KIN knowledge&innovation network

THE JOURNAL OF MCC & MCA TECHNICAL STAFF VOLUME 2, ISSUE 1 | WINTER/SPRING 2012-13

LOCAL FOOD SECURITY, GLOBAL MARKETS

Market Evolution and the Transition to High-Value Agriculture

Reducing Poverty for Small-Scale Artisanal Fishermen

Trade in Devil's Claw and Indigenous Natural Products

Linking Rural Land Tenure and Food Supply

Creating Agribusiness for Investors and Small-Holder Farmers

Strengthening Land Rights and Food Security

MILLENNIUM CHALLENGE CORPORATION
UNITED STATES OF AMERICA

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LOCAL FOOD SECURITY, GLOBAL MARKETS

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ON THE COVER:
Strengthening food security creates new opportunities for families and communities to prosper.

Photo by Jake Lyell for MCC

knowledge and innovation network

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VOL. 2, NO. 1 WINTER/SPRING 2012–13

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Advancing Food Security, Strengthening Economies

Daniel W. Yohannes
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Growth in the agriculture sector is widely recognized as one of the most powerful drivers of poverty reduction. I am pleased to introduce this second issue of the *Knowledge and Innovation Network (KIN) Journal* on the theme **Local Food Security, Global Markets**.

Since 2005, the Millennium Challenge Corporation's (MCC) portfolio has included over $4.3 billion in investments across 21 countries to address food insecurity and to strengthen agricultural and rural economies. Though MCC's portfolio spans the globe, this *KIN* issue critically examines MCC food security investments in Morocco, Namibia, Mali, Benin, Ghana, and Moldova. As you will discover, investments in these countries are designed to sustain expanded market access for agricultural and rural stakeholders to reduce poverty and hunger. MCC's multi-pronged approach to addressing food security includes a number of innovations and generates a wealth of experience and learning in agricultural development.

MCC investments in food security cover a wide range of activities and target the weak links in agricultural value chains, such as farm-to-market infrastructure, irrigation, productivity, rural finance, and land and property rights. I am proud that MCC's portfolio represents a significant contribution to Feed the Future, President Obama's Global Food Security Initiative, which aligns U.S. Government resources around a common strategy to sustainably reduce global poverty and hunger.

As we are seeing in many of our partner countries, dynamic changes in domestic and global markets are creating both opportunities and challenges for farmers and agribusiness entrepreneurs. The demand for high-value agricultural goods is steadily increasing, driven by rising incomes, urbanization, liberalized trade, foreign investment, and technological advances. While expanding market demand drives faster agricultural growth, which increases rural employment and incomes, small-holder farmers are required to deliver higher quality, consistency, timeliness, and efficiency. Through MCC's agricultural portfolio, we are providing technical assistance, infrastructure and an enabling environment for small-holder farmers to take advantage of opportunities and to address challenges.

I want to thank the dedicated MCC staff who contributed to this issue. In particular, I want to recognize the work of the agriculture and land team members who provide technical oversight to MCC partner countries as they invest in food security, learn and understand effective approaches to increase food security, and ultimately share their learning with the wider development community to make a sustainable difference in the lives of many. **KIN**

Local Food Security, Global Markets


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MCC actively supports President Obama's Global Food Security Initiative, Feed the Future, through investments in food security in 21 countries. The Feed the Future strategy addresses the determining factors of food insecurity (defined as the availability and access to food) through investments in agricultural productivity, agribusiness, market development, equitable distribution of and control over productive resources, food utilization, and ensuring that effective mechanisms are in place to address chronic food insecurity.

MCC's contribution to the U.S. Government's food security priority is significant. When given the opportunity to set their priorities for sustainable development, most MCC eligible countries have selected varying types and levels of agricultural sector investments as the principal means to reduce poverty and stimulate economic growth.

In addition to a large portfolio that aligns with Feed the Future's high-level agriculture sector growth and nutrition objectives, MCC is committed to rigorous monitoring and evaluation and has contributed extensively to how Feed the Future tracks progress, evaluates impacts, and learns how to improve the effectiveness of food security investments. As part of Feed the Future's whole-of-government approach, MCC reports progress against a common set of government-wide indicators and shares experience and learning related to effective project and evaluation implementation.

MCC's agriculture and land teams have been busy working in partnership with compact countries to maximize the impact of our food security investments on reducing poverty and hunger. The Fall of 2012 was especially busy with the release of the findings of MCC's first set of impact evaluations on farmer training and a week-long MCC "Agriculture College" that involved teams from both current and closed compacts in an intense self-assessment of how well we are investing in agriculture. Both of these processes provided valuable insights and evidence to improve the effectiveness of agricultural investments and evaluations.

This issue of the KIN journal intends to continue down this critical learning path as we strive to do our business better and build on the commitment under Feed the Future. The six articles selected for this issue examine the constraints farmers and agribusinesses faced in six MCC partner countries and how innovative approaches were used to support an environment for sustainable market access.

As the following articles note, small-holder farmers, fisherfolk and natural product harvesters often face the challenge of an uncertain resource base, scarce support services, inadequate access to markets, insecure land tenure, impacts on private investments, and limited finance opportunities. MCC project investments tackle these market development concerns and boost sector growth by reducing transaction costs and linking farmers more closely with consumers. However, outstanding questions remain as to how to most effectively and sustainably create market access that leads to inclusive sector growth and improves local food security. The authors included in this edition of the KIN journal share their implementation experiences and lessons from MCC's investments in six partner countries that advance learning in food security for us all.

With access to both the Mediterranean Sea and the Atlantic Ocean, Morocco is blessed with over 3,500 kilometers of coastline, giving it access to some of the world's most productive fishing grounds. Helping small-scale fisheries take advantage of the wealth of marine resources to further their economic and social development is one of Morocco's key development objectives. "Reducing Poverty for Artisanal Fishermen in Morocco," written by **Charlotte de Fontaubert**

and **Peter Zara**, emphasizes two complementary implementation considerations: (1) removing intermediaries between targeted beneficiaries and the final market and (2) ensuring sustainability of fish stocks upon which they depend for their livelihood. A number of critical lessons have emerged from the project, including the importance of strong engagement with local stakeholders and the need to communicate project benefits in light of competing development demands.

"Trade in Indigenous Products Contributes to Food Security in Namibia" by **Dave Cole, Karen Nott** and **Liz Feleke** illustrates the relationships between resource conservation, poverty alleviation and the emerging trade in INPs in global markets. Typically, the poorest of the poor in rural areas depend on indigenous natural products to improve their food security and are increasingly engaged in commercialization of these products. The main challenges discussed in this article for this growing market are, on the one hand, forging appropriate linkages between producer organizations and international global markets and, on the other, gaining widespread adoption of sustainable harvesting practices.

"Evolving Markets and Moldova's Transition to High-Value Agriculture" by **Jennifer Lappin, Cynthia Berning** and **Gary Kilmer** explores the importance of making "space"—valuable time and resources—early in project implementation to conduct deep, end-market studies as an effective step to focus and prioritize value chain projects where success hinges on market capture. This article reviews the complexities of identifying market opportunities and facilitating entry by Moldovan exporters.

From 2007 to 2012, MCC supported a major effort to address the causes of food insecurity in Mali, where over 50 percent of the people live on less than $1.25 per day and 27 percent of the children under age five are underweight. The Government of Mali, with MCC financial support and technical assistance, implemented the Alatona Irrigation Project in a remote area of the Ségou region of central Mali. "Strengthening Land Rights and Food Security in Mali" is an article by **Leonard Rolfes Jr**. and **Alfousseyni Niono** describing how key design issues influenced food security among beneficiaries of the project's land allocation activity.

As part of the national strategy to remedy food insecurity and promote modern agriculture, Benin has undertaken a series of donor-assisted projects to strengthen the rights of rural landholders using the rural landholding plan (plan foncier rural or PFR). The PFR is expected to increase the volume and variety of locally-produced food coming to market in conjunction with programs to expand cultivation, diversify crop production, improve yields, and upgrade storage, transport and handling facilities. The article, "Rural Land Tenure Security and Food Supply in Southern Benin" by **William Valletta**, looks at PFR results from the commune of Klouekanme, where early findings show positive trends and provide valuable lessons.

A common challenge to the development community is ensuring the long-term financial sustainability of investments. The return on investment of post-harvest interventions, such as storage and processing facilities, is at risk if farmers and agribusinesses are not properly incentivized to use and maintain the infrastructure over the long term. **Damiana Astudillo**, author of "Creating Sustainable Companies: Lessons from Ghana's Agribusiness Centers," highlights how international best practices and lessons from previous post-harvest investments were integrated as key design features to create a financially sustainable and unique post-harvest business model based on partnerships between established and successful local agribusinesses and farmer-based organizations.

We hope you enjoy this KIN issue and learn from it as much as we did in its development. **KIN**

REDUCING POVERTY FOR ARTISANAL FISHERMEN IN MOROCCO

By Charlotte de Fontaubert, Ph.D. and Peter Zara

ABSTRACT

The small-scale Artisanal Fisheries Project, a significant part of the $697.5 million MCC compact signed between the governments of the United States and Morocco, is a $120 million effort to reduce poverty among some of the poorest Moroccans: small-scale artisanal fishermen. This investment aims to increase profitability for these fishermen and improve food safety through concerted actions along the fish value chain from landing sites on undeveloped beach fronts to mobile vendors who sell door-to-door to modern market platforms that maintain a variety of quality fish to consumers' plates. The Artisanal Fisheries Project emphasizes two important and complementary considerations: (1) removing intermediaries between targeted beneficiaries and the final market and (2) ensuring sustainability of fish stocks upon which they depend for their livelihood. A number of critical lessons have emerged from the project, including the importance of leveraging the Moroccan government's existing expertise, strong and consistent engagement with local stakeholders to avoid land disputes, the need to communicate project benefits in light of competing development demands (e.g., fishing versus tourism), and the added time and costs of enforcing international standards for construction that are outside the typical norm and standards.

Context of the Project: Fisheries in Morocco

With access to both the Mediterranean Sea and the Atlantic Ocean, Morocco is blessed with over 3,500 kilometers of coastline, giving it access to some of the world's most productive fishing grounds, including the rich waters off the Canary Current upwelling. Helping small-scale fisheries take advantage of the wealth of marine living resources to further their economic and social development is one of Morocco's key development objectives, as set forth in a new and ambitious fisheries strategy enacted in 2009, the so-called "Halieutis" strategy.[1]

Today, the fishing sector in Morocco employs around 500,000 people, and fish exports earn close to $1 billion in foreign exchange annually, which represents an essential component of Morocco's monetary stability (FAO 2013).

Broadly speaking, Moroccan fisheries are divided into three separate sets of operators: artisanal near-shore fisheries, coastal fisheries (e.g., sardine vessels and trawlers) and "industrialized" fisheries that operate much further off-shore. Unlike most of its neighbors and competitors, Morocco has historically taken a proactive approach to fisheries management as highlighted by the establishment of a comprehensive and well-respected National Institute for Fisheries Research (INRH). The Halieutis strategy restricts access to its waters through the granting of international access agreements, and Morocco has developed a coastal fishing fleet of its own, mostly targeting sardines, anchovies and small pelagics through joint ventures with European boat owners and operators.

Direct monetary benefits from the fisheries sector are concentrated mainly in urban zones equipped with ports. The majority of profits derive from the well-organized industrial and coastal fishing industries that receive strong state supervision and guidance. The artisanal fishing community, on the other hand, is a minority economic activity in port cities and is dwarfed by the number and size of much larger coastal vessels, such as trawlers. Even when small-scale fishermen have access to basic infrastructure, their production remains marginal due to inadequate infrastructure, training and organization. Most fishermen are not well-educated and simply follow in their father's footsteps without the ability to achieve more lucrative livelihood options.

Outside of high-density urban zones and a handful of larger ports, fishing remains a traditional industry along the coastline, relying on beaches and natural ports for loading and unloading. These sites lack basic infrastructure, making fishing from them difficult and often dangerous. Every year several artisanal fishermen perish at sea because they are not supported by rescue-at-sea vessels from the Moroccan Royal Navy. The equipment they use is very basic: a simple wooden boat with an outboard engine and manual gearshift. The heavy, wooden boats from which the fishermen operate are hauled up the beach by hand and all gear and engines are carried by them over long distances and uneven terrain.

The lack of basic facilities, including water and often electricity, means that fishermen are completely dependent on intermediaries to supply essential services, such as petrol, at prices much greater than in the regulated marketplace. These same intermediaries also act as the buyers, setting the price of catches artificially low. Fishermen are so dependent on these

Opposite: Construction of a landing site for small-scale artisanal fishermen in Salé, outside Rabat.

1 In 2009, the Government of Morocco adopted a new, comprehensive strategy for fisheries management, also known as the Halieutis strategy, with the specific goal of investing in and developing the sustainability of the sector. The Halieutis strategy combines a broad objective of increasing production to more than 2.3 billion dirham by 2020 with a specific goal of ensuring that 95 percent of the species are managed sustainably. The three main axes of the strategy are sustainability, performance (increased catch quality) and competitiveness (exports of fish products are expected to almost double to $3.1 billion). The development of sustainable aquaculture is also a major pillar of Halieutis.

intermediaries that they have no alternative but to accept conditions that place them among Morocco's bottom earners (Gouvernment du Maroc 1999, World Bank 2004).

Traditional fishing employs close to 100,000 Moroccans; however, due to the lack of sorely needed infrastructure, it still provides a strictly seasonal and subsistence-focused livelihood (FAO 2013). The marginalized coastal populations who depend on fishing remain in a precarious economic situation despite their proximity to the coastline's abundant resources. Even though most of the stocks are exploited at or near full capacity, the revenue generated by fishing is far below what it could be with better access to an organized market (FAO 2013). Despite these limitations, the small-scale fisheries sector in Morocco meets a large share of domestic market demand and provides a source of national exports but is nowhere near as efficient or profitable as it could be.[2]

The Artisanal Fisheries Project

The Artisanal Fisheries Project aims to break the current cycle of poverty entrapping traditional Moroccan fishermen by creating an industry marked by sustainable growth and rational exploitation of Morocco's marine living resources. The goal of this investment is to transform the small-scale fisheries sector by modernizing the means of catching, storing and marketing fish. This will improve the quality of the catch, develop the value chain, increase fishers' access to both local and export markets, and improve incomes.

The three main components of the project include:

1. **Improved infrastructure:** This involves constructing ports, landing sites and wholesale markets—constructing 11 new landing sites for isolated fishing communities (commonly referred to as PDAs, the French acronym for Points de Débarquement Aménagés); developing and upgrading access for small-scale fishermen in 11 ports; and constructing five, brand new state-of-the-art wholesale markets in urban areas. 4,368 boats are expected to benefit from the creation of ports and PDAs (MCA-M 2013).[3]

2. **Innovations in the cold chain:** This involves providing technical assistance, training and partially funding the acquisition of fresh-fish transportation equipment by mobile fish vendors.[4] (Note: these are typically mopeds equipped with oversized, insulated ice chests.)

3. **Maintaining the sustainability of the resource**. This involves establishing a network of Marine Protected Areas and increasing monitoring efforts to ensure the sustainable catch of fish resources.

For all three of these components, a very strong and sustained training program was developed and adapted to the targeted beneficiaries, designed to ensure that all beneficiaries become stewards of the new infrastructure and equipment after the end of the compact. The training modules ranged from practical safety training for the fishermen to road safety for the mobile vendors.

2 The share of the small-scale fisheries catches that are landed "officially" in government-sanctioned sites (PDAs and ports) amounts to 37,000 tons annually, valued at approximately $100 million a year. In addition, 20,000 tons are landed at unofficial sites, for which the total value is not available (ONP 2007).

3 To date, 437 boats are already benefiting from this infrastructure.

4 A cold chain is a temperature-controlled supply chain. Strengthening the cold chain increases the value of fish products by establishing a chain of regulated temperature storage from the artisanal and coastal fisheries to the final point of sale. The chain begins on-board small-scale vessels, continues to PDAs and reaches consumers through properly-managed, hygienic wholesale fish markets and modern mobile fish vendors.

Photo: © C. de Fontaubert

The old fish market in Meknés, where hygiene was far below standards, will be replaced by a new, state-of-the-art facility.

Most of the targeted trainees had not received education beyond the primary school level. The Agency of Partnership for Progress (Agence de Partenariat pour le Progrès or APP), the local Moroccan entity responsible for implementing Morocco's MCC compact, is responding to this issue more broadly in the sector by providing over 16,000 artisanal fishers in 16 port towns with Arabic literacy, numeracy, job-specific, and entrepreneurial skills to build their business. Over 400 of the fishermen participated in both the artisanal fisheries training and APP's functional literacy program.

A Social and Creative Approach to Reducing Poverty: Construction of the Landing Sites

The construction of landing sites and the development of infrastructure in ports aim squarely to end the precarious nature of the Moroccan artisanal fisheries sector and place it on a path toward sustainable growth. As such, one of the aims of the project is to "formalize" the activities of these fishermen, who operate mostly through an informal circuit, do not report their catches and do not benefit from any of Morocco's social safety nets.

A cornerstone of the project is the transformation and development of 11 informal landing sites already in use by the traditional fishing sector, but where the lack of infrastructure severely impedes their potential for revenue generation. These new landing sites will serve as micro-centers for development through improved infrastructure, access to marketing and technical services and training in a wide range of skills and activities. To date, 6,862 artisan fisherman have received training certificates out of a planned target of 15,000 (MCA-M 2013). These focal points will link the entire coastal population by creating a network of fishing communities and breaking the isolation in which fishermen have operated. Experience in past landing sites, funded by the Government of Morocco, has shown that once the necessary infrastructure is built, and water and electricity are provided, economic activity develops beyond the fishing activity, with the construction of restaurants, stores and homes.

Moreover, the project aims to increase access to the domestic market by integrating modes of distribution and professionalizing the industry's management capacity (see box following page). The project is advancing transparency in the marketplace, and the National Fisheries Office will continue to handle marketing within an open and free framework. The program also aims to make fishing a year-round activity for small-scale fishermen to stabilize and increase revenues.

The development of PDAs includes the landing site and off-site infrastructure (access roads, drinking water supply, sanitation, electricity, and telephone) as well as the development of major infrastructure related to marketing (open and controlled auction room, ice factory, storage areas, infirmary, meeting room) and local administrative training and resource monitoring. Upon completion of construction, the ownership of each PDA is transferred to a cooperative of fishermen, who then become fully responsible for its management and upkeep. The National Fisheries Office remains involved through management of the first sale of the catches just as they are landed, collects a small tax on these landings and pays the wages of the personnel who manage the sales and collect all relevant data.

Completing the infrastructure will facilitate better utilization of landing sites by establishing a continuous cold value chain and participation in open and transparent fish markets. Indeed, the professional management of fish markets by the National Fisheries Office enhances market transparency and leads to improved prices at auctions. In the past, catches were landed in a haphazard manner and collected by intermediaries who arbitrarily set the prices and took no specific measures to ensure food safety and product quality. Now, much stricter standards are set up in the PDAs, and the National Fisheries Office inspectors monitor daily catches.

This project will also create fishing cooperatives, allowing them to reduce the costs of inputs and transport. By simply gaining access to water and electricity, and thus ice, artisanal fishermen can increase revenues as the price per kilo of fish improves due to its increased

FROM BEACH LANDINGS TO CONSUMERS' PLATE, STRENGTHENING THE COLD CHAIN

While the project focuses first and foremost on small-scale artisanal fishermen, it also follows the catch throughout its journey to final consumers. During due diligence, the Government of Morocco presented two pilot projects in Casablanca and Oujda, where experience showed that a well-designed market, strategically located and drawing on the latest in cold technology, can boost the distribution of fish products throughout Morocco. With MCC funding, these activities where scaled up to include markets close to dense urban areas in Rabat, Marrakech, Meknes, Taza, and Beni Mellal, where demand for fish has gone largely unmet.

Bringing fish products closer and faster to consumers is furthered through the help of **mobile fish vendors**, who are spread out throughout Morocco. Before the project, mobile fish vendors operated on bicycles or mopeds and stored fish in old, wooden and extremely unsanitary chests. 1,300 beneficiaries are receiving brand new equipment, including insulated plastic chests, and training in a variety of modules, including road safety, basic hygiene and the importance of saving to amortize and eventually replace the equipment. With a view to sustainability, very strict criteria were adopted to select these beneficiaries, which were reduced from 2,000 to 1,300. Among the criteria were how long they had operated as vendors and an estimation of their ability to save to amortize the equipment through time. Another very important requirement, which was imposed by MCC in spite of early reluctance by Moroccan counterparts, was that the beneficiaries themselves had to contribute to the cost of the equipment, thus ensuring that they had an interest in keeping, operating and maintaining the mopeds.

quality. A comprehensive study commissioned through the MCC compact on the value chain showed that the greatest benefit for the fishermen is to break the relationship of dependency that has bound them to intermediaries. As far as the increase in value per species, its measuring has also just begun in the only PDA site that is now operational in the town of Tifnit. An independent evaluation will be conducted in 2014 after compact completion in 2013 that will measure the increase in values over at least one full year (reflecting the reality of biological cycles for most species).[5]

In addition, by becoming part of the PDA system, the fishermen are grouped in a critical mass that allows economies of scale, particularly as related stores and businesses are set up in the periphery of the PDA. Perhaps most significantly, the fishermen benefit from an open market system where the price of their catches is no longer set arbitrarily by an intermediary but rather as the result of supply and demand in the marketplace.

Keeping Moroccan Fisheries on a Sustainable Path: Resource Monitoring and Marine Protected Areas

The environmental sustainability of the Artisanal Fisheries Project is reflected in the fact that MCC investments are targeted to increase the *value* of fish moving through marketing channels, as opposed to increasing the *quantity* of catches.

While increased value may stimulate demand, the fisheries sector is comparatively well-managed in Morocco and the government exercises a remarkably high degree of control over fishing and landing activities. The National Fisheries Office, in partnership with INRH, is responsible for monitoring fishing activities and strictly controls access to fisheries.

The MCC program is designed to help ensure environmental and social sustainability by strengthening fish stock assessments and monitoring systems at the landing sites. In fact, one of the significant side benefits of the project is the "formalization" of fishing activities by 12,000 or so targeted artisanal fishermen, whose catch will be recorded and documented when they land their catches in the new landing sites.[6]

Not only will fishermen switch from the informal sector to a recognized, monitored and state-sanctioned activity, all their catches, which previously were sold at unfair prices to off-the-book intermediaries will henceforth be registered, and to a small degree, taxed by the National Fisheries Office as it operates the auction halls in the PDAs. Catch reporting is at the heart of stock assessments, which are key to setting precautionary levels of catch, quota and thus the control of fishing efforts.

Marine Protected Areas

The sustainability of the project is also greatly strengthened by the development of a network of marine protected areas (MPAs) along the Mediterranean and Atlantic coasts. Here, the rationale is that when local fishing communities benefit from the new PDAs, their revenues will increase and, as a *quid pro quo*, they will be expected to participate in the establishment of the MPAs and comply with their management measures. As a result, overfishing will be reduced and the sustainability of fish resources will be improved even if other collapses can

5 M. Naji, *Analyse des chaines de valeur dans le secteur de la pêche artisanale au Maroc*, Report prepared for the Millennium Challenge Corporation

6 Office National des Pêches, Strategic document prepared for the Millennium Challenge Corporation during due diligence.

occur for other, mainly environmental reasons (e.g., an El Nino event, changes in seawater temperature or salinity, ocean acidification). Setting up a network of MPAs along the coast of Morocco represents a form of insurance against such phenomena, where even if a stock is affected by other factors, its fundamental integrity is ensured by protecting the critical ecosystems upon which it depends.

Furthermore, the project's approach to the establishment of MPAs is unique for a number of very important considerations. First and foremost, the project does not merely set-up pilot projects but fundamentally changes fisheries management by introducing MPAs as a tool, which can be used along more traditional measures (total allowable catch, quotas, licenses, size limits, etc.). To that end, the first year of the project was devoted solely to political outreach and education, to explain how MPAs function, in a genuine attempt to introduce them and have them accepted in the Moroccan landscape. This effort will continue throughout the duration of the project and will include study trips where fishermen and MPA managers visit other successful MPAs in the Mediterranean context.

Second, the MPAs set up by the project target relatively healthy fisheries, where each MPA is designed to support sustainable fishing practices rather than put an end to overfishing or destructive fishing practices. The wide body of literature on the subject shows that MPAs work best when they are adopted preventively and after exhaustive consultations with stakeholders and political buy-in (Roberts et al. 2001; Halpem and Wagner 2002). This is in contrast to the vast majority of MPAs, many of which are mere "paper parks," enacted but never enforced.

MPAs can extend over large areas (e.g., the Great Barrier Reef Marine Park in Australia is larger than the State of Texas) and in practice enforcement is almost impossible. It is very difficult to monitor a large number of small boats over a huge expense of sea. Instead, voluntary compliance is the preferred approach where stakeholders voluntarily agree to abide by the conservation measures set up inside the MPA because they understand that such measures will provide the targeted stocks with a chance to recover from previous fishing efforts. Thus, the best MPA is one that has been set up at the request of fishermen themselves. Accordingly, the Artisanal Fisheries Project included a series of extensive outreach meetings with beneficiaries to discuss the rationale and location of future MPAs to create strong ownership from the fishing community. The location of the MPAs was based on exhaustive data collected over the years by INRH and was verified through underwater surveys. At the end of this process, fishermen buy-in was such that the demand for MPAs was greater than what the pilot projects could cover and the National Fisheries Office is well aware of the request by fishermen for more MPAs. Therefore, the MPA component is consistent with two fundamental pillars of a successful MPA: (1) acceptance by the stakeholders/beneficiaries and (2) using the best scientific information available to locate and delimit the MPA.[7]

Lessons Learned and Recommendations

Building on the Government's Historical Strengths

An important element that favored MCC's selection of a fisheries component in Morocco was the fact that the Moroccan government had already accrued a wealth of knowledge and

7 Two of the most respected and followed guiding documents on how to establish MPAs are published by IUCN: (1) *Marine Protected Areas, A guide for Planners and Managers* (IUCN, 2000), and (2) *World Commission on Protected Areas, Guidelines for Marine Protected Areas* (IUCN, 1999). Both contain detailed recommendations on using best scientific information available and consulting impacted stakeholders exhaustively.

Photo: © C. de Fontaubert

New wholesale fish markets were based on the success of the Casablanca market (pictured).

experience in starting PDA sites and building a major wholesale market in Casablanca. The MCC project was thus conceived as a way of doing more of what was already working with the addition of some targeted improvements. This approach was beneficial from two different standpoints. On the one hand, the project built on approaches that had been field-tested by the government in its own time, incorporating some of the lessons that had been learned through trial and error. For instance, the project decided to focus on PDAs rather than so-called Villages de Pêcheurs, which had previously been funded by another donor and proved exceedingly difficult to implement because they required the construction of marine infrastructure, namely jetties and other devices, which proved to be too technically difficult to implement. On the other hand, building on the past experiences of the Government of Morocco was an excellent way to build trust with our partners and to show the extent to which their existing knowledge and "know-how" were appreciated and valued. The first lesson, then, is to try to identify and recognize past successes by the partner country and build on existing strengths.

Close and Continual Engagement with the Local Authorities

In retrospect, one can note that the number of sites to be built, both ports and PDAs, was cut drastically from the original target of 39 to 22. The 17 sites that were discarded mostly failed because the Government of Morocco and local authorities failed to secure the land on which they were to be built. From the early days of compact negotiations, it had been agreed that the land would represent the contribution of the receiving government. However, in spite of considerable support from project stakeholders, some local authorities simply chose not to welcome the project and prevented the construction of a landing site because they wanted to keep land available for hypothetical tourism development. One lesson learned is the need to maintain close and continual communication with local authorities, especially with respect to land issues, and to be able to demonstrate that large tourism development is not necessarily preferable to a smaller, lower impact landing site. Where the potential for tourism exists, it will more often than not supersede any other priorities in the eyes of local authorities. This is probably true for most, if not all, marine fisheries projects in countries with beach tourism potential and should be actively addressed as part of the planning process for a fisheries project. In many cases, an integrated fisheries-eco-tourism approach is possible, where smaller tourism infrastructures are planned and integrated with existing fishing activities. This option is currently the subject of a World Bank/Global Environment Facility project along the Mediterranean coast, hopefully paving the way for a more integrated approach to the development of the coastal zone.

Finally, another important lesson is drawn from the tremendous delays that resulted from a slow start and lengthy feasibility studies before construction could begin. The original work plan called for the completion of the first tranche of sites (almost 10 sites) at least two years before the end of the compact in September 2013. Yet, at the time of this article's writing, only two sites have been completed and become operational. As a result, 25 sites need to be completed or become operational between now and September 2013, which is sure to put inordinate pressure on all parties involved.[8] Without a doubt, the delays in the feasibility studies were in great part the result of differences in norms and standards, including environmental and social standards, between MCC and the beneficiary country.

GENDER INTEGRATION AND WOMEN'S PARTICIPATION IN THE FISHING SECTOR

By Patricia Thomas

Ask what women do in the fishing sector in Morocco, and the most common response will be: "They are not present." They do not go out in boats, do not fish, are not members of cooperatives, and do not engage in income-generating activities related to fishing. You will also most likely hear that it is impossible to integrate women into the fishing sector: (1) because they are not present in the sector and (2) because culture and traditions dictate that fishing is the domain of men, not women.

However, a gender analysis conducted in the context of the MCC-Morocco compact showed that though not present in large numbers, women do play a role in certain activities included in the value chain. For example, they collect, dry and commercialize marine algae and other products, such as mussels and sea urchins. They also work in great numbers as laborers in factories that process sea products. The gender analysis also showed that though traditions and customs often prohibit women's access to participation in the fishing sector, that this is not always the case.

The project's gender strategy thus focuses on innovative pilot actions that aim to open doors to a larger role for women in the fishing sector and to dispel myths about what women can and cannot do. Concretely, this means two things: identifying specific project services and benefits that can be made accessible to women (gender mainstreaming); and supporting specific projects for women that build on existing skills while increasing knowledge in areas where skills are lacking. Two women-specific projects are currently being envisioned: an algae drying facility for a women's cooperative in Sidi Abed and a processing plant for transforming sea products for women in Sidi Ifni.

Photo: © Agence du Partemariat pour le Progrès

- **Sidi Abed:** In Morocco, women are not often seen around docks or landing sites. This is the domain of men, who assume most activities related to the fishing sector. In fact, women are not allowed in some areas. In Sidi Abed, however, the newly-formed women's cooperative received permission to build inside the confines of the site. Up to 300 women engaged in the activity of collecting, drying and selling marine algae will pay their share of expenses in order to receive equipment and infrastructure adapted to their needs, as well as training in hygiene, improved techniques, cooperative enterprises, and marketing.

- **Sidi Ifni:** In the industrial zone of Sidi Ifni, construction will soon begin on a processing plant for marine products. The beneficiaries are 100 women members of a newly-formed cooperative who received a grant from Morocco's MCC compact. In addition to receiving appropriate infrastructure, the women will learn new ways to conserve their products (i.e., sardines and anchovies), allowing them to tap into local as well as export markets and increased profits. Interestingly, some of the women of the cooperative previously worked as paid laborers in fish processing plants. The difference now is that instead of working for others, they will become ***owners*** of the means of production.

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8 The 25 remaining sites include 10 ports, 10 PDAs and five wholesale markets.

Project beneficiaries target high-value fish species, as shown, which require prompt access to markets.

The original work plan was adopted based on a number of assumptions as to the capacity of the consultants and building firms to adopt MCC standards and criteria, which proved to be overly optimistic. These standards obviously cannot be lowered to respond to the abilities of local partners, so the most salient lesson here is the importance of focusing on outreach, training and support to these partners at the onset. The principle of country ownership is one of the fundamental pillars of the MCC approach, but it should also include an honest assessment of existing local capacities and a focus on investing heavily in training of the national drivers of the project as to MCC's methods, ways and standards. **KIN**

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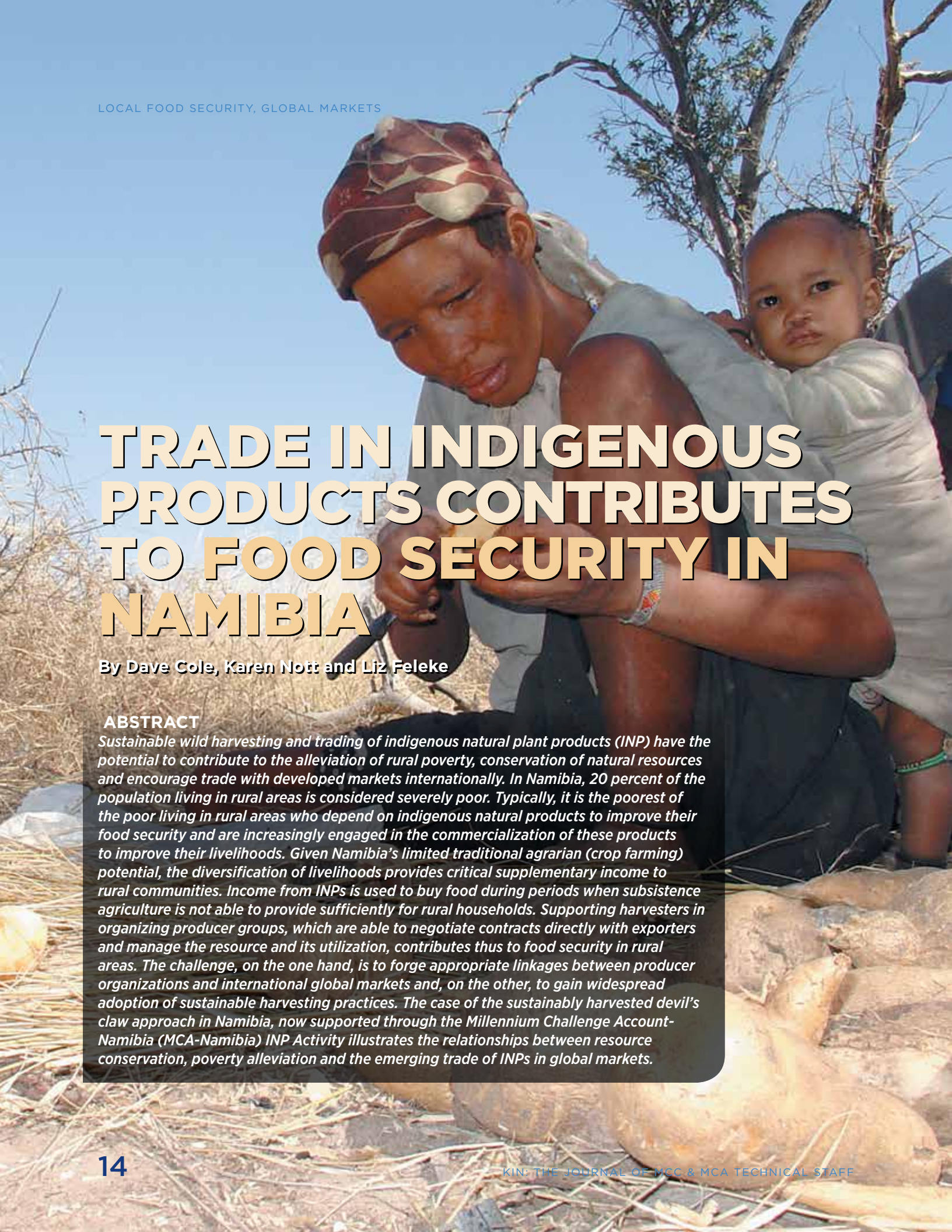

TRADE IN INDIGENOUS PRODUCTS CONTRIBUTES TO FOOD SECURITY IN NAMIBIA

By Dave Cole, Karen Nott and Liz Feleke

ABSTRACT

Sustainable wild harvesting and trading of indigenous natural plant products (INP) have the potential to contribute to the alleviation of rural poverty, conservation of natural resources and encourage trade with developed markets internationally. In Namibia, 20 percent of the population living in rural areas is considered severely poor. Typically, it is the poorest of the poor living in rural areas who depend on indigenous natural products to improve their food security and are increasingly engaged in the commercialization of these products to improve their livelihoods. Given Namibia's limited traditional agrarian (crop farming) potential, the diversification of livelihoods provides critical supplementary income to rural communities. Income from INPs is used to buy food during periods when subsistence agriculture is not able to provide sufficiently for rural households. Supporting harvesters in organizing producer groups, which are able to negotiate contracts directly with exporters and manage the resource and its utilization, contributes thus to food security in rural areas. The challenge, on the one hand, is to forge appropriate linkages between producer organizations and international global markets and, on the other, to gain widespread adoption of sustainable harvesting practices. The case of the sustainably harvested devil's claw approach in Namibia, now supported through the Millennium Challenge Account-Namibia (MCA-Namibia) INP Activity illustrates the relationships between resource conservation, poverty alleviation and the emerging trade of INPs in global markets.

Introduction

Namibia is the driest country south of the Sahara Desert. It covers an area of more than 824,000 square kilometers and has an estimated population of about 2.2 million people. At the same time, Namibia is also endowed with a rich biodiversity, including about 690 rare and endemic or near-endemic plant species. A considerable number are also drought-adapted plants with actual and potential agricultural significance.

Despite its rich biodiversity, Namibia is faced with chronic poverty in rural areas. About 20 percent of the population living in rural areas is considered severely poor with more women than men considered poor (Namibia Statistics Agency 2012). Limited sustainable livelihood options contribute to land degradation, which leads to losses in the natural resources and biodiversity upon which rural communities depend, further entrapping them in the poverty cycle.

INP Commercialization in Namibia

Within this context, the Government of Namibia embarked on an ambitious program to commercialize INPs as a means of expanding rural livelihood opportunities. The objective of the commercialization initiative is to provide supplementary income to many rural inhabitants whose only cash-income, in many instances, is derived from harvesting and selling INPs. From a food security perspective, the INP commercialization supports harvesters in developing local institutional structures to access better market opportunities. Since many rural households depend on the income from INPs to buy food, having a secured buyer and a fair price for their produce will guarantee sales and calm volatile market fluctuations, improving livelihoods and food security.

The Indigenous Plant Task Team (IPTT), a multi-stakeholder forum created by the Ministry of Agriculture Water and Forestry (MAWF), has made a significant contribution to the development of the INP industry in Namibia.[1] The IPTT is chaired by MAWF and includes a broad membership of line ministries and other stakeholders involved with INP commercialization charged with developing a coordinated strategy for the economically sustainable promotion of indigenous fruit in Namibia.

Based on the early successes of the commercialization of INPs in Namibia, support for the INP sector was included in the Millennium Challenge Corporation (MCC) compact, which entered into force in September 2009. The INP Activity is a component of the compact's Agriculture Project and has three sub-activities: support to producer and processor organizations (PPOs), an innovation fund, and capacity support to the INP industry through the National Botanical Research Institute (NBRI) and the IPTT.

The overall goal of the INP Activity is to increase incomes through economic opportunities for INP stakeholders through improved organizational, business and technical capacities along the value chain. The INP Activity is expected to increase incomes for up to 7,000 primary producers and their households, benefiting approximately 35,000 individuals in total. Over 6,600 producers are already members of compact-supported producer groups and have received training under the INP Activity (MCA-Namibia 2013).

Opposite:
A San woman slices harvested devil's claw.

1 In 2000, the Indigenous Fruit Task Team (IFTT) was formed and changed to the IPTT to reflect its widened mandate to include all indigenous plants and associated products.

Devil's Claw Plant and its Medicinal Uses

Harpagophytum, more commonly known as devil's claw, comprises two species: *H. procumbens and H. zeyheri*. The plant is a geophyte with a main taproot off which secondary or storage tubers extend. These secondary storage tubers contain the highest concentrations of active ingredients, including harpagoside, which are harvested for their analgesic and anti-inflammatory properties. Devil's claw grows in many parts of southern Africa, mainly in the deep Kalahari sands that cover much of the region. Populations of devil's claw have been recorded in Angola, Zambia, Zimbabwe, Namibia, Botswana, South Africa, and Mozambique.

The indigenous inhabitants of southern Africa, mainly the San, have used the plant's tubers for medicinal purposes for centuries. Ethno-medicinal uses have been recorded mostly for digestive disorders, fever, sores, ulcers, boils, and as an analgesic. The medicinal value of devil's claw for the treatment of rheumatism, arthritis and other similar ailments has been recognized by Western medicine only in the past 50 years.

Pictured left to right are samples of devil's claw flowers, fruiting body and taproot with secondary tubers.

Devil's Claw Contributes to Food Security

Devil's claw harvesters are generally subsistence farmers living in communal areas where resources are shared and limited. Their agricultural activities include rain-fed crop farming, which does not provide a secure source of food. Many households do not own livestock or have only small numbers of animals. San communities are most vulnerable during the dry months, especially if they have been unable to store sufficient quantities of grain during the rainy season to provide staple foods for the rest of the year. During these dry periods, households need to buy food to supplement the limited amounts they have been able to produce through agricultural activities and, in some cases, what they can harvest from wild foods.

Devil's claw harvesting and sales by harvesters to traders take place after the end of the rainy season. The national devil's claw policy states that devil's claw can be harvested from March to October, but generally harvesting starts in June, once the crops have been harvested from the fields. In many areas, the earnings from devil's claw are the only reliable source of cash income. This income is primarily used to purchase food. The contribution of INP earnings to household income and food security is documented for devil's claw as well as for other INPs (Taylor 2007; den Adel 2002; Nott 2009).

THE SAN IN NAMIBIA

Devil's claw harvesters, mainly San, are among the most marginalized and powerless people in Namibia. They number between 32,000 and 38,000, comprising six groups each with a distinct language, custom and history. They are an indigenous community who historically hunted and gathered food throughout Namibia. During the colonial era in Namibia, the former South African administration forcibly evicted most of their population from land they had occupied for millennia. It is estimated that 80 percent of the San have been dispossessed of their ancestral land. Because of this displacement and a long history of marginalization, the San are considered one of the most vulnerable minority groups in the country (Dieckmann 2011). Most San today have little access to employment or consistent income, with up to 68 percent of the Khoisan-speaking people of Namibia (largely comprising the San) considered poor (Namibia Statistics Agency 2012). For the San, the prevailing conditions of landlessness and a lack of education mean that the extent of their dependency and economic vulnerability is greater than that of any other language group in the country.

Prior to the MCA-Namibia intervention, there were nine organized producer groups representing 830 producers who supplied approximately 46 metric tons of sustainably harvested devil's claw[2] during 2009. This generated almost $67,000[3] or about $80 per producer. In 2011, there were 18 producer groups supported by the MCA-Namibia INP Activity. They produced more than 100 metric tons of devil's claw, and producers earned more than $225,000; with 1,321 producers, this equates to $170 per harvester. In 2012, there were 23 producer groups comprising 2,254 producers who produced and sold 215 metric tons. The contribution to producer's income from INPs amounted to a total of approximately $482,000 which translates to about $214 per producer. Germany, Poland and France are currently the largest importers of devil's claw[4].

PPOs that received support through the MCC compact supplied almost 20 percent of Namibia's devil's claw exports in 2011 and close to 43 percent in 2012, a significant increase.

Dried devil's claw slices (l) are processed into tablets (r).

2 Sustainable harvesting methods will be described later in this paper.

3 An exchange rate of 8.8 Namibian dollars to the U.S. dollar has been used on all years although it was probably less in 2009.

4 Namibia is the world's largest supplier of devil's claw and has exported a total of more than 9,000 metric tons to European markets between 1992 and 2012. The value of foreign export earnings from devil's claw in 2011 is estimated to be in the range of $2.9 million to $3.4 million and $2.3 to $2.8 million in 2012.

Protected Status and MCA-Namibia Policy Interventions

In Namibia, devil's claw was listed in 1977 as a protected species by the Ministry of Environment and Tourism under the Nature Conservation Ordinance of 1975. The law was enacted due to increased trade and the subsequent concerns regarding its conservation status. Devil's claw is protected through similar legislation in both Botswana and South Africa, but not in Zambia and Angola. Because of its protected status, the harvesting of devil's claw requires specific strategies to ensure its sustainability.

The government drafted a policy in 1999 concerning the use of devil's claw resources but never ratified it. With the support of the MCA-Namibia INP Activity in 2010, the Namibian government revised and ratified the policy (Namibia 2010). The Ministry of Environment and Tourism enforces the policy and uses traceability as a tool where permits are required for all stages of production and sale of devil's claw.

Benefit-Sharing and Sustainability in the Devil's Claw Model

Although for decades devil's claw has been an established product in the world market, the industry was not focused on sustainability or benefit-sharing with harvesters. Prior to the introduction of the sustainably harvested devil's claw (SHDC) model, the industry's growth was based on extremely exploitative relations between production and trade (Cole and du Plessis 2005). The SHDC model was first piloted with one harvester group in 1997 and since then has expanded steadily. Support for PPOs in the MCA-Namibia INP Activity has enabled significant up-scaling to occur. The SHDC concept introduced a simple benefit-sharing model based on the insight that there is a growing congruence of interests linking ethical consumerism in the Northern Hemisphere to sustainable resource use and socio-economic equity in the Southern Hemisphere.

San women harvest and slice devil's claw tubers.

An important new practice introduced by the SHDC model is to limit harvesting to only mature plants, and taking only secondary tubers. The taproot is not disturbed, and the hole is refilled with soil after harvesting to enable re-growth in two to three years (Strohbach and Cole 2007).

The innovative SHDC model is more than a sustainable harvesting technique. It also includes mechanisms to maximize benefits for harvesters. Organizing harvesters into producer groups so that they can collectively sell directly to an exporter, rather than to an informal trader, is an important aspect of this strategy. The SHDC model includes the following key features:

- Training and registration of harvesters who apply for a group permit,
- A management system for quality control and record keeping that guarantees product traceability,
- Sustainable harvesting methods, compliance with which is ensured through harvest monitoring and post-harvest impact assessments,
- A reliable partnership with a local exporter that secures a market as well as access to market information, and
- A premium price paid directly to harvesters.

Support for Devil's Claw Harvesters

The MCA-Namibia INP Activity aims to adopt the SHDC approach and increase the income earned by each harvester. One of the requirements of the project is for harvesters to form PPOs. The Namibian legislative framework provides several options for community-based organizations to obtain legal recognition. These include registering as community forests, conservancies, associations, and cooperatives. Since devil's claw is a shared resource on communal land, it is essential that a robust institutional arrangement exist for the collective management of the resource (Millennium Challenge Corporation 2008). The government expects PPOs to accept the responsibilities linked to the benefits generated by natural resources within their purview.

PPOs are provided with training relating to resource management, including legislative compliance, sustainable harvesting and processing methods as well as general institutional development. To ensure that resource sustainability and the maintenance of biodiversity are incorporated into PPO management activities, PPO Resource Management and Monitoring Plans are developed and implemented (Natural Resources Institute 2011). The plans outline how the producer organization intends to enforce the harvesting rules, monitor harvesting activities and use this information to make important management decisions.

Newly-created PPOs are also eligible for production improvement grants that can be used to purchase essential materials such as bags, stainless steel knives, scales for harvesters, and storage facilities. Training is followed up with technical support to PPO staff as they implement management actions to ensure consolidation of training and effective integration of processes into PPO management systems.

In addition, PPOs receive support to ensure that contractual arrangements with a buyer are in place before the start of the harvest season. This process involves negotiating the annual price per kilogram that is paid directly to the harvesters by the buyer as well as a management fee paid separately to the PPO for managing and monitoring activities, organizing the buying points and checking quality.

Registered devil's claw harvesters receive training.

INCREASING REVENUES FOR HARVESTERS AT THE KYARAMACAN ASSOCIATION

A good example of the successful implementation of the sustainably harvested devil's claw approach is found among members of the Kyaramacan Association. The association is located in Bwabwata National Park, a relatively small park of some 6,100 square kilometers situated in the Caprivi region of Namibia. It is unique in that it is the only national park in Namibia where people, the majority of whom are San, still reside and have user rights over the resources, both wildlife and plants, found in the park. The area was characterized by large-scale, unsustainable and illegal harvesting of *H. zeyheri*, poor prices paid to harvesters and poor quality of harvested material due to unskilled harvesting methods. It was estimated that more than 10 metric tons a year were illegally harvested and sold from Bwabwata National Park. Traders usually entered the area at night and bought material from residents for extremely low prices (about US $0.45 to $0.57 per kilogram).

Since the introduction of the new approach, the association has about 500 registered harvesters who have received training in sustainable harvesting methods. These registered harvesters are recognized by the government and can legally access the resources, such as devil's claw, in the park. In addition, harvesting activities are closely monitored by the association's staff members. The association has an agreement with a reputable exporter who purchases all of their produce at a price that is agreed upon at the start of the harvesting season. Buying events take place throughout the harvest season, which allows harvesters to access their earnings at regular intervals. Devil's claw supplied by the association is certified organic and in 2012, harvesters sold their devil's claw at a price of $2.38 per kilogram paid directly to the harvester, with a $0.34 per kilogram management fee paid to the PPO. This represents an approximately 19 percent increase in revenue.

To date, 78 PPOs have developed Resource Management and Monitoring Plans for environmentally fragile INPs, and over 4,000 INP producers have been trained in sustainable harvesting techniques (MCA-Namibia 2013). Monitoring of the INP Activity by MCC and MCA-Namibia is ongoing and an independent evaluation is planned in 2014.

Conclusion

The Indigenous Natural Products Activity provides a good illustration of the relationships between resource conservation, poverty alleviation, food security, and the emerging trade in indigenous natural plant products in global markets. The project is addressing critical needs to improve industry growth by providing incentives for harvesters to organize themselves into groups, building reliable supply chains and mobilizing additional working capital for rural, small-scale producers of indigenous plant products. These producers are generally subsistence farmers. In the majority of cases, poor rural women are the primary harvesters and processors of devil's claw.

MCA-Namibia's experience offers the development community some key lessons for future investments to spur economic growth and food security through investments in indigenous natural products.

Having an enabling policy and legislative framework to guide all stakeholders is essential for the successful commercialization of any INP. Establishing an enabling policy environment at an early stage is fundamental. This provides clear guidelines for interventions and support at all the stages along the supply chain.

It is important to understand that any investment in the development of INP enterprises should be seen as a long-term undertaking, since a viable INP sector is not built overnight. One of the fundamental approaches used by MCA-Namibia in the design of the INP Activity was to build on already successful approaches by implementing partners and embrace existing stakeholder institutional structures rather than setting up completely new frameworks. For example, wherever possible, existing community-based organizations were used to facilitate INP activities. Conservancies exist to capture benefits from tourism and wildlife-based enterprises and distribute these benefits to their members. These community-based organizations provided an ideal platform from which INP activities could be implemented effectively and efficiently.

The industry is projecting strong and growing global demand in the future for natural ingredients, including those currently harvested in Namibia, used in medicinal products and cosmetics. Thus, it is critical to address issues relating to improving quality while simultaneously increasing volume to enable producer groups to meet market opportunities in the process of commercializing INPs. The establishment of private sector partnerships is crucial from an early stage.

By creating and working with organized producer and processor groups, the MCA-Namibia INP Activity is ensuring that the benefits of current and future growth in the global market reach individual harvesters. The crucial element is in developing the supply chain to the extent that "producer groups" are able to negotiate contractual arrangements with buyers on a level playing field.

The socio-economic issues influencing and impacting devil's claw resource management, harvesting, trade, and benefits cannot be isolated from broader realities facing people in rural areas or from overall socio-economic conditions in Namibia. When harvested in a sustainable manner, INPs offer opportunities for the rural poor to diversify household income streams and contribute significantly to food security. There is, however, an urgent need to create other income-generating opportunities to supplement the benefits obtained from devil's claw if there is to be any substantial improvement in the livelihoods of the rural poor. The harvesting of and trade in devil's claw offers only one small opportunity for rural inhabitants to generate much needed cash income, and the benefits are available only for a limited season and depend on environmental conditions. Poverty and sustainability are inextricably linked. Unless the issues of poverty are addressed, and tangible benefits or options for primary producers are realized, sustainability will always remain problematic. **KIN**

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EVOLVING MARKETS AND MOLDOVA'S TRANSITION TO HIGH-VALUE AGRICULTURE

By Jennifer Lappin and Cynthia Berning
with substantial contributions from Gary Kilmer

ABSTRACT

Moldova has been rapidly losing market share in its traditional Russian fresh fruit export market since independence in 1992. European countries with more sophisticated production and post-harvest capabilities are out-competing Moldova in the low- to medium-value markets for apples and table grapes. Increasingly, Russia's consumers are demanding premium quality produce where Moldova has a negligible market share. In order to gain Russian market share and diversify into other European markets, Moldova must quickly improve its production and handling practices to match European competitors and meet the rising quality demands of Russian consumers. The United States Agency for International Development (USAID) and the Millennium Challenge Corporation (MCC) have taken on this ambitious task through the Agricultural Competitiveness and Enterprise Development (ACED) project. The five-year project works with fruit and vegetable producers to improve the quality of their produce and focuses on other weaknesses in the high-value agriculture value chains, including phytosanitary certification, post-harvest infrastructure and market linkages with potential buyers of Moldovan produce. ACED's strategy to strengthen these value chains is based on more than one year of extensive value chain analysis and end-market study research that examined market entry opportunities for Moldovan produce in targeted export markets. The studies identified the investments necessary for producers and exporters to compete in those markets. The program is in its second year of implementation; thus, it is too early to present findings of ACED's success in positioning Moldova as a competitive, prominent produce exporter to Russia and in new European markets. However, the experience thus far suggests that making "space" – valuable time and resources – early in project implementation to conduct deep, end-market studies is an effective step to focus and prioritze value chain projects where success hinges on market capture. In Moldova, these end-market studies were used to test and adjust ex ante operating assumptions and guide the tailoring of growth strategies for Moldovan fruit and vegetable exporters. This article reviews the complexities of identifying market opportunities and facilitating entry by Moldovan exporters as well as key lessons-learned thus far in ACED implementation.

The Orchard of the Former Soviet Union Struggles to Compete

Moldova's economy has been on a roller coaster ride over the past 20 years: GDP plunged in the 1990s to bottom out at 40 percent of its pre-independence level and then rebounded with steady growth averaging 5 percent per year over the last decade (World Bank 2012a). This struggle to transition from a centrally-planned to a market economy has been particularly painful for the agriculture sector, which is economically-dependent on a well-functioning, market-driven value chain.

Two decades ago, the agriculture sector made up 35 percent of Moldova's GDP, and the country was a major supplier of agricultural products to the Russian and Eastern European markets (World Bank 2012a). While the sector remains important today, accounting for over 50 percent of the country's exports, its share of GDP has slipped to 15 percent in recent years (World Bank 2012a). The agriculture sector employs approximately 30 percent of Moldovan citizens, yet poverty has been a persistent problem among agricultural stakeholders with high poverty rates for farmers at 36 percent and agricultural workers at 45 percent (World Bank 2012b).

Moldova's fruit and vegetable sector is struggling to maintain a position in markets they once dominated. This decline stems from several deficiencies along the value chain including:

- deteriorating road and irrigation infrastructure;
- low-level technologies in production, post-harvest handling and processing;
- incomplete economic and institutional reforms; and
- inadequate financial services to invest at key points of the value chain.

Today, Moldovan fruit and vegetable exporters rely almost exclusively on Russia's low-value, open-truck market. Moldova's current market share, already in decline, will continue to shrink without a strict market-oriented, across-the-board modernization strategy to guide Moldovan agribusiness expansion in competitive international markets.

The Strategy for Strengthening Links in Moldova's Value Chains

In 2010, as part of MCC's $102 million Transition to High-Value Agriculture (THVA) Project in Moldova, MCC teamed up with USAID to create an expansive five-year technical assistance and training project, the Agricultural Competitiveness and Enterprise Development Project (ACED), that seeks to modernize Moldova's high-value agriculture (HVA) sub-sector through four main activities: 1) market linkage development, 2) training and technical assistance to upgrade product quality and meet buyer requirements, 3) upgrades to the capacity of HVA agribusinesses and associations, and 4) improved inspection and testing capacities at border stations and within phytosanitary laboratory facilities.[i] A successful project will result in agribusinesses profitably exporting high quality produce from the black soils of Moldova's fields to Russia, the former Soviet republics of the Commonwealth of Independent States (CIS) and ultimately to the European Union (EU), in addition to serving Moldova's own higher-end markets.

Opposite: Farmers harvest apples in the Stefan Vodă district. The farm participates in MCC's post-harvest investment facility.

ACED structures its technical assistance and training based on requests from interested agribusinesses and producers to increase the likelihood that the beneficiaries are committed to improving their operations. ACED provides clear examples of what business growth

opportunities are available to Moldovan agribusiness drawing from its detailed end-market studies. ACED conducted this research to assess Moldova's historical markets (Russia, Romania and the Baltics) and "reach" markets (Germany) as well as comprehensive value chain analyses of high-value crops with the most market potential: apples, table grapes, stone fruits, greenhouse tomatoes, and dried fruits and nuts (ACED 2013).

Produced by ACED implementer Development Alternatives Incorporated (DAI), these studies present research on current end-market dynamics as well as the structure and inner-workings of priority fruit and vegetable value chains. The studies are based on direct consultations with current and prospective buyers of Moldovan produce, including importers, wholesalers and retailers as well as farmers, agribusiness operators, government officials, and other participants throughout the value chains. This qualitative assessment was coupled with secondary research of both private and public market data such as UN Comtrade database, Global Trade Atlas, Eurostat, and Euromonitor and used to analyze trends in buyers' price, quality and packaging requirements. The studies examined strengths and weaknesses in Moldovan production, harvest, storage, processing, transportation, finance, and the supporting export infrastructure and regulatory environment.

While market analysis as part of a value chain project and approach to agriculture investment is not new, the time and resources allocated to "digging deep"—rigorous and extensive end-market studies—as a critical step to guide project design and implementation are raising the bar on best practices for market-driven approaches to improving access to markets and increasing beneficiary incomes. ACED concurrently conducted initial producer trainings and other project start-up activities to build program awareness and relationships during market and value chain analyses.

Russia: A Testing Ground for Transitioning to High-Value Agriculture

Given its proximity, historical and linguistic ties and growing economic prosperity over the last decade, Russia remains Moldova's top export market. The majority of fruit in Russia is imported, and consumer demand for fruit has been increasing at 15 percent per year in recent years (USAID 2011). ACED's apple and table grape value chain studies report that 90 percent

MCC AND USAID

The ACED project in Moldova is the first time that USAID and MCC jointly designed, funded and are implementing a project together. Compact goals and targets related to farmer training, adoption, improved market access, increased productivity, sales, and farmer incomes are shared jointly with USAID under ACED. USAID and MCC have similar goals and work in many of the same countries, but different time horizons and funding cycles make joint implementation of projects difficult. Moldova has been the first opportunity for USAID and MCC to comprehensively partner and share learning in both implementation and evaluation. Measuring the results of agriculture value chain projects is challenging, but MCC and USAID are committed to strong program-wide monitoring and evaluation of the producer training component of ACED. The rigorous impact evaluation planned for the farmer training component of the ACED project will contribute to improved future programming at both agencies, will increase MCC's capacity to evaluate value chain projects and will help USAID to further implement their new evaluation policy that calls for these types of randomized evaluations. After two years of implementation, MCC and USAID are using information gleaned from project monitoring to assess the original evaluation plan. This mid-term assessment of the evaluation was spurred by the lessons learned from MCC's first five agriculture evaluations released in the Fall of 2012. Adjustments are currently being made to ensure that they are cost-effective and useful. MCC and MCA's investment in the USAID ACED project is funded by the $4 million Growing High-Value Agriculture Sales (GHS) Activity of the THVA Project in the MCC compact with Moldova.

of Moldova's apple exports and approximately 75 percent of its fresh grape exports were sold in Russia in 2010 (USAID 2011). Most Moldovan produce is field-sorted and packed, then transported in open trucks to Russian wholesale and open-air markets. Moldovan apples are primarily competing in the low- to medium-value market segment against other southern and eastern European countries and China. European and Latin American exporters dominate the high-value market (USAID 2011). Moldovan agribusinesses can continue servicing the low- to medium-value segment but this market is shrinking as Russian consumers increasingly prefer to buy their fresh products along with other groceries in modern supermarkets. In 2012, Poland eclipsed Moldova as the largest apple exporter to Russia servicing low-, medium- and high-end markets, particularly Russia's emerging new high-value agriculture market format—modern supermarkets (Economie Moldova 2013).

DEFINITION OF HIGH-VALUE AGRICULTURE

High-value agriculture includes all fruit, vegetable and nut crops that command higher market prices and generate higher levels of income for farmers than traditional cereal crops.

Changes in consumer purchasing locales and demand for HVA are accelerated by urbanization. Russians increasingly purchase fresh produce in modern supermarkets rather than from open-air markets, where Moldovan fruit is traditionally traded. ACED's end-market research relayed that for larger Russian cities, approximately 50 percent of fruit produce is now being sold through supermarkets (by comparison, only 10 to 20 percent of produce in Moldova is sold in supermarkets) (USAID 2011). Russian supermarket chains are now seeking long-term supply contracts with a few reliable suppliers that deliver high-quality, attractive, uniformly-sized fruit. Russian buyers are increasingly demanding a level of quality comparable to the retail market format prevalent in the west.

Changes in international tariffs are also making the Russian market more challenging for Moldovan agribusinesses to enter. Five years after its World Trade Organization accession, Russia is now required to change its tax regime, removing provisions that have favored apple imports from regional, non-European Union (EU) countries like Moldova. The effect of reduced or eliminated tariffs on Polish apples is already being felt among Moldovan exporters.

While these market transformations are not happening overnight, Moldovan agribusinesses will need to catch up to the standards of producing, sorting and packaging of more developed suppliers or risk losing market share completely to countries meeting Russian consumers' demands. Catering to the preferences of Russian retailers will be excellent practice for one day meeting the standards imposed by the EU. At the time of this writing, the EU is in the process of negotiating a deep and comprehensive Free Trade Agreement with Moldova, an agreement that would open the EU to Moldovan produce and bring increased prosperity to Europe's poorest country, achievable if Moldova modernizes its business practices and capacities.

Developing a Competitive Edge in Production and Post-Harvest Operations

ACED's extensive market research informed specific short-, medium- and long-term strategies for re-positioning Moldova's agribusinesses to more successfully compete in existing and new markets and new market formats such as supermarket retail.

A few Moldovan producers have ventured into planting super-intensive orchards, which can produce yields up to 400 percent higher than traditional orchards. These orchard investments are so recent to Moldova that the MCC-financed 2008 Moldovan farm operator survey did not capture these types of farms in the sample (1,243 respondents nationwide). The ability of Moldova to provide cost-competitive apples with good cosmetic appeal demanded by Russian supermarkets and European markets very much depends on the success and spread of highly-intensive orchards

Farmers harvest apples from a super intensive orchard in Briceno District. Super intensive orchards have more than 3,000 trees per hectare, yielding about 30 to 60 tons of apples per hectare. In comparison, traditional apple orchards have 700 to 1,250 trees per hectare, typically yielding 8 to 15 tons of apples per hectare.

in Moldova. ACED has developed and delivered training modules reviewing new rootstocks, cultivars, mechanical and chemical thinning, integrated pest management, tree support, and anti-hail systems as well as on-farm weather station investments and improved harvest practices to capitalize on this substantial investment. Intensive HVA producers can also benefit from making investments into post-harvest infrastructure, including cold storage, sorting and packing lines. The size of these investments (and of the loans required to finance them of up to $24,000/hectare for an intensive orchard and up to $1 million for a modern cold storage facility) require professionally-produced business plans. The ACED program provides business and investment guidance for creating bankable business plans and refers potential investors to available credit lines, including one financed through MCC's Access to Agricultural Finance Activity.[ii] In the first two years of implementation, ACED has facilitated $2.3 million in cold storage and packing line investments to begin to close the gap in access to these important post-harvest facilities.

Value Chain Improvement Example: Cold Storage

Competing in the HVA market and servicing the retail market format requires access to cold storage, a persistent challenge to Moldovan producers and exporters. Approximately 15 percent of Moldovan produce passes through cold storage (with much of this cold storage falling far short of current best practices in other parts of the world) (Ministry of Agriculture and Food Industry Moldova 2012). The remaining 85 percent has a significantly shorter shelf-life and cannot command higher "off season" prices or meet the terms in contracts requested by Russian supermarkets. By comparison, in the United States and most Western European countries nearly all produce passes through the cold chain. Access to cold storage is one of the most significant determinants of profit in fruit and vegetable production. To cite one example of forgone profits in the medium-value market segment, Moldovan agribusinesses missed out on the opportunity to export their table grapes at a 50 percent price premium because they were unable to extend their marketing and delivery season through Russia's Christmas holiday seasons in 2009 and 2010 (USAID 2011). Moldova's lack of cold storage also precludes accessing the neighboring European market of Romania where Moldovan produce once thrived. In Romania, the only window for Moldova's HVA to effectively compete is during the off-seasons when EU minimum import pricing policies are removed (USAID 2011). This timing and pricing are impossible to achieve without modern packing and cold storage facilities, two of the current gaps that are being aggressively addressed by Moldovan agribusinesses and exporters with direct assistance from USAID and MCC.

Value Chain Improvement Example: Apple Packaging

Each market opportunity has a customized value chain action plan, which identifies specific investments producers will need to make to meet the standards and demand in those markets.

To cite one example, the apple end-market studies identified the low quality of packaging in Moldova as one serious impediment to exporting Moldovan apples to higher-end markets. To improve Moldovan packaging methods, ACED's action plan includes working with two local cardboard box manufacturers to develop self-locking and machine-glued box designs, implement new cardboard and fresh produce package tests at these local cardboard manufacturers and carry out feasibility studies for box-forming operations in key apple producing regions, sharing the results of these studies with local producers and providing business plan assistance to interested investors. One early success in this area is ACED's work with KKKI, the main local manufacturer of corrugated cardboard. ACED has worked with KKKI since September 2011 to determine the minimum technical specifications needed and to launch production of a type of cardboard that meets the quality requirements of two "Moldova-Fruct" Association members that have procured and installed the first open tray box-forming equipment. During 2012, KKKI made a series of investments in its corrugating line and successfully passed the tests conducted by the operators of this tray-forming equipment. Moldovan apple exporters now have access to modern packaging at a competitive cost.

Value Chain Improvement Example: Phytosanitary Inspection

One well-documented critical gap is the inability of the Government of Moldova to carry out comprehensive sanitary and phytosanitary (SPS) analysis for export products, thus reducing the acceptability and access of Moldovan products in key international markets. While SPS inspection had long been known to be a weakness in Moldova, the end-market studies identified the precise certificates needed for produce to enter each market, the specific information required in the certificate and who needs to issue each one. This identification led to the development of an action plan for equipping an SPS laboratory, implementing a training plan for inspectors and taking the necessary steps to certify the Central Phytosanitary Laboratory to international standards. Once the lab is certified, Moldovan agricultural exports will be able to be tested for compliance with international SPS standards, granting Moldovan produce increased acceptability and access to key international markets, particularly in light of the deep and comprehensive Free Trade Agreement that the Government of Moldova is negotiating with the EU.

Businesses have been particularly receptive to the program's insights on production and post-harvest handling techniques. As of January 2013, ACED reports that 2,294 business representatives have received guidance and training, of which a third are women. Moldova is a country of approximately 1.5 million farmers and agricultural employees, so the success of ACED's nationwide efforts depends on targeting those farmers and agribusiness operators most eager to be competitive and meet consumer demand across borders (World Bank 2009). If the program logic is correct, they will become the "motivators" for others who may be more reluctant to change until they witness the success of others.

MCC and USAID provided new equipment and training for the State Phyto-Sanitary Laboratory to improve pest, virus and disease detection. The investment helps Moldova meet export requirements.

Results to Date

With only two years of implementation behind them, the ACED team has already made impressive progress toward its end-of-project targets. As of the time of this writing, ACED has facilitated nearly $1.87 million in increased high-value sales for agribusinesses, has trained more than 2,000 farmers in improved production, harvesting and handling techniques (almost half of the end-of-project target) and has assisted 89 businesses with creating high-value agricultural business plans (MCA Moldova 2013). In addition, the program has procured equipment for the SPS laboratory, has published a road map for investors in Moldovan HVA and has created and publicized a national branding slogan for Moldovan produce. The program is on track to meet and likely exceed most of its targets.

Confirming Development Lessons Learned

Market research and analysis should be an ongoing, iterative process throughout the life of the project. The ACED project illustrates the benefits of conducting in-depth, specific market studies to ground-truth the assumptions that influence program development. The proposal for the ACED project to spend over 12 months conducting market studies was met with skepticism by some in the Government of Moldova as these were perceived as redundant, given that previous value chain programming by MCC and MCA Moldova during compact development had undertaken several studies and value chain analyses. However, the end-market studies and value chain studies completed in 2012 by ACED brought to light different opportunities and obstacles then presented earlier. For example, a previous market study for apples showed supermarkets and other retail comprising only 10 percent of apple sales in Russia, which is very similar to Moldova today where consumers purchase the vast majority of produce in open air markets (CNFA and USAID 2005). However, Russia's economy and markets are rapidly evolving. ACED's end-market fresh and dried fruits in Russia study (2011) shows that urban consumers are purchasing more than 50 percent of their produce in supermarkets these days (ACED 2012). Supermarkets are a new market format for Moldovan agribusinesses and require a different market capture strategy from one that targets open-air markets and produce kiosks. A value chain study completed in 2009 by Chemonics examined three value chains: prunes, tomatoes and table grapes, and another study by Dalberg (2009) served as the basis for the development of the ACED project concept. The ACED end-market studies expanded on these findings by diving more deeply into the specifics of each market, updating the information on the current political and economic situation and transforming the identified gaps into a clear and measurable set of activities and targets.

Regional producer groups are critical to fostering trust needed among players to grow markets. This lesson has been reinforced throughout the first two years of the ACED project. Fostering cooperation and trust among value chain actors leads to economies of scale that result from frequent interactions. Deeper cooperation among small-scale fruit operators is critical if Moldovan producers are to meet end-market requirements and emerging opportunities as buyers are increasingly seeking larger volumes for longer time horizons. ACED focuses on catalyzing small farmer cooperation in marketing, input supply and joint ownership of post-harvest facilities through associations or cooperatives. As an example of ACED's early success in this area, table grape producers in six different regions organized regional producer groups under the banner of the National Table Grape Association. This initiative was launched as a result of the nine regional ACED-led roundtables, which communicated the critical need for table grape exporters to combine their efforts to store and market their produce effectively.

The five-year timeframe supports an effective implementation of value chain projects. The ACED project has a five-year implementation "clock." Many donors use shorter timeframe projects and

funding cycles which often make allocation of a 12 to 18 month comprehensive market analysis period not feasible. One of the strengths of the ACED program that could serve as a reminder for the development community is the longer time horizon of the project (five years), determined at the onset, allowed for a solid and deliberate project customization and design adjustment phase of more than a full year. While trainings were conducted during this time, the longer timeframe allowed for an iterative process of continually adding information, refining assumptions and developing new activities that are specifically targeted at weaknesses identified in the value chain. This flexibility in light of changing market conditions is only possible within the context of a multi-year project. **KIN**

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Endnotes

i In the Moldova Compact, MCC's investment in ACED is called "Growing High-Value Agriculture Sales Activity," which is tasked with identifying and supporting entities across the HVA value chain that can drive upgrades to it. ACED provides investment service provider support to businesses, including potential clients of the Access to Agricultural Finance Activity.

ii For more information on MCC's Access to Agricultural Finance Activity post-harvest infrastructure investment facility ($12.5 million), see http://mca.gov.md/en/activities_Tr.html.

STRENGTHENING LAND RIGHTS AND FOOD SECURITY IN MALI

By Leonard Rolfes Jr. and Alfousseyni Niono

ABSTRACT

The people of Mali are among the roughly 1 billion worldwide who suffer from food insecurity. In 2010, just over 50 percent of the country's population lived on less than $1.25 per day, and 27 percent of the children under five years of age were underweight. The causes of food security in Mali are intertwined, and include poverty, inadequate supply and political instability. Poverty is especially severe in rural areas, where 80 percent of the population is not earning enough money, or growing enough food, to meet their basic caloric needs on a consistent basis (USAID 2010). The country also suffers from a food supply deficit in terms of national production and trade, inadequate storage to reduce losses and insufficient transport to make food available where needed. Food security problems are compounded in Mali by political instability, which disrupts food distribution channels and cuts off access. The Malian military overthrew the democratically-elected government in March of 2012. Separatist and Islamic fundamentalist groups controlled the entire northern half of the country and continued their advance until the French military intervened in early 2013. From 2007 to 2012, the Millennium Challenge Corporation supported a major effort to address these causes of food security. The Government of Mali, with MCC financial and technical assistance, implemented the Alatona Irrigation Project in a remote area of the Ségou region of central Mali. The integrated agricultural development project prepared almost 5,000 hectares of irrigated land, allocated the land to farmers and provided them with startup inputs as well as agricultural and financial training. This article describes how key questions about the project's land allocation activity that relate to food security were addressed and implemented. Section I provides a short description of the project. Section II examines the land activity. Section III discusses the results and what was learned vis-à-vis food security.

I. The Alatona Irrigation Project

The fundamental idea behind the Alatona Irrigation Project was as follows: By providing poor farmers with high-value irrigated land, proper incentives, key inputs, and training, they can produce substantially more food and income than had been possible before and thus escape the cycle of poverty. The project would also catalyze general economic development in the region around the project zone. Moreover, the project would help the region's people increase their food self-sufficiency, which in turn would reduce their risk of suffering from food shortages associated with instability, and would make more food available to Mali's people as a whole.

The project required effort in a variety of disciplines in order to achieve its objectives and was organized into six activities:

- *Irrigation infrastructure development*: Under this activity, 4,940 hectares of irrigated land were developed. This was a heavy-construction exercise consisting of canal dredging, land clearing and laying out new irrigated land parcels;

- *Road upgrade:* The project planned to upgrade the road between the towns of Niono and Goma Coura to improve farm-to-market access and general transportation. The project area is along this road. The upgrade was not completed as originally planned, but access from the project area to Niono was improved;

- *Resettlement*: Each household displaced or affected by the irrigation infrastructure development received new housing, a full range of social benefits, and two hectares of irrigated land as compensation for their loss of access to land[1];

- *Agricultural services*: This activity helped farmers improve their farming and business skills and work together in farmers' associations. In addition, farmers received seeds and other supplies to help them begin cultivating the land they received through the project;

- *Financial services*: This activity improved the capacity of local financial institutions and farmers to make loans, repay loans and manage their financial resources; and

- *Land allocation*: Through this activity (i) new irrigated land parcels were surveyed, (ii) five-hectare farms were allocated in ownership to 954 beneficiary households, (iii) land recipients were educated about their rights and obligations, (iv) the local land registration system was upgraded, and (v) revenue from the sale of land was collected for future community needs (66 percent of the land was sold to project beneficiaries).

II. Key Land Activity Design Features and their Relationship to Food Security

During development of the land activity, a number of key design decisions had to be made, such as farm size, type of land rights to award, payment for land, who would receive land rights, and regulations on use of the irrigated land. This section presents three land activity design features with a bearing on the food security issue.

1 The project divided the irrigated land it developed into five-hectare farms. The resettled households received two hectares free of charge as compensation for resettlement, and purchased the remaining three hectares on an installment basis.

Opposite: Farmers harvest rice in Alatona.

What type of right should farmers receive to land?

Farmers who have more secure rights to land tend to be more productive because they capture more of the benefits of their hard work and investment. Secure tenure tends to enhance food security. By improving farmer productivity, more food becomes available and more growth-causing economic activity takes place. Moreover, secure tenure helps farmers reduce the risk of a loss of land rights in a politically unstable setting.

Generally speaking, ownership represents the highest form of land rights security, though leasing, usufruct and customary rights can provide security as well. The relative importance of various types of land rights depends on the country context. In the case of the Alatona Irrigation Project, the choice was between leasing and owning.

The Alatona Irrigation Project area is located adjacent to a large administrative zone of villages, irrigation canals and roughly 90,000 hectares of irrigated land (Office du Niger 2013). This zone is called the *Office du Niger* (*ON*) and is controlled by a para-statal agency of the same name. The *ON* went through a period of reform in the 1980s and 1990s that improved the land tenure environment by granting usufruct rights and one-year renewable leases to farmers (Aw and Diemer 2005). Despite these improvements, during project development farmers continued to complain about the heavy-handed manner in which their land rights were managed by the *ON*. For example, the *ON* frequently cancelled farmers' leases even for short delays in making the required payments. In addition, selling of land was not permitted, and a black market in land had developed.

Given the continuing concerns about *ON* interference with farmers' rights, plus the potential for boosting productivity and general economic growth by allowing land to be sold, MCC and the Government of Mali decided that the irrigated land developed under the project would be transferred in ownership to the beneficiary farmers. Private ownership reduced the risk of *ON* interference.[2] Mali's former president, Amadou Toumani Touré, personally supported the ownership approach, and its groundbreaking and innovative nature was consistent with MCC's search for far-reaching, potentially game-changing investments.

The project successfully issued land titles for the 954 farms, plus additional land titles for women's market gardens. Since each farm consisted of either two or three parcels, the project processed and issued 2,900 titles in total. These titles represent the first significant formal ownership of rural land in the country.

An important complement to allocating land in ownership was revising the *cahier des charges*. This was a land use regulatory document that set out the rights and responsibilities of land users. Historically, the *cahier des charges* used in the *ON* imposed tight constraints on how farmers could use their irrigated land. The project's revised *cahier des charges*, by contrast, was a strong affirmative statement on the rights of a landowner. Most notably, the *cahier* specifically gave farmers the right to sell or lease their land and gave them increased freedom to plant different crops rather than being obligated to grow only rice.

2 In 2008, the project land area was transferred from the administrative control of the *ON* to the control of the prime minister's office, making it more difficult for the *ON* to assert control over the land. The *ON* controls the main canals supplying water to the project area, thus good relations between the project farmers and the *ON* remain essential.

How could the project make land available to women?

In general, women do not have strong rights in the traditional rural society of the Alatona area. The head of a household, who is almost always the husband, typically exercises predominant control over most of the household's assets. However, given the growing body of evidence that significant development benefits flow to women, and to the family unit, when women have increased control over assets, MCC was keenly interested in ensuring both women and men would receive rights to the irrigated land developed by the project.

One of the ways that the project tried to make land available to women was through joint titling, that is, by registering ownership of the allocated land to the husband as well as his wife. Joint titling was presented to the family members, who then made the decision whether to jointly title the land or not. Joint titling was voluntary; it was not required.

The project implementers presented the joint titling option in the following manner in order to assure informed decision-making.

- The model land transfer contracts and the *cahier des charges* were translated into the local languages.

- Separate educational meetings were held with the women and men of a village simultaneously. This separation was deemed essential for the women to actively participate. At the meetings, identical information was presented about benefits of joint titling, so that the women and men were hearing the same thing. The contracts and *cahier des charges* were also presented line by line.

Beneficiaries of the Alatona Irrigation Project gather in the village of Feto.

- The information was presented over a four to six day period, with two to three hours of instruction per day. This schedule gave the women time to care for their children, thus making their participation possible.

Implementation of joint titling was a great success. About 34 percent of the beneficiaries decided to title their farmland in the names of the husband and wife, a figure that far exceeded project expectations of 10 to 20 percent.[3] Both parties signed the land transfer contract, and both parties were registered as owners at the local property registration office.

How should the land be allocated?

The Alatona Irrigation Project developed 954 farms. Out of this number, 801 farms had to be provided to project-affected households through the resettlement process. The remaining 153 farms were available for distribution to others. What criteria should be used to select the recipients of these 153 farms? This was a major project design question, and a number of factors were considered in developing a solution:

- The project wanted qualified farmers to receive the 153 farms to maximize the chances of agricultural success;

- The project wanted farmers with limited or no direct access to land to have a good chance to receive a farm; and

- The project wanted the farm allocation process to be fair to all applicants and to minimize the possibility of people gaining control over farms through corrupt action.

After considering these factors, the project designers developed a two-stage process for picking the recipients of the 153 farms: a minimum qualifications test and a public lottery.

The minimum qualifications test required applicants for land to complete a form with the following information:

- Access to land: Applicants with little or no access to land could receive up to 20 points on their applications;

- Farming experience: Applicants with experience in irrigated agriculture could receive up to 30 points on their applications, depending upon the number of years of experience;

- Farming education: Applicants with some farming education could receive 5 points on their applications;

- Proof of water fee payment: Applicants who could prove they had paid water fees in the past could receive 5 points on their applications. Since farmers would be required to pay for land and water under the project, past evidence of making payments was important;

3 Forty percent of the households who received land through the resettlement process selected joint titling for the husband and wife. By contrast, almost none of the farmers who received land through the minimum qualifications and lottery process selected joint titling. The poor results for the latter farmers were due to the fact that they had applied for land as individuals, thus felt entitled to take sole possession of the land, and because the project's outreach effort on joint titling was derailed by the Malian military's overthrow of the country's democratic government in March of 2012.

- Collaboration: Applicants who had participated in an association or cooperative in the past could receive 10 points on their applications. This was important because the farmers would have to work together to manage the irrigation infrastructure;

- Resources: Applicants who had basic farming equipment and draft animals, equivalent cash or proof of access to credit could receive 20 points on their applications; and

- Women and youth: Applicants who were women or men under 40 years of age could receive 10 points on their applications as a way to increase their participation while still respecting the other qualifications.

These attributes were graded on a 100-point scale, and 60 points were needed for an applicant to pass the minimum qualifications test and be eligible to participate in the lottery. The grades were not used to pick the farm recipients directly because there was a limit to the accuracy of these criteria as predictors of performance. Does a farmer with five years of experience always perform better than a farmer with four?

The second step in the process was a public lottery through which the farm recipients would be selected. A lottery was used for two reasons. First, a lottery is very transparent: It is conducted in a public forum where tampering with the results is difficult, which makes the outcome more likely to be accepted by the population. Second, due to the random selection that a lottery provides, control and treatment groups can be established, and they can be used to carry out valid evaluations of the project's impact.

The president of the women's association of the village of Beldenadji holds the association's market garden land title.

The project advertised the opportunity to participate in the lottery throughout the *Office du Niger*, and established "depots" in five different towns where 7,561 people submitted applications. From this total, the project rejected 3,114 applications before technical evaluation for a number of reasons, such as failure to supply required information or the applicant was not a Malian citizen. The project then reviewed and scored the remaining 4,447 applications, and 3,391 people had the minimum attributes required to participate in the lottery.

Lottery day was March 6, 2012, in the town of Niono. At a public ceremony the recipients of the 154 farms were selected through a random drawing. Women received 24 of these farms. By all accounts the lottery was properly conducted, was free from fraud and its results were accepted by both government officials and the general population.

III. Conclusion

The land activity met most of its targets. All of the land was distributed to the targeted beneficiaries, all of the beneficiaries received their land titles and the large amount of public outreach work contributed to public acceptance of the project and its accomplishments. The farmers have been making their land payments thus far, have begun to express a sense of ownership over their land and have dramatically increased their income compared to their previous work as dry land farmers and animal herders.

Rice is traditionally processed close to farmers' fields in Alatona.

On the question of food security, though, the land activity's impact cannot yet be determined conclusively. While near-term food access issues have been resolved for project beneficiaries and those nearby, the theories about stronger land rights – that they will lead to higher productivity, more investment and general economic growth – are not yet proven one way or the other. Ultimate proof of success will come several years in the future when agricultural yields and household incomes in the Alatona project area can be compared to those elsewhere.

Finally, on a more practical level, the process of implementing the land activity offers several lessons that should be considered in future project design and execution. These include:

- Since land issues often trigger strong emotions and can lead to conflict, land-related activities need to be carried out in a way that will lead to their acceptance by those affected. Fairness and transparency can go a long way in delivering this acceptance. In the Alatona project, the combined use of minimum qualifications and the public lottery to award farms met this test.

- Outreach work with affected parties is crucial to project success and sustainability. Joint titling was successful primarily because of the extensive outreach work, as was the allocation of ownership rights to land.

- Rights of women can be improved in traditional societies if approached in the correct manner. Again, the outreach work with women and men during the process of signing land transfer contracts led to the very strong joint titling results. **KIN**

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RURAL LAND TENURE SECURITY AND FOOD SUPPLY IN SOUTHERN BENIN

By William Valletta

ABSTRACT

*As part of the national strategy to remedy food insecurity and promote modern agriculture, Benin undertook a series of donor-assisted projects to strengthen the rights of rural landholders, using the instrument of the rural landholding plan (*plan foncier rural *or* PFR*). Selected villages have surveyed and mapped their agricultural land parcels, defined and registered the customary rights of landholders and set up a system to draft, witness and register documents of land transfer, tenancy and use. By creating these documentary proofs of rights, it is expected that landholders will gain protection from conflicting claims and feel secure in their long-term possession of the land. This will enable them to change certain customary practices that have limited investment in land improvement, hindered intensive production and restrained the transfer of rights in tenancy or cooperative agreements to allow extensive and modern farm methods. In conjunction with other programs to expand cultivation, diversify crop production, improve yields, and upgrade storage, transport and handling facilities, the PFR is expected to help increase the volume and variety of locally-produced food coming to market. At the end of 2012, almost 400 villages have completed a PFR and a record of their early results and impacts is being compiled. This article looks at PFR results from the rural commune of Klouekanme, where early findings show some positive trends.*

Introduction

In the West African nation of Benin, more than 47 percent of the population of 8.6 million falls below the poverty level of $1.25 per day, and 40 percent of the children under the age of five are deficient in height and weight. These indicators of food insecurity have motivated the Government of Benin and its regional and communal leadership to search for ways to increase agricultural productivity, expand cultivation and bring more diverse food supplies to markets. They have identified several factors that seem to constrain agriculture output and productivity, including the limited availability of crop land for farm producers in many areas, traditional methods of cultivation that deplete fertility and lead to soil erosion and insecure land tenure that causes many rural landholders to withhold land from production or limit its use (Benin PSRSA 2010).

In response to these problems, the national, regional and local administrations, with international assistance, have undertaken a number of programs and projects to expand food production to previously unused or fallow lands. This increases perennial planting, allows farm producers to consolidate small fields and encourages the use of fertilizers, irrigation and other modern techniques (PADMOC 2011, Benin PSRSA 2010). In addition, government authorities have sought to strengthen landholding rights and rural land administration, based on the theory that tenure security will enable and encourage the other initiatives of farming expansion and improvement (Edja and LeMeur 2004).

As the instrument of tenure security, the Government of Benin introduced the rural landholding plan (plan foncier rural or PFR). This method provides for the survey and mapping of agricultural fields, the defining and recording of customary rights of possession and the creation and archiving of written documents of land transactions on a village-by-village basis. The PFR has been developed and applied experimentally over a period of 20 years in Benin, Burkina Faso and Cote d'Ivoire (Ouedraogo 2005). More recently, Benin has expanded its coverage to almost 400 villages in projects assisted by the Millennium Challenge Corporation and several European donors.

The early results of the PFR projects are now being collected and analyzed. The researchers hope to find that the landholders, with newly secured land rights, are now increasing their investments in land and farm operations, entering more cooperative and tenancy agreements and bringing into cultivation fallow and previously unused areas. They expect these actions to reinforce other efforts of agricultural support and technology improvements with the final goals of increased rural household incomes, increased and diversified food products in the markets and more stable food prices (MCA-Benin 2009).

In order to review the early results of the PFR and explore their link to food security, this article looks at the commune of Klouekanme in Couffo Department. Klouekanme is an important supply source of fresh fruits and vegetables, tubers, grains, and legumes for the markets of southern Benin, and it has been an eager participant in the PFR projects and the initiatives to improve fruit, vegetable, tuber, and rice production (Klouekanme PCD 2011, Klouekanme PCC 2006). Short-term evidence from Klouekanme shows some positive indicators of expanding cultivation, diversification of crops, investment by producers, and improving methods of cultivation and production. The commune experience also illustrates use of the PFR to complement and reinforce other activities of agricultural reform and investment. While there is, as yet, no robust data that shows the PFR as a direct cause of food production gains, the commune provides a growing body of data that is being closely watched.

Opposite:
The Fulani people, a traditionally nomadic tribe, are gradually transitioning to settlements in Benin.

Photo: MCC

Agriculture and Landholding in Klouekanme

The commune of Klouekanme is located in the region of Couffo, in south-central Benin, 128 kilometers away from the commercial capital of Cotonou and within 50 kilometers of three urban market centers: Lokossa, Abomey and Bohicon. Its relatively fertile soils, adequate rainfall and the possibility of two growing seasons have allowed the cultivation of a variety of vegetables, fruits and root crops. Its full agricultural potential has, however, yet to be realized. It is estimated that there are 29,500 hectares of land suitable for cultivation in Klouekanme, but active cultivation has occupied about 70 percent of this land in recent years as shown in Table 1 below.

Table 1. Hectares under Cultivation in Klouekanme
Source: INSAE (2010)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006
Corn	4,174	5,205	6,350	5,950	5,850	5,900	7,725	7,813	8,600
Improved Corn	290	350	295	215	210	185	310	407	1,910
Tomato	1,240	1,556	1,480	1,572	1,650	1,691	1,457	1,189	1,091
Peanuts	1,365	1,190	2,025	2,270	2,200	1,855	1,160	1,664	1,590
Manioc	794	680	1,150	1,480	1,475	1,475	1,105	972	1,020
Beans	3,860	3,906	4,450	3,650	3,650	5,786	2,475	6,597	6,400
Peppers	190	225	105	163	193	165	140	215	226
Sweet potato	30	55	35	31	33	19	25	29	34
Gumbo	175	152	115	116	160	--	112	212	122
Cotton	3,119	3,895	2,692	2,780	1,964	619	--	--	--
TOTAL	**15,237**	**17,219**	**18,702**	**18,227**	**17,385**	**17,697**	**14,649**	**19,313**	**21,125**

Crop yield has been hindered by several factors: high population density and fragmented landholdings with only 1.3 hectares of arable land per farmer available; low level of farm technology; poor infrastructure, especially roads to markets; illiteracy and limited training for farmers; and scarce credit and few finance institutions (GRAiB 2008). In addition, poor management of water resources has blocked farmers from realizing a second crop in the dry season. Insecure land tenure has aggravated these problems by limiting the ability of farmers to engage in cooperative investments to improve and intensify their cultivation and by using tenancy and other contractual agreements to allow more efficient producers to access additional land (Tossounon 2012, Klouekanme PDC 2006).

Landholding in Klouekanme continues to reflect the influence of customary rules and traditional practice. People recognize agricultural fields as parts of traditional family or tribal lands with rights to possess and control the use and allocation of the fields among family members to be inherited in mostly male lineage. Outsiders with the skills to produce and willingness to live peaceably within the community are given subordinate rights to occupy and use certain fields, taking part in the systems of field rotation and social/family obligations. In recent years, because of the influences of population growth, the money economy and social mobility, most traditional family holdings in Klouekanme have been subdivided into household plots. Parcels are now bought and sold, leased or used under share-crop arrangements, and landholders more frequently engage in land dealings by written and recorded legal instruments or administrative acts (GRAiB 2008).

Food insecurity in Klouekanme, Couffo and Southern Benin

Klouekanme has a population of more than 110,000 (2010 estimate) and an agricultural labor force of 26,000 (2002 census). Its region of Couffo has a population of 524,000 and is densely settled. On average, each farmer in Klouekanme works only 1.32 hectares (GRAiB 2008). Each household, consisting of more than six persons on average, controls two or three parcels of 0.77 hectares each. Generally, these smallholdings provide food for the household and a limited cash crop for market.

Based on the international standard of $1.25 per day or less, 47 percent of Benin's total population is in the poverty category (World Food Program 2009). For its own calculations of poverty in departments and communes, Benin measures a $1 equivalent per person per day of expenditures. Using this standard, Benin finds that, nationally, 40.8 percent of its households live in poverty with 68.9 percent of households in Couffo and 60.4 percent in Klouekanme (EMICoV 2010). In the nearby urban centers of Abomey, Bohicon and Lokossa, for which Klouekanme supplies food products, the below $1 a day poverty level ranges between 31 and 54 percent of households. Measuring consumption of food by the international standards of the Global Analysis of Vulnerability (AGVSAN), Benin reports that 12.2 percent of its total population suffers food insecurity and another 13.2 percent are at risk of insecurity (FAO 2011). In Couffo, 27 percent of the population is insecure and another 14 percent is at risk. Benin's own measurements show somewhat higher numbers than those reported at the international level (Table 2).

Table 2: Percent of Households Suffering Food Insecurity by Level of Insecurity
Source: INSAE (2011)

Region/Commune	Insecure (1A)	Risk (ARIA)	Seasonal Insecure (SA)	Income under $1 a Day
Cuoffo Region (urban)	15.7%	19.9%	31.0%	--
Cuoffo Region (rural)	39.7%	17.0%	43.3%	71.1%
Klouekanme commune	24.2%	24.2%	51.6%	60.4%
Lokossa commune (urban)	14.0%	35.5%	50.5%	48.0%
Abomey commune (urban)	25.6%	21.8%	52.6%	31.0%
Bohicon commune (urban)	34.6%	37.8%	27.6%	54.6%
Benin urban	32.2%	20.9%	46.9%	--
Benin rural	34.6%	22.0%	43.4%	40.8%

By measure of the growth of children, Benin as a whole has 40 percent of its children under five years old in the deficient growth weight and height category, while in Couffo 42.6 percent of children suffer deficiency (FAO 2011, World Food Program 2009). Couffo, however, has a lower percentage of children in the severe deficiency category: 3.5 percent compared to 5 percent of children in all of Benin.

The Rural Landholding Plan as a Part of the Agricultural Production Strategy

The purpose of the PFR is to resolve the problem of landholding insecurity that is the result of Benin's dual system of unwritten customary rights running parallel with modern, written and recorded land property rights.

As custom, people have conducted their land dealings by ceremonial acts and unwritten agreements and have defined land relations as family and social—not economic or legal—transactions. Lacking documents and parcel maps, families have had to protect their land rights by ensuring tangible and visible evidence of their control. They hold land fallow and vacant when there are too few family members to cultivate and harvest. They prohibit their tenants from planting trees, using fertilizer and making improvements. They assert the principle that land cannot be sold and that family male lineage must prevail over any other right or transaction. They divide the land at inheritance and leave family members and neighbors to argue over boundaries. In these conditions, much land is withheld from production, efficient farm producers cannot expand or make arrangements to consolidate fields, and banks and micro-lenders cannot give mortgage credit. Yet, despite these strategies for protecting customary control, rural landholders often have been unable to defend their rights against speculators or confiscation by the state (Hilhorst 2011).

Rural Landholding Plan/*plan foncier rural.* The rural landholding plan or PFR is an accurate survey map of the agricultural fields, a landholders' list with the names of the proprietors and an archive of transaction documents (land sale contracts and agreements of tenancy and subordinate use). The Government of Benin introduced the PFR in a series of "pilot" villages beginning in 1993. After completing 41 villages by 2003, the government used the experience to inform the drafting and approval of law no. 2007-03 of October 16, 2007, *On Rural Landholding*. This law authorizes the creation of PFR in all villages. In preparing the PFR, the rights and claims of the landholders are made public, allowing the villagers to verify or contest them and then settle any conflicting claims. Once the PFR is complete and certified, the mayor of the (multi-village) commune can issue to each listed proprietor a rural landholding certificate (CFR), which becomes the proof document in adjudication, mediation, administration, and subsequent transactions.

Following the authorization provided by the law, Benin moved forward with its international partners to cover more villages. At the end of 2012, there were 386 villages in 45 communes in all regions of Benin with completed PFRs. These villages consist of about 11 percent of the country's total of 3,400 villages, and their maps delineate 85,000 land parcels encompassing 565,000 hectares that represent approximately 10 percent of all land suitable for cultivation.

In Klouekanme, 17 of the total 59 villages have completed PFRs. More than 7,000 landholders are listed as customary proprietors, and the mayor issued CFRs to more than 600 landholders. The 17 PFRs cover 11,000 hectares of the total 29,000 hectares suitable for cultivation in the commune.

Table 3: Landholding Rights Reported by Klouekanme Village Residents
Source: GRAiB (2008)

Village	Right of proprietorship		Subordinate right of occupancy/use			
	Inherit	Purchase	Lease	Revocable right of use	Share-crop	Gift
Adbago	63%	10%	6.7%	13.3%	6.7%	--
Aglali	73%	26%	2.0%	2.2%	2.0%	--
Akime	16%	16%	13.3%	43.3%	6.7%	3.3%
Aveganme	46%	30%	6.7%	16.6%	--	--
Djihami	60%	20%	6.6%	3.3%	10.0%	--
Edahoue-Ahouego	30%	10%	60.0%	--	--	--
Glolihoue	40%	7%	43.5%	6.6%	--	--
Kpevidji	20%	17%	20.0%	36.6%	3.3%	3.3%
Sawame-Hossou	50%	3%	10.0%	30.0%	3.3%	3.3%
Tchokpohoue	33%	26%	26.0%	3.3%	--	9.9%
Klouekanme commune	27%	45%	--	23%	--	5%
Cuoffo region	42%	36%	2%	14%	2%	1%

Note: The numbers exceed 100 percent either because people in one household have multiple parcels with different origins or some parcels have both a proprietary right and subordinate rights.

Linking land tenure and agricultural production. In its communal development plan, Klouekanme made clear its goals and strategy, including the PFR projects as part of a multi-activity strategy to improve agriculture (Klouekanme PCD 2011 and Klouemanme PCD 2006). The plan identified the strong potential for expanded production of tomatoes, other vegetables, yams, root crops, fruits, and rice (Klouekanme PCD 2006). With government support and some international assistance, the commune administration undertook projects to train farmers and improve farming methods; invest in storage, processing and market facilities; and bring low, riverside land into rice production. In its 2011 plan, Klouekanme continues these programs along with initiatives focused on farm credit and improving rural roads (Klouekanme PCD 2011, Benin PSRSA 2010). Complementing these activities, the PFR is expected to overcome four obstacles to efficient use of land and expanded production.

Overcoming Obstacles for Efficient Land Use

Removing physical barriers. The accurate parcel surveys and maps should allow the removal of physical barriers—rocks, fences, trees—that landholders install to maintain the boundary lines of fields and avoid neighbor disputes. This should result in more cooperative combinations of fields for mechanized cultivation, irrigation and harvest (Koumassou 2010).

Activating unused fields. The written and recorded proofs of customary proprietorship should allow unused fields to become occupied and cultivated. It is no longer necessary for persons with inherited land rights, who are not resident in their villages or who lack the skills to farm, to leave their fields unused in order to show tangible proof of their control. Often in the past, they have left the lands unused because of fear that their tenants would be misperceived by local witnesses as possessors of the land. Thus, the diagnostic reports, prepared for the Klouekanme PFR, have identified several substantial parcels of 25 to 50 hectares that have been held unused (GRAiB 2008). The written and mapped proof of

proprietorship and subordinate rights now provided for the proprietors should remove their worry and enable them to lease the land to active farmers or producer groups.

Removing customary restrictions. The recorded rights in the PFR should also enable land proprietors to remove from their tenants the customary prohibitions on planting trees or perennials, spreading fertilizer and making other long-term improvements, actions which also could be misperceived as evidence of proprietary control.

Improving access to credit. The PFR and CFR should enable landholders to seek credit for investment and farm improvement by pledging the land as collateral for a loan. Law 2007-03 specifically states this rule.

Evidence of results and impacts

Robust statistical evidence is not yet assembled to measure the expected impacts for Klouekanme or its region of Couffo. However, statistics are now being gathered and analyzed by the World Bank to measure possible impacts and there is some anecdotal evidence of changes in landholder behavior as shown in the box below.

ASSESSING THE IMPACT OF PFR: EARLY RESULTS FROM THE WORLD BANK STUDY

In early 2013, the World Bank completed an evaluation to assess the impact of Benin's PFR program on tenure security, land market activity, agricultural investment, intra-household decision-making, and income diversification.

The impact evaluation also looked at gender differences and whether the PFR expanded or reduced women's access to and control over land relative to men.

The impact evaluation included a survey of more than 3,500 households in 291 villages and compared households that did and did not participate in the PFR program. Preliminary results from the survey found an:

1. Initial spike in perceived land insecurity;
2. Increase in perennial and tree planting;
3. Initial increase in trust in institutions;
4. More engagement in village land management;
5. Drop in paid wage employment (perhaps due to a return to farm-based livelihoods); and
6. Women increased their relative farm input usage.

While the results are still preliminary, the findings suggest that there is an initial spike in tenure insecurity among tenants because they fear that the PFR process will result in landowners having a stronger ability to push them off of land, which diminishes over time as trust increases. The increase in perennial and tree planting, as well as the increase in the use of farm inputs by women, indicate that the landowners are more secure in their land rights and more willing to allow tenants to make investments in their land. There also appears to be increased trust in the modern state apparatus with transparency in boundary setting and land titling. Women also face less conflict and appear to have a greater say within the household as a result of the PFR process.

Source: Goldstein, M, K. Houngbedji, F. Kondylis, M. O'Sullivan, and H. Selod. 2013. Formalizing rural land rights in West Africa: Evidence from a randomized impact evaluation in Benin. Presentation at the CSAE Conference 2013: Economic Development in Africa, St. Catherine's College, Oxford. March 17-19.

Expansion of active use of fields. There is a record of expanding production of vegetables and tubers in Klouekanme, in particular the re-cultivation of lands for these food crops that before 2002 were used for cotton production. The active use of the fields, suitable for cultivation, has expanded from an average annual total of 17-18,000 hectares in 2003-2005 to over 21,000 hectares by 2009. Increasing yields have also been reported for several main crops, including tomatoes, manioc and corn as show in Table 4.

Table 4: Crop Yields (tons) in Klouekanme (2010) and Projected (2015)
Source: Klouename PDC (2011)

Crop	2006	2010	Est. 2015
Corn	10,493	18,901	21,700
Manioc	19,140	21,714	31,000
Cowpeas	--	1,396	1,605
Tomato	11,236	18,355	22,000

The studies do not yet detail the factors that cause the yield gains, but they appear to include increased use of fertilizer and improved seeds, provided with the support of the Ministry of Agriculture, Herding and Fishing (MAEP) and the programs of farmer training and assistance to cooperative organization by the communal administration (Klouekanme PCD 2011).

Increase in written contracts and tenants. There is some evidence of a willingness by land proprietors to allow more tenants on fallow lands. The MCA-Benin Access to Land Project organized mayoral programs to identify these fallow lands and assist their proprietors to find tenants and conclude agreements. The records of these programs showed positive results in a few communes, although Klouekanme was not studied (BeCG 2011). A 2010 sociological study of the landholding strategies of households in six Klouekanme villages has shown increasing use of written contracts of land sale and leases for tenancy and use. At the same time the study found that most villagers have not been entering these documents into the communal registries in order to avoid the fees (Kousmassou 2012). Recognizing this problem, the mayor and communal council of Klouekanme started in 2011 to set fees for witnessing and registering documents and for obtaining the CFR at the modest level of $4 to $8 (Klouekanme Mayoral Order of February 2011).

Lifting of restrictions on land use. There has been positive evidence of the lifting of prohibitions on tenants' tree planting and land improvements. The 2006 study of the pilot PFR villages described the removal of restrictions on tenants' land use in several villages along with an increase in written tenancy agreements and a decrease in conflicts over land boundary lines (GTZ/ProCGRN 2006). In particular, the report noted that women have planted mango trees on the fields they hold subordinate to their husbands' or brothers' fields. Other tenants have planted orange trees and oil palms, and small-holders are making selective use of improved seed varieties and fertilizers alongside their cultivation of traditional varieties (GRAIN 2008). The 2006 study included three of the PFR villages in Klouekanme, although the results were not given specific to them.

Lack of evidence for mortgage credit. There is so far no evidence that rural landholders in Klouekanme or elsewhere in Benin are making applications for mortgage credit. Klouekanme recently reported that 9,787 of its citizens have received micro-credit loans during the period 2006 to 2012. These very small loans, averaging $63, are not specifically categorized by agricultural or other purpose (FNMBenin 2012).

Challenges to Sustainability

There are two limitations of the PFR projects that are likely to hinder its "sustainability" and impacts over time. First, the cost of maintenance of the administrative system of the PFR, including updating changes in the maps, landholder lists and archives of tenancy and land use agreements, must be borne by the communal administrations. They are authorized to cover these costs by small fees for issuance of CFRs and other documents of proof, but the system is not expected to be self-financing in the initial phases (Decree no. 2010-479, Elbow and Zogo 2012). Second, maintenance of the system and expansion to new villages will depend on the willingness of landholders and users to employ the PFR tools: contract and lease forms, witness by the village committees, communal registry and archives. If landholders and users fail to carry out and record their transactions in order to avoid fees or conceal their transactions from official oversight, then the database of land information will become unreliable and its value as legal proof of rights will diminish. This problem has been recognized in the 2011 sociological study of Klouekanme villages (Koumassou 2012) and in commentary on the PFR program in total (Simmoneau and Lavigne-Delville 2011).

Conclusions

Although the results and impacts are primarily anecdotal, there does appear to be emerging evidence that the PFR is able to complement and reinforce the activities of agricultural promotion and reform. During 2012 and 2013, with the assistance of the World Bank, Benin is engaged in an evaluation of the impacts of the PFR program based on a detailed census of households in a group of 110 PFR villages with 82 corresponding control villages. This study expects to discover and clarify the evidence that landholders and farm producers in the PFR villages are altering their strategies of land use, undertaking investment and entering more agreements of cooperation and tenancy to achieve higher output and improved, long-term productivity of the land (Selod and O'Sullivan 2012). On the basis of these expectations, Benin has made the commitment to continue to expand PFR activities and has sought to engage additional donor assistance.

For further research, Klouekanme will be one of the major locations for analysis and impact evaluation. The Government of Benin and European donors are helping Klouekanme and other communes in Couffo and Mono departments to maintain the operations of the PFR, issue certificates and documents of proof and expand the PFR villages (Netherlands Embassy 2012). Under the new project funding, Klouekanme expects to prepare PFRs in several more villages and improve the operation of its databank and issuance of CFRs. If it is successful, it should offer the best "model" of applying the PFR in Benin and allow detailed study of the linkage of land tenure security to the outcomes of increasing crop yields and expanding cultivation. **KIN**

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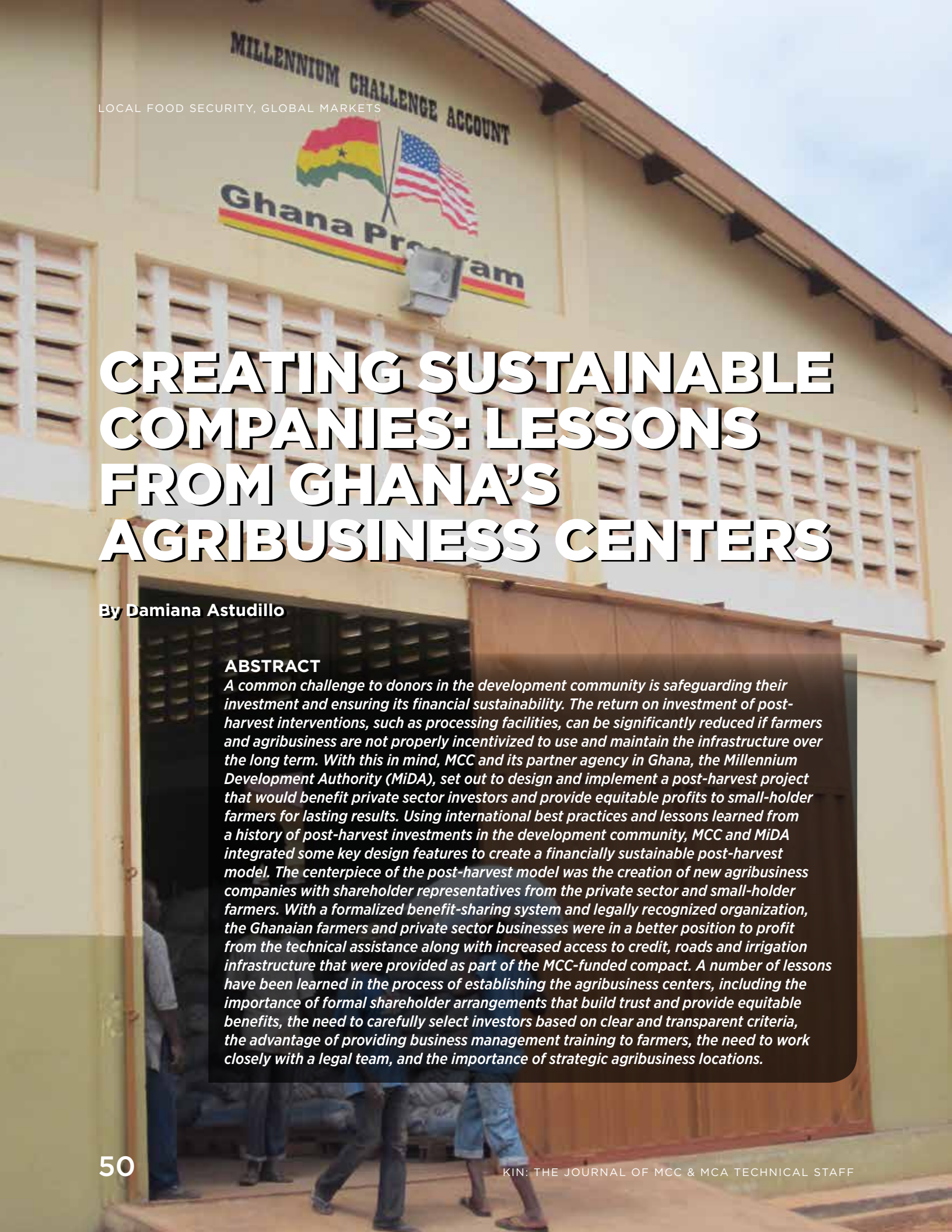


CREATING SUSTAINABLE COMPANIES: LESSONS FROM GHANA'S AGRIBUSINESS CENTERS

By Damiana Astudillo

ABSTRACT

A common challenge to donors in the development community is safeguarding their investment and ensuring its financial sustainability. The return on investment of post-harvest interventions, such as processing facilities, can be significantly reduced if farmers and agribusiness are not properly incentivized to use and maintain the infrastructure over the long term. With this in mind, MCC and its partner agency in Ghana, the Millennium Development Authority (MiDA), set out to design and implement a post-harvest project that would benefit private sector investors and provide equitable profits to small-holder farmers for lasting results. Using international best practices and lessons learned from a history of post-harvest investments in the development community, MCC and MiDA integrated some key design features to create a financially sustainable post-harvest model. The centerpiece of the post-harvest model was the creation of new agribusiness companies with shareholder representatives from the private sector and small-holder farmers. With a formalized benefit-sharing system and legally recognized organization, the Ghanaian farmers and private sector businesses were in a better position to profit from the technical assistance along with increased access to credit, roads and irrigation infrastructure that were provided as part of the MCC-funded compact. A number of lessons have been learned in the process of establishing the agribusiness centers, including the importance of formal shareholder arrangements that build trust and provide equitable benefits, the need to carefully select investors based on clear and transparent criteria, the advantage of providing business management training to farmers, the need to work closely with a legal team, and the importance of strategic agribusiness locations.

Background and Context

Ghana is considered an emerging African economic success story with growth rates consistently topping 6 percent over the past six years. Since 1990, the Ghanaian government has been working closely with the donor community, private sector and civil society to reduce poverty and has nearly halved the number of people living in extreme poverty. Still, about 30 percent of Ghanaians live on less than US$1.25/day (UNICEF 2003). Some two million people in Ghana have limited availability and access to food, with food shortages recurring in the three northern regions of the country. Children are especially vulnerable, with approximately 14 percent of Ghana's children under the age of five currently underweight (World Bank 2003). Food insecurity and malnutrition represent serious impediments to sustainable development and poverty reduction. For the Government of Ghana, national food security remains a top concern, particularly given the global price volatility of food prices over the past six years.

Post-harvest losses exacerbate food insecurity, yet sustainable solutions to this problem remain rather elusive. In Ghana, the average post-harvest losses for rice and corn, two of the main staple crops, range from 30 to 50 percent (USAID 2011). These losses occur throughout the value chain as a result of a variety of factors, including handling procedures, drying techniques, lack of proper storage, poor business management, inadequate access to market information, and unreliable market linkages. For many small-holder farmers, the quality and quantity of the stored grain deteriorates even before they are able to bring their grains to market. These conditions often leave small-holder farmers in a weak bargaining position and lead them to engage in sub-optimal business transactions.

Success stories in post-harvest investments in sub-Saharan Africa, in general, and in Ghana, in particular, remain rare. Until the early 1990s, Ghana's government ran the Ghana Food Distribution Company that provided mechanical drying services and silo storage facilities to farmers in order to stabilize grain and pulse prices. Farmers had the option to sell their grain at a minimum guaranteed price (to absorb excess production) as well as a maximum price (to avoid price hikes). These government-run facilities closed for a number of reasons, including lack of funding, suggesting that they were not financially sustainable. At the farmer-level, these types of investments are not feasible because the costs of reducing post-harvest losses (i.e., investing in and managing post-harvest infrastructure) often exceed short-term benefits (World Bank 2011).

Innovative Post-Harvest Investments: Structure, Incentives and Stakeholders

In 2007, MCC signed a $547 million compact with the Government of Ghana to reduce poverty and increase food security by assisting farmers in the transition from subsistence to commercial agriculture. The program included a number of agricultural interventions, including technical assistance to farmers, training, increased access to credit, roads, and irrigation infrastructure. In addition to making investments to increase agricultural productivity, MCC and its partner agency in Ghana, the Millennium Development Authority (MiDA), also made post-harvest infrastructure a critical pillar to ensure sustainable agricultural systems. As part of the project design, MCC and MiDA wanted to mitigate the risk that any gains in productivity resulting from the project could be offset by post-harvest losses. Using international best practices and lessons from a history of post-harvest investments in the development community, MCC and MiDA integrated some key design features to create a financially sustainable post-harvest model. The centerpiece of the

post-harvest model was the development of new companies with a structure of equity shares, rights, responsibilities, and a pathway to ownership that provide proper incentives for both small-holder farmers and private sector investors to jointly work to establish a profitable, sustainable business venture.

As a result of the Post-Harvest Activity, ten new post-harvest centers were established. Each center is jointly owned by a private sector investor and a cooperative of about 20 farmer-based organizations (FBOs) representing about 1,000 farmers. These companies were designed to:

- Actively engage experienced private sector partners with the necessary management experience, established value chain expertise and business contacts to render the facilities profitable and sustainable;
- Facilitate the marketing of staple crops and allow farmers to produce for reliable and consistent market opportunities;
- Introduce weighing and standardization in the marketing of grains and pulses (i.e., dry beans and lentils) to create transparency in transactions, build confidence among small-holder farmers and increase profitability of grain marketing; and
- Provide integrated services to farmers on a fee-per-service basis that allows centers to generate revenue and promote close business relationships with farmers.

  The services to both shareholders and non-shareholders farmers include:

  - Shelling, cleaning, drying, grading, and storing of staple food crops for small-holder farmers and FBOs;
  - Sale of farm inputs through cash or credit to farmers and FBOs; and
  - Extension services and technical assistance, land preparation services, soil analysis, and recommendations on fertilization programs.

Building Trust and Equity through the Shareholder Structure

In order for the agribusiness companies to sustain operations over the long term, they needed to be created in a way that both private sector actors and farmers had a true sense of ownership and were incentivized to be actively engaged in their success. Discussions about the division of shares, board composition and many other details were facilitated and guided by MiDA with the participation of farmer cooperatives and private investors. MiDA spent about 18 months in discussions alone with the private investors and farmer cooperatives that resulted in the final design of a legal and business structure that provided appropriate transparency and checks and balances. There was skepticism from both parties. The private investors wanted to make sure that the farmer cooperatives did not see the company as some sort of social assistance instrument, but rather as a profitable business. The farmer cooperatives wanted safeguards that would protect their interests and not force individual farmers to accept prices, fees and conditions that were not better than what they had with itinerant buyers.

The shares of the newly-created companies therefore were divided among the shareholders according to the following proportions:

- The private investor was given 70 percent of the shares in the new company, and the equity interest (proportion of ownership) was based on the following:

    a. A contribution of one (1) acre of land upon which the post-harvest facility is to be built served as payment for part of its shares in kind. The land needed to be located near a main road and have available power and water sources. The private investor donated this land to MiDA with the understanding that MiDA will grant it back to the new company along with the built facility and equipment.

    b. A contribution of approximately US$26,000 in minimum working capital for the facility was also expected.

    c. The value of both a and b above accounted for 50 percent of the equity of the private investor in the new company.

    d. As an incentive to the investor, MiDA provided a grant to account for the remaining 20 percent equity in the new company; the grant was equal to 50 percent of the total cost of the facility.

Understanding producer concerns is essential for ensuring they receive equitable benefits from agribusiness agreements.

- The farmer cooperative became the holder of 30 percent of the shares in the new company, and this equity interest (proportion of ownership) was based on the following:

    a. Each member of the farmer cooperative contributed one 100 pound bag of grain valued at market price. The value of the total amount of grain donated by all members accounted for 10 percent of the equity of the cooperative.

    b. As an incentive to the farmer cooperative, MiDA provided a grant to account for the remaining 20 percent equity in the new company; the grant was equal to 50 percent of the total cost of the facility.

Both parties are entitled to appoint qualified directors to the board composed of six members at all times, including three representatives for the private investor, two representatives for the cooperative and one ex officio member from the Ministry of Agriculture. The chairperson of the board is to be selected annually from among the five non-ex officio directors, but rotated between the representatives of the shareholders.

At the end of the compact, MiDA legally transferred the assets (the facility and equipment) to all 10 new companies. The shareholder agreements spelled out in great detail the obligations of each party with respect to supporting the sustainability and profitability of the new companies.

The farmer cooperative members understood that their main responsibility toward the company was to satisfy annual throughput targets set by the management plan approved by the board of directors. The private investor needed to ensure appropriate oversight and management of the company, or nominate a general manager for the board's approval to fulfill these responsibilities.

Identifying the Right Private Sector Partners

The success of the newly-established agribusiness centers required that the private sector actors not only be able to run a successful post-harvest business but also be viable and trusted partners to the small-holder farmers. Prior to designing or building the agribusiness centers, MiDA used a competitive and transparent process to select the investors that would later partner with the farmer cooperatives to form new companies. Because the private sector investors needed to provide land as part of their shareholder contribution to the new company, the selection process required the private sector actor to propose a physical location for these new facilities. The criteria for selection included the following:

- Previous business experience in the targeted districts and/or communities;
- Evidence of past experience dealing in the selected value chain (such as past volumes traded for each crop and years of experience);
- Demonstrated financial capacity to operate the center;
- Credible access to credit documented through letters from the banks with which investors do businesses;
- A management and operational plan for the new company to be established;

- Demonstrated experience working with FBOs and small-holder farmers and a plan to successfully incorporate them into the business;
- Identification of potential problems with the structure of the company and relations with farmers and cooperatives along with potential solutions;
- Provision of land (with appropriate legal title or long-term lease) that could be easily accessed by a road where the center could be built; and
- Provision of working capital to start operations.

This type of approach to developing post-harvest infrastructure by bringing the private sector on board, and developing formalized business agreements with farmer cooperatives, is new to Ghana and new to MCC, and it is just starting to be explored within the donor community. Both the private investor and the farmer cooperative benefit from the arrangement and each has a stake in the long-term success of the shared infrastructure. For example, the private investors active in the grains value chain see the value of a reliable and good quality supply of raw materials for processing and marketing. Often, grain wholesalers and processors have difficulty securing raw material to fill their orders, risking the loss of important clients. Farmers and their FBOs see the value of having reliable buyers as well as a place to store their grains safely and avoid costly losses. Beyond processing and marketing support, farmers were

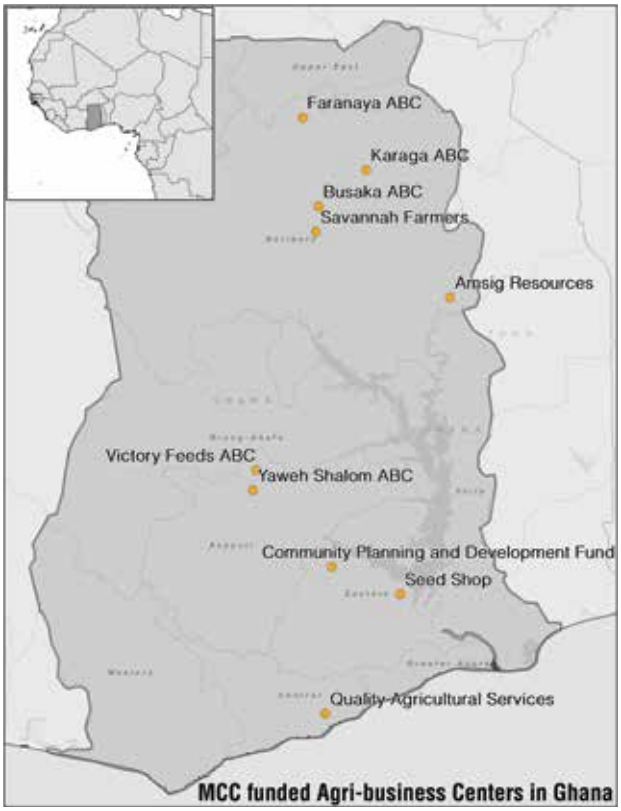
Corn is stored for processing in Tamale.

enthusiastic about having the support needed during production (inputs, extension services, financing), ownership rights and a voice in the company.

Helping Farmers Become Better Business Partners

While the selection of private sector partners was underway, MiDA was simultaneously investing in building the capacity of farmers through business skills and agronomic training. In fact, MiDA required FBOs that wanted to take part in this partnership to complete training. Local technical service providers that provided the training recommended FBOs that were deemed "business ready," and the private investors had the opportunity to interview and select their prospective FBO partners from all eligible FBOs.

The first selection hurdle for FBOs to become shareholders was that they were within a 20-kilometer radius of where the post-harvest center was to be built. Through ongoing discussions over two years, FBO leaders became sensitized to the potential benefits of becoming partners and co-owners of a post-harvest company. Although most FBOs were excited and eager to become partners in the new companies, some FBOs decided not to participate in the venture; and in some instances, FBOs with poor credit repayment records were rejected. Additional meetings and follow-up resulted in the final creation of 10 farmer cooperatives, each composed of 20 FBOs with approximately 1,000 farmers. MiDA facilitated the legal constitution of these umbrella cooperatives, assisted them with drafting their bylaws and with their institutional arrangements, including coordinating initial assemblies and selecting leadership.



Results to Date

To date, 10 new companies have been formed and registered under the co-ownership of private investors and farmer cooperatives and opened their doors for operations early in 2012. In all, 10,000 farmers from 200 FBOs under the 10 cooperatives will have access to and benefit from the operation of the facilities.

With a new organizational structure and increased capacity, the farmers and private sector actors are able to take advantage of important and lucrative new opportunities. For example, some of the new companies are taking advantage of the Purchase for Progress (P4P) program of the United Nations World Food Programme (WFP). This initiative aims to reorient WFP's procurement process toward local and regional sourcing. In this regard, P4P encourages local farmer groups and agro-industries to supply grains and other agricultural products according to WFP specifications. There are many technical, logistical and business challenges for farmer groups to meet WFP standards. Through the agribusiness centers, small-holder farmers are well-positioned to participate in P4P. Amsig Resources, one of the newly established companies, is embracing this new opportunity and has already sold about 3,600 metric

tons of grain to the WFP between 2011 and May 2012. The chief executive officer of Amsig is excited about doing business with the WFP not only because it is a reliable and consistent customer but also because the prices the company gets are higher than they would receive in the local markets since the WFP pays a premium for higher-quality products. The new facility will allow the business to thrive even further.

To further enhance the sustainability of the post-harvest agribusiness centers, MCC reached out to USAID for additional support post-compact. Through its Advance Project, USAID is currently providing technical assistance to three of the new companies located in regions where projects are implemented. The goal is to help the three new companies establish a warehouse receipt system as part of their operations and services.[1] Additionally, USAID is supporting these three new companies in gaining membership on the Ghana Grains Council, a private sector-led initiative that advocates for and facilitates sustainable improvements and increased efficiency in the grain industry.

Conclusion and Recommendations

The new companies formed with support from MCC's Post-Harvest Activity have the right incentives and the appropriate structure to ensure long-lasting business relations between the FBOs and the private sector. These investments incorporated lessons from the past by taking into account local knowledge of the grain market and value chain that was brought by the private investors, the technical service providers and the FBOs. The new companies address the challenges of financial and management capacity and a fair distribution of benefits

Proper storage reduces post-harverst losses and protects the gains made in agricultural productivity.

1 Warehouse receipts can offer the following benefits: (1) they allow companies to use inventory as collateral, which in turn can lower financing costs; (2) the application of standardized grades reduces transaction costs and safeguards against cheating in quality and weight; and (3) they shorten the marketing chain and can potentially increase producer margins.

among private sector actors and small-holder farmers. This model of partnership has a real potential to increase food availability and food security in Ghana if applied more widely as these companies are expected to reduce post-harvest loses between 20 to 30 percent. This reduction in post-harvest losses could translate into greater food availability and an increase in the stability and safety of the food supply.

MCC is planning to conduct an evaluation of this activity in 2014 to assess the impact of the new companies on beneficiaries. The key indicators that will be used to measure the impact of the new companies on the well-being and productivity of FBO members and other farmers with access to post-harvest facilities include crop yield, post-harvest losses, annual sales volumes, farmer revenue, and household income. In addition to the impact evaluation, data on the performance of each new company and post-harvest storage and marketing operation will be collected, including the volume of produce passing through the company (for storage and processing per crop); services the company is offering to famers (inputs, credit, extension services); and payout of dividends. MCC expects to have more information in 2014 on performance and impact of the Post-Harvest Activity.

Key Lessons Learned for Designing a Post-Harvest Intervention

Addressing post-harvest losses is a critical element in any food-security intervention. The key lessons learned for other donors and private sector players interested in investing in post-harvest infrastructure interventions include:

- **Start early:** Any donor or private sector actor that wants to replicate this model needs to start the legal and investor partner identification process early in the life of the project. The process of selecting private investors, sensitizing and selecting FBOs, creating a co-operative of FBOs (that amalgamates all FBOs so they can enter into a legal agreement as one entity), training, consultation and agreement on structures and incentives, procurement, construction and equipment, valuation of assets, and legalization of the business entities took approximately three years.

- **Create trust and ownership through transparency and communication:** The clear selection criteria, the transparency of the process and the constant consultations and meetings with the stakeholders were fundamental to create a sense of trust and ownership. Separate meetings for FBO leaders and the private sector were held first to listen to concerns and clarify requirements and processes and then joint meetings were scheduled to accommodate the demands and come to agreements.

- **Include adequate scope for the legal team:** There was a substantial amount of legal work related to the creation of the new companies, including drafting bylaws, compiling shareholder and grant agreements, registering the companies, issuing shares, as well as creating the new cooperatives. The extensive assistance of a legal team was required and the time and budget to support this work.

- **Take advantage of competitive selection:** The competitive nature of the selection allowed MCC and MiDA to select the type of private investor who could not only potentially run a post-harvest business successfully but also be a viable and trusted partner for small-holder farmers and their FBOs. MiDA had 64 tenders and reviewed 30 proposals before identifying the final 10 locations and partners.

- **Location is critical:** If this approach is to be replicated, it is important to keep in mind that the location of the post-harvest centers was not random and a critical first step in the process. Private investors needed to provide land located in targeted districts by the project that was accessible to main roads (markets) and had a reliable source of power and water to operate machines and office equipment. Thus, applying this approach can only take place where certain pro-business conditions already exist. **KIN**

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U.S. GOVERNMENT GLOBAL FOOD SECURITY LINKS

Presidential Global Food Security Initiative
http://feedthefuture.gov/approach/Inclusive--Agriculture--Sector--Growth

White House
http://www.whitehouse.gov/blog/2012/05/18/president-obama-announces-new-partnership-fight-global-hunger

http://www.whitehouse.gov/the-press-office/2012/05/18/fact-sheet-g-8-action-food-security-and-nutrition

U.S. Department of State
http://www.state.gov/s/globalfoodsecurity/index.htm

U.S. Agency for International Development
http://www.usaid.gov/what-we-do/agriculture-and-food-security

U.S. Department of Agriculture
http://www.ers.usda.gov/topics/international-markets-trade/global-food-security.aspx

U.S. Treasury
http://www.gafspfund.org/

Peace Corps
http://www.peacecorps.gov/learn/whatvol/foodsecurity/

U.S. African Development Foundation
http://www.usadf.gov/about.html

IN THE NEXT ISSUE

The next issue of the KIN journal will focus on catalyzing private investment to reduce poverty.

MCC was established to provide U.S. foreign aid in a different way. It was founded on the premise that creating lasting economic growth is the key to reducing global poverty. Toward this goal, MCC was set up as a corporate entity, charged with consulting with the business community during compact development. The enabling legislation references "market-driven economic growth" and explicitly authorizes MCC to work closely with private entities. Given the five-year timeframe to complete projects, the goal was to create the conditions for greater private-sector led growth that would break the cycle of aid dependency and propel countries toward self-sufficiency.

These were pioneering concepts when MCC was established in 2004, concepts that anticipated many of the changes that have occurred during the last decade. Increased globalization, rapid technological development and increasingly constrained government resources have changed the world.

The next issue of *KIN* will highlight our strategy for pursuing our core mission in today's world. It will focus on our interactions with co-investors—corporate, philanthropic, private, and others—during the lifecycle of our projects—from Threshold Programs through compact development, implementation, close-out, and beyond. By examining our past with an eye toward the future, it will lay out the thinking guiding our new compacts being developed today.

CALL FOR ABSTRACTS

If you are interested in contributing to the next issue of the journal or receiving more information, please email kinjournal@mcc.gov. Proposals are limited to MCC and MCA staff. Expected publication is Fall 2013.

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2013-001-1329-01