



Improving Productivity Along the Agricultural Value Chain



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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2011 Highlights

- Donor funding increased from \$57,165,000 in 2010 to \$70,890,000 in 2011 (a 24 percent increase), illustrating IFDC's value to the global agricultural development effort.
- IFDC projects provided \$15,132,000 in funding to partners and sub-contractors in 2011 (approximately 21 percent of total IFDC funding).
- A number of new projects began during 2011; one project is in the new nation of South Sudan.
- The Board of Advisors of the Virtual Fertilizer Research Center (VFRC) appointed members to its Executive, Commercialization and Science committees. The Board also appointed Sanjib Choudhuri as the VFRC's executive director.
- A new member joined the IFDC Board of Directors in 2011 – Dr. Josué Dioné, director of Food Security and Sustainable Development at the United Nations Economic Commission for Africa (UNECA). Dr. Dioné was elected to the Board in late 2010. Dr. Mohamed Badraoui, director general of the National Agronomic Research Institute in Morocco, was elected to the Board in late 2011 and joined the Board in 2012.
- Through IFDC's field training programs, over 600,000 smallholder farmers and other members of the agricultural value chain were trained in the use of modern agricultural technologies and improved farming techniques.
- Memoranda of Understanding (MoUs) were signed with the Government of Burundi and the Government of the Republic of Mozambique.
- Also signed during 2011 were MoUs with key organizations such as the Agricultural Market Development Trust (AGMARK), Bangladesh Agricultural Research Institute, Bangladesh Institute of Nuclear Agriculture, Bangladesh Rice Research Institute, Base-of-the-Pyramid Innovation Center (BoP Inc.), Centre for Agricultural Bioscience International (CABI) and the Syngenta Foundation for Sustainable Agriculture.

Additional information about many of these highlights, as well as information about IFDC programs and projects, can be found on the pages that follow and on the IFDC website – www.ifdc.org.

Introduction



IFDC commemorates two significant milestones in its history in 2012.

The Center was established in 1974 as a non-profit private organization. IFDC's activities began in July 1975 in temporary facilities on the Tennessee Valley Authority (TVA) Reservation in Muscle Shoals, Alabama, USA.

Just over **35 years ago**, on March 14, 1977, IFDC took its present legal form as a **public international organization**, a designation granted to IFDC by a presidential order signed by President Jimmy Carter. That is the first milestone to be recognized.

IFDC's mission has always focused on the developing regions and countries of the world, and IFDC has been working in Africa since 1975. These pages' silvery hue is in recognition of the second milestone – **IFDC's 25 years of continuous, on-the-ground service in Africa**. The Center opened its Africa Division office in Lomé, Togo, in 1987. Today, IFDC has two Africa divisions: the North and West Africa Division (still headquartered in Lomé); and the East and Southern Africa Division, based in Nairobi, Kenya. During 2012, the *IFDC Report* and the IFDC website (www.ifdc.org) will feature articles that provide information about IFDC's work in Africa.

An excerpt from IFDC's 1987 Annual Report states: "During 1987 IFDC expanded its impact with the establishment of a regional base of operation on African soil. With the help of the Government of Togo, IFDC set up its Africa Division in Lomé, Togo. We will now be able to better serve the fertilizer

development needs of West Africa from this vantage point. The staff members of our Africa Division have mounted research and training programs in three broad areas – agronomy, economics and resource development."

The excerpt further stated, "As IFDC continues to expand, we realize that if we are to be truly effective, we must focus on the human aspect by improving the quality of life of the ultimate beneficiaries of our work – the people of developing countries. Toward this end, we have engaged the collaboration and cooperation of the people of developing countries on every level. National scientists, extension workers, key specialists from the fertilizer industry, administrators and farmers themselves are now active participants in the work of IFDC. By viewing their research through farmers' eyes, our scientists can make their work much more appropriate and, thus, useful in a particular situation and more valuable in the end."

The IFDC staff who have worked in Africa since the first project in 1975 and since the founding of the IFDC 'Africa Center' in 1987 (renamed the Africa Division) have contributed to the food security and economic development of the continent's smallholder farmers. While we celebrate the many 'islands of success' that have been established across Africa, there is a great deal of work that remains. IFDC is committed to helping Africa's smallholder farmers (and smallholder farmers throughout the developing world) escape from the poverty cycle and move into the prosperity cycle.

IFDC

Around the World

2011



Countries With Current IFDC Activities

Albania
Bangladesh
Benin
Burkina Faso
Burundi
Cape Verde
Chad
Côte d'Ivoire
Democratic Republic of Congo
Ethiopia
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya

Kyrgyzstan
Liberia
Madagascar
Malawi
Mali
Mozambique
Niger
Nigeria
Rwanda
Senegal
Sierra Leone
South Africa
South Sudan
Swaziland
Tajikistan
Tanzania
Togo
Uganda

United States of America
Zambia
Zimbabwe

Countries With Previous IFDC Activities

Afghanistan
Algeria
Angola
Argentina
Australia
Azerbaijan
Belgium
Bolivia
Brazil
Burma
Cambodia



Cameroon
 Canada
 Chile
 Colombia
 Costa Rica
 Dominican Republic
 Ecuador
 Egypt
 Greece
 Guatemala
 Guyana
 Haiti
 Honduras
 Hungary
 India
 Indonesia
 Israel
 Jamaica

Jordan
 Kazakhstan
 Kosovo
 Libya
 Malaysia
 Mexico
 Morocco
 Nepal
 New Zealand
 Pakistan
 Paraguay
 People's Republic of China
 Peru
 Philippines
 Romania
 Saudi Arabia
 Singapore
 South Korea

Spain
 Sri Lanka
 Sudan
 Syria
 Taiwan
 Thailand
 Trinidad
 Tunisia
 Turkey
 Ukraine
 United Arab Emirates
 Uruguay
 Uzbekistan
 Venezuela
 Vietnam
 Yugoslavia

A Message from the Chairman of the Board of Directors and the President and Chief Executive Officer



M. Peter McPherson
Chairman of the Board

In its activities across the developing world, IFDC continued to achieve demonstrable success in its mission to help smallholder farmers and others build better lives. Millions became healthier and more food secure in 2011, and agricultural production and incomes rose in the intervention areas where IFDC staff members are hard at work. At the same time, much more work remains to be done.

In 2011, the world population passed seven billion, increasing from six billion just since 1999. The world faces a collective challenge to grow more food to meet the needs of today's population. That challenge will only become more difficult as the world's population increases to an estimated 9.2-9.4 billion in 2050. The global population in 2050 will need 70 percent more food than is grown today. The challenge of growing more food is daunting – arable land and water are becoming scarcer, and there are uncertain climatic conditions and heightened environmental and economic issues. A related and equally important challenge is not only to grow enough food, but to grow food that meets the nutritional needs of the populations of 2012 – and 2050.

For years, IFDC staff members have helped smallholder farmers in the developing world increase crop yields more effectively and efficiently. Additionally, IFDC staff members have helped those farmers grow more nutritious crops. IFDC's focus on nutrition takes several forms because there is no 'magic bullet' that will solve inadequate nutrition.

For example, there are a number of methods to combat malnutrition and to add missing vitamins and minerals to the human diet. Among these methods are mineral supplements, processed food fortification, genetic engineering of staple crops and the application of mineral-fortified fertilizers to crops. Studies in India indicate that a lack of sufficient secondary and micronutrients in the soil results in crops with reduced nutritional value, which contributes to poorer diets and health in both the crops and humans.

According to *The Economist*, "one billion people are malnourished in the sense that they lack micronutrients (this is often called 'hidden hunger')." The World Health Organization reports that zinc and iron deficiencies rank fifth and sixth among the 10 most important health risk factors in low-income countries. Deficiencies in these two micronutrients alone contribute to the death of nearly 500,000 children under the age of five each year. Conversely, adequate levels of zinc prevent and treat pneumonia, diarrhea and other common infections.

Using fertilizers augmented with micronutrients is the most cost-effective option available today and IFDC has had impressive results with micronutrient fortification in greenhouse trials (using zinc-, iron- and manganese-enriched fertilizers) and in field trials in Bangladesh (focusing on zinc-enriched fertilizers). Micronutrient fortification improves the overall health of the crop and offers a sustainable nutrient delivery system to improve human health.

IFDC's Virtual Fertilizer Research Center (VFRC) is also working to improve the nutritional content of crops. One of the projects the VFRC seeks to fund is the development of new, commercially scalable production processes to integrate micronutrients and secondary nutrients with commercially available fertilizers. The successful new processes and fertilizers will initially focus on zinc as the added micronutrient.



Amit H. Roy
President and CEO

The new zinc-enriched fertilizers could also combine the following attributes: improve the use efficiency of zinc as well as the carrier nutrient(s); improve yield; exploit the synergies in crops between primary nutrient metabolism and increase zinc bioavailability; and improve zinc intake for populations who cannot afford fortified food or supplements.

The work of IFDC and its partners has helped millions grow more food and has helped make agricultural markets more efficient. Those who have benefited from IFDC projects are improving their livelihoods and strengthening their respective countries. These are global benefits.

IFDC's efforts would not be possible without the donors that have trusted the organization to implement programs on their behalf and with their financial resources. We take that responsibility very seriously. In addition, we know that IFDC could not accomplish anything without the effort and dedication of its employees, who work with smallholder farmers and other members of agricultural value chains in more than 35 countries.

The goals of helping smallholder farmers grow greater quantities of more nutritious food, improve their livelihoods and protect their ecosystems can be achieved. In fact, the fate of the human race depends on achieving those goals. Working with our donors and partners, IFDC and its staff will continue to help others and move closer to achieving these long-term goals.

M. Peter McPherson
Chairman
IFDC Board of Directors

Amit H. Roy
IFDC President and
Chief Executive Officer



Left: IFDC board members Peter McPherson and Commissioner Rhoda Peace Tumusiime attend an IFDC board of directors meeting. Right: IFDC board member Dr. Mortimer Neufville and VERC board of advisors member Prof. Ruth Oniang'o discuss activities during an IFDC board of directors meeting.

IFDC Board of Directors (2012)



M. Peter McPherson
Chairman of the Board
President, Association of Public
and Land-Grant Universities
United States



Gerard Doornbos
Vice Chairman of the Board
President, Rijnland District
Water Control Board
The Netherlands



Dr. Mohamed Badraoui
Director General
National Agronomic Research
Institute
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Margaret Catley-Carlson
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Global Water Partnership
Canada



Dr. Josué Dioné
Director, Food Security and
Sustainable Development
United Nations Economic
Commission for Africa
Mali



Dr. John B. Hardman
President and CEO
The Carter Center
United States



Dr. Osamu Ito
Senior Research Fellow
Institute for Sustainability and
Peace
United Nations University
Japan



Dr. Agnes M. Kalibata
Minister of Agriculture and
Animal Resources
Rwanda



Patrick J. Murphy
Vice President and Manager (Ret.)
International Private Banking
Office
Bank of America
United States



Dr. Mortimer Neufville
Chairman of the Board
ACDI/VOCA
United States



Rhoda Peace Tumusiime
Commissioner
Rural Economy and Agriculture
African Union
Uganda



Dr. Vo-Tong Xuan
Rector
Tan Tao University
Vietnam



Dr. Amit Roy
Ex Officio Board Member
IFDC President and CEO
United States



Vincent McAlister
Ex Officio Board Member
Secretary to the Board/
IFDC Legal Counsel
United States

2012 Committee Assignments

Executive Committee

Peter McPherson (Chair)
Gerard Doornbos (Vice Chair)
Margaret Catley-Carlson
Dr. John Hardman
Dr. Agnes M. Kalibata
Pat Murphy
Dr. Vo-Tong Xuan

Africa Committee

Dr. Agnes M. Kalibata (Chair)
Dr. Mohamed Badraoui
Dr. Josué Dioné
Gerard Doornbos
Dr. John Hardman
Pat Murphy
Rhoda Peace Tumusiime
Dr. Vo-Tong Xuan

Audit Committee

Pat Murphy (Chair)
Margaret Catley-Carlson
Gerard Doornbos
Dr. Agnes M. Kalibata
Dr. Mortimer Neufville

Budget Committee

Margaret Catley-Carlson (Chair)
Dr. John Hardman
Pat Murphy
Dr. Vo-Tong Xuan

Nomination Committee

Dr. John Hardman (Chair)
Gerard Doornbos
Dr. Vo-Tong Xuan

Program Committee

Dr. Vo-Tong Xuan (Chair)
Dr. Osamu Ito
Dr. Mortimer Neufville



Top left: IFDC board members Margaret Catley-Carlson and Dr. Osamu Ito participate in the 2011 IFDC board of directors meeting. Bottom left: A Kenyan farmer (right) and IFDC board member Patrick Murphy discuss modern farming practices during a field visit. Right: IFDC board members (left to right) Dr. John Hardman, Dr. Vo-Tong Xuan and Gerard Doornbos visit a crop demonstration field in rural Rwanda.

NWAFD

North and West Africa Division



OVERVIEW

NWAFD Activities in:

Benin	Guinea-Bissau
Burkina Faso	Liberia
Cape Verde	Mali
Chad	Niger
Côte d'Ivoire	Nigeria
Gambia	Senegal
Ghana	Sierra Leone
Guinea	Togo

The North and West Africa Division (NWAFD) encompasses an area with huge agriculture potential but also the need for technical assistance and foreign investments to fully realize this potential. NWAFD works in close partnership with organizations at regional, national and local levels including regional economic communities (RECs), farmer-based organizations (FBOs), government agencies, non-governmental organizations (NGOs), research institutes, financial institutions and the private sector.

Projects address soil fertility, input and output market development and regional and national agro-input policies. Capacity-building of value chains and the facilitation of enabling environments are key objectives. NWAFD supports the development and implementation of regional agricultural policies within the Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (UEMOA). For more than 25 years, NWAFD projects have assisted millions of smallholder farmers, helping to move them away from subsistence farming. They are now agricultural entrepreneurs, able to actively participate in local and regional agricultural trade.

The division's agricultural intervention strategy addresses constraints to agricultural development through four areas of expertise: Integrated Soil Fertility Management (ISFM), input market development, output market development and policy support.



Building Competitive Agricultural Systems and Enterprises in North and West Africa

Agriculture is of pivotal importance in Africa and offers the best opportunity for spurring economic growth among the rural poor. However, such growth requires far greater increases in agricultural productivity, along with expanded and sustained integration of smallholder farmers in markets and better access to services and agro-inputs. IFDC assists small-scale producers to 'graduate' from subsistence agriculture to commercial farming – farming as a business.

IFDC projects emphasize linking these small-scale producers to both agricultural input and output markets. One of the most successful methods IFDC has used in Africa to increase the number of farmers moving from subsistence to commercial agriculture is the Competitive Agricultural Systems and Enterprises (CASE) solution.

"CASE is a cornerstone of IFDC's work in North and West Africa. It gives farmers the knowledge and tools they need to increase the quantity and quality of their crops and then to link to profitable markets to sell their produce," said Raphael Vogelsperger, leader of Accelerating Agribusiness in Africa - Bridge (AAA-Bridge) in West Africa, an IFDC project financed by the Netherlands' Directorate-General for International Cooperation (DGIS).

With CASE, smallholder farmers are integrated into value chains organized around specific crops or commodities. A value chain links the numerous steps that a product takes from the farmer to the ultimate consumer. IFDC helps strengthen smallholder farmers and also supports growth in agro-input businesses and processing and marketing industries.

"CASE is based on agribusiness cluster formation, value chain development and strengthening the abilities of public and private institutions to enable agribusiness and trade," stated Vogelsperger. Agribusiness cluster formation is the coordination among various stakeholders at the grassroots level, including smallholder farmers, local entrepreneurs, traders, financial institutions, research and extension services and market information systems (MIS).

Working with local partner organizations, IFDC's From Thousands to Millions (1000s+) project used CASE to facilitate the emergence of agribusiness clusters and to link more than 700,000 smallholder farmers to markets in Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria and Togo. 1000s+ was a component of the Strategic Alliance for Agricultural Development in Africa (SAADA) program, which was funded by DGIS, Agriterria and IFDC from 2006 to 2011.



Implemented from January 2011 to February 2012, AAA-Bridge continued the 1000s+ agribusiness development activities in West Africa and expanded these activities into East Africa in preparation for a potential large-scale, continent-wide project. In collaboration with BoP, Inc. and the International Centre for development-oriented Research in Agriculture (ICRA), AAA-Bridge facilitated the establishment of market linkages with major agro-industries, thereby strengthening public-private partnerships (PPPs) in the region.

As a result of these linkages, over 450,000 farmers in 175 clusters are expected to increase their productivity by 30 percent and incomes by 20 percent. In addition, AAA-Bridge assisted more than 150 agribusiness clusters in the development and implementation of annual agribusiness plans.

To build and strengthen profitable markets, AAA-Bridge staff analyzed the specific needs of local, national and global agro-industries and matched them to relevant clusters. Two major private sector companies partnering with IFDC are Friesland Campina WAMCO Nigeria (FCW) and East West Seed (EWS). FCW – the largest importer and processor of milk products in Nigeria – plans to begin locally sourcing milk to sell in Nigerian markets. In November 2011, IFDC and FCW signed an MoU and assigned an international dairy consultant to analyze the dairy value chain and identify farmers who could be linked to milk collection centers. FCW and IFDC plan to develop a ‘Dairy Village,’ which would serve as a model dairy agribusiness cluster.

EWS is a vegetable seed company that breeds and sells high-quality hybrid and open-pollinated seeds for major tropical vegetable crops. After achieving success in Asia, EWS is entering West African markets

establishment of agro-input businesses; post-harvest practices and food safety; fertilizer use; market information; and agricultural insurance.

Training sessions and workshops on ISFM strategies were held in Burkina Faso, Ghana, Mali, Niger, Nigeria and Togo. ISFM – another key component of CASE – combines mineral fertilizers and locally available organic amendments (crop residues, compost and green manure) and is used to replenish soil nutrients and improve the efficiency of fertilizers and other agro-inputs.

Another IFDC project in North and West Africa that utilizes the CASE solution is Grassroots Development of Agribusiness Clusters in Mali (DEBPEA). Funded by the Embassy of the Kingdom of the Netherlands in Mali, DEBPEA is also an extension of the 1000s+ project. The project’s primary objective is to increase the number of agribusiness clusters in Mali by 30

One of the most successful methods IFDC has used in Africa to increase the number of farmers moving from subsistence to commercial agriculture is the CASE solution.

by providing farmers with both seeds and technical assistance. In November 2011, EWS and IFDC signed an MoU for a pilot program to improve the supply of affordable, quality vegetables to local and national markets. AAA-Bridge and EWS staff organized field demonstrations, focusing on specific commodity clusters including peppers, tomatoes and onions.

In order to ensure informed and sustained integration in targeted value chains and markets, CASE programs strengthen the capacities of participants along the agribusiness value chain through collective learning and action. “This empowerment is another crucial element of CASE,” said Vogelsperger. “Farmers and local entrepreneurs learn to identify agricultural production and business opportunities and invest in their own futures.”

Examples of empowerment include helping farmers learn more productive farming techniques and how to be effective advocates for stronger agricultural laws, better services from public organizations, protection and improvement of their rights and transparency at all levels of policy-making. In 2011, AAA-Bridge training programs were held for cluster participants and business support services in: business plan development; rural finance;

percent and to further build on the strategy of making agribusinesses sustainable. The project is improving the institutional environment for business development in rural areas by designing and testing innovative instruments in rural finance such as contract financing, the inventory credit system (*warrantage*) and harvest insurance. The project also focuses on building a network of agro-dealers in order to improve farmers’ access to agro-inputs.

The benefits of CASE are being promoted through a documentary film, “United Through Markets,” which features four agribusiness clusters – rice and pepper clusters in Ghana and yellow maize and soybean clusters in Togo. The video presents the experiences of entrepreneurs who are building small- to medium-scale businesses through new relationships with colleagues and agribusiness cluster and value chain partnerships. The video complements a book on CASE, which has been developed in collaboration with ICRA and the Technical Centre for Agricultural and Rural Cooperation (CTA). Volume 1 of *Competitive Agricultural Systems and Enterprises (CASE): a Grassroots Approach to Agribusiness Development in Sub-Saharan Africa* has been published and will be available soon from IFDC.



SUCCESS

STORY



Agro-Dealer Development Projects Increase Farmers' Access to Inputs

The efficient use of quality agro-inputs (improved seeds, fertilizers and crop protection products, or CPPs) is necessary to improve agricultural production and increase incomes, particularly in Sub-Saharan Africa (SSA). To increase much-needed access to agro-inputs, information and modern farming techniques for millions of smallholder farmers, IFDC is building networks of trained agro-dealers in Burkina Faso, Ghana and Nigeria through projects funded by the Alliance for a Green Revolution in Africa (AGRA).

Due to the limited presence of public sector extension agents, agro-dealers are farmers' primary points of contact for agro-inputs and technical farming advice. Agro-dealer development programs train dealers to manage their businesses effectively and to launch and manage trade associations that generate additional knowledge transfer. Trained and certified agro-dealers with access to financing are able to provide their farmer-customers with more information, as well as training and improved follow-up services. These include a wider range of agro-input products, technical advice on the safe handling and use of those products and the promotion of sound agricultural practices through field demonstrations. In addition, the establishment of organized agro-dealer networks reduces the distance farmers in rural areas must travel to purchase inputs.

Ghana

The Ghana Agro-Dealer Development (GADD) project, implemented from October 2008 to March 2012, provided financial and business management training to nearly 2,400 agro-dealers.

After completing training, the agro-dealers were granted certification by the Government of Ghana. In collaboration with agro-dealers, the GADD project established more than 270 demonstration plots and organized 465 field days and exhibitions involving 16,737 farmers (11,011 men and 5,726 women) and 186 agro-dealers (156 men and 30 women). The project also facilitated access for over 100 agro-dealers to US \$1.6 million in loans, with an 87 percent loan repayment rate.

The GADD project assisted the Ghana Agricultural Associations Business and Information Center (GAABIC) and its consortium associations to become stronger and more autonomous in their organizational, managerial and financial capacities. Through GADD, IFDC and GAABIC profiled, mapped and created an electronic database of over 4,000 agro-dealers. The project then published the country's first national directory of agro-dealers. The project also provided technical support to the Ghana Agri-Input Dealers Association (GAIDA) through training and the organization of media events, including educational programs on national television. These efforts resulted in an increase in GAIDA's membership from 700 to 1,200.

Nigeria

In Nigeria, more than 2,300 agro-dealers were trained through the Nigeria Agro-Dealer Support (NADS) project, implemented from 2008 to 2011. The project raised awareness among agro-dealers of the vital role they can play in Nigeria's agricultural development. The NADS project used a replicable training system incorporating 'master' trainers, which resulted in a total of 5,000 trained agro-dealers in the

country. Dealers were trained in safe handling and efficient and environmentally sound use of agro-inputs. These agro-dealers experienced significant increases in sales and more than 400 new agro-input shops were opened. The project conducted 240 field demonstrations to transfer product knowledge and technical advice to farmers involving supported/targeted agro-dealers.

The project compiled Nigeria's first comprehensive directory of agro-dealers, which has served as a valuable tool for implementing new policy reforms. As a result of project activities to build and strengthen organized networks of agro-dealers, four state-based agro-dealer trade associations expanded into regional associations representing 16 states, and membership increased from 400 to 2,700. In addition, the project helped agro-dealers to access \$750,000 in loans from micro-finance institutions (MFIs).

Burkina Faso

The Professionalization of Agro-Input Dealers in Burkina Faso (PRODIB) project is strengthening the ability of agro-dealers to create business linkages with input suppliers and to extend their retail networks to reach more farmers. Over the course of the project (2011-2014), 800 agro-dealers

will be trained in product knowledge, safety and handling, sales and marketing, business and financial management, logistics planning and delivery and information and technology transfer.

PRODIB organized 60 field demonstrations and 34 field days involving nearly 2,200 farmers and agro-dealers during 2011. The project is also providing assistance to agro-dealers by facilitating access to loans for business development through risk-sharing arrangements. Agro-dealers are encouraged to join the Association of Agro-Input Wholesalers and Retailers of Burkina Faso (AGRODIA), the country's primary agro-dealer association. PRODIB is providing training to AGRODIA employees in association management so they are better able to serve members and customers. The project is also supporting agro-dealers' and farmers' efforts to lobby for policy reform and generate revenue for financial self-sufficiency.

IFDC has trained agro-dealers in many developing nations for more than 25 years. In addition to West Africa, IFDC is currently implementing agro-dealer development activities in Bangladesh, Ethiopia, Kyrgyzstan, Mozambique, Rwanda, South Sudan, Tajikistan and Tanzania.



PROJECT

IMPACT

Strengthening Farmer-Based Organizations in Ghana

More than 450 FBOs involving nearly 22,000 farmers in Northern Ghana were trained in agricultural technology and new farming methods through the Commercial Development of Farmer-Based Organizations (CDFO) project. Fifty percent of assisted farmers were female.

Implemented from 2008 to 2011, CDFO was a component of the Agriculture Project of the Millennium Challenge Corporation (MCC) Compact. Managed by the Millennium Development Authority (MiDA), the \$547 million MCC Compact, also known as the Ghana Compact, was implemented to reduce poverty by raising farmer incomes through private sector-led agribusiness development. The program focused on increasing the production of high-value cash and staple food crops and enhancing the competitiveness of Ghana's export base in traditional agricultural crops through three strategic projects – Agriculture, Transportation and Rural Services. The Agriculture Project was led by IFDC, Adventist Development and Relief Agency (ADRA) and ACIDI/VOCA, with funding from MCC.

IFDC had overall responsibility for implementing CDFO in Ghana's Northern Agricultural Zone, where 90 percent of the rural population lives in poverty. Designed to address key constraints limiting both farmers' productivity and competitiveness, IFDC's CDFO activities focused on the following objectives:

- Training farmers and enterprises in commercial agriculture.
- Improving access to and use of irrigation to enhance agricultural production.
- Improving post-harvest handling and value chain services.

CDFO training programs increased the commercial skills of FBO members and encouraged them to view agriculture as a business. Training was carried out in two phases: organizational capacity-building and business planning (Phase 1); and technical skills and crop productivity (Phase 2). Farmers who completed Phase 1 training, which included the development of business action plans, were provided a 'starter pack.' The pack consisted of enough fertilizer and improved seeds (maize, rice or soybeans) for 0.4 hectare (ha), protective clothing and a grain storage bag.

Using the pack, farmers collectively cultivated nearly 9,000 ha and produced an additional 2,000 metric tons (mt) of produce, generating GHC 803,770 (\$470,000) in income.

"The starter packs were a life-transforming stimulus for the farmers involved," stated Dr. Kofi Debrah, IFDC country representative in Ghana. "The packs served as entry points for farmers to build lasting business relationships with agro-dealers, customers in the post-harvest market and financial institutions."

CDFO worked with private investors and farmers to develop Agricultural Business Centers (ABCs) to improve the post-harvest infrastructure. The ABCs include drying, shelling, milling and storage facilities and function as agro-input shops, making them 'one-stop-shop' service centers. The project established greenhouse dryers and evaporative coolers to demonstrate that drying leafy vegetables will prolong their shelf life and decrease losses.

To reduce risks associated with changing weather patterns, CDFO set up demonstration sites and field days to train farmers in water management. The project monitored the rehabilitation of irrigation facilities in Golinga and Bontanga and taught farmers and FBOs how to manage them. In addition, CDFO assisted more than 500 agribusinesses to develop and implement environmental management plans.

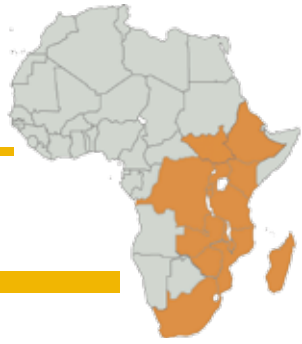
Because increased productivity without adequate marketing opportunities is unprofitable, training and technical service providers (TTSPs) worked closely with farmers to link them with small and medium enterprises (SMEs), buyers and processors. Through a series of value chain networking events, TTSPs and IFDC helped farmers expand the sales of their increased maize, rice, groundnut and soybean crops (those crops with the highest potential to increase incomes of farmers and processors).

In addition to the Northern Agricultural Zone, CDFO was also implemented in Ghana's Afram Basin by ADRA and in the Southern Horticultural Zone by ACIDI/VOCA. Across the three intervention zones, the project trained a total of 1,335 FBOs with 67,090 farmer-members.



ESAFD

East and Southern Africa Division



OVERVIEW

ESAFD Activities in:

Burundi	Rwanda
Democratic Republic of Congo (DRC)	South Africa
Ethiopia	South Sudan
Kenya	Swaziland
Madagascar	Tanzania
Malawi	Uganda
Mozambique	Zambia
	Zimbabwe

The East and Southern Africa Division (ESAFD) works to increase agricultural productivity and farmer incomes. These goals are accomplished by improving farmers' knowledge of best agricultural practices, such as soil fertility management, and by improving their access to quality agro-inputs and to output markets. Through collaboration with national and regional partner organizations, governments and donors, the division supports initiatives to develop competitive and sustainable agricultural value chains and to create an enabling environment for agricultural intensification and private sector development.

Other activities include association building, disseminating market information via modern communication technologies and decreasing the competition between energy production and agricultural production. ESAFD's goal is to reach millions of farmers in the region, increasing their productivity by 50-100 percent and family incomes by 30-50 percent.



Sustainable Energy through Woodlots and Agroforestry in the Albertine Rift (SEW)

With the highest population density in SSA, Central Africa's Great Lakes Region (CAGLR) is facing a critical energy crisis due largely to the over-harvesting of trees for fuel. Harvesting trees without planting replacements has led to severe environmental degradation and jeopardizes agricultural production. As a consequence, agricultural byproducts such as crop residues, manure and cassava stems are increasingly used as cooking fuel instead of serving as organic fertilizers for food production. The use of energy-inefficient cook stoves in homes and traditional carbonization and brick-making methods have wasted enormous amounts of wood and energy and increased environmental pollution.

Sustainable Energy through Woodlots and Agroforestry in the Albertine Rift (SEW) is a three-year project implemented by IFDC and its partners that is achieving sustainable energy production based on reforestation and professionalizing the energy production sector. SEW is increasing the number of trees grown for fuel while decreasing tree consumption.

Through reforestation and agroforestry on smallholders' private micro-woodlots, SEW is increasing the yield of fuel wood. Over the course of the project, more than 22,000 ha have been planted (2,000 ha more than the target). Modern management of woodlots can offer more fuel wood to consumers and more income to growers. In the densely populated CAGLR region, some see trees as 'competitors' with crops for space, water and nutrients. SEW is helping to change that opinion. The most effective method to save existing trees and plant new ones (without threatening food production) is to strengthen the most deficient natural resource – the soil and its fertility.

Mineral fertilizers have become essential; traditional agroforestry (planting trees without nourishing them) is no longer sufficient. The type of agroforestry that is most likely to interest farmers is the one that improves the profitability of trees grown on their land. 'Intensive agroforestry,' which utilizes fertilizers and ISFM techniques, offers multiple benefits – increased food crops and increased wood 'crops' for different purposes – fuel, bean stakes, mulch for fertilizing, etc.

In order to decrease tree consumption, SEW is improving the organization of the fuel wood and charcoal value chains by increasing members' professionalism, supporting their search for income, improving their entrepreneurial and business skills and by creating links between producers, consumers and the public sector. Consumers of large quantities of fuel wood (such as restaurants, bakeries, etc.) are a special target group. Other important project activities include making the process of converting



Rwandan President Paul Kagame plants the first tree during Rwanda's National Tree Week.

trees into charcoal more efficient through modern carbonization techniques; introducing improved cook stoves and marketing them more effectively; and introducing improved methods to make bricks and tiles that require less fuel wood. The project also helps create and increase public awareness and government commitment regarding these important topics and helps members of the value chain earn carbon credits and access to financial credit.

SEW's interventions complement IFDC's Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability (CATALIST) project, which also operates in Burundi, DRC and Rwanda and is

focused on agricultural intensification. Together these two projects address the CAGLR's increasing demand for food and energy.

As the SEW project moves into its last year, the following were among its key achievements in 2011:

SEW introduced a number of innovations to the agroforestry sector in its target countries: *haute intensité de la main d'œuvre* (labor-intensive work, also known as HIMO) as a farm-gate subsidy; the use of phosphate rock as a tree fertilizer; and intensive agroforestry (agroforestry applied as an ISFM strategy) to optimize fertilizer use.

Trainings on modern carbonization techniques during 2009 and 2010 were conducted by SEW staff. In addition to training hundreds of charcoal producers, SEW trained a cadre of master trainers, known as 'master charcoal producers.' The SEW trainings evolved into 'light carbonization' trainings (managed and paid for by other organizations) and

During 2011, SEW was able to further develop the firewood and value chain interventions in the CAGLR. After focusing primarily on improved carbonization techniques, SEW began working on other components of value chain development. By year's end, sector clusters had been created and structured in Rwanda, Burundi and eastern DRC. Different groups of nurserymen, planters, charcoal producers, improved cook stove manufacturers and brick-makers benefited from technical, managerial and financial support from SEW. Because of this support, the sector clusters improved their work methods (production, distribution and information dissemination), and households in the region began to adopt energy-saving systems.

SEW helped increase the production of improved cook stoves in the region. Training sessions were organized for manufacturers to improve their stoves' efficiency. All 12 workshops received financial and technical support from SEW.



International Year of Forests, 2011

featured a peer-to-peer approach (in which master charcoal producers train other charcoal producers). Thirty-two light carbonization trainings were organized in 2011 (635 additional charcoal producers were trained).

SEW added the vertical value chain approach (the interaction between different professional groups and interaction with MFIs, universities, etc.) to the existing horizontal value chain approach (a value chain comprised of members of one professional group – i.e., groups of charcoal producers, stove manufacturers, etc.). Vertical value chains were organized through meetings of all participants in a value chain and exchange visits, bringing together the various professional groups from the value chain.

At the horizontal level, 66 groups/organizations were organized (36 in DRC, 15 in Burundi and 15 in Rwanda), each bringing together an average of 15 value chain participants. These groups are evolving toward development clusters and they disseminate the technologies for improved charcoal production and improved cook stoves. They also engage in advocacy for their activities. Meetings and workshops have been organized to bring the different groups together, which allow them to create professional relationships.

Bricks are the primary building material in the region and current brick-making processes use huge quantities of fuel wood. SEW conducted research on improved brick-firing, and with the Dutch NGO PUM, developed an action plan for the dissemination of more efficient brick-firing methods. Improving the efficiency of the manufacturing process can significantly decrease the amount of fuel wood consumed, as well as decrease environmental pollution.

SEW disseminated information about new techniques and innovations through radio and TV programs and commercials, articles on the CATALIST/SEW website and significant media coverage, reaching up to 22.6 million farmers and members of the value chains in the region.

SEW worked closely with the governments of the target countries on three levels (local, national and regional). The Government of Rwanda (GoR) requested that IFDC develop a proposal to organize carbonization trainings in that country. Working with the Ministry of Energy in Burundi, SEW conducted a study on how charcoal and fuel wood reach the capital (Bujumbura) and how far it is transported. The study also estimated the amounts and types of fuel that are brought into the city.



SUCCESS

STORY



Agricultural Input Markets Strengthening (AIMS)

AIMS promotes private sector investment in modern agro-inputs and marketing in the Beira and Nacala corridors of Mozambique. The project is also improving farmers' access to agro-inputs through more competitive markets and improved agro-dealer networks. AIMS is funded by the U.S. Agency for International Development (USAID) and is building on the success of the first AIMS project that ended in 2009. The project is strengthening the private agro-input sector and creating demand for agro-inputs through market development and the introduction of ISFM. AIMS is part of the Platform for Agricultural Research and Technology Innovation, together with the Consultative Group on International Agricultural Research, the Government of the Republic of Mozambique (GRM) and the Brazilian Agricultural Research Agency.

Transfer of Soil Fertility Management Technologies

AIMS is promoting the adoption of ISFM to replenish lost soil nutrients. ISFM improves both soil quality and the efficiency of agro-inputs. AIMS is training agro-dealers and extension agents in ISFM techniques and other improved practices, enabling them to transfer knowledge to farmers through demonstration plots and participatory learning.

Strengthening the Input Supply Chain and Developing Agro-Dealers in Rural Areas

Historically, the small size and unorganized nature of agro-dealers in Mozambique's major market towns have made it difficult for smallholder farmers in rural areas to access quality agro-inputs. In most areas, farmers travel 30-40 kilometers to buy expensive agro-inputs and market their crops. These factors discourage many farmers from using modern inputs and increasing their crop productivity. AIMS is organizing dealer networks and training them on product knowledge and financial/

business management. IFDC follows up with trained dealers to ensure they are implementing what has been learned. Demonstration plots are established in collaboration with the dealers, who use the plots as promotional and teaching tools. This transfer of responsibility for demand creation to the dealers encourages them to better serve area farmers.

Input Sector Policy Reforms and Regulations

With no price or marketing controls on agro-inputs in Mozambique, it has fallen to the private sector to develop a stable national market. But without GRM fertilizer laws or a national fertilizer regulatory authority, private sector efforts have fallen short. This lack of oversight allows unmonitored importation of improper, uneconomical or counterfeit fertilizers with no quality assurance measures. And due to inadequate product knowledge, agro-dealers and farmers often buy these unregulated products, resulting in inefficiencies and low yields. An enabling policy environment to allow private sector development is essential to combat this issue. IFDC projects are assisting the GRM to draft appropriate legislation and regulations and establish a fertilizer authority.

Strengthening Market Information Systems

Access to timely and reliable market information on the price and availability of agro-inputs and surplus crops greatly contributes to confidence and transparency in the agricultural marketing system, and provides much-needed information to agro-dealers and farmers. The Mozambique Ministry of Agriculture's (MoA) System of Information of Agricultural Marketing (SIMA) provides information on crops, but not on inputs. In 2010, IFDC's Agricultural Input Market Information and Transparency System (AMITSA), a web- and mobile-based MIS focused on agro-inputs for eastern and southern Africa, began collaborating with SIMA.

Strengthening Agro-Dealer Trade Associations

Associations give members the opportunity to pool demand, reduce costs through joint procurement, organize internal and external training sessions and advocate for a favorable policy environment. AIMS encourages agro-dealers to join district-level associations, which are linked to the Association of Mozambican Agricultural Input Suppliers (AMPIA). IFDC helped create AMPIA in 2008 under the first phase of AIMS. Since then, all IFDC projects in Mozambique have worked closely with AMPIA.

Fertilizer and Seed Voucher Program for Smallholder Farmers

Vouchers provide incentives to invest in modern agro-inputs and provide farmers with purchasing power support. A two-year voucher pilot program began in

September 2009 in collaboration with the European Union, Food and Agriculture Organization (FAO) of the United Nations and the GRM. IFDC helped select and train agro-dealers and negotiated prices between importers and blenders, transporters, wholesalers and suppliers. During the second season, over 20,000 fertilizer vouchers for use by maize and rice farmers were distributed and redeemed. AIMS collaborates with the other IFDC projects: Maize Intensification in Mozambique (MIM), Mozambique Agro-Dealer Development (MADD), Savings, Subsidies and Sustainable Food Security and the FAO-Mozambique Input Voucher Program. AIMS and MADD also collaborate with the World Food Programme's Purchase for Progress (P4P) projects to increase farmers' access to agro-inputs and organize procurement of farmers' produce through agro-dealer networks and AMPIA.



PROJECT

IMPACT

Maize Intensification in Mozambique (MIM)

Over 80 percent of the population of Mozambique is involved in agriculture. Most are subsistence farmers cultivating less than 3.0 ha.

Maize is the staple food and is grown throughout the country. The total area used to cultivate maize is about 1.4 million ha; yields seldom exceed 1.0 mt/ha. Farmers currently apply less than 6.0 kilograms (kg)/ha of fertilizer, and only five percent of smallholders use improved seed varieties. Other constraints include low soil fertility, periodic droughts, weeds, pests and crop diseases. CPPs are primarily reserved for cash crops (cotton, tobacco and sugarcane). Low agro-input use is due to the lack of an integrated supply system, inadequate farmer knowledge of modern technologies and lack of available credit in rural areas. Farmers are not well-connected to either the output market or agricultural value chains.

The MIM project began in 2008 and is implemented by IFDC with funding and in-kind technical support from the International Fertilizer Industry Association (IFA), International Plant Nutrition Institute (IPNI) and International Potash Institute (IPI). The project is improving smallholder farmers' livelihoods by increasing rain-fed maize production through the effective use of modern agro-inputs, particularly improved seed varieties and fertilizers. The traditional method of planting saved seeds generally leads to small harvests because the seeds have low productivity potential and a low response to applied fertilizer. Increasing the amount of fertilizer applied per hectare is required to sustainably raise maize yields.

The project promotes productive farming clusters, and is being implemented in Manica, Sofala and Tete provinces. There is optimal technology transfer and a community environment for participatory learning, experimentation and networking.

Through demonstration plots and workshops, project staff members are educating involved farmers about the benefits of improved and hybrid seeds, higher yields through the use of appropriate amounts of fertilizers, conservation agriculture and sound agronomic practices. Technology transfer is also educating farmers on the rotation of cereal and leguminous crops for greater diversity, better pest control and improved water management (through irrigation and rainwater retention at the crop site).

Site-specific nutrient management and ISFM and Integrated Pest Management (IPM) techniques are key technical aspects to increasing total output to commercial levels.

The second focus is the transition from subsistence farming to commercial-level maize production and marketing. MIM strengthens Mozambique's agricultural economy by linking farmers with agro-input suppliers, private enterprises and other value chain partners. Building linkages among marketing companies, NGOs, FBOs, agricultural extension services and the International Maize and Wheat Improvement Center, MIM creates a stronger and more dynamic maize value chain. Through market linkages with commodity buyers, farmers have access to viable maize markets, allowing them to sell produce at profitable prices and improving their capacity to purchase agro-inputs.

As a result of MIM efforts, the use of best agricultural practices has allowed maize yields to increase dramatically, from 500-800 kg/ha to over 2,500 kg/ha, with profits increasing to over \$500/ha.

The following are expected outcomes of MIM:

- Market-oriented agricultural intensification technologies will be disseminated to at least 5,000 smallholder farmers through field days and extension materials.
- Maize yields will increase by 50 percent above the baseline yield in each project area.
- Fifty agro-dealers will be trained in input and output marketing with each increasing the supply of agro-inputs and technology transfer to 500 farmers, enabling increased production for 25,000 farmers.
- FBOs will be strengthened and linked with input and output markets.
- Incomes of participating farmers will increase by 20 percent above baseline incomes in the project area.
- Improved fertilizer recommendations utilizing soil testing and the Nutrient Management Support System for maize production will be formulated and disseminated in project implementation areas.
- ISFM and IPM plans for the various maize-based cropping systems (mono-culture, mixed cropping, intercropping and crop rotation with maize) will be prepared for project areas prior to each cropping season.



T2 - VAR. LOCAL
50kg/ha NPK 12
:24:12:6/S
50kg/ha UREA 46

EAD

EurAsia Division

OVERVIEW



EAD Activities in:

Albania
Bangladesh
Kyrgyzstan
Tajikistan

The EurAsia Division (EAD) focuses on improving food security and rural incomes in the countries it serves. The division is working to accomplish these goals through a broad spectrum of agriculture-related activities. Improving soil fertility management and the development of crop and livestock systems that support sustainability are at the heart of EAD programs.

Among others, activity priorities include: technology development and diffusion; improved farmer access (to agro-inputs and advisory services) through more efficient agro-input value chains; linking farmers to markets; and agro-processing/trade opportunity development. Institutional development and human capacity-building (with an emphasis on alleviating constraints to private sector development and stimulating private sector investment) are included in all EAD activities. Gender sensitivity is also a focus.

The division offers specialized programs to address specific needs in target areas, while also addressing the common factors that lead to sustainable progress. Success in PPPs within the countries served by EAD has contributed to progress in technology introduction and trade expansion.



KAED Follow-On Project Continues Tradition of Excellence in Kyrgyzstan

Estimates are that almost 50 percent of the population of land-locked Kyrgyzstan is food insecure. Even though more than half of the country's five million residents live in rural areas, only seven percent of the land is arable. In the recent past, Kyrgyzstan's farm production was hampered by border closures, flooding, social and political unrest and water shortages.

In 2001, IFDC began a two-year project funded by USAID to facilitate trade and technology transfer between agro-dealers and farmers in southern Kyrgyzstan. Under the Kyrgyzstan Agro-Input Enterprise Development (KAED) project, crop yields increased significantly and agro-dealers opened or expanded businesses. USAID and the Kyrgyz government were pleased with the KAED accomplishments and USAID extended support to IFDC to reach more farmers and to replicate the successes of the project in northern Kyrgyzstan.

Public-Private Partnerships

Responding to a food crisis in 2008, USAID once again funded an IFDC-led project. In 2009, KAED II forged a PPP with Eurasia Group LLC Switzerland (comprised of Pioneer, John Deere, DuPont and Monsanto). Pioneer is providing quality hybrid seeds to farmers while DuPont and Monsanto are contributing CPPs. John Deere has contributed almost \$2 million in agricultural machinery including tractors, planters, cultivators, sprayers and harvesters.

The current KAED project (Follow-On) was formed through a USAID Global Development Alliance (GDA), which has been a model for PPPs since 2001. The private sector has always had a significant role in development, but the benefits of PPPs are becoming an increasingly important part of sustainable development.

Through 'Innovative Assistance Programs,' nearly 10,000 farmers participated directly and indirectly in the GDA project. As a result, 870 ha were planted

with high-quality Pioneer corn seed. With the use of advanced technology, high-quality inputs and modern agricultural machinery, the average corn yield in project areas reached 8.5 mt/ha, while the average corn yield in Kyrgyzstan is 5.0 mt/ha. Sunflowers were planted on another 200 ha. The yield was 2.0 mt/ha; the average sunflower yield nationwide is only 1.0 mt/ha. Moreover, the most progressive farmers demonstrated record yields of corn (17 mt/ha) and sunflower (3.0 mt/ha). In total, farmers in the GDA area produced 11,964 mt of corn and 321 mt of sunflowers for further processing.



The continuing GDA partnership between USAID and Eurasia Group is a result of persistent efforts to attract international companies to the relatively small Kyrgyz market. Over 40 new business relationships have been established with an initial value of \$4 million. "The alliance serves as a prime example of how PPPs can address food security issues through increased agricultural productivity," said Dr. Hiqmet Demiri, KAED Follow-On project chief of party. "KAED hopes its successes will serve as a signal to other companies and lead to new public-private initiatives that address food security needs."

KAED has worked with the Association of Agribusinessmen of Kyrgyzstan (AAK), a non-profit organization that was established with the support and assistance of the KAED project to represent and coordinate the work of the country's agriculture producers, suppliers and dealers. AAK has been instrumental in fostering the growth of budding Kyrgyz agro-businesses as they enter world markets.

Since 2001, about 125,000 commercial and smallholder farmers have received support from the KAED projects and are now able to produce commodities for their own use and commercial purposes. Because of the success in Kyrgyzstan, talks with private sector partners have begun in an effort to expand the program to other countries in Central Asia.

to upgrade this vital sector to better serve the needs of farmers and to increase seed exports. Selected seed farms will be provided with agricultural equipment, technical and business assistance and training. Sixteen farms met the rigorous selection criteria; field visits will be conducted to help select those that will receive support under the EDF Seed Assistance Program.

EDF Phase II builds on the success of EDF Phase I. All farmers who received seed through vouchers in 2011 increased crop yields and reached or exceeded national average yields – by three percent for sunflowers, 10 percent for potatoes, 37 percent for barley, 51 percent for wheat and 132 percent for sugar beets.

I was very happy not only with the quality of the seeds but also with the high yield, which meant that I could sell my seeds for a better price.

– Kurbanaly Mitiev, a farmer from northern Kyrgyzstan

KAED's Expanded Responsibilities

The KAED projects distributed about 1,200 mt of livestock feed through private sector markets to ensure the survival of 70,000 targeted dairy cows (14 percent of the total dairy cows in Kyrgyzstan) during the harsh winter. The mortality rate was just 3.6 percent, compared with 13.5 percent for unassisted animals. Among program-assisted farms, the average milk yield rose 26 percent from the same period in the previous year.

The combination of highly productive crop yields and an effective livestock management campaign during the particularly cold winter months staved off what would have surely been a food crisis.

KAED Follow-On and a local Kyrgyz company – Oasis Agro, LLC – also created a PPP to promote poultry and high-value feed crops. The partnership provides farmers with training and access to key business resources in the feed and poultry industries, thus improving production of high-quality edible oil and eggs.

USAID awarded IFDC a contract modification in October 2011 that increased the project budget under the Economic Development Fund (EDF) Phase II. This added an Agricultural Seed Investment Support program and extended the project for a third year. The purpose of the seed sector support is

“The seed distribution program significantly reduced the shortage of seed material in the country, expanded the acreage sown with crops compared to last year and increased the use of high-quality certified varieties and hybrids,” said Torogul Bekov, Kyrgyzstan's minister of agriculture. “This will set the stage for higher crop yields in the future.” Estimates of the benefit of the increased yields on national farm income are that an additional \$12.2 million was created in 2011 compared with 2010 from the EDF Phase I investment of \$4.1 million.

“The results exceeded my expectations,” said Kurbanaly Mitiev, a farmer from northern Kyrgyzstan. “I was very happy not only with the quality of the seeds but also with the high yield, which meant that I could sell my seeds for a better price.”

Project staff are preparing for the 2012 spring planting season. In addition to planned trainings, the project team is engaged in: developing PPPs in poultry feed; rehabilitating land in two other communities to replicate the Markaz Joint Agricultural Initiative (MJAI); implementing a pilot program to produce liquid fertilizer from manure; and introducing compost as a complementary fertilizer for a large-scale potato demonstration plot.

Regarding MJAI, the Follow-On project has strong partnerships with local communities and

governments and has rehabilitated unused land and irrigation systems on a cost-share basis in two selected sites (in the Uzgen and Kara-Suu rayons of Osh oblast). About 400 ha of unused land were brought back into use for agricultural production. In addition to this direct rehabilitation, the improved irrigation systems' proper drainage, better management and improved weed and erosion control impacted soil fertility and productivity on 600 ha of land bordering the rehabilitated plots. This intervention helped 6,500 area residents.

The current interventions build on past achievements, lessons learned and relationships established to encourage Kyrgyz farmers to adopt practices that will increase crop and seed production, which in turn will increase rural incomes and support the growth of more effective agro-input enterprises.

One of the practices that Kyrgyz farmers are encouraged to adopt is no-till land cultivation. The technology minimizes soil disturbance, increases water infiltration and improves soil health because

of its lower levels of erosion. These benefits increase crop productivity and ensure sustainable agricultural production. Because of its benefits, Kyrgyz farmers are embracing no-till cultivation very quickly.

The successes of the KAED, KAED II and KAED Follow-On projects have transformed KAED into a household name throughout the country. The Follow-On project currently works with 20,000 farmers to plant USAID-funded improved wheat varieties and 80,000 farmers to collaborate with private sector partners and adopt 'best practices' in farming and animal care.

Compared to regional and European standards, Kyrgyz crop yields have been low, but with improvements in seed quality and the application of new and improved technologies, Kyrgyz farmers are making great strides – crop yields are increasing and economic returns are improving.

Together, IFDC and USAID are helping Kyrgyzstan move from subsistence farming to commercial agriculture and greater food security.



SUCCESS

STORY



IFDC Continues Its Record of Success in Bangladesh

Fertilizer deep placement (FDP) continues to expand in the densely populated nation of Bangladesh. USAID is funding the Accelerating Agriculture Productivity Improvement (AAPI) project, which advocates the use of FDP to increase crop yields while using less fertilizer. AAPI is a priority agriculture sector project of USAID's Feed the Future (FTF) program, whose focus in Bangladesh is:

- Increasing on-farm productivity, particularly of rice crops.
- Increasing investment in market systems.
- Enhancing food security.
- Enhancing agricultural innovation capacity.

An additional component has been added to AAPI. In February 2012, USAID announced the funding for a Global Climate Change Integration (GCCl) pilot project that quantifies and mitigates greenhouse gas (GHG) emissions using FDP technology.

The GCCl component makes AAPI more 'climate smart' by expanding the emphasis to encompass the environmental benefits associated with FDP technology. FDP reduces the required amount of nitrogen (N) fertilizer applied to crops (particularly rice); the reduction is due to improved uptake (absorption) by the crop. The reduced losses of fertilizer also reduce GHG in the atmosphere. In addition to reduced GHG emissions, it is hypothesized that FDP is responsible for a significant climate change mitigation benefit that accrues due to a potentially substantial reduction in nitrification of wetlands. Recently completed studies at IFDC have shown that N-leaching losses were two times lower with FDP urea briquettes than with traditional prilled urea. More than 50 percent of N applied using

the briquettes remained as ammonium-N in the soil. These results provide additional evidence of lower nitrification and reduced N₂O emissions from urea briquettes; however, this must be confirmed with actual field emission measurements.

AAPI is also promoting alternate wetting and drying (AWD), a water-saving technology that lowland (paddy) rice farmers can apply to reduce water use in irrigated fields. In AWD, irrigation water is applied to flood a field for 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 paddy productivity, less harm to the environment, enhanced efficiency of nutrients and lower insect infestation.

AAPI made significant progress in its first year of implementation. Nearly 854,000 farmers have directly benefited by adopting FDP, resulting in a 15 to 20 percent increase in rice yields while using one-third less fertilizer (saving the government and the farmers money). The MoA and its Department of Agricultural Extension (DAE) are fully supportive of FDP technology diffusion, and DAE staff are working in target areas to educate farmers on the technology.

During its first year, AAPI brought more than 240,000 ha of land under FDP technology in 11 project districts. This was possible through aggressive promotional and educational programs that worked with and through the public and private sectors to build farmer demand and a private sector-based supply system that increases farmers' access to FDP products. AAPI has been scaled up under the FTF program to 1.2 million ha involving some 2.5 million farmers in 22 districts.

The AAPI project also offers entrepreneurs business opportunities because farmers must have a reliable supply of fertilizer briquettes. Establishing businesses to manufacture briquette production machines ('briquetters') and briquettes strengthens the private sector and has been a critical component of the USAID/IFDC strategy for many years over the course of several projects. Thousands of briquetters have been fabricated and are already in use in Bangladesh. Under AAPI, additional micro-enterprise

scale entrepreneurs have invested their own funds on a cost/share basis to procure more than 200 fertilizer briquetters to meet farmer demand for urea briquettes in the AAPI project areas.

Over the course of the AAPI project, more than three million farmers are expected to benefit from FDP technology.



PROJECT IMPACT

Fertilizer Deep Placement Is Changing Lives in Bangladesh

IFDC has maintained a presence in Bangladesh for more than three decades. In 1980, the country's rice production stood at 10 million metric tons (mmt) harvested from 10 million ha. By 2009, production had increased to more than 34 mmt from the same 10 million ha. Bangladesh's DAE attributes the more than three-fold yield increases and quality improvements to "modern technologies developed by research organizations and effective agricultural extension services."

Bangladesh's government and farmers have embraced FDP technology because they have seen the difference between FDP and the traditional method of broadcasting urea onto a field. IFDC's primary focus has been on technology diffusion,

with the vast majority of project funds allocated to demand- and supply-side issues to stimulate farmer demand for FDP products and create a private sector-driven supply system that will provide farmers access to FDP products.

The Bangladesh MoA and DAE are playing key roles in disseminating information, particularly by implementing demonstrations of the FDP and AWD technologies and ongoing farmer education. The Bangladesh Fertilizer Association (BFA) is supporting efforts to strengthen the supply system for FDP products.

AAPI continues to build on past IFDC projects' successes.

AAPI Achievement of Technical Activities in Year 1

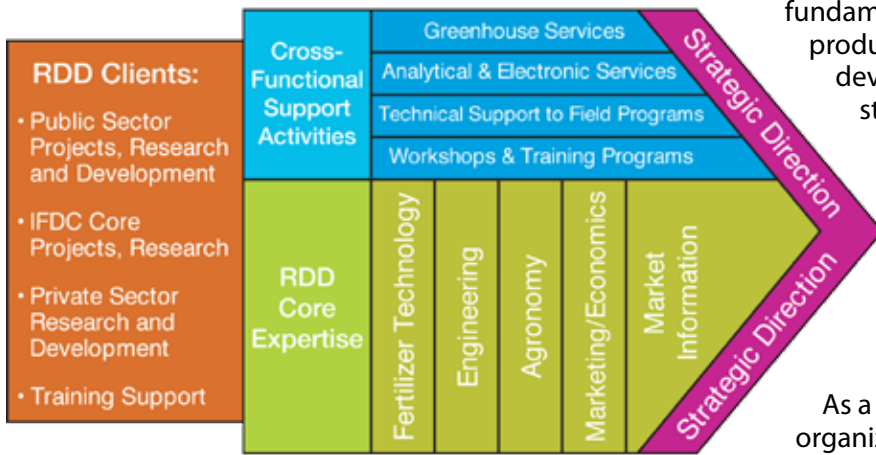
Result Indicators	Unit	Total Year		
		Target	Actual	%
<i>Technology Transfer</i>				
Training of extension staff	Batch	60	62	103%
Farmer training on FDP and AWD technology	Batch	4,000	4,144	104%
Field demonstrations	No.	800	977	122%
Field trials	No.	50	65	130%
Field days	No.	100	101	101%
Crop cuts	No.	1,170	904	77%
Motivational field trips	No.	50	52	104%
Motivational meetings and campaigns	No.	40	48	120%
<i>Improving Farmers' Access</i>				
Selling briquette machines at 75% subsidized price	No.	270	255	94%
Training of briquette producers/fertilizer dealers	Batch	25	25	100%
<i>Policy Analysis and Reform</i>				
Policy assessment	No.	1	1	100%
Policy dialogues	No.	5	1	20%
Market information reports (AAPI News Bulletin)	No.	7	7	100%
<i>Building Institutional Capacity</i>				
Training of BFA/SRDI/DAE staff	Batch	4	1	25%
<i>Development of Applicator</i>				
Grants to universities	No.	4	3	75%
Field testing of applicators	No.	3	2	66%



RDD

Research and Development Division

OVERVIEW



Research and Development Division (RDD) activities encompass multiple disciplines associated with fertilizer technology and production, use and market development. RDD engages in and conducts fundamental and applied research required to produce cost-effective and more efficient fertilizers, develops integrated nutrient management strategies for agricultural intensification and addresses policy and supply/demand issues – all of which provide an enabling environment for fertilizer market development. Research is geared toward nutrient use efficiencies while market development initiatives pursue improvements in the fertilizer value chain.

As a result, national governments, private sector organizations, international institutions and development partners seek RDD's input and advice to support decisions in these critical domains. Additionally, IFDC's field programs draw on RDD scientific and technical expertise and assistance in implementing projects and programs more effectively.

Above: A graph illustrating the interaction of groups within IFDC's Research and Development Division.

Opposite page: A 2011 DSSAT international workshop held in the U.S.



FOCUS

FEATURE

DSSAT: Combining RDD's Areas of Expertise to Better Anticipate Localized Agricultural Issues

More than 30 years ago, the International Benchmark Sites Network for Agrotechnology Transfer (IBSNAT) project was initiated using a novel approach to evaluate alternative crop management options. The IBSNAT project was funded by USAID to help improve crop production and food security in developing countries utilizing a systems approach. This concept laid the foundation for the Decision Support System for Agrotechnology Transfer (DSSAT).

The IBSNAT project brought together a group of crop modelers from the U.S. Department of Agriculture's (USDA) Agricultural Research Service, Michigan State University, University of Edinburgh, University of Florida, University of Georgia, University of Hawaii, University of Puerto Rico and international institutions (including IFDC) to develop a suite of computerized crop models that could provide reasonable yield predictions across a wide range of environments. Although the IBSNAT project ended in 1993, the development of DSSAT continued

without government financial support through the collaboration of dedicated scientists. The IBSNAT crop models were embedded in DSSAT to provide a user-friendly interface, common tools for data processing and utilities for the application of the crop models. DSSAT included a set of standard input files for weather and soil conditions and crop management.

DSSAT has expanded from the original models for soybeans, maize, wheat and peanuts to crop models for 28 different food, feed, fuel and fiber crops – with tools that facilitate the creation and management of experimental, soil and weather data files. The models are combined into one Cropping System Model that has the same soil, water, nitrogen, phosphorus and organic carbon balance simulations across all

crops, but uses unique modules to simulate each crop's growth and development. Applications of the models can be conducted for seasonal, spatial and crop rotation analyses that assess the economic risks and environmental impacts associated with irrigation, fertilizer and nutrient management, climate variability, climate change, soil carbon sequestration and precision management.

As with any computer program, DSSAT is only as good as the information that is coded into it. According to Dr. Paul Wilkens, IFDC scientist and programmer (and one of the leaders on DSSAT efforts), IFDC's Research and Development Division



has supplied DSSAT with the most recent data on mineral nutrition, rice modeling and other key crop information and analytical tools such as spatial analysis and sequence analysis.

“Almost every group within RDD has a hand in developing DSSAT data,” said Wilkens. “Our researchers provide greenhouse and field data for new or improved fertilizer technologies; our geographic information systems analysts conduct important spatial analyses; our agronomists and soil scientists provide data on the soil-plant-atmosphere continuum; and our economists and market information experts keep us informed on local conditions such as agro-input costs and optimal crop prices. It's a very synergistic process in which everyone has a necessary role to play.”

The simple goal of DSSAT is more effective decision support when it comes to the selection of crop(s) to plant, timing and the anticipation of variable factors that may affect yields. The major beneficiaries of the program have been extension agents, research stations and NGOs that regularly advise large-



scale and smallholder farmers around the world.

According to Wilkens, those who have used DSSAT – and have enhanced the program with their own data to provide appropriate

management advice to farmers – have done everything currently possible to mitigate agricultural production risks.

“In some cases, well-trained progressive farmers can utilize the program to analyze potential yields versus actual yields and make significant adjustments in their behavior,” said Wilkens. “They can look at seasonal analysis and adjust to anticipated weather conditions. They can utilize DSSAT systems analysis to get an accurate picture of input and output market conditions. The sheer amount of data

the levels of phosphorus and potassium. Data for the third primary nutrient – nitrogen – has been a component of DSSAT for some time. According to Wilkens, the more that is known about soil quality, the easier it is to adjust and react to other variable conditions. “Fertilizers can help build deficient soils to optimal levels, and are analyzed and recommended in appropriate amounts based on soil nutrient data.”

DSSAT models will continue to be used for a diverse range of studies including: plant breeding and genomics; irrigation and fertilizer management; irrigation water use projections; climate variability and decision-making; in-season yield forecasting; nitrogen leaching and soil degradation; crop rotation and long-term soil fertility; climate change impact and adaptation; and food security.

The success and effectiveness of DSSAT are due to the crop model users and developers and the associated training workshops that have been held around the world. With other DSSAT development partners, RDD staff members have conducted over 30 workshops since 1992. It is estimated that over 2,000 stakeholders have been trained in the use of the program in these sessions that have taken place from Argentina to India. Today, DSSAT is utilized by over 3,000 individuals or groups in over 100 countries. DSSAT is also a popular subject in peer-reviewed journals and publications, where the program has been evaluated over 800 times.

The sheer amount of data available to farmers allows them to optimize their agricultural management practices in amazing ways.

– Dr. Paul Wilkens, IFDC scientist and programmer

available allows them to optimize their agricultural management practices in amazing ways.”

But DSSAT is not only a tool for those directly involved in agricultural production. IFDC is contacted regularly by commodities traders, farming consultants, crop insurers and others who have stakes in the individual and collective success of the world’s farmers. “The state of the world economy, as well as the knowledge that agricultural production must increase by 70 percent in the next four decades makes a decision support tool like DSSAT that much more timely and relevant,” added Wilkens.

With that need for a dramatic increase in agricultural output, soil health has become the foundation for all other aspects of DSSAT. A recent addition to the program is a soil nutrient component that analyzes

With the advances in computer and information technologies and the questions being posed by growers, producers, extension agents and policy-makers, the need for DSSAT and similar tools and decision aids will continue to increase. Given this, and to serve the greater good, DSSAT developers recently agreed to release the software as an open source, allowing those interested in it to acquire DSSAT at no charge.

“We believe that this is the most effective way to dramatically increase access and adoption of the software,” said Wilkens. “But our larger objective is to give those who are experts in specific areas of the soil-plant-atmosphere continuum a platform to improve model performance. This environment of knowledge-sharing will benefit every DSSAT user.”



Opposite page: Dr. Joshua Ariga (right), IFDC scientist and economist, was an instructor for the “Designing and Implementing Agro-Input Marketing Strategies” training program.

Above: From left, scientists Dr. Joaquin Sanabria, Dr. Upendra Singh, Olivia Gist, Dr. Paul Wilkens and Dr. Sampson Agyin-Birikorang discuss strategies for the DSSAT program in an IFDC greenhouse.



Economics, Policy and Trade

Through extensive market research and assessment activities, project development and advisory services and policy analysis and dialogue, this group ensures that developing and transitional economies provide an enabling environment for building both fertilizer supply chains and agricultural markets as a whole. Additionally, the group analyzes the feasibility of investment programs, socio-economic suitability of new technologies, implications of multilateral trade agreements on agriculture and agribusiness and economic and policy measures required to advance national and regional trade efforts. The group also develops and implements IFDC 'smart' agro-input subsidy programs.

A number of studies were developed and reports were published by the group, including:

- The International Food Policy Research Institute (IFPRI)/IFDC discussion paper "Policy Options for Improving Regional Fertilizer Markets in West Africa" utilized four IFDC/IFPRI country-specific studies implemented under the USAID-funded Improving Fertilizer Markets in West Africa project. These studies identified the cost structure and constraints facing the fertilizer supply chain in the region and made policy recommendations to reduce, if not eliminate, such constraints for more efficient fertilizer supply in Ghana, Mali, Nigeria, Senegal and other countries in the region. The discussion paper served as the basis for the description of the USAID FTF West African Fertilizer Program (WAFP).
- Collaboration with FAO and New Partnership for Africa's Development (NEPAD) yielded a study/assessment of fertilizer subsidies in eight countries (Burkina Faso, Ghana, Nigeria and Senegal in West Africa and Malawi, Rwanda, Tanzania and Zambia in East Africa). The study identifies implementation

issues and makes policy recommendations for more effective and efficient subsidy delivery and implementation. In support of this work, RDD Economic, Policy and Trade staff participated in an African conference on fertilizer subsidies organized by FAO. They made a presentation and led discussions on the implementation of smart fertilizer subsidies.

- The group has worked for several years developing and testing the FertTrade web-based market information model. FertTrade estimates the derived fertilizer demand and supply for 36 regions and countries in the world, based on the projected food demand of 14 crop commodities. In light of some limitations identified in the model as a result of endogenous constraints and exogenous changes in the industry related to fertilizer use (the environment, technological advancements, etc.), an RDD multidisciplinary team was assembled for an ongoing evaluation and revision of FertTrade.

Fertilizer Technology

The primary function of the Fertilizer Technology group is to conduct research and development (R&D) projects that characterize and identify the most efficient use of fertilizer raw materials and develop processes to use them in fertilizer production. These activities are conducted under contract and in collaboration with national and international R&D agencies, government institutions, fertilizer trade associations and fertilizer manufacturers.

In 2011, the group (including the pilot plant and research labs) conducted 12 private client production-related tests. In addition, a number of product physical property tests, industry trainings, product analyses and fertilizer manufacturing facility evaluations were conducted. The group also provided technical assistance to private sector and IFDC projects, trainings and workshops.

Nitrogen Use Efficiency (NUE) Research Initiative

The research team engaged in several fertilizer development projects under the IFDC NUE research initiative, focusing on increasing the efficiency of nitrogen fertilizers (including improving the efficiency of nutrient uptake by plants and reducing nitrogen volatilization and leaching). Major areas of research included:

- Seed core inhibitors containing sulfur (elemental and sulfate forms).
- Polyurethane-coated urea supergranules (urea briquettes for deep placement use in Bangladesh).
- Cost reduction in off-patent coated smart fertilizers.
- Biofortification of urea enriched with micro-nutrients (zinc, iron and iodine) is being field tested in Bangladesh.
- A system to measure NO and N₂O gas emissions from the soil was designed, built and tested in the greenhouse.

Phosphate Resources and Research Initiative (PRRI)

As a follow-up to the 2010 IFDC publication *World Phosphate Reserves and Resources*, RDD staff developed a proposal for a second phase entitled 'Establishment of a Global Phosphate Rock Reserve

and Resource Estimate Initiative' (GPREI), which would harness updated reserve and resource data from both the public and private sectors involved with phosphate rock mining and processing around the world. The proposal was submitted to several potential partners for consideration and possible funding.

The PRRI team continued research in nano-grinding technology, designed to reduce phosphate rock to nano-particle size. Grinding phosphate rock down to this size results in higher surface areas, higher solubility measurements and, consequently, increased availability of phosphorus (NAC-soluble P₂O₅) to plants. Greenhouse experiments were conducted and plans were developed for moving the technology to the pilot plant for production evaluation.

Phosphate Use Efficiency

To address phosphorus (P) use efficiency, work began to produce controlled-released P fertilizers that will effectively release P from applied fertilizer to meet a plant's need for phosphorus at various physiological growth stages. This approach will improve P uptake and use efficiencies, increase yields and use less phosphorus. Preliminary results from a greenhouse simulation of controlled-release P fertilizers showed positive outcomes. Efforts are also underway to:



Paul Makepeace, IFDC senior scientist and marketing expert, discusses a 'smart subsidy' program with farmers in Nigeria.

- Test the efficacy of carboxylate polymers in reducing phosphate fixation, thereby keeping the phosphate in a plant-available form.
- The quantification of residual P fertilizer availability for subsequent cropping: Despite extensive research on soil P, much remains unknown about the response of crops to residual P in acidic and/or highly weathered soils. Under these conditions, P may form inner-sphere bonding with iron and aluminum oxides in the soil. The likelihood of P release back to the soil solution is extremely small for subsequent crops. Thus, irrespective of the low P use efficiency in the year of P application, P still must be applied for subsequent crop production. This study continues to determine the agronomic efficiency of residual soil P from preceding cropping.
- Statistical analysis and database management: In addition to direct project support through design and data analysis from experiments conducted in laboratories, greenhouses and in the field, statistical analyses were applied to household surveys from Bangladesh, Kyrgyzstan and Rwanda. General scientific/technical assistance was also given to the fertilizer quality assessment project in the ECOWAS countries, and to other activities of the Marketing Inputs Regionally Plus (MIR Plus) project in West Africa.

Market Information Unit

Market data and information are researched and publications and studies are developed to support RDD projects, as well as other IFDC projects and contract proposals. Industry publications are reviewed to keep fertilizer capacity information current and to maintain knowledge of the industry. (Publications produced in 2011 can be found on page 80.)

In addition, the group prepares statistical reports for The Fertilizer Institute (TFI) about the North American fertilizer industry. These reports involve collecting statistical data, verifying and confirming data and summarizing/preparing various reports. Due to market sensitivity, IFDC is diligent in keeping all data confidential. The following publications and studies were completed in 2011:

- *Fertilizer Record* (monthly).
- *U.S. Phosphate Material Exports Report* (monthly).
- *North America Capacity Survey*.
- *Ammonia Production Cost, 2010*.
- *Operating Rates, July-December 2010*.
- *Operating Rates, January-June 2011*.
- *Annual Report: 2010-2011 Fertilizer Record*.
- *Toxic Release Inventory Summary, 2010*.

The annual *North America Capacity Survey* was conducted to support the TFI *Fertilizer Record* project and to update IFDC capacity files. This survey of basic producers in the United States and Canada that participate in the *Fertilizer Record* yields updates on current and planned plant operations and production capacities.

Analytical Services

In addition to providing analytical support to all IFDC divisions, RDD analytical chemists conducted sample analyses for 26 external clients in 2011. In-house analytical work primarily supports IFDC's research efforts focused on increased agricultural production and improved fertilizer technologies. In support of agricultural productivity advancement, thousands of soil and plant tissue samples generated from the laboratory, greenhouses and field tests are analyzed for nutrient content on an annual basis to establish best fertilizer management practices in the developing world. In addition, analyses that focus on the physical and chemical properties of various fertilizers produced in the IFDC pilot plant help establish the most economical fertilizer products for smallholder farmers. Most recently, analytical services analyzed the nutrient content of fertilizer samples from markets throughout West Africa and provided technical assistance to the development of a manual on fertilizer quality control. The group also established a fertilizer testing lab in West Africa. Both the new manual and testing lab will help ensure that fertilizers sold in local markets are of the proper quality.

Greenhouse Services

This critical support service group is responsible for maintaining IFDC's two greenhouse facilities and coordinating with RDD scientists to move research from the laboratory to the greenhouse evaluation stage of the technology development process. This includes identification of soil sources and their collection for use, maintaining and monitoring crops and collecting analytical data during the growth cycle and post-harvest.

Opposite page: The large-scale fertilizer pilot plant on the campus of IFDC headquarters in Muscle Shoals, Alabama, USA, is shown in this photo.



FOCUS

FEATURE

Over 650,000 Trained

During 2011, the number of IFDC field training participants increased by 20 percent over 2010 (from 546,536 in 2010 to 653,879). In addition, the proportion of women trained in 2011 increased from 26 percent to 32 percent.

“Training has been a critical focus area for IFDC in Africa for more than 25 years,” stated Dr. André de Jager, acting director of the North and West Africa Division. “That trend continued in 2011.”

Despite cyclical fluctuations, the number of those trained increased significantly in many countries due to new projects (Ghana, Mozambique and Nigeria) and the expansion of activities (Bangladesh and central Africa). Beyond the quantitative data, a key feature of the 2011 field training is the variety of topics covered. Those trained included farmers, agro-dealers and trainers who will train others (training of trainers, or ToT). Based on feedback, the training sessions were of great value to the participants.

North and West Africa Division

Benin – The **Improving Access to Non-Cotton Inputs** project aims to increase the crop productivity (by 40 percent) and incomes (by 20 percent) of farmers in the rice, maize and pineapple commodity value chains. The project trained 2,231 participants (26 percent were women) in agro-input supply management (input market knowledge, supply system and stock management); maize and rice post-harvest technologies (warehouse evaluation, preservation of stock, etc.); and rice production intensification (seed-saving technologies, seed production/multiplication, etc.).

Burkina Faso – The **Professionalization of Agro-Input Dealers in Burkina Faso (PRODIB)** project trained 390 agro-dealers in its first year. Topics included: access to agro-inputs and roles of agro-dealers; demonstration plots and technology transfer; agro-input shop management; legislation, leadership and advocacy; post-harvest seed management; and seed quality for seed producers.

Ghana – Four projects trained nearly 9,700 participants, a decrease of 51 percent from 2010 (primarily because the projects’ targets were met more quickly than expected).

- Under the **MCC/Commercial Development of Farmer-Based Organizations (CDFO)** project, training activities were organized around three components: farmer and SME training in commercial agriculture; improving access to/ use of irrigation facilities to enhance production; and improving post-harvest handling and value chain services. During the project’s last year, 6,406 farmers (of whom more than 50 percent were women) were trained, increasing the total farmers trained to nearly 25,000 (exceeding the target by 36 percent).
- The **Ghana Agro-Dealer Development (GADD)** project trained 907 agro-dealers (83 percent men, 17 percent women) in 10 regions (during the three-year project, 2,388 agro-dealers were trained). The three-day training sessions improved dealers’ knowledge of seeds, fertilizers and agro-chemicals and built their skills in business and financial management. Following the training, the agro-dealers were certified by the Ghanaian Environmental Protection Agency and Plant Protection and Regulatory Services Division of the Ministry of Food and Agriculture.
- **Linking Farmers to Markets (FtM)** – Increasing from 60 trainees in 2010, FtM trained 2,019 participants (25 percent women) in contract and supply requirements, post-harvest activities, best agronomic practices and community extension work.
- The **Agricultural Value Chain Mentorship Project (AVCMP)** for the Northern Region Breadbasket strengthened the capacity of agro-dealers, SMEs, FBOs and farmers. Training topics included ISFM technologies as well as entrepreneurial and management skills in the rice and soybean agricultural value chains. AVCMP trained 365 participants, of whom 33 percent were women.



Farmers are trained to transplant rice at an irrigation site in Northern Ghana.



Mali – Three projects trained more than 27,000 participants (of whom 40 percent were women), more than doubling the 2010 training outreach.

- The **Grassroots Development of Agribusiness Clusters in Mali (DEBPEA)** project continued to organize training to contribute to business development and agro-input distribution in rural areas. In 2011, there were 16,233 participants (61 percent were women). Training topics included: CASE and ISFM; agro-marketing; lobbying and advocacy; business plans; food safety, quality and certification; post-harvest management; monitoring and evaluation (M&E); successful field demonstrations; and management/safe use of pesticides.
- The **KIT/Sesame** project, in collaboration with the National Directorate of Agriculture, is increasing the yield and improving the quality of the sesame sector. The project trained 1,269 participants (31 percent were women) in sustainable and integrated production systems such as IPM and post-harvest technologies.
- The **Prevention of Cotton Contamination (PCC)** project built the capacity of 9,577 participants in cotton contamination prevention and the safe transportation of cotton grains.

Nigeria – Three projects reached more than 2,900 participants, with women accounting for 21 percent.

- **Nigeria Agro-Dealer Support (NADS)** trained 386 agro-dealers in product knowledge and management skills.
- **Bridge to Markets 2 (BTM2)** provided capacity-building trainings to agro-dealers and 240 personnel from the Taraba State government

(extension agents, assistant directors, field supervisors, team trainers and document supervisors) to help prepare farmers for the 2011 Fertilizer Voucher Program. BTM2 also conducted trainings for nearly 1,000 farmers on urea deep placement (UDP) technology, resulting in a 30 percent increase in rice yields and a 40 percent reduction in expenditures on fertilizers.

- **Cassava+** trained 1,319 farmers on: group dynamics; land selection/preparation; stem-cutting, handling and preservation; leadership skills; fertilizer application; farm business management; and farm business record-keeping.

West Africa – MIR Plus nearly quadrupled its training audience from 10,369 participants in 2010 to 40,017 participants (including 10,027 women) in 2011 in Burkina Faso, Ghana, Mali, Niger, Nigeria and Senegal.

- 38,884 participants received training in: safe use/handling of pesticides; fertilizer product knowledge; pooling agro-input demand; and effective procurement and organizational capacity-building.
- 1,098 participants received training in: FDP technology; NPK application; deep placement of FDP briquettes; and use of FDP briquetters.
- 35 people received training in mobile application tools for data collection.

West Africa Cotton Improvement Program (WACIP) significantly increased its training, reaching 115,252 participants in 2011. Training on IPM and ISFM technologies for cotton, maize and cowpeas was conducted in Benin, Chad and Mali.

West Africa – Natural Resource Management- related training programs reached 5,636 participants (down from 54,704 in 2010). The decrease is because the projects focused on validating innovative practices, creating learning centers and organizing technical visits and rural workshops rather than the mass training that characterized 2010. Training topics included: management of ISFM-based learning centers; cost-effective and innovative approaches for soil and water conservation and crop production; inland valley rice cropping and vegetable-based UDP management; drip bucket irrigation systems for vegetables and management of heat-tolerant vegetable varieties; and agro-dealer capacity-building to create input/output market opportunities for smallholder farmers.

West Africa – The Accelerating Agribusiness in Africa – Bridge (AAA-Bridge) project organized training programs for agribusiness cluster members and business support services (BSS) providers. The training was in seven West African countries (Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria and Togo) on varied topics, including: CASE; multi-stakeholder strategic planning; best cropping and post-harvest practices; business plan development; commercial planning; gender analysis in value chains; and M&E. A total of 3,381 participants were trained (34 percent women).

East and Southern Africa Division

Central Africa – Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability (CATALIST) training activities continued to focus on the training of trainers, technicians and farmers through farmer field schools that capitalized on the project's ISFM achievements. CATALIST more than doubled its training audience to over 159,000 participants, of whom 53 percent were women. Due in large part to its strong network of sub-contractors, the **Sustainable Energy Production Through Woodlots and Agroforestry (SEW)** project increased the number of trainees more than 10-fold to over 9,000 participants, of whom 35 percent are women. Topics included modern carbonization techniques, woodlot and agroforestry system management and entrepreneurship.

Kenya, Uganda, Tanzania – The Extending Agro-Input Dealer Networks in East Africa (EADN) project held 23 training events on agricultural productivity, improved food security and effective agro-input use. More than 6,300 participants (4,154 men and 2,170 women) were trained through ToT for agro-dealers and field days for farmers.

Mozambique – The Mozambique Agro-Dealer Development (MADD) project trained 7,640 participants, of whom 45 percent were women. It trained new and existing agro-dealers to enhance their product knowledge and improve their business skills and profitability in the production, importation and distribution of fertilizer, seed and other inputs. Topics covered were in six modules: (1) product knowledge; (2) marketing and salesmanship; (3) business management and networking; (4) logistics management/delivery; (5) CPP and agro-input use technologies; and (6) association development.



Rwanda – The Rwanda Agro-Dealer Development (RADD) project continued to focus on building a competitive agro-dealer network. Nearly 900 participants (627 males and 271 females [30 percent]) took part in 36 training events. Topics included: effective business management; entrepreneurship and business plan development; and techniques for agricultural technology transfer.

“Training smallholder farmers, extension agents, agro-dealers and others who are important to the agricultural sector in developing countries is a key activity of IFDC,” said Rob Groot, director of IFDC’s East and Southern Africa Division. “Every IFDC project has a training component that is central to its success. Additionally, IFDC seeks gender equity and staff members work diligently to increase the number of women involved in training programs.”

EurAsia Division

Bangladesh – The Accelerating Agriculture Productivity Improvement (AAPI) project recorded an increase of 28 percent in the number of trainees over 2010. The most notable achievement is the increase in women participating (from 9 percent in 2010 to 21 percent in 2011). Key training sessions included: ToT for DAE and NGO field staff (techniques and application of FDP, UDP, AWD and better crop management practices); farmer training (applying FDP/UDP technologies along with quality seed, water and crop management); and training and use of the briquette applicator (which will help spread FDP technology).

Kyrgyzstan – The Kyrgyz Agro-Input Enterprise Development (KAED) project increased its training audience by 21 percent and the number of women participants by 26 percent. Participants were trained in: dairy cattle management; IPM methods; advanced irrigation techniques for value-added crops; PPP business models; soil fertility improvement for eroded lands; seed farm management; small-scale poultry management; and livestock pest and disease control. "For more than a decade, the KAED projects have worked with USAID and the Kyrgyz government to improve the country's agricultural sector," said Dr. Hiqmet Demiri, KAED chief of party. "Among our most effective tools are training and mass communications. KAED is providing training not only on fertilizer but

also about all aspects of farm management and business growth through PPPs. IFDC and KAED are involved across the agricultural spectrum."

Tajikistan – The Productive Agriculture (PRO-APT) project organized 57 courses, training 1,662 farmers and agro-dealers (226 women). Compared with 2010, these were 26 percent and 63 percent increases, respectively. Again, training topics helped farmers to better manage their farms (best practice production techniques for onions, tomatoes and apricots; innovative storage methods for lemons; and proper butchering techniques). Agro-dealers received training on newly certified inputs.

Training & Workshop Coordination Unit (TWCU)

During 2011, the TWCU held seven international training sessions for several hundred attendees in locations ranging from the USA to Germany, Spain, Thailand, Ghana, Kenya and Tanzania. Topics included DSSAT 2011, phosphate and nitrogen fertilizer production technology, linking farmers to markets, fertilizer policy and marketing strategy in Africa, the fertilizer value chain and assessing indigenous fertilizer production opportunities in Africa. Experts from several universities, IFDC, IFA and other organizations served as faculty for these trainings.

Number of Training Programs and Participants by IFDC Projects in 2011 in Comparison to 2010

No. IFDC Projects	2010				2011				
	#Tr.Pr.	# of 2010 Participants			#Tr.Pr.	# of 2011 Participants			Progress (+/-)
		Women	Men	Total		Women	Men	Total	
EAD	4,798	19,970	187,274	207,244	6,625	56,223	208,010	264,233	27%
1 Bangladesh (UDP & ILSAFARM, 2010/AAPI, 2011)	4,672	18,945	183,810	202,755	6,502	54,881	203,923	258,804	28%
2 Kyrgyzstan (KAED)	62	886	2,226	3,112	70	1,116	2,651	3,767	21%
3 Tajikistan (PRO-APT)	64	139	1,238	1,377	53	226	1,436	1,662	21%
ESAFD	2,161	35,904	41,761	77,665	4,141	92,715	90,332	183,047	140%
4 Central Africa (CATALIST/SEW)	2,062	31,491	34,477	65,968	4,073	86,798	81,387	168,185	155%
5 EADN (Kenya, Uganda, Tanzania)	29	268	570	838	23	2,170	4,154	6,324	655%
6 Mozambique (AIMS and MIM, 2010/MADD, 2011)	7	2,274	5,791	8,065	9	3,476	4,164	7,640	-5%
7 Rwanda (RADD)					36	271	627	898	
8 East and Southern Africa (COMRAP) *	22	909	575	1,484					
9 Uganda (LEAD) *	40	955	292	1,247					
10 REC Project (STAR) *	1	7	56	63					
NWAFD	1,272	89,306	173,568	262,874	2,961	58,772	147,827	206,599	-21%
11 Benin (Non-Cotton Crops Productivity)	13	443	2,589	3,032	16	574	1,657	2,231	-26%
12 Burkina Faso (PRODIB)					7	26	364	390	
13 Ghana (MCC/CDFO, GADD, FTM, AVCMP)	52	9,481	10,320	19,801	59	3,995	5,702	9,697	-51%
14 Mali (DEBPEA, PPC, KIT/Sesame)	66	5,023	5,766	10,789	68	10,864	16,215	27,079	151%
15 Nigeria (NADS, GFSR/BTM2, Cassava*)	51	1,117	4,941	6,058	76	598	2,318	2,916	-52%
16 West Africa - AAA-Bridge					64	1,151	2,230	3,381	
17 West Africa (NRM-related projects)	82	13,177	41,527	54,704	58	1,512	4,124	5,636	-90%
18 West Africa - WACIP	13	2,168	3,908	6,076	2,560	29,914	85,338	115,252	1797%
19 West Africa - MIR Plus	431	2,072	8,297	10,369	53	10,138	29,879	40,017	286%
20 West Africa - Thousands to Millions (1000s*) *	564	55,825	96,220	152,045					
Total	8,231	145,180	402,603	547,783	13,727	207,710	446,169	653,879	20%

*Projects ending in 2010; no 2011 data

Tr.Pr. = Training program



IFDC Projects That Began in 2011

IFDC began new projects and ended others in each of its three geographic divisions. Project overviews begin below. Additional information about the projects can be found at www.ifdc.org/projects.

NWAFD

Agricultural Value Chain Mentorship Project (AVCMP), 2011-2014

Formerly one of the country's breadbaskets, the Northern Region of Ghana now suffers from widespread food insecurity and poverty. Only 10 percent of the region's land area is cultivated, but there is potential for the production of staple food crops such as rice and soybeans.

Agriculture in the region is largely rain-fed, causing production levels to vary according to weather conditions. Smallholder farmers have very limited access to improved seeds, quality fertilizers and/or the credit to purchase them. They also lack knowledge of proper crop and water management practices. Often, farmers are unable to sell their surplus crops because of post-harvest losses and a shortage of storage and processing facilities.

To address these issues, AVCMP is contributing to the government's objective of achieving food security and developing the region's agricultural sector into an agro-industrial economy. The goal is to transform the agricultural value chain into a highly productive, efficient, competitive and sustainable system by strengthening the capacity of agro-dealers, SMEs and FBOs. Funded by AGRA and the Danish International Development Agency (DANIDA), the three-year project (2011-2014) targets 34,000 smallholder farmers and 680 FBOs.

The project is implemented by IFDC, GAABIC and the Savanna Agricultural Research Institute (SARI). IFDC's role is to increase rice and soybean farmers' access

to output markets by building the entrepreneurial and technical capacity of SMEs. This includes strengthening the SMEs' linkages with domestic, national and international markets, agro-dealers, agribusiness service providers, FBOs and farmers. IFDC is increasing SMEs' access to commercial finance and farmers' access to storage facilities and processing services.

GAABIC is improving agro-dealers' business management skills and their capacity to provide customers with fertilizers and seeds. SARI is training FBOs and their farmer-members in ISFM and encouraging its widespread adoption.

Through the mentorship of stakeholders along the agricultural value chain, business growth and productivity are expected to continue after the project ends.

Professionalization of Agro- Input Dealers in Burkina Faso (PRODIB), 2011-2014

Although there is immense human and economic potential in SSA, the number of people living in poverty has doubled to 314 million over the past two decades. Presently, Burkina Faso ranks among the 20 poorest countries in the world, with nearly half of its population living in poverty.

As in other African nations, agriculture is the primary livelihood for most Burkinabè, so improving the agriculture sector will have a broad and positive impact. An effective agro-input market (improved seeds, mineral fertilizers and CPPs) will help improve the country's agriculture sector. Major constraints that affect the development of the Burkinabè agro-input market include non-supportive policy environments,

inadequate human capital, limited access to finance and market information, poor enforcement of regulatory systems and inadequate support for technology transfer efforts. Burkina Faso faces additional challenges because the country is land-locked. Therefore transportation costs to import agro-inputs and to export surplus crop outputs are higher. In addition, farmers must contend with low rainfall and poor soils in the majority of the country.

In May 2011, IFDC launched the PRODIB project to assist farmers to gain better access to high-quality agro-inputs. The primary goals of PRODIB are to increase agricultural productivity and to boost the incomes of approximately 375,000 smallholder farmers in the country by increasing the availability, accessibility and affordability of quality agro-inputs in rural areas. This three-year initiative (2011-2014) is funded by AGRA and implemented by IFDC in close collaboration with AGRODIA.

Primary activities include building agro-dealer capacity, strengthening institutional bodies, providing financial support, increasing technology

transfer through training programs, facilitating favorable agro-input policies and regulations and monitoring and evaluating project progress. PRODIB is supporting agro-dealers' and farmers' efforts to lobby for policy reform and generate revenue for financial self-sufficiency.

Agro-dealers are critically important in making agro-inputs available to farmers. PRODIB is strengthening the ability of 800 agro-dealers to create business linkages with input suppliers and to extend their retail networks to reach more farmers. The agro-dealers are being trained in product knowledge, safety and handling, sales and marketing, business skills and financial management, logistics planning and delivery and information and technology transfer to farmers.

The project is also providing assistance to these agro-dealers by facilitating access to financing for business development through risk-sharing arrangements. Better financed, trained and certified agro-dealers are able to provide their farmer-customers with more information and training, as





Soil laboratory staff and extension agents learn to take soil samples to develop fertilizer recommendations in Bahir Dar, Ethiopia.

well as better service. This includes a wider range of products, technical advice on agro-input use and the promotion of sound agricultural practices through field demonstrations. The project established 33 demonstration plots in 16 provinces to showcase the proper uses of CPPs, improved and hybrid seeds and improved practices in mineral fertilization.

Agro-dealers are being encouraged to join AGRODIA, the country's primary agro-dealer association. PRODIB is also providing association management resources to AGRODIA so it is better able to serve members. As a result of PRODIB's assistance, AGRODIA was able to hold its first board meeting in more than two years. In addition, two studies were launched – a baseline study on the status of agro-dealers and a study on their geographic location in the country.

Results expected to emerge from the PRODIB project include increased agricultural productivity and incomes for farmers, better trained and more capable agro-dealers who are able to obtain credit, a sustainable AGRODIA trade association, an effective M&E system and, ultimately, a significant increase in the amount of seed, fertilizer and CPPs sold by the targeted agro-dealers. These results are projected to revolutionize Burkina Faso's agricultural system and benefit the nation's economy as a whole, a critical step toward food security in the country and the region.

ESAFD

Africa Soil Health Consortium, 2011-2014

The Bill & Melinda Gates Foundation-funded Africa Soil Health Consortium (ASHC) is a 3.5-year project implemented by CABI. The ASHC is a service provider to clients spanning public, private and academic arenas whose daily work involves assimilating ISFM technologies into practice at local levels.

ASHC draws from the body of ISFM research; edits the research down into context-relevant actionable messages; generates and tests formats (locally appropriate and tested handbooks, leaflets, videos, radio and television programs, content for mobile handset apps, web content, policy briefs, etc.) for the presentation of these messages; secures demand and buy-in from partners for the replication and dissemination of materials; and turns templates over to public agencies for open use and further adaptation to suit various contexts. ASHC has drawn upon the expertise of a Technical Advisory Group comprised of experts in agronomy, soil science, communications development, gender and policy for the production of an ISFM handbook. The Consortium is also developing six cropping system-specific guides and is interacting with 17 partners who have requested materials addressing 13 context-specific ISFM-related topics (all materials are presently in the design pipeline).

IFDC is providing M&E services to ASHC and is responsible for leading assessments of the project

processes, collecting views from stakeholders in a structured manner and conducting formal evaluations to assess the value of the communications products and how they contribute to outcomes in the ongoing development initiatives with which ASHC links.

Agricultural Growth Program – Agricultural Marketing Development Project (AGP-AMDE) in Ethiopia, 2011-2015

The agro-input sector in Ethiopia faces a number of constraints including low rates of private sector participation in fertilizer importation. The goal of the AGP-AMDE project is the long-term reduction of poverty and hunger through improvements in the productivity and competitiveness of value chains that offer income opportunities for rural households. The project is implemented by ACDI/VOCA and funded by USAID under the U.S. government's FTF initiative.

As a member of the ACDI/VOCA Support for Food Security Activities (SFSA) team, IFDC is helping to build agro-input supply and distribution systems and facilitate farmers' access to and use of agro-inputs. IFDC is also supporting the development of private sector agribusinesses to produce and market seeds.

Additional IFDC activities include training programs on agro-input market development, natural resource management and value chain clusters; international learning tours for agro-input suppliers; field days and demonstrations to facilitate technology and information transfer; and annual agro-input policy workshops.

Tanzania Staples Value Chain (NAFAKA), 2011-2015

While the agricultural sector in Tanzania is expanding, more than 40 percent of the population lives in areas where erratic rainfall causes recurring food shortages. To increase food security in the country, the NAFAKA project is improving the productivity and profitability of smallholder farmers in the maize and rice value chains while expanding the benefits from this growth to women, youth and other vulnerable groups. The five-year project is implemented by ACDI/VOCA and its SFSA team (including IFDC) and funded by USAID under the FTF initiative. FTF seeks to harmonize regional hunger- and poverty-fighting efforts in countries with chronic food insecurity and insufficient production of staple crops.

IFDC is working with agro-input suppliers, producers and financial institutions to strengthen the availability of quality agro-inputs and to demonstrate their proper use at the farm level. Other IFDC activities include: strengthening the maize and rice seed supply; promoting technologies to increase crop yields and their nutritional value; conducting ToT programs on ISFM; introducing and expanding MIS, which brings increased transparency to agro-input and crop marketing; and assisting the Tanzanian government and other stakeholders in creating an enabling policy environment for agro-input use.

"Increasing the quantity and availability of key staple crops in countries like Tanzania is at the heart of fighting hunger and malnutrition in East Africa," says Lee Rosner of ACDI/VOCA. "By working with farmers, especially women, in the maize and rice value chains, we expect to build farmers' incomes and improve rural families' access to diverse and nutritional foods."

Tanzania has experienced strong growth in its agricultural sector over the past decade, but the benefits have not been widely distributed. With 80 percent of the labor force employed in agriculture, the sector has the potential to drive economic growth and reduce poverty.

The NAFAKA project team is working with rural communities and the Tanzanian MoA to analyze the local maize and rice value chains and develop a strategy to strengthen them. It uses a multi-faceted approach to: improve productivity through a strong program of public and private extension services; increase incomes of vulnerable farmers, including women and young people, by building robust marketing groups to increase their capacity to generate assets, capital, skills and knowledge; improve competitiveness and trade by encouraging greater trade investments and facilitating win-win demonstration initiatives; and increase investment and innovation through a \$2 million grant fund to lower value chain actors' risks when they adopt new technologies and practices.

The interventions will focus on the geographic region of the Southern Agricultural Growth Corridor, primarily in the Kilombero and Mvomero districts in Morogoro. The program will conduct activities in the Kiteto district in Manyara, Kongwa district in Dodoma and Zanzibar.

NEPAD-FAO Fertilizer Subsidy Study, 2011-2012

The NEPAD's Planning and Coordinating Agency (NPCA) has commissioned a study on fertilizer subsidy programs in eight countries in Africa, with



The study's output will provide recommendations regarding: (1) key lessons learned and identification of best practices; (2) key components of a well-managed and implemented subsidy program; and (3) conditions and policy recommendations for the successful management and implementation of fertilizer subsidy programs.

technical guidance and financial support provided by FAO, AGRA and IFDC. The study will be an overview of different subsidy models, thus providing a menu of options for countries considering subsidies or wanting to alter ongoing subsidy programs.

Since 2005, many African governments have reintroduced or expanded fertilizer subsidy programs to assist their farmers in accessing this critical input. The impetus has come from a number of quarters, including: Malawi's groundbreaking 2005 fertilizer subsidy program; Resolution 5 of the *Abuja Declaration on Fertilizers for an African Green Revolution* (the main outcome of the African Union/NEPAD Africa Fertilizer Summit, implemented by IFDC), which called for countries to introduce targeted subsidies for resource-poor farmers as a key measure necessary to promote an African Green Revolution; and the food and fuel crisis of 2007-2008, which drove fertilizer prices to unprecedented heights. Given that fertilizer subsidies are likely to continue to be a key component of agricultural policy in countries in SSA, the NPCA determined that there was an urgent need to commission a study that can serve as a reference, providing guidance and recommendations for the management and implementation of this key policy instrument.

The study focuses on fertilizer subsidy programs in Burkina Faso, Ghana, Malawi, Nigeria, Rwanda, Senegal, Tanzania and Zambia. The guiding hypothesis of the study is that there is a direct link between the design, characteristics and implementation modalities of a subsidy program and its performance. The study analyzes the various subsidy models, identifies major issues that are affecting the implementation of subsidy programs in SSA and will provide a menu of options to improve the management and implementation of ongoing subsidy programs in order to bring about a more positive impact on food security.

The study will be presented and discussed for validation during a stakeholder workshop in 2012. The purpose of the workshop will be to identify actions to maximize the influence of the recommendations on national fertilizer policy in general and the implementation of fertilizer subsidy programs in particular, and develop a roadmap for the implementation of these priorities.

EAD

Market Development in the Fertilizer Sector of Bangladesh (Katalyst II), 2011-2012

The Katalyst II project is a continuation of the first Katalyst project. It is implemented under the Ministry of Commerce of the Government of Bangladesh (GoB) by Swisscontact and the German Agency for Technical Cooperation (GIZ) International Services.

The project is jointly funded by the following: Swiss Agency for Development and Cooperation (SDC); the United Kingdom Department for International Development (DFID); Canadian International Development Agency (CIDA); and Embassies of the Kingdom of the Netherlands.

Katalyst follows a pro-poor, market development approach in promoting economic growth. Strengthening and supporting the development of the systems that underpin agricultural development are emphasized. IFDC is providing services and expertise to improve market development in the Bangladesh fertilizer sector, with an emphasis on advancing private sector participation in the

market. Another project focus is on fertilizer policy framework and the removal of investment barriers. Crop agriculture, particularly grain production, is the major driving force of the Bangladesh economy. Rice is the country's staple food and accounts for about 77 percent of the total cropped area. Some areas have had success with crop diversification to maize and vegetable production. Also, maize has been particularly important as a livestock feed.

But despite its crucial role in the Bangladesh economy, the agricultural sector is under-performing; actual yields remain at 50 percent of their potential. Soil nutrient levels of phosphorus and potassium as well as secondary nutrients and micronutrients are being depleted. Improved soil nutrient management, supported by irrigation and quality seed, is a key component of the GoB's strategy to improve yields on a sustainable basis.

To achieve sustainable crop yield growth through soil health and fertility management, Katalyst is working to: promote correct fertilizer management practices; ensure the availability of all fertilizers at the farm level for balanced fertilizer application; and facilitate a market-friendly regulatory framework. IFDC is helping to increase the yields of rice, maize, jute, vegetable and potato crops through educational efforts focused on the effective, efficient and correct use of fertilizer and other agro-inputs.

Katalyst is strengthening BFA by helping to establish an MIS within the association. IFDC is also assisting BFA by designing a preliminary plan for yearly fertilizer demand projections in each of Bangladesh's upazilas (government districts). A yearly demand projection is important to BFA so that member agro-dealers order the appropriate fertilizers in the appropriate amounts.



Project Highlight



Those who signed a communiqué to improve food security in South Sudan included (left to right): Jim Bromley, AGRA chief operating officer; Dr. Amit Roy, IFDC president and CEO; H.E. Anne Itto, South Sudan's Minister of Agriculture and Forestry; Dr. Rajiv Shah, USAID administrator; and Robbert van Lanschot, first secretary of the Embassy of the Kingdom of the Netherlands in South Sudan.

Seeds for Development in South Sudan, 2011-2013

The new nation of South Sudan was created when the southern portion of Sudan gained independence in June 2011 after years of civil war. While about 85 percent of the people of South Sudan depend on agriculture for their livelihoods, most are subsistence farmers using traditional farming methods which barely meet daily household consumption needs. Very few use fertilizers, seeds and CPPs or have experience treating agriculture as a commercial enterprise. Currently, the country imports more than 80 percent of its food from Uganda and Kenya in order to satisfy the rapidly growing national food demand.

In May 2011, USAID, the Kingdom of the Netherlands, IFDC and AGRA signed a communiqué to formalize their joint commitment to promote food security and develop the private sector in the agricultural

system of South Sudan. Following the signing of the communiqué and in light of a looming food crisis, IFDC and AGRA are implementing the Seeds for Development project, which will help transform agriculture in South Sudan from subsistence farming to a market-oriented, competitive and profitable agricultural system.

The project was developed by the South Sudan Ministry of Agriculture and Forestry and is funded by USAID and the Howard G. Buffet Foundation through AGRA. Seeds for Development is working closely with another USAID-funded project – Food, Agribusiness and Rural Markets (FARM).

Over the life of the program (2011-2013), the project will harness the entrepreneurial spirit of agro-dealers, seed companies, farmers, food processors

and bankers to commercialize the agricultural value chain. A key methodology is integrated seed sector development combined with the development of specific agribusiness clusters. Components of the program include:

- Building and strengthening a service-oriented public seed sector.
- Promoting investment by private seed companies.
- Supporting professional private seed producers and organizations.
- Promoting the marketing of quality seed of superior varieties.
- Promoting linkages to smallholder farmers.
- Supporting the development of an agro-dealer network.
- Designing and implementing a seed and fertilizer voucher program.

Seeds for Development activities began in South Sudan's 'greenbelt' (the states of Western, Central and Eastern Equatoria). IFDC is educating farmers about the benefits of high-quality seed and modern fertilizer technologies and training them in their proper use. A voucher program is being organized to increase farmers' access to much-needed agro-inputs and to build business for rural agro-dealers.

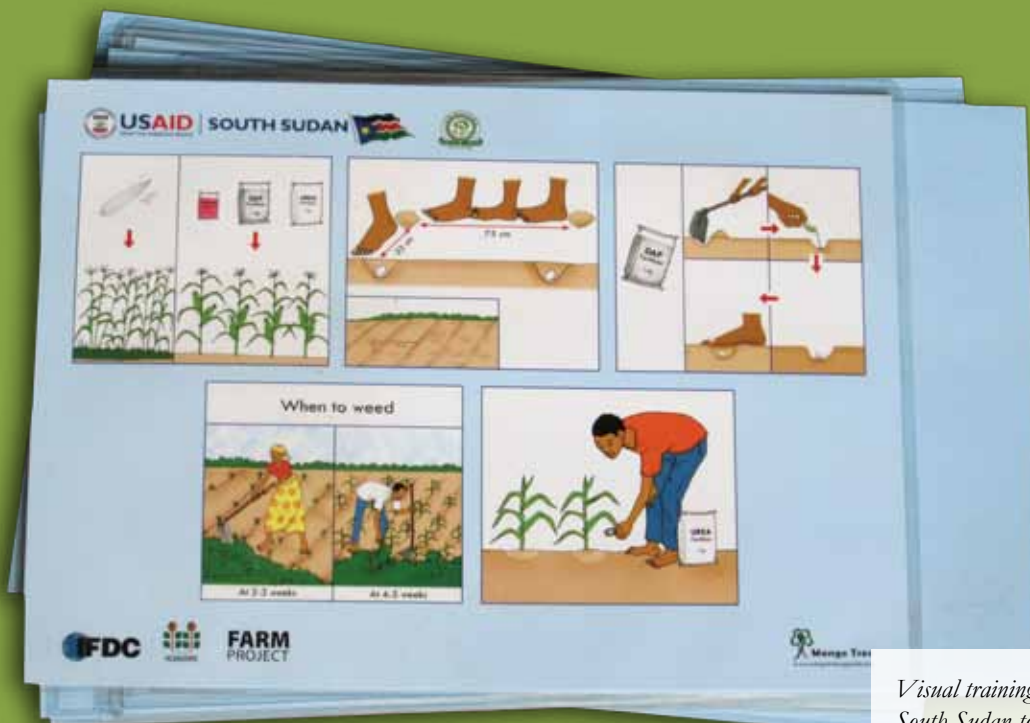
"Our experience in helping smallholder farmers gain access to agro-inputs across eastern Africa shows

that farmers rely on agro-dealers for information about agricultural technologies. We therefore have to educate the agro-dealers about the types of fertilizers best suited for different crops, how they should be applied and how farmers benefit from using agro-inputs," said Allan Mukisira, the project's agro-dealer specialist.

IFDC is working with AGMARK to develop and train a network of agro-dealers that will market agro-inputs and provide advice and support to farmers. The project will also connect the newly trained rural agro-dealers with input manufacturers and suppliers and financial institutions so they can access credit, increase their stocks of agro-inputs and effectively meet farmer demands.

"Agro-dealer training is an essential step in catalyzing the development of a private sector that can supply farmers with agro-inputs to increase food production in the long term. Establishing commercial farming – rather than subsistence farming – is essential to develop the economy of South Sudan," said IFDC country representative Dr. Caleb Wangia.

In one of the first project activities, IFDC and AGMARK provided assistance to six agro-input supply companies so that they could participate in the country's first agricultural trade fair in November 2011. IFDC and AGMARK established and managed a model agro-dealer shop at the fair to demonstrate the types of farm products and services that agro-dealers offer.



Visual training tools are used in South Sudan to teach farmers correct farm management practices.

IFDC Projects That Ended in 2011

NWAFD

Accelerating Agribusiness in Africa – Bridge (AAA-Bridge)

The SAADA project, funded by the Netherlands' DGIS, began in 2006 and ran through 2010. IFDC, as the implementing partner, was charged with organizing a strategic alliance of international NGOs to facilitate regional, national and multinational agricultural intensification and agribusiness programs with an initial focus in West Africa.

The SAADA project was comprised of three components – each addressing a focused set of issues while sharing broader common objectives. These components included: SAADA-A – the implementation of the 1000s+ project in West Africa; SAADA-B – the expansion of these activities to select East and southern African countries; and SAADA-C – agricultural intensification combined with a holistic approach to socio-agricultural issues.

The AAA-Bridge project was an extension of SAADA-B activities. The objective of AAA-Bridge was to expand IFDC activities and best practices developed in West Africa such as CASE, ISFM, FDP, fertilizer resource assessment and MIS into other regions of Africa. Specifically, this project expansion was designed to replicate the CASE approach and other aspects of the IFDC agribusiness model in select countries of East and southern Africa.

Prior to the initiation of these AAA-Bridge activities, IFDC prepared the groundwork to establish long-term projects in Malawi, Mozambique and Uganda. For this purpose, IFDC developed a framework to strengthen the agro-input markets and conducted country assessments in these pilot countries as well as in Angola, Kenya, Tanzania and Zambia. IFDC also studied the agricultural situations in Ethiopia and Rwanda. IFDC's methodology in these efforts

has been proven over its 37-year history, with agribusiness development models and a package of concepts, approaches and management systems that have been recognized for their effectiveness in Africa and other parts of the world.

The AAA-Bridge program included the following components:

- Replicating the CASE solution utilized successfully in West Africa to thousands of farm families in the Horn of Africa, the CAGLR and other regions.
- Implementing a framework for agro-input supply systems to increase awareness of, and progress toward, efficient agro-input markets.
- Expanding MIS and the use of decision support systems.
- Strengthening the capacities of private sector producer and trade organizations.
- Developing national legislation supporting the marketing of agro-inputs and encouraging the adoption of market-friendly policies and regulations for agro-input markets.
- Supporting regional organizations in the creation of regional agro-input markets.
- Creating PPPs with international and multinational companies.
- Accelerating the implementation of Comprehensive Africa Agriculture Development Program (CAADP) plans related to sustainable agribusiness.



AAA-Bridge

The project facilitated the establishment of market linkages with major agro-industries.



MiDA Commercial Development of Farmer-Based Organizations (CDFO), 2008-2011

MiDA was established to oversee and manage the implementation of the Ghana Program under the Millennium Challenge Account through an agreement between the Government of Ghana and the MCC.

The MCC Compact was implemented to reduce poverty by raising farmer incomes through private sector-led agribusiness development. The program focused on increasing the production of high-value cash and staple food crops and enhancing the competitiveness of Ghana's export base in traditional agricultural crops. The program consisted of three strategic projects to promote economic growth – Agriculture, Transportation and Rural Services.

IFDC, ADRA and ACDI/VOCA led the Agriculture Project, with funding from MCC. IFDC served as the Northern Regional Implementation Consultant with overall responsibility for the CDFO component of the Agriculture Project in the Northern Intervention Zone. In parts of the Northern Region, the incidence of poverty in the rural population is as high as 90 percent.

The CDFO component focused on the following objectives: training farmers and enterprises in commercial agriculture; improving access to, and use of irrigation to enhance agricultural production; and improving post-harvest handling and value chain services.



Among the project's accomplishments in the Northern Region were:

- More than 24,500 farmers in the region benefited from the project, exceeding the project target of 18,000 by 36 percent. Fifty percent of beneficiaries are women.
- More than 22,000 farmers received training on agricultural technologies and new farming methods. Training was carried out in two phases: organizational capacity-building and business planning (Phase 1); and technical skills and crop productivity (Phase 2).
- 'Starter packs' were provided to farmers who completed Phase 1 training. The packs included enough improved seeds and fertilizer for 0.4 ha, protective clothing and a grain storage bag.
- The project assisted more than 500 agribusinesses (FBOs, SMEs and farmers) to develop business action plans and environmental management plans. Business action plans were prepared for submission to participating financial institutions and NGOs.
- More than 20 watersheds in the region were screened and feasibility design studies were conducted for 10 irrigation projects.
- The Botanga and Golinga irrigation dams were rehabilitated, and farmers and FBOs were trained to sustainably manage the irrigation investments.
- The project constructed greenhouse dryers and evaporative coolers to demonstrate the benefits of proper post-harvest practices.
- CDFO worked with private investors and farmers to establish agricultural business centers, which are post-harvest facilities where farmers can sell or store their crops. The centers include drying, shelling, milling and storage services.
- The project worked closely with farmers to link them to profitable markets in the targeted value chains. Through value chain networking events, farmers increased their sales of maize, rice, groundnut and soybean.
- In 2011, two CDFO training and technical service providers – AMSIG Resources and GAABIC – secured contracts to supply the World Food Programme with rice. AMSIG supplied 1,123 mt of rice (worth \$729,950) from FBOs in the region, and GAABIC supplied 250 mt (worth \$162,500). The arrangement facilitated a reliable market for FBOs involved in rice production and processing.

- CDFO provided assistance to FBOs as they underwent a process to be registered as unions.

- The project supported activities that led to the cultivation of 10,000 ha.

NADS

The project provided credit and support to rural agro-dealers whose shops are the primary places to purchase seeds, fertilizers and other inputs.

Nigeria Agro-Dealer Support (NADS), 2008-2011

With financial support from AGRA, IFDC launched the NADS project to provide credit and support to rural agro-dealers across Nigeria. For smallholder farmers in remote areas, agro-dealers are the primary sources to purchase the inputs critical for increasing farm productivity and incomes.

NADS supported the commitment of the Nigerian government to make agriculture and rural development priority areas in reducing poverty. When NADS began, the use of modern seeds and fertilizers was estimated to be less than 15 percent of the market potential; they were not readily available in most rural areas. Farmers must often travel to distant towns to buy needed agro-inputs. NADS staff worked to ensure that quality seeds and other agro-inputs were available, accessible and affordable to more than one million rural smallholder farmers.

Under NADS, agro-dealers were trained in the safe handling and efficient and environmentally sound use of these critical inputs. They then transferred the knowledge to their smallholder farmer-customers who comprise the overwhelming majority of the agricultural sector.

Certified seed production was just 5,000 mt per year, and fertilizer use averaged only 8.0 kg/ha in Nigeria. Yields remain low and most soils are badly depleted of nutrients. Nigerian farmers have little access to extension services and little or no access to credit. In 2008, Nigeria had at least 10,000 agro-dealers, but only about 500 had been trained in modern business practices and few had access to formal credit. NADS trained more than 2,300 dealers, which led to significant increases in their agro-input sales. A replicable training system using master trainers resulted in 5,000 trained agro-dealers in the country.

AGRA and IFDC worked with local partners to build agro-dealers' capacity and strengthen their technical and business knowledge. NADS supported existing trade associations and helped agro-dealers access investment capital for business development through risk-sharing arrangements. Agro-dealers were also trained to provide services such as field demonstrations, soil testing and teaching of best management practices to farmers.

Despite the many constraints facing the agro-input sector, NADS succeeded in achieving its basic objectives and most of the measurable targets – in addition to the positive influence it had on re-shaping the input sector as noted above. For example, the project:

- Conducted 240 field demonstrations and provided technical advice to farmers.
- Supported advocacy efforts with the Nigeria Agency for Food and Drug Administration and Control that resulted in the certification of 1,200 dealers in CPP knowledge and safe use, and with the Federal Ministry of Agriculture and Rural Development on market-friendly subsidies for fertilizer and seed.
- Compiled the first comprehensive directory of agro-dealers in 16 states, which is a valuable tool to implement new policy reforms; and conducted an extensive survey of agro-dealers that describes their scale of operations and needs.
- Transformed four state agro-dealer associations into four regional associations covering 16 states (membership has increased from 400 to 2,700).
- Leveraged limited project resources with 25 percent cost-sharing through effective collaboration with several other projects and public and private organizations.
- Orchestrated an important breakthrough by helping agro-dealers gain access to \$725,000 in credit from MFIs and suppliers.

The achievements and the lessons learned in the NADS project present an excellent and timely opportunity to capitalize on the AGRA investment and new directions of the government. IFDC believes additional assistance is required to help achieve the government's "Growth Enhancement Support

Scheme" goal of training another 20,000 dealers over the next four years and enabling private sector agro-dealers to become a critical force in the revitalization of Nigeria's agriculture sector.



ESAFD

COMESA Regional Agricultural Inputs Program (COMRAP), 2010-2011

More than 60 percent of the population in eastern and southern Africa is undernourished. Moreover, the prices of staple foods doubled during 2007-2008, threatening food security for over 250 million people in the region. While the rate of food price increases has since slowed, they continue to rise. The Common Market for Eastern and Southern Africa (COMESA) is working to alleviate poverty by promoting regional agricultural integration and removing trade and investment barriers.

COMESA's Regional Agricultural Inputs Program (COMRAP) was designed to increase agricultural productivity by providing smallholder farmers improved access to credit, fertilizer and seeds. COMRAP was a two-year project implemented by the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) and funded by the European Union Food Facility Program. The overall objective of COMRAP was to contribute to improved rural food security and livelihoods in the COMESA region through training and capacity-building of national and regional agro-input providers.

Over the course of its implementation, the project sought to reach about three million smallholder farmers in Burundi, Ethiopia, Malawi, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe. This represents 10 to 15 percent of smallholder farmers in

COMRAP

The project responded to rising food prices by increasing agricultural productivity through improved access to credit, fertilizer and seeds.

each country. Through COMRAP, ACTESA sought to achieve three main results:

- Financial services improved.
- Agro-dealer networks established or strengthened and output trade for key value chains supported.
- Commodity chains for seed and plant material supported.

As a facilitating partner in the project, IFDC implemented COMRAP's agro-dealer development component in association with AGMARK. Agro-dealers play a crucial role in bringing inputs closer to farmers and are critical to building sustainable agricultural sectors in the region.

Baseline Survey/ Training Needs Assessment

IFDC, in collaboration with FBOs and other partners, conducted a baseline survey and training needs assessment on agro-input distribution, fertilizer and seed use and identified appropriate agro-dealers in the eight countries. The survey was used to assess levels of agro-dealer development, evaluate existing training materials/needs and develop the most appropriate strategies to achieve COMRAP objectives in each of the countries.

Country Baseline Summary

Following the initial assessment, IFDC and AGMARK training specialists were able to identify the varying levels of existing agro-dealer development and 'tailor' training activities and projections to suit individual country conditions. The varying levels were classified into three categories – 'high', 'emerging' and 'new'. The high category included countries where agro-dealer networks were already established, with clearly defined agro-dealer development programs and the beginnings of strong national-level associations. Malawi, Uganda and Zambia were in this category. The emerging category included Rwanda and Zimbabwe, countries where programs were being launched and/or re-emerging. Burundi, Ethiopia and Swaziland

were classified as new, where the agro-dealer development concept was new and IFDC/AGMARK needed to create awareness within the countries' governments and with other stakeholders.

This initial analysis, coupled with discussions with local training partners on existing development programs and trainers' networks, was the basis upon which IFDC and AGMARK made beneficiary target projections for each country. The baseline survey and training needs assessments were also important in providing information for the development of the curriculum for agro-dealer and agent trainings, as well as in conducting ToT courses for selected agro-dealers.

A general curriculum was used across the countries in order to guide COMRAP in-country training teams and maintain a level of standardization. Individual training needs were tailored to suit local country contexts. For example, local names and currencies were used in some of the financial exercises. Two sets of training materials were developed for the agro-dealer/agent trainings – the Technical Training Module and Business Management Module.

The Technical Training Module provided basic information on fertilizers, pesticides, seeds, as well as other technologies and product handling. The Business Management Module focused on proper agro-dealer store management, including managing working capital and inventory, sales and marketing, record-keeping, product/service pricing and managing business/customer relationships.

IFDC, AGMARK and their partners trained nearly 5,800 agro-dealers in the eight countries. These networks will facilitate agro-dealers' access to financial services, strengthen their ability to deliver more agro-inputs in a timely manner and improve the quality of their technical advice to farmers. In turn, this will stimulate smallholder farmers' demand for improved agro-inputs, increase crop yields and facilitate the marketing of the farmers' resulting surplus production.

Identification and Contracting of Partners

During September-December 2010, IFDC identified and signed contracts for the implementation of the agro-dealer development component of the COMRAP project with a number of 'host country partners.' The primary role of these host country partners was to work closely with IFDC and AGMARK to identify trainers, facilitate training events, liaise with the MoA and other government agencies in the respective countries and oversee and maintain the accreditation of trained agro-dealers.

ToT Workshops

The ToT activities imparted product knowledge about fertilizers, seeds and CPPs, as well as skills in business management and output marketing to participants from the eight COMRAP countries. Upon completion of the ToT training, they were then qualified to train agro-dealers and agro-dealer agents in their respective countries. IFDC trained at least 10 trainers from each country.

Four ToT workshops were held between September and November 2010. The first workshop was held in Lusaka, Zambia. The workshop brought together 46 potential trainers (11 women) drawn from MoAs, training institutions and the private sectors of Malawi, Uganda, Zambia and Zimbabwe.

The second ToT workshop took place in Matsapha, Swaziland. Sixteen participants (11 men and five women) from both the public and private sectors and agriculture students at the University of Swaziland participated. The training was officially opened by Dr. Robert Thwala, the principal secretary of the MoA, who emphasized the need for Swaziland to improve its agricultural productivity to achieve food self-sufficiency.

The third workshop was held in Kigali, Rwanda, for 36 participants (11 women) from Burundi and Rwanda. Participants from the MoA, the private sector and FBOs attended the training, which included a field trip to agro-dealer shops.

The fourth workshop for 16 participants (including five women) from the public and private sectors and FBOs in Ethiopia was held in

Nairobi, Kenya. During the training, participants visited an agro-dealer to learn how the business operates in Kenya (including how capacity development interventions have improved business).

In-Country Agro-Dealer/Agent Trainings

Following the successful completion of the ToT workshops and development of country-specific work plans, IFDC, AGMARK and host country partners embarked on in-country agro-dealer/agent training in late October 2010.

In each country, agro-dealers were selected based on several criteria: involvement in some form of business (particularly agro-inputs); interest in the agro-input business; a demonstrated capacity to run a business successfully; the ability to read and write and an understanding/appreciation of marketing. FBOs, cooperatives, business associations and relevant government departments in the countries worked closely with host institutions to identify and select the trainees.

In each country, trainers used training materials/curricula developed by IFDC/AGMARK and validated by stakeholders. By December 31, 2011, a total of 7,908 agro-dealers and agents had been trained across the eight countries (exceeding the target of 7,800). Of those trained, 5,874 are agro-dealers and 2,034 are agro-dealer agents. Of the 5,874 agro-dealers trained, 1,975 are women (33.6 percent). Of the 2,034 agents trained, 653 are women (32 percent).



EADN

EADN increased smallholder farmers' incomes by helping them increase their productivity.

Extending Agro-Input Dealer Networks in East Africa (EADN), 2008-2011

The International Fund for Agricultural Development (IFAD) provided funding for the Extending Agro-Input Dealer Networks (EADN) project in targeted areas of three key countries in East Africa – Kenya, Tanzania and Uganda. EADN sought to increase smallholder farmers' incomes by helping them increase their productivity. Project activities focused on improving agro-dealer and farmer access to modern production technologies and yield-enhancing agro-inputs. The three-year project began in January 2009 and ended on December 31, 2011.

EADN project activities were implemented in 20 districts in Kenya, 13 districts in Uganda and 10 districts of Tanzania. The selection of specific project areas was conducted in collaboration with other stakeholders including each country's MoA and IFAD programs/projects.

Establishing new agro-dealers and strengthening the agro-input supply chain benefited smallholder farmers in the targeted areas. These benefits were achieved through: improving farmers' access to agro-inputs and technology; building and strengthening the capacities of agro-dealers and extension agents; strengthening institutional capacities in the agro-input sector; improving market transparency; developing and strengthening agro-dealer associations; and establishing and fortifying market linkages along the input value chain.

EADN also increased the knowledge base of small-scale, entrepreneurial agro-dealers throughout the project areas, enabling them to provide much better technical and advisory services to farmers. Prior to EADN, most agro-dealers were unable to develop and implement the strategic marketing campaigns needed to sustain their businesses and fully develop their markets. EADN assisted agro-dealers to participate in cost-effective decision-making processes that can lead to reduced transaction costs.

EADN activities improved rural smallholder farmers' physical and fiscal access to agro-inputs. However, financial incentives for farmers to use more agro-inputs must increase, particularly for staple crops such as maize, rice, wheat and beans. A key reason for food deficits in the project area is low usage rates of fertilizers and improved seeds. Some of the factors which contribute to this are: farmers' financial inability to buy expensive fertilizers; rural agro-dealers' inadequate financial reserves to purchase agro-inputs in required quantities; an insufficient secondary distribution network of agro-dealers in rural areas, which forces farmers to travel long distances to access inputs; agro-dealers' inadequate product knowledge, causing them to be unable to give reliable and correct advice to farmers; etc.

- Innovation and information transfer were key elements of each EADN activity. The EADN approach emphasized increasing the number of markets served by agro-dealers, increasing the level of participation in those markets by the dealers and increasing their technical and marketing expertise so that they can be of greater service to their farmer-customers. It has been proven in other IFDC projects that those actions spur customer demand, influencing promotional activities and expansion of agro-dealers' services and business volume.
- Expanding the number of agro-dealers and farmers served helps to generate volume price discounts. Agro-input prices can be reduced through procurement efficiencies, improved product mix selection, timely physical distribution and operating efficiency improvements. Increased private sector investment in agro-dealer networks, in combination with greater market transparency and information exchange, improves agro-dealer access to loans and improves decision-making at all levels of the marketing chain.
- Capacity-building of agro-dealers was one of EADN's main activities and was carried out in each country successfully. Among the strategies the EADN project staff employed to achieve capacity-building were targeted training programs, product demonstrations and the development and

distribution of leaflets and wall posters about the safe use and handling of agro-inputs.

- In a survey, agro-dealers attached more relevance to the skills taught by the EADN project (often not emphasized by other development partners), such as product knowledge, business management and financial management.
- Demonstration plots were established on farms in each of the three countries (93 in Kenya, 43 in Tanzania and 129 in Uganda). Most of the crop demonstrations conveyed the message to farmers that more efficient use of agro-inputs would (at least) double their yields. For example, at maize demonstration plots in Mukurweini, Kenya, yields
- Business linkage forums were facilitated through the involvement of various stakeholders in the agro-input value chain. These stakeholders included financial institutions, agro-input importers/distributors, public and regulatory institutions and MoA senior staff members. A total of 14 linkage events (two in Kenya, four in Tanzania and eight in Uganda) were organized with a total of 501 participants (80 of whom were women). In these meetings, agro-dealers were informed that they qualified for financial loans or that they could directly procure agro-inputs from suppliers.
- In addition, linkages among national and regional agro-dealer associations improved members' buying power, helped to address cross-border



averaged about 3.6 mt/ha while the yields using traditional farmers' practice averaged only 1.77 mt/ha. Seed potato demonstration plots in Kenya's Nyandarua district indicated that if farmers were to multiply potato seed, they would make in excess of KSh. 150,000/ha (\$1,811) in profits, compared with KSh. 27,000/ha (\$326) that they made previously.

- Numerous farmer field days were held on EADN crop demonstration plots. Field days were learning forums for farmers and also created opportunities for networking and linkage creation between farmers, agro-dealers, agro-input suppliers, financial institutions and local service providers. In Kenya, 26 field days were held; in Tanzania, 13 field days were held; while in Uganda, four field days were organized. A total of 10,931 people (4,272 of whom were women) participated in EADN field days.

issues and better serve inland markets. More active and effective agro-dealer trade associations strengthen their organizational, policy and regulatory reform and advocacy capacity. Educational tours for agro-dealers were organized to neighboring countries so that they could learn from their counterparts through experience-sharing. Internal educational exchange visits also were organized for the same purpose.

In total 1,376 agro-dealers were trained (1,005 men and 371 women); 443, 402 and 531 agro-dealers in Kenya, Tanzania and Uganda, respectively. Also 90 public extension agents were trained (55 men and 35 women). Of these, 29 were MoA staff from Kenya and 61 were MoA staff from Tanzania.

In summary, EADN was a market-oriented initiative emphasizing private sector development and investment in all segments of the agro-input value chain.



Agro-dealer development is a critical component in the implementation of fertilizer voucher programs.

FAO Voucher Program in Mozambique, 2009-2011

In September 2009, IFDC received a grant from FAO to assist the GRM in the implementation of a fertilizer/seed voucher program. Voucher programs help smallholder farmers obtain agro-inputs while simultaneously building business for rural agro-dealers. Voucher programs are often called 'smart subsidies' because they supply agro-inputs to farmers without disrupting the commercial market.

The Mozambique program initially targeted 25,000 maize and rice farmers on 12,500 ha of land in Manica, Nampula, Sofala, Tete and Zambezia provinces. IFDC chose the agro-dealers involved and ensured that they had access to the amount of inputs required by participating farmers. In addition, targeted farmers were trained in the proper use of the agro-inputs.

In the implementation of the program, IFDC identified and selected participating farmers (in partnership with local government), selected the agro-dealers who would become suppliers of the inputs, selected the suppliers of the fertilizer and supervised negotiations between fertilizer suppliers and agro-dealers for mutually agreed fertilizer prices. IFDC also trained agro-dealers and extension officers and monitored and evaluated the distribution and redemption of the vouchers.

IFDC worked closely with FAO, the MoA, the National Directorate for Agricultural Extension, designated banks, suppliers, agro-dealers and farmers. With the successful completion of this pilot program, up-scaling of the program to reach a larger percentage of Mozambique's total maize and rice farmers was planned.

At the request of FAO, IFDC implemented an additional voucher program in Mozambique from 2010 to 2011, funded by the European Union.



EAD

Albania Credit Enhancement Fund, 2006-2011

IFDC's Credit Enhancement Fund (CEF) for agribusiness development was established as a result of an agreement between the government of the United States, represented by the Commodity Credit Corporation (CCC), and IFDC for the supply of agricultural commodities under the USDA Food for Progress (FFP) program.

On the basis of that agreement, USDA awarded IFDC a commodity grant of 10,000 mt of corn and 6,000 mt of soybeans for distribution in Albania in July 2003. IFDC completed the distribution and monetization of commodities in May 2004 and the proceeds were assigned to support agribusiness development activities in Albania. More than

\$4 million was generated by the program, exceeding the anticipated proceeds by \$1.3 million.

Of the net proceeds from the monetization of commodities, 30 percent was allocated to support technical and business assistance activities. The activities were conducted by Land O'Lakes and the Association and Business Management Center, in consultation with IFDC. Activities centered on the animal feed, milling, dairy, poultry, swine and egg sectors. The remaining 70 percent was used to establish a CEF (a loan guarantee fund for agribusiness development) at the American Bank of Albania.

An assessment of businesses financed by loans guaranteed by the CEF indicated that most businesses were experiencing significantly increased productivity and revenues, in large part due to the technical and managerial assistance provided in conjunction with the loans.

Market Development in the Fertilizer Sector of Bangladesh (Katalyst I), 2010-2011

Agriculture, particularly grain production, is the most important sector of the Bangladesh economy. Despite its crucial role in Bangladesh, the agricultural sector is under-performing; actual yields remain at 50 percent of their potential. Soil nutrient levels of phosphorus, potassium, secondary nutrients and micronutrients are being depleted. Improved soil nutrient management, supported by irrigation and quality seed, is a key component of the GoB's strategy to improve yields on a sustainable basis.

To achieve sustainable crop yield growth through soil health and fertility management, the Katalyst project sought to:

- Promote correct fertilizer management practices.
- Ensure the availability of fertilizer formulations at the farm level for balanced fertilizer application.
- Facilitate a market-friendly regulatory framework.

IFDC's role in Katalyst was to provide services and expertise to improve market development in the Bangladesh fertilizer sector. The project focused on increasing the yields of rice, maize, jute, vegetable and potato crops through effective, efficient and correct use of fertilizer and other agro-inputs.

Katalyst was implemented under the GoB's Ministry of Commerce by Swisscontact and GIZ International Services. The project was jointly funded by the SDC, DFID, CIDA and Embassies of the Kingdom of the Netherlands.

Expansion of UDP Technology in Additional 80 Upazilas of Bangladesh, 2008-2011

Based upon the success of the original project in 2007-2008, the GoB and the MoA's DAE decided to expand UDP technology to an additional 80 upazilas with technical assistance from IFDC. The project's aim was to improve farmer incomes and increase livelihood opportunities.

Pioneered by IFDC, UDP technology reduces the amount of urea fertilizer needed for irrigated and rain-fed paddy crops by as much as 40 percent and increases yields by 20 to 40 percent. UDP involves the insertion of large (1.8 to 2.7 grams) urea briquettes into the rice root zone after transplanting. Nitrogen losses are significantly reduced with this technology compared with the conventional method of broadcasting fertilizer into the paddy water.

By 2009, IFDC and DAE had trained more than 6,000 Bangladeshi extension workers and nearly two million farmers in UDP technology. Over 500,000 ha of paddy was converted to this technology during 2008 and 2009. Rice production increased by 268,000 mt on the targeted acreage, and urea imports were reduced by 50,000 mt. This saved the government millions of dollars in fertilizer imports and government subsidies. Farmers who adopted UDP had net returns of \$188/ha more than farmers

who broadcast urea. This was also an increase of \$88 over the net returns of farmers who began using the technology in the original project. The average yearly income for Bangladeshis is \$520; therefore, these returns are financially significant.

IFDC engineers designed and developed a simple machine to mold prilled or granular urea into briquettes. Since then, more than 1,000 briquette producers have been trained by IFDC and DAE. In 2008, there were 2,000 briquetting machines operating in Bangladesh. In the second Expansion project, 400 new machines began operation, creating more job opportunities for Bangladeshis. Many of these small-enterprise entrepreneurs are women.

In 2009 the DAE began expanding UDP to 2.9 million more farm families on an additional 1.5 million ha. UDP technology saved more than 31,000 mt of urea (and US \$16 million). Using UDP created new employment opportunities and generated \$10.58 million of additional wages (more than 50 percent paid to women) in the rural areas during the project. An increase in rice production of 471,479 mt over the life of the project ensured food security for 2.1 million Bangladeshis and generated incremental income of \$236 million. UDP was used on 574,974 ha and more than 1.4 million farmers adopted this technology over five seasons.





AfricaFertilizer.org

A Tool to Help Fuel the African Green Revolution

In 2006, many of Africa's leaders gathered in Nigeria for the Africa Fertilizer Summit to highlight the importance of fertilizers in achieving an African Green Revolution. The principal outcome of the Summit, the *Abuja Declaration on Fertilizer for an African Green Revolution*, alludes to a lack of market information as an important constraint to fertilizer market development, and commits African countries to achieve a rapid increase in fertilizer use.

The AfricaFertilizer.org (AFO) website was created in response to Article 10 of the *Abuja Declaration* – to provide a unique combination of data and information on fertilizers and soil fertility issues in Africa. AFO does this by sourcing, aggregating, filtering and sharing information on fertilizer from and to international, regional and national participants in the sector. AFO also engages local fertilizer dealers and agricultural extension workers who are the 'last mile' link with millions of smallholder farmers in Africa.

Achievements to Date

AFO includes a data center for storing and sharing fertilizer statistics on production, trade, consumption and prices. Since its launch in March 2010, AfricaFertilizer.org has generated interest and excitement among public and private stakeholders.

During the 2010 IFA Africa Forum, an agreement was reached to create a partnership for the development and management of a database on African fertilizer statistics. This partnership involves IFDC, IFA, FAO, AGRA, African Union Commission (AUC) and NPCA. The database is available to the public at www.africafertilizer.org.

More recently, IFDC and FAO are collaborating due to the synergies between AFO and FAO's CountrySTAT (CS) program which monitors fertilizer, among other statistics, and is currently being implemented in 17 SSA countries. The AFO/CS collaboration supports IFA's efforts to monitor and forecast fertilizer consumption and supply and demand in Africa. The AUC and NPCA are taking part; the initiative is

aligned with their agenda of capacity enhancement of key African institutions to drive the continental development process. IFDC is involved because of its agricultural development programs and projects across Africa. Other institutions, programs, projects and national policy-makers have shown interest in the project. The African Fertilizer Agribusiness Partnership (AFAP), funded primarily by AGRA, sees AFO as a complementary tool for catalyzing new investment in the fertilizer sector in Africa. AfricaFertilizer.org is clearly filling a void of data availability and information on fertilizers.

IFDC proposes to pursue further development of AfricaFertilizer.org during 2012-2015, in collaboration with key partners. AfricaFertilizer.org will further develop as a high-quality, web-based portal on fertilizers in Africa. IFDC will continue to lead the program development, implementation and day-to-day management of the portal.

The focus of AfricaFertilizer.org covers three main areas:

- Essential fertilizer statistics, such as production, trade, consumption, price, production capacities and fertilizer use per crop.
- Market intelligence, such as international and local fertilizer shipments, directories, publications and news.
- Data for M&E in support of AFO partner programs, including monitoring the effective implementation of the Africa Fertilizer Summit recommendations.

Expected Outcomes

At the end of the period 2012-2015, it is expected that:

- Accurate and updated statistics on fertilizer trade, production and consumption will be available for more than 20 SSA countries (which account for more than 90 percent of the fertilizer consumption on the continent).

- National, regional and international public institutions in charge of fertilizer statistics will be better equipped to monitor and report these essential statistics, and use harmonized classification, methodologies and terminologies.
- Public and private stakeholders will access and contribute to the monitoring of fertilizer policies at national, regional and continental levels.
- Private sector actors, including fertilizer importers, producers and traders, agro-dealers and farmers will have better access to comprehensive technical and market information on fertilizer.

Proposed Activities 2012-2015

Improve availability and quality of fertilizer statistics in Africa

Essential fertilizer statistics are too often inaccurate, outdated or simply not available in most SSA countries. Ad hoc attempts to collect this data have been undertaken, but until now there has not been an ongoing, coordinated and systematic process for the collection, collation and presentation of this data. AFO will support and use the FAO CS program to gather, process and validate fertilizer statistics.

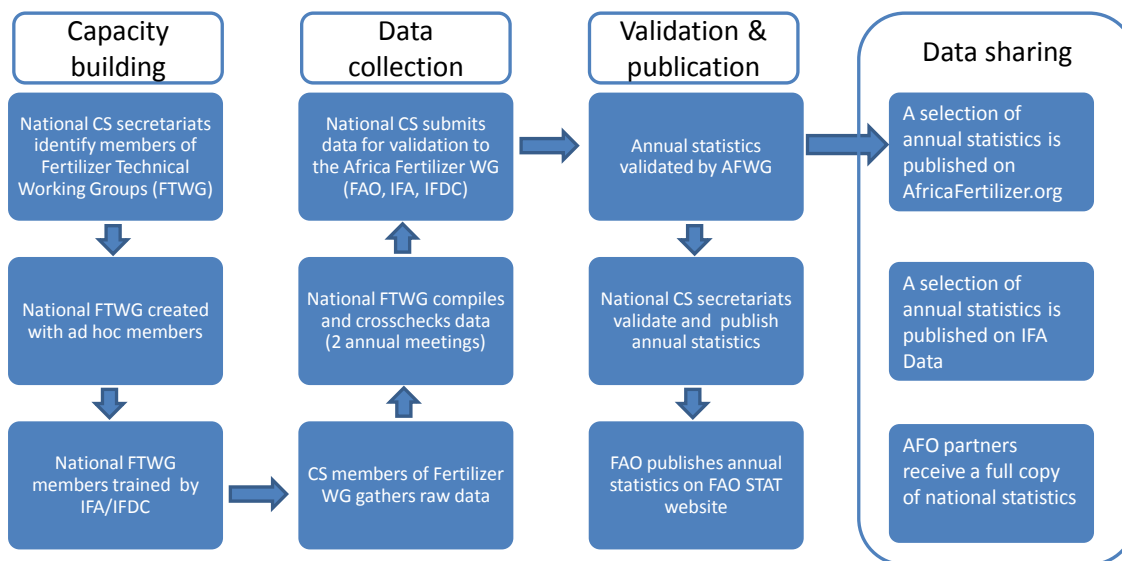
Assist CountrySTAT programs to improve collection of fertilizer statistics

AFO partners will encourage the creation of national Fertilizer Technical Working Groups (FTWGs), led by the CS Secretariats, with ad hoc participation by private sector representatives and relevant supporting institutions in the given country (e.g., IFDC, IFPRI). The FTWG will meet bi-annually to review/cross-check data collected and assist in its processing before validation.

IFDC, with initial technical assistance from IFA and NPCA and with logistical support from FAO, will develop training materials focusing on basic knowledge of fertilizers, methodologies, terminology, classifications and conversion tables used for fertilizer statistics. In addition, technical trainings will be organized for FTWG members.

Assist in the validation process of fertilizer statistics

The creation of an Africa Fertilizer Working Group (AFWG) has been proposed, based on the model of the FAO/Fertilizer Organizations Working Group (IFA, FAO and IFDC). The AFWG will validate annual national statistics prepared by national FTWGs and from any other relevant sources where CS does not operate. The proposed flow of data and areas of collaboration of AFO partners are shown in the following figure:



Proposed AFO interventions with CountrySTAT

Increase the range of fertilizer statistics available

AFO partners will compile, review and assess existing statistical data, sources and methodologies. This effort will be supported by relevant projects implemented by IFDC, FAO and AGRA. These reviews will be used to update the Fertilizer Statistics Availability table on an annual basis, and to propose relevant activities to fill the identified gaps.

Support the harmonization and simplification of questionnaires and methodologies

A working group among AFO partners has been proposed to conduct an in-depth, critical review of questionnaires and methodologies currently used to collect fertilizer statistics. The group will work on questionnaire simplification/harmonization and develop guidelines for practitioners.

Improve knowledge on fertilizer policies in Africa

Through its Fertilizer Support Program, the NPCA monitors progress in the implementation of the *Abuja Declaration* by countries and RECs and prepares progress reports for African Heads of State. The July 2011 report indicates that despite commendable gains by some countries, fertilizer consumption levels are still far below the 50 kg/ha minimum target. In 2010, only 17 of the 54 AUC member countries contributed to this annual survey.

AfricaFertilizer.org will work with NPCA, seeking to increase the number of annual survey respondents and to improve the quality of information gathered. AFO will provide technical assistance, trainings and market information. The website will also post the findings and recommendations of the fertilizer questionnaire, making them available to a wider range of stakeholders.

Strengthen the capacity of NPCA correspondents

AFO partners will develop training materials (with technical assistance from NPCA and IFDC) to help country correspondents better answer questionnaires and will organize training programs in selected countries. This will be combined with the technical trainings for CS members.

Support NPCA correspondents to gather and update information

NPCA country correspondents will be trained to gather the data required to complete the surveys. This will be achieved through provision of data from AFO partners, including CS, IFA and private sector stakeholders, as well as additional sources.

NPCA correspondents will update online AFO country dashboards, blogs and related sections of the AFO website.

Support NPCA with dissemination of findings and recommendations

Progress reports on the *Abuja Declaration* prepared by NPCA, as well as national surveys, will be published on AFO.

A dedicated blog on AFO will be further developed, which allows browsing by country and by recommendation, as well as country dashboards which show essential indicators gathered by NPCA. A new module will be added to the AFO website, dealing specifically with fertilizer policy issues. Continental, regional and national fertilizer policies and regulations, special programs and initiatives (such as subsidy and investment programs), and related analyses, publications, surveys and indicators will be posted.

Increase availability of market and technical information on fertilizer in Africa

In addition to statistics and indicators mentioned above, AFO is providing several other sets of technical and market information on fertilizer in Africa, including publications, directories, prices, production capacities, events and market news. Data and information are gathered from various sources and partners (primarily from IFDC projects and programs in Africa).

With contributions from AFO partners, the website will be populated with additional data. All data compiled will be made available to AFO partners for their use; the most relevant data will be available to any AFO user/visitor, provided they are compliant with anti-trust rules and copyrights governing AFO partners.

Share more fertilizer publications, news and events

AFO is compiling publications, market news and announcements of events from various sources and republishing those relevant to the fertilizer sector in Africa in the 'News' and 'Events' sections of the website.

Provide insights on international and local fertilizer market prices

One of the most visited sections of the website – the monthly international fertilizer price page – offers free access to market updates and monthly prices for selected fertilizers, based on information provided by "The Market" bulletin of ICIS. IFA is also collaborating with ICIS to produce a Global Fertilizer Trade Flow Map. AFO will continue its collaboration with ICIS, and collaborate with IFA to produce an Africa

Fertilizer Trade Flow Map that will be printed and distributed to interested partners and stakeholders.

Since June 2010, AFO has provided monthly national average retail prices for 40 different fertilizer products in 16 SSA countries. These prices are derived from retail prices collected from agro-dealers' shops in key cities and compiled with the support of IFDC's AMITSA project in East Africa and the MIR Plus project in West Africa. AFO will continue to collect retail prices from AFO partners' projects and programs, and expand the number of countries as their field operations permit. The methodology will continue to be refined and metadata (access to sub-national data, information on subsidies, etc.) added.

Cost and freight (C&F) prices of fertilizers are also in great demand. With support from IFA and AFAP, AFO will approach reputable importers and traders operating in SSA, and propose a mechanism by which AFO can publish indicative C&F prices for major fertilizers imported and used in SSA on a regular basis (monthly or quarterly).

Build an African fertilizer directory

AFO established a directory with records of businesses and other relevant players in the African fertilizer industry in 2011. This has been one of the most visited sections of the website. AFO will provide contact information for essential stakeholders in the fertilizer sector in every country – from fertilizer producers and blenders to importers and exporters, major national traders, local associations, ministries in charge of fertilizer issues, quality control laboratories and research institutes. This directory will complement directories of agro-dealers that are published in more than 20 SSA countries, totaling more than 30,000 records (from IFDC, COMRAP and AGRA agro-dealer development programs).

AFO partners will be the main contributors to this directory because they have the most relevant contacts. AFO will update/expand the directory annually.

List fertilizer products/recommendations

Compiling existing fertilizer products available and fertilizer recommendations in Africa is currently a difficult process. Significant efforts are made to update these recommendations at national or regional levels (e.g., MIR Plus) to give farmers access to better fertilizer products.

AFO will build a dataset to make accessible in a user-friendly way the list of existing fertilizer products available at national levels and their

recommended use and doses per crop. AFO partners will assist in compiling existing data from ministries, private businesses and research institutions.

Map fertilizer production and blending capacities

IFA maintains a database of fertilizer production and plant production capacities, which is restricted to its members. IFDC has recently mapped major phosphate deposits in Africa, as well as fertilizer production plants in some SSA countries.

AFO partners will encourage the compilation of existing information, assess what can be released to the public and conduct an inventory of African production and blending plants. AFO will develop the existing module to allow users to view the data in the form of tables and maps, in compliance with the rules and obligations of AFO partners.

Improve availability of fertilizer use by crop estimates

Current Fertilizer Use by Crop data are not hard data, but estimates based on expert knowledge. Some spot checks and surveys were conducted in 2006 by IFA and FAO. Since then, FAO, IFA, IFDC, IPI and IPNI have developed a questionnaire and conducted surveys on the data in a collaborative manner.

As recommended by the IFA Africa Forum, AFO partners will encourage the collection of data on a more frequent and coordinated basis. AGRA will be invited to contribute, as well as the Fertilizer Working Groups of CS.

Improve the AfricaFertilizer.org portal

AFO will pursue the further development of the website, with an increased focus on integration with other MIS initiatives in SSA and higher levels of compatibility and 'smart-sharing' mechanisms with AFO partners.

Improve information and communications services

In September 2011, AFO added several functionalities and tools, including the creation of a Facebook page and a Twitter account, and the release of an updated media gallery. AFO partners' expertise will be leveraged (especially IFA and IFDC) to ensure that the design, content and communications strategies are in line with industry best practices and fully serve AFO's goals.

African Fertilizer and Agribusiness Partnership

In 2003, African Heads of State adopted CAADP as a framework for the restoration of agriculture growth, food security and rural development in Africa. Through CAADP, African leaders set forth a vision for agriculture-led development that eliminates hunger and reduces food insecurity, enabling the expansion of exports and putting the continent on a more vigorous path for economic growth. They have also set targets for investment (10 percent of national budgets), performance (sectoral GDP growth of six percent per annum) and specific goals such as improving market access for agricultural products, creating dynamic regional and national agricultural markets and improving agricultural technology adoption and productivity.

CAADP is a systematic effort to implement a continent-wide, agriculture-led growth strategy and a common framework to bring national strategies for agriculture in line with a shared set of ambitious growth and budgetary targets. CAADP looks inward for solutions, with a focus on ensuring accountability, peer review and open dialogue. CAADP has allowed African leaders to reclaim the continent's agricultural growth and development agenda, and to engage in

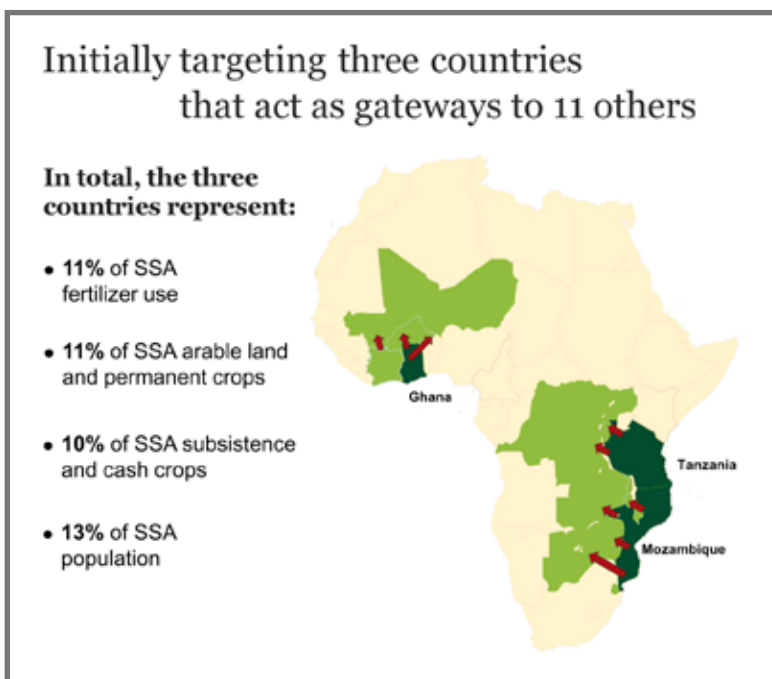
open and frank dialogue as part of a broader effort to revise and renew regional and development partnerships in Africa. CAADP has evolved into a credible platform for collaboration, partnerships and alliance-building. It has created new opportunities for African countries and regions to determine their own agricultural priorities, and for development partners to align their assistance to support these priorities.

CAADP has pioneered a new way of conducting business in which African national governments, civil society, development partners and stakeholders work together, under African leadership, to grow Africa's agricultural sector. This different model for 'country-led' development has already influenced how bilateral and multilateral donors provide assistance for African agriculture, and it is increasingly viewed as a model for providing assistance to other sectors.

There are now 34 African countries directly engaged in the CAADP process; of these, 26 have signed the CAADP Compact. During consultations that have taken place since 2003, it has been acknowledged that one of the major causes of Africa's persistent

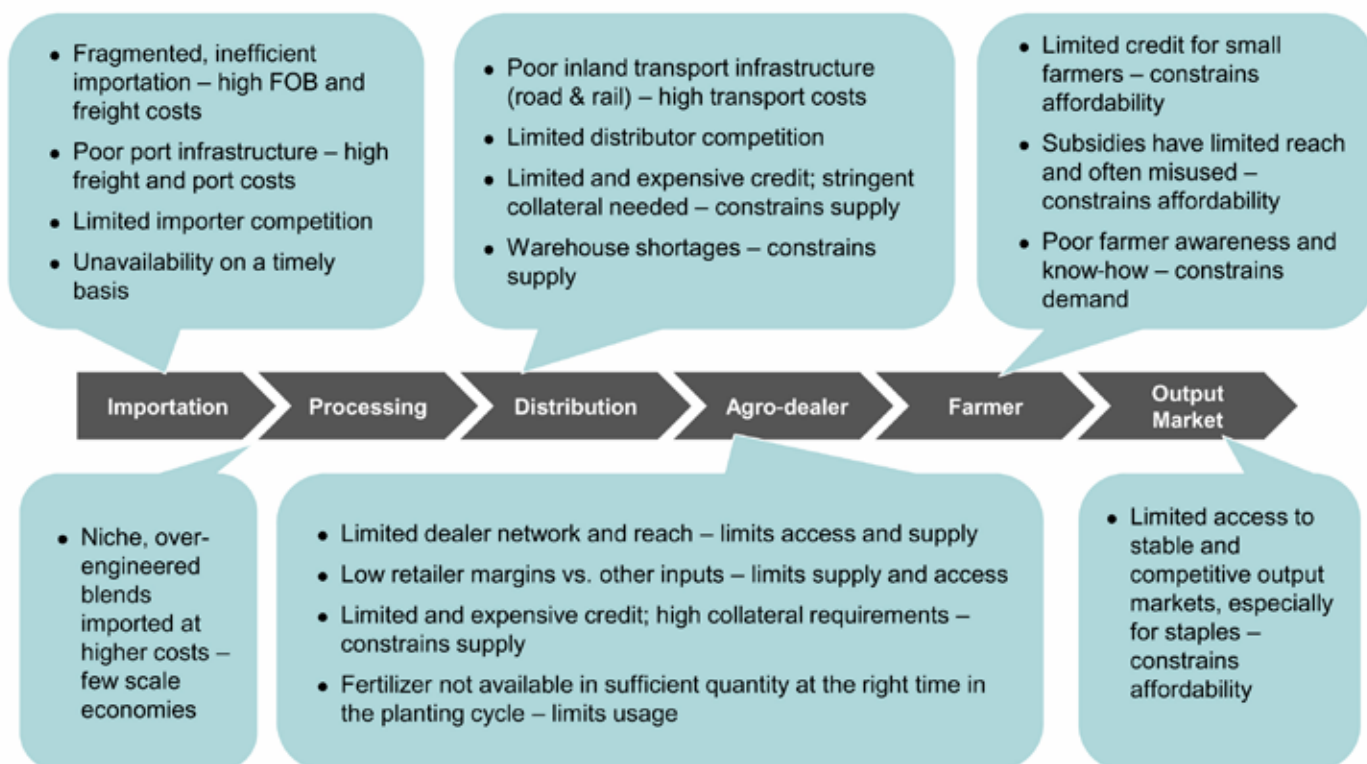
food insecurity problem is poor soil fertility. In Africa, fertilizer use is limited and intensive mono-cropping has led to widespread depletion of soil nutrients in many areas. On average, African farmers apply less than 5.0 kg/ha of fertilizer. Average fertilizer application rates range from 150 to 200 kg/ha in parts of the world that have experienced rapid agricultural productivity growth, including regions in Asia and Latin America that experienced the 'Green Revolution' in cereal production.

Achievement of food security via an 'African Green Revolution' requires not only increased use of fertilizer but a holistic approach to all agro-input supplies, improved output markets and pro-market policies and regulations. The use of fertilizer in many parts of Africa is constrained by poorly functioning input and output markets.



Barriers to Fertilizer Affordability & Accessibility

Fertilizer usage in SSA is limited by a number of factors including farmer demand and economics, output market demand and fertilizer accessibility and affordability.



The poor performance of agro-input markets stems from many different factors that manifest themselves in the form of weak input demand and an expensive and irregular supply.

Governments, donor agencies and NGOs have tried many different strategies to increase fertilizer use in Africa, including direct subsidies of fertilizer prices, vouchers that can be redeemed for fertilizer, distribution of starter packs to urge farmers to experiment with fertilizer, fertilizer-for-work programs, etc. While many of these approaches achieved short-term successes, they have often collapsed once external funding ended, making them unsustainable over the longer term.

AFAP is an innovative initiative that is intended to shift this paradigm. There is acknowledgement that CAADP Pillar 2: Market Access has been lagging behind the other pillars in terms of implementation. AFAP will provide an additional platform to launch CAADP Pillar 2 at the country level. There is particular concern that CAADP recognizes the important role to be played by the private sector, since the actual

implementation activities are still dominated by public agencies, governments and development partners. The private sector role is weak and/or poorly articulated, partly because private actors lack a vehicle by which to engage in the process. AFAP will provide this vehicle.

AFAP is a collaboration led by AGRA which also includes IFDC, NPCA, the African Development Bank (AfDB) and AGMARK. These partners are working together to promote the development of sustainable African fertilizer markets and designed AFAP to specifically increase private sector development and participation in their own programs – accelerating the implementation of the *Abuja Declaration*.

AFAP's goal is to establish more competitive and sustainable markets capable of providing smallholder farmers with the incentive, initiative and capability to source and use fertilizer to improve crop production and food security. This will be achieved by:

- Engaging and supporting private sector and PPP initiatives to identify, enable and deliver improvements in the value chain that will strengthen the value-cost ratio for farmers.
- Developing and making available targeted credits and grant facilities to support initiatives and programs identified by the private sector and value chain participants that contribute to AFAP goals.
- Assisting private sector and PPP participants through training, mentoring and collaborating to identify value chain needs and programs that will deliver sustainable change.
- Acting as a conduit between private and public sectors to ensure that the goals of all parties are

AFAP is designed to complement and further empower these ongoing initiatives by providing additional development assistance directly to and through the private sector (utilizing APCs) in a manner that both accelerates smallholder fertilizer use and reduces poverty. Attention is given not only to the fertilizer industry and its supply chain but to how smallholders benefit from this process as customers (lower costs and greater availability), farmers (increase quality and quantity of production) and entrepreneurs (better access to output markets).

AGRA's \$25 million grant will allow AFAP to establish a regional fertilizer/agribusiness development unit, coordinate with partners and begin direct financial, technical and managerial support to the growing

AGRA, IFDC, NPCA, AfDB and AGMARK have designed a program that works with and fosters private sector business development throughout the fertilizer value chain.

being met and that an enabling environment is developed and maintained to engage participants consistent with the goals of the *Abuja Declaration*.

The principal operating mechanism of AFAP will be agribusiness partnership contracts (APCs) under which eligible international, regional or local agribusinesses will apply for AFAP assistance and, in exchange, agree to perform significant market development activities with local farmers and/or agribusinesses. This assistance may include management and technical advice, payment and credit guarantees, matching grants (for demonstration and other demand creation activity) and in-kind investments.

To leverage and maximize its development impact, AFAP will build upon existing platforms established in partners' programs. These include:

- AGRA's Innovative Finance and Soil Health programs.
- IFDC's VFRC, AFO and AMITSA programs.
- NPCA Fertilizer Support Programme.
- AfDB Africa Fertilizer Financing Mechanism.
- COMESA's COMRAP.

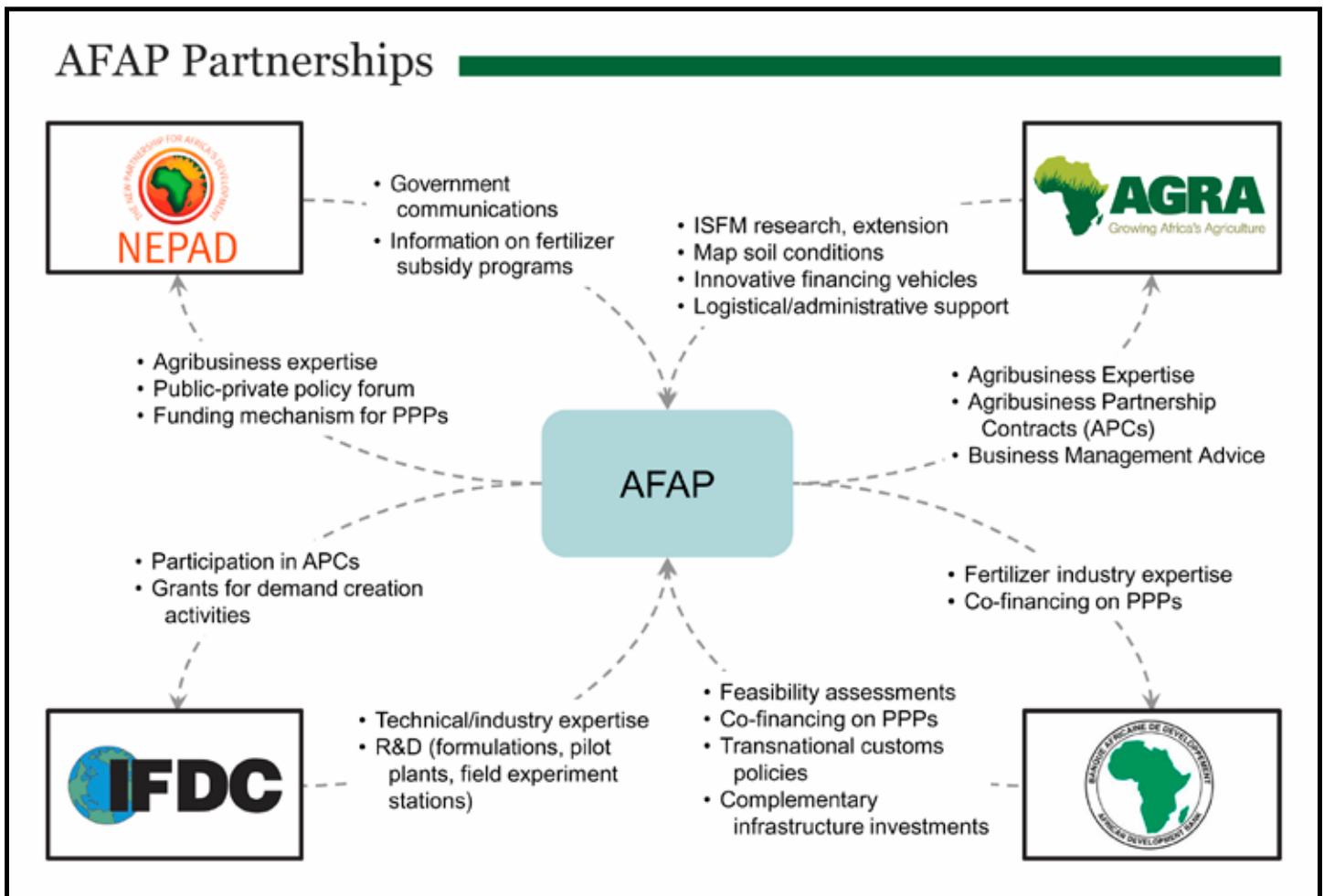
fertilizer industry in three pilot countries – Ghana, Mozambique and Tanzania. AFAP is seeking an additional \$50 million from other donor partners to bring the facility to full-scale in these three countries. AFAP will begin expanding in years two and three to other SSA countries as additional resources become available.

Currently, smallholder farmers in SSA countries face many challenges that limit their access to fertilizer. These challenges include:

- Limited technical and financial services for importers and input distributors.
- Government involvement in the procurement process that can impact the growth, stability and sustainability of agro-input markets, particularly private sector input.
- Inefficiencies in the supply side of the input value chain including procurement, handling and distribution.
- Inefficiencies due to product selection and availability.
- Lack of demand due to perceived or actual inadequate cost/benefit ratio and inadequate cash to purchase products at various levels of the supply and use chain.

- Lack of private sector storage capacity, processing capability and/or investment in fertilizer production, distribution and retail networks.
- Inconsistent and/or unpredictable demand for increased farm outputs produced because of increased fertilizer use.
- Lack of MIS to enable real-time transparency into the supply chain.
- Lack of consistent policy and private sector enabling environments.

To meet these challenges, AFAP believes the private sector must be fully engaged to bring greater investment and know-how into this emerging market. AGRA, IFDC, NPCA, AfDB and AGMARK have designed a program that works with and fosters private sector business development throughout the fertilizer value chain, which will provide a market-based alternative to traditional state-controlled fertilizer purchasing and distribution systems.





GLOBAL TraPs

TRANSDISCIPLINARY PROCESSES FOR SUSTAINABLE PHOSPHORUS MANAGEMENT

In recent years, phosphorus (P) management and sustainability have repeatedly generated serious discussions and debate. The sustainability of phosphorus resources has become a serious, worldwide concern and needs attention.

Plants, animals and humans cannot exist without the nutrient phosphorus. Phosphorus has a tremendous impact on food and fiber production, but this impact can be improved. Phosphorus can be managed without causing adverse environmental effects; however, in many cases, phosphorus management is not as effective as it could be. Given the central role of phosphorus in food production and human health, and the low use of phosphorus among some smallholder farmers, access to this nutrient by these resource-poor farmers must be improved.

Phosphorus is found in minerals and rocks in the form of phosphates. Phosphate rocks are processed into various fertilizers and also into many industrial and non-agricultural products. Two widely discussed issues surrounding phosphorus are:

- 1) The finite amount of phosphate rock resources and their importance to future food security; and
- 2) The negative environmental impacts of excess phosphorus, particularly in freshwater and coastal marine ecosystems.

The **Global Transdisciplinary Processes for Sustainable Phosphorus Management (Global TraPs)** project is studying phosphorus use, management and sustainability from a supply chain perspective through a transdisciplinary process (science-practice) involving experts from academia, industry, governments, NGOs and other concerned parties.

The transdisciplinary nature of the project involves joint leadership to integrate experience-based, real-world knowledge and academic rigor. Dr. Amit H. Roy, IFDC president and CEO, and Dr. Roland W. Scholz, chair of the Natural and Soil Science Interface at the Swiss Federal Institute of Technology (ETH), are co-leading the five-year (2011-2015) Global TraPs project. Each has responsibility for leadership of one facet – science (ETH) and practice (IFDC). Global TraPs is a multi-stakeholder forum involving participants with differing viewpoints, knowledge and concerns. Its focus is



Global TraPs participants include representatives from industry, academia, governments and NGOs.



This phosphate mine is operated by the Office Chérifien des Phosphates (OCP) in Morocco.

to guide and optimize future phosphorus use by assessing current information and knowledge gaps and developing options for the way forward.

“Phosphorus is one of the key nutrients necessary to human, animal and plant life,” said Roy and Scholz in a joint statement. “Phosphorus is also a finite resource that must be used more effectively and efficiently. By focusing on phosphorus from the supply chain perspective, the Global TraPs initiative seeks to bring greater understanding to a number of issues that confront humanity and our environment.”

Focusing on the sustainability of phosphorus, Global TraPs brings together researchers from various disciplines to work in ‘nodes.’ The nodes represent different phases of the global phosphorus supply chain – exploration, mining, processing, use, dissipation and recycling and cross-cutting issues. The composition and leadership of the node groups are balanced between science and practice participants. The project provides a platform for knowledge-sharing, collaborating and mutual learning among participants to cultivate development of well-informed policy orientations and stakeholder-informed research. The nodes are organized to

answer the project’s guiding question: “What new knowledge, technologies and policy options are needed to ensure that future phosphorus use is sustainable, improves food security and environmental quality and provides benefits for the poor?”

The goal of Global TraPs is to build knowledge of how humans can make transitions toward more sustainable phosphorus use. Global TraPs will define: the current level of knowledge on phosphorus and its use and new knowledge that is necessary to ensure sustainability; new technologies needed to better process, use and reuse phosphorus; and the most valuable areas for policy intervention to ensure sustainable phosphorus use in the future.

During 2011, Global TraPs held two workshops in Zurich, Switzerland. Over 100 participants attended from various organizations including FAO, IPNI, the United Nations Environment Programme, fertilizer and agricultural trading companies and associations, and universities in Austria, Canada, China, Germany, Japan, South Africa, Switzerland, the United Kingdom, the United States and Vietnam. Additional meetings are being held in 2012 to further the Global TraPs agenda.



VFRC

A Blueprint for Global Food Security

Virtual Fertilizer Research Center

The VFRC is facilitating the development and commercialization of the next generation of fertilizers and fertilizer production technologies to help feed the world's growing population and provide sustainable food security. The need for innovative fertilizer development to ensure sustainable food security is a pressing global issue and requires a global solution. As a development and commercialization initiative, the VFRC will coordinate the work of multiple research institutions cooperating with businesses and entrepreneurs to advance a unified technology agenda.

The VFRC board of advisors (BoA) met in Amsterdam, The Netherlands, in late October 2011. The 14-member board represents a broad spectrum of international experts in the fields of agriculture, fertilizer, food security, sustainable development, soil science and international philanthropy. Major outcomes of the third BoA meeting included the re-appointment of the board of advisors; the appointment of the Executive, Science and Commercialization committees; and the appointment of Sanjib Choudhuri as the initiative's executive director. At its meeting, the BoA also endorsed a preliminary program of new technology development priorities.

The BoA and its Executive Committee are chaired by Dr. Jimmy Cheek. Dr. Rudy Rabbinge serves as the vice chair. Other members are Mark Huisenga, Peter McPherson, Prof. Ruth Oniang'o, Dr. Juergen Voegele and Dr. Prem Warrior.

The Science Committee is chaired by Rabbinge, and also includes Dr. Marco Ferroni, Dr. Renfang Shen

and Ajay Vashee. The Commercialization Committee is chaired by Warrior, and also includes Huisenga, Assétou Kanouté and Luc Maene.

Choudhuri leads a small VFRC team based in Washington, D.C. Prior to joining VFRC, he held executive positions in international business and technology development, marketing and general management at headquarters and in divisions of JohnsonDiversey, Unilever and The Molson Companies. His career also included positions at McKinsey & Company and Procter & Gamble. Choudhuri earned a master's degree in business administration from the University of Western Ontario, Canada, and a bachelor's degree in chemical engineering from the Indian Institute of Technology Kharagpur in India.

In a May 2011 keynote speech to The Chicago Council on Global Affairs Symposium, Dr. Rajiv Shah, USAID administrator, discussed progress made through Feed the Future, the U.S. government's global hunger and food security initiative. According to Shah, "Agriculture depends on the strength of public and private institutions working and investing together, building new markets and supply chains, sustainably taking new initiatives to scale and improving global economic potential."

Shah also recognized the VFRC. "When it comes to research, USAID is tripling the level of investment compared to 2008, to \$120 million. One of the most exciting projects we're supporting is the Virtual Fertilizer Research Center, designed to bring universities, research labs and agribusiness together with the International Fertilizer Development Center to deliver the next generation of fertilizers."

Executive Committee

Dr. Jimmy Cheek (Chair)	Prof. Ruth Oniang'o
Dr. Rudy Rabbinge (Vice Chair)	Dr. Juergen Voegele
Mark Huisenga	Dr. Prem Warrior
Peter McPherson	

Executive Director

Sanjib Choudhuri

Science Committee

Dr. Rudy Rabbinge (Chair)	Dr. Renfang Shen
Dr. Marco Ferroni	Ajay Vashee

Commercialization Committee

Dr. Prem Warrior (Chair)	Assétou Kanouté
Mark Huisenga	Luc Maene

USAID provided a second round of VFRC funding during 2011. It is expected that the VFRC's global mission will be endorsed and supported financially by multiple international donors.

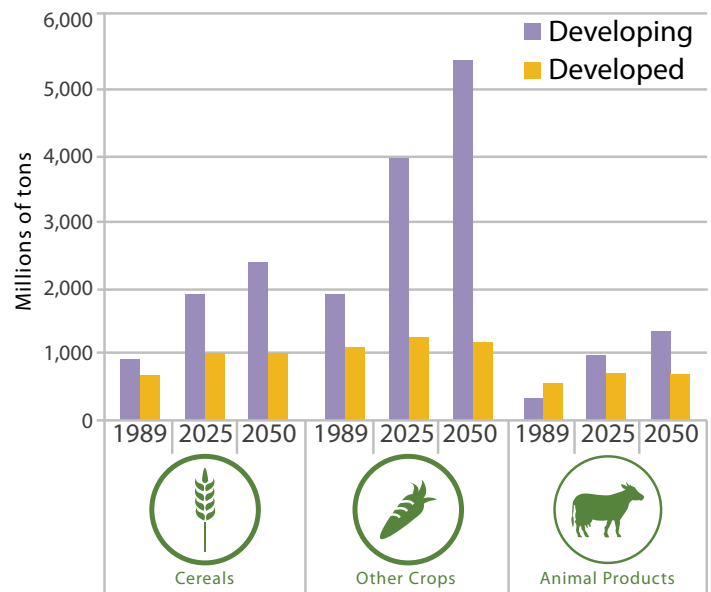
The VFRC also launched its website (www.vfrc.org) during 2011. The site includes a VFRC overview, biographies of the board of advisors, news and contact information. The site also carries a recent publication *VFRC: A Blueprint for Global Food Security*. The Blueprint describes the primary improvements required from the application of advanced technology to fertilizers and outlines the technology agenda that VFRC will coordinate.

In addition, the website features information about the VFRC's first requests for proposals (RFPs). The following four outcomes are the initial priorities for the development of new fertilizers and fertilizer technologies:

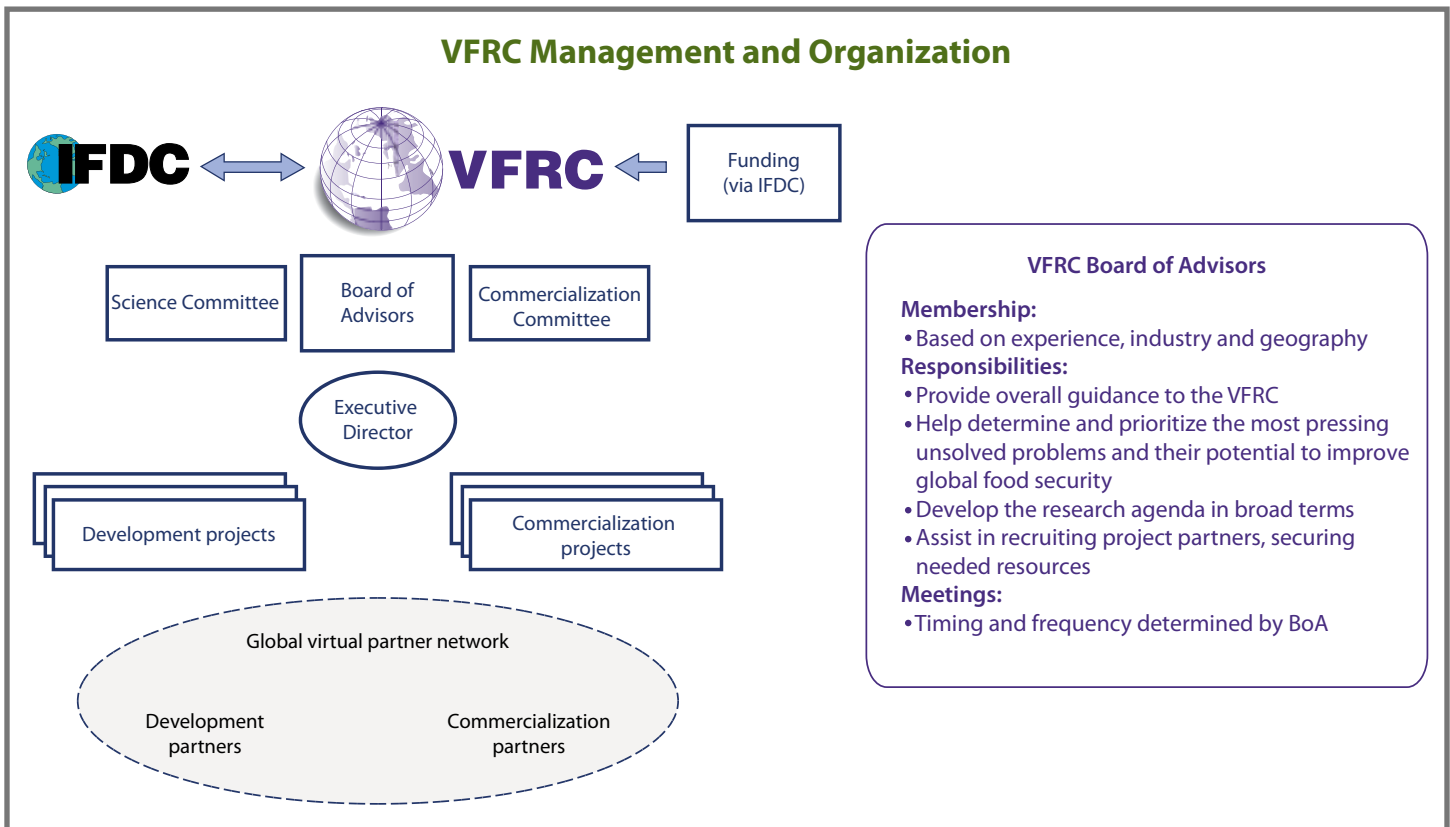
- Higher nitrogen use efficiency fertilizers.
- Improved micronutrient delivery.
- On-site fertilizer purity detection.
- Increased self-reliance in fertilizer supply.

The needs of smallholder farmers in South Asia and SSA are VFRC's initial geographic priorities for the RFPs. Over the next 24 months, \$2.5 million is available to support development proposals, of which \$750,000 will be obligated by April 30, 2012.

Projected Demand Growth of Cereals, Other Crops and Animal Products Until 2050



VFRC Management and Organization



Selected 2011 IFDC Publications

(FSR = Fertilizer Situation Report; G = General; S = Series)

- FSR-1 Africa Fertilizer Situation
- FSR-2 Asia Fertilizer Situation
- FSR-3 Latin America Fertilizer Situation
- FSR-5 North America Fertilizer Capacity
- FSR-6 Central Europe Fertilizer Situation
- FSR-7 Worldwide Urea Capacity Listing by Plant
- FSR-8 Worldwide DAP and MAP Capacity Listing by Plant
- FSR-9 Worldwide Potash Capacity Listing by Plant
- FSR-10 Worldwide Ammonia Capacity Listing by Plant
- FSR-14 Worldwide Ammonium Nitrate/Calcium Ammonium Nitrate Capacity Listing by Plant
- FSR-16 Global and Regional Data on Fertilizer Production and Consumption, 1961/62–2009/10
- FSR-21 China Fertilizer Situation
- FSR-22 Worldwide NPK Capacity Listing by Plant
- FSR-23 Worldwide Phosphoric Acid Capacity Listing by Plant
- FSR-24 Worldwide Sulfuric Acid Capacity Listing by Plant
- G-1 IFDC Publications Catalog
- S-34 IFDC 2010 Annual Report

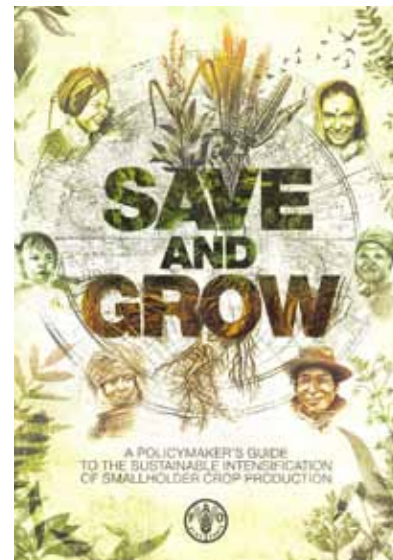
Competitive Agricultural Systems and Enterprises (CASE):

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. Printed by Veenman+, Rotterdam, The Netherlands, 2011.



“Soil Health” (Chapter 3) in *Save and Grow* by Amit H. Roy, et al. Food and Agriculture Organization of the United Nations, Rome, Italy, 2011.



“Agro-dealer Development in Developing and Emerging Markets,” by John Allgood, in *Agricultural Innovation Systems*, The World Bank, Washington, D.C., 2011.

“Agriculture in Kenya: Increasing Fertilizer Use by Smallholder Farmers,” by Joshua Ariga and Thomas Jayne in *Yes Africa Can: Success Stories from a Dynamic Continent*, The World Bank, Washington, D.C., July 2011.

“Promoting Sustainable Crop-Livestock Integration Through Farmer’s Participation and Integrated Soil Fertility Management in the Sahel of West Africa,” by Bidjokazo Fofana in *Soil Fertility Improvement and Integrated Nutrient Management – A Global Perspective*, Joann K. Whale (Ed.). ISBN 978-953-307-945-5. 2011.

“Fertilizer Use, Markets and Management,” by D.I. Gregory, R.J. Buresh, S.M. Haefele and U. Singh, pages 231–263 in S. Pandey, D. Byerlee, D. Dawe, A. Dobermann, S. Mohanty, S. Rozelle and B. Hardy (Eds.) in *Rice in the Global Economy: Strategic Research and Policy Issues for Food Security*, International Rice Research Institute, Manila, Philippines.

“Policy Options for Improving Regional Fertilizer Markets in West Africa,” by B.L. Bumb and P. Fuentes (IFDC) and M. Johnson (IFPRI), published by IFPRI as IFPRI Discussion Paper 01084.

“Estimating DSSAT Cropping System Cultivar-Specific Parameters Using Bayesian Techniques,” by James W. Jones, Jianqiang He, Kenneth Boote, Paul Wilkens, C.H. Porter and Z. Hu in *Methods of Introducing System Models into Agricultural Research*. ASA/CSSA/SSSA. ISBN: 978-0-89118-180-4. 2011.

Synthèse Burundi: CATALIST Rapport pour la période 2006-2011.

Synthèse DRC: CATALIST Rapport pour la période 2006-2011.

Overview Rwanda: Progress report 2006-2011.

Selected 2011 IFDC Articles

"Encouraging Private Investment in Agricultural Research: Myth or Necessity for Developing Countries," by Joshua Ariga, published on CTA website, <http://knowledge.cta.int>, September 2011.

"Evaluation of Satellite-Based, Modeled-Derived Daily Solar Radiation Data for the Continental United States," by Jeffrey W. White, Gerrit Hoogenboom, Paul W. Wilkens, Paul W. Stackhouse Jr. and James M. Hoel in *Agronomy Journal*, Vol. 103, Issue 4, 2011.

"Nitrogen Transformation, Ammonia Volatilization Loss and Nitrate Leaching in Biofertilizers Relative to Urea," by Upendra Singh, Joaquin Sanabria, Rick Austin and

Sampson Agyin-Birikorang in *Soil Science Society of America Journal*. Under review.

"A New Technique to Separate Nitrogen-Polymers from Urea in a Soluble Ureaform Fertilizer for Studying Nitrogen Transformation in Soil," by S.H. Chien, U. Singh, E.R. Austin and J.S. Kruse, published in *Soil Science Society of America Journal* 75(4):1574-1577.

"Agro-Ecological Nitrogen Management in Soils Vulnerable to Nitrate Leaching: A Case Study in the Lower Suwannee Watershed," by Sampson Agyin-Birikorang, Yoana C. Newman, Augustine K. Obour and Gabriel N. Kasozi, published in the *Nutrient Cycling in Agroecosystems Journal*.

Selected 2011 IFDC Presentations

"World Phosphate Rock Reserves and Resources," presented by Steven J. Van Kauwenbergh at The Sulphur Institute's Sulphur World Symposium, April 13, 2011, New York, New York.

"Energy Efficiency and Food Security for All – The Impact of Fertilizer," presented by Don Crane (on behalf of Amit Roy) at the National Academies Workshop 2 on Exploring Sustainable Solutions for Increasing Global Food Supplies, May 2-4, 2011, Washington, D.C.

Keynote Speech "The Role of Fertilizer in Agricultural Transformation: Global Perspectives," presented by Joshua Ariga at the Conference on The Role of Fertilizers in Uganda's Agricultural Transformation, June 30-July 1, 2011, Kampala, Uganda.

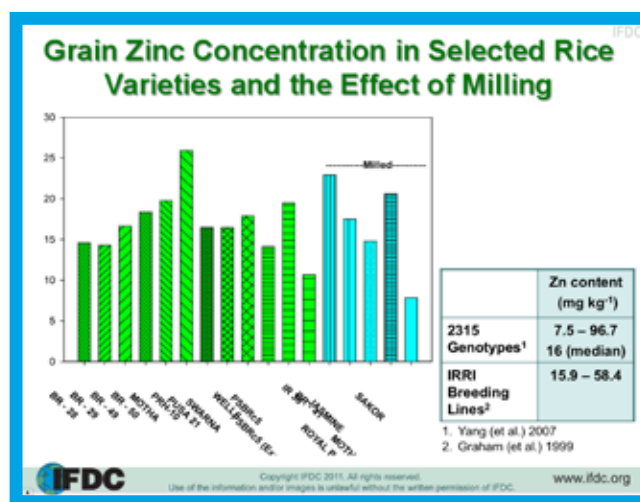
"CERES-RICE: Capturing the Essence of Water and Nitrogen Interactions with Climate Change," presented by Upendra Singh at the AgMIP Rice Team Workshop, August 29-30, 2011, Beijing, China. Paul Wilkens is co-author of the presentation.

"Phosphate Rock Geology Mining, Exploration, Processing," presented by Steven J. Van Kauwenbergh at the Global TraPs Meeting, August 29-30, 2011, Zurich, Switzerland.

"Ammonia Volatilization From Sulf-N26 (Fused Ammonium Sulfate Nitrate) on Calcareous and Gypsiferous Soils," presented by Sen H. Chien at the annual ASA/CSSA/SSSA meeting, October 16-19, 2011, San Antonio, Texas. Upendra Singh is co-author.

"Phosphate Forecast: How Far Can We Go (How Deep Can We Dig)," presented by Steven J. Van Kauwenbergh at the Second Workshop on Fertilizer Technologies, Universidade Federal de Uberlândia, October 20-21, 2011, Uberlândia, Brazil.

"Yield and Biofortification of Spinach and Rice Using Seed-Core Zinc Technology," presented at the 3rd International Zinc Symposium Improving Crop Production and Human Health, October 10-14, 2011, Hyderabad, India. Authors are Upendra Singh, Joaquin Sanabria, Deborah Hellums (IFDC) and Taylor Pursell (NFT Industries).



"Market Smart Subsidies: A Theoretical Perspective," presented by Porfirio A. Fuentes at the Peer Learning Seminar on "Policy Implementation: A Case of Fertilizer Subsidy Programs," organized by FAO-Africa Division, December 11-14, 2011, Nairobi, Kenya.

Selected 2011 IFDC Technical Reports

“Characterization of Five Samples from the San Juan de la Costa Deposit.”

“Improving Fertilizer Markets in West Africa: The Fertilizer Supply Chain in Ghana.”

“Improving Fertilizer Markets in West Africa: The Fertilizer Supply Chain in Mali.”

“Improving Fertilizer Markets in West Africa: The Fertilizer Supply Chain in Nigeria.”

“Improving Fertilizer Markets in West Africa: The Fertilizer Supply Chain in Senegal.”

“AAPI Project: Capacity-Building Within the Agriculture Sector.”

“Technology Platforms for the Development of Environmentally Friendly Phosphate Fertilizers (EFPFs): 21st Century Tools for a Second and Sustainable Green Revolution,” written by Alan H. Goldstein, consultant.

“An Assessment of the Potential for Increased Private Sector Involvement in the Fertilizer Supply System in Rwanda: A Survey of Distributors and Agro-Dealers.”

Selected 2011 IFDC Videos

“An Innovative Trail for Rice Production” – This 13-minute IFDC video recounts agricultural recovery efforts after the 2007 Cyclone Sitr killed thousands of Bangladeshis and destroyed nearly 660,000 ha of crops. The aid effort resulted in the USAID-funded ILSAFARM project that utilized UDP technology to rebuild rice production. Video production: IFDC EAD staff and V-Wave Media.



“United Through Markets” – This video illustrates IFDC’s CASE solution by featuring four agribusiness clusters in

Ghana. Presented in the video are the experiences of entrepreneurial individuals who are building small- to medium-scale businesses through new relationships with colleagues and agribusiness cluster and value chain partnerships. Video production: MOOV-ON Productions.



“Cassava Revolution” – This 23-minute documentary demonstrates how the PPP among IFDC, DADTCO and DGIS is

transforming cassava production into a commercially viable enterprise under the Cassava+ project in Nigeria. Video production: Communication for Change.



“Extending Agro-Dealer Networks (EADN)” – This 30-minute video reviews the impact of IFDC’s EADN project, which

trained more than 1,400 agro-dealers throughout Kenya, Tanzania and Uganda. Video production: Mark Kamau.



“Fertilizer Voucher Program in Nigeria” – This video by ECOWAS, IFDC and the National Food Reserve Agency (NFRA)

documents Nigeria’s Fertilizer Voucher Program that allowed many smallholder farmers access to subsidized fertilizer for the first time in 10 years. Video production: Communication for Change.

“Imbaraga” – This five-minute video includes interviews with members of the Imbaraga farmers’ federation. Members are increasing crop production as a result of CATALIST training on modern farming techniques.



“The Land of a Thousand Hills” – This 15-minute IFDC video for the PReFER project explores the fertilizer supply chain

in Rwanda and the nation’s effort to privatize fertilizer importation, distribution and financing. The change comes in light of the fact that national fertilizer use has increased from 6.0 kg/ha to 23 kg/ha over the last three years. Video production: Larry Badger.



“MAKALA” – This 40-minute documentary film for the SEW project shows remarkably detailed steps in modern charcoal

production and reviews agroforestry programs in Burundi, DRC and Rwanda. Film production: MOOV-ON Productions.



“Mozambique and IFDC – Working Together to Improve Agriculture and Lives” – This 10-minute video was

produced for IFDC’s ESAFD. It demonstrates Mozambique’s increased agricultural production as a result of IFDC projects and highlights IFDC-trained smallholder farmers whose incomes and lives have changed as a result. Video production: Larry Badger.



“Our Soil, Our Future” – Filmed in Burundi, this nearly 2-hour theater-quality film is a story told by a teacher to his young students

of three farmers in Central Africa who learn to sustainably increase crop production through ISFM practices. Film production: MOOV-ON Productions.



“Patrick J. Murphy Interview” – Interview with Patrick J. Murphy, IFDC board of directors member and

former vice president and manager of the International Private Banking Office of Bank of America. Video production: IFDC communications staff, Muscle Shoals, Alabama, USA.



“Urea Deep Placement; Hope for Food Self-Sufficiency in West Africa” – This 26-minute IFDC video chronicles the recent

expansion of FDP technology into West Africa. The technology is designed to increase rice production and nutrient efficiency through urea deep placement (UDP) technology. Video production: Les Films Yirpalouté.

“Urea Deep Placement” – This 11-minute educational video describes the benefits of UDP in rice production compared with the traditional practice of broadcasting urea fertilizer. Video production: Agro-Insight.



“The Primary Nutrients in Plant Growth” – This educational video series explores the history and roles of nitrogen, phosphorus, potassium and secondary and micronutrients in plant nutrition. This five-part series of four- to eight-minute videos raises awareness of the role of chemical fertilizers in delivering these nutrients to plants. Video production: IFDC communications staff, Muscle Shoals, Alabama, USA.

KAED Follow-On Project Produces Educational Videos for National TV

In 2011, the USAID-funded KAED Follow-On project produced 25 teaching videos which were broadcast on national television in Kyrgyzstan. The purpose of the videos was to disseminate information to farmers and agro-dealers about various agricultural topics. Among the subjects were increasing the production of high-quality wheat, advantages of using John Deere agricultural machinery, improving livestock, the importance of the chemical composition of the soil and the proper use of fertilizers. The videos were also used to advertise agricultural exhibitions and field days and to announce nationwide programs such as the Fertilizer Assistance Voucher Program and the Seed Assistance Voucher Program. The videos have also helped to make IFDC and KAED familiar names throughout the country.

2011 Project Portfolio

North and West Africa Division

Accelerating Agribusiness in Africa – Bridge (AAA-Bridge)*

Objective – AAA-Bridge is a bridge-funding project that continued the 1000s+ agribusiness development activities in West Africa and expanded these activities into East Africa in preparation for a potential large-scale, continent-wide project. A major AAA-Bridge activity was the establishment of market linkages with major agro-industries.

Collaborators – BoP Inc., ICRA, agro-industries, farmers

Donor – DGIS

Location – Sub-Saharan Africa

Agricultural Value Chain Mentorship Project (AVCMP)

Objective – AVCMP is contributing to the Ghanaian government's objectives of achieving food security and developing the region's agricultural sector into an agro-industrial economy. The goal is to transform the agricultural value chain into a highly productive, efficient, competitive and sustainable system by strengthening the capacity of agro-dealers, SMEs and FBOs. IFDC's role is to increase rice and soybean farmers' access to output markets by building the entrepreneurial and technical capacity of SMEs.

Collaborators – AGRA, GAABIC, SARI, agribusiness service providers, agro-dealers, farmers, FBOs and SMEs

Donors – AGRA, DANIDA

Location – Ghana

Cassava Plus (Cassava+)

Objective – Cassava+ is a PPP commercializing the cassava production of 160,000 farmers in four Nigerian states by linking them to markets more efficiently. The program assists farmers to plant, harvest and process cassava (utilizing a mobile processing unit that eliminates crop loss caused by rapid post-harvest deterioration). The project guarantees farmers payment for delivered crops and includes access to agro-inputs, training and new technologies. The project is expected to increase these farmers' incomes by 22 percent.

Collaborators – Dutch Agricultural Development & Trading Company (DADTCO), farmers

Donor – DGIS/Schokland Fund

Locations – Benue, Osun, Rivers and Taraba States in Nigeria

Grassroots Development of Agribusiness Clusters in Mali (DEBPEA)

Objective – As an extension of the 1000s+ project, DEBPEA is increasing the number of agribusiness clusters in Mali by 30 percent and building on the strategy of making agro-dealer clusters sustainable. The project is also contributing to business development in rural areas and agro-input distribution.

Collaborators – Agro-dealers, business support services and producer organizations

Donor – Royal Embassy of the Netherlands

Location – Mali

Rural Economic Development of the Koulikoro Region (DERK II)

Objective – The DERK II project is building the capacities of the oilseed value chains (jatropha, sesame, shea butter) in Mali's agricultural sector, focusing on the country's Koulikoro region. To assist farmer organizations, DERK II provides training, access to agro-inputs and product processing, packaging, transportation and marketing. The project also builds farmers' linkages to agro-dealers, financial institutions and import/export enterprises.

Collaborators – Agro-dealers, farmer organizations, financial institutions, import/export enterprises

Donor – Netherlands Development Organization (SNV) - Mali

Location – Mali

Fertilizer and Sustainable Agricultural Development (F&SAD)

Objective – The F&SAD project improves access to and the efficient use of, agro-inputs in the West African nations of Mali, Niger and Togo. Using the ISFM solution, F&SAD provides agricultural intensification support. In addition to ISFM, the project includes participatory development of technology packages and facilitation

of improved linkages between farmers and input and output markets.

Collaborators – Agro-dealers, associations, producer organizations

Donor – IFA

Locations – Mali, Niger and Togo

Ghana Agro-Dealer Development (GADD)

Objective – GADD is building the agricultural productivity and incomes of 850,000 smallholder farmers across Ghana by increasing the availability and affordability of quality agro-inputs including seeds, fertilizers and CPPs. To support these efforts, GADD is building the capacities of 2,200 agro-dealers and training them to provide improved support to their farmer-customers. The project also builds the capacities of 150 seed producers.

Collaborators – AGRA, agro-dealers, farmers, GAABIC

Donor – AGRA

Location – Ghana

Improving the Access of Non-Cotton Agricultural Producers in Benin (Benin Non-Cotton)

Objective – The Benin Non-Cotton project is increasing high-value crop productivity by a projected 40 percent while increasing 30,000 smallholder farmer incomes by 20 percent. The project focuses on increasing farmer capacities to produce maize, pineapple and rice through access to quality agro-inputs, training and enhanced market linkages. In addition, lending institutions have established guaranteed micro-financing programs.

Collaborators – Farmers, financial institutions, Royal Embassy of the Netherlands

Donor – Royal Embassy of the Netherlands

Location – Benin

Linking Farmers to Markets (FtM)

Objective – Through the FtM project, IFDC is increasing northern Ghanaian rice, maize, sorghum and soybean farmers' incomes and long-term business opportunities by developing new commercial linkages with traders, marketing companies, processors and institutional buyers. FtM impacts approximately 50,000 smallholders' livelihoods by creating farmer alliances, training and equipping SMEs and building lasting relationships with national, regional and international produce purchasing companies.

Collaborators – Farmers, traders, marketing companies, processors and institutional buyers

Donor – AGRA

Location – Northern Ghana

Mainstreaming Pro-Poor Fertilizer Access and Innovative Practices in West Africa

Objective – The project improves livelihoods in West Africa with a focus on resource-poor farmers, FBOs and community associations through improved land husbandry and better access to, and more efficient use of, fertilizer. The project utilizes a holistic ISFM approach to improve depleted soils. The project also focuses on natural resource management practices, improved technologies, competitive markets, private enterprise development and national policy advocacy.

Collaborators – Community associations, FBOs, smallholder farmers

Donor – IFAD

Location – West Africa

Marketing Inputs Regionally (MIR Plus)

Objective – MIR Plus is a joint effort by ECOWAS – a coalition of 15 countries – and UEMOA and is implemented by IFDC. MIR Plus is improving policy and regulatory environments in West Africa, increasing the use and efficiency of agro-inputs, improving the availability of technical and market information and using technology to link producers' organizations with agro-dealers. The project links 2.23 million farmers to agro-dealers who are training and supplying the farmers. The project should increase maize and rain-fed rice yields by 20 percent for targeted farmers in Ghana and Nigeria and increase irrigated rice yields in Burkina Faso, Ghana, Nigeria, Senegal and Sierra Leone by 20 percent.

Collaborators – ECOWAS, private input importers and dealers, sector ministries, UEMOA

Donors – DGIS, ECOWAS, UEMOA

Locations – Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo

MiDA's Millennium Challenge Corporation (MCC) Compact – Commercial Development of Farmer-Based Organizations (CDFO)*

Objective – CDFO was a component of the MCC Compact's Agriculture Project. The Compact reduced poverty in Ghana by raising farmers' incomes through private sector-led agribusiness development.

Collaborators – ACDI/VOCA, ADRA, farmers, SMEs, training and technical service providers

Donor – MiDA

Location – Ghana

Nigeria Agro-Dealer Support (NADS)*

Objective – NADS provided credit and support to rural agro-dealers across Nigeria. IFDC worked with local partners to build agro-dealer capacity and strengthen technical and business knowledge. The project supported trade associations and assisted agro-dealers to access investment capital through risk-sharing. Agro-dealers were also trained to provide services such as field demonstrations, soil testing and teaching best agricultural practices to farmers.

Collaborators – AGRA, agro-dealers and agro-dealer associations, farmers, Fertilizer Producers and Suppliers Association of Nigeria

Donor – AGRA

Locations – Four states in Nigeria

Nigeria Fertilizer Voucher Program

Objective – The Nigeria Fertilizer Voucher Program enables farmers to obtain quality agro-inputs in a timely fashion (using vouchers in lieu of cash), while also helping to build the businesses and professionalism of rural agro-dealers. By the end of 2011, more than 600,000 smallholder farmers in five Nigerian states received vouchers. Crops targeted for increased production include maize, rice, yams, sorghum, cassava, soybeans and millet. The project also works to strengthen Nigeria's private sector fertilizer supply and distribution channel.

Collaborators – AGRA, agro-dealers, farmers

Donors – AGRA, Nigerian National Food Reserve Agency (NFRA), USAID

Location – Nigeria

Prevention of Seed Cotton Contamination in West Africa

Objective – This three-year pilot project is assisting cotton traders, producer organizations and 27,000 farmers in Burkina Faso, Côte d'Ivoire and Mali to significantly reduce high levels of cotton contamination. During the project, 100,000 tons of seed cotton will be affected. The project demonstrates that enhanced efforts to produce uncontaminated cotton lint are rewarded with higher world market prices, increasing revenues for both cotton enterprises and smallholder farmers.

Collaborators – Cotton traders, farmers, producer organizations

Donor – European Union/Common Fund for Commodities (CFC)

Locations – Burkina Faso, Côte d'Ivoire and Mali

Professionalization of Agro-Input Dealers in Burkina Faso (PRODIB)

Objective – PRODIB is strengthening the ability of agro-dealers to create business linkages with agro-input suppliers and to extend their retail networks to reach more farmers. The primary goal is to increase agricultural productivity and to boost the incomes of approximately 375,000 smallholder farmers in the country by increasing the availability, accessibility and affordability of quality agro-inputs in rural areas. Activities include building agro-dealer capacity, strengthening institutional bodies, providing financial support, increasing technology transfer through training programs, facilitating favorable input policies and regulations and M&E of project progress.

Collaborators – AGRODIA, agro-dealers and farmers

Donor – AGRA

Location – Burkina Faso

West Africa Cotton Improvement Program (WACIP)

Objective – WACIP is boosting the productivity and profitability of the cotton sector in Benin, Burkina Faso, Chad and Mali, known as the Cotton-Four (C-4). IFDC works with farmers, researchers, agro-input distributors, private enterprises, inter-professional associations and textile artisans. WACIP is promoting advanced agricultural practices that improve yields, building capacities, supporting the ginning sector and training artisans to access regional and international markets.

Collaborators – Abt Associates, Aid to Artisans, Auburn University, Michigan State University, Tuskegee University

Donor – USAID

Locations – Benin, Burkina Faso, Chad and Mali

East and Southern Africa Division

Agricultural Input Markets Strengthening (AIMS)

Objective – The second phase of the AIMS project promotes private sector investment in agro-input technologies and marketing in Mozambique. The project is improving farmers' access to technologies by building competitive markets and dealer networks. Key components are business development and capacity-building, association-building, technology transfer and extension support, increased production of improved seeds and improved policy environments.

Collaborators – International Institute of Tropical Agriculture (IITA), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Citizens' Network for Foreign Affairs (CNFA)

Donor – USAID

Location – Mozambique

Agricultural Growth Program – Agricultural Marketing Development in Ethiopia (AGP-AMDE)

Objective – The goal of the AGP-AMDE project is the long-term reduction of poverty and hunger through improvements in the productivity and competitiveness of value chains that offer income opportunities for rural households. As a member of the ACDI/VOCA Support for Food Security Activities (SFSa) team, IFDC is helping build agro-input supply and distribution systems and facilitating farmers' access to and use of agro-inputs. IFDC is also supporting the development of private sector agribusinesses to produce and market seeds.

Collaborators – ACDI/VOCA, Coffee Quality Institute, Crown Agents USA, Danya International, John Mellor Associates, Kimetrica, farmers and private sector agribusinesses

Donor – USAID

Location – Ethiopia

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

Objective – CATALIST is increasing food security, reducing poverty, improving regional collaboration and fostering peace and security in the Great Lakes Region of Central Africa. The project enables farmers to increase their crop production and incomes through an integrated approach combining sustainable agricultural intensification technologies with farm-to-market linkages, agroforestry and infrastructure construction.

Collaborators – Farmer organizations, national and international NGOs, Ministries of Agriculture

Donor – DGIS

Locations – Burundi, DRC and Rwanda

COMESA Regional Agricultural Inputs Program (COMRAP)*

Objective – COMRAP responded to rising food prices by increasing agricultural productivity through improved access to finance, training, fertilizer and seeds. Over the course of its implementation, the project reached three million smallholder farmers in eight countries in ESAFD.

Collaborators – ACTESA, AGMARK

Donor – European Union Food Facility Program

Locations – Burundi, Ethiopia, Malawi, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe

Extending Agro-Input Dealer Networks (EADN) in East Africa*

Objective – EADN strengthened and extended agro-dealer capacities in Kenya, Tanzania and Uganda. The project focused on building high-functioning dealer networks that can introduce improved production technologies to smallholder farmers. The project also focused on improving agro-dealer information, promotion and distribution capabilities for products such as quality fertilizers, improved seed and CPPs.

Collaborators – IFAD, agro-dealers, farmers

Donor – IFAD

Locations – Kenya, Tanzania and Uganda

Food and Agriculture Organization (FAO) Voucher Program*

Objective – In September 2009, IFDC received a grant from the United Nations' FAO to assist the GRM in the implementation of a fertilizer/seed voucher pilot program. The program initially targeted 25,000 maize and rice farmers. With the successful completion of the pilot program, up-scaling of the program to reach a much larger percentage of Mozambique's total maize and rice farmers is expected.

Collaborators – Agro-dealers, bankers, FAO, farmers, GRM

Donor – European Union

Location – Mozambique

Maize Intensification in Mozambique (MIM)

Objective – MIM assists smallholder farmers to increase maize production through better access to quality agro-inputs and specialized training programs. MIM strengthens the entire maize value chain by building linkages between farmers and agro-input suppliers, maize buyers, NGOs, farmer organizations and agricultural extension services. The project utilizes farmer cluster formation and demonstration fields to promote improved agricultural technologies.

Collaborators – CIMMYT, farmer and producer organizations, marketing companies, NGOs

Donors – IFA, IPNI, IPI

Location – Mozambique

Mozambique Agro-Dealer Development (MADD)

Objective – The MADD project builds on the achievements of the AIMS project, which promotes private sector investment in agro-input technologies and improves farmers' access to these technologies through competitive markets and stronger agro-dealer networks. Adding to these efforts, MADD is strengthening and expanding agro-dealer networks in the Manica and Tete provinces of Mozambique.

Collaborators – Agro-dealers, farmers, fertilizer companies, seed supply companies

Donor – AGRA

Location – Mozambique

NEPAD-FAO Fertilizer Subsidy Study

Objective – The NPCA commissioned a study on fertilizer subsidy programs in eight African countries. The guiding hypothesis of the study is that there is a direct link between the design, characteristics and implementation modalities of a subsidy program and its performance. The study analyzes various subsidy models, identifies major issues that are affecting the implementation of programs in SSA and provides a menu of options to improve the management and implementation of ongoing subsidy programs.

Collaborator – NPCA

Donors – AGRA and FAO

Locations – Burkina Faso, Ghana, Malawi, Nigeria, Rwanda, Senegal, Tanzania and Zambia

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

Objective – PReFER is developing an efficient, effective and competitive private sector fertilizer procurement and distribution system. The project's primary objective is to effect the orderly transition of the Government of Rwanda (GoR) out of nationalized procurement and distribution. To that end, IFDC identifies policies supportive of private sector enterprise in the fertilizer market and contributes to the development of a sustainable supply system. This effort is expected to stimulate fertilizer demand and will increase agricultural intensification and farm output market development.

Collaborators – Private sector entrepreneurs, GoR

Donor – USAID

Location – Rwanda

Rwanda Agro-Dealer Development (RADD)

Objective – The RADD project addresses supply-side agro-input issues by building the capacity of agro-dealers and retailers in Rwanda. RADD is building interest in sector development and supporting private investments in agro-input import and distribution. The project focuses on agro-dealer network development in conjunction with the expansion of the Rwanda Fertilizer Association, the future foundation for the enhanced network. In addition to its support of efforts within CATALIST, the RADD project assists the PReFER project's work with the GoR for an orderly transition out of nationalized fertilizer procurement.

Collaborators – Rwanda Fertilizer Association, agro-dealers

Donor – AGRA

Location – Rwanda

Savings, Subsidies and Sustainable Food Security

Objective – This field experiment in Mozambique studies the impact of fertilizer subsidies; the interaction of fertilizer subsidies and savings; and the impact of savings facilities and savings matches. Key assessments include farm output, household consumption and other household indicators (e.g., nutrition, health, child schooling) in the short- and long-term resulting from subsidies, savings and savings matches.

Collaborators – University of Michigan and University of Wisconsin

Donor – USAID

Location – Mozambique

Seeds for Development in South Sudan

Objective – Seeds for Development is helping transform agriculture in South Sudan from subsistence farming to a market-oriented, competitive and profitable agricultural system. The project harnesses the entrepreneurial spirit of agro-dealers, seed companies, farmers, food processors and financial institutions to commercialize the agricultural value chain. A key methodology utilized is integrated seed sector development combined with the formation and maturation of specific agribusiness clusters. Through Seeds for Development, IFDC is educating farmers about the benefits of high-quality seed and modern fertilizer technologies and training them in their proper use.

Collaborators – AGRA, AGMARK, South Sudan Ministry of Agriculture and Forestry, USAID FARM project, agro-dealers, farmers, food processors, financial institutions and seed companies

Donors – USAID and the Howard G. Buffet Foundation through AGRA

Location – South Sudan

Staples Value Chain (NAFAKA) in Tanzania

Objective – To increase food security, the NAFAKA project is improving the competitiveness and productivity of the maize and rice value chains while expanding the benefits from this growth to women, youth and other vulnerable groups. As a member of the ACIDI/VOCA SFSA team, IFDC is working with agro-input suppliers, producers and financial institutions to strengthen the availability of quality agro-inputs and to demonstrate their proper use at the farm level.

Collaborators – ACIDI/VOCA, Associates for International Resources and Development, Catholic Relief Services, Crown Agents USA, Danya International, Kimetrica, Tanzanian Ministry of Agriculture and farmers

Donor – USAID

Location – Tanzania

Support to Africa Soil Health Consortium (ASHC)

Objective – ASHC acts as a service provider to clients spanning public, private and academic organizations whose daily work involves assimilating ISFM technologies into practice at local levels. IFDC is providing M&E services to ASHC and is responsible for leading assessments of the project processes, collecting observations from stakeholders and conducting formal evaluations to assess the value of the communications products and how they contribute to outcomes in the ongoing development initiatives.

Collaborators – Advanced Research Institutes, AGRA, African Soil Information Service, CABI, Information and Communications Technology and Knowledge Management Program, IPNI, National Agricultural Research and Extension Systems, Soil Health Program, Technical Advisory Group, farmers, educators and media service providers

Donor – Bill & Melinda Gates Foundation

Location – Sub-Saharan Africa

Sustainable Energy Production Through Woodlots and Agroforestry (SEW)

Objective – More than 90 percent of household energy in Central Africa's Great Lakes Region is derived from biomass, contributing to rapid deforestation. SEW promotes sustainable energy production through reforestation and the development of wood fuel and charcoal value chains. The project also aims to decrease competition for land use between the energy and agricultural sectors by increasing wood production, agricultural productivity and incomes.

Collaborators – Regional NGOs, traders and transporters, wood and charcoal producers, World Wildlife Fund - Belgium

Donor – Royal Embassy of the Netherlands

Locations – Burundi, North and South Kivu provinces of the DRC and Rwanda

EurAsia Division

Accelerating Agriculture Productivity Improvement (AAPI)

Objective – The AAPI project is designed to strengthen and re-orient agricultural production systems in Bangladesh. The project goal is to improve food security and accelerate income growth in rural areas by increasing agricultural productivity on a sustainable basis. The AAPI project emphasis is on technology diffusion and development of support systems to achieve sustainability. The primary technology is FDP, which is well-suited to rice production. To a lesser extent, AAPI will support diffusion of the AWD water use management technology.

Collaborators – Bangladesh DAE, Bangladesh MoA, Bangladesh Fertilizer Association

Donor – USAID

Locations – Bangladesh (68 upazilas in 11 districts)

Albania Credit Enhancement Fund*

Objective – This technical program, funded with monetized proceeds from the USDA Food for Progress Program, introduced technology and training to farmers in dairy and livestock operations, while increasing agribusiness enterprise access to credit. The program trained farmers, built linkages, facilitated the importation of improved cattle breeds, provided access to quality feed and introduced farmers to modern production and processing equipment.

Collaborators – Agro-dealers, dairy farmers, micro-credit enterprises, USDA

Donor – USDA

Location – Albania

Expansion of Urea Deep Placement Technology in Additional 80 Upazilas of Bangladesh*

Objective – Based upon the success of a 2007-2008 project designed to increase rice yields in 80 upazilas (sub-districts), IFDC expanded its UDP technology transfer efforts to include an additional 80 upazilas. The project increased rice crop yields for 650,000 farmers, with more than 242,000 ha under cultivation utilizing the UDP process. The effort also included training of nearly 2,000 DAE field officials to monitor long-term farmer progress.

Collaborator – Bangladesh DAE

Donor – Bangladesh DAE

Locations – Bangladesh (80 sub-districts)

Kyrgyzstan Agro-Input Enterprise Development (KAED) Follow-On Project

Objective – The two-year follow-on component of KAED I and II assists 20,000 farmers planting improved wheat varieties and 80,000 others adopting better farming and animal care practices. The Follow-On project is applying a holistic approach in addressing land reclamation and soil fertility restoration issues because land represents a scarce natural resource, particularly in southern Kyrgyzstan. Efforts to bring unused soil into production and the use of quality agro-inputs are combined with knowledge and technology transfer to farmers to maximize the project's impact. The Follow-On project entered into a PPP agreement with Oasis Agro LLC to develop a sustainable poultry feed industry and increase protein-based livestock feed in the country. The program provides farmers with training and access to key business resources to increase soybean acreage, improve production of high-quality edible oil and increase domestic egg production.

Collaborators – Agro-dealers, farmers

Donor – USAID

Location – Kyrgyzstan

Kyrgyzstan Local Economic Development Project (KLDP)

Objective – This project stimulates rapid, diversified and sustained agro-economic growth at the local level through advancements in Kyrgyzstan's business and investment environment. KLDP is increasing municipal finance and capital investment and improving competitiveness of sectors with the most economic potential, specifically agriculture and agro-processing. It is upgrading workforce education, replicating best practices and implementing economic and administrative reforms at the national level. The project closely complements the KAED Follow-On project.

Collaborators – Chemonics, finance institutions, agro-dealers

Donor – USAID

Location – Kyrgyzstan

Market Development in the Fertilizer Sector of Bangladesh (Katalyst I)*

Objective – Katalyst assessed the fertilizer market with particular emphasis on the fertilizer policy framework. As a result of the assessment, strategic areas of intervention were employed to improve the performance of the fertilizer value chain. Emphasis was placed on promoting appropriate fertilizer management practices, improving farmer access to quality agro-inputs and creating a market-friendly regulatory framework.

Collaborators – Swisscontact-Katalyst, agro-dealers, farmers, Ministry of Commerce, policymakers

Donors – CIDA, Royal Embassy of the Netherlands, SDC, United Kingdom DFID

Location – Bangladesh

Market Development in the Fertilizer Sector of Bangladesh (Katalyst II)

Objective – An extension of Katalyst I, Katalyst II assesses the fertilizer market in Bangladesh with particular emphasis on the fertilizer policy framework. IFDC's role is to provide services and expertise to improve market development in the fertilizer sector. The project focuses on increasing the yields of rice, maize, jute, vegetable and potato crops through effective, efficient and correct use of fertilizer and other agro-inputs.

Collaborators – Bangladesh Ministry of Commerce, GIZ, Swisscontact, agro-dealers, farmers

Donors – CIDA, Embassy of the Kingdom of the Netherlands in Bangladesh, SDC and DFID

Location – Bangladesh

Productive Agriculture in Tajikistan (PRO-APT)

Objective – The PRO-APT project is increasing the productivity of traditional agricultural crops and strengthening the capacity and profitability of private sector agribusinesses. The Intensify Farm Productivity (IFP) component of PRO-APT is being implemented by IFDC. IFP is increasing crop and beef production and providing market-driven opportunities to improve farmers' living standards through increased income.

Collaborators – Agribusinesses, farmers

Donor – USAID

Location – Tajikistan

United States

Southeast Climate Consortium

Objective – The aim of the project is to develop a climate information and decision support system for the southeastern United States that will contribute to an improved quality of life, increased profitability, decreased economic risks and more ecologically sustainable management of agriculture, forestry and water resources.

Collaborators – Auburn University, Clemson University, Florida State University, North Carolina State University, University of Alabama - Huntsville, University of Florida, University of Georgia, University of Miami

Donors – National Oceanic and Atmospheric Administration (NOAA), USDA's Risk Management Agency and National Institute of Food and Agriculture

Location – United States

*Projects that ended in 2011.



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 Lola Ukumathsoeva, Office Manager and Procurement Specialist

¹Left during 2011

²Retired during 2011

³Short-term staff 2011

⁴On extended leave

⁵Deceased 2011

⁶Student attachment

Financial Highlights

The following is a summary of financial information for the year ended December 31, 2011. The full financial statements and the independent auditors' reports are available from IFDC upon request.

Balance Sheet – For the year ended December 31, 2011	<i>US \$'000</i>
Assets:	
Cash and cash equivalents	5,531
Restricted cash	546
Contracts receivable, net of allowance for doubtful accounts	6,496
Other receivables	1,159
Supplies inventory	147
Prepaid expenses and advances	601
Total Current Assets:	14,480
Buildings and equipment, net	71
Contributions receivable, noncurrent	
Total Assets	14,551
Liability and Net Assets:	
Accounts payable	2,397
Accrued annual and sick leave	1,719
Deferred revenue	7,685
Other liabilities	546
Total Current Liabilities	12,347
Unrestricted Net Assets	2,196
Permanently Restricted Net Assets	8
Total Liabilities and Net Assets	14,551

Statement of Revenue and Expenses – For the year ended December 31, 2011	US \$'000
Revenue and Support:	
ACDI/VOCA	735
Alliance for a Green Revolution in Africa	4,453
Chemonics International Inc.	1,417
Common Fund for Commodities	2,402
Common Market for Eastern and Southern Africa	3,981
Developing Business Services Markets	191
Government of Bangladesh	180
International Crops Research Institute for the Semi-Arid Tropics	623
International Fertilizer Industry Association	177
International Fund for Agricultural Development	930
Millennium Development Authority	1,391
National Programme for Food Security – Nigeria	581
Netherlands Directorate-General for International Cooperation	13,100
Royal Embassies of the Kingdom of the Netherlands	17,019
Shell Oil Products	880
The Fertilizer Institute	148
University of Michigan	306
U.S. Agency for International Development	19,108
Others	3,268
Total Revenue and Support	70,890
Expenses:	
Research and development	2,640
Agribusiness	36,826
Natural resource management	8,796
Capacity-building	13,252
VFRC	292
Support activities	8,703
Total Expenses	70,509
Increase in Unrestricted Net Assets	381

Revenue Sources

ACDI/VOCA
African Development Bank
Agrium Inc.
AGROGEN S.A. de C.V.
Alliance for a Green Revolution in Africa
Chemonics International Inc.
Common Fund for Commodities
Common Market for Eastern and Southern Africa
Developing Business Services Markets
(Bangladesh)
Development Alternatives, Inc.
Food and Agriculture Organization of the
United Nations
Government of Bangladesh
Government of Burkina Faso
Grupo Fertinal, S.A. de C.V.
Honeywell International, Inc.
International Crops Research Institute for the
Semi-Arid Tropics
International Fertilizer Industry Association
International Food Policy Research Institute
International Fund for Agricultural Development
International Plant Nutrition Institute
International Potash Institute
International Zinc Association
Millennium Development Authority (Ghana)
National Programme for Food Security – Nigeria
Netherlands' Directorate-General for
International Cooperation
New Partnership for Africa's Development
Planning and Coordinating Agency
Puccioni S.p.A.
Royal Embassies of the Kingdom of the
Netherlands (Benin, Mali and Rwanda)
Royal Tropical Institute
Saudi Basic Industries Corporation
Shell Oil Products
Sulphur Solutions, Inc.
Sulvaris Inc.
Teck Resources
Taraba State Government (Nigeria)
Terragro Fertilizer Company Limited
The Fertilizer Institute
U.S. Agency for International Development
U.S. Department of Agriculture
Unity Envirotech
University of Michigan

Acronyms and Abbreviations

1000s+ – From Thousands to Millions	IPNI – International Plant Nutrition Institute
AAA-Bridge – Accelerating Agribusiness in Africa - Bridge	ISFM – Integrated Soil Fertility Management
AAPI – Accelerating Agriculture Productivity Improvement	KAED – Kyrgyzstan Agro-Input Enterprise Development
AFAP – African Fertilizer Agribusiness Partnership	Katalyst – Market Development in the Fertilizer Sector of Bangladesh
AFO – AfricaFertilizer.org	M&E – monitoring and evaluation
AGMARK – Agricultural Market Development Trust	MADD – Mozambique Agro-Dealer Development
AGRA – Alliance for a Green Revolution in Africa	MCC – Millennium Challenge Corporation
AIMS – Agricultural Input Markets Strengthening	MFIs – micro-finance institutions
AWD – alternate wetting and drying	MIM – Maize Intensification in Mozambique
CASE – Competitive Agricultural Systems and Enterprises	MIS – market information systems
CATALIST – Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability	MoA – Ministry of Agriculture
COMRAP – COMESA Regional Agricultural Inputs Program	MoU – Memorandum of Understanding
CPPs – crop protection products	mt – metric tons
DADTCO – Dutch Agricultural Development & Trading Company	N – nitrogen
DAE – Bangladesh Department of Agricultural Extension	NADS – Nigeria Agro-Dealer Support
DEBPEA – Grassroots Development of Agribusiness Clusters in Mali	NEPAD – New Partnership for Africa’s Development
DGIS – Netherlands’ Directorate-General for International Cooperation	NGOs – non-governmental organizations
DSSAT – Decision Support System for Agrotechnology Transfer	NPCA – NEPAD Planning and Coordinating Agency
EADN – Extending Agro-Input Dealer Networks	NWAFD – North and West Africa Division
ECOWAS – Economic Community of West African States	P – phosphorus
EDF – Economic Development Fund	PPPs – public-private partnerships
ESAFD – East and Southern Africa Division	PreFER – Privatization of Rwanda’s Fertilizer Import and Distribution System
EAD – EurAsia Division	PRO-APT – Productive Agriculture in Tajikistan
FAO – Food and Agriculture Organization of the United Nations	PRODIB – Professionalization of Agro-Input Dealers in Burkina Faso
FBOs – farmer-based organizations	PRRI – Phosphate Resources and Research Initiative
FDP – fertilizer deep placement	RADD – Rwanda Agro-Dealer Development
FTF – Feed the Future	RDD – Research and Development Division
FtM – Linking Farmers to Markets	RECs – regional economic communities
GAABIC – Ghana Agricultural Associations Business and Information Center	SAADA – Strategic Alliance for Agricultural Development in Africa
GADD – Ghana Agro-Dealer Development	SEW – Sustainable Energy Production Through Woodlots and Agroforestry
GDA – Global Development Alliance	SFSA – Support for Food Security Activities
GHG – greenhouse gas	SMEs – small and medium enterprises
Global TraPs – Global Transdisciplinary Processes for Sustainable Phosphorus Management	SSA – Sub-Saharan Africa
GoB – Government of Bangladesh	TFI – The Fertilizer Institute
GRM – Government of the Republic of Mozambique	ToT – training of trainers
ha – hectares	TWCU – Training and Workshop Coordination Unit
ICRA – International Centre for development-oriented Research in Agriculture	UDP – urea deep placement
ICRISAT – International Crops Research Institute for the Semi-Arid Tropics	UEMOA – West African Economic and Monetary Union
IFA – International Fertilizer Industry Association	USAID – U.S. Agency for International Development
IITA – International Institute of Tropical Agriculture	USDA – U.S. Department of Agriculture
IFAD – International Fund for Agricultural Development	VFRC – Virtual Fertilizer Research Center
IFPRI – International Food Policy Research Institute	WACIP – West Africa Cotton Improvement Program
IPI – International Potash Institute	
IPM – Integrated Pest Management	

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