



“ I am a little obsessed with fertilizer. I mean I’m fascinated with its role, not with using it. Two out of every five people on Earth today owe their lives to the higher crop outputs that fertilizer has made possible. It helped fuel the Green Revolution, an explosion of agricultural productivity that lifted hundreds of millions of people around the world out of poverty.”

– Bill Gates, “Here’s My Plan to Improve Our World and How You Can Help,” November 12, 2013

# CONTENTS

2  
4  
5  
6  
10  
11  
12  
16  
20  
22  
22  
26  
32  
32  
38  
42  
44  
44  
46  
57  
57  
58  
60

IFDC Around the World

2014 IFDC Board of Directors

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

40 Years: Amidst Evolution, Focus on Smallholder Farmers Remains

Highlights

Annual Activities Align With Strategic Plan

2013 Strategy Workshops

2013 Special Initiatives

EurAsia Division

East and Southern Africa Division

North and West Africa Division

Office of Programs

Training & Workshop Coordination Unit

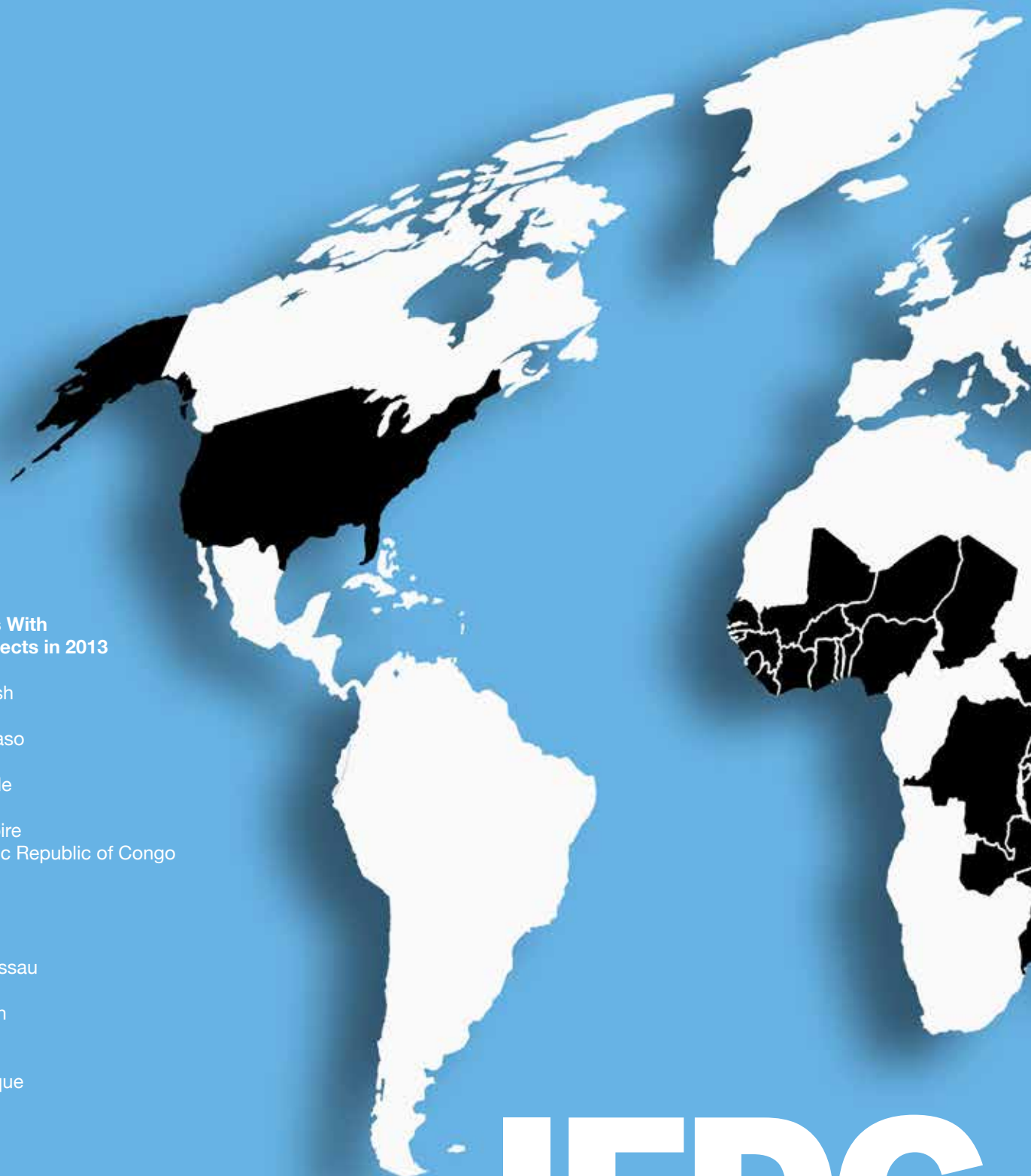
2013 Selected Articles, Presentations and Studies

IFDC Offices and Staff

Revenue Sources

Financial Highlights

Acronyms and Abbreviations and Publication Credits



**Countries With  
IFDC Projects in 2013**

- Bangladesh
- Benin
- Burkina Faso
- Burundi
- Cape Verde
- Chad
- Côte d'Ivoire
- Democratic Republic of Congo
- Ethiopia
- Gambia
- Ghana
- Guinea
- Guinea-Bissau
- Kenya
- Kyrgyzstan
- Liberia
- Mali
- Mozambique
- Niger
- Nigeria
- Rwanda
- Senegal
- Sierra Leone
- South Sudan
- Tajikistan
- Tanzania
- Togo
- Uganda
- United States of America
- Zambia
- Zimbabwe

**IFDC**  
**Around th**



# e World

For a complete list of countries in which IFDC has worked, visit [www.ifdc.org/About/Map\\_IFDC\\_in\\_the\\_World](http://www.ifdc.org/About/Map_IFDC_in_the_World).

# 2014 IFDC Board of Directors



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## A Message to Our Partners

In 2013, IFDC made significant progress in efforts to increase nutrient use efficiency, environmental protection, resource management, fertilizer policy, gender equity and human health and nutrition. With a U.S. \$78 million budget, we delivered for our stakeholders with more than 40 international development projects and research initiatives.

We began the year commemorating 35 years of continuous development in Bangladesh. In that time, Bangladeshis have effectively doubled rice production on the same amount of land using advanced water management, seeds and fertilizers. From 2011 to 2013 the 2.5 million farmers using IFDC's fertilizer deep placement doubled their rice production. Their gross margin per hectare increased from \$431 in 2012 to \$587 in 2013 due to lower fertilizer costs and higher yields. Local entrepreneurs are manufacturing and retailing fertilizer briquettes, thus adding to the local economy.

Fertilizer deep placement continues to migrate from Asia into sub-Saharan Africa. It is being integrated into the agricultural systems of 17 African countries. In June, U.S. President Barack Obama visited a Feed the Future agricultural event in Senegal and was provided a demonstration on the technology.

This fertilizer technology has environmental, social and health dimensions. Early data from a 2013-2014 IFDC field experiment illustrate that fertilizer deep placement can play a role in mitigating greenhouse gas emissions in rice cultivation and also reduce nutrient runoff and leaching. Within our USAID-funded project in Bangladesh, IFDC and the Walmart Foundation are training 40,000 women on use of the technology in vegetable farming. This effort is helping increase incomes and creating more nutritious diets.

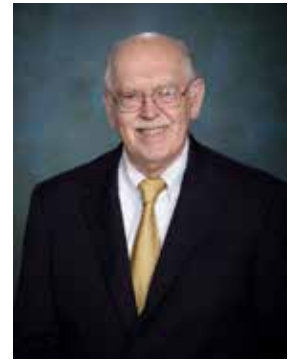
Our integrated soil management techniques are working to improve soil fertility while using resources. The practice of alternate wetting and drying helps conserve water in rice production. Our nutrient use efficiency initiatives continue to seek greater fertilizer efficiency and less waste.

However, fertilizer access and quality control remain challenges around the world. IFDC engaged in a number of studies that assessed fertilizer supply and quality, particularly in Africa. Thus we recommended policy changes necessary to make superior fertilizer more accessible within national and regional market systems. We continue to provide women farmers with greater access to technologies and training. In 2013, we trained more than 890,000 participants; 43 percent were women.

Innovation drives IFDC and will set the stage for significant advances in the future. IFDC's Virtual Fertilizer Research Center is leading the way in the rapid development of innovative new fertilizer technologies and techniques. This IFDC initiative is a platform for virtual collaboration among scientists, researchers and entrepreneurs around the world. These innovations will be highly efficient, scalable and affordable to the smallholder farmer. In 2013, we issued grants to review studies of promising directions in research.

As we commemorate our 40th anniversary in 2014, we reflect on the millions of lives that we have had the privilege and responsibility to serve. We will engage more farmers, dealers, processors, traders, governments, regional economic communities and private businesses. And we will continue to advance environmental protection and nutrition security.

Thank you to our many donors and partners who have supported us. Your continued confidence in our ability to build regional agribusiness and reshape national economies has helped bring prosperity to the smallholder farmer. We also recognize the unwavering efforts of our hundreds of employees whose dedication continues to inspire.



A handwritten signature in black ink that reads "Peter McPherson".

M. Peter McPherson  
Chairman  
IFDC Board of Directors



A handwritten signature in black ink that reads "Amit Roy".

Amit H. Roy  
IFDC President and  
Chief Executive Officer







# 40 Years:

*Amidst Evolution, Focus on  
Smallholder Farmers Remains*



From the very first day, IFDC's focus has been the hundreds of millions of small farmers around the world. Making them successful defines our entire history. Regardless of how IFDC evolves, enhancing the livelihoods of these farmers will be foremost.

In 1974, IFDC was created to develop more efficient fertilizer technologies for the developing world. Over the next 40 years, IFDC changed tens of millions of lives with its innovations. We introduced fertilizer deep placement to farmers in Bangladesh in 1986, where it has helped triple rice production. In 1990, IFDC introduced a set of soil fertility and resource conservation practices to Africa. By 1992, IFDC was reviving national agriculture sectors, beginning with Albania.

When Albania became a sovereign nation, its immediate concern was timely and affordable farmer access to fertilizer. If the farmers could grow the food, they could rebuild their economy. And they did. IFDC's agricultural market development touched every point, from the farmer's field to the national market. Within three years, Albania had a fully functioning economy.

Year after year, IFDC tapped into the inherent resiliency of farmers and their families, giving them the training and technology to become profitable small enterprises.

Still, not all farmers had access to life-changing fertilizers and seeds. This basic necessity led IFDC to create the revolutionary smallholder fertilizer voucher program,



ensuring farmers' full access to low-cost fertilizers. Our first program, in Afghanistan in 2002, was a model for future efforts. Today, these farmer support programs are considered one of the most effective ways to increase farmers' access to fertilizer.

But perhaps one of IFDC's most significant events in the last decade was the organization of the 2006 Africa Fertilizer Summit. Focusing on smallholders, it offered a new opportunity for national and regional agencies to address fertilizer's critical role in food security. The outcome was the historic *Abuja Declaration on Fertilizer for an African Green Revolution*, which called for a fivefold increase in smallholder farmers' fertilizer use over the next 10 years.

Today, our nearly 900 staff members include agronomists, geologists, soil scientists, economists, technicians, engineers, marketers, researchers and analysts. They are sharing the latest scientific and technological tools with farmers around the globe.

While substantial progress has been achieved, more must be done. As IFDC president and CEO Dr. Amit Roy recently noted, "In the midst of these achievements, we must resolve to contemplate the future of food security. The challenges are greater than ever, and the stakes grow higher with each passing year. IFDC believes that innovation will write the next chapter of this story."

We continue to strive for improvements that make smallholder farmers more productive. IFDC's Virtual Fertilizer Research Center is developing better fertilizers. The Global TraPs initiative is influencing sustainable phosphorus use. Our Nutrient Use Efficiency programs continue to develop solutions to increase plant nutrient intake. And innovative software tools are key to reducing farmers' risks as they adopt new technologies.

The challenges are great, but we are meeting them head on, championing the cause of the smallholder farmer – and in the process, working to bring the world closer to nutrition security and poverty alleviation.





# HIGHLIGHTS



The Center commemorated the 35th anniversary of its permanent office and continuous on-the-ground development in Bangladesh.



Five new projects were launched during 2013, including the Walmart Foundation component of the U.S. Agency for International Development (USAID) Accelerating Agriculture Productivity Improvement (AAPI) project that has a full focus on women.



IFDC showcased fertilizer deep placement (FDP) technology for U.S. President Barack Obama and USAID Administrator Rajiv Shah at the USAID Technology Marketplace event in Senegal, West Africa.



IFDC and partners held the First Global TraPs World Conference in Beijing, China.



A number of country fertilizer assessments, regional fertilizer quality studies and policy studies were conducted on behalf of partners and stakeholders such as the African Union/New Partnership for Africa's Development (NEPAD), Alliance for a Green Revolution in Africa (AGRA), African Fertilizer and Agribusiness Partnership (AFAP), Economic Community of West African States (ECOWAS) and Food and Agriculture Organization (FAO) of the United Nations.



The Office of Programs continued to develop more efficient, micronutrient-rich fertilizers that increase plant and human health while reducing environmental impact.



The Center successfully developed and is producing a new mechanized, self-loading FDP applicator for the Bangladesh market.



Dr. Prem Bindraban was appointed Executive Director of the Virtual Fertilizer Research Center (VFRC). In 2013, the VFRC issued 11 grants for review studies.



# Annual Activities



# Align With Strategic Plan



**Overview** – Over the past 40 years, IFDC's holistic, sustainable solutions have changed farmers' lives while building robust markets. Each pillar of our strategic plan guides our continued efforts to address the world's food, nutrition and economic challenges.

A cornerstone of our work is the development of more efficient fertilizers. For example, 2.5 million farmers in Bangladesh are using fertilizer deep placement to increase rice yields while using less fertilizer. Under the AAPI project, farmer incomes are increasing. Entrepreneurs are finding success as fertilizer briquetting machine owners. Mothers and children are healthier due to the project's Walmart Foundation component on vegetable production. Similarly, the use of fertilizer deep placement has taken hold in 17 countries in sub-Saharan Africa.



Our Virtual Fertilizer Research Center is pioneering future advances in fertilizer science. The Center acts as a virtual research hub, marshaling the brightest minds of universities, research laboratories and global fertilizer and agribusiness industries. The goal is to develop affordable fertilizers that are environmentally sustainable and "instantly" used by plants.

In addition to technology, farmers require training in farm practices that increase yields while conserving resources. In 2013, IFDC projects trained more than 890,000 farmers, agro-dealers and others. The AAPI project in Bangladesh, the CATALIST-2 project in Central Africa and the WACIP project in West Africa led the way. Combined, the three projects trained 67 percent of beneficiaries.



Farmers also need timely access to affordable fertilizers and seeds. Our holistic strategy for building fertilizer markets includes promoting policies that support private sector growth and helping farmers access loans and market information. Projects such as AIMS III, CATALIST, PReFER and USAID WAFP continue to spur business investment.





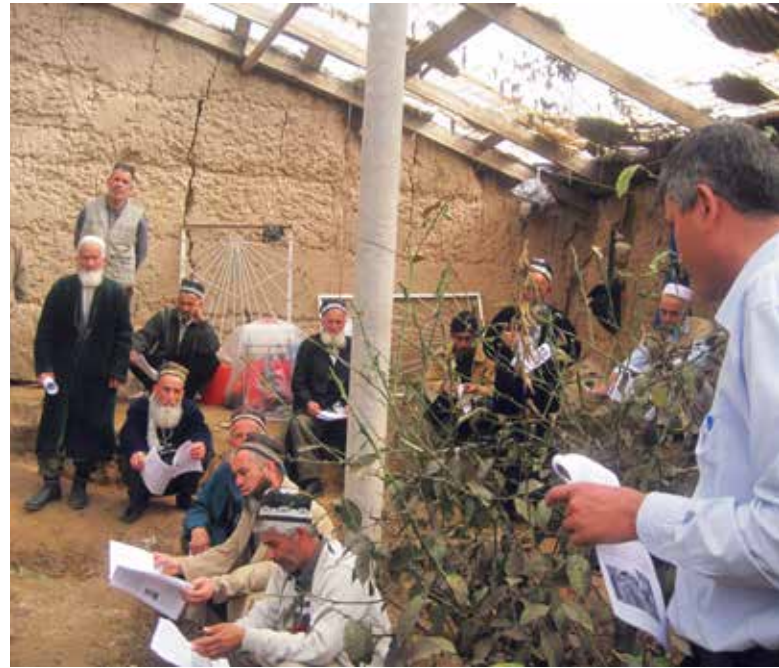


The Growth Enhancement Support program in Nigeria, for example, is giving millions access to fertilizer. Initiatives such as AfricaFertilizer.org and AMITSA are bringing critical market data directly to mobile phones.

IFDC training in business management is helping farmers reshape their small farms into profitable businesses. Projects like AIMS III in Mozambique, AVCMP in

Ghana, USAID KAED in Kyrgyzstan and 2SCALE, among others, are connecting farmers with one another as well as financial institutions, dealers and markets. As a result, farmers have a

stronger collective voice in the market.



We are also preparing farmers to grow products that meet buyers' strict quality standards. To foster farm competitiveness, 2SCALE, for example, is developing a portfolio of 500 agribusiness groups and product value chains in 12 African countries. The project will ultimately link 1.15 million farms and double their productivity. Similarly, the CFC-KIT project in Mali is improving sesame production and processing.

Pro-fertilizer policies permeate agribusiness. Our MIR Plus project improved regulatory environments in 15 West African nations. We are now leading the coordination of the West Africa Committee for Fertilizer Control to support a comprehensive regional fertilizer regulation. In addition, the Catalyst II project in Bangladesh helped build an investor-friendly organic fertilizer market. IFDC has conducted a number of country fertilizer

assessments and regional fertilizer quality studies – all with policy implications – for partners like NEPAD, AGRA, AFAP and FAO.

IFDC's proven market development tools have empowered farmers to improve their lives. With our

strategic plan as a guide, IFDC will continue its mission toward a world free from hunger.



# 2013 Strategy Workshops



*In September, IFDC hosted its annual board of directors meeting at the Center's headquarters in Muscle Shoals, Alabama, USA. Prior to the meeting, high-level workshops were held on nutrient management and fertilizer policy, two areas of expertise for the Center. The revision of IFDC's strategic plan in 2012 and the creation of the Office of Programs in 2013 were the context for review of strategies in these domains. Dr. Vo-Tong Xuan, chair of the IFDC board of directors Program Committee, led these institution-wide reviews. The outcomes are new consolidated implementation strategies within IFDC's portfolio of projects.*



## Nutrient Management Workshop

The workshop titled "Effective Nutrient Management Strategies for Enhanced Productive and Nutritive Agriculture" created a platform to develop a unified vision for IFDC's nutrient management research and implementation efforts. Particular focus was given to nutrient use efficiency, integrated soil fertility management (ISFM) and biofortification. Nutrient management is an important aspect of global agricultural development. It has economic, environmental and social implications. In developing regions, soils are severely degraded, fertilizer is often out of reach and organic nutrients are rarely applied to the soil. The Center's nutrient management strategies not only improve productivity but also include methodologies that support soil fertility, protect the environment and increase human health and nutrition. Under its long-running nutrient efficiency initiatives, IFDC has developed technologies that substantially improve nutrient use. Fertilizer deep placement and ISFM are two examples.

ISFM is a set of soil fertility management practices that combine the use of organic nutrients, synthetic fertilizer, improved seeds, irrigation and products/techniques to control pests and weeds. Specific ISFM solutions are customized to local soil conditions, climates and crops. When combined properly, these techniques increase soil quality, improve nutrient efficiency, conserve natural resources and boost crop productivity. But many issues hamper farmer adoption of ISFM: limited access to fertilizers and organic inputs, lack of knowledge to complement the approach and the question of overall profitability. Further, the adoption of ISFM depends highly on farmers' willingness to invest in improvements, often on land that they do not own.

Participants noted that farmers are unlikely to invest in products and practices that improve soil fertility unless there is an acceptable rate of return. During the workshop, participants emphasized IFDC's ongoing efforts that reach beyond the traditional agronomic approach of ISFM to incorporate economic returns. By considering how much profit a farmer can make under existing market conditions (fertilizer and seed prices, crop sale prices, etc.), a more informed decision can be made. Thus, for ISFM to be most successful, it must be embedded in this broader economic strategy. IFDC's approach is to create profitable, scalable and environmentally sound farming systems that enhance soil fertility. Emphasizing this approach institution-wide is expected to drive a dramatic increase in farmer adoption.



## Policy Workshop

A progressive agriculture sector requires enabling policies conducive to market development and private sector participation. The right policies foster greater efficiency and better equity for all involved –



from the port to the farmer, and on to output markets. Without enabling policy environments, fertilizer supply is undependable and market infrastructure is sub-standard. Fertilizer and seed prices can be high and fluctuate wildly due to abrupt changes in government policies, and availability can be uncertain. National subsidy programs are often inefficient in targeting farmers. Timely distribution of fertilizer is poor, and farmer payment for the unsubsidized portion is low. All the while, the private sector is disincentivized to invest in such markets because of uncertainty surrounding policy and competition with the government.

IFDC's advocacy over the years positions the Center as a leader in policy development and implementation. Our team of economists continually analyzes ways to increase farmer productivity – from the ground up with new technologies, and from the top down with fertilizer policy reform. Whether it is a value chain study, the identification and design of enabling policies or the economic analysis of new technologies, IFDC is addressing the barriers to reducing farm-level costs. Our worldwide network stretches from Africa to Eurasia and is ideally placed to identify promising opportunities on behalf of developing nations, regional economic communities (RECs) and donors.



The workshop, “Capitalizing on Unique Capabilities to Inform Input Sector Policies,” was held to develop a consensus for maximizing the Center’s contribution to sustainable agricultural productivity growth for smallholder farmers. The synthesized approach harnesses the Center’s unique capacity to fuse economics, science and field implementation to create market-friendly solutions.

The event reflected the Center’s ongoing efforts to advocate for enabling policy environments for fertilizer import, distribution and use. Three topics were the primary areas of focus: increasing access to fertilizer through farmer subsidy programs; the economic implications of technological advances such as FDP and ISFM; and increasing the efficiency of national and regional input markets.

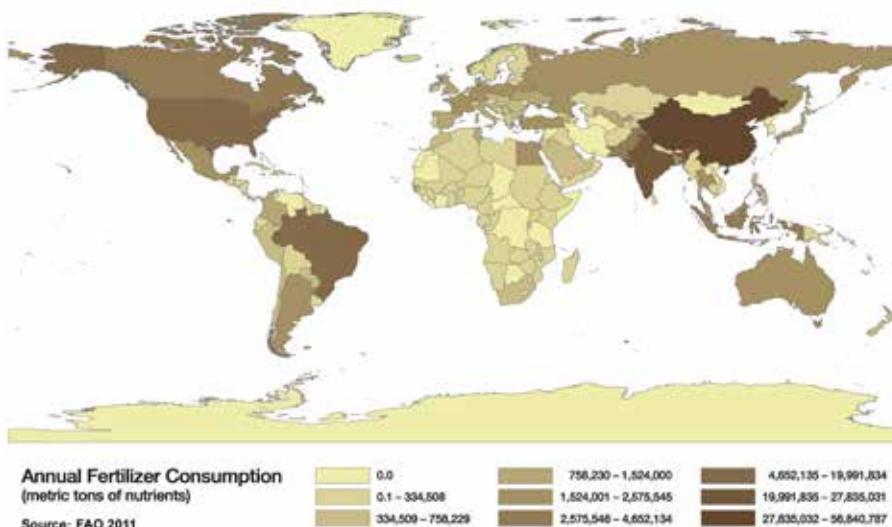
During the workshop, IFDC staff renewed their commitment to find new ways to consolidate the Center’s vast information and experience into useful forms. Effectively communicating this knowledge to policymakers and stakeholders was viewed as a priority. These efforts capitalize on IFDC’s expertise and real-world data in a powerful way and will continue to benefit stakeholders across the agricultural value chain.

## IFDC Sharpens Focus on Top Areas of Expertise

During the 2013 workshops, senior IFDC staff discussed the areas of expertise that the Center will continue to pursue.

- Fertilizer Deep Placement
- Fertilizer Recommendations
- Integrated Soil Fertility Management
- New Product Blends
- Regulatory and Quality Control
- Targeted Subsidies (Agro-input Vouchers)
- Agricultural Training
- Agro-Dealer Development
- Fertilizer Finance Mechanisms
- Public-Private Partnerships
- Farmer Cluster Formation
- Characterization of Raw Materials
- Market Information Systems

## Examples of Partners in Policy



There are many factors that affect fertilizer use around the world. The lack of well-functioning markets is a key constraint in many developing countries. As this map demonstrates, the Americas, Asia, Europe and the Middle East show the highest use of fertilizer, reflecting agro-climatic conditions suitable to intensive grain production in these regions, extensive investment in the research and infrastructure required to support agricultural productivity and well-functioning markets. Sub-Saharan Africa experiences the most widespread deficit in use. According to IFDC economists, policies that focus resources on productivity-enhancing technologies along with infrastructure investments and an enabling environment for private sector-led market development are required to address this deficit.

# 2013 Special Initiatives



## African Fertilizer and Agribusiness Partnership

AFAP is a partnership among the Agricultural Market Development Trust (AGMARK), AGRA, IFDC and NEPAD to promote the development of competitive and sustainable fertilizer markets in SSA. Rather than rely on traditional development paradigms, AFAP believes that a united public and private sector can strengthen the marketplace and encourage consistent and responsible fertilizer use. IFDC's role is to provide technical and marketing support needed to develop fertilizer value chains by identifying technical and marketing opportunities for fertilizer companies. IFDC provides technical assistance through secondment of a technical expert to AFAP and through fertilizer technology experts in the IFDC Office of Programs.

IFDC support to AFAP in 2013 included providing fertilizer market data and analysis to international fertilizer companies and program management services and technical support to the Ministry of Agriculture in Ethiopia for their fertilizer blending program. In addition, IFDC conducted market consultancies for the Growth Enhancement Support (GES) program in Nigeria and linked private sector participants to the program.



## AfricaFertilizer.org

### AfricaFertilizer.org

Launched by IFDC in 2010, the goal of AfricaFertilizer.org (AFO) is to contribute to the development of a sustainable and profitable agriculture sector in Africa. The initiative encourages and coordinates partnerships and data-sharing mechanisms that provide information on fertilizer statistics and market intelligence. AFO sources, aggregates, filters and shares information on fertilizer through a web-based portal – [www.africafertilizer.org](http://www.africafertilizer.org). AFO partners include IFDC, the International Fertilizer Industry Association (IFA), AFAP, FAO's CountrySTAT program, the African Union Commission (AUC) and NEPAD.

In order to improve the quality of African fertilizer statistics and the number of countries covered, IFA expanded financial support to AFO in 2013 and provided human resources to train African statistical agencies. During 2013, AFO focused on improving the collection and dissemination of consumption statistics per product, and training workshops were held with FAO's CountrySTAT programs.



## Association of International Research and Development Centers for Agriculture

AIRCA was created by a consortium of nine research and development institutions (including IFDC) as a platform for the organizations to make a combined impact on the United Nations Development Program's Millennium Development Goals (MDGs), particularly Goal 1: the eradication of extreme hunger and poverty. AIRCA is dedicated to sustainable agricultural intensification by tackling the challenges of food security and poverty at the "landscape level," that is, creating solutions that take into account the diversity of interactions between people and environment, agricultural and non-agricultural systems and other factors in the entire context of agriculture.

In October 2013, AIRCA released a white paper, "Transforming Rural Livelihoods and Landscapes: Sustainable Improvements to Incomes, Food Security and the Environment." The paper represents AIRCA's foray into the post-MDG discussion, looking past MDGs that expire in 2015, toward the currently proposed Sustainable Development Goals.

## Regional Agricultural Input Market Information and Transparency System

Launched in 2010 to provide timely data and information on agricultural input markets in East and southern Africa, AMITSA was developed as an information technology decision support tool to increase the use of fertilizer and contribute to the region's food security. The web- and mobile phone-based AMITSA system utilizes both private and public sector agro-input stakeholders to collect and process market data and information. Agro-dealers, the primary users of AMITSA, can then compare the prices of inputs from different distributors, negotiate with suppliers for better prices and obtain information that better serves their farmer-customers. AMITSA is a collaboration among IFDC, the East Africa Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA).



In 2013, AMITSA updated its data platforms to include mobile access for agro-dealers and other stakeholders. The platform not only facilitates information-sharing but also surveys data collection, monitoring and evaluation, supply chain management and other decision support tools. AMITSA staff conducted extensive agro-dealer training on the new platform and provided MIS services to various IFDC projects.

## Global Transdisciplinary Processes for Sustainable Phosphorus Management

The 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, non-governmental organizations (NGOs) and others. The goal of Global TraPs is to build knowledge about how humans can make transitions toward more sustainable phosphorus use.



In 2013, IFDC and partners held the First Global TraPs World Conference in Beijing, China. Its theme, "Learning from Cases – Exploring Policy Options," opened a new phase of transdisciplinary discourse on sustainable phosphorus management. More than 170 participants attended.

Global TraPs partners have recently released the publication *Sustainable Phosphorus Management - A Global Transdisciplinary Roadmap*. The book provides a comprehensive, supply-demand chain-based analysis of phosphorus flows, use, trade and finance. It also describes options for improving phosphorus management, identifies case studies and proposes a research agenda.

## Virtual Fertilizer Research Center

The VFRC was created in 2010, as a semi-autonomous unit of IFDC, to fast-track the development of a new generation of rapidly deployable technologies that will enable responsible and sustainable food security, particularly in the world's developing regions. Utilizing the most advanced knowledge and technology available, the Center is partnering with a global network of scientists, research institutions, private enterprises and entrepreneurs to conduct coordinated research under a unified technology agenda.



In 2013, Dr. Prem Bindrabhan was named VFRC Executive Director. Prior to joining the VFRC, Bindrabhan served as the director of ISRIC World Soil Information at Wageningen University and Research Centre (WUR) in the Netherlands. During the year, the VFRC issued 11 grants for review studies of promising new technologies.

The VFRC recently partnered with the Indian Agricultural Research Institute (IARI), among others, to begin development of a comprehensive overview of plant and nutrient processes as the basis for future research. In addition, the VFRC and its partners have released five VFRC Reports that begin to form a foundation for the Center's research and development efforts.





## Overview

*The EurAsia Division (EAD) focuses on improving food security and rural incomes through improved agriculture sector performance, including expansion and improvements in agribusiness. In 2013 the division targeted countries in Central and South Asia, including Bangladesh, Kyrgyzstan and Tajikistan.*

*The division engages in a wide periphery of activities related to crop and livestock agriculture and associated agribusinesses. Improving soil fertility management and crop and livestock development systems that support sustainability epitomizes 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 (emphasizing stimulating private sector investment) are included in all EAD activities. Gender sensitivity and environmental protection remain key objectives in EAD.*

*The division offers specialized programs to address specific needs in target areas, while also addressing the common factors that lead to sustainable progress. Successful public-private partnerships (PPPs) within the countries served by EAD have contributed to progress in technology introduction and trade expansion.*

## Accelerating Agriculture Productivity Improvement (AAPI) in Bangladesh 2010-2015

**Overview** – The AAPI project is strengthening and re-orienting agricultural production systems in Bangladesh. The project is improving food security and accelerating income growth in rural areas by increasing agricultural productivity on a sustainable basis. The project emphasizes technology diffusion and development of support systems to achieve sustainability. The primary technology is FDP, which is well-suited to rice production. FDP technology is being extended to other crops, often at the initiative of smallholder farmers with impressive results. To a lesser extent, AAPI supports diffusion of the Alternate Wetting and Drying (AWD) water use management technology. An environmental component of the project was added in 2012 to quantify the impact of FDP technology on GHG emissions. Tests up to this point show FDP use reduces GHG emissions from nitrogen fertilizer when compared with conventional surface application of fertilizers. This year, a new Walmart Foundation Activity component targeted an extra 40,000 women to train in FDP use for vegetable production. An estimated 160,000 women farmers are expected to adopt the technology, leading to increased family incomes and access to more diverse, nutritionally rich foods.

**Collaborators** – Bangladesh Ministry of Agriculture (MoA), Bangladesh Department of Agricultural Extension (DAE), Bangladesh Fertilizer Association (BFA), Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Bangladesh Agricultural University (BAU) and the Bangladesh Agricultural Research Council (BARC)

**Donors** – USAID and the Walmart Foundation

**Location** – Bangladesh

## Fertilizer Compost Licensing Project (Katalyst II) 2012-2013

**Overview** – Swisscontact-Katalyst and IFDC acted as co-facilitators of the Katalyst Business Enabling Group to facilitate an investor-friendly organic fertilizer market through efficient licensing procedures. The project was implemented for 11 months (April 2012 through February 2013). The project staff planned, designed and implemented interventions to facilitate the MoA initiation of a policy review of organic fertilizer licensing; developed and presented recommendations for a policy amendment; and



**Bangladesh  
Kyrgyzstan  
Tajikistan**

lobbied to incorporate recommendations in the policy. The project faced critical challenges in attempting to reform an established policy, including following institutional norms while presenting policies for reforms. The project achieved a milestone when a committee to review organic fertilizer-related policies at the MoA was established. In addition, two external members from the Soil, Water and Environment Department of Dhaka University were included on the MoA technical committee to ensure objectivity and practicality of decisions. This was a major improvement on efforts by the first Katalyst project; most were short-lived due to the inability to channel initiatives through a sustainable mechanism.

processing. KLDP issued grants to 55 small and medium enterprise (SME) beneficiaries with cost-sharing investments. Support was provided in the form of new equipment, marketing assistance and in-house extension services for fruit and vegetable processors, cold storage facilities, grading/sizing/packing lines, dried apricot handlers, kidney bean cleaners, livestock and fish feed mills, flour mills and milk collection and cooling points. This support enabled outreach to 70,000 smallholder farmers and suppliers of raw materials and targeted regional and international markets with products that exhibited improvements in quality, packaging and labeling.

**Lead Implementer** – Chemonics International

# “The destiny of world civilization depends upon providing a decent standard of living for all mankind.”

– Dr. Norman Borlaug, Nobel laureate and former IFDC board member



A number of important issues were presented to the technical committee on soil fertility and were discussed to determine realistic and market-appropriate solutions. A second project achievement was the technical committee's approval of a waiver for organic fertilizer field tests. Another milestone was the decision to present the issue for final adjudication to the National Fertilizer Standardization Committee.

**Collaborators** – MoA, BARC, Bangladesh Soil Resource Development Institute (SRDI), BFA, DAE and private sector organic fertilizer producers

**Donors** – United Kingdom's Department for International Development (DFID), Swiss Agency for Development and Cooperation (SDC), Canadian International Development Agency (CIDA) and the Embassy of the Kingdom of the Netherlands

**Location** – Bangladesh

## Kyrgyzstan Local Economic Development Project (KLDP) 2010-2013

**Overview** – KLDP stimulated rapid, diversified and sustained agro-economic growth at the local level through advancements in Kyrgyzstan's business and investment environment. KLDP increased municipal finance and capital investment and improved competitiveness of sectors with the most economic potential, specifically agriculture and

**Donor** – USAID

**Location** – Kyrgyzstan

## USAID Kyrgyz Agro-Input Enterprise Development (KAED) Follow-On Project 2010-2014

**Overview** – The USAID KAED Follow-On project extends the impact of KAED on improving food security and rural incomes. The project has enhanced food security through expanded adoption of improved production technologies, value chain linkages and PPPs. This year KAED Follow-On helped diffuse livestock sector capital investment under the Economic Development Fund Phase III (EDF III), continued its PPP with Oasis Agro in poultry production and worked with Kumtor Gold Company in rehabilitating 1,250 ha of land. The USAID-funded EDF III, launched in late 2013, is assisting the livestock sector to increase the productivity and profitability of livestock farming in Kyrgyzstan. EDF III imported high-performing cattle breeds and upgraded production systems, equipment, herd genetics and management systems for nine professional and competitive livestock farms.

**Collaborators** – Kumtor Gold Company and Oasis Agro

**Donor** – USAID

**Location** – Kyrgyzstan

## USAID Productive Agriculture in Tajikistan 2009-2013

**Overview** – The USAID Productive Agriculture in Tajikistan project targets strategic development of commercial non-cotton agriculture in Tajikistan. A USAID **Feed the Future** (FTF) initiative project, activities are linked with producers located in the 12 districts of western Khatlon Province. A value chain approach is used that works from markets back to farmers and targets commercial businesses critical to supporting the overall project goal of increasing farmers' income opportunities. There are two primary objectives. The first objective is market development – to identify and promote products in high demand, catalyze investment in the infrastructure necessary to add value as products are brought to market, facilitate the inter-business linkages that will move product from farms to market and enable access to the financing necessary for sustainable industry growth. The second objective, which IFDC was involved in from 2009 to 2013, is to increase agricultural productivity – increasing the supply of certified agro-inputs, improving the policy environment for registering inputs in the country, ensuring that farmers have the production knowledge they need to successfully utilize these inputs and encouraging farmers to invest in the machinery they need to produce efficiently. Project activities led by ACDI/VOCA will continue into 2014 and will focus on developing market linkages and facilitating investments that have the largest impact on the development of the targeted value chains in Khatlon.

**Lead Implementer** – ACDI/VOCA

**Donor** – USAID

**Location** – Tajikistan

## FDP Continues Growth in Bangladesh

*In Bangladesh, FDP use has grown exponentially in recent years, bringing over 2.5 million Bangladeshi farmers higher profits and greater yields. In 2013, the technology made two great strides forward: the development of an improved mechanical FDP applicator for mass distribution and the beginning of the Walmart Foundation component of the USAID AAPI project – a development that will enhance the productivity and health of a projected 160,000 Bangladeshi women and their families.*

*An AAPI project agricultural engineer developed the new mechanical FDP applicator, which is substantially outperforming previous models. The single-row applicator has a 60-briquette capacity that gives farmers the ability to apply FDP to their paddies 25 percent faster than by hand. According to one farmer, the applicator enables him to apply FDP three days faster than before. He, like so many other Bangladeshi smallholders, is pleased that he no longer has to bend over continuously to place the briquettes. The debilitating back pain experienced by this farmer, and others like him who have adopted FDP, is no longer exacerbated due to the new applicator. Thousands of farmers in Bangladesh have adopted the applicator, and IFDC believes that adoption will continue to rapidly increase.*

*Later in 2013, AAPI began a partnership with the Walmart Foundation to train 40,000 women in FDP use in vegetable production. The gender parity-focused project is empowering these women by giving them the tools they need to cultivate successful home gardens (seen as being fully in the domain of women in Bangladesh). These women, through their improved gardens, are diversifying family diets and increasing nutrition for their households. The sale of surplus production is also bringing additional income to these farming families. The project is training each of these women farmers to share their knowledge with at least four other women, increasing the project reach to 160,000 women or more. Greater knowledge and access to technologies like FDP for higher production will increase gender equality, which is shown to increase quality of life both locally and on a national scale.*





# ESAFD

East and Southern Africa Division

## Overview

*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 ISFM, and by improving their access to quality agro-inputs and to output markets.*

*Through collaboration with national and regional partner organizations, governments and donors, ESAFD 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 farmer professionalization, association building, policy development, disseminating market information via modern information and communication technologies (ICT) 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.*

## Africa Soil Health Consortium (ASHC) 2011-2015

**Overview** – ASHC provides services to clients spanning public, private and academic organizations whose daily work involves assimilating ISFM technologies into practice at local levels. IFDC provides monitoring and evaluation (M&E) services to ASHC. Services include leading assessments of the processes, collecting observations from stakeholders and conducting formal evaluations to assess the value of the communications products and the manner in which the products contribute to outcomes in the ongoing development initiatives.

**Lead Implementer** – Center for Agricultural Bioscience International (CABI)

**Collaborators** – Advanced Research Institutes, AGRA, African Soil Information Service (AfSIS), Information and Communications Technology and Knowledge Management (ICT-KM) Program, International Plant Nutrition Institute (IPNI), National Agricultural Research and Extension Systems (NARES) and Soil Health Program Technical Advisory Group

**Donor** – Bill & Melinda Gates Foundation

**Location** – SSA

## Agricultural Growth Program – Agribusiness and Market Development in Ethiopia (AGP-AMDe) 2011-2016

**Overview** – AGP-AMDe seeks 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.

**Lead Implementer** – ACDI/VOCA

**Collaborators** – Coffee Quality Institute, Crown Agents USA, Danya International, John Mellor Associates, Kimetrica, farmer-based organizations and private sector agribusinesses

**Donor** – USAID

**Location** – Ethiopia

## Agricultural Input Market Strengthening (AIMS) III 2012-2014

**Overview** – AIMS III is an integrated program focused on the development and transfer of agricultural technology to benefit Mozambique's smallholder farmers. This is being accomplished through improved public research and development (R&D) capacities and continued support to build a skilled private agriculture sector to achieve sustainable targets for food security and agricultural development. AIMS III is a continuation of the AIMS and AIMS II programs, which ran from 2006 to 2009 and 2009 to 2012, respectively.



**Burundi**  
**DRC**  
**Ethiopia**  
**Kenya**  
**Mozambique**  
**Rwanda**  
**South Sudan**  
**Tanzania**  
**Uganda**  
**Zambia**

**Collaborators** – National Directorate of Agricultural Extension (DNEA), Mozambique Institute for Agrarian Research (IIAM), Platform for Agricultural Research and Innovation in Mozambique (PIAIT) and SNV Netherlands Development Organisation

**Donor** – USAID

**Location** – Mozambique

### **A Study of the Relationship Between Farmer Savings and Sustainable Food Security (BASIS) 2009-2013**

**Overview** – This field experiment in Mozambique studied the impact of fertilizer subsidies; the

intensification, scarce development resources will be maximized through the use of PPPs. By project-end, an estimated 700,000 smallholder farmers will have seen their incomes increase by 50 percent; together, they will have produced an additional 1 million metric tons (mt) of marketable cereal equivalents, contributing to food security in the project's target areas.

**Collaborators** – National and international NGOs, Burundi Ministry of Agriculture and Livestock, DRC Ministry of Agriculture and Rural Development, Rwanda Ministry of Agriculture and Animal Resources (MINAGRI) and the Centre for Development Innovation of Wageningen University and Research Centre (WUR-CDI)

“...agriculture remains the backbone of the survival and sustenance of our households, communities and nations.”



– H.E. Rhoda Peace Tumusiime, Commissioner for Rural Economy and Agriculture at the African Union and IFDC board member

interaction of fertilizer subsidies and savings; and the impact of savings facilities and savings matches. Key assessments included 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.

**Implementing Partners** – University of Michigan and University of Wisconsin

**Donor** – USAID

**Location** – Mozambique

### **CATALIST-2 2012-2015**

**Overview** – CATALIST-2 promotes agribusiness cluster development, market integration and agricultural intensification. The objective is to significantly improve food security in Central Africa's Great Lakes Region by focusing on effective agribusiness clusters, high-demand commodities, existing agro-dealer networks and infrastructure. Using the 'market' as the key driver for agricultural

**Donor** – The Netherlands' Ministry of Foreign Affairs through the embassies of the Kingdom of the Netherlands in Burundi, Democratic Republic of Congo (DRC) and Rwanda and the Swiss Agency for Development and Cooperation

**Locations** – Burundi, DRC and Rwanda

### **CATALIST-Uganda 2012-2016**

**Overview** – CATALIST-Uganda is helping to sustainably commercialize smallholder farmer agriculture through improved productivity and market development, resulting in marketable surpluses that raise farm incomes and food security in Uganda. The project employs a systems approach to develop integrated cropping systems around Irish potatoes, cassava, oil seeds (sunflowers and soybeans) and rice, combined with accelerated agribusiness cluster development. Attention is also focused on seed and fertilizer market development, output marketing, linkages to agribusinesses and an improved policy environment. By project-end, 100,000 smallholders will have doubled yields and increased their incomes by 50 percent.



**Collaborators** – National and international NGOs and the Uganda Ministry of Agriculture, Animal Industry and Fisheries

**Donor** – The Netherlands' Ministry of Foreign Affairs through the Embassy of the Kingdom of the Netherlands in Uganda

**Location** – Uganda

## Food Processing and Marketing Activity 2011-2014

**Overview** – The project uses the farmer field school approach to build local capacity to access and correctly use fertilizers and other agro-inputs. The project comprises three components: 1) increasing agricultural productivity for tens of thousands of smallholders in Bandundu, Bas-Congo and Kinshasa provinces; 2) making markets work for smallholders; and 3) improving the capacity of community-based organizations, associations, cooperatives and small and medium enterprises along the value chains to respond to market opportunities.

**Lead Implementer** – DAI

**Donor** – USAID

**Location** – DRC

## Helping Farmers Produce Cassava for Profit (Cassava+) 2009-2013

**Overview** – Cassava+ was a PPP between DADTCO and IFDC that revolutionized cassava production, moving the tuber from a subsistence crop to a commercial crop for targeted smallholder farmers. IFDC worked with farm groups to facilitate cassava planting, harvesting and processing. IFDC also provided access to agro-inputs, training and new technologies. DADTCO's mobile processing unit eliminated crop loss caused by rapid post-harvest deterioration by processing the cassava into cassava cake (which can last for months) near where it was harvested.

**Implementing Partner** – DADTCO

**Donor** – DGIS/Schokland Fund

**Locations** – Ghana, Mozambique and Nigeria

## Mozambique Agro-Dealer Development (MADD) II 2013-2015

**Overview** – MADD II builds on the achievements of the MADD project, which strengthened and expanded agro-dealer networks, promoted private sector investment in agro-input technologies and improved farmers' access to these technologies through competitive markets.

**Donor** – AGRA

**Location** – Mozambique

## Mozambique Voucher Program 2013-2014

**Overview** – IFDC is assisting the government of Mozambique in the implementation of a fertilizer and seed voucher program. The program is helping smallholder farmers access seeds and fertilizer while building a sustainable input supply network.

**Collaborator** – FAO

**Donor** – European Union

**Location** – Mozambique

## Privatization of Rwanda's Fertilizer Import and Distribution System (PReFER) 2010-2015

**Overview** – PReFER is helping to develop an efficient, effective and competitive private sector fertilizer procurement and distribution system in Rwanda. The project's primary objective is to accomplish the government's orderly transition out of nationalized fertilizer procurement and distribution. To that end, PReFER staff and MINAGRI are identifying policies supportive of private sector enterprise in the fertilizer market and contributing to the development of a sustainable supply system. This effort is expected to stimulate fertilizer demand and will increase agricultural intensification, farm output and market development.

**Collaborators** – Private sector entrepreneurs, Rwanda Fertilizer Association (RFA), Rwandan government and MINAGRI

**Donor** – USAID

**Location** – Rwanda

## Production, Finance and Improved Technology Plus (PROFIT+) 2012-2016

**Overview** – IFDC's role in PROFIT+ is to help improve the productivity of selected commodities and develop commercial agricultural input markets. IFDC is introducing ISFM to smallholder farmers who are participating in maize-based farming systems in the Eastern Province and horticulture value chains around the capital city of Lusaka, Zambia. This involves demonstrating a range of improved agricultural technologies and supporting the development of sustainable agro-input supply systems to meet increased farmer demand stimulated by the innovative demonstrations.

**Lead Implementer** – ACDI/VOCA

**Collaborators** – Associates for International Resources and Development, Catholic Relief Services, Crown Agents USA, Danya International and Kimetrica

**Donor** – USAID

**Location** – Zambia



## Regional Agricultural Input Market Information System (AMITSA) 2012-2017

**Overview** – AMITSA is substantially improving access to market and technical information on agricultural inputs, using web- and mobile phone-based platforms. AMITSA provides support to several IFDC projects and to private sector project partners. AMITSA information is used by various stakeholders, from farmers and agro-dealers to government ministries and international research centers.

**Collaborators** – EAC and COMESA

**Donors** – AFAP, Netherlands' Ministry of Foreign

## Seeds for Development (S4D) in South Sudan 2011-2013

**Overview** – Seeds for Development helped transform agriculture in South Sudan from subsistence farming to a market-oriented, competitive and profitable agricultural system. The project harnessed the entrepreneurial spirit of agro-dealers, seed companies, farmers, food processors and financial institutions to commercialize the agricultural value chain. A key methodology utilized was integrated seed sector development combined with the formation and maturation of specific agribusiness clusters. Through S4D, IFDC educated farmers about the benefits of high-quality seed and modern fertilizer technologies and trained them in their proper use.

“This art of creating more food with less impact has been termed sustainable intensification, and should be the basis for all investments in farming, both big and small.”

– Sir Gordon Conway, Professor of International Development, Agriculture for Impact, Imperial College London



Affairs' Directorate-General for International Cooperation (DGIS) and USAID

**Locations** – Benin, Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Mozambique, Niger, Nigeria, South Sudan, Togo and Uganda

## Rwanda Agro-Dealer Development (RADD) 2010-2013

**Overview** – The RADD project addressed supply-side agro-input issues by building the capacity of Rwanda's agro-dealers. RADD generated interest in sector development and supporting private investments in agro-input import and distribution. The project focused on agro-dealer network development in conjunction with the expansion of the RFA, the future foundation for the enhanced network.

**Collaborator** – RFA

**Donor** – AGRA

**Location** – Rwanda

**Collaborators** – AGRA, AGMARK, South Sudan Ministry of Agriculture, Forestry, Cooperatives and Rural Development and USAID FARM project

**Donors** – USAID and the Howard G. Buffett Foundation through AGRA

**Location** – South Sudan

## Staples Value Chain (NAFAKA) in Tanzania 2011-2016

**Overview** – 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 ACDI/VOCA SFSA team, IFDC is working with agro-input suppliers, agro-dealers, farmer-based organizations and financial institutions to increase the availability of quality agro-inputs and to demonstrate their proper use at the farm level.

**Lead Implementer** – ACDI/VOCA





**Collaborators** – Associates for International Resources and Development, Catholic Relief Services, Crown Agents USA, Danya International, Kimetrica, Tanzanian Ministry of Agriculture, Food and Cooperatives

**Donor** – USAID

**Location** – Tanzania

### Support Project for the National Fertilizer Subsidy Program in Burundi (PAN-PNSEB) 2012-2015

**Overview** – IFDC provided guidance and support for the creation of the National Fertilizer Subsidy Program, particularly its computerization. IFDC also worked with partner institutions to develop targeted fertilizer formulas suitable to Burundian soil conditions.

**Collaborators** – Burundi Ministry of Agriculture, the National Institute of Agricultural Sciences (ISABU), FAO and Burundian universities

**Donor** – Netherlands' Ministry of Foreign Affairs

**Location** – Burundi

### Sustainable Energy Production Through Woodlots and Agroforestry (SEW) 2009-2013

**Overview** – SEW decreased the competition for land between energy production and agricultural production by re-establishing wood plantations (micro-woodlots) and increasing the efficiency of the charcoal, brick-making and cook stove value chains. The project planted 22,500 hectares (ha) of trees and trained more than 2,000 charcoal producers.

**Collaborators** – National and regional NGOs, business development services, farmer-based organizations, charcoal producer organizations and national ministries

**Donors** – DGIS and the Embassy of the Kingdom of the Netherlands in Rwanda

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

### Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship (2SCALE) 2012-2017

**Overview** – 2SCALE is improving rural livelihoods, nutrition and food security in 12 countries across Africa, aiming to help 1.15 million smallholder

families ultimately increase their productivity by 100 percent and their net incomes by 30 percent. A key component is the development of a portfolio of 500 robust and viable agribusiness clusters and value chains targeting regional, national and local markets, including commodity and food product markets for base-of-the-pyramid consumers. 2SCALE focuses on the development of competitive rural agricultural systems, viable agro-enterprises and PPPs to meet its goals.

**Implementing Partners** – Base of the Pyramid Innovation Center (BoP) Inc. and International Centre for development oriented Research in Agriculture (ICRA)

**Donors** – DGIS (50 percent) and private sector enterprises (50 percent)

**Locations** – Benin, Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Mozambique, Niger, Nigeria, South Sudan, Togo and Uganda





# NWAFD

North and West Africa Division

## Overview

*The North and West Africa Division (NWAFD) encompasses an area with huge agriculture potential but which at the same time faces major infrastructure, climatologic and agronomic challenges. NWAFD works in close partnership with organizations at regional, national and local levels, including regional economic communities, farmer-based organizations, government agencies, NGOs, research institutes, financial institutions and the private sector.*

*Projects address soil fertility improvements, build input and output markets, develop market information systems (MIS) and advise on appropriate regional and national agro-input policies. Facilitating the active participation of national, regional and international agro-enterprises in value chain development together with national actors aimed at improving access to food in the region is one of the key interventions. NWAFD supports the development and implementation of regional agricultural policies within 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: ISFM, input market development, output market development and policy support.*

## AfricaFertilizer.org (AFO) 2010-ongoing

**Overview** – AFO is providing timely and transparent information on fertilizers to the public and private sector. To achieve this objective, AFO develops, manages, facilitates and shares technical and market information on fertilizers in Africa to support the implementation of continental, regional and national agricultural policies that benefit the private sector and the region's smallholder farmers and agro-dealers. AFO's main areas of interventions are on fertilizer statistics (production, trade, consumption) and market intelligence (fertilizer prices, business directories, policies). AFO web portal: [www.africafertilizer.org](http://www.africafertilizer.org)

**Collaborators** – AFAP, FAO's CountrySTAT program, IFA and NEPAD

**Donors** – AFAP, IFA and USAID

**Locations** – Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Senegal and Tanzania

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

**Overview** – AVCMP is contributing to the government of Ghana's objectives of achieving food security and converting the country's agriculture sector into an agro-industrial economy. The goal is to transform the agricultural value chain into a highly productive, efficient, competitive and sustainable system. Key project activities include: assisting farmer-based organizations, smallholder farmers, agro-dealers and SMEs to improve their entrepreneurial and technical skills, develop business plans and link to commercial banks to access loans; linking agro-dealers to fertilizer suppliers and seed producers and developing a network of agro-dealers and SMEs; developing agribusiness clusters for provision of processing and cultivation equipment services; linking SMEs and farmer-based organizations to domestic, regional and international markets; and creating awareness of ISFM technologies.

**Collaborators** – Ghana Agricultural Associations Business and Information Center (GAABIC) and Savanna Agricultural Research Institute (SARI)

**Donor** – AGRA, through the Danish International Development Agency (DANIDA)

**Location** – Ghana



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

## Communal Approach to Agricultural Market Access in Benin 2013-2017

**Overview** – The project aims to improve the livelihoods of 70,000 smallholder farmers and rural entrepreneurs through the development of 100 agricultural business clusters in southern Benin. The effort will connect the groups to agricultural market opportunities, including markets in neighboring Nigeria. The program focus is to improve the purchasing power of economic agents directly involved in commercial transactions, increase business between domestic and foreign (Nigerian) markets and build sustainable supply and demand of quality products, including commodities such as maize, cassava, palm oil and peppers.

**Implementing Partners** – Royal Tropical Institute (KIT) of the Netherlands, Care International Benin-Togo, Sahel Capital and Partners Ltd. of Nigeria and Benin Consulting Group International

## FARA Multi-Stakeholder Approach to Linking Technical Options, Policy and Market Access for Improved Land Productivity in the Northern Guinea Savanna Zone 2012-2014

**Overview** – The project implements the Integrated Agricultural Research for Development (IAR4D) approach using four innovation platforms for rice, vegetables, livestock and maize-legume. IFDC is leading the project's work in the Northern Guinea Savannah Zone of Nigeria.

**Collaborator** – Sub-Saharan Africa Challenge Program

**Donor** – Forum for Agricultural Research in Africa (FARA)

**Location** – Nigeria

“The backbone of any agricultural revolution is access of farmers to modern agricultural inputs, especially fertilizers and seeds.”

– Dr. Akinwumi Adesina, Nigerian Minister of Agriculture and Rural Development and Forbes Africa 2013 “Man of the Year”



**Donor** – Embassy of the Kingdom of the Netherlands in Benin

**Location** – Benin

## Development of Sesame Production and Processing for Export 2011-2013

**Overview** – The Sesame Mali project strengthened sesame production and processing for smallholder farmers by supporting the development of sesame agribusiness clusters and value chains. In addition, the project included farmer field schools that built or reinforced large numbers of farmers' capacities in sesame production. Members of agribusiness clusters were taught to apply IFDC's Competitive Agricultural Systems and Enterprises (CASE) solution.

**Donor** – KIT through the Common Fund for Commodities (CFC)

**Locations** – Burkina Faso and Mali

## Feed the Future USAID Agriculture Technology Transfer (FTF USAID ATT) 2013-2018

**Overview** – The project focuses on improving the rice, soybean and maize value chains by strengthening the seed industry and promoting complementary agricultural practices such as ISFM. The project will build the capacity of public institutions and private businesses to introduce new technologies and supply agricultural inputs. Demand for and adoption of new technologies will be heightened through information dissemination, training and other collaborative efforts. By encouraging the introduction and adoption of sustainable technologies, the project will increase productivity and incomes for agricultural producers throughout Northern Ghana.

**Implementing Partners** – GAABIC, the College of Agriculture and Life Sciences of Iowa State University (ISU) and WUR-CDI

**Donor** – USAID

**Location** – Ghana

## Fertilizer and Sustainable Agricultural Development (F&SAD) 2009-2013

**Overview** – The F&SAD project improved access to agro-inputs and promoted their efficient use in the West African nations of Burkina Faso, Mali, Niger and Togo. Focusing on ISFM, the project engaged in the participatory development of technology packages and improved linkages between farmers and input and output markets.

**Donor** – IFA

**Locations** – Burkina Faso, Mali, Niger and Togo

## Grassroots Development of Agribusiness Clusters in Mali (DEBPEA) 2009-2014

**Overview** – An extension of the completed From Thousands to Millions (1000s+) project, DEBPEA is reinforcing and expanding agricultural development in Mali. The project is increasing the number of agribusiness clusters in Mali and making agribusinesses sustainable and accessible – economically, organizationally and environmentally. DEBPEA is achieving this goal by designing and testing innovative instruments in rural finance such as contract financing, the inventory credit system and harvest insurance. To improve agribusiness clusters' competitiveness and sustainability, DEBPEA is prompting agribusiness cluster participants to determine effective strategies to promote their product value chains by creating synergies and developing multi-participant action plans.

**Donor** – Embassy of the Kingdom of the Netherlands in Mali

**Location** – Mali

## Growth Enhancement Support (GES) in Nigeria 2013-2014

**Overview** – IFDC is supporting the new GES program, one of the Nigerian government's first steps in balancing its focus between the oil and agriculture sectors. To reach farmers directly, the 2013 GES program utilized electronic vouchers that were received by farmers through mobile phones (also known as an "e-wallet" system). IFDC provided technical expertise in the design and implementation of the program and coordinated supply-side activities in 15 states. This included coordination with input suppliers and government officials to ensure that an adequate stock of fertilizers was available throughout the program. Covering the entire nation, the program linked more than 4.5 million farmers to subsidized fertilizer; IFDC directly helped 2.4 million farmers to access the input.

**Donor** – Nigeria Federal Ministry of Agriculture and Rural Development

**Location** – Nigeria

## Helping Farmers Produce Cassava for Profit (Cassava+) 2009-2013

**Overview** – Cassava+ was a PPP between DADTCO and IFDC that revolutionized cassava production, moving the tuber from a subsistence crop to a commercial crop for targeted smallholder farmers. IFDC worked with farm groups to facilitate cassava planting, harvesting and processing. IFDC also provided access to agro-inputs, training and new technologies. DADTCO's mobile processing unit eliminated crop loss caused by rapid post-harvest deterioration by processing the cassava into cassava cake (which can last for months) near where it was harvested.

**Implementing Partner** – DADTCO

**Donor** – DGIS

**Locations** – Ghana, Mozambique and Nigeria



## Improving the Access to Non-Cotton Agricultural Inputs for Producers in Benin 2009-2013

**Overview** – The project increased high-value crop productivity and smallholder farmers' incomes. It focused on increasing farmers' capacities to produce maize, pineapple and rice by providing access to quality agro-inputs, training in the proper use of the inputs and enhanced market linkages. In addition, lending institutions established a credit guarantee fund to support the warehouse receipt program that provided access to non-cotton inputs for targeted producers in the rice, maize and pineapple value chains.

**Donor** – Embassy of the Kingdom of the Netherlands in Benin

**Location** – Benin



## Linking Farmers to Markets (FTM) 2010-2013

**Overview** – The project's primary goal was to ease the flow of produce from farm-gate to the market by linking smallholder farmers to commercial buyers and processors. The project formed alliances with partners to build the organizational management, productivity and entrepreneurial skills of smallholder farmers; trained SMEs in commercial buying and processing; and linked approximately 50,000 smallholder rice, maize, sorghum and soybean farmers with structural markets in northern Ghana. An interactive ICT platform (mFarms) was developed to link value chain stakeholders operating in northern Ghana virtually, providing a powerful agricultural campaign planning and



decision-making tool that allows for the improved management of factors influencing input and output product and commodity flows.

**Donor** – AGRA

**Location** – Ghana

### Mainstreaming Pro-Poor Fertilizer Access and Innovative Practices in West Africa 2010-2013

**Overview** – The project focused on resource-poor farmers, farmer-based organizations and community associations. Utilizing a holistic ISFM approach, the project improved depleted soils and land husbandry while increasing access to and efficient use of fertilizer. The project also focused on natural resources, improved technologies, competitive markets, private enterprise development and national policy advocacy.

**Donor** – International Fund for Agricultural Development (IFAD)

**Locations** – Benin, Burkina Faso and Togo



### Marketing Inputs Regionally Plus (MIR+) 2009-2013

**Overview** – MIR+ improved policy and regulatory environments in the 15 ECOWAS nations. The promotion of a broader market that permits free movement of agro-inputs within the region, without endangering public health or the environment, is likely to increase farmers' access to a more diverse and more competitive range of products. In addition to the strong policy component, the project promoted innovations (e.g., UDP and fertilizer recommendations) that stimulate increased marketing and use of agro-inputs and improved the availability of technical information on these inputs. In addition, project activities in Burkina Faso, Ghana and Nigeria improved producer organizations' access to agro-inputs.

**Collaborators** – ECOWAS and UEMOA

**Donor** – DGIS

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



### Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites II (MARKETS II) 2012-2017

**Overview** – IFDC is facilitating a PPP between Notore Chemical Industries Ltd. and Nigeria's National Program for Food Security (NPFS) to promote the use of FDP technology and facilitate the supply and demand of urea briquettes in Nigeria. IFDC also is continuing to strengthen Nigeria's fertilizer sector by improving targeted

farmers' access to agro-inputs, loaning urea briquette manufacturing machines to Notore and training the company's workers to use the machines. Notore is distributing the briquettes via its supply channels to agro-dealers located in rice-growing regions where the project is facilitating FDP demonstration fields.

**Lead Implementer** – Chemonics

**Collaborators** – Notore Chemical Industries Ltd. and NPFS

**Donor** – USAID

**Location** – Nigeria

### Prevention of Seed Cotton Contamination in West Africa 2010-2013

**Overview** – This three-year pilot project helped cotton traders, farmer-based organizations and farmers in Burkina Faso, Côte d'Ivoire and Mali to significantly reduce high cotton contamination. Over the life of the project, 100,000 mt of seed cotton were affected. The project demonstrated that enhanced efforts to produce uncontaminated cotton lint are rewarded with higher world market prices and increased revenues for both cotton enterprises and smallholder farmers.

**Donor** – EU/CFC

**Locations** – Burkina Faso, Côte d'Ivoire and Mali

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

**Overview** – PRODIB is strengthening the ability of agro-dealers to create business linkages with input suppliers and extend their retail networks to reach more farmers. The primary goal is to increase agricultural productivity and boost the incomes of the country's smallholder farmers. This is being achieved 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 agro-input policies and regulations and monitoring and evaluating project progress.

**Collaborator** – Association of Agro-Input Wholesalers and Retailers of Burkina Faso (AGRODIA)

**Donor** – AGRA

**Location** – Burkina Faso

## Support Project for Agricultural Development in Togo (PADAT) 2012-2015

**Overview** – PADAT is one of three projects designed to complement Togo's National Agricultural and Food Security Investment Program (PNIASA), which was launched in 2012. IFDC is implementing the ISFM component of PADAT in Togo's five economic regions (Centrale, Kara, Maritime, Plateaux and Savanes). The project focuses on three crops – cassava, maize and rice. Its goal is to disseminate information about ISFM and other beneficial agricultural practices to increase production of these crops and increase incomes in Togo.

**Donor** – Togo Ministry of Agriculture, Animal Husbandry and Fisheries through IFAD

**Location** – Togo

## Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship (2SCALE) 2012-2017

**Overview** – 2SCALE is improving rural livelihoods, nutrition and food security in 12 countries across Africa, aiming to help 1.15 million smallholder families ultimately increase their productivity by 100 percent and their net incomes by 30 percent. A key component is the development of a portfolio of 500 robust and viable agribusiness clusters and value chains targeting regional, national and local markets, including commodity and food product markets for base-of-the-pyramid consumers. 2SCALE focuses on the development of competitive rural agricultural systems, viable agro-enterprises and PPPs to meet its goals.

**Implementing Partners** – BoP Inc. and ICRA

**Donors** – DGIS (50 percent) and private sector enterprises (50 percent)

**Locations** – Benin, Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Mozambique, Niger, Nigeria, South Sudan, Togo and Uganda

## USAID Liberia Food and Enterprise Development (FED) 2011-2016

**Overview** – IFDC is leading a technical assistance component to recruit and train agro-dealers and promote ISFM in cassava cultivation. The broader project objectives are to improve nutrition and food security by increasing agricultural productivity and market access and building human capacity. The Liberia FED project is developing cassava value chains comprised of smallholder farmers, microfinance institutions and procurement, production and market links. IFDC-trained agro-dealers, trade associations and trainers, in turn, are transferring knowledge to smallholder farmers.

IFDC is also helping the farmers and agro-dealers form associations and facilitating connections to credit opportunities and service providers. A pilot market-friendly voucher system to transfer purchasing power to smallholder farmers is also being established. The voucher systems will stimulate demand for agro-inputs and facilitate a competitive input supply chain.

**Lead Implementer** – DAI

**Donor** – USAID

**Location** – Liberia

## USAID West Africa Cotton Improvement Program (WACIP) 2006-2013

**Overview** – USAID WACIP boosted the productivity and profitability of the cotton sector in Benin, Burkina Faso, Chad and Mali (known as the Cotton Four [C-4]) as well as Senegal. The program worked with farmers, researchers, agro-dealers, private enterprises, inter-professional associations and textile artisans. In addition, the program promoted advanced agricultural practices that improve farmers' yields (for cotton as well as rotational crops), build their capacities, support the ginning sector and provide greater access to foreign markets. USAID WACIP also conducted activities to improve the quality of cotton seed and fiber processing and developed cascade training sessions on demonstration plots to train farmers who received harvesting kits.

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

**Donor** – USAID

**Locations** – Benin, Burkina Faso, Chad, Mali and Senegal

## USAID West Africa Fertilizer Program (WAFP) 2012-2017

**Overview** – USAID WAFP seeks to significantly increase food security and reduce poverty and hunger in West Africa. The program's goal is to increase the use of fertilizer by smallholder farmers by lowering its cost, reducing the distance between the farm-gate and agro-dealers and increasing the efficiency of fertilizers by accurately matching soil type and crop variety to recommended fertilizer types and quantities. To achieve this goal, IFDC is working closely with a sub-grantee, AFAP. Through this collaboration, supply-side constraints will be lessened, achieving a more reliable, affordable fertilizer supply in West Africa.

**Collaborator** – AFAP

**Donor** – USAID

**Locations** – ECOWAS member countries (with a focus on Ghana, Liberia, Mali and Senegal)







## Overview

*Office of Programs activities encompass multiple disciplines associated with fertilizer technology, production, use and market development. OP engages in and conducts fundamental and applied research 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 OP staff members' input and advice to support decisions in these critical domains. Additionally, IFDC's field programs draw on the scientific and technical expertise and assistance of OP staff in implementing field projects more effectively.*

## Markets and Economics

Through extensive market research and assessment activities, project development and advisory services and policy analysis and dialogue, this group helps 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 effects of new technologies, implications of regional trade on agriculture and agribusiness, as well as policy measures required to advance national agricultural growth objectives. The group also provides analysis for more effective implementation of agro-input subsidy programs.

During 2013, the group developed a number of studies and assessments for partners and donors such as AFAP, AU/NEPAD, FAO and the USAID FTF program, among others.

## Fertilizer Technology

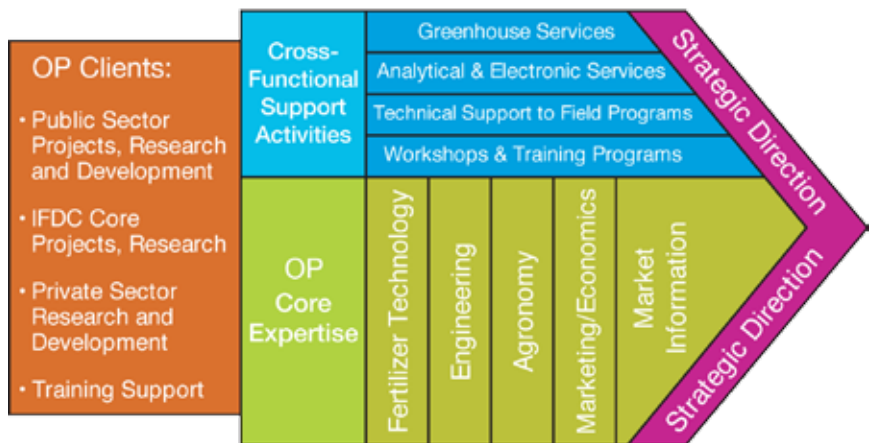
The primary function of the Fertilizer Technology group is to conduct R&D projects that characterize and identify the most efficient use of fertilizer raw materials and develop processes to use them in fertilizer production. These activities are conducted under contract and in collaboration with national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

In 2013, the group conducted research/testing for more than 30 private client projects in the IFDC laboratories, greenhouses/fields and pilot plant. In addition, a number of product analyses, industry trainings and fertilizer manufacturing facility evaluations were conducted. The group also provided technical assistance to 10 IFDC projects in the Center's EurAsia and Africa divisions, and supported numerous specialized trainings and workshops conducted by IFDC's Training and Workshop Coordination Unit.

In addition, the group provided support to the VFRC in the development of requests for proposals and the vetting of various technology development efforts for possible funding.

## Soil and Plant Nutrition

The research team engaged in several fertilizer development projects under the IFDC Nitrogen Efficiency Initiative, which focuses on increasing the efficiency of nitrogen fertilizers (including improving the efficiency of nutrient uptake by plants and



*A graph illustrating the interaction of various groups within IFDC's Office of Programs.*

reducing nitrogen volatilization and leaching) and the Phosphate Efficiency Initiative, among other nutrient-specific research efforts. Major areas of research included:

- Greenhouse study for zinc (Zn)-fortified upland rice.
- Ongoing development of Zn seed core technology (ZSCT) – mini-granular seed cores coated with urea.
- Evaluation of nitrification inhibitors using Nitrosomonas.

## Market Information Unit

Market data and information are researched and publications and studies are developed to support OP 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 2013 included:

- Africa Fertilizer Situation.
- Asia Fertilizer Situation.
- Central Europe Fertilizer Situation.

**“ We need to strengthen research for efficiently produced, healthy food, while ensuring the availability of food at affordable prices.”**

– Paul Bulcke, CEO of Nestlé



- Greenhouse studies to enhance agronomic efficiency of direct application of phosphate rock.
- Development of a more comprehensive world phosphate rock resource analysis.
- Matching plant phosphorus (P) demand to P supply from applied P fertilizer.
- In-situ rhizosphere acidification with organic acids.
- Agronomic evaluation of nano-size PR for direct application.
- Quantification of residual P fertilizer availability for subsequent crops.
- Technical support for the Global TraPs project.
- China Fertilizer Situation.
- Global and Regional Data on Fertilizer Production and Consumption, 1961-2011.
- Latin America Fertilizer Situation.
- North America Fertilizer Capacity.
- Worldwide Ammonia Capacity Listing by Plant.
- Worldwide Ammonium Nitrate/Calcium Ammonium Nitrate Capacity Listing by Plant.
- Worldwide Diammonium Phosphate (DAP)/ Monoammonium Phosphate (MAP) Capacity Listing by Plant.
- Worldwide Nitrogen/Phosphorus/Potassium (NPK) Capacity Listing by Plant.
- Worldwide Phosphoric Acid Capacity Listing by Plant.
- Worldwide Potash Capacity Listing by Plant.
- Worldwide Sulfuric Acid Capacity Listing by Plant.
- Worldwide Urea Capacity Listing by Plant.

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 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 for TFI in 2013:

- Fertilizer Record (monthly).
- U.S. Phosphate Material Exports Report (monthly).
- Ammonia Production Costs, 2012.
- Toxic Release Inventory Summary, 2012.
- Operating Rates, July-December 2012.
- Operating Rates, January-June 2013.
- Annual Report: 2011-2012 Fertilizer Record.
- North America Capacity Survey.

The annual North America Capacity Survey is conducted to support the TFI program and to update IFDC capacity files. This survey includes basic producers in the United States and Canada, as well as producers in Mexico and the Caribbean. It provides updates on existing and planned plant production capacities throughout the region.

### Analytical Services

OP analytical chemists provide critical support to all of the research efforts of the office. In-house analytical work supports IFDC's research efforts focused on increased agricultural production and improved fertilizer technologies. In support of agricultural productivity advancement, thousands of product, soil and plant tissue samples generated from the pilot plant, laboratories, greenhouses and field tests are analyzed on an annual basis. In addition, analyses that focus on the physical and chemical properties of various fertilizers produced in the IFDC pilot plant help establish high-quality and economical fertilizer products for both large-scale and smallholder farmers.

### Greenhouse Services

This critical support service group is responsible for maintaining IFDC's two greenhouse facilities and coordinating with OP 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.

## Quantifying GHG Emissions in Rice

*According to the International Rice Research Institute (IRRI), rice production must grow parallel to population growth. Rice farming, however, is one of agriculture's major sources of greenhouse gas emissions, particularly methane, nitrous oxide (N<sub>2</sub>O) and nitric oxide (NO). Some suggest that rice emissions are threatening the rice itself: rice production decreases by 5 percent for every 1 degree Celsius increase in temperature over 32 degrees.*

*In 2013, IFDC began conducting field research in Bangladesh to quantify N<sub>2</sub>O and NO emissions in rice. The data are collected through an IFDC advanced automated gas sampling system developed in our greenhouse. The system takes continuous measurements of gases released from the soil during rice production and during the non-rice/fallow period.*

*As possible solutions, IFDC is quantifying the environmental benefits of FDP technology and studying water-saving irrigation techniques such as alternate wetting and drying. FDP is more efficient than traditional fertilizer broadcasting, and results in lower nitrogen losses and higher crop uptake and yields.*

*The project will continue to collect data until late 2014, at which point the official report will be released. The activity integrates two U.S. Government programs – the Feed the Future initiative and the Global Climate Change Initiative.*



# TWCU

## Training & Workshop Coordination Unit

### OVER 890,000 TRAINED

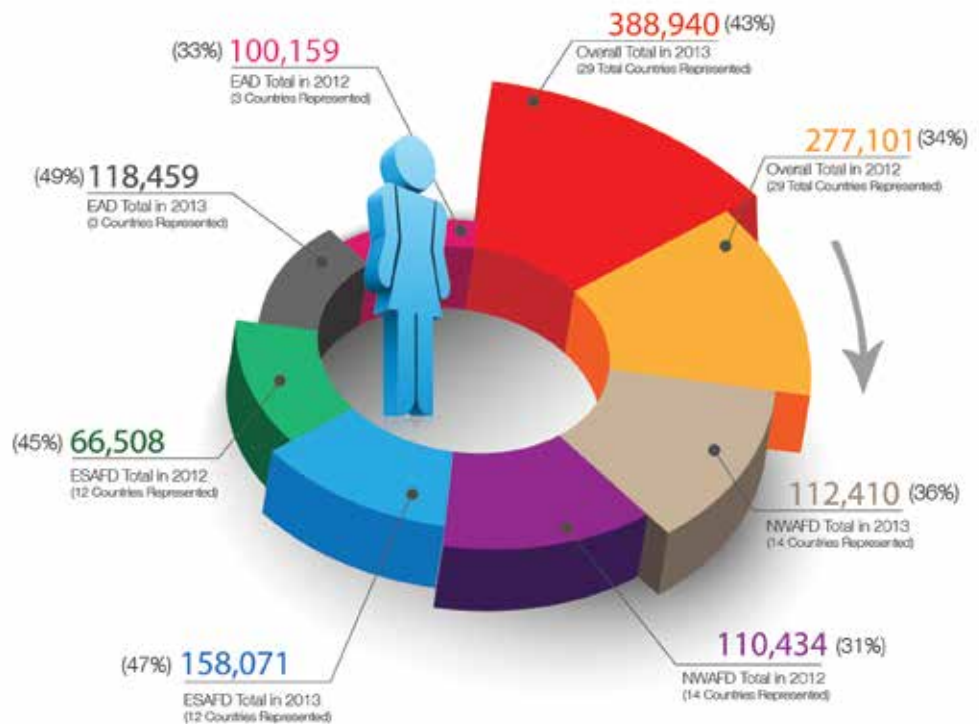
Training is a strategic tool used to strengthen the capabilities of fertilizer producers, agro-dealers and farmers. Training also extends to transformers, traders and consumers of crop outputs. The topics covered vary according to the specific needs of each target group within a project or geographic region. With the ultimate goal to increase sustainable agricultural productivity, IFDC conducts field trainings at the project level in its three geographical divisions and coordinates global specialized trainings from its headquarters.

During 2013, the number of field training participants increased by 11 percent, from 807,449 to 898,271, due to the number of projects engaged in training activities, which increased from 24 in 2012 to 27 in 2013. The most significant contribution in 2013 was the increased proportion of women trained, which rose from 34 percent to 43 percent – the highest female enrollment in the last five years. IFDC recognizes the critical role of women farmers in reducing hunger and poverty, and considers training a tool for empowerment. “Providing the tools to empower women helps families thrive. Women farmers play a critical role in preventing malnutrition and ultimately ending poverty worldwide. IFDC is improving the lives of these farmers by giving them the training and the technologies to feed their families and, in turn, they are building their countries’ economies from the ground up,” stated Dr. Amit Roy, IFDC president and CEO.

### EAD: EURASIA DIVISION

The **AAPI** project in Bangladesh and the **KAED** project in Kyrgyzstan recorded 243,601 training participants, of which, 49 percent were women, exceeding average female training participation. Under the AAPI project, farmers were trained in applying FDP technologies on rice and vegetables, as well as in the use of quality seeds, water conservation and crop management. Special training programs on alternate

**Number of Women that Participated in IFDC Field Project Trainings in 2013 in Comparison to 2012**



wetting and drying technology improved water use efficiency in irrigated rice. In August 2013, the Walmart Foundation added a women's empowerment component of the USAID-funded AAPI project that trains exclusively women farmers. They are being trained in the use of FDP technology on vegetable crops and in the nutritional aspects of vegetables. In Kyrgyzstan, trainings focused on three agricultural value chains (wheat, soybean and potatoes), as well as livestock (fodder crops, poultry farming and animal health care).

### ESAFD: EAST AND SOUTHERN AFRICA DIVISION

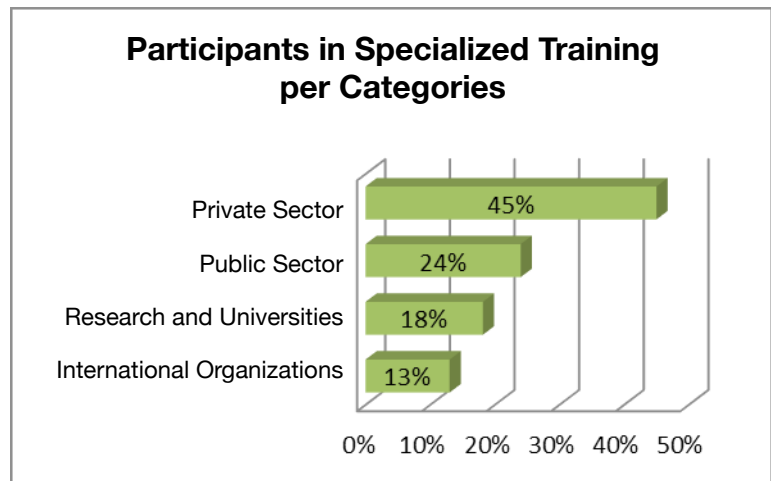
With 10 projects in 10 countries (Burundi, DRC, Ethiopia, Kenya, Mozambique, Rwanda, South Sudan, Tanzania, Uganda and Zambia), ESAFD more than doubled the number of participants trained, from 148,243 in 2012 to 333,532 in 2013, of which 47 percent were women. This significant increase is due not only to the four new projects with training activities in 2013 (**PAN-PNSEB** in Burundi, **CATALIST** in Uganda, **PROFIT+** in Zambia and **2SCALE** in East Africa) but also the expansion of training activities by the **CATALIST-2** project in the Great Lakes Region. **CATALIST-2** increased the number of trainees by 82 percent, from 133,962 in 2012 to 243,513 in 2013; among them, 45 percent were women. The division's training activities targeted mainly agribusiness cluster stakeholders including farmers, agro-dealers, collectors, processors, sellers and consumers, and focused on business management, financials, cooperative management, cost-benefit analysis, marketing and business negotiation, agribusiness and value chain development and linking farmers to buyers and financial institutions. At the farm level, agro-dealers, extension agents and farmers were taught **best agricultural practices through ISFM curricula**.

### NWAFD: NORTH AND WEST AFRICA DIVISION

Due to the completion of six of 15 NWAFD projects in 2013, total training participation decreased by 10 percent, from 355,949 in 2012 to 321,138 in 2013. These training activities took place in nine countries (Benin, Burkina Faso, Chad, Ghana, Mali, Niger, Nigeria, Senegal and Togo). Training topics included the safe use of fertilizers and pesticides, professionalization of agro-dealers and ISFM agricultural techniques across key agricultural value chains (cotton, cowpea, maize, pineapple, rice and sesame). Among the closing projects was the regional **MIR+**, which contributed to improving producers organizations' access to agro-inputs in Burkina Faso, Ghana and Nigeria. In these countries, the capacities of more than one million farmers were indirectly strengthened in the areas of fertilizer product knowledge and the safe use and handling of pesticides. Through training in demand pooling and procurement, the project successfully tested a model for grouped procurement of agro-inputs by small-scale farmers, which induced important business transactions. FDP technology was successfully introduced in 25 sites in four pilot countries (Burkina, Mali, Niger and Senegal) with promising performances on irrigated rice. Though the project ended, there are positive signs that the momentum generated by **MIR+** is being extended independently by **ECOWAS** and **UEMOA** and other stakeholders operating in West Africa.

### SPECIALIZED TRAININGS AND WORKSHOPS

During 2013, TWCU held six international training sessions for 240 attendees in locations ranging from the United States to Kenya, China, Tanzania and Thailand. Participants represented all five continents, with Africa and Asia combined representing 88 percent of total attendance. As shown in the graphic (top of page), international training programs attracted professionals from both the public and private sectors, along with international development agencies and agricultural research centers and universities. Topics included phosphate and nitrogen fertilizer production technology, targeted agro-input subsidy programs, linking farmers to markets, fertilizer policy and marketing strategy in Africa and technology advances in agricultural production and fertilization. Experts from IFDC, IFA and other partner organizations served as faculty for these trainings. These efforts allowed participants to enhance their own expertise and better perform their duties on behalf of their respective organizations. The workshops also provided a unique opportunity for participants to exchange ideas on a range of topics with industry peers. On average, 81 percent of the participants judged the 2013 programs as "very good" to "excellent" with respect to the technical delivery and the program content and methodology, as well as all administrative aspects.



## 2013 Selected Articles

“Recovery of Essential Plant Nutrients from Biofuel Residual,” by Sampson Agyin-Birikorang, G.A. O’Connor, P.C. Pullammanappallil and G.R. Mohana, published in *Journal of Sustainable Bioenergy Systems* 3:149-159.

“Evaluation of Fused Ammonium Sulfate Nitrate Fertilizer for Crop Production,” by Sen H. Chien, Upendra Singh, M. Mercedes Gearhart and Rick E. Austin, published in *Soil Science* 178(2):79-86.

“Producer Choice,” by Ari Novy and L. Nagarajan, chapter in *Socio-Economic Considerations in Biotechnology Regulations*, K. Ludlow, S. Smyth, F. Jose (Eds.), to be published by Cambridge University Press, United Kingdom.

“Role of Biotechnology in Stimulating Agribusiness R&D Investments in India,” by C.E. Pray and L. Nagarajan, published in *AgBioForum* 16(2).

“World Reserves of Phosphate Rock...a Dynamic and Unfolding Story,” by Steven J. Van Kauwenbergh, Mike Stewart and Robert Mikkelsen, published in *Better Crops* 97(3):18-20.

“Sustainable Nutrient Management Package for Cost-Effective Bioenergy Biomass Production,” by Sampson Agyin-Birikorang and University of Florida Professors, published in *Journal of Plant Nutrition* 36(12):1881-1900.

“Direct Application of Phosphate Rock (DAPR),” by Steven Van Kauwenbergh, Upendra Singh and Cleber Viera, published in the IFA issue brief *Feeding the Earth*.

“Towards the Achievement of an African Green Revolution: Key Accomplishments Since the 2006 Africa Fertilizer Summit,” by Oumou Camara, published in *AU Echo*, Issue 05.

## 2013 Selected Presentations

“Future World Phosphate Rock Reserves and Resources,” presented by Steven J. Van Kauwenbergh at the 20<sup>th</sup> Annual Phosphate Conference, October 9-10, 2013, Lakeland, Florida.

“Quality Assessment of Fertilizers Commercialized in West Africa,” presented at the ASA/CSSA/SSSA International Annual Meeting, November 3-6, 2013, Tampa, Florida. Coauthors are Joaquin Sanabria, Georges Dimithe and Emmanuel Alognikou.

“Evaluation of Boron as Urease Inhibitor,” presented at the ASA/CSSA/SSSA International Annual Meeting, November 3-6, 2013, Tampa, Florida. Coauthors are Upendra Singh, Job Fugice, Wendie Bible, Rick Austin and Joaquin Sanabria.

“Using Bio-Organic Acids to Improve Agronomic Efficiency of Unreactive Phosphate Rock,” presented at the ASA/CSSA/SSSA International Annual Meeting, November 3-6, 2013, Tampa, Florida. Coauthors are Sampson Agyin-Birikorang,

Upendra Singh, Joaquin Sanabria and George R. Smith.

“Greenhouse Evaluation of Sulfur Availability from Granular Ammonium Sulfate and Granular Sulfur-Enriched Monoammonium Phosphate,” presented by S.H. Chien at the ASA/CSSA/SSSA International Annual Meeting, November 3-6, 2013, Tampa, Florida. Coauthors are S.H. Chien, M.M. Gearhart, Upendra Singh and E. Rick Austin.

“Fertilizer Policy Status Since *Abuja Declaration*,” presented by Joshua Ariga at the Technical Convening on Seed and Fertilizer Policy in Africa, December 5-7, 2013, Addis Ababa, Ethiopia.

“Policies to Facilitate Fertilizer Blending for Better Recommendation,” presented by Peter Heffernan at the Technical Convening on Seed and Fertilizer Policy in Africa, Addis Ababa, Ethiopia, December 5-7, 2013.

“Principles to Guide Cost-Effective Fertilizer Policies,” presented by Peter Heffernan

at the Technical Convening on Seed and Fertilizer Policy in Africa, December 5-7, 2013, Addis Ababa, Ethiopia.

“CERES-Rice: Current Status and Future Improvements,” presented by Upendra Singh at the MARCO-AgMIP Rice Team Workshop, December 2-5, 2013, Tsukuba, Japan. Coauthors are Job Fugice, Gerrit Hoogenboom and Jakarat Anothai.

“Determinants of Rice Marketed Surplus in Togo: A Heckman Two-Stage Selection Approach,” a poster presentation by Latha Nagarajan, with coauthors Serge Adjognon, Anwar Naseem and Aliou Diagne, accepted by American Agricultural Economics Association annual meetings, August 4-6, 2013, Washington, D.C.

“Developing Competitive Fertilizer Markets in Sub-Saharan Africa: Policy and Non-Policy Solutions,” by Joshua Ariga and Peter Heffernan, presented at the Technical Convening on Seed and Fertilizer Policy Africa, December 5-7, 2013, Addis Ababa, Ethiopia.

“Linking Farmers to Agro-Input Supply Chains from Global to Local Levels through ICT,” presented by Bridget Okumu at the 2013 ICT4Ag International Conference, November 4-8, 2013.

“Global Research and Development Opportunities to Advance Technologies,” presented by Amit Roy at the 2013 Fertilizer Outlook and Technology Conference, November 19-21, 2013.

“Sub-Saharan Africa Fertilizer Market,” presented by Rob Groot at the 2013 Fertilizer Outlook and Technology Conference, November 19-21, 2013.

“Fertilizer Deep Placement Technology: A Useful Tool in Food Security Improvement,” by John Allgood, Samba Kawa and Upendra Singh, presented at a USAID Ag Sector Council Seminar, April 24, 2013.

“Distribution and Information Systems in Southern Africa,” presented by Paul Makepeace at the Farm Chemicals International Trade Summit, May 6-7, 2013, Durban, South Africa.

“Agricultural Policies, Programs and Implementation Strategies in Southern Africa,” presented by Maria Wanzala at the Farm Chemicals International Trade Summit, May 6-7, 2013, Durban, South Africa.

“Fertilizer Market Development in Sub-Saharan Africa,” by Maria Wanzala and Rob Groot, presented to the International Fertiliser Society, March 24, 2013, Windsor, United Kingdom.

## 2013 Selected Studies

*The Quality of Fertilizer Traded in West Africa: Evidence for Stronger Control*, by Joaquin Sanabria, Georges Dimithé and Emmanuel K.M. Alognikou.

*The Quality of Fertilizer Traded in West Africa: Côte d'Ivoire Report* by Joaquin Sanabria, Georges Dimithé and Emmanuel K.M. Alognikou.

*The Quality of Fertilizer Traded in West Africa: Nigeria Report*, by Joaquin Sanabria, Georges Dimithé and Emmanuel K.M. Alognikou.

*The Quality of Fertilizer Traded in West Africa: Ghana Report*, by Joaquin Sanabria, Georges Dimithé and Emmanuel K.M. Alognikou.

*The Quality of Fertilizer Traded in West Africa: Togo Report*, by Joaquin Sanabria, Georges Dimithé and Emmanuel K.M. Alognikou.

“Practices and Policy Options for the Improved Design and Implementation of Fertilizer Subsidy Programs in Sub-Saharan Africa,” a NEPAD Agency Policy Study, by Maria Wanzala-Mlobela (NEPAD Agency), Porfirio Fuentes (IFDC) and Solomon Mkumbwa (FAO), published in July 2013.

*Zambia Fertilizer Assessment*, by Joshua Ariga, Porfirio Fuentes and Peter Heffernan.

*Malawi Fertilizer Assessment*, by Porfirio Fuentes.

# Offices and Staff

## USA

### IFDC Headquarters

P.O. Box 2040  
Muscle Shoals, Alabama 35662 – USA  
Telephone: +1(256) 381-6600  
Telefax: +1(256) 381-7408  
E-mail: general@ifdc.org



### Staff

#### Office of the President

Amitava H. Roy, President and Chief Executive Officer  
Brenda T. Barr, Internal Auditor<sup>2</sup>  
Cynthia A. McComas, Senior Administrative Assistant  
Debra E. Rutland, Executive Assistant to the President and Chief Executive Officer

#### Office of Operations

John H. Allgood, Chief Operating Officer and Director – EurAsia Division  
John T. Shields, Interim Director<sup>1</sup>  
Melissa L. Clark, Specialist – Proposal Development  
Robert I. Nooter, Senior Development Officer

#### Office of Finance

Cornelia H. Heflin, Chief Finance Officer  
Patrick Alexander, Systems/Network Administrator  
Kaye F. Barker, Senior Budget Officer  
Catharine J. Basham, Coordinator – Information Technology<sup>1</sup>  
Kevin L. Bevis, Technician – Maintenance Services  
Charles E. Butler, Technician – Maintenance Services<sup>4</sup>  
Jonathan Cooper, Senior Procurement Officer  
Rebecca M. Crabb, Accountant<sup>1</sup>  
Jeremy Crow, Senior Contracts Officer  
Christopher B. Holt, Budget Officer  
Ricky S. Isbell, Coordinator – Information and Technology  
Kelly K. Kelley, Senior Contracts and Procurement Officer<sup>1</sup>  
Nell R. McGee, Accountant  
Bethany A. Morris, Accountant<sup>1</sup>  
Rhonda G. Pell, Accountant  
Barry J. Reding, Senior Purchasing Officer<sup>1</sup>  
Wendell C. Rhodes, Senior Technician – Maintenance Services  
Leslie K. Richardson, Associate Accountant  
Juanita L. Schultz, Accountant  
Debra S. Shedd, Supervisor – Accounting Services  
B. Heath Sockwell, Associate Budget Officer  
Kasta L. Staggs, Accountant  
Amanda Tatum, Administrative Assistant  
Laura A. Thompson, Accountant  
Xia Wan, Coordinator – Computer Services  
Bee Ling Wheaton, Contracts and Procurement Assistant  
David B. Wright, Senior Technician



#### Office of Human Resources

Jill A. Little, Chief Human Resources Officer  
Michael F. Bates, Human Resources Officer  
Kelly M. Battles, Administrative Assistant  
Zack T. Crowell, Human Resources Assistant<sup>1</sup>  
C. David Edwards, Senior Human Resources Officer<sup>4</sup>  
Cheryl Fisher, Human Resources Analyst  
Amber N. Hammock, Senior Human Resources Officer  
Brenda G. Peden, Receptionist  
Michael O. Thompson, Senior Visitor Relations Officer

#### Office of Communications

Sharon Singh, Chief Communications Officer  
Scott Mall, Chief Communications Officer<sup>1</sup>  
Victoria L. Antoine, Graphic Artist

Clyde R. Beaver III, Acting Chief Communications Officer, Communications Specialist  
Heather R. Gasaway, Graphic Artist/Web Designer  
Jane L. Goss, Senior Word Processor  
Courtney B. Greene, Editor  
Julie D. Kohler, Word Processor  
Amanda McGough, Intern<sup>6</sup>  
Megan Morris, Intern<sup>6</sup>  
Andy Thigpen, Intern<sup>6</sup>  
James N. Thigpen, Communications Specialist  
Lisa L. Thigpen, Editor<sup>2</sup>  
Donna W. Venable, Coordinator – Word Processing/Graphics/Traffic Management  
Haley Wright, Intern<sup>6</sup>

#### Office of Programs

Peter J. Heffernan, Chief Program Officer  
Price D. Abernathy, Technician – Pilot Plant Services<sup>5</sup>  
Sampson Agyin-Birikorang, Scientist – Systems Agronomist  
Joshua Makori Ariga, Scientist – Economics  
Janice T. Berry, Coordinator – Market Information Unit<sup>2</sup>  
Wendie D. Bible, Senior Analyst – Laboratory  
Bobby W. Biggers, Senior Technician – Pilot Plant Services/Physical Properties  
Robert C. Boshers, Coordinator – Greenhouse and Pilot Plant Services  
Luisa M. De Faria, Senior Specialist – Engineering  
Thomas E. Evers, Senior Technician – Pilot Plant Services  
A. Jonathan Florida, Associate Specialist – Engineering  
Porfirio A. Fuentes, Senior Scientist – Economics (Trade)  
Job Fugice Jr., Coordinator – Analytical Services  
Deborah S. Garrison, Senior Administrative Assistant<sup>1</sup>  
Sarah Gavian, Chief Economist and Program Leader – Markets and Economics  
Olivia J. Gist, GIS Specialist  
Deborah T. Hellums, Senior Program Support Specialist and Program Leader – Agro-Economics Research Program  
Vaughn K. Henry, Senior Technician – Greenhouse Services  
Brandon S. Holaway, Technician – Pilot Plant Services  
Andrea D. Hovater, Specialist – Engineering  
Christopher A. James, Analyst – Laboratory  
Deborah B. King, Senior Administrative Assistant  
Richard W. Larkins, Technician – Electronics  
J. Ramón Lazo de la Vega, Senior Engineer and Program Leader – Fertilizer Technology Program  
Benjamin C. Malone Jr., Senior Analyst – Laboratory<sup>4</sup>  
Brian D. Marshall, Technician – Pilot Plant Services<sup>1</sup>  
Latha Nagarajan, Scientist – Economics  
Daniel N. Perez, Student Assistant<sup>6</sup>  
James Rea Phyfer, Technician – Pilot Plant Services  
Henry Russaw Jr., Senior Technician – Pilot Plant Services  
Joaquin Sanabria, Scientist – Biometrician  
Gregory R. Schmidt, Scientist – Geology  
Upendra Singh, Principal Scientist – Systems Modeling (Soil Fertility)  
G. Ronald Smith, Senior Technician – Greenhouse Services<sup>2</sup>  
Celia G. Sylvester, Senior Analyst – Laboratory  
Steven J. Van Kauenbergh, Principal Scientist and Leader – Phosphate Research and Resource Initiative  
Linda D. Walsh, Specialist – Data Management<sup>2</sup>  
Paul W. Wilkens, Scientist – Programmer<sup>4</sup>  
Emily C. Wright, Specialist – Market Information and Program Support

#### Training and Workshop Unit

Timothy Karera, Director  
H. Resha McCarley, Senior Administrative Assistant  
Tracy L. Strayhorn, Administrative Assistant





## Virtual Fertilizer Research Center (Washington, D.C.)

Prem S. Bindrabani, Executive Director  
Sanjib Choudhuri, Executive Director<sup>1</sup>  
Christian Dimpka, Research Scientist, Plant-Soil Biology  
Antyama A. Massada, Administrative Coordinator

## Short-Term Staff

Terry Adams, Market Development Specialist  
Odile Adjapon, Translator  
Kettline Adodo, Communications Officer  
Vas D. Aggarwal, Project Closeout Specialist  
A.M.M. Shawkat Ali, Fertilizer Policy Specialist  
Vaughn Astley (Dr. Phosphate), Expert in Phosphate Technologies and Innovations  
Rick Austin, Scientist  
Carlos A. Baanante, Economist  
Hendrik Baarveld, Seed Potato Specialist  
Larry Badger, Media Consultant  
Brenda Barr, Auditor  
David Bathrick, Policy and Rural/Agricultural Growth Strategist  
Andre Bationo, Proposal Development Specialist  
Ylli Biçoku, Livestock Specialist  
Peter S. Bloch, Market Development Specialist  
Krubo Boway, Input Supply/Extension Worker – Liberia FED  
Korpo Boych, Community Based Facilitator – Liberia FED  
Henk Breman, Agroforestry and GIFS Expert  
Balu L. Bumb, Policy Economist  
Jerry J. Cape, Minerals Deposit Advisor  
Henry Charlie, Community Based Facilitator – Liberia FED  
Raymond Clark, Extension and Market Development Advisor  
Leone Comin, Project Management Specialist  
Doyce Couch, Senior Maintenance Technician  
Donald Crane, Project Development Specialist  
Gemechu Degefa, Statistician Specialist  
Stefan Deprez, Project Proposal and Development Specialist  
Leilani Dimeler, Graphic Artist  
Manon Dohmen (Knowledge & Skills, LLC), Training Facilitator  
Franz Donhauser, Agricultural Economist – KAED  
Richard Dowdell, Cold Storage Specialist – KLDP  
Timothy Durgan, Fertilizer Blending Specialist  
Jeffrey Engles, Fruit and Vegetable Marketing Advisor – KLDP  
James A. Farley, Laboratory Consultant  
Tom Fattori, Poultry Sub-Sector Advisor – KLDP  
Irwin Foreman, Milk Handling and Dairy Processing Expert  
Peter Furth, Dried Fruit Marketing Expert  
S. Allenton Galakpai, Input Supply/Extension Worker – Liberia FED  
Drucilla Gambrell, Librarian  
Dharmesh Ganatra, Marketing Specialist  
Judith Garver, IT Specialist  
Claudine Gasarabwe, Internal Auditor  
Martha Gaudreau, Rice Sector Studies Expert  
David Gisselquist, Policy Advisor Cum COP – PReFER  
Alan Goldstein, Environmental Assessment Specialist  
D. Ian Gregory, Agribusiness Specialist  
Kyle Gunther, Short-Term Business Competitiveness and SME Specialist  
Alicia K. Hall, Clerical Support  
Murray Paul Hasinoff, Research and Development Consultant  
Gerard Hendriksen, Proposal Writer  
Bernd Henn, Mechanization Advisor – KAED  
David Hirst, Administration Specialist  
James Hook, Administration and Management Consultant  
Gary Lee Hopf, Interim Acting Deputy Chief of Party  
R. Gary Howard, Laboratory Analyst  
Alain Huart, Workshop Coordinator  
Uwa Igjehon, Lecturer

Mohammad M. Islam, Agriculture Specialist  
Sefia Jetha, Economic Analyst  
Jean Philippe Jorez, Agroforestry Specialist  
Mark Kamau, Filming Specialist  
David Boston Kamchaha – Data Collection and Facilitation Specialist  
Kairat Kasymaliev, Poultry & Edible Oils Advisor – KLDP  
Mallikarjun Kenganal, Seed Production and Supply Specialist  
Gabriel Kerkulah, Input Supply/Extension Worker – Liberia FED  
Samuel Kwaizah, Input Supply/Extension Worker – Liberia FED  
Edouard Lamot, Institutional Support Specialist  
Louis Landesman, Fish Sub-Sector Advisor – KLDP  
Joël Le Turioner, Marketing Specialist  
Forrest Edward Louderback, Flour Mill Processing Expert  
Peter Manda, Input Market Development Specialist  
Allan Mansfield, Voucher System Specialist  
Danielle Mbeshrubusa, Translator  
Luke McCarthy, GES Supply Chain Specialist  
Marcos Melaku, Budget Information Specialist  
Korto Mulbah, Community Based Facilitator – Liberia FED  
Onyema Onwuka Muli, Video Producer  
Given Muntanga, Data Collection and Facilitation Specialist  
Anicet Munyehirwe, Principal Conference Speaker/ Facilitator & Charcoal Value Chain Advisor  
Herman Odhiambo, Integrated Soil Fertility Management Expert  
Gideon Onumah (Natural Resources Institute), Agricultural Economist/Rural Finance Specialist  
Anh Pallas-Pham, Natural Resources Specialist  
Anders Peter Pederson, Agroforestry Specialist  
Darryl Petters, Senior Logistics and Supply Chain Specialist  
Edward Phillips, Community Based Facilitator – Liberia FED  
Adelaide Pinto (Connect World), Professional Events Management  
Margaret (Meg) Ross, Communications Specialist  
Serge Rwamasirabo, Specialist of Produce Markets and Farmers Organizations  
Josiah Samuka, Community Based Facilitator – Liberia FED  
Alan Schroeder, Environmental Compliance Specialist  
Hetal Shah, Technical Archiving and Management Processes Specialist  
Stella Siegel, Environmental Assessment Specialist  
Har Bhajan Singh, Input Marketing Specialist  
Carol Slaton, Communications Specialist  
Traore Khanta Sokona, Data Entry and Analysis Assessment Expert  
James R. Stanelle, Planning and Oversight Specialist  
Bart Steenhuijsen (KIT)  
Isabelle Stricklesse (IDEST Communications), Translator  
Gregory Sullivan, Livestock and Dairy Processing Expert  
Amanda Tatum, Receptionist  
Daniel Themen, Agricultural Enterprise Development and Competitiveness Specialist  
James N. Thigpen, Communications Consultant  
Marja Thijssen, Proposal Development Specialist  
Cindy H. Thornton, Travel Agent  
Connie Thwaite, Communications Consultant  
Frank Tosah, Input Supply/Extension Worker – Liberia FED  
Lawrence E. Tweed, Voucher Specialist  
Ralph J. Valente, Nitrogen Emissions Specialist  
Edward J. Valentine, Fruit and Vegetable Processing Expert  
Jan Willem van Casteren, COP CASSAVA  
Bart Van Der Meer, Mechanization Consultant  
Frans van Hoof, Evaluation Specialist  
Paul Van Mele (Agroinsights), Video Film Producer  
Franciscus Van Poppel, Feed and Fodder Specialist  
Renaat Van Rompaey, Senior Proposal Writer  
Suzanne A. Vlakveld, Rice Value Chain Specialist  
Remko B. Vonk, Proposal Development Specialist



John Briton Walker, Lime Production and Marketing Specialist  
 Prem Warrior (Warrriorbio LLC), Business Development Consultant  
 Daniel F. Waterman, Development Specialist  
 Bertus Wenninck, Proposal Writer  
 William Wolfe, Credit Specialist  
 Jan Tjitte De Wolff, Technical Assistant  
 Maebeth Worsham, Interior Designer  
 Solomon Wratee, Community Based Facilitator – Liberia FED  
 Curtis Yates, Agricultural Advisor  
 Lynda Young, Communications Specialist  
 Aziza U. Yuldasheva, Association Development Specialist  
 Emmanuel Zeh, Agro Input Advisor – Liberia FED  
 Tom Zeppenfeldt (Ophileon), Ordex Training  
 Kumbirai Zingore, GIS Analyst Specialist



## AFRICA

### North and West Africa Division

André de Jager, Division Director (based in Ghana)

### IFDC Benin

G4 BP 673  
 Cotonou, Benin  
 Telephone: (229) 21 30 59 90 or (229) 21 30 76 20  
 Telefax: (229) 21 30 59 91  
 E-mail: ifdcbenin@ifdc.org

#### Staff

Wim van Campen, Regional Coordinator PSCC/Country Representative, Benin<sup>1</sup>  
 Virgile Adigbe, Janitor – USAID WACIP  
 Gregoire Oniankitan Agai, Cluster/Warrantage Specialist – ACMA  
 Enock Ulrich M. Agbidinokoun, Accountant – AAA-Bridge/USAID WACIP<sup>1</sup>  
 Mathias Ahounou, Cluster Advisor – 2SCALE  
 Kokoè Ayikoé, Secretary-Receptionist – ACMA  
 Jérôme Bankole, Driver – Non-Cotton Input  
 Stéphane B. Bayala, Agribusiness Specialist – ACMA  
 Alexandrine Corinne Codjovi, National Administration and Finance Officer  
 Soulemane Dabo Bio Sidi, Assistant Accountant  
 Constant Dangbegnon, Postdoctoral Scientist – Social Science/Agronomy  
 M. Nicaise Dossouhoui, Driver – 2SCALE  
 Blaise Fadoegnon, Technical Program Coordinator for Mali and Benin<sup>1,3</sup>  
 Irène Charlotte Gandjeto-Todan, Admin and Finance Officer – ACMA  
 Denis Gnakpenou, Agronomist, Technical Innovation Specialist – 2SCALE  
 Arsène Fidèle Kientega, M&E Specialist – ACMA  
 Michel Kpodanhoue, Driver – USAID WACIP  
 Eric Lakoussan, Cluster Assistant – 2SCALE  
 Fulgence Ségla Senougbe, Communications Specialist – ACMA  
 Alain Cohovi Soglo, Marketing Specialist – Non-Cotton Input<sup>1</sup>  
 Clarisse Toho, Administrative Assistant



### IFDC Burkina Faso

11 BP 82  
 Ouagadougou, Burkina Faso  
 Telephone: (226) 50 37 45 03 or 05  
 Telefax: (226) 50 37 49 69  
 E-mail: ifdcburkina@ifdc.org

#### Staff

Sourabie I. Noubie, Country Coordinator – USAID WACIP<sup>1,3</sup>  
 Ablassé Serge Barry, Driver – 2SCALE  
 Dominique Bassole, Project Leader – PRODIB  
 Stephane Bayala, Cluster Advisor – 2SCALE<sup>1</sup>  
 Bocar N. Diagana, Policy Economist – MIR+<sup>1</sup>  
 Asseta Diallo, Policy Economist – MIR+, IFDC Representative – Burkina Faso  
 Moussa Dionou, Technology Transfer Specialist – MIR+<sup>1</sup>  
 Mame Abdoulaye Kebe Diop, Assistant Accounting  
 Joseph Doukom, Budget Officer – USAID WACIP<sup>1</sup>  
 Prosper Gassinta, National Coordinator – USAID WACIP<sup>1</sup>  
 Christian Ilboudo, Driver – PSCC<sup>1</sup>  
 Aguerata Kabore, Janitor – USAID WACIP<sup>1</sup>  
 Amidou Kabore, IT Support – MIR+/PRODIB<sup>1</sup>  
 Gustave Kabore, Driver – MIR+<sup>1</sup>  
 Kouka Kabore, Cluster Assistant – 2SCALE  
 Salif Kiedrebeogo, Chief Driver/Logistician  
 Arsene Ouamdemba Fidele Kientega, Assistant M&E – USAID WACIP<sup>1</sup>  
 Ursula Kohnen, Senior Program Coordinator – USAID WACIP  
 Lamine Konfe, Agricultural Field Technician – IFAD<sup>1</sup>  
 Aminata Konvolbo, Project Assistant – PRODIB  
 Safiatou Kossongonona-Boly, Bilingual Secretary – USAID WACIP<sup>1</sup>  
 Rufine Meda, Secretary  
 Marcos Melaku, Project Administrator – USAID WACIP<sup>1</sup>  
 Sapré Laurent Millogo, M&E Specialist – NWAFFD<sup>1</sup>  
 Honoré Moyenga, National Coordinator – PSCC Project<sup>1</sup>  
 Jerome Nassa, Janitor  
 Francine Patricia Nezien, Accountant – 2SCALE  
 Abel Sana Nikiema, Driver – USAID WACIP<sup>1</sup>  
 Abdoulaye Ouedraogo, M&E Specialist – PRODIB<sup>1</sup>  
 Bruno Ouedraogo, Chief of Party – USAID WACIP  
 Ousmane Ouedraogo, M&E Specialist – USAID WACIP<sup>1</sup>  
 Rosine Ouedraogo, Janitor – PRODIB  
 Soungalo Sanon, Agronomist – IFAD<sup>1</sup>  
 Soubatran Sory, Driver – USAID WACIP<sup>1</sup>  
 Valentine Tonde-Ouedraogo, Receptionist/Office Assistant<sup>1</sup>  
 Sansan Youl, Quantitative and Systems Agronomist – MIR+  
 Zacharie Zida, Agronomist, Research Assistant – IFAD<sup>1</sup>  
 Issa Zongo, Driver – IFAD<sup>1</sup>  
 Hortense Zoungrana, National Administration and Finance Officer

### IFDC Ghana

F26/8 Abafun Crescent, Labone  
 Accra, Ghana  
 Telephone: (233) 302 78 08 30 / 302 78 60 69  
 Telefax: (233) 302 78 08 29  
 Annex: (233) 302 77 08 38 / 302 77 67 97  
 E-mail: ifdcghana@ifdc.org

#### Staff

S. Kofi Debrah, Chief of Party – USAID WAFP/Acting IFDC Country Representative – Ghana  
 Arnoldus Johannes Maatman, Coordinator – 2SCALE  
 Harrison Abu, ICT Specialist, Hardware and Software  
 Aduema Cletus Achaab, Senior Seed Industry Advisor – FIF ATT  
 Antoinette Addo, Project Assistant – MIR+<sup>1</sup>  
 Edward Addo, IT Support Assistant

Emmanuel Adzam, Driver – FfM  
 Isabelle Adzoh, HR Manager – NWAFFD  
 Maxwell Kwasi Agbenorhevi, Cluster Advisor – 2SCALE  
 Solomon Agyemang-Duah, Communication Specialist – WAFF  
 Robert K.W. Agunyo, Driver – GHANA VEG  
 Kodjo Akolgo, Driver – FfF ATT  
 Kouadio Amavi, ICT Support – All Projects  
 Theresa Ampadu-Boakye, Regional M&E Specialist – 2SCALE  
 Frank Ananga, Driver – MIR+  
 Paul Yao Anani, Value Chain Linkages Specialist – FfM  
 Patrice H.P. Annequin, Senior Market Information Specialist – MIR+  
 Bernice Arthur, Regional Bilingual Administration and Grants Management Assistant – 2SCALE  
 Hanson Arthur, Fund Manager & Monitoring Expert – GHANA VEG  
 Samuel Kwaaning Arthur, ICT Support Assistant – Administrative/WAFF  
 Robert A. Asugre, National Coordinator – WAFF  
 Samuel Ayanga Atia, Regional Technical Manager/WA – FfF ATT  
 Emmanuel Edem Awude, Assistant M&E Specialist – AVCMP  
 Yayra Kofi Bansah, Accountant  
 Ernest Kwame Bayah, IT Support Assistant  
 Mark Kwabena Bruce, Assistant Grants Manager – FfF ATT  
 Dabir David Chimah, Driver – AVCMP  
 Birgitta Yaa Adoma Daaku (Oppong-Mensah), Technology Transfer Specialist – MIR+<sup>1</sup>  
 Larissa Aurelia Dakpogan-Gbaguidi, Access to Finance Specialist W/A – 2SCALE  
 John Bosco Dakuri, Driver – AVCMP  
 Adjowa Alice Dayang, Janitor – AVCMP  
 Yvonne Kafui Dennis, Bilingual Secretary  
 Fatimata Dipama, Regional Project Administrator and Grants Management Assistant – 2SCALE  
 Eric Doe, FBO Business Activity Coordinator – AVCMP  
 François Vihodé Dossouhoui, Coordinator Capacity Strengthening – ICRA/2SCALE  
 Lin Edo, Chief of Party – FfF ATT  
 Eunice Ekor, Janitor/Office Assistant  
 Judith Fagbegnon-Kodjo, National Administration and Finance Officer  
 Bidjokazo Fofana, Agronomist Researcher, UDP Coordinator  
 Nafissath Barres Fousseri, MIS Assistant – 2SCALE/ USAID WAFF  
 Bernardin Gatete, Grants Manager – 2SCALE  
 Danny Vincent Gbedzi, Irrigation Engineer<sup>3</sup>  
 Enam Korsiwa Gbekor, Senior Business Advisor/Deputy Project Leader – GHANA VEG  
 Victorine Ahou Goly, Secretary Bilingual – Portfolio Management  
 Moro Gybrilla, Accounts Assistant  
 Wonder Heflide, Cleaning and Gardening  
 Atta Zakari Imoro, Cleaner<sup>1</sup>  
 Samuel Insaidu, Driver  
 Abdulai Rahman Issahaku (Alh), Regional Technical Manager/Bolgatanga – FfF ATT  
 Raymond Fuseini Jambaidu, Driver – 2SCALE  
 Florence Esi Jonfiah, Administrative Assistant  
 Joseph Tomet-Niyin Kagre, Administration and Finance Officer – FfF ATT  
 Amadou Kansaye, Regional Operations Manager – NWAFFD  
 Edem Tete Keli-Delataa, Administration and Finance Officer – USAID WAFF  
 Brian Kiger, Deputy Chief of Party – FfF ATT  
 Laar Emmanuel Kinansua, Driver – FfM<sup>1</sup>  
 Alexandra Lydia Koffi, Administrative Assistant

Juliet Akweley Kofi, Office Receptionist – Annex  
 Stepen Kwao, Project Assistant – MIR+<sup>1</sup>  
 Clara-Arlene Amadwo Kwofie, Communications Specialist – FfF ATT  
 Ebenezer Nii Lante Lamptey, Driver – Annex  
 Japhet Nii Ayaa Lartey, Database and Web Specialist – 2SCALE/USAID WAFF  
 Masand Lavina Mehra, Operations Manager – NWAFFD<sup>1</sup>  
 Gabriel Amerdi Mills, Cluster Assistant – 2SCALE  
 Emmanuel Morna, M&E Specialist – FfF ATT  
 Robert Nettey, Driver – USAID WAFF  
 Djimasbé Ngaradoum, Regional M&E Specialist – WAFF  
 Sylvia Delali Nukpor, Administrative Assistant  
 Jean Ambela Nyemba, Input Supply Specialist – FED<sup>1</sup>  
 Abass Karim Nyo, Deputy Project Manager – FfM<sup>1</sup>  
 Afua Ayisibea Ohene-Ampofo, Project Manager – AVCMP  
 Cecil Osei, Ghana Team Leader – Cassava+<sup>1</sup>  
 Asana Osman, Administrative Assistant – FfM<sup>1</sup>  
 Charles Pouliot, Grants Manager and Deputy COP – USAID WAFF  
 Ryan Roberge, Portfolio Manager – NWAFFD  
 Desmond Kweku Sottie, Assistant Accountant  
 Alimatu Sulemana, Accounts and Grants Officer – FfF ATT  
 Osman Damba Tahidu, Business Development Officer – FfM<sup>1</sup>  
 Musa S. Taylor, Organization Development Advisor – FfF ATT/Office Manager – Tamale  
 Venancious N. Tuor, Communications Specialist – 2SCALE/USAID WAFF<sup>1</sup>  
 Yahaya Umar, Cleaner/Gardener – Ghana  
 Susan Van Keulen-Cantella, Senior Portfolio Manager – NWAFFD  
 Raphael Vogelsperger, Regional Agribusiness Coordinator – 2SCALE  
 Joseph Pituaka Yambori, Driver – 2SCALE

## IFDC Mali

BP E103 Badalabougou-Est Fleuve  
 Rue 33, Villa Lot #6  
 Bamako, Mali  
 Telephone: (223) 44 90 01 22 / 05 61 / 05 62 (Main office);  
 (Annex) – (223) 44 90 13 01 / 02 – USAID WACIP  
 Telefax: (223) 44 90 01 21  
 E-mail: ifdcmail@ifdc.org

## Staff

Mohamed Ali, Rural Finance Specialist – DEBPEA  
 Oumar Ba, Accountant – PSCC<sup>1</sup>  
 Hamza Camara, Assistant/M&E Specialist – DEBPEA  
 Mahamadou Laryea Cissé, Training Coordinator – DEBPEA<sup>1</sup>  
 Mahamadou Daouaye, MIS Specialist – MIR+<sup>1</sup>  
 Néné Fatoumata Diakité, National Administration and Finance Officer  
 Siriba Diakité-Keita, Janitor – USAID WACIP<sup>1,3</sup>  
 Issa Diarra, Driver – USAID WACIP  
 Almourdou Dicko, M&E Specialist – PSCC<sup>1</sup>  
 Amadou Gakou, Agronomist, Soil Fertility Initiative Activity Coordinator – DEBPEA  
 Fatoumata Keita, Cluster Assistant – 2SCALE  
 Seydou Keita, Janitor  
 Mamy Koita, Agronomist Specialist – UDP/MIR+<sup>1</sup>  
 Kady Kone-Keita, Accountant  
 Amadou Koumaré, Research Assistant – DEBPEA  
 Viviane Oumou Maiga, Administrative Assistant/Budget and Grants Monitoring – USAID WACIP/DEBPEA  
 Keita Nankoma, Driver – DEBPEA  
 Aissétou Nobre, Project Leader – DEBPEA<sup>2</sup>  
 Amadou Ouadidje, National Coordinator – PSCC<sup>1</sup>  
 Alassane Samake, Driver – 2SCALE  
 Karim Sanogo, Coordinator – KIT Sesame/DEBPEA  
 Haoua Sanon-Kanouté, Administrative Assistant  
 Baba Togola, Cluster Advisor – 2SCALE



Blandine Bintou Toure, Janitor/Receptionist  
 Mahamane El Hadji Toure, Communications Specialist –  
 DEBPEA  
 Hamidou Traore, Driver – KIT Sesame/DEBPEA  
 Youssouf Traoré, Research Assistant – DEBPEA

## IFDC Niger

IFDC c/o GAP (NGO)  
 BP 10424  
 Niamey, Niger  
 Telephone: (227) 20 74 09 07 / 94 75 40 30

### Staff

Ali Aboubacar, Driver – 2SCALE  
 Ibrahim Beidou Issifou, Cluster Assistant – 2SCALE<sup>1</sup>  
 Garba Mahaman, Cluster Advisor – 2SCALE

## IFDC Nigeria

No. 6/Plot 1413 Ogbagi Close,  
 Off Oro-Agu Crescent,  
 Cadestral Zone, Garki II  
 Abuja, Nigeria  
 Telephone: (234) 94 13 08 74 or 94 13 08 73  
 Telefax: (234) 94 13 00 37  
 E-mail: ifdcnigeria@ifdc.org

### Staff

Scott J. Wallace, Chief of Party/Country Representative –  
 Nigeria  
 Onoja Abdulmalik Abdullahi, Field Coordinator –  
 MARKETS II  
 Femi Benjamin Abimbola, Driver – GES FRAME  
 Nura Abba Abubakar, Taraba Team Leader Training and  
 Demonstration Specialist – GES FRAME  
 Idenyi E. Abudo, Administrative Assistant  
 Abdullahi Hassan Adamu, Driver – IFPRI  
 Samuel Adejoh, Driver – MARKETS II  
 Adebusola Adene, Project Assistant – IFPRI  
 Tolulope Adetoro Aderele, Administrative Officer<sup>1</sup>  
 Margaret Abiodun Adesugba, Senior Research  
 Assistant – IFPRI  
 Feyikemi Motunrayo Adurogbangba, Communications/  
 Writer Officer – GES FRAME  
 Akeem Ajibola, Senior Research Assistant – IFPRI<sup>1</sup>  
 Francis Alelumhe, S/W Axis Team Leader and  
 Agronomist – GES FRAME<sup>1</sup>  
 Habibu Zakary Aminu, Technology Transfer Specialist –  
 MIR+<sup>1</sup>  
 Gloria Oluebubechi Azubuiké, Field Coordinator –  
 MARKETS II  
 Abdullahi Bako, Accountant – GES FRAME  
 Amina Yakubu Bashir, Program Assistant – IFPRI  
 Gyoja Bature, Driver<sup>1</sup>  
 Yakubu Ben, Office Gardener  
 Abdoul Aziz Boly, Chief Administrative and Finance Officer  
 Helen Ijeoma Chima-Onyemobi, Field Accountant  
 Ibukun Zainab Clegg, Project Assistant – MARKETS II  
 Mansir Sani Daroda, Driver – MARKETS II  
 Hyacinth O. Edeh, Senior Research Assistant – IFPRI  
 Delphine Nijje Ekpang, Input/Trainer Specialist –  
 MARKETS II  
 Henry Ekpiken, Program Supervisor – MARKETS II<sup>3</sup>  
 Chinonso Etumnu, Senior Research Assistant – IFPRI<sup>1</sup>  
 Adetunji Sunday Fasoranti, Field Coordinator – MARKETS II  
 Charles Gamde, Office Assistant – IFPRI<sup>1</sup>  
 Kwabena Gyimah-Brempong, Senior Research Fellow and  
 Program Leader – IFPRI  
 Yahaya Bakari Hamajoda, Lead Trainer/ADP Specialist –  
 MARKETS II  
 Hashim Mohammed Ibrahim, Driver – MARKETS II  
 Mohammed Salasi Idris, IFDC Team Leader – MARKETS II  
 Sunday Emmanuel Inedu, Voucher/Value Chain  
 Coordinator – MARKETS II  
 Yahaya S. Bello Kura, Technology Transfer Specialist –  
 MIR+<sup>1</sup>

Danjuma Makama, UDP Coordinator – MARKETS II  
 Sunday Mangai, Driver<sup>1</sup>  
 Ernest Ebere Mbabie, UDP Agronomist – MARKETS II/  
 GES FRAME  
 Emmanuel Zaura Meda, Driver – 2SCALE  
 Danlami Musa, Organized Farm Group Assistant –  
 Cassava+<sup>1</sup>  
 Nura Musa, Field Assistant – GES FRAME<sup>1</sup>  
 Bala Afiku Namo, Driver  
 Sunday Nathaniel, Driver – GES FRAME<sup>1</sup>  
 Nev Titus Nev, Driver – Administration  
 Felix Okechukwu Nwoche, Data Analyst – MARKETS II  
 Obia Lawrence Obi, Driver – Administration  
 Henrietta Nkechi Obiayo, M&E Specialist – MIR+<sup>1</sup>  
 Olutayo Tolulope Odetola, Senior Research Assistant –  
 IFPRI<sup>1</sup>  
 Herman O. Odhiambo, Senior Agronomist<sup>1</sup>  
 Anthony F. Odoko, Driver – IFPRI  
 Amos Ogah, Janitor  
 Sunday Ogah, Janitor  
 Sunday Paul Ogidi, Training Coordinator – MARKETS II  
 Thompson Ogunsanmi, Cluster Advisor – 2SCALE  
 Ayodele Oluwatosin Ogunyemi, Finance Officer  
 Blessing Uchechi Ojukwu, Administrative Project  
 Assistant – MIR+  
 Chyka Okarter, Benue Team Leader – GES FRAME  
 Christian Okonkwo, River State Team Leader,  
 Demonstration and Training Specialist – Cassava+<sup>1</sup>  
 Eugenia N. Okoye-Uzoh, Accountant  
 Maxwell Unugor Olitsa, UDP Agronomist – MARKETS II  
 Oyewumi M. Olufayo-Oyeyemi, Senior Research  
 Assistant – IFPRI  
 James Adewale Oluwole, Accountant – MARKETS II  
 David Oluwasegun Omotayo, Producer Group Assistant –  
 Cassava+<sup>1</sup>  
 Onawu Alobi Onawu, Driver  
 Benjamin Sunday Onoja, Driver – GES FRAME  
 Feyikemi Motunrayo Osho, M&E Specialist and Gender  
 Specialist – Cassava+<sup>1</sup>  
 Darryl Petters, Consultant – IFPRI<sup>3</sup>  
 Benjamin Echono Samuel, Accountant  
 John Samuel, Driver – MIR+<sup>1</sup>  
 Joy Ihuoma Ugwu, Niger Team Leader – GES FRAME  
 Jasmine Uko-Idiong, Secretary/Office Receptionist  
 Gift Umor, Organized Farm Group Assistant – Cassava+<sup>1</sup>  
 Laure Shuaibu Usman, UDP Assistant Coordinator –  
 MARKETS II  
 Hadiza Yaro, Cluster Assistant – 2SCALE  
 Mohammed Kabir Zailani, Dairy PPP Manager – 2SCALE  
 Medinah Zubairu-Mhammad, Data Logistics and GIS  
 Officer

## IFDC Togo

BP 4483  
 144 Rue Solayo, Tokoin Nukafu (CERFER)  
 Lomé, Togo  
 Telephone: (228) 22 26 99 91 / 22 26 72 02 /  
 22 26 99 96 / 22 26 93 31  
 Telefax: (228) 22 26 78 17  
 E-mail: ifdctogo@ifdc.org

### Staff

Abdoulaye Mando, Senior ISFM Specialist, NWAFFD/Chief  
 of Party USAID PCA/Country Representative – Togo  
 Jean Mianikpo Sogbedji, Soil Fertility Officer – IFAD/PADAT  
 Coordinator  
 Adodo Sewavi Abalo, Cluster Advisor – 2SCALE  
 Tchilalou E. Abissi, Secretary  
 Edem Amè Adjévi, Project Assistant – MIR+<sup>1</sup>  
 Kettle Adodo, Communications Expert<sup>3</sup>  
 Messa Agbedinou, Driver  
 Kwame Senyo Agbotame, Administration and  
 Logistics Assistant



Kodjo Emmanuel Alognikou, Fertilizer Policy Expert – MIR+/USAID WAFP  
 Adaora Isabella Anyichie, Project Assistant – MIR+<sup>1</sup>  
 Ayayi Apedo-Amah, Librarian  
 Yawa Eméfa Atri (Gloria Assagba), Senior Administrative Assistant/Division Director – NWAFD  
 Fogan Ayikpe-Konou, Driver – 2SCALE  
 José A. Ayivi-Togbassa, IT – Network Administrator  
 Assani Bello Lawani, Human Resources Officer – NWAFD  
 Dodzi Biakou, Office Receptionist  
 Binouwé Bitalatam, Bilingual Secretary – NRM<sup>1</sup>  
 Francis N.B. Dabiré, Communications Specialist – MIR+  
 Georges Dimithe, Project Leader – MIR+<sup>1</sup>  
 Ekwé L. Dossa, Agronomist/Soil Scientist – USAID WAFP  
 Kodjovi Séna Ezui, Agronomist – NRM, IFAD  
 N'Taré Kokouvi Gaglo, IT Maintenance  
 Kokou Gayi, Accountant – MIR+, 2SCALE  
 Sadibou Gueye, National Coordinator – WAFP<sup>3</sup>  
 Kossivi Koukoudé, Agricultural Field Technician – NRM, PADAT  
 Kossi Kounoudji, Driver  
 Adjowa Lassou, National Administration and Finance Officer  
 Afiwa Michelle Locoh, Communications Specialist – MIR+<sup>1</sup>  
 Malick Ben Idriss Lompo, MIS Specialist – MIR+<sup>1</sup>  
 Komi Moussa, Janitor  
 Meg Ross, Web Designer<sup>3</sup>  
 Roseline Didier Sanon, Senior Bilingual Administrative Secretary – MIR+  
 Gantoulouma Takpa, Cluster Assistant – 2SCALE<sup>1</sup>  
 Adonko Tamelokpo, Agronomist, Project Leader – PADAT  
 Amivi M. Tsikplonou, Assistant Librarian – MIR+

## East and Southern Africa Division

J.J. Robert Groot, Division Director  
 (based in Kenya)

### IFDC Burundi

Rohero II-3, Av. Bweru  
 BP 1995  
 Bujumbura, Burundi  
 Telephone: 257 22 25 78 75  
 E-mail: ifdcburundi@ifdc.org

#### Staff

Consolée Barikore, Training Officer – CATALIST  
 Venant Barindogo, National Value Chain Officer – SEW<sup>1</sup>  
 Espérance Bigirimana, Secretary to the Coordinator – SEW  
 Christian Butoyi, Driver  
 Leone Comin, Project Coordinator – PAN PNSEB  
 Emile Gahungere, Responsible for Socio-Economic Activities  
 André de Groote, Country Representative, Project Coordinator – SEW<sup>1</sup>  
 Astere Gahungu, Mega Cluster Coach Potatoes – CATALIST  
 Josélyne Marie Harerimana, Janitor – CATALIST  
 Gratia Irakoze, Driver – CATALIST  
 Cassien Kanyegeri, Mega Cluster Coach Beans and Corn – CATALIST  
 Jean Pierre Kisamare, Communications Officer – CATALIST  
 Magnifique Kwizera, Surface Technician and Stock Manager – PAN PNSEB  
 Prosper Mayuba, Mega Cluster Coach Rice – CATALIST  
 Jean Claude Mbarushimanaf, Assistant Administrator – PAN PNSEB  
 Jean Mvuyekure, Communications Officer  
 Eliphaz Ndayikengurukiye, Mega Cluster Coach Rice – CATALIST

Joseph Ndayiragije, Mega Cluster Coach Climbing Beans and Maize – CATALIST  
 Albéric Ndayisaba, National Agroforestry Officer – SEW<sup>1</sup>  
 Richard Ndzizeye, Driver – PAN PNSEB  
 Oscar Nduwimana, Agriculture Development Officer – PAN PNSEB  
 Jean Marie Nintije, Driver – CATALIST  
 Gloria Nsabimana, Accounts Assistant – CATALIST  
 Loïc Nsabimana, Monitor and Evaluation Officer – PAN PNSEB  
 Aimé Désiré Ntahonkiriye, Driver – CATALIST  
 Nestor Ntahontuye, M&E Officer – SEW<sup>1</sup>  
 Alexis Ntamavukiro, National Coordinator – CATALIST  
 Ida Ntawundora, Senior Advisor, Gender  
 Rémy Christian Ntirurikure, Translator – SEW<sup>1</sup>  
 Juvent Ntumigomba, National Economist and Finance Officer – CATALIST  
 Innocent Nzeyimana, Driver – PAN PNSEB  
 Zacharie Nzohabonayo, National Agronomist – CATALIST  
 Cyriaque Nzojibwami, Regional Expert, Agroforestry – SEW<sup>1</sup>  
 Jean Paul Nzosaba, Mega Cluster Coach Rice – CATALIST  
 Léonie Rudaguza, Office Manager – CATALIST  
 Cyriaque Simbashizubwoba, National Agronomist – CATALIST  
 Herman Théogène Sindayigayah, Administrative and Logistics Assistant – PAN PNSEB  
 Médiatrice Siniremera, Administrative Assistant – CATALIST  
 Elias Vyamungu, Accountant – PAN PNSEB

### IFDC Democratic Republic of Congo

168/68 Avenue du Port  
 Quartier Les Volcans,  
 Goma, North Kivu Province, DRC  
 Telephone: 243 813 134 697/243 811 821 661  
 E-mail: ifdcrc@ifdc.org

#### Staff

Jean-Paul Bahati, Driver  
 Elvis Bakege, Agribusiness Coach  
 Georges Fikiri Banyene, Administrative Assistant – CATALIST  
 Thierry Bigombire, Administrative Assistant  
 Alain Birimwa, Agribusiness Coach  
 Clément Bisimwa, Agribusiness Coach  
 Samson Chirhuza Bisimwa, National Coordinator – CATALIST  
 Diego Buibui, Driver  
 Philippe Bauma Butinda, National Agroforestry Officer – SEW<sup>1</sup>  
 Gaspard Zamu Haizuru, National Economist – CATALIST  
 Nicole Kahindo, Administrative Assistant  
 Jean-Marie Kambale Kamale, National Agronomist – CATALIST  
 Jean-Louis Kambale, National Economist  
 Jean de Dieu Katembo, National Agronomist  
 Sandra Tawite Mwira Kavira, National Agronomist – CATALIST  
 Faustin Kulimushi, National Agronomist  
 Jim Liseki, Agribusiness Coach  
 Thomas Tambwe Lukosha, Assistant Accountant – CATALIST  
 Moussa Mahamane, Country Representative  
 Patrick Otoweke Malisawa, Driver – SEW  
 Desanges Mastaki, Agribusiness Coach  
 Boaz Muhindo, Agribusiness Coach  
 Aimé Kikuru Musikuzi, National Value Chain Officer – SEW<sup>1</sup>  
 Emery Ntakobajira, Driver  
 Rosette Ndeze Safi, Administrative Assistant – CATALIST  
 Fiston Kombi Tavughanamolo, Driver – CATALIST  
 Delphin Batege Zozo, Capacity Building Officer – CATALIST



## IFDC Ethiopia c/o African Union Commission

Department of Rural Economy and Agriculture  
P.O. Box 3243  
Addis Ababa, Ethiopia  
Telephone: 252-11 551 77 00 ext 6 -1824  
Telefax: 251-11 552 58 35  
E-mail: ocamara@ifdc.org

### Staff

Oumou Camara, Senior Scientist – Economics and Country Representative

## IFDC Ethiopia c/o International Livestock Research Institute

P.O. Box 5689  
Addis Ababa, Ethiopia  
Telephone: 251-11 617 2000/251-0912 963065/  
251-0922123438/251-0911230599

### Staff

Techane Adugna, National Agribusiness Cluster Advisor  
Getahum Alemu, Regional Input Market and Farm Technology Specialist

Shemsu Baissa Alemu, Regional Input Market and Farm Technology Specialist

Tekalgn Ayano, Assistant Agribusiness Cluster Advisor  
Abreham Seyoum Birru, Program Assistant  
Simayehu Tafesse Dubale, Input Farm Technical Specialist  
Tadesse Teweldebrhan Gilazgi, Regional Input Market and Farm Technology Specialist for Tigray Region  
Andenet Mengesha Guade, National Administration and Finance Officer

Tekalgn Ayano Gudissa, Assistant Agribusiness Cluster Advisor

Ephrem Genna Hamda, Accountant<sup>1</sup>  
Addis Teshome Moges, National Agribusiness Cluster Advisor

Melaku Kebede Tefera, Farm Input Specialist  
Addis Teshome, Agribusiness Cluster Advisor  
Abey Meherka Woldesenbet, Input Market Specialist – National Coordinator  
Eshetayehu Tefera Worku, Senior Assistant Agribusiness Cluster Advisor<sup>1</sup>

## IFDC Kenya

ICIPE Compound Duduville – Kasarani  
Thika Road  
P.O. Box 30772-00100  
Nairobi, Kenya  
Telephone: 254 (20) 863 2720 / 2000  
Telefax: 254 (20) 863 2001  
E-mail: ifdckenya@ifdc.org

### Staff

Beverly Liavoga Agessa, Research Assistant – IPNI  
Hellen Akinyi, Administrative Assistant – HR  
Brenda Aluda, National Cluster Assistant – 2SCALE  
Edward Baars, ABC Coordinator ESAFD – 2SCALE<sup>1</sup>  
Leah Charana, Project Accountant  
Frank Calvin Chege, M&E Assistant<sup>1</sup>  
Steven Humphreys, Portfolio Manager  
Richard Jones, ESAFD Agribusiness Program Leader<sup>1</sup>  
David Kairo, BOP Innovation Specialist  
Moses Kamau, Driver  
Cecilia Kariuki, Innovation Specialist  
Philip Karuri, Country Representative  
Carol Malinda Kimanzi, Assistant Accountant  
Peter Kiri, National Agribusiness Cluster  
Elisha Kongere, Driver  
Erick Langat, Office Accountant  
Eric Macharia, Database Administrator – AMITSA/2SCALE<sup>1</sup>  
Paul Makepeace, Senior Agribusiness Advisor

Collins Abuga Marita, Regional M&E Officer – 2SCALE<sup>1</sup>  
Linnet Masiwe, Office Assistant  
Charity Mathenge, Office Manager  
Dennis Mose, Database Administrator  
James Mutegi, IPNI Project Manager  
Peter Muthee, National Agribusiness Cluster – 2SCALE<sup>1</sup>  
Pamela Mwajuma, Administrative Assistant  
Dorcas Ndeng'eri, Administrative Assistant  
Charles Ngutu, Regional Human Resource Officer  
Tabitha Runyora Njambi, M&E Expert  
Terry Njeri, National Administration and Finance Officer  
Samuel Njogu, Driver  
Samuel Njoroge, IPNI Program Assistant  
Kevin Nyalwal, Accountant<sup>1</sup>  
Mary Nyaso, Project Coordinator  
Beatrice Obara, Access to Finance Specialist  
Angela Okoth, IPNI Administration and Finance Officer  
Bridget Ochieng Okumu, Regional MIS Specialist – AMITSA/2SCALE  
Francis Shivonje, Agronomist/Training Officer – S4D<sup>1</sup>  
Dennis Tiren, Portfolio Manager  
Jane Tum, Coordinator, Capacity Strengthening – 2SCALE  
Ajay Varadachary, Regional Communications Officer  
Esther Mugi Wangechi, Research Assistant – IPNI  
John William Wendt, Program Leader – Natural Resource Management  
Shamie Zingore, IPNI Africa Program Director

## IFDC Mozambique Maputo Office

Avenida das FPLM, 2698  
IIAM  
Edifício de Química e Biotecnologia  
1 Andar Esquerdo, Porta 14  
Maputo, Mozambique  
Mobile: +258-82-3066731  
Landline: +258-21-462914 / Telefax: +258-21-462915  
E-mail: afemando@ifdc.org

### Staff

Alexander Fernando, Chief of Party – AIMS, Country Representative  
Salomao Chilaule, Janitorial Guard – AIMS<sup>1</sup>  
Juliao Chipe, Janitorial Guard – AIMS<sup>1</sup>  
Fenias Cossa, Janitorial Guard – AIMS<sup>1</sup>  
Dinazelda Fernandes, Office Manager  
Edynalva Lopes Goncalves, Senior Administrative Assistant  
Munyaradzi Mbetu Muzenda, Assistant Agribusiness Advisor  
Frauzia Americano Pereira, Accountant  
Natal Pita, Guard – AIMS<sup>1</sup>  
Dito Siteo, Driver  
Mario Sebastiao Ubisse, National Agribusiness Cluster Coordinator  
Eduardo Nassone Estevao Xavier Vilanculos, Driver – AIMS<sup>1</sup>  
Carlos Barnbe Zandamela, Assistant Country Representative/Policy Specialist – AIMS

## Chimoio Office

Caixa Postal No. 47  
Estrada Nacional No. 6  
Bairro 4, Parcela 45.  
Chimoio, Mozambique  
Telephone: +258 251 22629; +258 251 22643  
Telefax: +258 251 22573

### Staff

Ismael Assane, Janitor – MADD  
Jose Chapo, Guard – MADD<sup>1</sup>  
Domingos Chiporro, Driver – AIMS  
Mussa Chovieque, Project Coordinator – AIMS<sup>1</sup>  
Carlos Cobre, Extension Officer – Cassava+, AIMS  
N'daipa Fazenda, Guard – MADD<sup>1</sup>



Manuel Ginga João Goncalves, Agronomist and Association Development Assistant – MADD  
 Wilson Jose Leonardo, Senior Agronomist  
 Casimiro Junior Jose Macou, Project Coordinator – 2SCALE<sup>1</sup>  
 Francisco Macoua, Consultant, Demonstration Field Specialist – AIMS  
 Domingos Maenda, Extension Officer<sup>3</sup>  
 Aniceto da Fonseca Matias, Project Assistant  
 Bruno Mbalate, Janitorial Guard – MADD  
 Rosa Sixpense Nhabinde, Trainer Consultant – MADD  
 Jaime Oraibo, Extension Officer – Cassava+, AIMS  
 Manuel Felipe Sibanda, Driver – MADD<sup>1</sup>  
 Julio Simao, Coordinator – AIMS, MIM  
 Palma Tome, Trainer Consultant – MADD<sup>1</sup>  
 Celia Zavala, Satellite Administration and Finance Officer – Nampula

## IFDC Rwanda

730, Kimihurura II  
 Gasabo District  
 BP 6758  
 Kigali, Rwanda  
 Telephone/Telefax: 250 255 10 42 11  
 E-mail: ifdcrwanda@ifdc.org

### Staff

Johannes Veerkamp, Country Representative and Chief of Party – CATALIST  
 Martin Drevon, Chief of Party – PReFER  
 Venant Bavakure, Senior Regional Accountant – CATALIST  
 Straton Fatahose, Province Agent in Charge of Monitoring mFarms Application  
 Martin Hakizayezu, M&E Officer – PReFER  
 Emmanuel Harerimana, Gardener – CATALIST  
 Thomas Hatangimana, National Agronomist – CATALIST  
 Nkubito Kagabo, Regional Finance Advisor – CATALIST  
 Marie Claire Kalihangabo, Regional Compliance Officer – ESAFD  
 Fabien Kayitare, National Value Chain Officer – SEW<sup>1</sup>  
 Ancilla Kayitesi, Administrative Assistant – SEW  
 Claudine Kayitesi, M&E Officer – RADD<sup>1</sup>  
 Révérien Lindiro, National Seed Agronomist – CATALIST  
 Marcel Mbyonyinshuti, National Economist and Finance Officer – CATALIST  
 Aimable Mfatabahizi, Driver – PReFER  
 Laurence Mukamana, National Coordinator – CATALIST  
 Béatrice Mukamusoni, Driver – CATALIST  
 Achille Munyaneza Rubunda, Administrative Assistant – RADD  
 Arthur Mupenzi, Warehouse Keeper and Janitor – CATALIST  
 Françoise Murekatete, Office Janitor – SEW  
 Ernestine Mushimiyimana, Accountant Assistant – SEW  
 Straton Musoni, Driver – RADD  
 Josephine Ndayisenga, Senior Secretary – CATALIST  
 Jean Marie Ndzizeye, Driver – CATALIST  
 Aimable Ndungutse, Driver – PReFER  
 Bonaventure Nduwayezu, National Agroforestry Officer – SEW<sup>1</sup>  
 Emmanuel Ngomiraronka, Senior Program Coordinator – PReFER<sup>1</sup>  
 Jean Gilles Niyianga, Province Agent in Charge of Monitoring mFarms Application  
 Jérôme Nkunduje, Driver – SEW  
 Joseph Nshokeyinka, Province Agent in Charge of Monitoring mFarms Application  
 Sereine Nterinzanza, National Capacity Building Officer – CATALIST  
 Jean Paul Nyabyenda, Province Agent in Charge of Monitoring mFarms Application  
 Jean Damascène Nyanwasa, Regional Capacity Building Coordinator – CATALIST  
 Jeanne d'Arc Nyaruyonga, Agribusiness Specialist – RADD

Udo Rudiger, Regional Cluster Development Specialist – CATALIST  
 Carine Rukera, Regional M&E Coordinator – CATALIST  
 Jean Pierre Ruvuzandekwe, Office Manager – CATALIST  
 Jean Bosco Safari, Project Coordinator – RADD  
 Landouard Semukera, Technology Transfer Specialist – RADD<sup>1</sup>  
 Jean Bosco Tumusifu, Mega Cluster Coach – CATALIST  
 Marcel Tuyishime, Janitor – PReFER<sup>1</sup>  
 Didier Uhoraningoga, Megacluster Coach – PReFER  
 Noël Ujeneza, Regional Value Chain Advisor – CATALIST  
 Jean Nepomuscene Ukozehasi, National Communications Officer – CATALIST  
 Cyprien Uwitije, Agribusiness Marketing Officer – PReFER  
 Catherine Uvitoronze, Secretary to the COP – PReFER  
 Rieke Weel, Regional Communications Officer – CATALIST

## IFDC South Africa c/o NEPAD Secretariat, International Business Gateway

Block B, Gateway Park, Corner Challenger  
 Columbia Avenue, Midridge Office Park, Midrand 1685  
 Johannesburg, South Africa  
 Telephone: 27 11 256 3600  
 E-mail: mwanzala@ifdc.org

### Staff

Maria Wanzala, Senior Scientist – Economics/Senior Policy Economist

## IFDC South Sudan

Airport Ministry Road, Farm Project Offices  
 Near Tongping Business Centre  
 Plot number 146 Block A  
 Juba, South Sudan  
 Telephone: 211 955 010 694

### Staff

Emmanuel Asuba, Driver – S4D  
 Emmanuel Mono Bida, Agribusiness Cluster Assistant – 2SCALE<sup>1</sup>  
 Sampson Binyason, Senior Agronomist – S4D<sup>1</sup>  
 Lolya Gina Ceaser, Agribusiness Cluster Advisor  
 Sharon Jamila, Administrative and Logistics Assistant – S4D<sup>1</sup>  
 Zaida Ibrahim Kiden, Administrative/Finance Assistant – S4D<sup>1</sup>  
 Danica Reno Lee, Administrative and Logistics Manager – S4D<sup>1</sup>  
 Michael Jacksonic Madrara, Administrative/Finance Officer – 2SCALE  
 Simon Malish, Driver  
 Allan Mansfield, Voucher Program Manager – S4D<sup>1</sup>  
 Annet Nance, Administrative Assistant – S4D<sup>1</sup>  
 James Nyikole, Output Marketing Specialist – 2SCALE<sup>1</sup>

## IFDC Tanzania

P.O. Box 1275  
 Morogoro, Tanzania  
 Telephone: 256 312 293 475  
 Telefax: 255 27 2544562

### Staff

Josefynne Miringi Kaiza, Market Development Specialist  
 Richard John Kaiza, Irrigated Crop Specialist  
 Filbert Mzee, Seed Specialist – NAFKA  
 Heladius Alfred Tesha, Input Specialist



## IFDC Uganda

Plot 5 Bandali Close  
Studio House, Ground Floor  
Bugolobi  
Kampala, Uganda  
Telephone: 256 312 518599

### Staff

David Slane, Chief of Party – CATALIST-Uganda  
Felicity Palmira Acan, Assistant Agribusiness Cluster  
Advisor

Brenda Akurechet, Communications Officer  
Harriet Anyago, Grants Assistant  
Jerry Anyoli, Grants Agronomist – Northern Region  
Everlyn Apeduno, Accounts Assistant – Kampala  
Denis Arop, Accounts Assistant<sup>1</sup>  
Gloria Consolate Aseru, Administrative Assistant  
Moreen Asimwe, Office Assistant – Kabale  
Andrew Ebong, Agribusiness Cluster Advisor – Eastern  
Region

Racheael Jama, Accounts Assistant  
Godfrey Kabali, Driver – 2SCALE  
Catherine Kaliisa, Front Desk Assistant<sup>1</sup>  
Sirage Kawunhye, Senior Driver  
Andrew Khaweka, Administration/Accounts Assistant –  
Mbale

Peter Kigenyi, Driver – Mbale  
Monalia Lamwaka, Office Assistant – Lira  
David Lukungu, National Agronomist  
Andrew Mafabi, Agribusiness Cluster Specialist – Mbale  
Jane Manana, Accounts Assistant – Northern Region  
Esther Mawilak, Office Assistant – Kampala  
Abbey Mbogo, Driver – Kampala  
Moses Kibuuka Mubiru, Accounts Assistant  
Edmund Dandy Mugarura, Agronomist – Southwestern  
Region

Robert Muhereza, Driver – Kabale  
Arasto Reece Mujungu, M&E and Innovations Coordinator  
Janet Nabwami, Researcher  
Salomy Nakazzi, Finance and Administrative Manager  
Helen Ninsima, Agribusiness Cluster Specialist – Western  
Region

Emmanuel Ocen, Agribusiness Cluster Specialist –  
Northern Region  
Denis Pirimoi Ojara, Administration and Accounts Assistant  
Charlse Olaa, Driver – Lira  
Celina Omuna, Front Desk Officer – Kampala  
Deo Tibanyendera, Agribusiness Cluster Advisor  
Hellen Tomusange, Assistant Agribusiness Cluster Advisor  
Israel Wabomba, Office Assistant – Mbale  
Rogers Walamaku, National Agribusiness Cluster Advisor  
Fred Wamboga, Driver – Kampala  
Winnie Were, Grants and Administration Manager

## IFDC Zambia

Profit+ Plot  
2356 Airport Road  
Chipata Motel Area  
P.O. Box 511098  
Chipata, Zambia

### Staff

Alfred Chilekwa, Program Manager – Profit+  
Anita Banda Kabwiku, Project Administrative Assistant –  
Profit+  
Nyambe Manyando, Input Specialist – Profit+  
Sinyinda Mwendabai, Agronomist – Profit+

## EurAsia

John H. Allgood, Division Director (based at IFDC  
headquarters)  
Kathy Pannell, Division Secretary (based at IFDC  
headquarters)

## IFDC Bangladesh

Road 54A, House #2, Apt. #6  
Gulshan 2  
Dhaka, Bangladesh  
Telephone: (880) 2 881 7617  
Telefax: (880) 2 882 6109  
E-mail: ifdcbangladesh@ifdc.org

### Staff

Ishrat Jahan, IFDC Resident Representative and Project  
Coordinator

Grahame D. Hunter, Chief of Party – AAPI  
Tainin Afruz, Data Analyst – AAPI  
Shaharuk Ahmad, Agriculture Specialist – AAPI  
Foyshal Ahmed, Field Monitoring Officer – AAPI  
Md. Sultan Ahmed, Field Monitoring Officer – AAPI<sup>1</sup>  
Sadia Afreen Ahmed, Data Analyst – AAPI Walmart  
Foundation Activity

Mainul Ahsan, Soil Scientist – AAPI  
Md. Nazmul Ahsan, Field Monitoring Officer – AAPI  
Ruhul Amin Akanda, Field Monitoring Officer – AAPI  
Md. Lokman Ali Akhand, Field Monitoring Officer – AAPI  
Quazi Rezwana Akhter, Data Analyst – AAPI  
Shahria Akhter, Field Monitoring Officer – AAPI Walmart  
Foundation Activity<sup>1</sup>

Ayesha Akter, Field Monitoring Officer – AAPI Walmart  
Foundation Activity  
Lovely Akter, Field Supervisor-in Charge – AAPI Walmart  
Foundation Activity

Munjuri Akter, Field Monitoring Officer – AAPI Walmart  
Foundation Activity  
Nurjahan Akter, Administrative Associate – AAPI Walmart  
Foundation Activity  
Mst. Halima Akter, Field Monitoring Officer – AAPI Walmart  
Foundation Activity<sup>1</sup>  
Sanjida Akter, Field Supervisor – AAPI Walmart Foundation  
Activity

Md. Aliul Alam, Field Monitoring Officer – AAPI<sup>1</sup>  
Md. Saiful Alam, Field Monitoring Officer – AAPI  
Md. Shamsul Alam, Training Specialist – AAPI<sup>2</sup>  
Mohammad Khorshed Alam, Driver – AAPI  
S.M. Rashedul Alam, Field Monitoring Officer – AAPI  
A.K.M Alauddin, UDP Mechanic – AAPI  
AMM Shawkat Ali, Policy Expert – Organic Fertilizer  
Licensing Project<sup>2</sup>

Md. Liakat Ali, Field Monitoring Officer – AAPI  
Md. Murshid Ali, Driver – AAPI  
Humaira Alif, Activity Manager – AAPI Walmart Foundation  
Activity

Md. Asadul Alam, Field Monitoring Officer – AAPI<sup>1</sup>  
Yousuf Amin, Accounts Associate – AAPI  
Md. Anisuzzaman, Field Monitoring Officer – AAPI  
Md. Arif, Security Guard – AAPI  
Md. Asaduzzaman, Field Monitoring Officer – AAPI  
Md. Abdul Gani Aslam, Driver – AAPI  
Md. Abul Kalam Azad, Field Monitoring Officer – AAPI  
Md. Golam Azam, Field Monitoring Officer – AAPI  
Md. Sarwar Azam, Field Monitoring Officer – AAPI  
Mirza Tariqul Azam, Field Monitoring Officer – AAPI<sup>1</sup>  
Md. Abdul Azim, Field Monitoring Officer – AAPI  
Sanjit Chandra Barman, Field Monitoring Officer – AAPI  
Josna Begum, Janitor – AAPI  
Mamataj Begum (Mito), Secretary – AAPI Walmart  
Foundation Activity

Md. Bashir Ahmad Bhuiyan, Field Monitoring Officer – AAPI  
Md. Shafiqul Islam Bhuiyan, Assistant Administrative  
Officer – AAPI





Krishna Gopal Biswas, Field Monitoring Officer – AAPI  
 Md. Bodiuazzaman, Field Monitoring Officer – AAPI  
 Hitangshu Chakraborty, Field Monitoring Officer – AAPI  
 A.F.M. Saleh Chowdhury, Chief Accountant – AAPI  
 Bishnu Rup Chowdhury, Administrative and Procurement Officer – AAPI  
 Md. Reza Manir Chowdhury, Accounts Associate – AAPI  
 Mohammad Arif Karim Chowdhury, Accounts Associate – AAPI  
 Shymol Chandra Das, Field Monitoring Officer – AAPI  
 A.K.M. Farhad, Agriculture Specialist – AAPI  
 S.M. Bakhtiar Firoz, Field Monitoring Officer – AAPI  
 Md. Riazul Islam Foisal, Senior Data Analyst – AAPI  
 Yam Kanta Gaihre, Postdoctoral Scientist – AAPI-GHG Emission Research  
 Md. Khayrul Hoque Gaze, Security Guard – AAPI  
 Ram Proshad Ghosh, Mechanical Engineer – AAPI  
 Md. Ariful Haque, Field Monitoring Officer – AAPI<sup>1</sup>  
 Md. Azizul Haque, Field Monitoring Officer – AAPI  
 Md. Fozlul Haque, Agriculture Specialist – AAPI  
 Md. Nazmul Haque, Field Coordinator – AAPI  
 Md. Samsul Haque, Field Monitoring Officer – AAPI  
 Mohammad Aminul Haque, Junior Chemical Engineer – AAPI  
 Mohammad Harun, Field Monitoring Officer – AAPI  
 Kamrul Hasan, Field Monitoring Officer – AAPI  
 Mahmudul Hasan, Field Monitoring Officer – AAPI  
 Md. Nafiu Hasan, Field Monitoring Officer – AAPI  
 Md. Hasnain, Junior Soil Scientist – AAPI  
 A.S.M. Nazmul Hoque, NPK Gutti Dealer Business Officer – AAPI  
 Md. Iqbal Hoque, Agriculture Specialist – AAPI  
 Mohammad Shamsul Hoque, Field Monitoring Officer – AAPI  
 Mohammad Zahirul Hoque, Field Monitoring Officer – AAPI  
 A.M. Jhahangir Hossain, Field Monitoring Officer – AAPI  
 Akhter Hossain, Field Monitoring Officer – AAPI  
 Anwar Hossain, Field Monitoring Officer – AAPI  
 Delwar Hossain, Field Monitoring Officer – AAPI  
 Hemayet Hossain, Administrative Assistant – AAPI  
 Md. Akram Hossain, Field Monitoring Officer – AAPI  
 Md. Alamgir Hossain, Data/Word Processor – AAPI  
 Md. Amir Hossain, UDP Mechanic – AAPI  
 Md. Iqbal Hossain, Field Monitoring Officer – AAPI  
 Md. Lockman Hossain, Field Monitoring Officer – AAPI  
 Md. Monir Hossain, Security Guard – AAPI  
 Md. Murad Hossain, Field Monitoring Officer – AAPI  
 Md. Nazmul Hossain, Field Monitoring Officer – AAPI<sup>1</sup>  
 Md. Sadeque Hossain, Janitor – AAPI  
 Md. Tofazzal Hossain, Field Monitoring Officer – AAPI  
 Mohammad Mokammel Hossain, Accounts Associate – AAPI  
 Syed Afzal Mahmood Hossain, Senior Data Management Specialist – AAPI  
 Syed Arshad Hossain, Field Coordinator – AAPI  
 Md. Azaharul Huq, Junior Soil Scientist – AAPI  
 Mahmood Hussain, Training Specialist – AAPI<sup>2</sup>  
 Md. Al Mobasher Hussien, Training Officer – AAPI  
 A.T.M. Hafizul Islam, Training Officer – AAPI  
 Ekramul Islam, Field Monitoring Officer – AAPI  
 Farin Islam, M&E Specialist – AAPI<sup>1</sup>  
 M. Hemayetul Islam, Senior Chemical Engineer – AAPI  
 Md. Badirul Islam, Farming System Specialist – AAPI  
 Md. Enamul Islam, Field Monitoring Officer – AAPI  
 Md. Jahirul Islam, Field Monitoring Officer – AAPI  
 Md. Mofizul Islam, Senior Agriculture Specialist – AAPI  
 Md. Monirul Islam, Field Monitoring Officer – AAPI  
 Md. Mydul Islam, Field Monitoring Officer – AAPI  
 Md. Nazrul Islam, Janitor – AAPI  
 Md. Nurul Islam, Marketing/Business Development Specialist – AAPI  
 Md. Rezaul Islam, Field Monitoring Officer – AAPI  
 Md. Rofiqul Islam, Field Monitoring Officer – AAPI  
 Md. Saiful Islam, Field Monitoring Officer – AAPI

Md. Sariful Islam, Security Guard – AAPI  
 Md. Shahinur Islam, Field Monitoring Officer – AAPI  
 Md. Shariful Islam, Field Monitoring Officer – AAPI  
 Md. Tariqul Islam, Senior Secretary – AAPI  
 Muhammad Azaharul Islam, Field Monitoring Officer – AAPI  
 Prince Tazul Islam, Field Monitoring Officer – AAPI<sup>1</sup>  
 Rabiul Islam, Accounts Associate – AAPI  
 Rubina Islam, Gender Specialist – AAPI  
 Shafiqul Islam, Field Monitoring Officer – AAPI  
 Shanjida Islam, Field Monitoring Officer – AAPI Walmart Foundation Activity  
 Sonia Islam, Front Desk Officer – AAPI<sup>1</sup>  
 Syed Jahirul Islam, Field Monitoring Officer – AAPI<sup>1</sup>  
 Zahidul Islam, Field Monitoring Officer – AAPI<sup>1</sup>  
 Khawja Shah Jalal, Field Monitoring Officer – AAPI  
 Md. Abdul Jalil, Field Monitoring Officer – AAPI  
 Md. Mahmud Al Jaman, Field Monitoring Officer – AAPI  
 A.K.M. Khairul Kabir (2), Field Monitoring Officer – AAPI<sup>1</sup>  
 Mohammad Khairul Kabir (1), Field Monitoring Officer – AAPI  
 Md. Abdul Kaddus, Accounts Associate – AAPI  
 Ujjal Kumar Kar, Field Monitoring Officer – AAPI  
 Paltu Ranjan Karmaker, Field Monitoring Officer – AAPI  
 Urmila Karmaker, Field Monitoring Officer – AAPI Walmart Foundation Activity  
 Ahsan Shah Khalil, Field Monitoring Officer – AAPI  
 Mahmuda Akter Khan, Training Specialist – AAPI Walmart Foundation Activity  
 Md. Mahamud Hossain Khan, Field Monitoring Officer – AAPI<sup>1</sup>  
 Mehedi Hasan Khan, Field Monitoring Officer – AAPI<sup>1</sup>  
 Mohammad Masum Khan, Field Monitoring Officer – AAPI  
 Tofayel Alam Khan, Field Monitoring Officer – AAPI  
 Md. Sujon Khandakar, Janitor – AAPI  
 Mir Hossain Khandaker, Data Analyst – AAPI  
 Mahmuda Khanom, Field Monitoring Officer – AAPI Walmart Foundation Activity  
 Md. Abul Khayer, Janitor – AAPI  
 Biplob Kundu, Field Monitoring Officer – AAPI  
 Sonia Kutubuddin, Activity Coordinator – AAPI  
 Abdul-Al Mahmood, Junior Soil Scientist – NFT Industries  
 Quazi Mostaque Mahmud, Field Monitoring Officer – AAPI  
 Abdul Malek, Data Processing Officer – AAPI  
 Sk. Zakariar Mamoon, Field Monitoring Officer – AAPI  
 Md. Shafiqul Islam Manir, Assistant Administrative Officer – AAPI  
 Md. Maniruzzaman, Field Monitoring Officer – AAPI  
 Mir Mohammad Abdul Mannan, Field Monitoring Officer – AAPI  
 Easrat Marium, Assistant Executive Officer – AAPI  
 Md. Azad Mia, Accounts Associate – AAPI  
 Md. Abdul Mazid Miah, Soil Scientist – AAPI  
 Md. Abul Hossain Mollah, Training Specialist – AAPI  
 Md. Sarower Hossain Mollah, Security Guard – AAPI  
 Md. Fahim Mollik, UDP Mechanic – AAPI  
 Md. Monir, Security Guard – AAPI  
 Md. Moniruzzaman, Field Monitoring Officer – AAPI  
 Shariful Alam Mony, Field Monitoring Officer – AAPI  
 Abu Abdullah Al Musa, Field Monitoring Officer – AAPI<sup>1</sup>  
 Abu Jafor Muhammad Nur Nabi, Field Coordinator – AAPI  
 Sinyinda Mwendabai, Agronomist Profit+  
 Shamima Nasrin, Field Monitoring Officer – AAPI Walmart Foundation Activity  
 Sabiha Nazrin, Field Supervisor – AAPI Walmart Foundation Activity  
 Diruba Parvin, Field Supervisor – AAPI Walmart Foundation Activity  
 Shahnaj Parvin, Field Monitoring Officer – AAPI  
 Md. Abdur Rahim, Field Monitoring Officer – AAPI  
 Habibur Rahman, Field Monitoring Officer – AAPI  
 Khan Ataur Rahman, Field Monitoring Officer – AAPI  
 Mahmudur Rahman, Assistant Administrative Officer – AAPI



Md. Habibur Rahman, Field Monitoring Officer – AAPI  
 Md. Mizanur Rahman, Field Monitoring Officer – AAPI  
 Md. Mostafizur Rahman, Field Monitoring Officer – AAPI  
 Md. Saidur Rahman, Field Monitoring Officer – AAPI  
 Md. Shahidur Rahman, Field Monitoring Officer – AAPI  
 Mohammad Hafizur Rahman, Field Monitoring Officer – AAPI  
 Md. Rashedur Rahman Rajib, Field Monitoring Officer – AAPI<sup>1</sup>



Mohammad Masud Rana, Field Coordinator – AAPI  
 Md. Abdur Rashid, Field Monitoring Officer – AAPI<sup>1</sup>  
 Md. Alamgir Rashid, Field Monitoring Officer – AAPI  
 Md. Mohsinuddin Razu, Janitor – Asia Division  
 HM Al-Maasum Reza, Field Monitoring Officer – AAPI  
 Md. Abdur Rob, Field Monitoring Officer – AAPI  
 Arbindu Chandra Roy, Field Monitoring Officer – AAPI<sup>1</sup>  
 Jagadish Chandra Roy, Field Monitoring Officer – AAPI  
 Sabuj Roy, Field Monitoring Officer – AAPI  
 Sangita Roy, Accounts Associate – AAPI<sup>1</sup>  
 Shatabdy Roy, Field Monitoring Officer – AAPI Walmart Foundation Activity<sup>1</sup>

Tanvir Mohammad Saddaf, Data Analyst – AAPI  
 Tapon Kumer Saha, Accounts Associate – AAPI  
 Md. Abdus Salam, Field Monitoring Officer – AAPI  
 Md. Jasimuddin Sapan, Janitor – AAPI  
 Durgapada Sarker, Field Monitoring Officer – AAPI  
 Krisna Rani Sarker, Field Monitoring Officer – AAPI Walmart Foundation Activity

Md. Abdur Rouf Sarker, Field Monitoring Officer – AAPI  
 Prodip Sarker, Field Monitoring Officer – AAPI  
 Md. Golam Sarwar, Assistant Administrative Officer – AAPI  
 Md. Abdus Satter, Local Environment Specialist – AAPI- GHG Emission Research



Md. Shamsuddin Elias Shah, Field Monitoring Officer – AAPI<sup>2</sup>

Md. Shahabuddin, Field Monitoring Officer – AAPI  
 Md. Shahedullah, Data/Word Processor – AAPI  
 Ismail Shahid, Field Monitoring Officer – AAPI<sup>1</sup>  
 Md. Mojzammel Shaik, Field Monitoring Officer – AAPI  
 Shafiqul Islam Shamim, Janitor – AAPI  
 Faria Hossain Shanta, Field Monitoring Officer – AAPI Walmart Foundation Activity

Md. Shahed Sharif, Field Monitoring Officer – AAPI  
 Abu Bakr Siddique, Field Monitoring Officer – AAPI  
 Muhammad Sharwar Jahan Siddiqy, Field Monitoring Officer – AAPI

Bimal Krishna Sikder, Field Coordinator – AAPI  
 Borna Sikder, Field Monitoring Officer – AAPI Walmart Foundation Activity

Md. Sohag, Junior Chemical Engineer – AAPI  
 Most. Sarmin Sultana, Field Monitoring Officer – AAPI  
 Naheed Sultana, Gender Specialist – AAPI Walmart Foundation Activity

Sadia Sultana, Data Quality Assessment Officer – AAPI Walmart Foundation Activity  
 Tanjina Tahsin, Training Officer – AAPI Walmart Foundation Activity

Md. Giash Uddin, Field Monitoring Officer – AAPI  
 Md. Helal Uddin, Field Monitoring Officer – AAPI  
 Md. Jasim Uddin, UDP Mechanic – AAPI  
 Md. Abdul Wohab, Agriculture Engineer – AAPI  
 Nahid Yasmin, Data Analyst – AAPI  
 Md. Abdullah Al Zahid, Senior Accounts Officer – AAPI



## IFDC Kyrgyz Republic Kyrgyzstan Agro-Input Enterprise Development (KAED) Follow-On

Bishkek Office  
 15, Razzakov St., Office #6  
 Bishkek, Kyrgyz Republic  
 Telephone: +996 (312) 976691  
 Telefax: +996 (312) 976691  
 E-mail: hdemiri@ifdc.org

### KAED Follow-On

Osh Office  
 323, Lenin Street  
 Osh, Kyrgyz Republic  
 Telephone/Telefax: +996 3222 57774

### USAID Local Development Program

(Office closed in 2013)  
 93/2 Shopokov Street, 8th Floor  
 Bishkek, Kyrgyzstan  
 Telephone: 996-312-901-900  
 Telefax: 996-312-901909

### Staff

Hiqmet Demiri, Chief of Party – KAED Follow-On/IFDC Country Representative  
 Dilshod Abdulhamidov, M&E Specialist – KAED  
 Ubaidulla Abdullaev, Agronomist/Field Crops Specialist – KAED  
 Bakyt Aitkulov, Land Specialist – KLDP<sup>1</sup>  
 Niyara Alakhunova, Operational Manager – KAED<sup>1</sup>  
 Alisher Amanbaev, Deputy Agricultural Advisor – KLDP<sup>1</sup>  
 Kanyan Asanakunova, Office Manager – KAED  
 Arsen Aslanov, Business Development Specialist – KAED  
 Begler Aslanov, EDF III Coordinator – KAED  
 Chingiz Batyrov, Driver – KAED  
 Dalil Batyrov, Program Assistant/AAK Liaison Officer – KAED  
 Guljamal Chokmorova, Southern Area Coordinator (Osh office) – KAED  
 Djahongir Djumabaev, Training Coordinator/Government Liaison Officer – KAED  
 Paul Forrest, Senior Agricultural Specialist – KLDP<sup>1</sup>  
 Hakim Islamov, Seed Specialist (EDF II Program) – KAED

Bermet Kachkinbaeva, Administrative and Finance Specialist – KLDP<sup>1</sup>  
 Aibek Karabaev, Business Advisor – KLDP<sup>1</sup>  
 Asel Karagazieva, Public Relations Specialist – KAED  
 Alisher Kasymov, General Manager/Senior Business Advisor – KAED  
 Rahat Kazybaeva, EDF II Coordinator – KAED<sup>1</sup>  
 Oskar Kim, M&E Specialist (EDF Programs) – KAED  
 Tatiana Kim, Operational Manager – KAED  
 Vasily Kim, Driver – KAED  
 Janara Ulanovna Unan Kyzy, Agriculture Specialist – KLDP<sup>1</sup>  
 Sergey Lyapin, Driver – KAED  
 Luiza Mamarasulova, Marketing Specialist – KLDP<sup>1</sup>  
 Azamat Mamutov, Agri-Input Specialist (Osh office) – KAED  
 Maksatbek Mamytbekov, Livestock Specialist – KAED  
 Azat Mukaliev, Livestock/Dairy Specialist – KLDP<sup>1</sup>  
 Luiza Mukhamedova – Public Relations Assistant – KAED  
 Jyrgal Musaev, Extensionist (Osh office) – KAED  
 Jyldyz Niyazalieva, Public Relations/Outreach Coordinator – KAED  
 Ulan Orozbek Uulu, Driver (Osh office) – KAED  
 Bermet Zozulinskaya, M&E/Environmental Specialist – KAED<sup>1</sup>

## IFDC Tajikistan USAID Productive Agriculture Project

(Office closed in 2013)

ACDI/VOCA Office

Tolstoy Street, #66

Dushanbe, Tajikistan 734003

Telephone: +992 (37) 2246632

### Staff

Eraj Aslamkhonovich Kaniev, Operations Manager<sup>1</sup>

Sabohatullo Muzaffarov, Senior Agronomist/Agriculture Specialist<sup>1</sup>

Nozim Narzuloev, Input Supply Specialist<sup>1</sup>

Nazarbek Amonbekovich Nazarbekov, Communications Specialist<sup>1</sup>

Lola Ukumathsoeva, Office Manager and Procurement Specialist<sup>1</sup>

<sup>1</sup>Left during 2013 or 2014

<sup>2</sup>Retired during 2013 or 2014

<sup>3</sup>Short-term staff 2013

<sup>4</sup>On extended leave

<sup>5</sup>Deceased 2013

<sup>6</sup>Student attachment

# Revenue Sources

## ACDI/VOCA

African Fertilizer and Agribusiness Partnership

Alliance for a Green Revolution in Africa

AgriMerc

Agrium

Centre for Agricultural Bioscience International

Chemonics International Inc.

Common Fund for Commodities

Developing Business Services Markets

Development Alternatives, Inc.

Forum for Agricultural Research in Africa

Government of Nigeria

Greenbelt Fertiliser, LTD

International Fertilizer Industry Association

International Food Policy Research Institute

International Fund for Agricultural Development

Jacobs Engineering Group Inc.

Kumtor Gold Company

McKnight Foundation

Ministry of Agriculture (Togo)

Nagarjuna Fertilizer and Chemicals Limited

Namibian Marine Phosphate (Pty) Limited

Ostara USA LLC

PotashCorp

Netherlands' Directorate-General for International Cooperation

Royal Embassies of the Kingdom of the Netherlands

Royal Tropical Institute

Rutgers University

Shell Oil Products U.S.

Sulvaris Inc.

Swiss Confederation

Taraba State Government (Nigeria)

Teck Resources

The Fertilizer Institute

United Nations Environment Programme

University of Michigan

U.S. Agency for International Development

The Walmart Foundation

Yacimientos Petrolíferos Fiscales – YPF S.A.

# Financial Highlights

The following is a summary of financial information for the year ended December 31, 2013. The full financial statements and the independent auditors' reports are available from IFDC upon request.

<b>Balance Sheet – For the year ended December 31, 2013</b>	<i>US \$'000</i>
<b>Assets:</b>	
Cash and cash equivalents	7,301
Contracts receivable, net of allowance for doubtful accounts	9,624
Other receivables	477
Supplies inventory	160
Prepaid expenses and advances	799
<b>Total Current Assets:</b>	<b>18,361</b>
Buildings and equipment, net	21
<b>Total Assets</b>	<b>18,382</b>
<b>Liabilities and Net Assets:</b>	
Accounts payable	2,642
Accrued annual and sick leave	1,897
Deferred revenue	12,015
<b>Total Current Liabilities</b>	<b>16,554</b>
<b>Unrestricted Net Assets</b>	<b>1,820</b>
<b>Permanently Restricted Net Assets</b>	<b>8</b>
<b>Total Liabilities and Net Assets</b>	<b>18,382</b>

# Financial Highlights

<b>Statement of Revenue and Expenses – For the year ended December 31, 2013</b>	<b>US \$'000</b>
<b>Revenue and Support:</b>	
ACDI/VOCA	1,666
AFAP	872
AGRA	1,708
Chemonics International Inc.	3,497
Common Fund for Commodities	238
DAI	479
DGIS	14,033
Embassies of the Kingdom of the Netherlands	12,329
Government of Nigeria	1,062
ICRISAT	433
IFA	102
Jacobs Engineering	752
SDC	2,132
The Fertilizer Institute	173
University of Michigan	158
USAID	32,158
Others	3,917
<b>Total Revenue and Support</b>	<b>75,709</b>
<b>Expenses:</b>	
Research and development	3,133
Agribusiness	44,139
Natural resource management	3,696
Capacity building	12,634
VFRC	573
Support activities	11,822
<b>Total Expenses</b>	<b>75,997</b>
<b>Increase (Decrease) in Unrestricted Net Assets</b>	<b>(288)</b>

# Acronyms & Abbreviations

2SCALE	Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship	FBO	farmer-based organization
AAPI	Accelerating Agriculture Productivity Improvement	FDP	fertilizer deep placement
ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance	FTF	Feed the Future
AFAP	African Fertilizer and Agribusiness Partnership	GHG	greenhouse gas
AFO	AfricaFertilizer.org	Global TraPs	Global Transdisciplinary Processes for Sustainable Phosphorus Management
AGRA	Alliance for a Green Revolution in Africa	IFA	International Fertilizer Industry Association
AIMS	Agricultural Input Market Strengthening	ISFM	Integrated Soil Fertility Management
AIRCA	Association of International Research and Development Centers for Agriculture	KAED	Kyrgyzstan Agro-Input Enterprise Development
AMITSA	Regional Agricultural Input Market Information and Transparency System	M&E	monitoring and evaluation
ASHC	Africa Soil Health Consortium	MINAGRI	Rwanda Ministry of Agriculture and Animal Resources
CATALIST	Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability	NEPAD	New Partnership for Africa's Development
DADTCO	Dutch Agricultural Development & Trading Company	NGO	non-governmental organization
DGIS	Directorate-General for International Cooperation (Netherlands)	PPP	public-private partnership
ECOWAS	Economic Community of West African States	R&D	research and development
FAO	Food and Agriculture Organization of the United Nations	SME	small and medium enterprises
		SSA	sub-Saharan Africa
		UEMOA	West African Economic and Monetary Union
		USAID	United States Agency for International Development
		VFRC	Virtual Fertilizer Research Center
		WUR	Wageningen University and Research Centre

## Publication Credits

### Executive Editor

Sharon Singh

### Writers/Editors

Clyde Beaver, Courtney Greene, James Thigpen and Donna Venable

### Cover Art and Design Layout

Victoria L. Antoine

### Graphics/Photography Research

Victoria L. Antoine, Clyde Beaver, Lisa Hall, James Thigpen, Donna Venable and Lynda Young

### Content Research

Clyde Beaver, Courtney Greene, James Thigpen and Donna Venable

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“The soil is the great connector of lives, the source and destination of all. It is the healer and restorer and resurrector, by which disease passes into health, age into youth, death into life. Without proper care for it we can have no community, because without proper care for it we can have no life.”

– Wendell Berry, American novelist, poet and farmer



P.O. Box 2040  
Muscle Shoals, AL 35662 USA  
Phone: +1(256) 381-6600  
Telefax: +1(256) 381-7408  
[www.ifdc.org](http://www.ifdc.org)



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