43 billion worth of agricultural commodities while exporting USD 34 billion worth, with obvious consequences in terms of ability to generate foreign exchange and vulnerability to global prices.
- **Under-investment in agricultural sector.** The underinvestment in African agriculture could be appreciated in two sides. First small farmers in Africa often fail to invest in agricultural inputs such as fertilizer or labor. Additionally, although the return to agricultural research and development investment has been showed to be high, the spending in agricultural R&D in many African countries is surprisingly low (Lynam et al. 2016).

In addition to these elements, the African Capacity Building Foundation has highlighted

capacity constraints at institutional, policy, technology and training levels as major causes of the poor performance of African agriculture (ACBF 2012). By way of example, African universities are not training sufficient numbers of the required scientists and other technical experts to meaningfully support the national agriculture innovation and food systems. To put this into context, the continent currently only has around 82,000 agricultural scientists but has an estimated gap of 152,000 trained agriculturalists (ACBF 2016).

In Maputo, Mozambique, in 2003, the African Union (AU) made the first declaration on the Comprehensive Africa Agriculture Development Program (CAADP) as an integral part of the New Partnership for Africa's Development (NEPAD). The CAADP has been a catalyst for African initiatives in defining national priorities, as well as for the process of Africans' regaining control of the dialogue with technical and financial partners (NEPAD 2003). Important targets have been set up and include: 6 percent annual growth in agricultural GDP, an allocation of at least 10 percent of public expenditures to the agricultural sector including at least 1 percent to agricultural research and development. Below are key results:

As of March 2015:

- 41 African Union Member States have signed CAADP compacts, 33 of which have developed formal national agriculture and food security investment plans.
- At the regional level, four out of eight Regional Economic Communities (RECs) have signed regional compacts out of which three have developed complete investment plans. Regional agricultural productivity

programs were developed and implemented (e.g. WAAPP: West Africa Agricultural Productivity Program and EAAPP: East Africa Agricultural Productivity Program);

- On average, public agricultural expenditures have risen by more than 7 percent per year across Africa since 2003, nearly doubling public agricultural expenditures since the launch of CAADP.

Nevertheless, public commitment to boosting agriculture has been limited and has failed to match the targets set in Maputo declaration. In 2010, out of the 44 countries for which data is available, only 9 have reached or exceeded the target of allocating 10 percent of public expenditure to agriculture (NEPAD 2013). Concomitantly, the rise of regional integration and sector-based policies has served to speed up the structuring of Farmer Organizations (FO) at the sub-regional level as to support public services in agriculture. The main reasons underlying CAADP's failure are related to lack of sufficient political will among African governments (Action Aid 2009), but also to lack of capacities of African governments. In fact, African agriculture suffers from institutional inefficiencies, and bottlenecks in the access to resources and rewards and a general failure of policy (ACBF 2012).

Above this pessimistic view, investment in the African agriculture sector is experiencing noted growth with the proliferation of agricultural

oriented funds (Miller et al. 2010). This is due both to improved profitability projections and the interest of development agencies and governments to increase investment in the sector to achieve food security (Hallam 2011). However, additional public investments are required to cope with the need to increase the cereals and livestock production, as to feed the fast-growing African population, estimated to double by 2050 (United Nations 2015).

### 3. CASE STUDIES

In the framework of the “Africa for Results” project implemented through ACBF and AfDB under the African Community of Practice on Managing for Development Results (AfCoP-MfDR) initiative, some successful initiatives on agriculture and food security have been documented as case studies. In this compendium, they are categorized into five themes:

- Theme 1: National and regional efforts against food insecurity;
- Theme 2: Processing agricultural products for increased added value;
- Theme 3: Private investments and agricultural value chains;
- Theme 4: Innovation and technology in agriculture; and
- Theme 5: Reforms and conflicts management in agriculture and related fields.

## THEME 1: NATIONAL AND REGIONAL EFFORTS AGAINST FOOD INSECURITY

### Case study 1: West Africa Agricultural Productivity Program: Regional integration for food security

#### Background

Through the agricultural component of the New Partnership for Africa's Development (NEPAD), the African Union (AU) believed that Africa's Millennium Development Goals would be achieved if rural development was a priority. Therefore, in June 2002, the Comprehensive Africa Agriculture Development Program (CAADP) was approved. The Declaration on Agriculture and Food Security in Africa was then ratified by the Assembly of Heads of State and Government of the AU meeting in Maputo in July 2003 (renewed in Addis Ababa in 2013 and more specifically supported by the Malabo declaration in 2014). The declaration gave strong political support to CAADP, which defined a comprehensive framework of the priority action areas for restoring agricultural growth, rural development, and food security in Africa.

Against this background, ECOWAS launched in 2008 the West Africa Agricultural Productivity Program (WAAPP), supported by the World Bank to increase agricultural productivity and

strengthen regional agricultural cooperation. WAAPP is a unique ECOWAS initiative at the nexus of food security and regional integration. WAAPP's geographic coverage is evolving and the program was implemented in 13 countries as of 2012 (Ghana, Mali, Senegal, Burkina Faso, Cote d'Ivoire, Nigeria, Benin, Gambia, Guinea, Liberia, Niger, Sierra Leone, Togo, Mauritania, Cape Verde, Guinea Bissau). Because of limited data availability, project indicators - in this case study - are given for the first phase (2008 - 2013) implemented in three countries: Ghana, Mali, and Senegal.

At the regional level, the project is implemented by the West and Central African Council for Agricultural Research and Development (WECARD) and nationally coordinated by the ministry in charge of agriculture. At the continental level, the Forum for Agricultural Research in Africa is mandated by NEPAD and the African Union to provide inputs to project implementation and to ensure that the project is aligned with

continental priorities. This study aims to showcase WAAPP, a unique ECOWAS initiative at the nexus of food security and regional integration. It discusses the food security and regional integration context in West Africa, the project's results, and the lessons and policy implications.

### Activities and results

WAAPP's development objective is to generate and disseminate better technologies in the participating countries' priority areas, as identified by WECARD. These include rice in Mali, cereals in Senegal, and roots and tubers in Ghana. The region's consumers, particularly those affected by extreme poverty, are WAAPP's ultimate beneficiaries. Agribusinesses and agricultural producers, as users of the improved technologies, are the program's main beneficiaries. To harmonize its implementation among countries, the project has four complementary components.

- Component 1: Enabling conditions for regional cooperation in technology generation and dissemination. This component aims to strengthen the mechanisms and release of technology (pesticides, genetic materials) to make them available for domestic use and for trade and distribution in neighboring countries.
- Component 2: National Centers of Specialization. This component is about focusing interventions on national and regional priorities. The rationale is that countries should focus on their top research and development (R&D) priorities to make the best use of scarce resources and achieve results.
- Component 3: Demand-driven improved technology generation and adoption. The

objective is to strengthen more priority-focused, transparent funding mechanisms for agricultural R&D for each country's priority commodity to make the developed technologies relevant to the region.

- Component 4: Project management, coordination, and monitoring and evaluation. The objective is to build the capacities of participating institutions in monitoring and evaluation and financial, information, communication, and administrative management.

The results below show that WAAPP has improved agricultural productivity while promoting regional integration, and will ultimately support shared growth and poverty reduction.

- **Adopting and elaborating regional strategies and regulations.** An example is the adoption of common ECOWAS regulations on seeds and pesticides. The regulations would ensure access to quality seeds by West African farmers and support local production of quality seeds and intra-community trading to create the common market envisaged under the Regional Agricultural Policy for West Africa (ECOWAP).
- **Increasing agricultural yields.** National Centers of Specialization (NCoS) have been set up. 37 technologies have been developed/released in the NCoS, each providing a potential yield increase ranging from 20 to 60 percent.
- **Promoting regional integration.** Under the research exchange program, countries have either sent or hosted several researchers from other participating countries, facilitating knowledge sharing and capacity building. Thirteen of the technologies developed have

crossed borders and are being adopted/ disseminated in the region.

### Lessons learnt and challenges

- **Agriculture has a regional dimension.** It is often more profitable for a country to plan and manage its agriculture sector in a regional context. West Africa's ecological diversity creates capacity differences among individual countries in producing various plants or animals. This is an opportunity for countries to improve collaboration as some challenges can be more effectively addressed regionally.
- **Aligning policies is essential.** Every group of countries should share a vision to develop common policies, but it is far more important that these policies are integrated among nations. WAAPP is a good example. It is now positioned as a unique program, supporting CAADP Pillar 4 (Agricultural research, technology dissemination and adoption) implementation at the regional level. And a main criterion for countries to be part of the WAAPP process is the alignment of the program with national policies and priorities.
- **In regional programs, a country-owned process is critical.** Regional programs are unlikely to have a positive impact if not driven by national processes. In the case of the WAAPP program, regional coordination is managed by WECARD, but most activities are implemented by national bodies. This approach is important to ensure that strategies elaborated at the regional level mainstream local constraints and benefit local populations.

### Policy recommendations

- **Promoting regional programs and reinforcing policy alignment in the**

**agriculture sector.** Regional development is also relevant for the agriculture sector. Countries have individual agricultural potential that can be undermined by regional threats and challenges. African regions have growing markets, which will be more effective if regionally addressed. Outcomes will have more impact if overall regional development is promoted. Various agricultural policies should also be aligned regionally and nationally.

- **Getting countries to specialize in specific commodities.** West Africa's diversified ecosystem offers a unique opportunity for individual countries to specialize in a given agricultural product. WAAPP integrates that opportunity and has positioned the participating countries for specific products. Such specialization creates a pool of specific competencies that foster cooperation between countries. More importantly, specialization helps create an organized supply and demand environment and eliminates useless competition. WAAPP's success is due partly to that strategy.
- **Promotion of a peaceful, safe, and stable environment.** Peace, safety, and stability are also important for regional food security. For example, Mali encountered some challenges in implementing WAAPP due to political instability. As a result, the project's closing date was extended to June 2013. The current (2016) political situation in Burkina Faso is also a constraint. Moreover, the Ebola outbreak, which seriously affected Guinea, Liberia, and Sierra Leone, and threatened the whole West African region, is an off-sector problem that can harm regional food security.

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**Web link to the full knowledge product:** <http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy26Regionalintegrationforfoodsecurity.pdf>



## **Case study 2: Leadership for food security and economic transformation: Lessons from the 3N Presidential Initiative - Nigeriens Nourish Nigeriens**

### **Background**

Niger is a West African country among the poorest and least developed in the world (INS 2013). The economy of Niger is largely based on subsistence agriculture, and the export of raw commodities. The economic growth rebounded to 5.2 percent in 2016 from 3.5 percent in 2015, thanks mainly to agricultural production and growth is projected to remain strong at 5.6 percent in 2017 (Sylla et al. 2017). With an annual growth rate of 4.1 percent a year (IMF 2017), Niger has one of the fastest growing populations in Africa, leading to increasing demand on farmland and foods. The landscape of Niger is dominated by arid lands. Because of the low rainfall, the country experiences recurrent food crisis almost every two years (INS 2011). A large part of the population is therefore constantly in situation of food insecurity. As a response to this critical food insecurity situation, His Excellence, Mr. Issoufou Mahamadou, President of the Republic of Niger, launched in 2011 the initiative "Nigeriens Nourish Nigeriens" (3N). The initiative aimed at addressing the food insecurity issue and creating appropriate conditions for improving national agricultural production and economic growth. The initiative was based on a set of programs formulated with the aim to

modernize the agricultural production systems and strategically position it as a key driver of the economic growth of the country. The initiative was adopted through the Decree 2012-139 of April 18, 2012 with an implementation plan covering the period 2012 – 2015. This study aims to showcase the outstanding initiative of 3N and highlight how leadership and strong will of African government could help to unleash the potential of African agriculture.

### **Activities and results**

At the national level, the 3N initiative was part of the food security component of the Niger Renaissance Program. It took into account the achievements and approaches of the agricultural development programs of the Rural Development Strategy and the National Nutrition Policy. At the continental level, it was in line with the objectives of the Comprehensive Africa Agriculture Development Program (CAADP), which aims at achieving an annual agricultural growth rate of at least 6 percent. The 3N initiative was also in adequacy with the ECOWAS Common Agricultural Policy (ECOWAP) as well as the WAEMU Agricultural Policy (PAU).

The vision of the 3N initiative was based on five strategic work packages as follows:

- Work package 1: Increasing and diversification of agro-sylvo-pastoral and fisheries production;
- Work package 2: Regular supply of agro-sylvo-pastoral and fishery products to rural and urban markets;
- Work package 3: Improving the resilience of vulnerable groups to climate change, food crises and natural disasters;
- Work package 4: Improving the nutritional status of Niger people; and
- Work package 5: Implementation and coordination of the 3N initiative.

After four years of implementation, the 3N initiative led to significant improvement in the food situation in Niger. According to the assessment report of the initiative (See <http://www.presidence.ne/documentation/bilan-4-ans-de-mise-en-oeuvre-du-programme-de-rennaissance>):

- The production of cereals was substantially increased. Estimated to about 3,421,122 tons in 2010, the production of cereals reached an annual average of 4,516,963 tons between 2011 and 2015, representing an increasing of about 32 percent.
- The production of cereals from irrigated lands was improved. Between 2011 and 2015, it reached 1,503,513 tons representing an annual average of 375,878 tons, a performance very close to the forecast production expected to an annual average of 400,000 tons of cereals from irrigated lands.

**Additionally,**

- The agricultural production contribution to the GDP was estimated to about 40.7 percent in 2014 (BAD, OCDE and PNUD 2016) and GDP per capita increased by 9 percent in 2012 (INS 2013).
- The country resilience to food crisis was improved. The country realized a stock of food of about 324,404 tons between 2011 and 2014.
- The coordination of the initiative was institutionalized with the creation of the High Commission for the 3N. With this institution, an investment fund for food and nutrition security was created with support of development partners.

### **Lessons learnt and challenges**

The 3N initiative is one of the flagship responses that highlights the importance of leadership from some senior officials that go beyond words and act to address important challenges such as food insecurity in Africa. Its implementation has revealed a number of lessons presented below:

- Leadership and innovative and prospective vision are key factors in addressing development issues;
- A multi-dimensional and integrated approach is better when addressing complex development issue like food insecurity;
- Empowerment oriented policies are essential to guarantee the sustainability of interventions and create more impacts;
- Strong participation of stakeholders and concerted actions are essential when addressing development issues.

## Policy recommendations

Promote leadership and encourage local innovations to tackle food security issue. Since the declaration of Maputo, most African countries failed to translate the directives into practical actions. There is therefore need for leadership at governmental level to formulate and implement local initiatives for improving the agricultural production.

Always back up development interventions with a legal framework. The legal framework is a strong instrument for resource mobilization and stakeholder participation and guarantee the sustainability of the intervention. Therefore, African governments should always support their development intervention with appropriate legal framework.

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**Web link to the full knowledge product:** <http://afrik4r.org/wp-content/uploads/2017/01/Initiative-3N-Niger.pdf>

### **Case study 3: Addressing food security in Africa: The plant variety protection system**

#### **Background**

In most African countries, agricultural productivity is extremely low, with yields varying from year to year. Most of the agricultural activity is subsistence farming that generates no financial income and is often insufficient to feed farmers' families. One of the reasons for poor agricultural performance in many developing countries is a lack of progress in improving the performance of traditional plant varieties. In contrast, modern plant breeding has enabled yields - previously stagnating or declining - to increase steeply.

Plant breeding is a long and expensive exercise; it requires know-how and investment in terms of time and financial resources. According to the World Intellectual Property Organization (WIPO), it takes about nine to 15 years to create a new variety with improved features and a few years more for breeders to introduce it to the market (WIPO 2010).

Improved varieties account for more than 50 percent of overall yield increases for important crops in Europe (WIPO 2010). The remaining growth comes from improved agricultural techniques. But yield improvement is not the only major objective in modern plant breeding; others

include resistance to environmental and biological stress, and quality (UPOV 2005). Government measures and increased public and private investments in the seed sector are long-term requirements for agriculture to assure food security in the face of population growth and climate change. This was the conclusion of the September 2009 Second World Seed Conference. At that meeting, intellectual property (IP) protection was deemed necessary to any sustainable contribution of plant breeding and seed supply. The meeting concluded that an effective Plant Variety Protection (PVP) system is a key enabler for investment in breeding and in developing new varieties of plants

The objective of this case study is to showcase Kenya's success and create awareness on how African countries can use the Plant Variety Protection (PVP) system as part of their climate change adaptation measures to encourage innovation and investment in plant breeding and to solve the challenges of food insecurity, among others.

#### **Activities and results**

Provisions to protect plant varieties were first introduced in Kenya by the Seeds and Plant

Varieties Act of 1972. It provides for the grant of proprietary rights to persons having bred or discovered varieties of plants. The Act was revised in 1991, while in 1994 regulations for implementing PVP were introduced. The system came into effect in 1997 (UPOV 2005). Kenya grants Plant breeders' rights (PBR) for all plant genera and species other than algae and bacteria (UPOV 2005). The Kenya Plant Health Inspectorate (KEPHIS), set up in 1997, administers PBR and serves as a liaison office with UPOV (Kibet 2014). KEPHIS protects newly bred/discovered and developed plant varieties based on international standards, that is, DUS (Distinct, Uniform and Stable), as well as novelty and denomination. After a breeder applies for protection or registration, KEPHIS conducts the tests on payment of fees equivalent to \$600. The breeder must generate his or her own description before applying for official tests, as it forms part of the technical questionnaire. These tests allow for comparison of candidate variety with all other known varieties of comparable characteristics. The tests done by KEPHIS are the official and confirmatory tests and last for two years (or seasons) and are normally carried out on site (Sikinyi 2010).

### Main results achieved

- **A thriving horticulture sector.** The horticulture sector experienced the most growth during the 1990s in production volume and acreage, varietal improvements, and number of growers and exporters. The sector is the third-highest earner of foreign exchange after tourism and tea (Sikinyi 2014).
- **Increased interest in the breeding sector.** During the period 1997-2008, Kenyan breeders submitted 376 (38.4 percent) of the

980 cumulative PVP applications (Sikinyi 2010). This also led to an increase of local crop varieties (394 in 2012/13) and breeding entities which nearly doubled from 41 in 1990-1996 to 81 in 1997-2003.

- **Better access to foreign-bred materials.** Most of the applications for PVP in Kenya have been from foreign breeders (55 percent) (Sikinyi 2014). This demonstrates increased availability of foreign germ plasm, which can be used further in developing improved varieties in accordance with the breeder's exemption.
- **Increased employment.** The horticultural industry employs an estimated 2 million people directly in breeding, production, packaging, and transport. It supports another 3.5 million people indirectly in marketing, hospitality, container manufacturing, and so on.
- **More farmers involved in the breeding value chain.** There are more than 160 professionals, who include small-scale (less than 4 hectares), medium-scale (10–50 hectares), and large-scale (more than 50 hectares) growers.

### Lessons learnt and challenges

Plant breeding is important for meeting the multiple challenges of a fast-changing world. Improved varieties and high-quality seeds are required for productive agriculture in developing nations like those in Africa. Efforts of public and private sectors in plant breeding are crucial and have provided an enormous contribution to global agriculture (improved yield, resistance to biotic stresses, tolerance to abiotic stresses, harvest security, quality traits including nutritional value, etc.). Plant breeding can contribute greatly

to solving some of the challenges ahead such as food insecurity, hunger, poor nutritional value, and high input costs. Plant breeding and related disciplines and technologies help mitigate the effects of population growth, climate change, and other social and physical challenges. Intellectual property protection is crucial for a sustainable contribution of plant breeding and seed supply. There are still many tools and traits in the pipeline that will prove to be very necessary for the continued supply of high quality varieties and seeds.

### Policy recommendations

An effective system of PVP is a key enabler for investment in breeding and the development of new varieties of plants. Therefore:

- African countries are strongly encouraged to join UPOV and implement a PVP system for sustainable agricultural development and maintain the last decades' agricultural productivity gains, which stemmed from improved plant varieties.
- African countries are also encouraged to join regional systems of PVP such as the Arusha Protocol on Regional Protection of New Varieties of Plants, administered by the African Regional Intellectual Property Organization (ARIPO) or the PVP system for African Intellectual Property, based in West Africa for French-speaking countries.

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<http://afrik4r.org/wp-content/uploads/2017/01/Addressing-food-security-in-Africa-AfCoP.pdf>



## THEME 2: PROCESSING AGRICULTURAL PRODUCTS FOR INCREASED ADDED VALUE

### Case study 4: An African woman entrepreneur: Lessons from the CEO of Uganda's largest juice processing factory

#### Background

Agriculture is the main source of livelihood for 77 percent of Ugandans (FAO 2015). The country is one of the main fruit producers on the continent as it is suitable and has abundant potential to produce fruits and vegetables like mangoes, citrus, pineapples and tomatoes. Yet, as many African countries are, a large part of the production is lost due to the weak processing capacity of the country. Fruit processing is likely to become important for local consumption, and in some developing countries like Uganda, it can make a sizeable contribution to export earnings and job creation (Srivastava et al. 2013). According to FAO (2015), the Ugandan diet is mainly composed of plantain, starchy roots and cereals. Pulses, nuts and green leafy vegetables complement the diet. In urban areas, which are undergoing a nutrition transition, food consumption patterns are changing and rice is gaining importance. Overall, the diet remains poor in

micronutrient-rich foods. Therefore, there is a need to provide food complements through processed fruit. Unfortunately, there is a huge gap in the Ugandan market for locally produced fruit juice. This is the opportunity seized by Julian Omalla to position her business in the food processing sector. The objective of this case study is to showcase the success of Julian Omalla in the agricultural processing sector and tease key lessons and policy recommendations that would improve both food security and women economic empowerment in Africa.

#### Activities and results

Julian started her entrepreneurial venture as a sole trader, wheeling fruit in her wheelbarrow to market and saving the proceeds of her sales each day. She started going to Kenya and bringing goods to sell in the local Ugandan marketplace. She managed to save \$100 that she invested. In the

Ugandan business environment, access to loans was difficult and female entrepreneurs are often marginalized. But Julian has struggled to launch and develop her business. Her determination paid off in 2007 when the International Finance Corporation (IFC) teamed up with one of Uganda's largest banks to provide loans and training to female entrepreneurs, including Julian (IFC 2010). Her knowledge combined with the loan provided her with the necessary resources she needed to put her new business idea into action. She started her fruit juice company “Delight Uganda Ltd” and her product became largely consumed by Ugandans. She also exports them in the sub-region. To secure the raw materials for her processing company and improve the income of other women, Julian created the “Bunyoro Grain Farmer Association”. Over 100 women belong to the association and contribute to the primary production of fruits. This association is a means for Julian to use her leadership to support other Ugandan women.

During her entrepreneurial journey, Julian encountered some challenges. The first one she recalled was the sudden disappearance of her business partner along with all her financial capital. Her strong will to succeed helped her to overcome this misadventure. The other challenge she faced is gender-related. Being a wife, mother and businesswoman in a traditionally male-dominated business environment is a real challenging issue for women. For example, it was not easy for her to receive a loan from banks to expand her business as banks always require collaterals which most women don't have in Uganda. Savings and retained earnings were Julian's two main methods of financing her business expansion.

Julian Omalla has taken the opportunity of the gap for local fruit juice processing on the Ugandan market to create a highly successful business. She used her determination and leadership to create many employments, mainly for women by empowering them in agricultural activities. She also won worldwide awards and received honours for her entrepreneurship skills.

### Key lessons learnt and challenges

Many lessons can be learned from Julian's story.

- First, Julia's entrepreneurial journey shows that a business idea can start from scratch and become a highly successful venture. Julian has started her business from almost nothing. She took the opportunity of the processed juice fruit gap in the local market to set up her business. Today, she is a successful woman entrepreneur who is recognized worldwide and has impacted many lives. It is important to recognize that Julian demonstrated that every woman is capable to start a business activity and become a successful entrepreneur. Despite the many challenges she encountered, she managed to overcome them and kept working to succeed in her business.
- Secondly, the experience of Julian is also a proof for every African woman that, though there is a gender gap and several challenges, they can still develop their leadership and realize their dreams.
- The third lesson that comes out from Julian's story is the huge business opportunity that exists in the agricultural sector across the continent. In most African countries, value chains in agriculture offer a wide range of opportunities for promoting economic development and reduce poverty.
- Finally, this case study pointed out the gender

gap that exists in access to financial services in Africa. Financial capital provided by banks is essential to launch and expand business. If an entrepreneur fails to secure capital, he is likely to not succeed.

### Policy recommendations

The food processing sector is an important and growing sector, in which women have a crucial role to play to ensure nutrition and food security for African countries. The case of Julian Omalla demonstrated the extent to which leadership of women can make huge contribution to the food sector in Africa. Therefore, if women are given the opportunity and the resources, they will contribute substantially in the development of the food processing industry and help to solve the problem of malnutrition and food insecurity in Africa. There is hence need for policies that create the appropriate conditions that will encourage

women to get involved in the industry and sustain their businesses. Therefore,

- It is essential to improve the financial inclusion of women. In line with this, there is a need to build the capacities of African governments, to enable them to enter into strategic public-private partnerships that will mobilize more financial resources for female entrepreneurs.
- It is also important to develop capacity building programs for women to equip them so that they can be able to capture financial resources and manage them efficiently. Capacity building organizations are essential to address these capacity needs.
- There is also need to create incubators that will support entrepreneurs in transforming business ideas into fully-fledged companies.

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### Web link to the full knowledge product

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### **Case study 5: Moringa based small scale enterprise: From a nutritional problem to a business opportunity, lessons from a rural woman entrepreneur in Benin**

#### **Background**

Most of hungry people live in the developing world representing 780 million of undernourished people (FAO 2015). The situation is acute in Sub-Saharan Africa (SSA) where 23.2 percent of people are affected (FAO 2015). In Benin, a recent Comprehensive Food Security and Vulnerability Analysis (CFSVA) established that 11 percent of the population is moderately or severely food insecure and 34 percent are not able to have adequate food consumption (WFP 2013). The recent Integrated Modular Survey on Household Living Conditions results (INSAE 2011) estimated that 32 percent of children aged 6 to 59 months suffer from stunting and more than 67,000 children suffer from acute malnutrition. The situation is most alarming in rural areas where poverty and sanitation issues contribute to the worsening of malnutrition. Climate change which affects the agricultural production, food crisis and volatility of food prices maintain the deleterious nutritional situation.

Despite the different efforts which permit to achieve some milestones, important actions should be undertaken to significantly drop the

malnutrition rate. Among other solutions in the fight against malnutrition, increasing the availability and consumption of highly nutritious food products is a recommended approach (Thompson and Amoroso 2014). In a poverty reduction context, this implies the valorization of local resources by processing them into different forms or integrated as food supplements. In line with this option, indigenous wild food species with high nutritional value such as *Moringa Oleifera* (Oduro et al. 2008), *Adansonia Digitata* (Chadare et al. 2008) etc. are increasingly promoted. However, for taking full advantage from these resources, there is a need to develop the associated value chain for improving the production, processing, packaging and distribution of the products. These needs represent new investment opportunities and some entrepreneurship initiatives have already been developed. The entrepreneurial initiative of Hounsou Mathilde, a rural woman, in Benin is one of them.

The aim of this case study is to (i) bring out the exceptional entrepreneurship experience of a rural woman who transforms a nutritional

problem into a business opportunity; (ii) acknowledge efforts of rural women entrepreneurs, who are generally neglected and rarely get rewarded for their contribution to solving social problems and (iii) learn lessons from the experience of Hounsou Mathilde to further these innovations on the continent. The lessons learned could guide other women entrepreneurs and drive policy implications likely to celebrate and encourage the efforts of rural women involved in entrepreneurship.

### Activities and Results

Hounsou Mathilde is a resident of Wawata village, district of Ze (50 km from Cotonou, the economic capital of Benin) in the department of Atlantique in Benin. She has been a Hunger Project Benin (THP Benin) partner for 17 years and benefited from different programs implemented including literacy, micro-financing and training. Because of her experience, she was designated as trainer to assist other people in the conduct of literacy programs at Wawata Epicenter. After years of working with THP Benin team, she became an entrepreneur and created her small enterprise specialized in moringa leaves processing. Later, Hounsou Mathilde got leadership roles in Wawata community, serving as the lead person for awareness raising campaigns, training and culinary demonstration. She has set up a small unit of moringa leaves processing. All the equipment used in the processing chain are local and electricity is not required at any step of the process.

Many organizations in Benin are interested in using moringa in the fight against malnutrition. They are engaging in actions such as sensitization, promoting plantations and valorization of moringa; which represent relevant opportunities for the unit of Mathilde.

After years of operation, some outcomes have been achieved by the woman entrepreneur in moringa leaves processing.

- *The business of moringa leaves processing created new employment in the community.* Ms. Mathilde is employing six persons (four full and two part time).
- *The business offered a new form of valorization of moringa to the community.* With her moringa based small scale enterprise, Hounsou Mathilde produces moringa leaves powder and different local delicacies based on Moringa.
- *The business improved the consumption of moringa in rural and urban areas.* With her leadership, she successfully introduced Moringa (in a different form) into the diet of her community. The young enterprise supplies drug stores and shops in the city of Cotonou.

### Lessons learnt and challenges

Some salient lessons learnt from the initiative of Hounsou Mathilde are presented below.

- *Social problems and business opportunities are different sides of the same coin.* With initiatives such as that of Hounsou Mathilde, the benefits for the community are twofold: the social problem are solved and businesses

positively impact the livelihood of the community members. *Local resources can be used to solve local problems.* The use of locally available resources to solve problems is important for rural communities as it is often difficult for them to afford imported solutions.

- *Appropriate skills and knowledge can unleash potential of women.* Hounsou Mathilde was trained and assisted by THP Benin. This is a proof that when women are given the resources, tools and necessary skills, they can thrive and become key agents of change in their communities.
- *Moringa leaves powder represents an opportunity for food fortification.* Either in Benin or elsewhere, there is a need for food fortification for children under six. This case study showed that the moringa leaves powder is an interesting option.

## Policy recommendations

The experience of Hounsou Mathilde as well as the lessons learned has the following policy implications:

- A better implication of research-development institutions is required to provide potential investors with evidence based information and tools;
- It is essential to create for entrepreneurs an enabling business environment to improve the performance of their entrepreneurial ventures;
- Government and other stakeholders should support the local and indigenous solutions that are being developed throughout the continent; and
- There is also a need to provide financing solutions for local initiatives to allow them to scale up their activities and integrate larger markets.

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## **Case study 6: Manufacturing indigenous chocolates: The story of a rare breed of gourmet chocolatier, Jaki Kweka**

### **Background**

African countries process only a small part of their agricultural production, trading large part as primary unprocessed products and observing huge food loss and waste mainly for grains, vegetables, and fruits (World Bank 2011). A sharp improvement in food processing would not only improve nutrition but also accelerate the growth of manufacturing and stimulate agricultural development.

Seventy percent of the world's cocoa supply is from Africa. In Tanzania, cocoa is grown in the Mbeya region and due to its unique flavor, export interest has grown in recent years (Kanyeka *et al.* 2012). Cocoa production in Tanzania began in the late 1960s. With global demand for cocoa rising and West Africa encountering challenges in its cocoa production, buyers have begun to reconnect to Tanzania's cocoa producers. Tanzanian market used to have a huge gap in local cocoa processing, mainly in terms of high-quality chocolate. This is the opportunity that Jaki Kweka seized and set up a highly successful chocolate manufacturing company, the first in Tanzania. She is a cofounder and managing director of Chocolate Mamas Gourmet Tanzania Limited, which produces the country's most popular luxury chocolate sold under the brand name “Chocolate

Mamas”. The firm is Tanzania's first and only indigenous producer of gourmet chocolates, and uses 100 percent local ingredients.

This case study aims to showcase the startup's efforts, successes, and challenges in a business traditionally dominated by western firms.

### **Activities and results**

Jaki Kweka is a Tanzanian high court lawyer turned pastry chef, an unusual breed of gourmet chocolatier. Jaki had previously baked pastries and sold them as a sideline business while she was still a lawyer. She made the radical career move from lawyer to luxury artisan chocolatier. Jaki's entrepreneurial journey in chocolate manufacturing started in a very simple way. She and her husband had many business ideas. Initially, they talked about opening some sort of bakery, creating high-end chocolate. They considered the challenge of securing a constant, reliable supply of high-quality chocolate in Tanzania and realized that there was a gap in the market that could be filled. Chocolate confectionery sales in the Middle East and Africa have growth potential from a growing middle class, strong demographic growth, and better economic prospects. Thus, they decided to create Gourmet Tanzania

Limited, which they launched in 2012. To date, Chocolate Mamas produced by Jaki's firm is one of a handful of East African firms carving out a niche in the chocolate world. The firm's dark and milk chocolate bars sell at premium prices in high-end shops and hotels in Dar es Salaam, Arusha, Mwanza, and Zanzibar.

The company buys cocoa beans from local producers, providing a market and fair trade business to local cocoa cooperatives and small producers through prearranged fair trade partnerships. The entire process for manufacturing the products is local, from hand selection of the best beans to roasting and production. Packaging is from maize husks made by a small local nongovernment organization for disabled persons.

Jaki has diversified into a range of other related business activities and provided a market to small farmers of cocoa beans. Her leadership and determination has created jobs and inspired many young people, especially women in Tanzania and the region, as her venture continues to attract social and other media such as the British Broadcasting Corporation, Cable News Network, Reuters, and the Lioness community locally and internationally. Jaki's story is a powerful voice of advocacy for improving opportunities for Tanzania's women entrepreneurs, and an inspiration to other African women entrepreneurs.

## Lessons learnt and challenges

Some lessons learned from Jaki's story are presented below:

- Despite the challenges facing startups in Africa, economic growth rates across most of Africa are rising, and there are successful entrepreneurial ventures across the continent. This trend suggests that prospects exist for African startup entrepreneurs, and some of these opportunities have already resulted in some international and local business successes.
- Jaki's entrepreneurial journey shows that a business idea can start from simple discussions that millions of Africans engage in daily and become highly successful if the ideas are converted into action. Her experience is proof that although African women experience diverse challenges, they can still develop their leadership and realize their ambitions.
- Enormous business opportunities exist in the cocoa value chain across Africa, notably in countries like Ghana and Côte d'Ivoire, where cocoa production and processing offer a wide range of opportunities for economic development.
- The cocoa farming and processing sector is an important and growing sector, in which women have a crucial role to play to ensure nutrition and food security for African countries. This case demonstrated the possible impact of women's leadership on Africa's food sector. Therefore, if women are

accorded opportunities and resources, they can contribute substantially in developing industry, jobs, and markets for local produce in Africa. There is therefore a need for policies to create the conditions that can encourage women to get involved in the business sector.

### Policy recommendations

Women entrepreneurs remain important to the Tanzanian and African economies. Tanzania and other African states need to support entrepreneurs such as Jaki, and promote manufacturing and protect local industries. Below are some key recommendations:

- Banks and other financial institutions should review their services to ensure that they meet the needs of women entrepreneurs.
- African countries are encouraged to establish industrial development banks or

review the financing mechanisms of the existing ones to address the challenges faced by startups in accessing reliable financing for their innovations.

- There is need to create incubators and accelerators that will support entrepreneurs from the idea stage to fully fledged companies. Examples of agribusiness incubators such as UniBRAIN (Universities Business Research in Agriculture and Innovation) exist, and it would benefit all African countries to learn more about how it works and set up similar incubators to boost the agribusiness sector.
- There is need to develop knowledge and information resources to guide small and medium enterprises through the red tape associated with international activity.

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### Web link to the full knowledge product

<http://afrik4r.org/wp-content/uploads/2017/01/Manufacturing-indigenous-chocolates-AfCoP.pdf>



## THEME 3: PRIVATE INVESTMENTS AND AGRICULTURAL VALUE CHAINS

### Case study 7: Mobilization of private investments for agricultural value chains in Africa: Lessons from Côte d'Ivoire in the cashew sector

#### Background

For long time, cashew production in Côte d'Ivoire has evolved without the support of agricultural development agencies. Their intervention began from 2000s when the cashew nut tended to become the main cash crop of the Northern part of the country (Konan and Ricau 2010). This sector, like other agricultural sectors, is also confronted to the issue of financing. Specifically, the development of the cashew sector in Côte d'Ivoire suffers from problems of access to credit, both for the acquisition of equipment and for operations. This is mainly due to insufficient knowledge of the sector by financing institutions and to the difficulties for small processors to provide guarantees. In addition, there is a lack of political strategy underpinned by a vision to boost the sector at the national level. The "cashew nut processing" component is mostly affected by the financing issue with the cashew nut industries slowing down (ARECA 2011).

Although overall cashew demand has been steadily increasing over the last 10 years in terms of volumes and value, the largest margins are at the level of the processing market (Nouza 2014). However, according to the Cotton and Cashew Regulatory Authority (ARECA), the nuts produced are mainly exported in raw form to India and Vietnam respectively at 71 percent and 28 percent (ARECA 2011). This represents a considerable loss of income in terms of added value for the country's economy, income for the population and revenue for public finance. These last years, there is a growing enthusiasm from political authorities for mobilizing resources to support the development of the cashew sector especially the cashew nuts industries. This led to the adoption by the Ivorian government in 2013 of a development strategy aimed at achieving a processing rate of around 35 percent by 2016 and 100 percent by 2020. Achieving this objective is

based on two major strategic axes of the mechanism of industrialization of the cashew: (i) strengthening the promotion of domestic and foreign private investment and (ii) targeting support from the State, which, through its structuring action, will support private initiatives.

### Activities and results

The role of the State in the implementation of the mechanism is paramount to achieving the objectives. The incentive mechanism for financing the cashew nut sector was implemented in four steps:

- A baseline study of the cashew processing in Côte d'Ivoire;
- Identification of potential private investors;
- Development of a strategic planning including the development of action plans and programs adapted to the Ivorian context and the clear definition of the incentives to attract the interest of the targeted partners and;
- Development of a strategic communication: Organization of media campaigns and Business to Business (B2B) meetings.

The implementation of the mechanism yielded the following outcomes:

- Credible and accurate data were produced on cashew processing;
- Major reforms were undertaken to improve the business environment including a new and more attractive code of investment; the establishment of a development fund to support the sector of cashew processing; the creation of an institutional framework named Council of Cotton and Cashew;
- Financing institutions were informed about the opportunities in the agricultural sector in general and specifically in the cashew sector;

- Implementation of different projects promoting cashew processing at national level. Within these projects, 12 large processing units and 33 small processing units were installed;
- Creation of about 150,000 new jobs for young men and women.

### Lessons learnt and challenges

- **There is need for credible and updated statistics for better planning.** A baseline study was the first step for the development of the resource mobilization mechanism. It is a critical step which provided policy makers with relevant information about the sector, its needs, opportunities, weaknesses and entry points.
- **Private sector is an important source of funding.** The government of Côte d'Ivoire clearly identified the private sector as main partner for resource mobilization.
- **A strategic communication is a critical step for engaging stakeholders.** The resource mobilization requires a strategic communication approach. It should be adapted to each targeted stakeholder using accurate and updated information. In this case study, the government developed two different communication approaches (information campaign and Business to Business forum).

### Policy recommendations

- **Improving business environment is critical for increasing private investment in the agricultural sector.** African States must play an important role in facilitating investments from the private sector by improving the business environment through

sound reforms including reducing administrative procedures, lowering tax, and providing guarantees.

- **Increasing knowledge on agricultural sector could increase investment from private sector.** The agricultural sector is always known to be of huge uncertainties. Therefore, funding institutions and private actors are generally reluctant to invest in

agriculture. This difficulty could be addressed by increasing the body of knowledge on the sector. Investors need to know the opportunities, the issues and how these issues could be fixed. Research outputs are starting points for investment. African governments should therefore invest more in research to produce credible and updated research outputs in agriculture to guide investors.

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### Web link to the full knowledge product

<http://afrik4r.org/wp-content/uploads/2017/01/Capitaux-prives-Chaines-de-Valeurs-Agricoles.pdf>

## **Case study 8: Fostering private investments and value addition in agricultural value chains: Lessons from the Africa Agriculture and Trade Investment Fund**

### **Background**

There is no doubt that agriculture is a particularly risky sector (Toledo et al. 2011; Tangermann 2011; Poulton and Macartney 2012). Despite this prevailing view, investment in the agriculture sector is experiencing noted growth with the proliferation of funds set up to target the sector (Miller et al. 2010). However, in Africa, the share of public spending and official development assistance to agriculture is small, less than 7 percent and 3.8 percent respectively (FAO 2009). There are very few commercial banks lending to agriculture. In addition, African countries remain largely raw materials-exporting regions, lacking substantial local value addition. Consequently, the continent is a net food importer. Therefore, the financing of Africa agriculture from production to manufacturing is a key step in unlocking its potential. In this context, the Africa Agriculture and Trade Investment Fund – AATIF - attaches great importance to promoting investments along the entire agricultural value chain. The fund strives to improve agricultural practices to increase crop yields and assist in building storage and processing capacity to broaden local value addition (AATIF 2011).

This case study showcases the AATIF, as an innovative financing mechanism dedicated to

unleashing Africa's agricultural potential. The case study is expected to increase the knowledge and awareness of investors and development partners interested in setting up similar investment funds, or bank and/or financial institutions interested in learning about how refinancing and risk sharing opportunities of targeted investment funds can help address agricultural lending constraints.

### **Activities and results**

AATIF is one of the international investment funds focusing on investments in the agricultural sector in Africa. Its investments are direct or indirect. Direct investment aims to enable growth of selected target clients along the agricultural value chain to ultimately increase productivity, production and local value addition. It includes financing to cooperatives, commercial farms and processing companies along the agricultural value chain. Indirect investment aims to facilitate on-lending to smallholders and/or to small and medium sized enterprises (SMEs) in the agricultural sector. AATIF provides funding to local financial institutions or other intermediaries (such as large agri-businesses or distributors of agricultural inputs) who on-lend the funds in cash or in kind to other agricultural sector stake-

holders. AATIF intends to maintain a balance between direct and indirect investments, as both approaches can have a positive developmental impact and enable adequate risk diversification. The different investment approaches interact with partners through specific instruments. Senior debt, mezzanine and equity are used for direct investments while senior debt, guarantees and risk sharing are used for indirect investments. Through the different investments of AATIF, the agricultural funding capacity of selected partners throughout Africa has greatly increased. As of 31 March 2015 (AATIF 2015), a total of USD 317.7 million was granted in five years of operations to different African partners, thus increasing the availability of financial services to grow the agricultural production in Africa.

In the different countries that partnered with AATIF, the investments have led to positive outcomes. Some are mentioned below.

- **More end-beneficiaries (smallholder farmers) have been impacted by the fund.** The development of smallholder access to financial institutions or outgrowers schemes has undergone substantial changes.
- **The targeted African partners have experienced an increase in the number of jobs offered.** With the assistance provided by AATIF, African partners created many new jobs, maintained and improved qualitatively many others along the agricultural value chains.
- **More smallholder farmers have access to loan services.** With the assistance of AATIF, some African partners developed several initiatives to scale up lending to the agricultural sector.
- **Beyond the economic development objectives, the targeted African partners**

**mainstreamed social and environmental objectives for sustainable development in their operations.** With the assistance of AATIF, all African partners have developed their Social and Environmental Management Systems (SEMS) to identify and mitigate social and environmental risks and impacts from their operations (AATIF 2014, AATIF 2015).

### Lessons learnt and challenges

Below are some of the lessons to be drawn from the AATIF experience.

*Risk sharing appears to be an important instrument of investment and could substantially increase the portfolio of financial institutions.* Due to uncertain returns associated with smallholders, many commercial banks or financial institutions deliberately limit their risks by reducing lending to smallholder farmers. AATIF proposes to share these risks with them to strengthen their capacities in originating, funding and managing a growing portfolio in the agriculture sector.

*Research is a key prior step for efficient investment in agriculture.* The investments in agricultural research appear to have very high rates of return.

*Agri-specific credit policies could scale up the lending to African agriculture.* The development of initiatives in terms of policies could significantly increase the agricultural lending and grow the number of smallholder farmers impacted. In line with these initiatives, guarantee funds will be of high importance to ensure the solvency of smallholder farmers.

*Foreign investment funds are more interested in high-potential areas/crops and are not always concerned with food security policies of African countries.* Foreign investments funds including the AATIF are focused on profits and they generally focus on high-potential areas/crops and neglect more marginal areas or so-called “Orphan crops”.

*Investments should target post-harvest operations for efficient local value addition.* The investments on post-harvest operations are paramount to promoting local value addition.

### **Policy recommendations**

#### **Risk sharing could be used to unleash the financing capacity of local commercial banks and financial institutions.**

The agricultural sector is known to be of high risk. This risk could be lowered when shared among different partners. Both private investors and public financial institutions could be partners in sharing risks.

#### **Research outputs are the starting point for any efficient investment.**

Investment in agricultural research sector in Africa is low and inadequate. African countries should invest in agricultural research activities not only to provide farmers with outstanding technologies and practices but also to provide local commercial

banks and financial institutions with up to date data to drive their investments.

#### **Foreign investment is not a panacea for development.**

Although foreign investments are good for developmental benefits, the increased food that is produced is often exported and many African countries remain food insecure. The issue is not to avoid foreign investments but to find the best ways to maximize benefits and avoid the negative effects. Therefore, African governments should work to align the foreign investments with their development agenda.

#### **Improving the business environment is a critical condition to attract foreign investments.**

African governments must create conducive environment (e.g. taxes exemption; reducing administrative procedure, infrastructural development, etc.) to attract foreign investors. Rwanda and Mauritius are good examples.

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### Web link to the full knowledge product

<https://afrik4r.org/wp-content/uploads/2017/01/Fostering-Private-Investments-and-Value-Addition-in-Agricultural-Value-Chains.pdf>

## **Case study 9: Driving Private Investment in African Agriculture: The case of Grow Africa**

### **Background**

According to the World Bank (2014), the agricultural sector employs 65 percent of Africa's labor force and accounts for 32 percent of its gross domestic product. Rapid population growth, along with other factors such as climate change and price volatility, put the sector in a very challenging position. In 2003, African leaders endorsed in Maputo, the Comprehensive Africa Agriculture Development Program (CAADP) as the largest commitment and overarching framework to support agriculture and recognize it as instrumental in achieving the continent's transformation. One of the key commitments from African heads of states and Governments in the framework of CAADP was the continued allocation of 10 percent of the national budget to agriculture. But by 2012, only seven countries had consistently met the 10 percent target (FAO 2012). This is low as 25 percent of the continent's population is still undernourished (FAO, IFAD and WFP 2014).

Given such poor performance trends, a group of pioneering governments, companies, and partners recognized in 2011 that the private sector could be instrumental in increasing and accelerating investment for sustainable growth in African agriculture. The group also endorsed that it was

essential to match public-sector leadership on improvements of the enabling environment along with private-sector leadership on inclusive investment. As a result, Grow Africa was launched. Its main goal is to help impoverished smallholder farming communities shift from subsistence farming to a mixed rural economy of commercial farming and small-scale industry and services (Grow Africa 2013). This transformation will raise incomes, reduce poverty and hunger, and unleash self-sustaining private-sector-led economic growth. The result is that Africa will not only feed itself, but will help feed the world. Therefore, Grow Africa positioned itself as a pathway to increase private investment into African agriculture to accelerate the effective realization of agricultural development objectives in participating African countries.

### **Activities and results**

Grow Africa is an African-owned, country-led, market-based, and inclusive platform for cross-sector collaboration. The Grow Africa Partnership Platform comprised over 200 companies and governments in 12 countries (Grow Africa and NAFSN 2015). These companies have made formal commitments with the government in their country to invest in agriculture. Grow

Africa's role is to accelerate responsible investments in African agriculture by fostering an environment in which companies can achieve competitive advantage from delivering positive impacts and from mitigating negative ones. It has defined a set of operating principles that guide its priorities and activities, and which translate its conceptual framework into concrete support for country efforts. These principles are spearheaded and mainstreamed in the interventions of Grow Africa along agricultural value chains in African countries. The main results achieved by Grow Africa can be summarized as follows:

#### **Increasing private investments in African agricultural value chains**

Recent reports showed that as much as US\$ 970 million were invested in the 12 Grow Africa countries (Benin, Burkina Faso, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Nigeria, Rwanda, Senegal and Tanzania) with a total commitment of US\$ 10 billion as stated in letters of intent (Grow Africa 2014). Through their investments, private companies reached over 8.2 million smallholder farmers in 2014, two and a half times more than in 2013.

#### **Government and development partners are providing essential inputs**

Grow Africa's 2015 annual report showed that governments across the continent are committed to making policy reforms in agriculture. The report also evidenced significant funding from development partners to African countries in support of policy reforms. In 2014, development partners committed US\$ 6.3 billion in support through Country Cooperation Framework Agreements (Grow Africa and NAFSN 2015).

#### **Major constraints have been identified in the investment climate**

Some constraints still undermine the overall performance of the sector and have limited the scale of investments. Common constraints include limited access to finance, lack of availability of agricultural inputs, infrastructure problems, lack of market access, unskilled human resources for agribusiness, and lengthy bureaucratic procedures (Grow Africa and NAFSN 2015).

#### **Lessons learnt and challenges**

Some constraints still undermine the overall performance of the sector and have limited the scale of investments. Common constraints include limited access to finance (mentioned by all countries as a major constraint). Others reported by most countries include lack of availability of agricultural inputs, infrastructure problems (including supply of electricity, rural roads), lack of market access, unskilled human resources for agribusiness, and lengthy bureaucratic procedures (Grow Africa and NAFSN 2015). Addressing these constraints would significantly strengthen the impacts and improve the investment climate for private companies, and unlock further investment opportunities.

#### **Policy recommendations**

*Enhance the engagement of the public sector.* Private investment can hardly be leveraged if the public sector is not engaged. Through its policies and programs, the public sector has played a significant role by addressing cross-sector issues, shaping market conditions and prospects for private sector investment. Strong political commitment expressed at the regional level in the

CAADP and government support to the agricultural sector have been very important in supporting private investment.

*Support responsible private investment that prevents land grabs.* Grow Africa demonstrated that a huge amount of money can be invested by the private sector in agriculture across the continent. However, such investments can be harmful in some ways to the economy of the host country. One risk to consider is land grabs. Along these lines, African civil society has a key role to play by raising awareness and ensuring that these private investments are responsible and inclusive.

However, it also needs to better understand the issue and develop informed advocacy campaigns.

*Create an attractive enabling environment:* To further unleash the enormous potential for attracting private investment in agriculture, policies and regulations affecting agricultural production, non-direct constraints, as well as the overall investment climate in countries need to be revamped. Regional bodies like ACBF, NEPAD and AfDB can craft capacity development programs for African governments and institutions so that they can improve their business environment and drive private investments in agriculture.

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<http://afrik4r.org/wp-content/uploads/2017/01/Private-Investment-Agriculture-Grow-Africa-AfCoP.pdf>

## **Case study 10: Africa's agricultural potential: Lessons from African countries on private investment and value addition**

### **Background**

the fertile land and abundant water, human, and natural resources as well as rapidly expanding markets. Private sector agriculture investment in Africa is low but has been increasing over time, particularly in value-adding processes (FAO 2004). Private investments in the agriculture sector are mainly directed towards high-value crops and traditional export products such as cocoa, coffee, and cut flowers targeted for markets in industrialized countries (UNIDO 2007, Borger 2008). Private sector investments are often motivated by expected returns relative to perceived risk and uncertainty, which in turn are shaped by both external and internal factors (World Bank 2013).

At the national level, some countries have adopted proactive strategies to attract private sector agribusiness investments by offering various incentives. However, there is still a greater need to strengthen collaboration between the public and the private sector geared towards development of the agriculture sector. It is also instructive for the governments to realize that, it is not just the number of initiatives, but the effectiveness of mobilizing local and international funding supported by a pragmatic policy frameworks that will assure increased private

investment in agriculture. This paper examines Africa's agricultural potential and value largely based on secondary literature. The paper further highlights two case studies in Morocco and Ethiopia.

### **Activities and results**

#### **Integrated Agriculture and Agribusiness Project: A private sector investment to mitigate rural poverty in Morocco**

The Integrated Agriculture and Agribusiness Project (IAA) is a project that had a significant positive impact on Morocco's agriculture industry. The US\$14.8 million IAA intervention was implemented between 2005 and 2008 by Chemonics. The main objectives of the project were to (i) improve public policies and institutions in support of more competitive agriculture and agribusiness; (ii) increase productivity and variety in agriculture including livestock production; (iii) increase competitiveness of agro-processing industries and (iv) enhance the capacity of agribusinesses, firms, and institutions to support competitive value chains. The IAA focused on five main value chains (sheep, olives, aromatic and medicinal plants, capers, and berries) mostly in three regions of the country. During the project

implementation, government officials conducted IAA training, development of websites, generation and dissemination of market information, studies on value chains, and cost-benefit analysis.

The project conducted an in-depth study of the five value chains and the world-wide export market. Findings (See Moroccan IAA Evaluation 2012) from the study were factored into policies in Morocco. For example, results from a study on aromatic and medicinal plants enabled the development of a joint Investor-Ministry strategy framework for the sector. Findings from a study on the logistics of berries also contributed to the marketing policy changes that reduced delays for exporting highly perishable fresh berries. Furthermore, The IAA studied marketing activities and trends in Morocco, Europe and the USA, leading to expanded marketing contacts, identification of new partners, and improved understanding of how to access the export markets. The IAA's relationships with the private sector and academia resulted in new partnerships and business deals for production and exports.

### **Agricultural commercialization and the role of large-scale investment in Ethiopia**

The Ethiopian government adopted a dualist system of agricultural production in a bid to promote greater agricultural commercialization (MoFED 2005), and as a compromise between political and economic priorities. Under this system, the government equipped the politically-sensitive smallholder sector for enhanced productivity and specialization for the high-value export markets, and facilitated the development of large-scale commercial agriculture by foreign and domestic investors (MoFED 2005). This approach was premised on the assumption that the two systems were entirely separate. The policy was also informed by the low success chalked by

the smallholder sector over the years and the unsustainability of past policies. Moreover, pressure that was brought to bear on the Ethiopians from donors, particularly, from the World Bank in favor of agricultural commercialization, coupled with the demonstrated impact of agricultural investment in horticultural projects in neighboring Kenya fueled the decision to promote private investments Ethiopia's agriculture sector.

According to the Ethiopian Constitution, land management is the responsibility of ethnically-delineated regions. However, in 2009, the federal government re-centralized land administration through the creation of the Agricultural Investment Support Directorate (AISD) in the Ministry of Agriculture and Rural Development (MoARD) to allocate land to foreign and domestic investors who had capacity to operate on more than 5,000 hectares of 'unused' land (previously not under cultivation), which the smallholders could not develop due to resource constraints. This decision was based on the conviction that private investors were more capable of expanding production and export, facilitate technology transfer to smallholders to address food security and contribute more significantly to foreign exchange earnings and job creation.

### **Lessons learnt and challenges**

The case studies revealed that:

- integrating private investments to national objectives is an important determinant of success in commercially-oriented agriculture.
- the effectiveness and sustainability of private agricultural investments depend not only on their economic viability but also their socio-cultural implications.

Specifically, it appears that investments that combine a commercial farming approach underpinned by significant capital investment with local small-scale farming have the potential to develop African agriculture in a sustainable and profitable manner. Agricultural value chain including storage, processing and transportation can reduce the volatility of returns if all stakeholders have the required knowledge, capacities and tools. Thus, by adopting the value chain approach, private investments can increase productivity and profitability of Africa's agricultural industry. Additionally, private investments require sound regulatory and institutional frameworks to enable them take advantage of new opportunities including innovations in information, science and technology that have several applications at various stages in the value chains.

### **Policy recommendations**

- Large scale private investments ought to ensure government buy-in for their success.
- It is important for government policies to aim at promotion of not only economically viable but also socially and culturally acceptable private sector investments in agriculture. Besides, such policies should incentivize private sector to include smallholders in value chains.
- Governments should also develop regional value chains for strategic agricultural commodities, especially those identified by the African Union Food Security Summit in Abuja (2008), for African countries to enhance their agricultural transformation and global competitiveness. Finally, capacity building efforts are required especially on cost-benefit analysis and value chains management. Relatedly, support with agricultural research to inform policies as well as statistics availability (on land use for example) to guide investors is critical. Such capacity building efforts would complement the African governments' approach to develop competitive agricultural systems and related policies as necessary.

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<http://afrik4r.org/wp-content/uploads/2017/01/Africas-agriculture-potential.pdf>



## THEME 4: INNOVATION AND TECHNOLOGY IN AGRICULTURE

### Case study 11: Transforming small scale communal farmers through adopting innovation platforms: A case of Hwedza District, Zimbabwe

#### Background

In Zimbabwe, Hwedza District in large part falls in agro-ecological zone II which is suitable – under optimal conditions – for intensive crop farming and livestock breeding. These historically-disadvantaged communal (or customary) farmers in Hwedza have not benefited from the massive land redistribution under fast track land reform since the year 2000, and their farming activities continue to be in large part survivalist. The Hwedza farmers have been unable to sustainably produce for markets due to problems such as the lack of irrigation facilities and access to credit and capital.

At the same time, new agricultural research paradigms and methodologies have arisen globally within the international development system to foster synergies between small-scale farmers, agricultural extension agencies and Non-Governmental Organizations (NGOs). These have emerged alongside renewed commitments to participatory change in agricultural interventions from national and international policy makers (Jones 2004, Hall 2010). This case study is focused on agricultural innovation platforms (IPs) which are being pursued by many donors and NGOs in Africa and elsewhere. This type of platform is a forum or network which is based on partnership and empowerment through which farmers and various stakeholders come together

to achieve shared agricultural objective of maximizing agricultural productivity. Agricultural innovation platforms are implemented in parts of Hwedza by the Sub-Saharan Africa Challenge Program as facilitated by the Forum for Agricultural Research in Africa (FARA). The paper aims to study the negotiations, alliances and contestations among communal farmers in Hwedza and the other stakeholders involved in seeking to develop more market-focused farming activities.

#### Activities and results

In introducing the innovation platforms in Hwedza, the lead NGOs sought to respect local forms of governance (such as traditional authorities) and work through existing (often) informal social networks amongst farmers, to build upon these bases and to minimize disruptions within prevailing community and village arrangements. In fact, the platform arrangements further facilitated knowledge sharing amongst farmers. Once established, there was differential engagement by different stakeholders in the platform with many government agencies becoming heavily involved from the start. Other stakeholders, including private corporations but also some state agencies (such as the Environmental Management Agency) adopted a more aloof and wait-and-see attitude because the

rationale for the platform – from their partial perspective – did not seem immediately apparent. At times, it seems that they were cajoled into engaging with the platform.

In the case of the agricultural innovation platforms in Hwedza, the actors included small-scale farmers, NGOs, government officers, traditional authorities and private corporations. The platforms were pursued in the broader political and economic context of Zimbabwe, marked by systematic crises in terms of economic decline, state incapacities and heightened political conflict. Further, prior to the establishment and operationalization of the innovation platforms in Hwedza, small-scale farmers had their own agricultural knowledge and practices, forms of governance and social networks, such that the platforms required sensitivity to these local dynamics if they were to have any chance of being accepted by the small-scale farmers. As well, the actors who came together under the auspices of the agricultural platforms had no previous relationship or interaction with each other, had interaction marked by only sporadic contact, or had reasonably well-established relationships.

At village level in Hwedza, the IPs inherited and adopted existing village administrative structures (traditional authorities), or were crafted into the existing networks of communities more broadly, to enforce agreed-upon IP positions. Before the IPs, people in the villages were bound by collective ideas around community membership and interests. Traditional authorities in the villages then became an organizing force, or instrument, used by the lead NGOs to facilitate active farmer participation in the IPs based on agreements reached by IP stakeholders. Thus, the agricultural extension officers (with a coordinating role) were

supported by local traditional authorities who were *de facto* members of the IPs with the sole responsibility of mobilizing farmers based on their status as traditional authorities, which small-scale farmers tended to respect.

Besides the lead NGOs and small-scale farmers, the most engaged stakeholder was the agricultural extension officers and they played a critical role in transmitting and demonstrating conservation farming methodologies. The lead NGOs such as International Center for Tropical Agriculture (CIAT) invested considerable effort over an extended period in seeking to develop and consolidate the agricultural platforms in Hwedza, and they did so for instance by introducing a range of procedures including ground rules as a basis for interaction between stakeholders. In doing so, they sought to construct a binding and interlocking interface which would sustain the platforms over time. This should not involve an over-reliance on external bodies, as IPs are supposed to build the capacity of farming communities in relevant agricultural and social competencies. But, overall, the agricultural interface in Hwedza was more jagged than smooth, with partial buy-ins by some actors, full buy-ins by others and even no buy-in whatsoever by even others. As well, the commitment to the platform was subject to ebbs and flows by different stakeholders. Evidence collected from the field showed that by participating in the IP process, local government officials saw an opportunity of making themselves active and relevant, and hopefully legitimate from the perspective of small-scale farmers.

### Lessons learnt and challenges

- It is pertinent not to consider farmers as less knowledgeable actors in the innovation process. Their endogenous knowledge may

contribute a lot and serve as starting point in the innovation process.

- To fully understand agricultural innovation platforms, it is necessary to understand non-governmental organizations as an organizational form, given that they are the lead stakeholders in pursuing the platforms.
- The private sector, though key in agricultural innovation platforms, may be reluctant to collaborate as they consider farmers to be high risk customers; and appropriate measures should be taken to ensure their effective participation.

### Policy recommendations

Based on the evidence presented in the case study, the following policy recommendations are formulated around agricultural innovation platforms.

- To fully understand agricultural innovation platforms, it is necessary to understand NGOs

as an organizational form, given that they are the lead organizations in pursuing the platforms.

- Considering that land and agriculture in Zimbabwe is highly gendered, with women for instance having secondary rights to land, it would be important to integrate feminist thinking into land and agricultural policies in Zimbabwe.
- Comparative analyses are critical to understanding the constitution of agricultural innovation platforms.

Overall, there is need to scale up such interventions as Innovation Platforms as they build inherent capacities in small scale communal farmers. The attitude of the State towards the small-scale farmers requires a paradigm shift by developing sensitivities towards the needs and capabilities of such farmers rather than viewing them as incapable of improving their plight.

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#### Web link to the full knowledge product

<https://afrik4r.org/wp-content/uploads/2017/01/CaseStudyonInnovationPlatformsinHwedzaDistrict.pdf>



## **Case study 12: Efficient use of water resources: Lessons from Niger on GSM based technology for irrigation control**

### **Background**

Rainfed agriculture is the most common farming practice in Africa. It accounts for more than 95 percent of farmed land in sub-Saharan Africa (IWMI 2010). However, there are many constraints in rainfed agriculture including water scarcity, fragile environments, drought and land degradation due to soil erosion by wind and water, low rainwater use efficiency, high population pressure, poverty, low investments in water use efficiency measures, poor infrastructure and inappropriate policies (Wani et al. 2009). These constraints of rainfed agriculture are of great concern in sahelian regions such as Niger where the annual precipitation could drop under 100 mm/year (Nicholson 2013) and where the populations are consistently among the poorest in the world. The Republic of Niger is a landlocked country of almost 1,270,000 km<sup>2</sup>, making it the largest country in West Africa but with over 80 percent of its land area covered by the Sahara desert (IMF 2017).

In a context of increasing water scarcity and climate change, and considering the need for increasing food production, there is need for more effective management of water resources. Clean irrigation technologies are therefore of high importance as they allow an efficient use of

water resources while enabling crop production off the rainfall seasons.

The initiative of mobile based irrigation control is in line with the abovementioned vision. It has been developed in Niger by Abdou Maman Kané and has been adopted by producers in Niger since 2013. Because of the potential of this initiative to make Niger's agricultural sector more resilient to climate change while enhancing food security, this technology is analyzed and showcased in this case study for possible scaling up in other African countries, which are also experiencing long droughts.

### **Activities and results**

Following the exceptional droughts of the 1980s, irrigation has been developed in Niger as a solution for improving food security. Unfortunately, investments on irrigation schemes have dropped due to lack of funding and land related problems (Global Water Initiative 2016). With the traditional techniques of irrigation, there are many constraints including fuel supply, frequent pump breakdown, low stream flow, well dry ups, and high labor requirement (Ogudjimi and Adekula 2002). Also, farmers lack basic knowledge of water requirement, irrigation

scheduling and skills in maintaining and operating the pumps. These constraints affect the yield of crops and lead to waste of the scarce water resource. Against this background, Abdou Maman Kané, decided to fix the main constraints associated with irrigation systems and to provide farmers with an improved irrigation technology. He based his technology on two realities in Niger: the increasing penetration of mobile phone and the high insolation. Indeed, even if Niger has one of the lowest mobile penetration rates in Sub-Saharan Africa, mobile subscription is growing (GSMA 2015; ITU 2015). With regard to insolation, because of its latitudinal position, Niger is one of the world's favorable areas for solar energy.

The innovation proposed by the engineer is in three steps:

- Exploiting the natural insolation potential using photovoltaic panels to produce energy for hydraulic pumps.
- Using GSM to remotely control the irrigation system. By dialing 142 (in Niger), farmers are connected to a database which connects them to their respective gardens (farms). For illiterate farmers, the voice service is also available.
- Collecting meteorological parameters (temperature, humidity, etc.) at the plot scale as to deliver the appropriate quantity of water required.

The kit is composed of a pump, solar panels, a mobile phone system, meteorological equipment and watering equipment.

The following results are achieved through the innovation proposed by Abdou Maman Kané.

*Many farmers adopted the technology.* The GSM based irrigation control moved from pilot phase to commercialization. An enterprise - Tech-Innov SARL - was created for the commercialization of the innovation. The commercialization began in 2013. In 2015, the technology was estimated to be adopted by about 200 farmers in Niger.

*Additional services have been developed.* From the GSM based irrigation control, three services have been developed. These services are: automatic animal watering, kiosk for drinking water and mobile meteorological service. With these services, farmers who adopted the technology use efficiently their time and reinvest it on other activities along the agricultural value chain.

*The innovation was internationally recognized.* Mr Abdou Maman Kané received many awards including the “Best African entrepreneur Award” from France Telecom and Africom in November 2011, and “King Hassan II Great World Water Prize” in April 2015. The innovation received the Third Prize during the New York Forum Africa in 2015 and was nominated among the top ten innovations of 2015 during the ceremony of African Innovation Prize.

### **Lessons learnt and challenges**

Important lessons could be learned from the experience of GSM based irrigation control in Niger and could guide policy formulation on mobile based solutions for efficient use/management of natural resources.

- *Mobile market is a niche of opportunities in many fields but some countries need more investments to improve mobile penetration.* The possibility given to farmers to control the watering from

everywhere through 'GSM based irrigation control' was possible because of mobile phone.

- *Innovations are highly dependent on foreign materials.* The kit of GSM based irrigation control is composed of photovoltaic panels, mobile phone system, and meteorological system, watering equipment, all from Chinese and European markets. Consequently, the kit is expensive and not affordable for many smallholder farmers.
- *Innovations require financial assistance for scaling up in rural areas.* In general, for innovations with important initial investment, the scaling up in rural regions requires support from financial partners.

### Policy recommendations

- **Bridge the digital gap between urban and rural areas in Africa.** There is a discrepancy on mobile penetration between urban and rural regions in Africa. Therefore, there is an urgent need for investment in mobile market as to improve the coverage area and penetration. Operators should develop

initiatives to facilitate subscription and invest in infrastructure as well as in the quality of the services. As for the government, there is need to create an adequate environment for private investments and to pursue reforms in the energy sector.

- **Promoting investment in irrigation sector.** The rainfed agriculture has showed its limits. Irrigation is therefore an important option for increasing agricultural production. African countries should promote and encourage establishment of enterprises specialized in making and commercializing low cost irrigation equipment.
- **Scaling up clean technologies in rural areas requires strong participation of stakeholders.** Most of time, in rural areas, people could not afford clean technology products. Therefore, African governments must play a prominent role, inciting partners including NGOs, financial institutions, and commercial banks to develop initiatives which will allow rural households, smallholder farmers to access the clean technology products at affordable rate.

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### Web link to the full knowledge product

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## THEME 5: REFORMS AND CONFLICTS MANAGEMENT IN AGRICULTURE AND RELATED FIELDS

### Case study 13: Reforming commercial agriculture: Insights from Benin's cotton sector

#### Background

The cotton sector remains the main driver of Benin's economy, providing the bulk of primary production and domestic exports. The sector has historically experienced a very rapid growth (World Bank, 2001), both in absolute figures, as well as compared to other cotton growing countries. Despite this growth, significant pockets of poverty remain in cotton growing areas. While the government heavily focused its development efforts on the cotton sector, at the expense of other sectors, it appears that growth in the former did not make significant impacts on people's livelihood. The extent of poverty in the cotton sector was also a confirmation that merely producing more agricultural outputs is not enough to reduce poverty, which requires both higher productivity and employment of resources that poor people depend on for their livelihood. Accordingly, the main purpose of Benin's Cotton Sector Reform Project was to help the government achieve its strategic goal of fostering broad-based growth in Benin's rural sector and thereby increase per capita rural incomes and reduce poverty. To achieve this objective, the project sought to provide answers to the key questions facing Benin's cotton sector, as far as the goal of poverty reduction was concerned, notably: (i) how to further expand cotton cultivation, while (ii)

spreading the productivity gains and income increases to a larger segment of cotton producers, and (iii) generating income multiplier effects within and outside the cotton sector and the rest of the rural economy.

This case study aims then to help authorities in successfully dealing with reforming commercial agriculture in African countries to boost agricultural development and reduce the major concern of poverty.

#### Activities and results

The project development objective was to support a successful transition from the monopolistic and centrally administered system to a more competitive cotton sector and, hence, greater efficiency and productivity in the sector. It aimed to facilitate the transition to a competitive system by providing the necessary support to private sector operators and their institutions to fill the void left by the privatization of SONAPRA (National Agency for Agricultural Promotion) ginning activities. The project was implemented over a period of four years (2002-2006). It was funded by the World Bank with the amount of US\$ 18 million and targeted the cotton producers

that are in the centre and the north of Benin. Its focus was on (a) the provision of technical and financial assistance to the two institutions that were to carry the transition process, primarily the “Association Interprofessionnelle du Coton” (AIC) and the “Centrale de Sécurisation des Paiements et du Recouvrement” (CSPR), and (b) building the institutional and technical capacities of Producers Organizations (PO).

A Monitoring & Evaluation (M&E) system and team was set up to collect baseline data. The project also set up an information system to monitor the performance of the cotton sector (land cultivated, inputs purchased, credit granted, yields, production of seed cotton, export of lint cotton, etc.). In order to supply the database with the requisite production data, annual field surveys were conducted under the project supervision and funding by regional extension centres, based on a sample of 1 percent of cotton producers. At midterm review the monitoring framework was examined and improved with regard to its suitability for results-based project management. The progress toward project outcomes was evaluated during its implementation and at project completion. A project midterm and final review was carried out by the Government to determine, based on the results of the M&E system, the extent to which the project performed *vis-à-vis* its development objectives.

- The following outputs were achieved due to the support of the project: (i) satisfactory implementation of all sector-wide technical services programs, (ii) establishment of an effective input credit recovery system, (iii) strengthened capacity of farmers organizations, and (iv) privatization of SONAPRA. According to the impact study (World Bank

2004), the outputs led to some outcomes, notably:

- **Increased professionalization of the seed cotton production and improved incomes.** Indeed, after the dysfunctions observed in terms of stabilization of institutions from the reform of the sector, a new framework for stakeholders' representation within the cotton sector helped establish the National Council of Cotton Producers (CNPC), the National Council of Importers and Distributors of Cotton Inputs (CNIDIC) and the National Council of cotton ginners (CNEC). This pyramidal representation enhanced the leadership of cotton farmers in their engagement with government and different partners. They master the process and technics of seed-cotton marketing to potential buyers. The impact study also revealed in 2008 that 63 percent of CNPC members are satisfied with the leadership developed by their representation.
- **The average revenue per cotton producer increased by about 23 percent during the project implementation** which meant a poverty reducing impact. The impact study revealed that the farmers income increased from around US\$ 210 in 2003-2004 to around US\$ 286 in 2007-2008.
- **The rebates from cotton production were used to finance local development** through levies by some municipalities.
- **In terms of environmental impacts, the project promoted the integration of the environment** in the production activities of seed cotton or cotton fiber. The impact study revealed that the seed-cotton productivity was increased by 77 percent.
- **Increased adoption of crop rotation (cotton with food crops) among farmers.**

This practice had a positive impact on food crop production due to residues of fertilizers applied to cotton. Support for production of cotton thus spilled over to food crops and enhanced food security. The satisfaction among producers with the technical services was 88 percent in 2008.

### Lessons learnt and challenges

- The implementation of the project over its lifetime engendered important lessons of which the most salient are presented below.
- The long and extensive interaction between Government and private sector actors triggered the transition from an administered sector to a more market-based system.
- One of the main reasons why the cotton sector had not contributed to its full potential to poverty reduction, not only in Benin but in all other West and Central African countries, was that the decision-making system had been strongly biased against the interest of farmers.
- Using investment lending in tandem with budget support to implement difficult reforms may be more effective than each instrument alone.
- Institutional development and structural reforms should be outward looking and keep

an eye on evolving global developments. The project and the underlying cotton sector reform were affected by decisions of key stakeholders driven by internal struggles and the political economy of the national cotton sector.

### Policy recommendations

- **Promoting Public Private Partnership for unleashing the potential of agriculture.** This case study showed that private operators are well capable of establishing a collective discovery process for solutions to the problems faced by the agriculture sector, if given the opportunity and challenged to do so. African countries should then work closely with private sector to address the different issues of the agricultural sector.
- **Combining investment instruments for more impact.** Reforms are extremely difficult to implement within some agricultural sectors. It is the case of the strategic and politically sensitive cotton sector. Government commitment can hardly be taken for granted on a long period of time, unless irreversible steps were taken at the beginning of the reform process. Therefore, it is important to combine different investment instruments rather than focusing on State budget.

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## Case study 14: **Managing for agricultural results: Managing Farmer-Herder Conflicts in Tanzania**

### **Background**

Farmer and herder conflicts in Africa are often driven by "environmental scarcity," in three forms: scarcity of renewable resources, population growth, and unequal distribution of resources (Benjaminsen et al. 2009). Increased land scarcity due to climate change and land degradation has motivated pressure of environmental organizations to increase restrictions on conserved land and expand the land area under conservation. Disputes arise from who should access and control natural resources, including sharing benefits and use rights.

Due to increased population pressure and the diversification of rural land use patterns in Tanzania, including expansion of settled and ranching farming, national parks, towns and settlements, access to pasture and water for livestock has shrunk, prompting pastoralists to migrate to central, eastern, and southern parts of the country (Odgaard 2005; Mattee and Shem 2006). This squeezing out of pastoralists from their traditional grazing lands has spurred conflicts with farming communities, leading to loss of lives, destruction of property, and creation of virtual war zones. The government has attempted to resolve the problem, but conflicts persist and even escalated.

The objective of this paper is to establish cases of conflict between farmers and herders in Tanzania, describe ways in which they have been managed, and suggest alternative means to solve them.

### **Activities and results**

Tanzania is one of the top 10 countries in the world with the largest concentration of traditional livestock producers (Mlekwa 1996). Pastoralist communities have "pure pastoralists" whose livelihood is sustained only by livestock and livestock production (Mtengeti 1994); and "agro-pastoralists" who depend on agriculture and livestock. Pastoralists require large land areas as they keep large herds, and tend to migrate from place to place in search of pasture. This movement forms a pattern that is also seen as a corridor in which they move. But their movements are not well accommodated in the land tenure system as that requires sedentary settlements (Msuya 2009).

Movement from one place to another leads to conflict as they move toward the villages with settlers and commercial farms. The herders feed their herds on the villagers' crops or clear post-harvest residues. This is aggravated by formal land use plans that restrict access to sedentary land users, to the exclusion of herders. Yet there have

been many attempts since colonial times to modernize the pastoralist system through sedentary policies and projects. Tanzania generally favors agriculture, which is more visible and evident for land use, than pastoralism, which is difficult to trace.

Tanzanian authorities are finding it increasingly difficult to deal with conflicts between farmers and pastoralists as they fight over limited land and water resources. Part of the reason for the persistence of farmer–herder conflicts lies in the way the conflicts are handled. The use of excessive force involving the police is not only unsustainable but also deepens hatred between the parties. At best, this approach is good for imposing short-lived peace but the problems remain. In some cases, this may appear like a military operation, causing further hatred between the conflicting parties and toward the government in general. Corrupt practices contribute also to the persistence of conflicts. This problem can be looked at from two perspectives: village level involving local leadership, and higher levels of government involving highly placed politicians and government leaders - “politics of the belly.”

### **Lessons learnt and challenges**

The root cause of the conflicts lies mostly in the lack of security of tenure on land that most smallholder producers depend on. Policy deficiencies and contradictions have been exploited by a corrupt elite to the detriment of poor farmers and herders. In particular, the effects of state-backed land grabbing for large agricultural investments and corrupt practices at

various governance levels have all contributed to squeezing out herders from their traditional grazing lands. The effects of such misplacement are felt in farmer communities in the form of land and water resource use conflicts.

In the absence of land use plans for most villages, coupled with lack of coordination in resettling displaced migrant herders, conflicts with farmers are inevitable. Therefore, unless security of tenure on land used by smallholders - farmers and herders - is restored, conflicts will continue.

### **Policy recommendations**

- Public–private participation is a way of solving land disputes in communities, and the government must team up with other sectors and the public and establish a mechanism that can help resolve the conflicts and manage land resources.
- The government must also review and enact new laws, rules, and regulations to empower communities in decision making and provide room for all members of various communities to participate in management and use of natural resources. The laws should facilitate equitable distribution of access to land and encourage sustainable land use.
- For capacity building organization, it is important to work with African countries in addressing herder-farmer conflicts through capacity building of various national institutions in policy formulation, management, and coordination. For example, Tanzania could be supported in addressing the misalignment between the Livestock Policy and the National Land Policy.

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## 5. CONCLUSION AND KEY POLICY RECOMMENDATIONS

African agriculture has the potential to feed Africans and drive the socio-economic transformation of African countries. Due to the high diversity of farming systems, Africa is likely to achieve a rainbow revolution<sup>2</sup> rather than a green revolution. The review of the case studies presented in this compendium and the literature puts forward key recommendations to unlock the potential of African agriculture. Some of them are presented below.

- **Developing smallholder agriculture and turn it into commercial agriculture.** Small farms have the advantages to be very efficient in terms of total factor productivity – including labor and capital. However, agricultural growth must include their transition to commercial farming to boost food availability and incomes, and thus generates demand for locally produced goods and services. To thrive, smallholders need access to the basics: 1) land and inputs 2) knowledge, 3) functioning markets, 4) affordable credit and 5) risk management mechanisms.
- **Developing science and technology to transform African agriculture.** Design and invest in national agricultural science systems that involve farmers in education, research and extension. This includes more public spending in research-development to bridge research gap, develop smart solutions for integrated soil fertility management, efficient use of water, improved varieties, etc. This also
- include increasing support to innovators in the field of information and communication technologies.
- **Investing in capacity building of human resources.** A range of skills required in the broad agricultural sector are often lacking in Sub Saharan Africa. There is therefore a need to create and retain a new generation of agricultural scientists to drive the rainbow revolution.
- **More political commitment and public investment.** Since the declaration of Maputo, the agricultural spending of African countries has grown steadily. However, some countries are still far from the target of 10 percent of their national expenditure on agriculture. African governments have therefore a key role to play, first by improving significantly attention devoted to agriculture sector, and secondly by ensuring that the efforts and investments are distributed all along the agricultural value chain.
- **Closing the infrastructure gap.** Infrastructure is crucial to increasing agricultural productivity and expanding agribusiness. Infrastructure requirement cover many dimensions including water management, power, roads, storage, processing facilities, telecommunications for access to market information, etc. These infrastructures are meaningful for the transition from small farming to commercial farming.

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<sup>2</sup> The various colors of the Rainbow Revolution indicate various farm practices such as Green Revolution (Foodgrains), White Revolution (Milk), Yellow Revolution (Oil seeds), Blue Revolution (Fisheries); Golden Revolution (Fruits); Silver Revolution (Eggs), Round Revolution (Potato), Pink Revolution (Meat), Grey Revolution (Fertilizers) and so on. Thus, the concept of Rainbow revolution is an integrated development of crop cultivation, horticulture, forestry, fishery, poultry, animal husbandry and food processing industry.

- **Increasing private investment.** To unleash the potential of agriculture in Africa, there is a need for important investments mainly from the private sector and for value addition. In order to increase private investments in African agricultural sector, there is need in one

way for reforming business environment in African countries. In another way, pan African institutions should strengthen capacities of African countries so as to ensure that investments are environmentally and socially sustainable.

## ANNEX 1: CASE STUDIES MATRIX

Title	Geographical coverage	MfDR pillars addressed	Page number in the compendium	Web link to the full case study
West Africa Agricultural Productivity Program: Regional integration for food security	West Africa	Result based planning Monitoring & Evaluation	5	<a href="http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy26Regionalintegrationforfoodsecurity.pdf">http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy26Regionalintegrationforfoodsecurity.pdf</a>
Leadership for food security and economic transformation: Lessons from the 3N Presidential Initiative - Nigeriens Nourish Nigeriens	Niger	Leadership	9	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Initiative-3N-Niger.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Initiative-3N-Niger.pdf</a>
Addressing food security in Africa: The plant variety protection system	Kenya	Result based planning Monitoring & Evaluation	12	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Addressing-food-security-in-Africa-AfCoP.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Addressing-food-security-in-Africa-AfCoP.pdf</a>
An African woman entrepreneur: Lessons from the CEO of Uganda's largest juice Processing factory	Uganda	Leadership	15	<a href="http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy22AnAfricanWomenentrepreneur_Uganda.pdf">http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy22AnAfricanWomenentrepreneur_Uganda.pdf</a>
Moringa based small scale Enterprise: From a nutritional problem to a business opportunity, lessons from a rural woman entrepreneur in Benin	Benin	Leadership	18	<a href="http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy19Moringabasedsmallenterprise_Benin.pdf">http://afrik4r.org/wp-content/uploads/2017/05/CaseStudy19Moringabasedsmallenterprise_Benin.pdf</a>
Manufacturing indigenous chocolates: The story of a rare breed of gourmet chocolatier, Jaki Kweka	Tanzania	Leadership	21	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Manufacturing-indigenous-chocolates-AfCoP.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Manufacturing-indigenous-chocolates-AfCoP.pdf</a>
Mobilization of private investments for agricultural value chains in Africa: Lessons from Côte d'Ivoire in the cashew sector	Côte d'Ivoire	Result based planning Monitoring & Evaluation	24	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Capitaux-privés-Chaines-de-Valeurs-Agricoles.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Capitaux-privés-Chaines-de-Valeurs-Agricoles.pdf</a>
Fostering private investments and Value addition in agricultural Value chains: lessons from the Africa Agriculture and trade investment fund	Africa	Result based planning Monitoring & Evaluation	27	<a href="https://afrik4r.org/wp-content/uploads/2017/01/Fostering-Private-Investments-and-Value-Addition-in-Agricultural-Value-Chains.pdf">https://afrik4r.org/wp-content/uploads/2017/01/Fostering-Private-Investments-and-Value-Addition-in-Agricultural-Value-Chains.pdf</a>

Title	Geographical coverage	MfDR pillars addressed	Page number in the compendium	Web link to the full case study
Driving Private Investment in African Agriculture: Grow Africa	East Africa	Result based planning Monitoring & Evaluation	27	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Private-Investment-Agriculture-Grow-Africa-AfCoP.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Private-Investment-Agriculture-Grow-Africa-AfCoP.pdf</a>
Africa's agricultural potential: Lessons from African countries on private investment and value addition	Morocco and Ethiopia	Result based planning Monitoring & Evaluation	34	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Africas-agriculture-potential.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Africas-agriculture-potential.pdf</a>
Transforming small scale communal Farmers through adopting innovation Platforms: a case of Hwedza district, Zimbabwe	Zimbabwe	Result based planning Monitoring & Evaluation	36	<a href="https://afrik4r.org/wp-content/uploads/2017/01/CaseStudyonInnovationPlatformsInHwedzaDistrict.pdf">https://afrik4r.org/wp-content/uploads/2017/01/CaseStudyonInnovationPlatformsInHwedzaDistrict.pdf</a>
Efficient use of water resources: Lessons from Niger on GSM based technology for irrigation control	Niger	Leadership	41	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Efficient-use-of-water-resource-Niger.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Efficient-use-of-water-resource-Niger.pdf</a>
Reforming commercial agriculture: Insights from Benin's cotton sector	Benin	Result based planning Monitoring & Evaluation	45	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Reforming-commercial-agriculture-AfCoP.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Reforming-commercial-agriculture-AfCoP.pdf</a>
Managing for agricultural results Managing farmer - herder conflicts in Tanzania	Tanzania	Result based planning Monitoring & Evaluation	48	<a href="http://afrik4r.org/wp-content/uploads/2017/01/Managing-Farmer-Herder-Conflicts-in-Tanzania-AfCoP.pdf">http://afrik4r.org/wp-content/uploads/2017/01/Managing-Farmer-Herder-Conflicts-in-Tanzania-AfCoP.pdf</a>

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