Volume 37, No. 2

IFDC report

An update on the work and progress of IFDC

Competitive Agricultural Systems and Enterprises

Africa Fertilizer Agribusiness Partnership

IFDC Reaches Millions Through Mass Media

Vegetables Improve Human and Soil Health

Water-Saving Technology in Bangladesh

Taking CASE '2SCALE' in Africa

IFDC

IFDC*report*

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IFDC is a public international organization, governed by a board of directors with representation from developed and developing countries. The nonprofit Center is supported by various bilateral and multilateral aid agencies, private foundations and national governments.

IFDC focuses on increasing and sustaining food security and agricultural productivity in developing countries through the development and transfer of effective and environmentally sound crop nutrient technology and agribusiness expertise.

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Frequently Used Acronyms:
AAPI – Accelerating Agriculture Productivity Improvement • ABCs – agribusiness clusters • AGRA – Alliance for a Green Revolution in Africa • AWD – alternate wetting and drying • BoP – base-of-the-pyramid • CAADP – Comprehensive Africa Agriculture Development Programme • CASE – Competitive Agricultural Systems and Enterprises • DAP – diammonium phosphate • FDP – fertilizer deep placement • FTF – Feed the Future • ha – hectares • ISFM – integrated soil fertility management • kg – kilograms • mt – metric tons • NEPAD – New Partnership for Africa's Development • NGO – non-governmental organization • NPCA – National Peace Corps Association • PPPs – public-private partnerships • SMEs – small and medium enterprises • SMS – short message service • SSA – Sub-Saharan Africa • SSP – single superphosphate • TSP – triple superphosphate • USAID – U.S. Agency for International Development

▲ Boats deliver vegetables to the market in Juba, South Sudan.

Taking CASE '2SCALE' in Africa

The Netherlands' Directorate-General for International Cooperation (DGIS) has awarded the 'Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship (2SCALE)' project to a consortium of IFDC, the International Centre for development oriented Research in Agriculture (ICRA) and Base of the Pyramid Innovation Center (BoP Inc.).

2SCALE targets eight 'partner' countries in Africa with which the Netherlands has multi-year bilateral development relationships – Benin, Ethiopia, Ghana, Kenya, Mali, Mozambique, South Sudan and Uganda. The project also targets Nigeria, which is not a DGIS partner country. However, Nigeria is included in 2SCALE because of its importance to the West African economy, the potential to establish and implement successful public-private partnerships (PPPs) with Dutch and other private sector partners and because of Nigeria's importance to the development of the agro-food sector in Benin.

In each of these countries, 2SCALE will focus on food security, while contributing to increased water use efficiency through best agricultural practices and to the objectives of peace and security in post-conflict countries. The project will leverage the impact of its activities through collaboration with the Netherlands' embassies in the nine countries.

The goals of 2SCALE are to improve rural livelihoods, nutrition and food security. The project's strategic objective is to develop a portfolio of 500 robust and viable agribusiness clusters (ABCs) and value chains in the project countries, supplying food to regional, national and local markets and the least fortunate, also known as base-of-the-pyramid (BoP) consumers.

2SCALE Focus Countries

Building on a Proven Concept

The 2SCALE project is a continuation and expansion of two earlier IFDC projects – From Thousands to Millions (1000s+) and Accelerating Agribusiness in Africa (AAA), both of which emphasized IFDC's Competitive Agricultural Systems and Enterprises (CASE) solution. 2SCALE will expand CASE across Africa.

Past experiences show that private sector-driven interventions can significantly improve agricultural development in Africa. Using CASE, IFDC's 1000s+ project in West Africa proved that a 'can-do' business attitude among all participants in an ABC can be created, leading to substantial and sustainable smallholder-based agricultural development. Under 1000s+ and AAA, nearly 700,000 farmers and over 1,000 small and medium enterprises (SMEs) in seven West African countries were effectively linked to markets. Farmers saw their agricultural productivity almost double, while incomes increased by 30 percent.

2SCALE will emphasize 'going to scale' – increasing the number and size of ABCs, strengthening the role of the private (farm and firm) sector contribution in cluster activities and enlarging the impact on food security by tripling the number of smallholder farmers involved.

▲ Pineapples are peeled and sliced before being dried and packaged for export.

Members of this cooperative process cassava into *attiéké*, a popular addition to meals.

Assisting the Implementation of the Netherlands' Development Policy

2SCALE will help implement the Netherlands' development policy. The primary goal of this policy is food security through increased agricultural productivity and sustainable connections to agribusiness value chains, building on local knowledge and on the wealth of Dutch experience in agriculture and agribusiness development. The introduction of best agricultural practices such as integrated soil fertility management (ISFM) and cropping systems that increase soil fertility will lead to increased resource use efficiency, including more efficient agricultural use of water and partial mitigation of the effects of climate change. The project will contribute to national and regional stability in post-conflict economies through the creation of jobs and income generation in the agribusiness sector. Enhanced agricultural productivity, food availability and increased resource use efficiency will reduce chances for future conflict and social disruptions.

With the 'market' as the key driver for agricultural intensification, the project will maximize scarce development resources by leveraging private cooperation through PPPs with national and Dutch multinational agro-enterprises involved in input supply, professional service provision and output marketing. Collaborating with Dutch knowledge centers and other agribusiness projects, and focusing on effectiveness and efficiency, 2SCALE will increase impact and return on investment. The project also will include a specific focus on agro-food markets that are intended to improve food security for both urban and rural poor – those at the BoP.

Using a PPP approach, project staff will develop a portfolio of robust and viable ABCs and value chains in the nine countries, supplying food to regional, national and local markets and BoP consumers. By the end of the five-year project, 1.15 million smallholder families in these countries will have increased their productivity by 100 percent and their net incomes by 30 percent, while 4,000 SMEs will have increased their sales volume by 50 percent. Also by the end of the project, it is planned that the Dutch private sector and knowledge center sector will have increased their roles in addressing food security in Africa. Overall, 2SCALE will increase agricultural productivity, generating a marketable surplus of 1.7 million metric tons (mmt) of cereal equivalents, of which 550,000 metric tons (mt) will be channeled to BoP markets.

CASE will be used to integrate participating smallholder farmers into local, national, regional and global value chains. The CASE approach improves the capacities of smallholder farmers and nearby SMEs to compete in producing a certain commodity or product for a targeted market, and to overcome the risks and other barriers related to further market integration. This is often done with the support of business support services and micro-finance institutions. CASE strengthens the individual and collective capacity of ABC participants. Collective learning and action also are nurtured to improve coordination among stakeholders, and to ensure informed and sustained integration in targeted value chains and markets.

DGIS and IFDC have worked together for over two decades on innovative programs to assist smallholder farmers to approach farming as a business and to link them to markets and value chains. The 2SCALE PPPs will scale up these efforts, while engaging Dutch private sector expertise, Africa-based entrepreneurs and a large number of value chain participants. Through these efforts, the 2SCALE project will significantly improve agricultural production and food security in Africa.

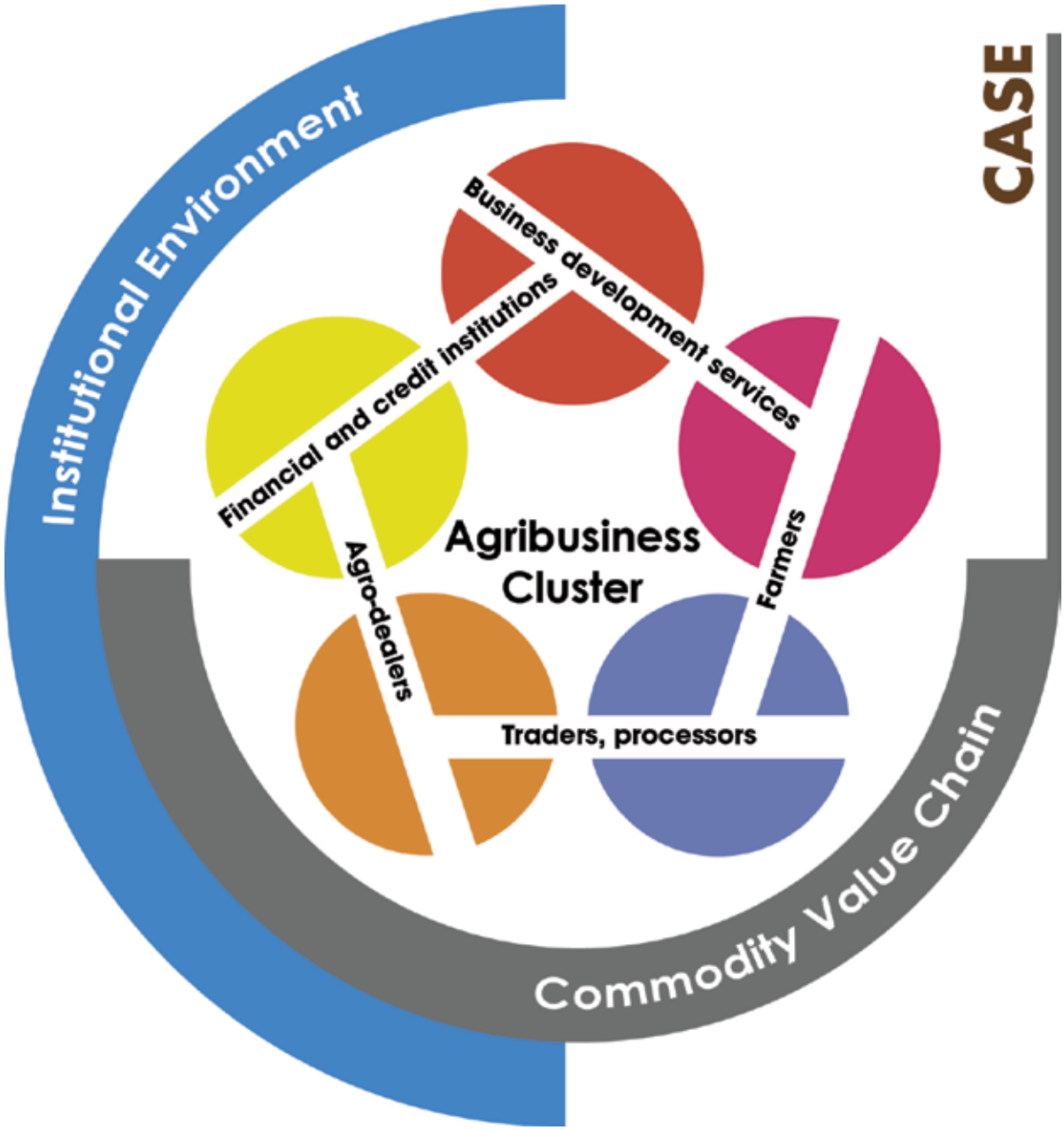
The goals of 2SCALE are to improve rural livelihoods, nutrition and food security.

2SCALE will focus on engaging private and public sector partners in the sustainable development of regional, national and local agro-food markets. Therefore the project complements many other PPP initiatives, which focus on the development of export markets for high-value commodities.

PPPs at the ABC and value chain levels will expand trade and promote pro-poor economic development. These partnerships foster local entrepreneurship, stimulate co-innovation, reduce the barriers for smallholder farmers and SMEs to participate in markets and generally promote enabling environments for agribusiness from the grassroots and for the BoP markets.

2SCALE will co-locate its two primary offices within IFDC divisional offices in Accra (for West Africa) and Nairobi (for East and Southern Africa), with technical and administrative staff in each of the nine countries. Local business service providers will play a key role in implementation of activities and will be trained and selected jointly by the project staff, cluster members and other key participants.

▲ A women's group in Togo processes ginger for syrup, snacks and dried, ground spice.



CASE has three components:

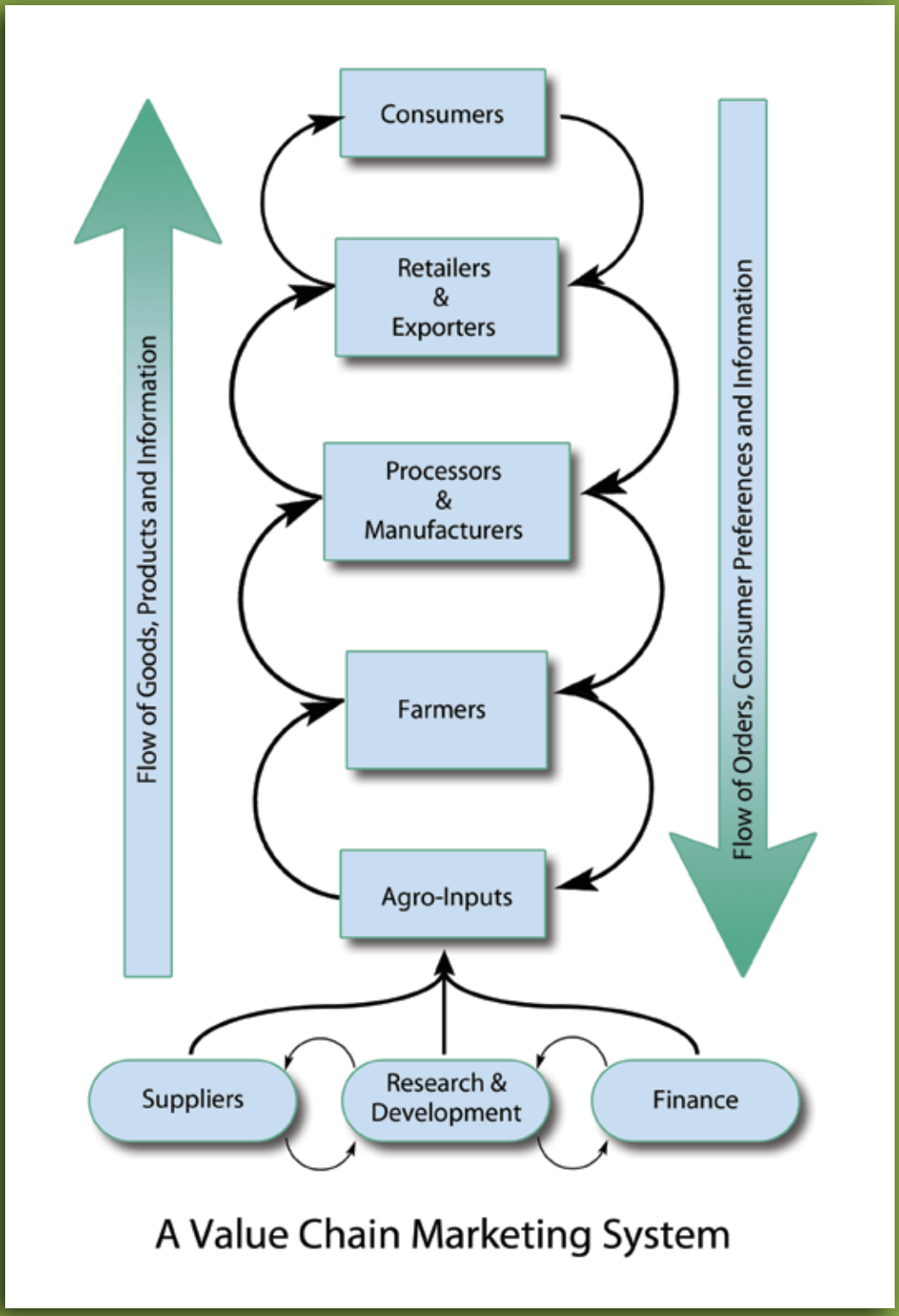
1. **Agribusiness cluster formation** – strengthening of local capacity for innovation and entrepreneurship, involving a diversified array of stakeholders.

2. **Agricultural value chain development** – linking farmers to others in the chain emphasizes integration of all stakeholders and strengthens the agribusiness cluster.

3. **Enabling institutional environment** – capacity building that involves both public and private stakeholders and fosters improvements in the institutional environment for agribusiness development.

Value Chains

A value chain links the steps a product takes from farmer to consumer. It includes research and development, agro-input suppliers and finance. The farmer combines these resources with land, labor and capital to produce commodities.



A Value Chain Marketing System

In the traditional system, farmers produce commodities that are 'pushed' into the marketplace. Farmers are isolated from the end user and have little control over agro-input costs or over the price received for their goods.

In a value chain marketing system, farmers are linked to consumers' needs, working closely with suppliers and processors to produce the specific goods consumers want.

Under this approach, and through continuous innovation, returns to farmers can be increased and livelihoods enhanced.

Rather than focusing profits on one or two links, participants at all levels of the value chain can benefit.

Adapted from the ACDI/VOCA *World Report Fall 2006: The Value Chain Approach; Strengthening Value Chains to Promote Economic Opportunities* and the United Kingdom's Department for International Development "Research Into Use" project website.

Outscaling Agricultural Productivity, Improving Incomes and Lives

Agriculture is of pivotal importance in Africa and offers much of the continent the best opportunity to spur economic growth among the rural poor majority. However, such growth requires far greater increases in agricultural productivity, along with an expanded and sustained integration of smallholder farmers in markets and better access for them to a variety of services and agro-inputs. Despite increased investment in the agriculture sector and some 'islands of success,' the challenges to multiply and scale up remain intimidating. Persistent social, economic, political and to some extent ecological impediments – at different levels and scales – hamper innovation and market integration. A globalizing world and climate change also pressure Africa's agriculture sector.

In its projects, IFDC puts an emphasis on linking smallholder farmers to markets – from connecting them to growing local and urban markets to promoting regional trade (from food-surplus to food-deficit areas) as a method to increase the availability of food and increase incomes. In the context of commodity value chains, IFDC not only helps strengthen and professionalize producers but supports growth in agro-inputs, transportation, processing and marketing industries that will facilitate the expansion of the entire agribusiness complex. IFDC assists smallholder farmers to 'graduate' from subsistence agriculture to commercial farming – farming as a business.

Nonetheless, the majority of African farmers are subsistence farmers. But the 1000s+ project (as well as other IFDC projects) proved that many rural smallholder farmers have the motivation and potential to move from subsistence to commercial farming. With sufficient economic incentives and technical support, they can improve productivity in a wide range of commodities, leading to marketable surpluses and dramatically improved family incomes.

IFDC has been successful because of its extensive grassroots-level experience and presence in Africa, reinforced by a proven ability to be an effective facilitator and problem-solver in the highly challenging environment. Together with its partners, IFDC intends to improve, deepen and broaden the CASE concept by expanding coverage to new regions in the coming years and by including innovative aspects that have further potential to accelerate agribusiness in Africa.

Palm nuts are processed into oil by members of the oil palm value chain in the Plateau Region of Benin.

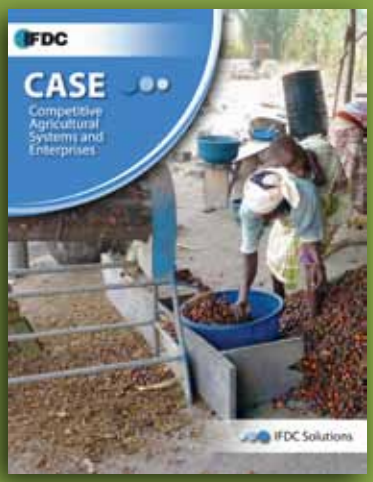
More About CASE

Book:

Competitive Agricultural Systems and Enterprises (CASE): A Grassroots Approach to Agribusiness Development in Sub-Saharan Africa, Volume 1: Reference Framework and Early Experiences by A. Maatman in collaboration with V.A. Clottey, A. Diallo, K. Djagni, I. Duniya, Y. Duplessis, K.O. Gyasi, M. Kabore, F. Keita, K. Kondo, A. Konlambigue, E. Kpogan, A. Nobre, U. Rudiger and A.S. Traore. Co-published by IFDC, ICRA and CTA.

Video:

"United Through Markets" illustrates IFDC's CASE solution by featuring four agribusiness clusters in Ghana. The experiences of entrepreneurs who are building small- to medium-scale businesses through new relationships with colleagues and agribusiness cluster and value chain partnerships are presented. Produced by IFDC and MOOV-ON Productions.



Brochure:

An overview of the CASE solution is provided, as well as several CASE success stories from across Africa.

Each of these is available on the IFDC website (www.ifdc.org).

African Fertilizer and Agribusiness Partnership

Improving Fertilizer Supplies in Sub-Saharan Africa

Poor soil fertility is one of the major causes of food insecurity in Africa. Steady population growth has forced smallholder farmers to grow crop after crop on the same land (known as mono-cropping), depleting soils of their natural nutrient content.

Fertilizers deliver the needed nutrients that plants must have to grow, in a form they can use. The balanced application of fertilizer is critical to improving food security because it not only increases soil health but dramatically increases production as well. However, fertilizer application rates in Sub-Saharan Africa (SSA) are the lowest in the world – a regional average of less than 10 kilograms per hectare (kg/ha) compared with the world average of 110 kg/ha. Most smallholder farmers in SSA cannot access or afford fertilizer because they live in rural areas with few agro-dealers, poor infrastructure and poor access to credit. Fertilizer costs are often exacerbated by long and often dysfunctional supply chains.

Factors limiting fertilizer use in SSA are many, complex and varied. Fertilizer markets generally do not perform well and are constrained by inefficiencies at multiple levels. Constraints often include policies that restrict or exclude competitive participation in the market, credit risks for suppliers, underdeveloped distribution networks (at the wholesale and retail levels) and output markets, along with insufficient infrastructure at various points in the chain. Farmers' lack of knowledge can result in sub-optimum yields that often do not allow a maximized return on investment from using inputs. Additional limitations are high fertilizer costs, lack of market information and failure of supplies to reach farmers at the appropriate time during the growing season.

In order to reverse this paradigm, the African Fertilizer and Agribusiness Partnership (AFAP) is an initiative financed by the Alliance for a Green Revolution in Africa (AGRA) that brings together governments, donors (particularly the U.S. Agency for International Development [USAID]) and key implementing agencies such as IFDC and the Agricultural Market Development Trust (AGMARK). IFDC is responsible for technical management of the fertilizer program. Additional partners include the African Development Bank and the New Partnership for Africa's Development (NEPAD) Planning and Coordinating Agency.

The partnership's purpose is to ensure that this key component of agricultural development in Africa is undertaken in a manner that is supportive of developing competitive, functional markets. Key to this is supporting the development of private sector initiatives.

Founded in October 2011, AFAP was designed to advance the 'market access' pillar of the Comprehensive Africa Agriculture Development Programme (CAADP). AFAP's primary purpose is to strengthen all aspects of the fertilizer value chain in Africa.

CAADP was established by NEPAD and adopted by African Heads of State in 2003, with a framework that represents African leaders' collective vision for agricultural growth. CAADP created new opportunities for African countries to develop plans outlining their own agricultural priorities. Development partners are aligning their assistance to support these priorities. AFAP bridges the gaps between country plans, donor-funded projects and project implementers.

"AFAP is a 'one-stop-shop' focused on fertilizer market development," stated Paul Makepeace. IFDC seconded Makepeace to serve as a senior technical advisor to manage and deliver all technical aspects associated with the AFAP fertilizer program. Makepeace's responsibilities range from identifying the resources and roles of AFAP technical participants to conducting market analysis and feasibility studies and identifying and supporting private sector participants in the development of the fertilizer value chain.

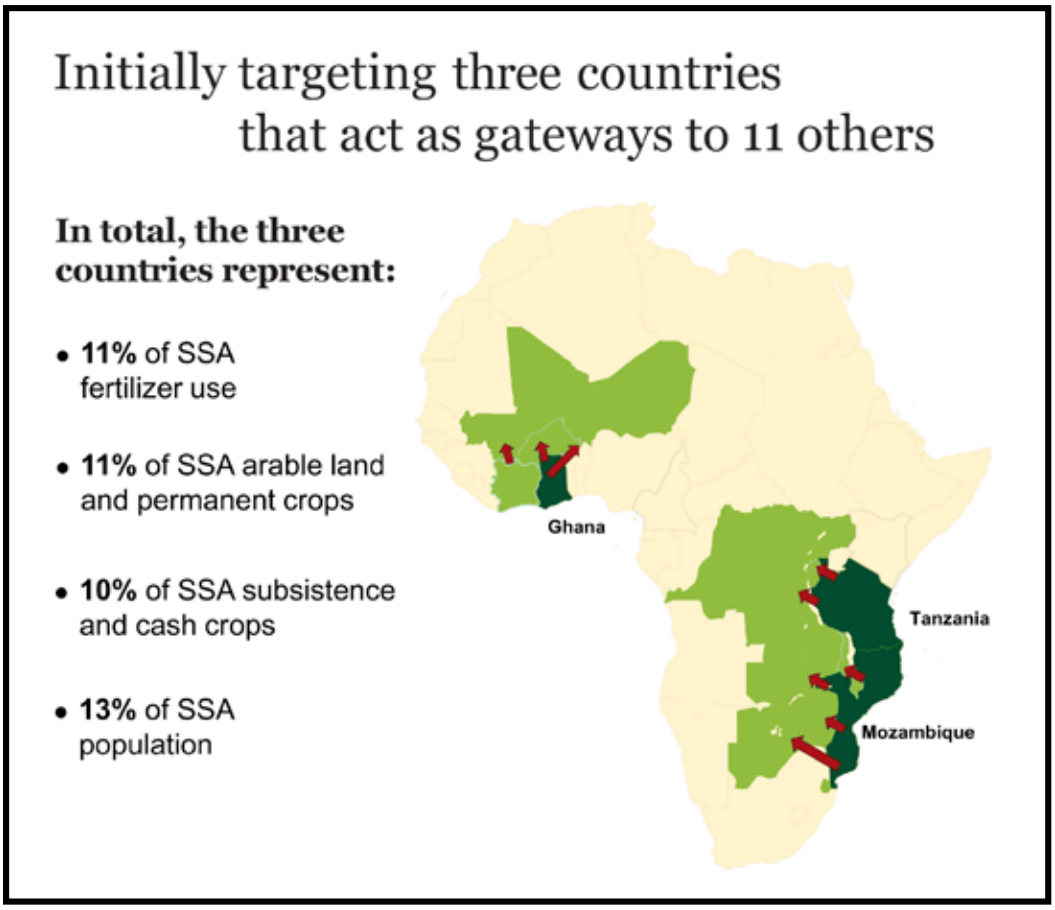
Makepeace recently provided assistance to the Ethiopian Agricultural Transformation Authority to assess the feasibilities of various technologies and provide balanced fertilizer formulations. Based in Johannesburg, South Africa, Makepeace travels extensively to SSA countries that require fertilizer market development assistance.

"AFAP links specialized technical expertise and resources to address priorities identified in the CAADP agenda and offers agribusiness partnership contracts (APCs) to leverage greater private sector investment and know-how in fertilizer value chain development," Makepeace said.

APCs are the principal operating mechanism of AFAP. Under APCs, eligible agribusinesses can apply for AFAP assistance and, in exchange, agree to perform significant market development activities with local farmers and/or other agribusinesses. Assistance may include management and technical advice, payment and credit guarantees, matching grants for demonstrations and other demand-creation activities and in-kind investments. AFAP is initially focusing its support on the fertilizer industries in Ghana, Mozambique and Tanzania because their ports act as gateways to 11 additional countries (see graphic below).

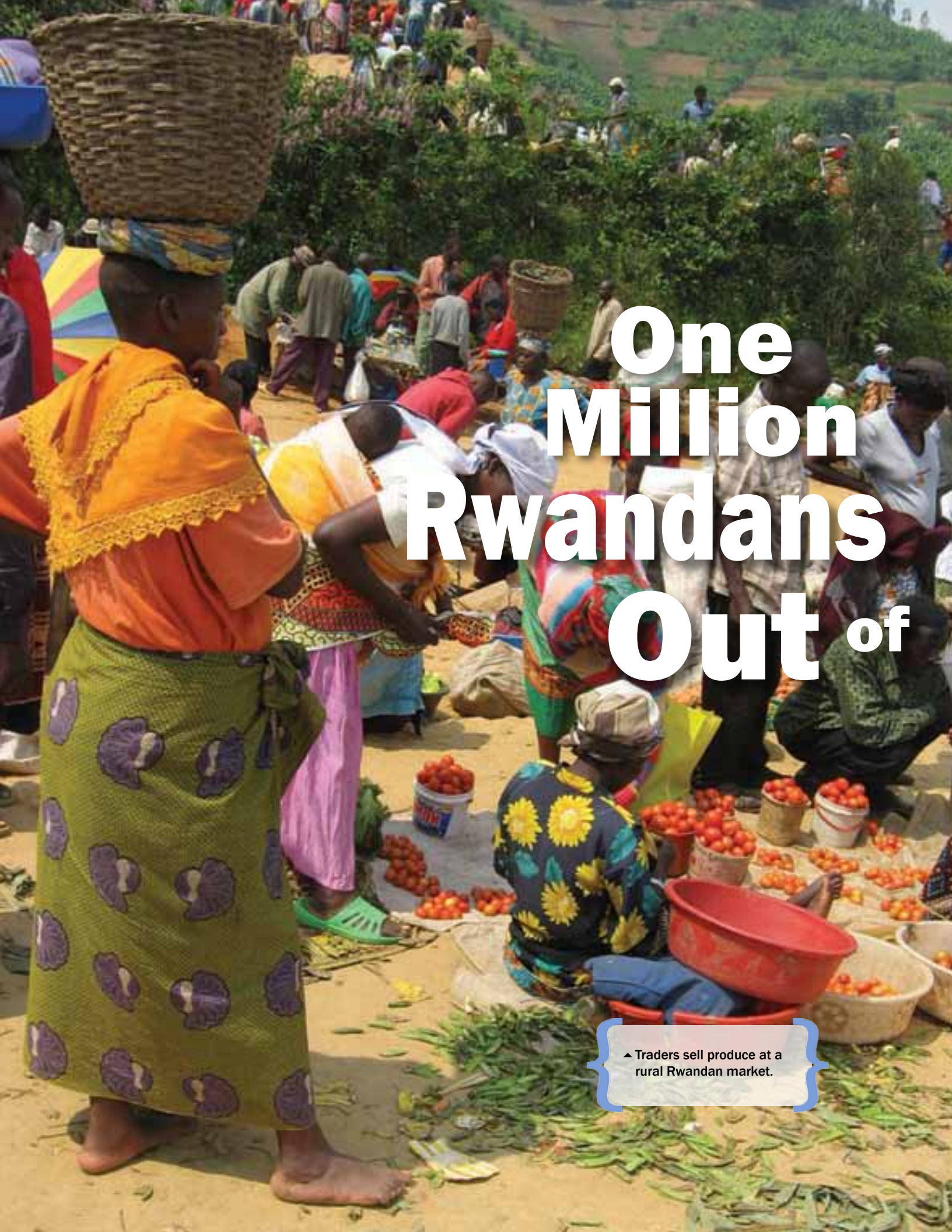
In May 2012, IFDC and AFAP held a fertilizer strategy workshop to present and discuss recent IFDC studies of fertilizer markets in Ghana, Kenya and Tanzania. Workshop participants used the market assessments to start a public-private dialogue to develop a fertilizer sector investment strategy to help meet agricultural growth targets set by the countries participating in the CAADP process. The studies estimate the amount of fertilizer required to meet these targets and identify the primary challenges that could hinder their achievement. The assessments also outline recommended policy changes to reduce fertilizer costs, improve farm productivity and facilitate policy dialogue.

Funded by USAID under the Feed the Future (FTF) initiative, the studies are the first three of 12 that IFDC is conducting on national fertilizer markets. The strategy workshop and country assessments are AFAP's first steps toward its goal to provide African smallholder farmers with the incentive, initiative and capability to access and use fertilizer to increase yields and incomes and ultimately improve food security.



To feed our people, we must feed the soil.

– former Nigerian President Olusegun Obasanjo, 2006



One Million Rwandans Out of

▲ Traders sell produce at a rural Rwandan market.

Agriculture is the backbone of Rwanda's economy and the majority of households in the country are engaged in crop or livestock production activities. The agriculture sector is therefore widely regarded as the major catalyst for economic growth and poverty reduction. In 2010-2011, agricultural growth was 3.2 percent, according to the National Institute of Statistics of Rwanda (NISR). As a share of gross domestic product (GDP), the agriculture sector makes up 31 percent of the Rwandan economy.

Rwanda has implemented several programs to increase productivity in the agriculture sector, including working closely with IFDC on projects to promote ISFM and increase fertilizer use. IFDC and the Ministry of Agriculture and Animal Resources (MINAGRI) have collaborated to improve agricultural production and increase agribusiness activity and farm wage employment. Increasing fertilizer use in Rwanda has contributed to poverty reduction and improved the livelihoods of many Rwandan smallholder farmers.

Poverty

This is corroborated by the results of the Third Integrated Household Living Conditions Survey, released in February by the NISR. The results were very positive, with the country experiencing rapid economic growth and sharp poverty reduction. In fact, the headline most often used in relation to the Survey was "**One million more out of poverty in Rwanda**." Among the Survey's key findings were that per capita GDP rose from $333 in 2005-2006 to $540 in 2010-2011 and the percentage of Rwandans living in poverty decreased from 56.7 percent to 44.9 percent.

Survey results show the use of agricultural inputs also increased dramatically. **Fertilizer use more than doubled, from 18 percent to 38.3 percent. (In one province the use of fertilizer was nearly 54 percent.)** Use of pesticides also increased, from 24 percent to nearly 31 percent of households. The use of improved seeds was not previously measured; however, nearly 19 percent of households use them now. Each of these factors has contributed to increased crop productivity.

The surveys, which began in 2000-2001 and are conducted every five years, monitor poverty levels and living conditions. The surveys study changes in Rwanda's demographics, education, housing, agriculture, health, access to banking and durable items and frames these changes in the context of reduced poverty and inequity.

In rural areas, the report notes substantial increases in the agriculture sector, and credits agricultural intensification and increased agricultural commercialization as major factors – noting better practices have increased yields on fewer hectares of land, the commercialization of farmers and the increased use of chemical fertilizers as major contributors to overall poverty reduction.

In terms of increased agricultural production, the Survey states: "Average land size cultivated per household has fallen over the period, the number of family farmers has remained static, but the productivity (in terms of real value of output per unit area) has increased at a much faster rate. This pattern of increased production is consistent with production data from MINAGRI. At the same time, there was a substantial increase in the use of chemical fertilizers in agriculture over this period."

The Survey further reported, "A third factor has been increased commercialization of agriculture. In 2005-2006, households sold around 18 percent of their agricultural output on average; by 2010-2011 the average proportion of output sold had risen to 25 percent. There was increased demand for agricultural production from Rwanda over this period from neighboring countries and in part in response to food crises elsewhere."

▲ A rural farmers' association demonstrates how crop commercialization can transform a community.

Livestock ownership also increased by 37.5 percent, indicating an economic upswing for many farm families. A 32-percent increase in the purchase of harvest sacks and packaging is another indicator of the commercialization of production, since sacks and packaging are purchased primarily if farmers are selling their excess production in the marketplace.

MINAGRI's vision is to transform the country's agriculture from subsistence to productive, high-value and market-oriented farming that is environmentally friendly and has an impact on other sectors of the economy. IFDC's partnerships with MINAGRI and other public sector and private sector entities are benefiting Rwanda's smallholder farmers and helping improve the country's economic health.

Current IFDC Projects in Rwanda

Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability (CATALIST)

Funded by DGIS, CATALIST is: promoting intensified sustainable agricultural production; strengthening farm-to-market linkages; expanding marketing opportunities for agricultural products; and promoting the improvement of regional economic collaboration in Burundi, Democratic Republic of Congo (DRC) and Rwanda. Activities increase agricultural productivity and develop agricultural input and output markets, which help vulnerable populations by creating jobs and developing local economies.

Privatization of Rwanda's Fertilizer Import and Distribution System (PReFER)

Increased use of organic and inorganic fertilizer and other agro-inputs is necessary to help create food security. IFDC is helping Rwanda transition from nationalized fertilizer procurement and distribution. With funding from USAID, PReFER provides training, technical and business assistance to professionalize Rwanda's agro-dealers. IFDC is helping build the private sector fertilizer market and develop a sustainable supply system, stimulating fertilizer demand and supporting agricultural intensification and market development of farm output.

Rwanda Agro-Dealer Development (RADD)

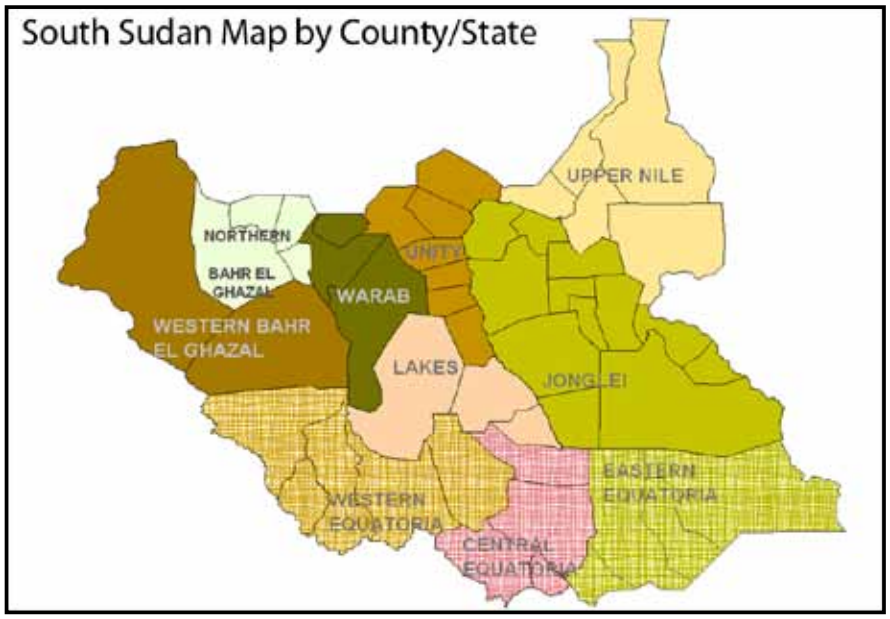
RADD is building, strengthening and professionalizing networks of agro-input importers and agro-dealers. In turn, the agro-dealers are providing increased and more cost-effective supplies of agro-inputs to Rwanda's farmers. Funded by AGRA, RADD helps enhance agricultural productivity and increases incomes for farmers and agro-dealers. RADD complements government efforts to increase improved seed supplies, fertilizer importation and use and the number of private sector sales points.

Sustainable Energy Production Through Woodlots and Agroforestry (SEW)

Agricultural intensification must be supported by reforestation and agroforestry. SEW decreases land competition between trees and crops by increasing agricultural productivity and income. With DGIS funding, SEW has planted more than 40 million tree seedlings on 22,000 ha. Reforestation creates favorable conditions for biodiversity conservation and management of natural resources. SEW seeks to increase production of fuel wood and build effective fuel wood and charcoal value chains in Burundi, DRC and Rwanda. Re-greening improves successful nature conservation and management.

Seeds for Development in South Sudan

An independent nation only since July 9, 2011, South Sudan faces many challenges. The economy relies almost entirely on revenue from oil sales and poverty is widespread; up to 90 percent of the population lives on half a dollar a day.



Despite these concerns, it is expected that the country can dramatically increase agricultural productivity (and consequently food security) by bringing unused arable land into production. However, this will only be possible if farmers can access agro-inputs (quality fertilizer, improved seeds and crop protection products [CPPs]) and the necessary training on how to use them. Currently, very few farmers in South Sudan use agro-inputs or know how to manage their farms as a business. Most barely produce enough food to feed their families. More than 80 percent of the food in the country is imported from Uganda and Kenya.

The Seeds for Development program is a step toward transforming agriculture in South Sudan from subsistence farming to a market-oriented, competitive and profitable agricultural system. The program is funded by USAID and the Howard G. Buffet Foundation through AGRA. Activities are implemented in partnership with the USAID Food, Agribusiness and Rural Markets (FARM) project.

One of the primary components of Seeds for Development is building organized networks of agro-dealers to facilitate farmers' use of agro-inputs, which aligns with government policies to increase food production. Farmers rely on agro-dealers for information about agricultural technologies – including planting crops, using improved seeds, what types of fertilizer are best suited for the crops and application methods for fertilizers and CPPs.

More than 100 agro-dealers and farmer agents were trained during March and April 2012 by IFDC and AGMARK (12 percent were women). "We must ensure that agro-dealers are prepared to take on their important roles as informal extension agents," said Dr. Caleb Wangia, IFDC country representative in South Sudan and Seeds for Development input market development specialist.

The project is training agro-dealers from Central, Eastern and Western Equatoria states in business management and product knowledge. They are learning how to effectively market agro-inputs and how to demonstrate their proper use to farmers.

"We're also helping trained agro-dealers increase their inventories by linking them to manufacturers and suppliers and to credit facilities," Wangia said. "Building the capacity of the private sector is essential to long-term increases in food production."

South Sudan received its first consignment of fertilizers in March, imported from Kenya and purchased with support from USAID. Seeds for Development and FARM are using the fertilizer to conduct demonstration trials of new agricultural technologies for 6,000 smallholder farmers. The consignment included 6.0 mt of diammonium phosphate (DAP) for planting and 6.0 mt of urea for top dressing. Hybrid maize seed is also being used. The varieties of seed were selected from evaluation trials conducted by the South Sudan Ministry of Agriculture and Forestry researchers with support from AGRA.

More than 25 technology transfer demonstration plots have been established. Each is being planted with cassava, maize (comparing hybrid and farmers' saved seeds), groundnuts and sorghum. Through the demonstration plots, 120 farmers (including 20 women) have been trained in fertilizer use and proper crop spacing. "This marks the first time smallholder farmers in the area have ever been exposed to hybrid seeds or mineral fertilizers," Wangia said.

IFDC and the National Peace Corps Association Partner to Strengthen Value Chains in East Africa

▲ Encore volunteer Larry Badger poses with members of the Maasai tribe in Kenya.

IFDC is utilizing both on-the-ground and online volunteer networks managed by the National Peace Corps Association (NPCA) to develop and strengthen agricultural value chains in East Africa.

"IFDC value chain projects utilize PPPs to develop the agribusiness and trade necessary for sustainable food security," said Dr. Richard Jones, agribusiness program leader in East and Southern Africa. "Incorporating NPCA programs with the PPP approach makes the projects particularly innovative."

Using PPPs and its CASE solution, IFDC is identifying market opportunities for food crops and then catalyzing the development of ABCs to bring together the various partners needed to develop viable value chains.

Volunteers are selected from NPCA's Encore Service Corps International to help support the ABCs. Encore volunteers are typically former Peace Corps volunteers or other experienced professionals who have lived or worked in developing countries. They are communicating their progress on the Africa Rural Connect (ARC) website (www.AfricaRuralConnect.org), another NPCA initiative. ARC is an innovative online incubator of ideas through which volunteers and others can share information and respond to the needs of African farmers.

IFDC staff and Encore volunteers are developing value chains for commodities that have a demonstrated market demand and strengthening agricultural support services and institutions that support farmers working small- and medium-sized farms.

Encore volunteer Doug Meyer is an information technology (IT) specialist assisting IFDC in selecting and setting up a platform for mobile data collection in the new nation of South Sudan.

"Since a goal of the Seeds for Development program is to support, guide, coach and nurture rural agro-dealers in South Sudan to a point where they can stand on their own, we are doing monthly surveys to monitor their sales volumes, profitability and related indicators," Meyer said. The project represents a departure from the traditional paper questionnaire forms. Instead, it relies on smart phones that automatically download surveys from the 'cloud' (using a network of remote servers hosted on the Internet to store, manage and process data). Likewise, every response is instantly uploaded to the cloud.

"Using this technology, the administering officer has instant access to all the data at collection time," Meyer said. "The service we have selected provides complete support at a very low cost and low capital input, without the need for IFDC to supply programmers or maintain expensive servers. We hope and expect that this new way of monitoring and evaluation can be expanded across a broad scope of projects." Meyer is also involved in software selection for IFDC's Cassava+ project, which has expanded from Nigeria into Mozambique and South Sudan.

In regard to serving as an Encore volunteer, Meyer said, "I only wish my time with IFDC were longer! Three

months is such a short time when scoping and rolling out complex IT projects. There is so much need here for the common, everyday IT skills that I've acquired during my career."

In 2011, Larry Badger served as an Encore volunteer with ESAFD to facilitate new communications projects. With a background in film production, Badger wrote and produced videos demonstrating IFDC's impact in East Africa. "I love to work with people who use their hands and brains to produce something, whether it's maize or rice, film or video," said Badger. "IFDC and East Africa definitely left a mark on me." Two of Badger's videos can be found on the IFDC website – "The Land of a Thousand Hills" and "Mozambique and IFDC – Working Together to Improve Agriculture and Lives" (www.ifdc.org/Media_Center/Video_Gallery).

"It's wonderful to be working with IFDC in East Africa," said Anne Baker, NPCA vice president and Encore managing director. "Both Larry and Doug highlight the particular strength of the Encore model – connecting individuals with both professional expertise and the cross-cultural sensitivity of former Peace Corps volunteers with short-term, capacity building projects. And by using NPCA's Africa Rural Connect platform, we greatly extend the reach of their work. So, it's a win-win-win situation."

Those wishing to serve as an Encore volunteer and also work with IFDC can apply at: www.encoreservicecorps.org. To learn about NPCA and its programs, visit www.peacecorpsconnect.org.

This photo of Encore volunteer Doug Meyer and children was taken by a local child in rural South Sudan.

IFDC Is a Key Stakeholder of Togo's Agricultural Investment Program

▲ Left to right, African Union Commissioner for Rural Economy and Agriculture Rhoda Peace Tumusiime (a member of the IFDC board of directors), Togo's Prime Minister Gilbert Houngbo, IFDC communications officer Ketline Adodo and Togo's Minister of Agriculture, Livestock and Fisheries Kossi Messan Ewovor discuss IFDC's information booth at the PNIASA launching.

Togo has launched the National Program for Investment in Agriculture and Food Security (PNIASA). A five-year program, PNIASA is Togo's agricultural investment plan, which was developed in the framework of the Regional Agricultural Policy and adopted by the Economic Community of West African States (ECOWAS).

"PNIASA will bring a new dimension to rural development stakeholders and the government will meet its commitment to allocate 10 percent of its budget resources to the implementation of PNIASA," stated Togo's Prime Minister Gilbert Houngbo. "With PNIASA, Togo will engage in a more dynamic, competitive and sustainable agriculture that will generate prosperity for all farmers as well as agribusiness promoters."

IFDC will provide two key technologies: Participatory Learning and Action Research applied to Integrated Soil Fertility Management (PLAR-ISFM) and the CASE solution.

Togo's Minister of Agriculture, Livestock and Fisheries, Kossi Messan Ewovor, stressed the role of ISFM in Togo's agricultural development strategy: "IFDC will be our partner in the implementation of the ISFM component of the Support to the Agricultural Sector Project (PADAT), which is part of PNIASA." He also said, "The goal of PNIASA is to accelerate pro-poor agricultural growth, improve food security and protect the environment." Minister Ewovor said he was impressed with the scope and relevance of IFDC's activities in West Africa.

The financing allocated to Togo for PNIASA implementation is US $112.5 million (FCFA 55 billion). The program is financed by the World Bank, International Fund for Agricultural Development, West African Development Bank and the ECOWAS Bank for Investment and Development.

PNIASA is implemented through three projects:

- PADAT aims to improve food security and income for 385,000 smallholder farmers (50 percent women). PADAT seeks to increase production and productivity of three staple crops – maize, rice and cassava.
- The Support to the Agricultural Sector Project (PASA) will focus on strengthening the productive capacities of 60,000 farmers, 13,000 stockbreeders and 1,600 fishermen. The program covers strategic food crops such as rice, maize and soybeans and export crops such as coffee, cocoa, cotton, livestock and fish.
- The West Africa Agricultural Productivity Project in Togo (WAAP-TOGO) is the research-development technology-transfer component of a regional program to support agricultural policy in the ECOWAS region. Its objective is to generate and disseminate improved technologies in targeted sectors, improve the capacities of the research system and train research and extension professionals.

An eight-minute video about PNIASA can be seen at: www.youtube.com/watch?v=J0BMhsvQBrY.

Food and Enterprise Development (FED) Program Launched in Liberia

Following decades of conflict, Liberia is one of the most food-insecure countries in Africa despite its abundance of natural resources. Only nine percent of the rural population is food secure, and most live on less than US $1 a day. Seventy percent of the country's labor force is engaged in agriculture.

IFDC is helping implement a new project in Liberia – the Food and Enterprise Development (FED) Program. The objectives of the project are to improve nutrition and increase food security in Liberia by increasing agricultural productivity and market access within the rice, cassava, vegetable and goat value chains. FED is implemented by Development Alternatives, Inc. in collaboration with IFDC and other partners, and is funded by USAID as part of its FTF initiative.

IFDC is improving farmers' access to agro-inputs and providing agricultural extension support through the introduction of improved production practices such as fertilizer deep placement (FDP) and ISFM. IFDC is also developing training and extension materials and market information systems adapted to Liberia. Over the course of the project (2012-2016), market-friendly voucher systems will be utilized to stimulate demand for agro-inputs and facilitate a competitive input supply chain.

FED training programs are being conducted for farmers, agro-dealers, trade associations and trainers. IFDC is helping farmers and agro-dealers form associations and is facilitating linkages to credit opportunities and service providers.

FED works with both public and private partners in Bong, Grand Bassa, Lofa, Margibi, Montserrado and Nimba counties, with a particular focus on women and youth.

▲ This vehicle belongs to the Dokodan Farmers' Cooperative in Liberia. The FED program is building the capacity of farmers' organizations so that they can formally link to financial institutions and the private sector.

A farmer training session is led by IFDC's AAPI staff. (Ishrat Jahan, resident representative, is seated in the right foreground.)

AAPI – Accelerating Agriculture Productivity

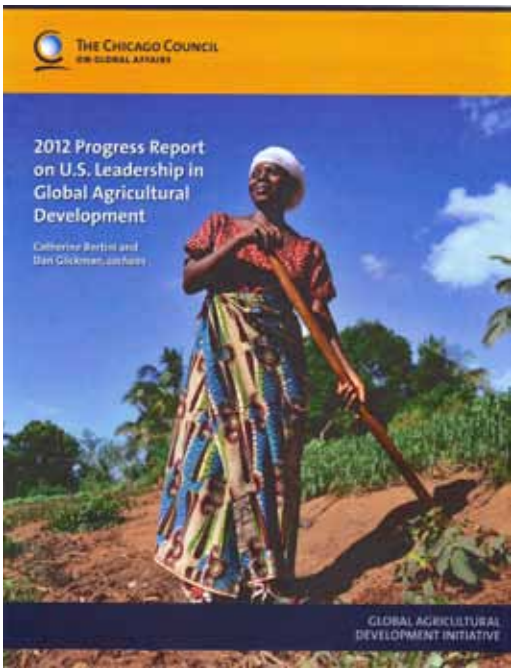
The USAID-funded Accelerating Agriculture Productivity Improvement (AAPI) project was recognized by the Chicago Council on Global Affairs[1] in its *2012 Progress Report on U.S. Leadership in Global Agricultural Development.*

The progress report reviewed developments within the U.S. government in support of agricultural development since 2009. It then examined whether policy developments translated into expanded U.S. efforts in the field in three focus countries: Bangladesh, Ethiopia and Ghana. The Council assessed overall activities and assigned evaluations of outstanding, good, satisfactory or unsatisfactory to relevant U.S. government departments, agencies, actors and in-country representatives for their leadership in global agricultural development.

The report rated USAID, the Millennium Challenge Corporation (MCC) and the U.S. agricultural development actions in Bangladesh since 2009 as "Outstanding." The United States Department of Agriculture (USDA) was ranked as "Good."

Regarding AAPI, the progress report states:

> "For example, a project implemented by the International Fertilizer Development Center (IFDC) to improve efficiency in fertilizer use for rice was scaled up into the $24 million Accelerating Agriculture Productivity Improvement (AAPI) project to run from 2010 to 2015. AAPI promotes efficient use of agricultural inputs through an integrated approach, emphasizing the use of good-quality seed, judicious application of balanced fertilizer and better water management practices. AAPI's main technological innovation fertilizer deep placement (FDP), has a positive environmental impact by reducing nitrogen runoff. Most farmers in Bangladesh spread urea (the most common nitrogen-based fertilizer) directly into the floodwater of lowland rice, a practice that wastes two out of every three bags of urea and pollutes surface water with runoff. The FDP method improves yields and reduces pollution by inserting urea briquettes into the rice root zone, which reduces fertilizer use by 40 percent and increases crop yields by about 25 to 40 percent.
>
> "To disseminate information on this fertilizer method, IFDC works with the Bangladesh Ministry of Agriculture and the Department of Agricultural Extension. As of 2009, 36,000 hectares of paddy fields were using this new method. By 2011 the area utilizing FDP and other improved technologies had expanded to 277,000 hectares. AAPI estimates that 1,800 newly established private entrepreneur supply points will afford farmers



> access to FDP products and that the project will benefit 3.5 million farmers. In addition, AAPI supports capacity building and policy reform. Begun as a small project in applied research, this effort is now on its way to reaching significant scale. The FDP innovation has been a financial benefit to the government of Bangladesh, as it will reduce the state budget for subsidized fertilizer sales to farmers. Improved efficiency in fertilizer will provide an estimated saving of $84 million to the government.
>
> "Since 2009 the U.S. has managed a strong across-the-board expansion of agricultural development activity in Bangladesh. The ability of the U.S. to continue to support Bangladesh-led agricultural development will depend upon persistent leadership at the mission and embassy levels and on sustained funding from Washington."

[1] "Founded in 1922 as the Chicago Council on Foreign Relations, the Council is one of the oldest and most prominent international affairs organizations in the United States. Independent and nonpartisan, The Chicago Council is committed to influencing the discourse on global issues through contributions to opinion and policy formation, leadership dialogue and public learning," according to the Council's website.

The progress report can be found at www.bit.ly/chicagocouncilprogressreport.

Improvement

AWD – Water-Saving Technology for Bangladesh

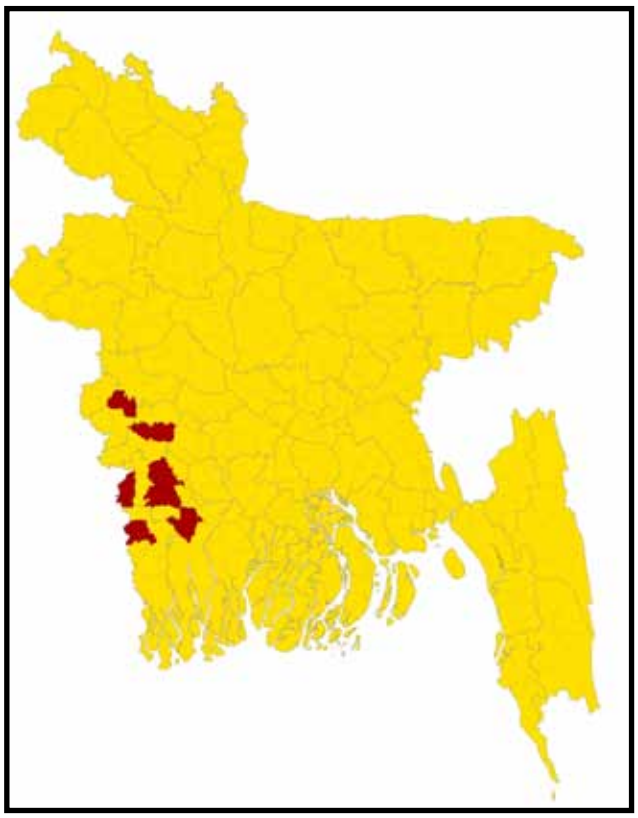
▲ Maulana Fazlul Haque Akand at work in his flooded *Boro* paddy field.

Alternate wetting and drying (AWD) is a unique irrigation system that saves water and increases rice productivity. A collaboration of the International Rice Research Institute (IRRI) and the Bangladesh Rice Research Institute (BRRI) led to the development of AWD. In AWD, irrigation water is applied to flood a field a certain number of days when pond water is not available. Hence, the field is alternately flooded and then not flooded. In addition to saving water, AWD results in higher productivity (generating more paddy rice), less harm to the environment, enhanced nutrient efficiency and less insect infestation.

The Bangladesh Department of Agricultural Extension (DAE) and some non-governmental organizations (NGOs) have been advocating the use of the method in farmers' fields in recent years, but many farmers are still not aware of AWD. The technology is particularly useful because Bangladesh experiences water shortages during *Boro* (the dry season of rice cultivation) and the shortages are worsening each year.

Presently, Bangladesh's agriculture depends primarily on groundwater because sources of surface water irrigation have been decreasing. In 1971, groundwater was only three percent of the total amount of agricultural water use, but that has grown to more than 70 percent. This has resulted in a serious depletion of groundwater levels, which are not fully replenished by annual rainfall. While irrigation water is becoming more important as an agricultural input, groundwater pumping and irrigation costs are rising, which ultimately increases the cost of production.

To meet these and other agricultural challenges, AWD must be implemented throughout the country. However, this requires increased farmer awareness and cooperation. IFDC's AAPI project has included AWD in its development plan. In this year's *Boro* season, AAPI conducted 29 field demonstrations in 28 *upazilas* (sub-districts) in Jessore and Mymensingh regions.



▲ Shown in red are the areas of Bangladesh that are participating in AWD demonstrations.

AAPI field monitoring officers and the sub-assistant agriculture officers of DAE selected the farmers and plots for demonstration. The land size to compare AWD with farmers' traditional practice was 66 decimals – 33 decimals for AWD and 33 decimals for farmers' practice (one decimal = 435.6 square feet; 100 decimals = 1 ha). AAPI provided support to the farmers to establish the demonstrations as well as three perforated plastic pipes to observe water levels within the soil. It also arranged training programs and informal group meetings for the farmers. Selected farmers, water pump owners, pump operators or managers and neighboring farmers in the same area participated in the meetings.

Barriers to the widespread application of AWD technology included:

- The technology was new to most farmers.
- AWD demonstrations began under AAPI during *Boro* season, and identification of appropriate farmers was a challenge.
- It was difficult to find 66-decimal plots for demonstrations.
- Layout and management of large demonstration plots were difficult.
- Farmers were reluctant to use less water in *Boro* demonstration plots using AWD technology. Their practice is to flood the field and keep it flooded throughout *Boro* season.
- Farmers were not confident about the irrigation system supplying the water when required by AWD.

Despite the limitations and difficulties, AAPI has been successful in managing the AWD demonstration fields. Through continuous monitoring, persuasion and field visits by AAPI field staff, it was possible to achieve positive results from most of the AWD demonstrations, including:

- AWD plots used four to 10 times less irrigation than that of the farmers' practice fields. This ultimately saved water, fuel, electricity and production costs.
- Algae growth was lower (and sometimes non-existent) in AWD plots due to the alternate drying of surface soil. Plants grew better because they did not have to 'share' crop nutrients with algae.
- The fields are not yet harvested, but the number of tillers (grain-bearing branches) counted at flowering was greater in AWD plots than those of the farmers' practice plots. Key results are presented below:

Upazila	Number of Hills	Number of Tillers	
		AWD Plots	Farmers' Practice Plots
Jhenaidah Sadar	5	102	97
Alamdanga	6	107	98
Satkhira Sadar	7	156	115
Dumoria	8	166	126
Jessore Sadar	8	167	158
Monirampur – Kamalpur	8	171	161
Monirampur – Koramara	6	95	88
Sharsha	9	221	214

Farmers witnessing more tillers in AWD plots have shown an interest in adopting this technology. Many farmers, particularly demonstration plot owners, were convinced that AWD is an economically viable irrigation method for rice cultivation that results in decreased costs and increased yields.

This article first appeared in the AAPI Newsletter (April 2012).

U.S. Ambassador Visits AAPI Sites

U.S. Ambassador to Bangladesh Dan W. Mozena visited the USAID-funded AAPI project on May 10. IFDC/AAPI staff members hosting the ambassador were Ishrat Jahan, resident representative (Bangladesh); Grahame Hunter, AAPI chief of party; Md. Mustafizur Rahman, field coordinator; and Akhter Hossain, field monitoring officer. The agenda for Ambassador Mozena included site visits to an AAPI field demonstration plot and to a briquette-making business in Kathaltala Bazaar, Chuknagor, Dumuria *upazila*, Khulna district. This district is one of 20 FTF districts in Bangladesh.

The ambassador was introduced to farmers who are using FDP technology in their fields. The AAPI project goals are to improve food security and accelerate income growth in rural areas by increasing agricultural productivity on a sustainable basis. An estimated 3.5 million farmers are expected to benefit from AAPI's efforts to disseminate FDP technology information and establish access to FDP products.

Ambassador Mozena said Bangladesh is truly a blessed country with rich and productive soil and abundant natural resources. "It has a unifying culture, language and spirit," he said, praising the energy, creativity and resilience of Bangladeshis.

Ambassador Mozena was also introduced to a woman who is an AAPI-sponsored entrepreneur whose business makes and provides farmers with urea briquettes (known in Bangladesh as *Guti).* The project provides financial support by selling urea briquette-making machines at a reduced price. Technical support is provided through advice and training on briquette manufacturing. Small business management and accounting training and advice are also provided. More than 1,800 privately owned supply points are expected to be established over the course of the project. AAPI supports the capacity building, policy reform and micro-enterprise development that are crucial to the sustainability of agriculture production systems. The estimated savings to the Government of Bangladesh due to improved nutrient use efficiency is US $84 million annually.

"Bangladesh matters to the United States. I feel grateful for the opportunity to continue the important work of promoting a peaceful, secure, prosperous, healthy and democratic Bangladesh for all its people, now and into the future," Mozena concluded.

▾ **Photo courtesy of: news.priyo.com.**

Photo of Kyrgyz Seed Voucher Recipient Wins USAID Photo Contest

▲ Lailahan Abduraimova

Congratulations to the **Kyrgyzstan Agro-input Enterprise Development** (KAED) project for winning USAID's February photo contest among implementing partners. The award-winning photo shows Lailahan Abduraimova, chairwoman of the *Pesh-Kadam* agricultural cooperative in southern Kyrgyzstan. Abduraimova participated in IFDC's USAID-funded Economic Development Fund Phase 1 Seed Distribution Program and doubled her yields during the first crop year. The photo was taken by Guljamal Chokmorova, KAED southern area coordinator.

KAED Hosts Trainings and Events

In a concerted effort by KAED to bring up-to-date management and technical information to farmers and agribusiness professionals, the project continued to sponsor special events and conducted multiple trainings.

Integrated Pest Management

In February KAED, in cooperation with the Kyrgyz Republic's Ministry of Agriculture (MoA), conducted training on integrated pest management (IPM) in the Sokuluk *rayon* (district) of Chui *oblast* (province) in northern Kyrgyzstan. The 35 participants learned about the correct storage and use of agro-chemicals, pesticides and mineral fertilizers. State Secretary of the MoA, Nurlan Duisheev, and KAED Chief of Party, Dr. Hiqmet Demiri, signed certificates of participation for attendees.

AgroExpo 2012

AgroExpo 2012 was held March 1-3; KAED organized a roundtable to discuss ways of strengthening poultry production in Kyrgyzstan; 47 participants (including 15 women) joined in the discussions.

Kyrgyz Deputy Minister of Agriculture, Dyikanbay Kenjebaev, attended, along with poultry farmers and feed producers from each of the *oblasts* in southern Kyrgyzstan and regional MoA representatives. Participants discussed major obstacles (the high cost of poultry products, a lack of feed experts, veterinarians and laboratories, etc.). Also discussed were ways to improve poultry production (better access to high-quality feed and equipment, improved feeding techniques, disease control, an information center for poultry farmers, etc.).

In addition, two training sessions were held. The first included 57 poultry farmers (including 10 women) and covered improved poultry feeding techniques and disease control and management. Increasing the productivity of cereal crops was the subject of the second training, attended by 37 participants (including seven women).

Launch of the EDF Phase II Seed Support Program

A launch ceremony for the Economic Development Fund (EDF) Phase II Seed Support Program was held March 7. The program is expected to renew and improve seed stocks so that commercially viable seed farms in each *oblast* can increase the quantity and quality of seed production for domestic and international markets. The program is a joint effort of USAID and the Government of Kyrgyzstan. Attending the launch were: Kyrgyz

▲ **Kyrgyz officials, USAID representatives and KAED staff officially launch the EDF Phase II Seed Support Program.**

Prime Minister Omurbek Babanov; Kyrgyz Minister of Agriculture and Amelioration Saparbek Tynaev; U.S. Ambassador to the Kyrgyz Republic Pamela L. Spratlen; USAID Representative to the Kyrgyz Republic Carey N. Gordon; USAID Project Management Specialist Daniyar Ilebaev; IFDC KAED Chief of Party Hiqmet Demiri; and representatives of the 14 selected seed farms. Prime Minister Babanov said that the seed farms, from each of the country's seven *oblasts*, represent the strongest farms in Kyrgyzstan. A certificate of participation was presented to the attendees by the Prime Minister and the U.S. Ambassador.

Use of Fertilizers

Training on the correct use of mineral and organic fertilizers was organized for farmers of Issyk-Kul *oblast* March 14. Thirty-eight farmers (including eight women) attended sessions on the positive and negative effects of mineral fertilizers, types of organic fertilizers and the environmental aspects of fertilizer use.

Improving Livestock Productivity

Training to improve dairy cattle productivity was conducted for 30 livestock farmers, veterinarians and rural consultants on March 15 in Nookat village, Nookat *rayon*, southern Kyrgyzstan. Sessions included proper feeding techniques, dairy cow management and disease control. Attendees received technical leaflets on livestock management.

Proper Soil Selection

Training on proper soil selection was conducted on March 29, in Kemin *rayon*, Chui *oblast*, northern Kyrgyzstan. Farmers, agronomists, staff of the Kemin

rayon agricultural department and rural advisory services attended. The event was organized to transfer knowledge about the importance of soil fertility and quality seeds to increase crop productivity. Trainees learned about proper soil selection for wheat cultivation, fertilizer application and ways to improve soil fertility.

Biofertilizer Event

The KAED project sponsored a biofertilizer overview April 12 at the Concept Master commercial dairy farm in the northern Kyrgyzstan village of Belovodskoe, Moskovskiy *rayon*. A biogas unit was unveiled at the farm. Biogas is made from anaerobic digestion of agricultural and animal waste. The gas, a mixture of methane and carbon dioxide, is used for direct combustion in cooking or lighting applications and to power combustion engines for electricity generation. The technology is particularly valuable in agricultural, waste treatment or animal processing enterprises where there is excess manure from pigs, cattle, poultry and/or farm waste. Kyrgyzstan supports organic farming; the biogas unit and the bio-organic fertilizer produced by the farm are environmentally friendly and economical.

▲ Farmers in northern Kyrgyzstan learn about seedbed preparation using modern agricultural equipment.

Training Seed Farm Agronomists

A two-day training was organized on April 12-13 for agronomists of the 14 seed farms selected for participation in the EDF Phase II Seed Support Program. The training was held at Eldan Farm in Novopokrovka village, Chui *oblast*. Thirty participants, including selected students from two agricultural institutions, were trained in spring seedbed preparation using modern agricultural equipment. They learned about soil cultivation systems (such as plows, cultivators, discs) and their appropriate use, modern seeds, seedbed preparation, plant protection and fertilization techniques. Participants also received practical experience in the appropriate use of soil preparation equipment for optimal seedbed preparation and the use of seed and plant protection techniques.

▲ Livestock management leaflets provided by KAED.

Field Day with Eurasia Group

On April 19, KAED organized a joint field day with Eurasia Group on the cultivation of fodder crops for 51 participants in Karabalta, northern Kyrgyzstan. Seeding of Pioneer hybrid corn using a John Deere seeding machine was demonstrated for field day participants.

Roundtable on Poultry Production

A roundtable about increasing poultry production was held in Bishkek on April 25. The event highlighted the work of the KAED project in the poultry and egg production sector during the past three years and promoted local marketability of poultry production. Representatives of the Kyrgyz MoA, international projects, poultry plants, agricultural cooperatives and veterinarians and farmers attended the roundtable. The 65 attendees discussed the poultry sector and ways to increase domestic egg production. Presentations were made on the influence of egg imports on the poultry sector, proper poultry management and disease prevention and control.

Recognition for KAED Irrigation and Land Reclamation

The KAED project organized a ribbon-cutting ceremony for three land rehabilitation irrigation systems in southern Kyrgyzstan. The event took place in Karavan village, Kyzyl-Kiya town, Batken *oblast* on May 23, 2012. The KAED cost-share partnership with local communities and governments will benefit 290 farm families.

The ceremony was attended by Abish Halmurzaev, Kyzyl-Kiya town mayor, Aidar Zulpuev, head of the Karavan village council, representatives of local government, farmers-tenants, rural consultants and representatives of the Kadamjay *rayon* agriculture department and KAED.

Arable land is scarce in Kyrgyzstan, particularly in the southern part of the country. Therefore, land reclamation and irrigation projects are critically important to the effort to increase agricultural productivity.

The first rehabilitated site is comprised of 110 ha of land located near the irrigation canal in Karavan village, Batken *oblast*. The land was donated by the Land Redistribution Fund and benefits 150 families. In partnership with local water users' associations (WUA) and the village council, KAED constructed a closed electrical pump station, purchased 225 meters (m) of metal pipe, built adjustable water gates and provided agricultural inputs to the families. WUA and the village council installed a transformer, purchased an additional 225 m of pipe, dug the canal and prepared the soil. Farmer beneficiaries, WUA members and the local village council invested $20,000 in the project.

The second site was rehabilitated in partnership with the local WUA and the Nariman village council in Karasuu *rayon*. KAED installed a new pump station with pipes and water gates to irrigate 117 ha of previously unused land to benefit over 60 families. The project purchased 150 m of pipe, repaired another 800 m of piping and constructed and installed adjustable water gates. WUA and the village council installed an electrical transformer, provided 650 m of pipe, dug the canal and helped with soil preparation. To bring the degraded land back to agricultural production, the project provided three mt of complex fertilizer and 6.9 mt of spring wheat seeds. Farmer beneficiaries and WUA members invested $21,000 in the effort.

Another site of 100 ha located in Kashgar Kyshtak Village Council in Karasuu *rayon* will benefit 80 families. The project completed land planning and leveling to enable the installation of irrigation canals, which is now underway. KAED assisted with soil preparation and seeding and also provided fertilizer and wheat and alfalfa seeds. Farmer beneficiaries and WUA members invested $21,000.

▲ Left: A pipe carrying irrigation water, installed by the KAED project, bears the USAID and IFDC logos. Right: Children pose on a water reservoir.

Tajik Agro-Dealer Becomes Official Distributor for Dutch Seeds

▲ Agro-input shop owner Samiev Mahmaddamin (left) has become an official seed dealer for Nickerson-Zwaan in Tajikistan. Also shown is Sabohatullo Muzaffarov, PRO-APT agriculture production specialist.

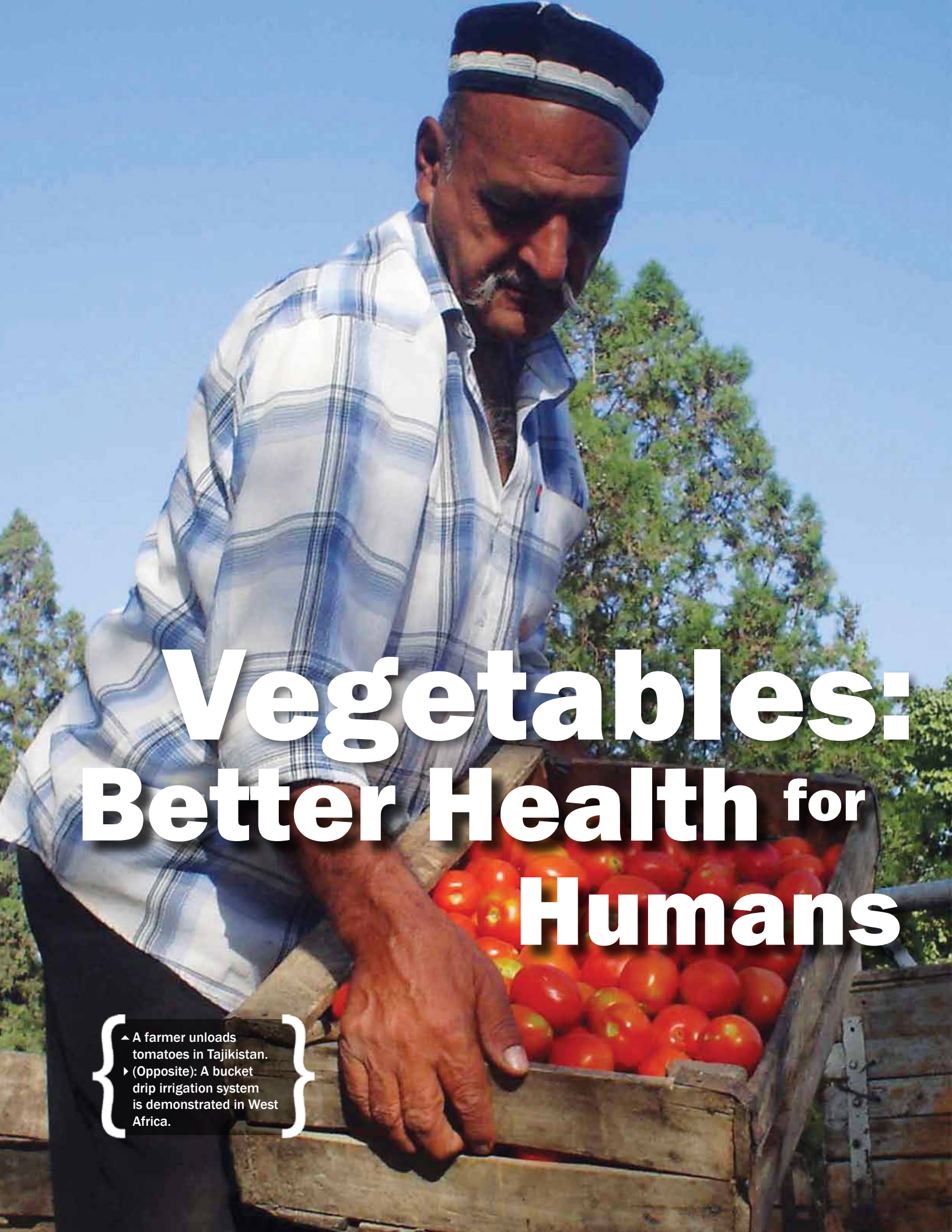
There are enormous barriers to accessing quality, certified fruit and vegetable seed in Tajikistan. Samiev Mahmaddamin started his agro-input shop in southwestern Tajikistan in 2008 and, since that time, has struggled to access certified seeds for his farmer-customers. This lack of quality seed has implications for the growth of Mahmaddamin's business and for the productivity of Tajik farms.

In August 2011, the USAID-funded Productive Agriculture in Tajikistan (PRO-APT) project partnered with Mahmaddamin to import certified onion seeds to sell to commercial farms. With project support, Mahmaddamin registered significant sales of certified *Aldava* seed to new customers in Khatlon Province.

While procuring the certified onion seeds, Mahmaddamin was introduced to the Central Asian representative of Nickerson-Zwaan, a seed company headquartered in Made, the Netherlands. As a result, Mahmaddamin was invited to attend a seed fair at the company's headquarters.

In December 2011, PRO-APT invited a Nickerson-Zwaan representative to visit Tajikistan and explore collaborative opportunities with Mahmaddamin. He was subsequently named an official distributor for Nickerson-Zwaan in Tajikistan. He can now secure discounted seeds directly from the Netherlands and access free seeds to demonstrate to Tajik farmers.

Mahmaddamin recently placed an order for €13,000 [US $16,817] of certified seeds for the Tajik market. This new, sustainable source of certified seeds will not only support business growth for Mahmaddamin but will provide Tajik farmers the quality products they need to expand fruit and vegetable production. "Support from the PRO-APT project has built the credibility and capacity of my company, allowing me to become a viable partner for international suppliers," Mahmaddamin said.



Vegetables: Better Health for Humans

▲ A farmer unloads tomatoes in Tajikistan. ▶ (Opposite): A bucket drip irrigation system is demonstrated in West Africa.

and Depleted Soils

A March 2011 article in *The Economist,* on the role of nutrition in agricultural intensification, stated, "...Many [developing] countries' food policies are essentially about providing cheap grain, which is just a start. When people do not have enough calories, staples such as rice and wheat are vital: they provide the most calories per dollar. But when people have enough calories, they need to diversify towards vegetables, pulses and meat. In many places, irrigation and fertilizer subsidies, government marketing and other schemes implicitly or explicitly favor cereal farmers... And plant breeders tend to raise cereals, which maximize calories, not nutrients."

The argument for greater crop diversification in agricultural development is not new – nor is the fact that more nutritious fruits and vegetables are desperately needed in the daily diets of developing world populations. For example, the lack of Vitamin A causes half a million children to go blind every year; half of them die within a year as their other organs fail. Similarly, zinc deficiency impairs brain and motor functions and causes diarrhea and pneumonia, leading to about 400,000 deaths per year. A shortage of iron causes anemia, which weakens the immune system and affects half of all women of childbearing age in some impoverished countries.

As the staple foods in these regions, rice, wheat and maize are crucial in delivering much-needed daily calories, but they simply do not have the diverse nutrient value required to establish and maintain human health. It is this combined need to deliver both calories and dietary nutrients through modernized agricultural systems that has been a focus of the IFDC Research and Development Division (RDD) for the last several years.

"Increasing access to (and amounts of) both cereals and vegetables is critical, especially in the developing world," said Dr. Deborah Hellums, acting director of RDD. "But you can't simply decide that you want to introduce tomatoes or beans or onions into an agricultural system. Agronomic and market research has to be done for any given region of the world. Then best practices, systems and tools have to be developed to ensure that vegetable crops grow to their full potential – providing maximum benefits to consumers and profits to the farmers."

Holistic action by the RDD team and their IFDC colleagues in the field has contributed significantly to the expansion of solutions such as CASE, which builds sustainable markets; ISFM, which increases soil fertility; and the IFDC Natural Resource Management Program, which focuses on resource conservation and more efficient agro-input technologies. Combined, these approaches contribute to responsible, effective and sustainable agriculture systems.

This three-pronged effort is helping to introduce a wider range of vegetables in commercial quantities across the developing world. From Afghanistan, Bangladesh and Tajikistan, to dozens of countries in East and West Africa, vegetables are appearing in more local markets – and are being grown in such numbers that they have the potential to satisfy national and regional demand.

According to Hellums, sustainable, sector-specific agriculture requires strategic, participatory and holistic approaches to foster innovation. Developing effective, profitable and environmentally viable natural resource management technological options and social practices requires the participation of numerous stakeholders – national research and extension services, farmers and farmer-based organizations (FBOs), governments, NGOs, agro-dealers, credit institutions and trade associations.

▲ The FARMS project evaluated drip irrigation with plastic mulch and FDP in a demonstration plot raising tomatoes at a research station in Nangarhar Province, Afghanistan.

"We transfer yield-enhancing technologies to smallholder farmers," said Hellums. "Simultaneously, we build markets to ensure that clusters of smallholder farmers are part of a value chain that allows them to be profitable. That's how products like vegetables get into the food supply and onto the plate."

Vegetables Improving Soil Fertility

Water conservation, improved soil fertility, increased fertilizer efficiency, improved seeds and proper pest/disease control are all elements of successful vegetable cultivation. While vegetables are resource-intensive crops, some legumes have the ability to naturally build soil fertility. For example, field peas, chickpeas and lentils have a symbiotic relationship with nitrogen-fixing soil bacteria (rhizobia) that enable these plants to fix nitrogen, thereby increasing the available nitrogen soil content, rather than depleting it as most crops do.

It is this capability that makes legumes a favorite for mixed cropping systems (the cultivation of two or more crops side by side) such as cowpeas and maize, and in crop rotation. Cowpeas support microbial life and promote nitrogen fixation, while the residues enhance soil quality by improving infiltration and soil organic matter maintenance. These strategies are important factors along with other soil fertility management techniques, because vegetable crops can require three to eight times more fertilizer than other food crops.

Natural Resource Management Bears Fruit for Farmers and the Environment

RDD has experimented with a number of combined solutions in demonstration plots, farmers' fields and at research stations around the globe. Although environmental conditions vary greatly among the test areas, the solutions, in varying combinations, seem to be universal. One particularly successful solution was extensively tested in the Food for Agricultural Revitalization and Market Systems (FARMS) project in Afghanistan, and it significantly increased the profitable production of tomatoes and cabbages.

FARMS staff members began by working with local farmers to plant improved seeds in raised soil beds to protect the seeds from potential flooding. The use of FDP briquettes ensured that the chemical nutrients

were placed close to the root zone. FDP reduces the loss of fertilizer to the environment, and reduces the overall amount of fertilizer used. The soil beds were covered with plastic mulch to ensure that the beds remained free of pests and weeds. The mulch also trapped soil moisture and reduced ground temperature stress.

The irrigation system was also critically important, particularly in Afghanistan, which only receives an average of 25-30 centimeters (9.5-12 inches) of rainfall annually. An effective option was the use of the Chapin bucket drip irrigation system. Utilizing gravity flow, a single large plastic water drum was placed at the field edge and was connected to irrigation lines running the length of the crop rows. Small holes in the plastic tubing spaced parallel to the seed placement allowed water to slowly drip on a continuous basis. This system can also be used to deliver liquid fertilizers directly to the root zone of the vegetables. In the case of vegetables such as tomatoes, wooden stakes were added to lift the plant and its fruit off the ground. This helped prevent rot and disease.

The vegetable harvests were abundant. The outputs greatly surpassed the yields produced using traditional farmer practices. Environmental stress and the depletion of water were also dramatically reduced.

▲ Cooperative members sort potatoes to sell at a Malian market.

Similar techniques are now being implemented across Asia and Africa, and are showing success in the dual effort to protect natural resources while building sustainable vegetable markets. An example is the Grassroots Development of Agribusiness Clusters in Mali (DEBPEA) project, funded by the Embassy of the Kingdom of the Netherlands in Mali. This project, an extension of the 1000s+ project, is building and reinforcing agribusiness clusters with a focus on ISFM techniques that maximize resource use efficiency, increase soil fertility and decrease water use.

The potato and pepper value chains in particular have seen dramatic improvement, generating substantially increased yields. Other high nutrient value crops are showing up in rural and urban markets in greater abundance across East and West Africa due to similar IFDC efforts.

▲ A West African trader displays peppers for sale.

Vegetable Bio-Fortification

Increased vegetable yields and improved consumer access through more diverse markets are important. Therefore, human nutritional health is still an issue. Fruits, vegetables and grains all contain varying levels of nutrients. Therefore, increased consumption of a single vegetable is unlikely to significantly improve overall health.

Because all nutrient-delivering vegetables may not be available in the market simultaneously – or priced in a manner that is affordable to consumers – alternatives in the way people ingest these nutrients must be addressed. In the last 20 years, various strategies have been proposed to address dietary deficiencies, including mineral supplements, the fortification of processed food and the implementation of plant breeding programs.

Unfortunately, few of these efforts have gained traction; the solutions have been seen as either too costly for widespread implementation or require behavioral shifts in entire populations.

Of the various options, approaches such as bio-fortification are the most cost-effective and sustainable nutrient delivery solutions. IFDC has developed and continues to test fertilizers utilizing a new 'core' technology; the core is infused with specific nutrients (such as zinc) that are delivered to the plant through commercial fertilizer products during the growing cycle. Nutrients that otherwise may not have existed in the plant build up in the fruit of the plant, and are 'delivered' when consumed.

Field tests are underway to determine if micronutrients can be concentrated in a variety of crops as preliminary greenhouse trials have indicated. If successful, the core technology can be scaled out quickly due to the minimal changes required in existing fertilizer manufacturing processes.

Changing the Way We Think About Food Security

Dramatic increases in cereal crop production are needed to feed more than 9.2 billion people by 2050. But will that population of 2050 simply be better fed, or will it be healthier as well? By widening the scope of discussion beyond rice, wheat and maize to include vegetables (and their direct link to increased human health), we are closer to greater parity between the food groups – as well as a focus on market development, agro-input technology and resource conservation.

IFDC Project	Country/Region	Crop
Africa Fertilizer Efficiency Program	Burundi, Ghana, Rwanda	Various Vegetables
Agricultural Value Chain Mentorship Project	Ghana	Soybeans, Tomatoes
Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability (CATALIST)	Burundi, DRC, Rwanda	Potatoes
Grassroots Development of Agribusiness Clusters in Mali (DEBPEA)	Mali	Peppers
Food for Agricultural Revitalization and Market Systems in Afghanistan (FARMS)	Afghanistan	Tomatoes, Cabbage, Cucumbers
From Thousands to Millions (1000s*)	West Africa	Onions, Peppers, Tomatoes
Multi-Stakeholder Approach to Linking Technical Options, Policy and Market Access for Improved Land Productivity project (Northern Guinea Savanna Zone)	Nigeria	Cowpeas, Tomatoes
Kyrgyz Agro-Input Enterprise Development (KAED)	Kyrgyzstan	Potatoes, Fodder Beets
Market Development in the Fertilizer Sector of Bangladesh (Katalyst)	Bangladesh	Potatoes, Various Vegetables
Mainstreaming Pro-Poor Fertilizer Access and Innovative Practices in West Africa	West Africa	Tomatoes, Okra, Beans, Peanuts, Yams
Productive Agriculture in Tajikistan (PRO-APT)	Tajikistan	Onions
Seeds for Development in South Sudan	South Sudan	Various Vegetables

We transfer yield-enhancing technologies to smallholder farmers. And simultaneously, we build markets to ensure that clusters of smallholder farmers are part of a value chain that allows them to be profitable. That's how products like vegetables get into the food supply and onto the plate.

– Dr. Deborah Hellums, senior program support specialist

Locally Designed FDP Applicator

▲ Different types of FDP applicators were studied, designed and tested in 2010 and 2011: (A) Bangladeshi injector-applicator; (B) applicator prototype developed by a local blacksmith; and (C and D) local applicators developed by MATAGRI Conceptors.

FDP has been a proven IFDC technology across Asia for over 20 years. In Bangladesh, 1.8 million farmers of irrigated rice utilize FDP on over 1.2 million ha. Using this fertilizer technology, Bangladeshi farmers have increased rice yields by 20 percent on the same area of land, while decreasing total fertilizer use by 40 percent. The environmental impact – compared with the traditional practice of broadcasting urea onto the water – is significantly reduced as well, with substantially lower fertilizer nitrification/ denitrification rates due to deep placement in the oxygen-depleted soil layer.

However, the major constraint to widespread, FDP expansion in other agro-ecosystems is the additional labor required to hand-place FDP 'briquettes' into the soil. For a farmer who is a first-time user of the technology, this can add as many as 12 days of labor per hectare, though that time is reduced when the farmer becomes familiar with the placement process.

Nevertheless, any factor that is seen as a major constraint to technology expansion receives attention from IFDC research and development experts. In 2009, IFDC launched its FDP Initiative in Africa to introduce FDP technology to irrigated rice growers in eight countries in West Africa and six countries in East and Central Africa. Although other issues were quickly identified through field demonstrations, the major constraint to widespread farmer adoption has been the additional labor required for precision hand-placement.

Undaunted, FDP Initiative leaders sought to develop a locally designed and manufactured FDP applicator that was suited to local and regional agronomic conditions. Between late 2010 and late 2011, product development workshops were organized calling upon mechanics, machinists and inventors to create a fully functioning and reliable applicator suited to African soils, based on earlier applicator designs developed in Bangladesh.

In November 2011, a working group was organized in Mali. With lessons learned from earlier product development efforts, IFDC called upon machinery fabrication experts from six FDP pilot countries to participate. By the end of the fifth day of intensive design and fabrication, an operational prototype was produced.

The applicator was constructed of iron, with PVC plastic lining the interior of components that might come in contact with the fertilizer briquettes, thus protecting the metal parts from the corrosive qualities of urea. Testing at the development site and in field trials bore promising results. Of 50 FDP briquette injections into the soil, only two did not work, representing 96 percent relative efficiency compared with hand placement. Further tests have shown similar results.

Dr. Bidjokazo Fofana, IFDC scientist and leader of the FDP Initiative, is hopeful that the applicator will withstand broader testing. "This prototype is expected

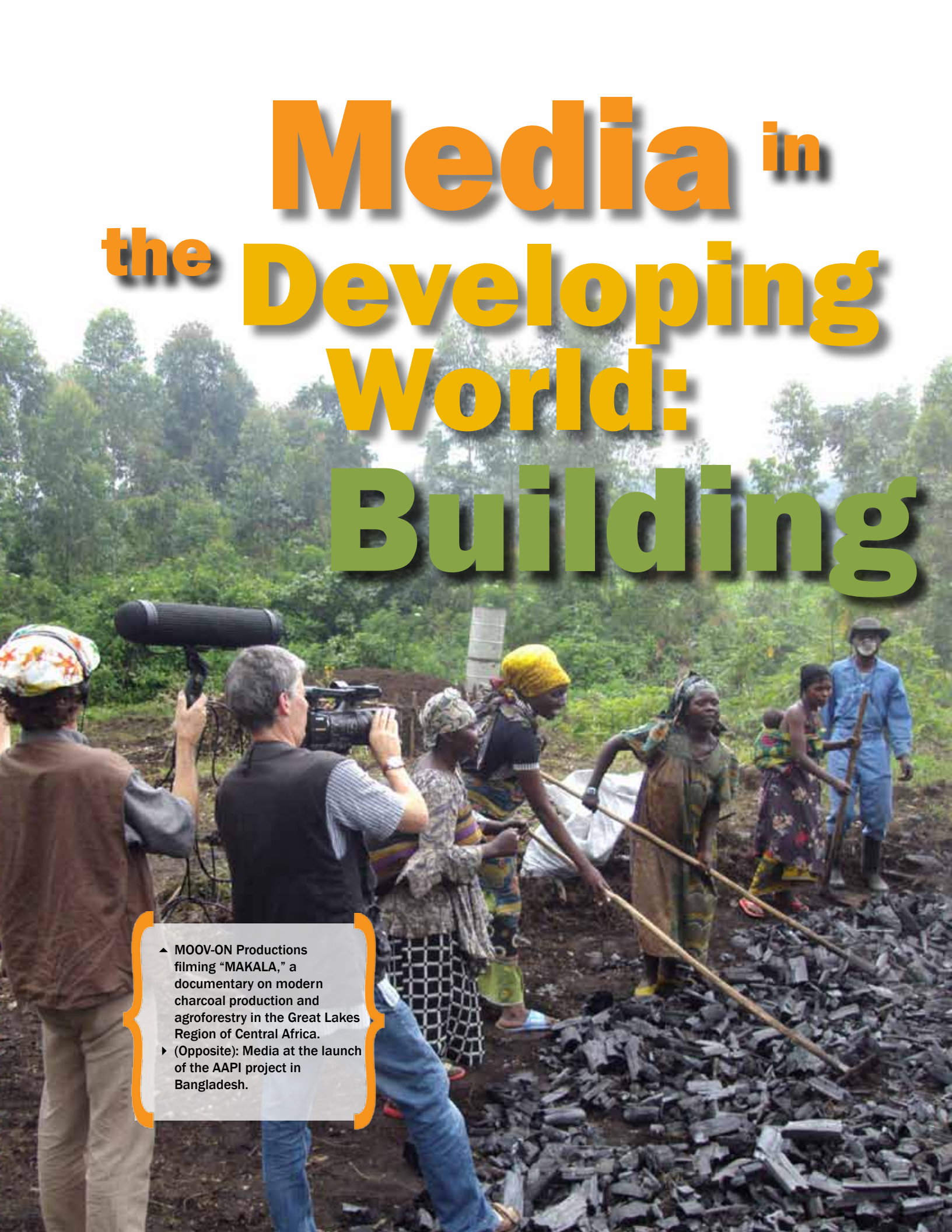
to significantly improve farmer performance, and reduce the time required for briquette placement," said Fofana. "This will be a very acceptable alternative for rice farmers; it is easy to operate and only weighs about 2 kilograms [4.4 pounds]." Fofana went on to suggest that initial tests showed the applicator to be equivalent to hand placement in terms of time, but that rate should increase as farmers become more familiar with the applicator. "I believe that if the tedious nature and physical stress of hand placement are eliminated in this way, it will spur future adoption," he said.

Estimates show that the material and labor costs to produce the prototype were about FCFA 49,000, or about US $95, which is expensive in the African market. IFDC and the working group are now seeking ways to streamline the manufacturing process to make the applicators more affordable for the region's farmers.

▲ An African farmer shows the yield increase potential of FDP/UDP fertilizer technology.

◀ Machine fabrication experts in Mali proudly display the West African FDP applicator prototype.

Media in the Developing World: Building



▲ MOOV-ON Productions filming “MAKALA,” a documentary on modern charcoal production and agroforestry in the Great Lakes Region of Central Africa.
▶ (Opposite): Media at the launch of the AAPI project in Bangladesh.

Over the last four decades, developed nations have witnessed a gradual but inevitable shift in the focus of radio and television programming. Both private and state-run media outlets were once the primary sources of information, reporting the events that impacted or even changed lives. Radio and television provided information on critical matters of state and other areas of national and international interest.

Newspapers, which had been the dominant source of news for 150 years in some countries, fell from the top position in the 1960s and 1970s when media consumers became accustomed to listening to or watching national and world events unfold live in front of them as they ate their dinners.

ACNielsen research shows that 70 percent of all Bangladeshis watch TV at least once per week, regardless of whether they own a TV. Radio is listened to far more frequently per week, with the highest use in rural areas. And when considering the number of family members, extended family and neighbors who share a single radio, those total listener numbers rise to rates similar to television.

IFDC has long-understood the importance of broadcast media in Bangladesh. The Center has maintained a continual presence in the country for nearly 35 years, allowing its permanent staff to become expertly familiar with media outreach. The AAPI project is the most recent example of how IFDC and the media are working together to get information to the nation's nearly 100 million citizens involved in agriculture.

Awareness

Today, there is another gradual shift in the way that news is consumed (primarily toward the Internet). While developed countries' television and radio networks still broadcast news (including multiple 24/7 channels), their dominance is slipping.

But in the developing world, the situation is different. The ratio of news and information to entertainment is substantially higher in developing countries. Broadcasting news and information to the rural populations in Asia and Africa is growing in importance, according to a 2009 LIRNEasia survey and a 2008 International Development Research Centre (IDRC) African broadcast media study. Using radio and TV to provide educational programming is also growing in these regions.

IFDC is at work in the areas profiled in this article – Bangladesh, Kyrgyzstan and SSA – which are also experiencing increases in rural media consumption.

Bangladesh

Of the three areas studied, Bangladesh has the second-highest instance of TV ownership at 52 percent, according to the 2009 LIRNEasia survey. The 13 percent radio ownership rate is misleading due to communal listening habits, where large numbers of rural villagers listen to a single radio.

"We utilize all facets of information dissemination – radio, television, print media and direct promotion," said Ishrat Jahan, IFDC country representative in Bangladesh. "We urge the media to participate in all of our public activities. We also work to produce and package interesting and entertaining content that delivers our most important messages. This helps to ensure that IFDC's information is received by our target audiences."

Beginning with an official project launch in which media are heavily involved, subsequent

> **We would not have the public recognition or the level of adoption if we did not have the support of the local and national media.**
>
> **– Ishrat Jahan, IFDC country representative in Bangladesh**

opportunities for coverage include award ceremonies, national workshops and special field visits. In particular, the field visits are often organized specifically for the benefit of the media, allowing them to document the technology and the personal success stories told by local farmers, agro-dealers and entrepreneurs.

FDP, and specifically urea deep placement (UDP), is the cornerstone technology that has dramatically increased irrigated rice production and incomes across the country, so it is most often that this is the subject of media coverage. UDP has increased irrigated rice yields by 20 percent or more on millions of hectares while using up to 40 percent less fertilizer. This translates to US $16-$22 million in government savings on fertilizer imports and subsidies annually.

The increase in farmer incomes is also covered often by the media. For farmers using UDP, net returns have averaged $188/ha – a 36 percent increase in annual income for every hectare of land. As average annual income in Bangladesh is $520, this is a substantial increase. UDP also continues to create new jobs. In 2009, UDP generated $10.6 million in additional rural wages; women were paid more than half of those wages.

Bangladeshi television networks such as ATN News, BTV, Bangla Vision, Channel i, RTV and others regularly report on UDP. Talk shows and television dramas also often promote the technology.

Radio has been equally effective in its ability to reach the entire nation with a focused message about rice intensification and increased incomes. UDP has been widely covered on radio news, live talk shows, folk songs and information programs. To support these media efforts and to further solidify the UDP 'brand,' the project distributes promotional items, from caps, t-shirts and carrying bags, to custom signs and billboards.

"We would not have the public recognition or the level of adoption if we did not have the support of the local and national media," Jahan said. "In Bangladesh, radio and television are critical in helping us to reach large audiences in a single broadcast. If you multiply that by 20 to 50 broadcasts or rebroadcasts in a year, we've reached far more people than we might have any other way."

Kyrgyzstan

The Kyrgyz Republic is a nation about the size of an average midwestern state in the U.S. (and similar in size to Syria or Belarus) and is home to 5.5 million people.

This relatively small population has access to over 35 radio stations and nearly 30 television stations.

InterMedia research (2008-09) shows that over 90 percent of Kyrgyz households own or have regular access to a television, while 44 percent own a radio, translating to over 4.9 million viewers and 2.5 million listeners.

Not long ago the broadcast media environment was different. There were just as many radio and television stations, but the independent stations often found their signals blocked by the government, which preferred that news was filtered through state-controlled media. Today, the broadcast media environment is more open.

The change in political attitudes opened the door for NGOs to use the media more effectively to promote social and economic development programs that were of use to the Kyrgyz audiences in their daily lives. IFDC's KAED project, funded by USAID, has been working in Kyrgyzstan continuously since 2001, building sustainable agricultural systems and an effective national agro-dealer network. Staff members have worked with broadcast media in the dissemination of project news and information. Broadcasting has become a particularly important tool as more farmers have gained greater media access.

The KAED project is using broadcast media as an effective tool to reach the country's smallholder farmers and agro-dealers. "A vibrant agriculture sector is important to the overall Kyrgyz economy," said Jyldyz Niyazalieva, KAED outreach specialist. "Most farm families have access to television and radio. Our ongoing outreach campaign includes broadcasting agricultural programs on television and radio, publishing technical articles in newspapers and arranging media coverage of KAED events, among other efforts." KAED has partnered with E1TR public television for the past three years to produce and broadcast a Kyrgyz-language television program, "Advice to the Farmers." The 10-minute program is broadcast twice a month and covers important agricultural topics that help transfer technical knowledge to farmers. "The program has been very popular," said Niyazalieva. "Entrepreneurs, government officials and others involved in the agricultural sector say they watch the program regularly. The producer has received many requests for repeat broadcasts."

The programs that have aired on E1TR focused on various agricultural topics including increasing the production of high-quality wheat, the advantages of using modern agricultural machinery, improving livestock, soil properties and the proper use of fertilizers. The videos have also been used to announce agricultural exhibitions and field days, as well as programs such as the Seed Assistance Voucher Program and the Agricultural Seed Investment Support Program. Both are implemented under the special Economic Development Fund created by the U.S. Government and the Government of Kyrgyzstan.

Concurrent with television broadcast efforts, KAED has worked closely with the Kyrgyz national radio station to produce "Land and the People." KAED regularly invites the program producer to its events, such as field days and roundtable discussions, from which content for the radio show is developed. The program covers KAED's major activities and events and airs interviews with IFDC agricultural agronomists and livestock specialists on modern practices. Not surprisingly, there are numerous call-ins for additional KAED project information.

"The broadcast media efforts have helped to make IFDC and the KAED project well-known names throughout the country," said Niyazalieva. "And that is certainly the point of broadcast media. The more that people know about our efforts, the more quickly we can help improve agricultural production in Kyrgyzstan."

Africa

According to Dataxis Intelligence and other sources, only about 47 percent of African households will have a television by the end of 2012 (the majority will be in North Africa). The most popular African broadcast medium is radio. Eight of 10 households own a radio and there are over 200 million radios on the continent.

The number of radio stations within most SSA countries has also grown, with a mix of language-specific stations. As examples, the Democratic Republic of Congo (DRC) has 250 radio stations; Ghana has 130; Mali has about 300 radio stations; and Uganda has over 150 stations.

◂ (Opposite): USAID Country Representative Pat Shapiro (second from left) during a visit to Markaz, Kyrgyzstan.
▴ Posing for the media: In 2010, Kyrgyzstan Minister of Agriculture, Kubat Kaseyinov, received symbolic bags of seeds from Tatiana C. Gfoeller, U.S. Ambassador to Kyrgyzstan at the USAID Emergency Seed Assistance Program launch.

In recent research conducted by Balancing Act, an African media consultancy, the firm asked representative samples of listeners from nine SSA countries about the radio programs they listened to on a daily basis. The results show that radio is listened to almost equally for news and music. An average of 57 percent across all nine countries said they listened to the radio daily for news; 58 percent listened to music. These categories are followed by sports (29 percent), religion (20 percent), call-in shows (18 percent), informational programs (13 percent) and talk programs (9 percent).

These statistics were particularly interesting in that the promotion of agricultural intensification over radio crosses many of these platforms in its relevance to both the program formats (news, call-in shows, informational shows and talk programs) and the peri-urban and rural listening audiences.

One of the primary advantages of radio is that it is portable and can be listened to while performing other activities. Balancing Act research also noted that news-seeking behavior in North Africa, in particular, favors newspapers much more strongly than in SSA, a reminder of how important radio is in serving poor populations with news and information. It is also a reminder of the economic disparity between the two regions.

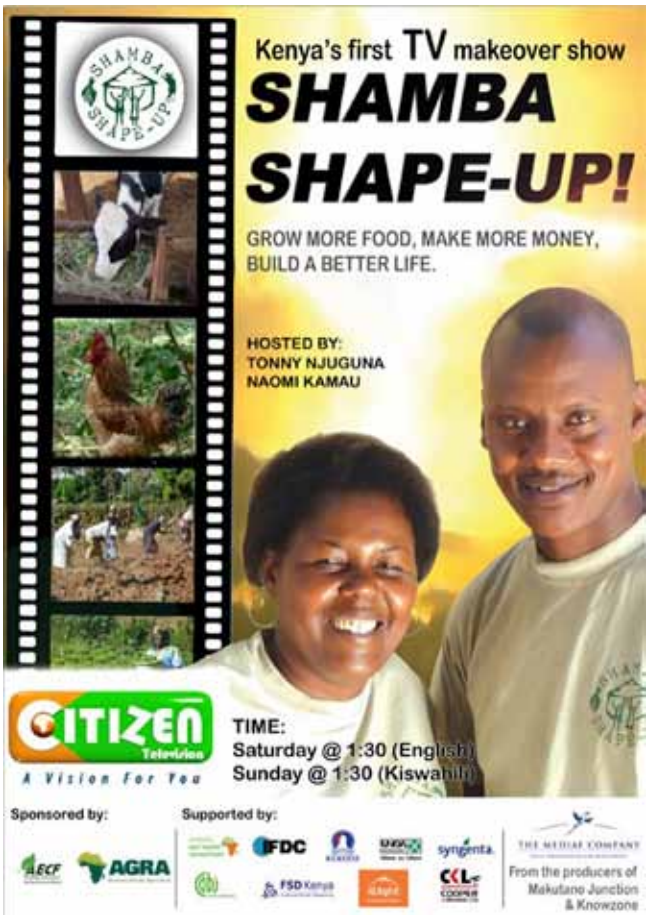
One of the main challenges for developmental content on African radio and television is the need to produce programs on a tight budget, which means that potentially high-impact educational programs are too expensive to produce. Therefore, they often are produced by independent production houses and funded by donor aid.

Such is the case with Kenya's "Shamba Shape-Up." This half-hour farm 'makeover' television series first aired in March. It features one Kenyan farm family per episode and addresses specific improvements to their farm, or shamba. Along with improvements to the home, barn, water conservation and storage facilities, each episode includes agricultural experts who demonstrate practical methods and technologies that improve farm productivity. The series, produced by Mediae, uses the tagline, "Grow more food, make more money, build a better life."

The key to the program's future longevity, apart from steady viewership, is the way that the program is financed. The series is supported by an array of sponsors and supporters, most notably AGRA and the Africa Enterprise Challenge Fund. IFDC is also among the supporters, and has provided expert advice and program content on fertilizer use, ISFM and cropping systems. This type of alliance between media and the development community may be emulated as a means of promoting agricultural intensification to mass audiences.

A large amount of development content is produced in this way, with radio and television stations charging airtime to NGOs and civil society organizations to air their programs. According to the 2008 IDRC study, African television broadcasters are generally not as equipped to prepare and produce programming as their counterparts in the developed world, and most radio studios have only basic editing equipment. This forces most national and community radio stations toward a live broadcast format, and away from complicated and costly pre-recorded and edited magazine-style programs, features and dramas. As such, African airwaves are filled with live programs such as news, hosted music shows, call-in programs and studio discussions.

In West Africa, radio and television broadcasters have been strong supporters of IFDC project efforts. IFDC's North and West Africa Division regularly organizes radio



talk shows, discussion/information programs and call-in shows. According to Dr. Kofi Debrah, chief of party for the MCC Northern Agricultural Zone Project and IFDC country representative in Ghana, "Television news reporting and airings of project documentary videos allow IFDC projects to maximize audience exposure to various agricultural intensification efforts. Ghana's TV3 has been particularly supportive in these efforts."

In central Africa, several successful media integration activities have been carried out by two projects, Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability (CATALIST) and Sustainable Energy Production Through Woodlots and Agroforestry (SEW). The projects serve Burundi, the DRC and Rwanda and have been particularly aggressive in utilizing national media to promote their messages. Over the last two years, the projects used radio programs to effectively spread information to smallholder farmers across these countries.

IFDC provided information to radio stations in the region, produced programming and worked with partner organizations to provide additional content. IFDC project staff worked with MINAGRI and Caritas in Rwanda and the *Federation des Organisations des Producteurs du Congo* (FOPAC) in DRC's North Kivu Province, among other partners, to facilitate the radio programs.

"The program segments varied in length – one- two- and 30-minutes," explained John Wendt, ESAFD Natural Resources Program leader. "The segments were rebroadcast on stations multiple times during agricultural programming time slots. In addition, segments were duplicated and rebroadcast on other stations throughout the region. The programming took various forms – news, humorous skits, call-in question-and-answer sessions and interviews with subject matter experts and farmers in the field."

Even with its much lower use compared with radio, television was also considered an important medium to CATALIST and SEW staff, who facilitated the national airing of two high-quality films. "MAKALA" shows the detailed steps involved in modern charcoal production and reviews agroforestry programs in the three nations; "Our Soil, Our Future" explains the benefits of ISFM techniques in sustainable agricultural production. Both aired in prime time slots in the three nations last year. (Both can also be viewed on the IFDC website.)

In addition to radio and television programming, CATALIST and SEW staff held media training workshops. Media training is often used by IFDC to increase the knowledge of developing world journalists about agricultural topics. These multi-day workshops educated them on various agricultural and reforestation topics in a classroom setting and provided opportunities to interview farmers and charcoal producers at their worksites. Since the workshop, several attendees founded the Association of Agricultural Journalists of the DRC, which is helping professionalize the country's media.

"Radio is uniquely suited to the African audience. It is an aural and portable medium in a continent that is predominantly non-literate and has communal living patterns."

– 2008 IDRC report

The Future of Broadcast Media in the Developing World

It is unlikely that the influence of the broadcast media in the developing world will wane in the coming decades. Billions will depend on radio and television as their primary sources of news and information. But there will be a growing number of technological options that will shape the way these populations get their news.

Cellular phones are ranked third in the developing world in how news and information are received. A small but growing number of Africans are accessing news on their mobile phones via short message service (SMS).

- **(Opposite top): A radio broadcast in Ghana. Photo courtesy of the Bill & Melinda Gates Foundation.**
- **(Opposite bottom): A promotional poster for the Kenyan TV show, "Shamba Shape-Up."**

▲ Filming a 'walking tractor's' part in the cultivation of rice on the Ruzizi Plain of Central Africa.

In Kenya, six percent of adults reported seeking news from their cellular service provider, while in Ghana, the total was nine percent. Bangladesh is showing similar trends. In addition, IFDC and its partners have worked for years (particularly in Africa) to develop SMS programs that deliver specific agricultural information such as current prices for agro-inputs and market prices for the sale of produce.

As national and regional infrastructures develop, the Internet will also become a growing source for news; some nations are developing capacity for this technology more quickly than others. As a consequence, this will lead to individual reporting through social media. However, the literacy rate among African nations may serve as a significant constraint in the rapid adoption of Internet technology.

It is impossible to say how these new technologies will be adapted to the specific challenges facing developing countries. However, each evening there will be a group of villagers listening to a radio somewhere in Africa or Bangladesh, and an extended family will be watching a television in Kyrgyzstan. With the efforts of the many NGOs supporting social, economic and agricultural development, perhaps they will be watching or listening to a program that will change their lives forever.

Media Consumption in Select Regions of IFDC Intervention

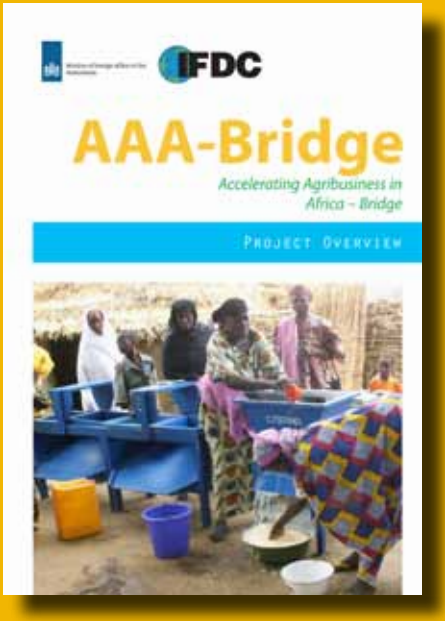
	Bangladesh	Kyrgyzstan	Sub-Saharan Africa (SSA)
Own a Television*	52% (2009)	90% (2008)	47%** (est. 2012)
Own a Radio*	13%	44%	80%
Own a Cell Phone	41%	75%	30%

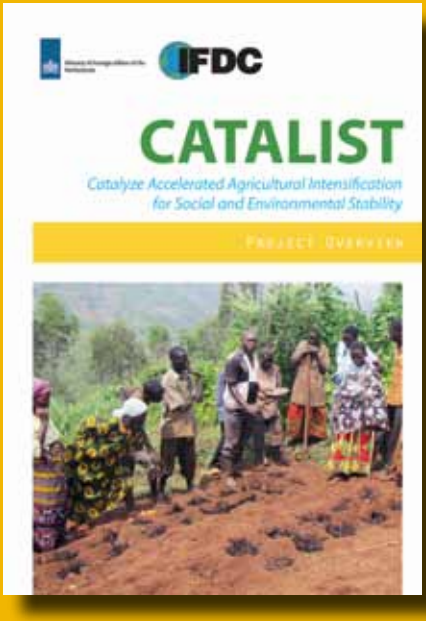
*Television and radio percentages are in terms of households; the number of individuals viewing or listening to programming is considered to be exponentially higher in each market due to family or village communal media consumption habits.

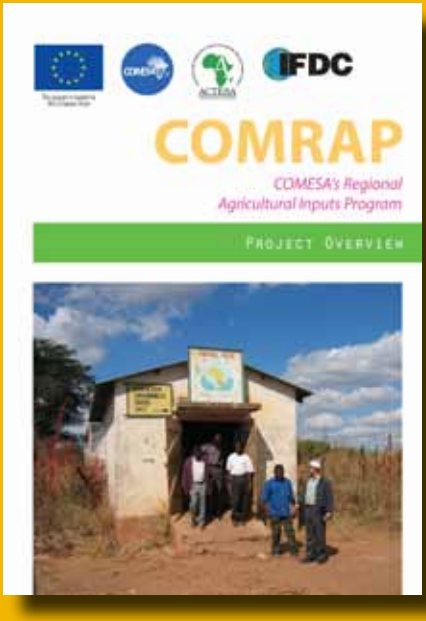
**Based on 2010 Dataxis Intelligence survey. Indicates projected television household ownership for North Africa and SSA combined. The largest increase in ownership is expected to take place in the more developed North African countries. No specific data was available for SSA.

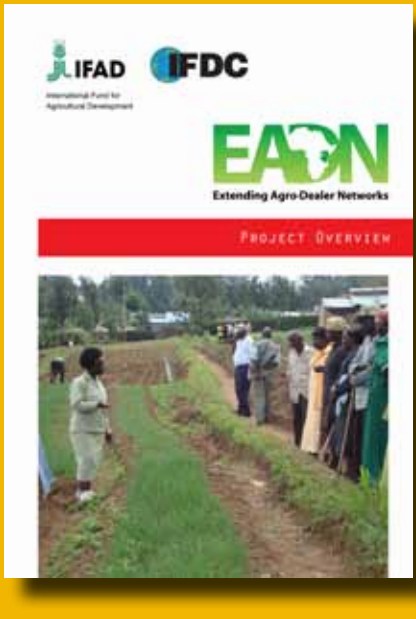
Project Overviews

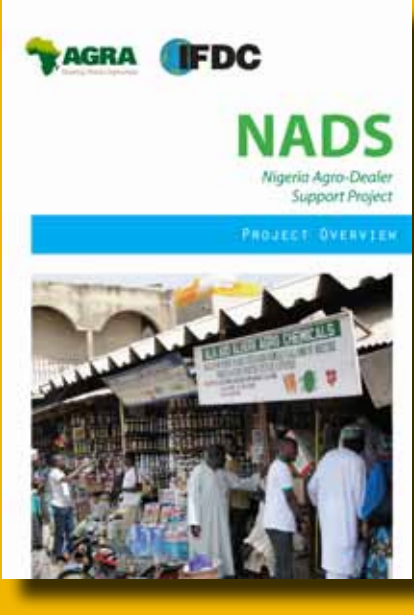
Six IFDC projects in Africa ended in 2011 and/or earlier this year. A final report is generally written for a project's funding agency. IFDC's Information and Communications Unit edited the final reports and developed overviews of the six projects. These overviews provide information about the projects' goals and objectives, scope and the results achieved. Copies of the project overviews are found on the IFDC website at: www.ifdc.org/projects.

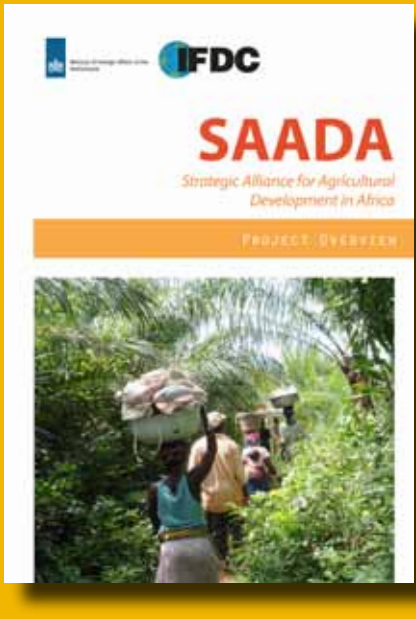






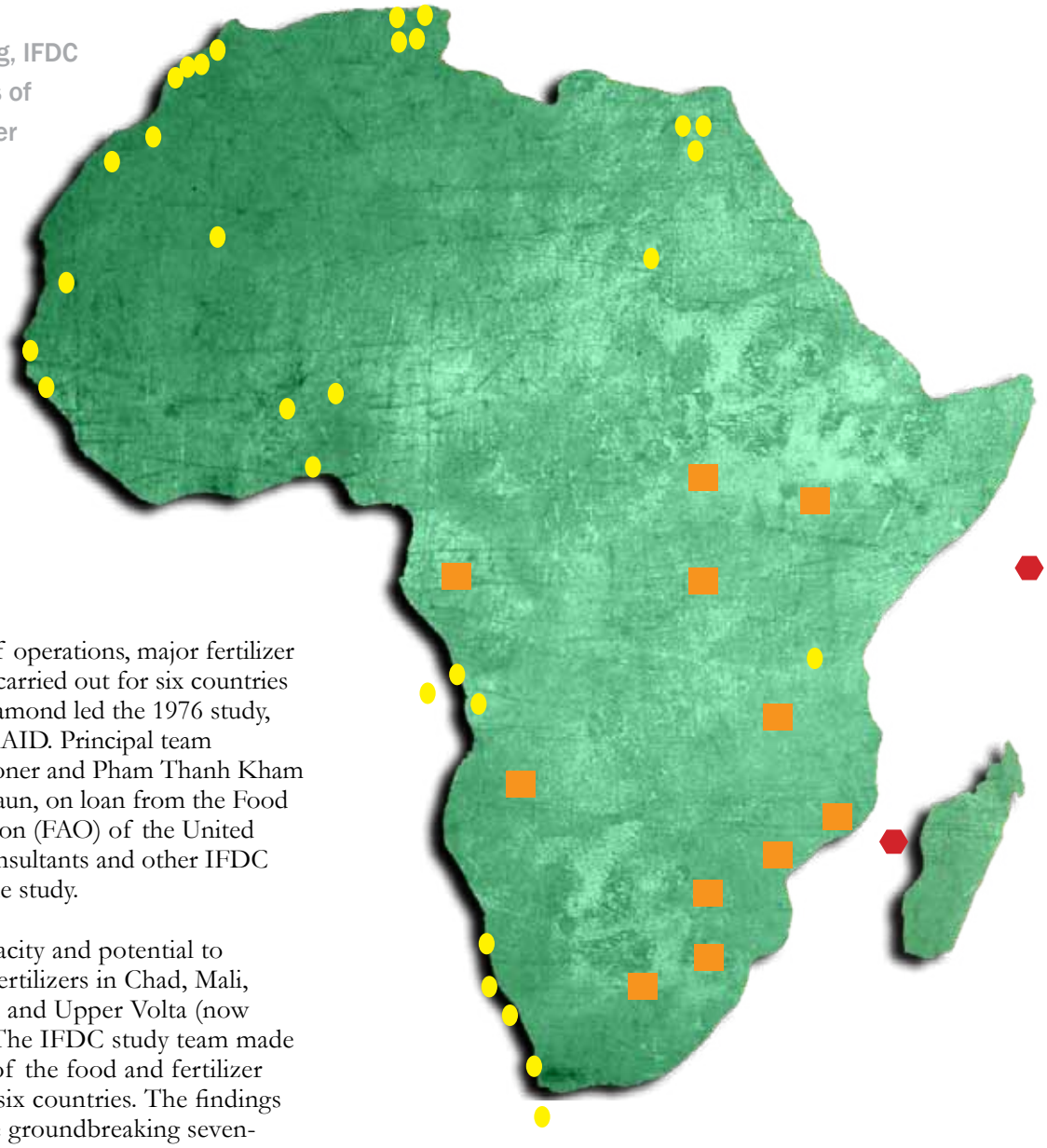






African Fertilizer Studies During IFDC's First Decade

Almost since its founding, IFDC has conducted hundreds of different types of fertilizer studies in developing countries around the world. This article highlights several studies done in Africa during IFDC's first decade of service.



Phosphate Deposits in Africa

- Sedimentary Deposits
- Island Deposits
- Igneous Deposits

1976 West Africa Fertilizer Study

During IFDC's first year of operations, major fertilizer development studies were carried out for six countries in West Africa. Dr. Ray Diamond led the 1976 study, funded by a grant from USAID. Principal team members were Don Waggoner and Pham Thanh Kham of IFDC and Dr. Hans Braun, on loan from the Food and Agriculture Organization (FAO) of the United Nations. Several special consultants and other IFDC staff also contributed to the study.

IFDC determined the capacity and potential to produce, market and use fertilizers in Chad, Mali, Mauritania, Niger, Senegal and Upper Volta (now known as Burkina Faso). The IFDC study team made a preliminary assessment of the food and fertilizer situation in each of these six countries. The findings were later published in the groundbreaking seven-volume *West Africa Fertilizer Study*.

Looming food deficits were the impetus for the study. Projections at that time were that by 1985, food production in the six-country area would fall as much as three mmt short in staple crops such as millet, sorghum and rice. However, considerable potential existed to expand agriculture production in the region to narrow the impending shortfall, including increased productivity on existing cropland through the use of fertilizer and other improved agricultural practices (such as animal traction in addition to human labor).

IFDC fertilizer research and market studies are vital to creating...

an enabling environment for building agricultural markets.

25 Years IFDC – Committed to Africa

These photos represent nutrient resources and modern agricultural technologies necessary to increase food production for a growing population.

IFDC Phosphate Research Begins in 1977

IFDC's phosphate field research program was initiated with a grant from IDRC in 1977. The research project was based at the International Center for Tropical Agriculture (CIAT), and focused on the acidic and infertile soils of tropical Latin America. During this period IFDC was developing its capabilities to produce modified products, such as partially acidulated phosphate rock, as part of its core-funded research.

As a result of research findings generated from 1977 to 1981 at CIAT, IFDC's phosphate program spread from Latin America to the African countries of Mali and Upper Volta (Burkina Faso) in 1981. The phosphate project took on a new dimension in not only geography but also types of crops. Originally the project dealt with beans, rice and forage grasses, but the potential of phosphate rock was then evaluated on crops such as potatoes, upland rice, groundnuts and cassava. An added dimension was the socio-economic aspect – an IFDC sociologist based at CIAT investigated farmer acceptance of finely ground phosphate as a fertilizer.

▼ An ore train transports phosphate rock from a mine in Togo.

▲ The elements nitrogen (N), phosphorus (P) and potassium (K) are the primary nutrients in fertilizers. They are often combined into an NPK blend.

First African NPK Study

During 1977, IFDC also began research in Senegal on millet and groundnuts. There was great concern because food production in the West African country had not increased significantly since 1960. Average yields of millet, the staple food of the country's rural population, were about 500 kg/ha using traditional farming methods. IFDC scientists knew that crop yields in Senegal would increase if modern agricultural techniques were employed and fertilizer use was increased.

The research continued, and in 1979 agronomists from IFDC and the *Societe de Developpement et de Vulgarisation Agricole* (SODEVA) of the Government of Senegal learned that if fertilizer use was increased by only 20 percent, an additional 81,000 mt of millet could be produced. IFDC agronomists served as consultants to SODEVA to study the response of millet and groundnuts to fertilizers containing nitrogen (N), phosphorus (P) and potassium (K) singularly and in combinations.

The study indicated that optimum nutrient levels of N and P_2O_5 grew millet valued at three to five times the cost of the fertilizer. In groundnuts, optimum application rates gave responses of 3.0 to 7.0 kg of groundnuts per kg of P_2O_5 and were valued at 2.3 to 5.1 times the cost of the fertilizer used to nourish the crop.

Sri Lanka Phosphate Rock

With funding from *Dienst Internationale Technische Hulp* (DITH) of the Netherlands, IFDC completed a laboratory and greenhouse study of potential utilization of phosphate rock from Eppawala, Sri Lanka, in early

▲ Visitors tour phosphate rock deposits in Tanzania.

1980. DITH provided the technical results to the State Mining and Mineral Development Corporation of Sri Lanka (the organization responsible for project implementation). IFDC formulated a number of products in small quantities for agronomic evaluation. The potential of direct application of the phosphate rock to crops was also investigated.

The high-grade ore was treated to reduce the main impurities to acceptable levels. Conversion of the rock to wet-process phosphoric acid resulted in a filter-grade acid containing 27 percent P_2O_5. Ammoniation of the concentrated acid produced excellent diammonium phosphate (DAP) and monoammonium phosphate (MAP). Superphosphates (single [SSP] and triple [TSP]), rhenania-type phosphate (RHP) and a fused calcium-magnesium phosphate (FMP) were also produced for agronomic testing.

The agronomic evaluation indicated that TSP, SSP and RHP were the most effective of the materials tested. Unfortunately, the finely ground Eppawala rock was ineffective as a direct application source of phosphorus. MAP and DAP were produced but not tested.

Preliminary cost estimates indicated that a facility producing SSP offered the lowest P_2O_5 cost, followed by those producing TSP and DAP. The results of the studies indicated that except for its corrosive chloride content, Eppawala rock was a satisfactory raw material for several fertilizer processes and should be tested on a larger scale to provide the necessary data for a final economic evaluation.

Egyptian Phosphate Rock Study

At the request of the Egyptian General Executive Organization for the Industrial and Mining Complexes, IFDC carried out a seven-month program of bench-scale tests on the conversion of Abu Tartur matrix and concentrate into wet-process phosphoric acid. Greenhouse evaluations of both the matrix and the concentrate as a direct application fertilizer were also conducted.

In cooperation with the Tennessee Valley Authority (TVA), IFDC determined the mineral and chemical compositions of the ores. The Abu Tartur matrix was a medium-grade ore (26.5 percent P_2O_5) containing gypsum, montmorillonite and dolomite as the principal diluents. The concentrate was a high-grade ore (32 percent P_2O_5) comparatively low in impurities. IFDC scientists concluded that the ore was a good prospect for commercialization. The concentrate also exhibited a medium to high potential for direct application to acidic soils and appeared to be satisfactory feed for phosphoric acid production.

IFAD Project Focused on Phosphorus and Nitrogen

A fertilizer research project to increase food production through more effective integrated nitrogen and phosphate fertilizer application in both the semi-arid and humid tropics of Africa was funded by the International Fund for Agricultural Development (IFAD) and began in 1981.

The project's first phase had three objectives: to investigate the production and use of cheaper sources of phosphorus; to study more efficient methods of management of nitrogen fertilizer; and to develop more effective and efficient integrated fertilizer application systems in both the wet and dry areas of Africa.

▲ A phosphate rock granulation plant in Tanzania.

Initially, two IFDC soil scientists were stationed in Africa – Dr. Andre Bationo at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Sahelien Centre in Niamey, Niger, and Dr. Spider Mughogho at the International Institute of Tropical Agriculture (IITA) in Ibadan, Nigeria. Two other IFDC soil scientists, Dr. Uzo Mokwunye and Dr. Paul Vlek, worked on the project at IFDC's headquarters.

As the project was beginning, Mokwunye said, "The objectives of the phosphate component of the research are to determine the effectiveness of finely ground phosphate rock for food crop production, to determine the effectiveness of partially acidulated phosphate as a source of both phosphorus and sulfur for food crops, and to determine the most appropriate phosphorus fertilizer technology for food crops. The overriding principle is to determine how fertilizer sources will perform in different cropping sequences in common use in these two agro-climatic zones."

The nitrogen management experiments were conducted in Niger and Nigeria and monitored reactions of various nitrogen sources, methods of applying different sources to each crop and the form in which different sources were applied.

The low market demand for fertilizers, the high cost of energy to produce fully acidulated phosphate fertilizers and the cost to build a nitrogen fertilizer production facility all hampered the growth of the fertilizer industry in Africa.

According to Bationo, "The project represented an integration of basic and applied research, development and evaluation at several international centers with considerable expertise to support the effort. This regional effort was meant not only to help the small farmers grow more food but to aid in the development of personnel required to establish a viable Africa fertilizer industry."

IFDC's African fertilizer program produced striking agronomic results. With financial assistance from IFAD, it was expanded in terms of ecological zones, crops, staff and collaborators. According to Vlek, "During 1982-84 IFDC succeeded in establishing a database that was unique for Sub-Saharan Africa. The information was generated for scientists and planners to use in planning future research or making decisions regarding the fertilizer sector."

The project was expanded in geographical area from the two original countries (Niger and Nigeria) and covered nine additional countries (Cameroon, Gambia, Kenya, Liberia, Malawi, Senegal, Sierra

Leone, Togo and Upper Volta). Also, phosphate rocks from Zambia and Zimbabwe were evaluated in IFDC's laboratories and pilot plant.

The number of crops under study was also expanded. The original crops included cowpeas, maize and millet. Beans, cassava, groundnuts, cocoyam and sorghum were added.

Many soils in SSA were (and continue to be) severely deficient in phosphorus. In some cases, application rates of commercial fertilizers necessary to produce good yields are extremely high. At least 26 countries in SSA have some sort of phosphate ores (see map on page 46); exploitation of these ores could save financial resources. The IFAD project showed African countries how they could use moderate amounts of phosphate fertilizer produced from their own resources to increase crop yields.

The results from one year's tests on farmers' fields showed that partially acidulated phosphate rock produced from Niger ore yielded agronomic results that were as good as those of TSP or SSP. For example, at Gobery, Niger, partially acidulated phosphate rock applied at a rate of 20 kg/ha increased the yield of millet by 280 percent above that produced in plots where no phosphorus was applied. In Nigeria, phosphate rock from Togo (50 percent acidulation) was tested at Agricultural Development Project farms (a World Bank project). At every site where a response to phosphorus was obtained, the phosphate rock generated agronomic results superior to compound fertilizer 15-15-15 or TSP and as good as SSP.

IFDC collaborators at the national level included: the Institute of Agricultural Research, Cameroon; the University of Nairobi, Kenya; the University of Liberia, Liberia; the *Institut National de Recherches Agronomiques du Niger*, Niger; Njala University, Sierra Leone; *Institut Senegalaise de Recherches Agricoles*, Senegal; and the *Direction des Etudes Pedologiques et de l'Ecologie Generale*, Togo.

As evidenced by its expansion and accomplishments during Phase I, by late 1984 the IFAD project had become one of the most important research projects of IFDC's first decade.

Ugandan Phosphate Rock Evaluated

In October 1982 the Bearden-Potter Corporation of Lakeland, Florida (consultants to the Government of Uganda), requested that IFDC determine the potential of Ugandan phosphate rock as a raw material for the production of SSP. Bearden-Potter, a private corporation, had been engaged by the World Bank to conduct a complete feasibility and engineering study for reopening an SSP production facility that had been closed in 1978 because of civil war in Uganda.

IFDC was also requested to do SSP batch production tests and to demonstrate the process in a continuous laboratory-scale unit. IFDC arranged to test the product in Kenya (the potential market for this product).

Dr. Amit Roy (now IFDC's president and CEO) was then a special project engineer. He led the production studies for this project. At that time Roy said, "The plan is to set up an SSP plant in Uganda. We will submit our final report to Bearden-Potter by the end of July 1984 so that the company can submit its report to the World Bank. That report will then be used to attract private or public investors."

The project's significance was that a potential market for SSP existed in Uganda and neighboring countries. SSP manufactured in Uganda could provide a partial substitute for imports.

▼ **Members of a farmers' association take soil samples.**

Mali Receives an Added Boost

In early 1986 IFDC biometrician Dr. Julio Henao, who was working on the Mali Phosphate project, indicated that a potential 'breadbasket' for the entire country existed in the southern part of Mali. The region had good soils, well-distributed rainfall and good farm-to-market roads.

Henao stated that farmers in southern Mali could have an additional advantage by using fertilizer produced from their country's indigenous phosphate resources. The project recorded farm-level results from a cotton/maize cropping system that showed a 100 percent increase over the average yields of the check plots when 60 kg of P_2O_5/ha as phosphate rock was applied and other nutrients were used in optimal amounts.

With funding from Canada's IDRC that began in 1981, IFDC had been assisting the *Institut d'Economie Rurale* (IER) in Mali to find ways to use the country's indigenous phosphate resource (located in the Tilemsi Valley). Additional funding was provided by the World Bank to verify the research results on farmers' fields in cotton-growing areas.

According to Henao, one of the key project achievements was the refinement of both the approach and methodology in fertilizer research. He said at the time, "In collaboration with national and international institutions, such as IER, the *Compagnie Malienne Pour le Developpement des Textiles*, IITA and ICRISAT, IFDC developed a strategy for research. Information resulting from experiments is shared by participating institutions, and results are tested on farmers' fields and extrapolated to regions with similar environments. We are making this research viable; it is being tested over a range of environmental conditions and management factors, including various cropping systems." Henao continued, "The project is a model for the development of other national programs. It is strengthening the linkage between research and the extension service. After only four years the project is already producing specific recommendations for the use of phosphate rock to replace the soluble phosphate component of conventional fertilizer."

◂ **Farmers are interviewed about using improved crop management practices in West Africa.**

Phosphate Research Assistance to Tunisian Fertilizer Industry

Collaboration with universities on the international level has been an integral part of IFDC's research program since its inception. Cooperation with a Tunisian university in 1984-1985 is an early example. Dr. Salah Salem Romdhane, a professor of chemical engineering at the *Ecole National d'Ingenieurs* in Gabes, Tunisia, asked to come to IFDC to participate in a phosphate research program that could have implications for the fertilizer industry of his country and possibly others.

Tunisia was expanding its phosphate fertilizer production base, and as it did so, found it necessary to use a wider range of phosphate rock sources, including some of lower quality. Phosphoric acid made from this phosphate rock was used in Tunisian fertilizer plants to produce DAP, the most popular phosphate fertilizer because of its high analysis, high availability and good physical properties. Maintaining these good chemical and physical properties becomes more difficult with the use of lower-quality phosphate rock.

With support from the Academy for Educational Development in Washington, D.C., Romdhane participated in a research program at IFDC on the problems associated with the use of low-quality rock. Romdhane came to IFDC for two periods of training, during April-June 1984 and April-June 1985. The purpose of Romdhane's training program was to learn the technical skills needed to provide support to the Tunisian fertilizer industry.

"I had the chance to interact with IFDC/TVA staff involved in this work," Romdhane said in 1985. "My main interest was examining DAP samples prepared from commercial phosphoric acids with various types and levels of impurities. My work concerned the identification of water-insoluble compounds that are formed because of the impurities in the acids." He learned the necessary techniques and was then able to interact with the Tunisian fertilizer industry in an effort to solve its problem.

▸ A worker operates machinery at a phosphate rock granulation plant.

New Association of Agricultural Research Centers Established

Discussing the new association are (from left to right) Dr. Faisal Taha, ICBA director of technical programs; Dr. Mark Holderness, GFAR executive secretary; Dr. Trevor Nicholls, CABI director-general; Dr. José Graziano da Silva, FAO director-general; Dr. J. Coosje Hoogendoorn, INBAR director-general; Dr. Richard Jones, agribusiness program leader for IFDC's East and Southern Africa Division; and Dr. Sarah Simons, CABI director and international liaison.

IFDC was among nine research and development centers that launched the Association of International Research Centers for Agriculture (AIRCA) on March 2, 2012. AIRCA was established as a platform for the organizations to make a combined impact on the Millennium Development Goals, particularly the eradication of extreme hunger and poverty.

"This partnership will help IFDC and other participating research centers collaborate more effectively to improve agricultural development and food security in developing countries," said Dr. Richard Jones, agribusiness program leader for IFDC's East and Southern Africa Division. Jones represented Dr. Amit Roy, IFDC president and CEO, during the first AIRCA meeting at FAO in Rome, Italy. The Global Forum on Agricultural Research (GFAR) hosted the meeting, and FAO Director-General Dr. José Graziano da Silva addressed the organization representatives.

"A strong orientation toward problem-solving at a system level, rather than a focus on a single commodity, grounds AIRCA's research and development actions in the day-to-day challenges experienced and articulated by the poor farming community in the developing world," said Dr. Dyno Keatinge, vice-chair of the new association and director-general of the World Vegetable Center (AVRDC).

The participating research centers have expertise in helping developing countries build their own research and development capacity to address agricultural and health-related issues. The diverse expertise and global reach of the organizations provide AIRCA with the linkages and capacity necessary to develop and execute scientific programs with strong local support and a high probability of attaining sustainable development outcomes. AIRCA will address flooding, drought, salinity, soil infertility, pests and diseases and their agricultural impact on human diets, health and prosperity.

AIRCA Partner Institutions

African Insect Science for Food and Health (icipe)
Centre for Agricultural Bioscience International (CABI)
Crops for the Future (CFF)
International Center for Biosaline Agriculture (ICBA)
International Centre for Integrated Mountain Development (ICIMOD)
IFDC
International Network for Bamboo and Rattan (INBAR)
Tropical Agricultural Research and Higher Education Center (CATIE)
World Vegetable Center (AVRDC)

United Nation's International Year of Cooperatives 2012

The United Nations' (UN) General Assembly has declared 2012 as "the International Year of Cooperatives, highlighting the contribution of cooperatives to socio-economic development, particularly their impact on poverty reduction, employment generation and social integration."

With the theme of 'Cooperative Enterprises Build a Better World,' the International Year of Cooperatives has three main objectives:

1. **Increase awareness** – Increase public awareness about cooperatives and their contributions to socio-economic development and the achievement of the Millennium Development Goals.

2. **Promote growth** – Promote the formation and growth of cooperatives among individuals and institutions to address common economic needs and for socio-economic empowerment.

3. **Establish appropriate policies** – Encourage governments and regulatory bodies to establish policies, laws and regulations conducive to cooperative formation and growth.

By raising awareness about cooperatives, the Year will help to encourage support and development of cooperative enterprises by individuals and their communities," according to the UN website www.un.org/en/events/coopsyear/.

The International Co-operative Alliance (ICA) defines 'cooperative' as "an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise."

IFDC recognizes and supports the International Year of Cooperatives and has a long-standing commitment to building agricultural linkages through the development of farmer/producer and agro-dealer groups. The development of associations and cooperatives is a powerful tool to assist both agro-dealers and farmers in building their businesses.

For example, IFDC's CATALIST project partnered with several producer groups to develop the professionalism of the organizations and train members in agricultural best practices. The following are examples of these partnerships. For more information about them, please visit www.bit.ly/KLV5ZU.

The Central Agricultural Cooperative of North Kivu (COOCENKI) includes 25 cooperatives working in Rutshuru, Lubero and Beni in the DRC. With assistance from CATALIST, COOCENKI plans to be the first organization in the Kivu region to specialize in agro-input market development.

The Confederation of Agricultural Producer Associations for Development (CAPAD) is a key partner of the CATALIST project in Burundi. CAPAD includes 72 cooperative organizations.

The League of Women Farmers' Organizations of North Kivu (LOFEPACO) was established in 2000 to create opportunities for women farmers in the war-torn North Kivu Province of the DRC. IFDC's CATALIST project is strengthening the organization by training its members in agricultural intensification techniques and facilitating access to credit.

The International Year of Cooperatives 2012 is being supported by FAO, IFAD and the World Food Programme (WFP).

IFDC Board of Directors and the VFRC Board of Advisors

IFDC is governed by a board of directors while the VFRC is governed by a board of advisors. Each board has representation from both developed and developing countries. Highlights of recent board member activities include the following:

In April 2012, **Margaret Catley-Carlson**, patron of the Global Water Partnership and member of the United Nations Secretary General's Advisory Board on Water and Sanitation, gave a keynote speech at the South African Water, Energy and Food Forum on "Food, Energy and Water – The Mega-Nexus." She also participated in a panel discussion on "Managing Water in Megacities" during the World Water Forum in Marseilles, France. Catley-Carlson has served on IFDC's board of directors since 2006. She chairs the Budget Committee and is a member of the Executive and Audit committees.

Dr. Jimmy G. Cheek, chancellor of the University of Tennessee, Knoxville, has been elected to the board of directors of the Association of Public and Land-Grant Universities (APLU). He also has been appointed chairman of APLU's Commission on Food, Environment and Renewable Resources and serves on its Energy Forum. APLU is a research and advocacy organization of public research universities, land-grant institutions and state university systems. Cheek has chaired the VFRC board of advisors and its Executive Committee since 2010. **Peter McPherson**, chairman of the IFDC board of directors and a member of the VFRC board of advisors, serves as APLU president.

Dr. Osamu Ito joined the United Nations University – Institute for Sustainability and Peace as a senior research fellow in 2011. From 2000 to 2011, Ito was the director of the Crop Production and Environment Division of the Japan International Research Center for Agricultural Sciences. Ito has been a member of the IFDC board of directors since 2008 and serves on the Program Committee.

Dr. Mortimer Neufville's term as interim president of the University of Maryland Eastern Shore (UMES) will end in July 2012. Neufville has served as UMES interim president since August 2011. He previously held a number of positions at UMES from 1983 to 1996 including vice president for academic affairs. Neufville has served on IFDC's board of directors since 2005 and is a member of the Audit and Program committees. He is also the chair of the ACDI/VOCA board of directors.

Rural Outreach Africa (ROP Africa), a Kenya-based non-profit organization founded by **Prof. Ruth Oniang'o**, received a grant from AGRA to implement an ISFM project. The three-year project (2011-2014) will assist 30,000 smallholder farmers (primarily women) by introducing them to technologies that can improve their farm productivity, marketing, agro-processing, family health and nutrition. Oniang'o has been a member of the VFRC board of advisors since 2010 and serves on its Executive Committee. She previously served on the IFDC board of directors from 2002 to 2008.

Africa Union Commissioner for Rural Economy and Agriculture **H.E. Rhoda Peace Tumusiime** participated in the Infrastructure Consortium for Africa Water Platform Meeting, held in Frankfurt, Germany, in March 2012. The meeting identified challenges and opportunities in the implementation of Transboundary Water Resource and Climate Change Adaptation Programs in Africa. Tumusiime emphasized Africa's "pressing need to mobilize resources" to address climate change concerns. Tumusiime also participated in the World Water Forum and was a member of a high-level panel on the "Water, Food and Energy Nexus." Tumusiime has served on IFDC's board of directors since 2010 and is a member of the Africa Committee.

In June 2012, **Dr. Juergen Voegele**, director of Agriculture and Rural Development at the World Bank, participated in Rio+20 (United Nations Conference on Sustainable Development). Voegele was a member of the World Bank delegation to the event in Rio

de Janeiro, Brazil. The conference was an opportunity for world leaders to come together to "define pathways to a safer, more equitable, cleaner, greener and more prosperous world for all." Voegele has been a member of the VFRC board of advisors since 2010 and serves on its Executive Committee.

IFDC Staff News

John Allgood, director of IFDC's EurAsia Division, wrote the article "Agro-Dealer Development in Developing and Emerging Markets" for the World Bank publication *Agricultural Innovation Systems: An Investment Sourcebook*. According to Allgood, "Developing agro-dealers' technical capacity allows them to provide high-quality advisory services to farmers, accelerates the introduction of technology and enhances the potential economic returns for farmers who invest in yield-improving technologies."

In March 2012, **Patrice Annequin**, IFDC market information specialist, participated in a Catholic Relief Services conference on "Creating Value Through ICT4D Partnerships: NGOs, Government and the Private Sector Innovating Together" in Kigali, Rwanda. Annequin explained how IFDC is using information and communication technology (ICT) to deploy market information systems that can facilitate farmers' access to input and output markets. Annequin demonstrated two IFDC-supported initiatives – the AfricaFertilizer.org portal and the Regional Agricultural Input Market Information and Transparency System (AMITSA), which facilitates access to agro-input prices for 6,000 agro-dealers across East Africa through the Internet and mobile phone technology.

"Improving Regional Fertilizer Markets in West Africa" analyzes the structure and performance of fertilizer markets in the region and offers recommendations to improve market performance. This International Food Policy Research Institute (IFPRI) policy brief was written by **Dr. Balu L. Bumb**, IFDC consulting policy economist and trade specialist; **Dr. Porfirio A. Fuentes**, IFDC senior scientist in trade economics; and Dr. Michael E. Johnson, a research fellow in IFPRI's Development Strategy and Governance Division. The brief is based on the 2011 IFPRI/IFDC Discussion Paper "Policy Options for Improving Regional Fertilizer Markets in West Africa" by the same authors. The brief analyzes data from both regional and country-specific studies by IFDC on fertilizer markets in Ghana, Mali, Nigeria and Senegal.

In April 2012, **Sanjib Choudhuri**, VFRC executive director, participated in a discussion on new agricultural technologies at the "Growing Food: New Places, New Technologies" conference in Washington, D.C. Choudhuri discussed the important role of new fertilizer technologies and research in achieving global food security for a growing population. The event was held by the Paul H. Nitze School of Advanced International Studies at Johns Hopkins University.

Dr. André de Jager has been named director of IFDC's North and West Africa Division. Based in Accra, Ghana, he has served as acting director of NWAFD since April 2011 and originally joined IFDC in January 2010 as NWAFD agribusiness program leader. With more than 20 years of experience in agricultural economics and project management, de Jager works with donors, cooperating entities and over 200 staff members to execute IFDC projects in 16 countries in the region. Before joining IFDC, he managed the division of international markets and networks at the Agricultural Economics Research Institute, a research group focusing on international value chain development. De Jager holds a doctorate in communication and innovation studies and plant production systems and a master's degree in agricultural economics and horticulture from Wageningen University in Wageningen, the Netherlands.

In April 2012, de Jager made a presentation on scaling up agricultural productivity increases in Africa during the "From Islands of Success to Seas of Change" workshop held in the Netherlands. The Seas of Change initiative focuses on how businesses, in collaboration with governments, donors, research organizations and NGOs, can increase agricultural market development to ensure food security for a growing population.

Dr. Peter J. Heffernan joins IFDC as its new director of the Research and Development Division. Heffernan has been working with IFDC since November 2011 as a corporate and private sector development expert with the USAID Feed the Future initiative. Heffernan has 30 years of experience in strategic planning, market research, valuation, competitive intelligence and business, economic and project analysis. Prior to joining IFDC, he held several director-level positions with Bunge North America, a vertically integrated food and feed ingredient company, supplying raw and processed agricultural commodities and specialized food ingredients to a wide range of customers in the livestock, poultry, food processor, food service and bakery industries. He also worked for IMC Global Inc., one of the world's leading producers of crop nutrients. Heffernan earned a doctorate and master's degree in agricultural economics from Ohio State University in Columbus, Ohio, USA.

In March 2012, **Dr. Amit Roy**, IFDC president and CEO, participated in a panel discussion during the workshop "Implementing Public-Private Partnerships in Agriculture," held by IDRC and the Syngenta Foundation for Sustainable Agriculture in Ottawa, Canada. The discussion addressed "Catalyzing Public-Private Partnerships in Agriculture and the Food Supply Chain." Roy's presentation focused on IFDC's partnership with the Dutch Agricultural Development & Trading Company (DADTCO) to shift cassava from a subsistence crop to a cash crop through the Cassava+ project in Mozambique, Nigeria and South Sudan.

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ISSN 0149-3434

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2012 International Training Calendar

Training Program	Dates	Location	Program Fee (USD)
Designing and Implementing Agro-Input Marketing Strategies in Developed and Developing Countries	July 23-August 3	USA (Alabama, Illinois, Kentucky, Maryland, Missouri and Washington, D.C.)	$1,900
Increasing Agricultural Input and Output Trade Through Innovative Market Information Systems in Africa	August 27-31	Nairobi, Kenya	$1,300
Decision Support Tools for Agricultural Production, Fertilizer Recommendations and Climatic Variability	October 3-10	Arusha, Tanzania	$1,300
Fertilizer Granulation and NPK Production Alternatives	November 12-16	Bangkok, Thailand	$1,600
Promoting Affordable Sources of Plant Nutrients in Africa Through Innovative Composting Alternatives	December 3-7	Accra, Ghana	$1,300