



**IFDC**

# 2014 Annual Report





# CONTENTS

2	IFDC Around the World
3	2014 Highlights
4	2015 IFDC Board of Directors
5	Message from the Chairman of the Board and the President and Chief Executive Officer
6	Dr. Amit Roy: Leader, Mentor, Friend
8	2014 Activities Align with Strategic Plan
12	IFDC Celebrates 40 Years of Feeding a Hungry World
14	VFRC Increases Research in 2014
15	2014 Special Initiatives
16	EAD
20	ESAFD
26	NWAFD
34	OoP
36	TWCU
38	Selected Presentations and Publications
40	Offices and Staff
54	Financial Highlights
56	Parting Shot
57	Acronyms and Credits



A world map with a blue background. Countries where IFDC has projects in 2014 are highlighted in grey. These include 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, Myanmar, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Sudan, Tanzania, Togo, Uganda, United States of America, and Zambia. The rest of the world's landmasses are shown in white.

### Countries With IFDC Projects in 2014

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  
Myanmar  
Niger  
Nigeria  
Rwanda  
Senegal  
Sierra Leone  
South Sudan  
Tanzania  
Togo  
Uganda  
United States of America  
Zambia

# IFDC Around

# 2014 HIGHLIGHTS

- IFDC commemorated its 40th anniversary by hosting events in Washington, D.C., and Muscle Shoals, Ala., and by releasing *Feeding a Hungry World: IFDC's First Forty Years*, written by Thomas Hager (*Alchemy of Air*).
- Eight new projects launched during 2014, including the Fertilizer Sector Improvement (FSI) project in Myanmar. The project will boost rice yields by 15 to 25 percent and vegetable yields by 5 to 25 percent using fertilizer deep placement (FDP) technology.
- IFDC and the Kenyan government signed an accreditation agreement formalizing their shared commitment to sustainable agricultural development in the country. The agreement establishes Kenya as a "host" country to IFDC.
- IFDC joined the Global Alliance for Climate-Smart Agriculture and expanded urea deep placement (UDP), a climate-smart technology, to farmers in Bangladesh and other areas of the world.
- The Growth Enhancement Support - Touch and Pay (GES-TAP) pilot project registered more than 500,000 Nigerian farmers for input subsidy assistance. The TAP technology helps farmers receive fertilizer more efficiently and ensures agro-dealers receive payment in a timely manner.
- IFDC staff were instrumental in providing technical support for Ethiopia's first fertilizer blending facility, Becho Weliso Fertilizer Factory, in Tullo Bullo.
- The 2SCALE project worked with 260,000 farmers in nine sub-Saharan countries and established 53 public-private partnerships that enable smallholders to access new technologies and larger markets.
- An IFDC scientist and collaborators in Bangladesh established a greenhouse gas emission laboratory and field trials at the Bangladesh Rice Research Institute (BRRI) and Bangladesh Agricultural University (BAU).

d the World



# 2015 IFDC Board of Directors



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# A Message to Our Staff and Partners

2014 marked IFDC's 40th year empowering farmers to grow more food for their families and the world. Since 1974, we have advanced agricultural markets in nearly 100 nations. With 26 active projects, IFDC continues supporting farmers' access to technology, markets and training.

In 2014, UDP expanded into a new nation - Myanmar. The rice fertilization technique accomplished what agriculture must do in a changing climate: lower pollution and increase efficiency. UDP is proving profitable for more than 2 million Bangladeshi farmers and many others in 15 sub-Saharan countries. In Bangladesh, project beneficiaries in the U.S. Agency for International Development (USAID) Feed the Future (FTF) focus areas increased their gross margins per hectare from \$587 in 2013 to \$796 in 2014.

Private sector-led fertilizer markets are growing, particularly in Africa. With technical assistance from IFDC, investors in Ethiopia installed the nation's first fertilizer blending plant. Plans now are underway for three additional plants to produce site-specific fertilizers in the country. Recent IFDC field trials in sub-Saharan Africa show that crop productivity increased by as much as 30 percent when fertilizer nutrients matched soil characteristics. To meet rising fertilizer demand, several private companies are establishing facilities to develop fertilizers solely for Africa. In addition, Kenya, Rwanda and Tanzania are installing or expanding their nation's fertilizer production capacity.

"Smart" input market incentive programs are easing farmers' access to affordable fertilizer while building business for rural agro-dealers and commercial fertilizer suppliers. In 2014, IFDC assisted government implementation of these programs in Burundi and Nigeria.

Achieving sustainable food security requires collaborative action on a global scale. IFDC expanded its public-private partnerships (PPPs) in 2014. Through the 2SCALE project, 53 PPPs are connecting more than 265,000 farmers with 1,500 private firms and agri-food companies in nine sub-Saharan countries. For example, in Nigeria, AACE Foods buys ginger, pepper and soybeans from 2SCALE farmers and processes it into affordable, nutritious products.

Working together, we can achieve a resilient and climate-smart food system. In 2014, IFDC joined the United Nations' Global Alliance for Climate-Smart Agriculture. Efforts continue to measure greenhouse gas emissions from rice production in collaboration with Bangladeshi research institutions.

While IFDC's work addresses holistic agricultural and economic development, fertilizer remains our foundation. We look to the future of fertilizer with hope and excitement. With 805 million people chronically undernourished, the world not only needs more food - it needs more nutritious food. Food and nutrition security necessitates innovative fertilizer technology. The Virtual Fertilizer Research Center (VFRC) is researching pathways for micronutrient uptake by plants.

In the next 35 years, the world's population will surge to 9.6 billion, requiring dramatic yield increases. Maintaining food security will require better resource management. Completing its activities in 2014, the Global Transdisciplinary Process for Sustainable Phosphorus Management (Global TraPs) project sparked worldwide momentum to improve stewardship of finite phosphorus resources and make this nutrient more accessible to smallholder farmers. Consequently, governments are developing their own platforms for efficient nutrient management.

Thank you to IFDC staff, past and present. We began this journey over 40 years ago with just a handful of staff. Today, IFDC employs nearly 900 agronomists, soil scientists, economists, technicians, engineers, marketers and training specialists who serve in more than 25 countries.

As we reflect on the past 40 years, we express deep gratitude to the donors and partners. Your continued support is helping shape a food-secure world.



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

Amit H. Roy  
IFDC President and  
Chief Executive Officer



A handwritten signature in blue ink that reads "Jimmy L. Cheek".

Jimmy Cheek  
Chancellor  
The University of  
Tennessee, Knoxville

# Dr. Amit Roy: Leader, Mentor, Friend

Dr. Amit Roy steered IFDC from a fertilizer research organization to a holistic agricultural development center. He led many of the first development campaigns in post-Soviet Europe. He encouraged greater involvement in sub-Saharan Africa, spearheading the 2006 Africa Fertilizer Summit. Realizing that the future of global food security depended on improved fertilizers, he created the Virtual Fertilizer Research Center in 2010. With smallholders at the heart of IFDC's efforts, Roy has accomplished much to ensure the growth of this organization. But colleagues remember his character as much as his achievements. To them, he has been more than a leader, he has been a mentor and a friend.

"Time flies. I still remember Amit going around introducing himself to the few staff of IFDC [in the late 1970s]. We developed a relationship that went beyond that of colleagues, which was cemented when I

was a surprise witness at his wedding. Those were exciting times, personally and professionally. Amit was working on beneficiating phosphate rock, and I was hiding urea lumps deep into paddy soils. Both of us were trying to save the farmers in the developing world some money by making fertilizers more efficient. When not at work, our families partied and grew up together. From afar, I have seen Dr. Roy take charge of IFDC and grow it into a vibrant, though different, organization with enormous impact on the ground. The development community and IFDC owe him a debt of gratitude."

- Paul Vlek



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"I first met Amit when I was a UNDP Mission member in 1986. Thereafter, I came in closer touch as an IFDC board member from 1988 to 1999 and a member of the Executive Committee from 1992 to 1999. He impressed me with his innovative ideas and dedication, and when the CEO position was being considered in 1992, I believed he would do the job well. He has amply justified this by global expansion of activities, and he richly deserved the honor of Distinguished Alumnus Award of IIT Kharagpur in 2011."

- Pratap Narayan

"I first met Dr. Roy in December 2005, when I had just arrived from Niger to join IFDC's Africa Fertilizer Summit Secretariat. The day following our meeting, I found a box with a brand new remote controlled heater in front of my office - he had noticed how bundled up I was in the office. That characterizes my experience working with Dr. Roy: an attentive, dedicated, humble, human, kind and generous President and CEO. He is an individual with much dedication who works tirelessly and connects so well with the very people we strive to help, the subsistence farmers. He is one who knows exactly what's going on in the field because he's been there and keeps going back. He knows the science behind fertilizer and has a vision of how it can help feed billions of people. That vision is Dr. Roy's personal mission. You will always find me listening carefully when he speaks, not only because of his professional status, but because he is a man with a wealth of experience and great wisdom."

- Oumou Camara



1: When Amit Roy first arrived at IFDC in 1978, he was assigned leadership in research on specialty phosphates to determine whether locally available phosphate rock could be easily converted into usable and affordable phosphate fertilizers. His work paved the way for IFDC's current efforts in these solutions.

2: In the early 2000s, Roy traveled to Afghanistan to see IFDC's work in developing the country's fertilizer sector. While walking through a project area, Roy noticed an elderly refugee carrying a family rug. He hopped in to help and encouraged those with him to do the same.

3: In the early 1980s, Roy and a team from IFDC traveled to Niger to determine whether the country could produce its own phosphate fertilizer. At the time, Niger imported all of its fertilizer, resulting in unaffordable prices for farmers.

4: In 2011, the Indian Institute of Technology Kharagpur awarded Roy with a Distinguished Alumnus Award, given to alumni widely recognized as having accomplished groundbreaking achievements.

5: "We cannot provide technology and skills to farmers without first understanding their needs and the great amount of knowledge they are willing to share," said Roy in a recent interview. Here, Dr. Roy speaks with agronomists in Togo to further understand their knowledge and local needs.

6: UDP is improving the lives of millions of farmers. While visiting Bangladesh, Roy observed UDP demonstrations and spoke with farmers about how the technology changed their lives.

7: Enhancing maize yields for poultry feed increased profitability for poultry farmers in Kyrgyzstan. Roy visited the fields of Tri-T Poultry, a poultry farm in the Issyk-Atinskiy district of Chui oblast, to further understand how IFDC could best help the farmers of that country.

"During the more than 15 years that I worked for IFDC, I got to know Dr. Amit Roy as an inspiring, motivating and supporting man. Starting in the mid-nineties when I was Director of IFDC-Africa in Lomé, Togo, Amit supported me in testing and applying existing knowledge to accelerate rural development in sub-Saharan Africa, and in giving more direct attention to farmers and their



organizations. He inspired me to combine my knowledge and experience regarding ISFM with those of IFDC. [Entrusting] me the implementation of projects in the heart of Africa, he accepted adding agro-forestry as a domain of intervention for IFDC. And

when a serious accident led to a hospital treatment for 7 months, he contributed to my recovery by convincing me that I would be able to again lead the IFDC work in Rwanda and the surrounding countries. He kept my position open during my long stay in Europe. I consider Dr. Roy being more than an effective CEO; he is a source of inspiration and motivation."

- Dr. Henk Brehman



"In all my years of experience, some people stand out for their great qualities, and Dr. Roy is one of those people. He is well known for his intelligence, work ethic, positive attitude, teamwork mentality, leadership and diligence. But his human quality is above all. When Cyclone Sidr hit Bangladesh

on November 15, 2007, I was conducting the first farmers' training on UDP in a farmer's homestead in Nandail upazila of Mymensingh district. Early the next morning, I received a phone call from Dr. Roy asking whether all IFDC staff were safe. He called me several occasions after any incident took place to enquire about the safety of IFDC staff. This is the Dr. Roy I know, who always enquired about the welfare of his staff."

- Ishrat Jahan







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# TIVITIES

## strategic Plan



In 2014, IFDC marked 40 years helping smallholder farmers achieve prosperity. Now, the time has come to reach forward. The final 2014 issue of *IFDC Magazine* focused on innovation, considering the question, "What will it take to prepare the world for global food security?" IFDC believes that following its strategic plan readies the organization for tackling the challenges of feeding the world in the future.

According to the 2012-2015 Strategic Plan, IFDC's two objectives are: 1) pioneer and catalyze improved plant nutrient performance by developing and disseminating new technologies and practices to smallholder farmers using a range of innovative delivery mechanisms; and 2) strengthen input and output markets for the benefit of smallholder farmers. To address these, IFDC intervenes in six specific areas.

Below is a sample of activities from 2014 that represent our intervention areas.



### Develop More Efficient Fertilizer Products

In 2014, IFDC continued to develop and disseminate more efficient fertilizer technologies. The FSI project in Myanmar encourages rice farmers to use UDP to boost rice yields by up to 25 percent. In Kenya, ARM Mavuno entered into a partnership with IFDC to make the same technology and training available to at least 10,000 smallholder farmers in the country. The engineering and pilot plant staff conducted research on the production potential of several fertilizer products: secondary nutrient-enhanced fertilizer, zinc (Zn)-containing materials and organically enhanced inorganic fertilizer products (using different sources of byproduct organic materials).



### Improve Nutrient Use Practices for Better Economic and Environmental Incomes

The East and Southern Africa Division (ESAFD) conducted nutrient omission trials resulting in a fuller knowledge of crop and soil needs in several project regions in the division. The omission trials highlighted secondary and micronutrients' vital role in soil health and plant growth. Trial results demonstrated yield increases of up to 60 percent. In some cases, these blends are less expensive than current fertilizer recommendations. Efforts are currently underway to make better blends available to farmers in the area. For example, IFDC provided technical assistance to establish Ethiopia's first fertilizer blending facility.



## Improve Efficiency of Input Markets

In Nigeria, IFDC implemented the GES-TAP pilot program, reaching more than 500,000 farmers. The technology improves the speed and veracity of information collected about subsidy-registered farmers. It permits farmers to redeem their voucher without an internet connection by using a "TAP" card. In a project in Burundi, IFDC supported the National Subsidized Fertilizer Program, enabling nearly 650,000 (twice the target) to access fertilizers.

## Improve Management Capability and Profitability of Farm Enterprises

The Kyrgyz Agro-Input Enterprise Development (KAED) Follow-On project demonstrated increased productivity and profitability of livestock farming through improved feed production and rations, animal health and breed quality. To support the productivity of the livestock sector, the KAED Follow-On project launched the first privately-run Animal Reproduction Biotechnology Center in the Kyrgyz Republic. The USAID-supported Biotechnology Center will introduce modern semen production technology to produce improved genetic material for artificial insemination to help livestock farmers improve breed quality. Three KAED-sponsored consultants provided assistance in several areas: care and feeding of cattle, marketing plans for more widespread use of artificial insemination and environmental compliance. The project concluded in 2014.

## Strengthen and Support Robust Output Markets

The pan-African 2SCALE project is collaborating with more than 265,000 farmers in nine sub-Saharan African countries. The project completed its "brokering phase" by establishing 53 key viable PPPs, each with multiple value chain supporters (microfinance institutions, agro-input suppliers, etc.). Large lead firm partners include Heineken and Friesland Campina in Nigeria, Agrico in Kenya and East West Seed International in several countries. African principal firms include AACE Foods in Nigeria, GUTS Agro in Ethiopia, PROSEMA in Mali and Nile Breweries in Uganda. As of December 2014, 77 business support services (BSSs) and 199 coaches supported the agribusiness clusters, which engage all actors needed to incubate profitable commodity-based value chains.

## Analyze, Inform and Influence Policy Reform

The African Union (AU) requested IFDC to prepare a background paper on fertilizer policy in Africa to inform the AU's 2014 meetings. At the 10th AU-Comprehensive Africa Agriculture Development Programme (CAADP) Partnership Platform meeting, IFDC contributed to the CAADP agenda for the next 10 years of continental, regional and national policy implementation. Some recommendations from the background paper contributed to resolutions adopted in the *Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods*. In addition, IFDC conducted country fertilizer assessments in 12 USAID FTF sub-Saharan African countries (Ethiopia, Ghana, Kenya, Liberia, Mali, Malawi, Mozambique, Rwanda, Senegal, Tanzania, Uganda and Zambia) under USAID funding. These reports estimate the fertilizer required to achieve the agricultural growth objectives articulated in these countries' investment plans and identify key challenges in the supply of the expected increase in fertilizer use. They also provide a range of policy options and reforms to improve value chain efficiency, reduce fertilizer costs and enhance productivity through improved technology adoption.



# IFDC Celebrates

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## 40 Years of Feeding a Hungry World

For 40 years, IFDC has dedicated itself to empowering farmers around the world. In the beginning, IFDC's research and outreach centered solely on developing more efficient and affordable fertilizer products. After four decades of growth, IFDC's efforts now engage entire agricultural value chains and policy, economic and social issues. This year, we commemorated the devotion of those who helped build IFDC from a fertilizer research and development institution into a well-rounded sustainable development organization.

To mark its 40th anniversary, Thomas Hager (*The Alchemy of Air*) wrote a history of the organization. The book, *Feeding a Hungry World: IFDC's First Forty Years*, chronicles the organization's accomplishments throughout four decades. Using first-hand accounts and IFDC archives, Hager sows the story of IFDC's dedication to increasing agricultural productivity. Archived documents, handwritten by IFDC's first managing director and other early staff, along with photos from the IFDC archives, illuminate a rich and enjoyable history. The book is available for Kindle (<http://amzn.to/1FNgFwx>) and iPad (<http://apple.co/1FXBsNo>).

On September 29, 2014, IFDC held a 40th Anniversary Commemoration in Washington, D.C. The event, titled "Nutrients' Role in Food Security," featured guest speakers and panelists including former USAID Administrator Rajiv Shah and Rudolf Bekink, Dutch ambassador to the United States, among other dignitaries, journalists and entrepreneurs. President Jimmy Carter delivered a video message, stating, "With its holistic approach, IFDC has made fertilizer a cornerstone of productivity..." In addition, two lively discussion panels considered strategies to achieve food security for the next 40 years.

IFDC celebrated the milestone in Florence, Ala., on October 30, 2014. Headquarters staff, IFDC retirees and special guests from the community attended. Florence Mayor Mickey Haddock spoke at the ceremony, praising IFDC for its work: "If you have a program that works, it'll work around the world...and you are all to be commended in continuing [IFDC's] vision and continuing those programs."

Attendees considered both events an inspiration to further pursue a productive and well-fed world.











## VFRC Increases Research in 2014

The Virtual Fertilizer Research Center (VFRC) acts as a semi-autonomous research unit of IFDC. The VFRC is partnering with a global network of scientists, research institutions, private enterprises and entrepreneurs to conduct coordinated research under a unified technology agenda.

In 2014, the VFRC published five reports that explored options for increasing fertilizer nutrient use efficiency, micronutrient options for plant and human health and several other topics. "This year has been a great success in regard to publishing reports," says Prem Bindraban, executive director of the VFRC. "We are proud of the work done by our network of researchers. It is helping pave the way for the future of fertilizers."

Brief summaries of the VFRC's 2014 reports can be found below. The reports are accessible online at [www.vfrc.org/VFRC\\_Reports/2014](http://www.vfrc.org/VFRC_Reports/2014).

### VFRC Report 2014/1: Beneficial Organisms for Nutrient Uptake

*Koele, N., T.W. Kuyper and P.S. Bindraban, 2014. Beneficial Organisms for Nutrient Uptake. VFRC Report 2014/1, Virtual Fertilizer Research Center, Washington, D.C. 63 pp.; 4 figs.; 330 ref.*

Micro-organisms may help plants to better scavenge nutrients from the soil and reduce hazards such as drought or toxicity against heavy metals. Some micro-organisms can keep away harmful organisms, improving plant fitness, and some are considered biofertilizers. Therefore, maintaining a diverse population of micro-organisms by adequate management may be beneficial in the long term.

### VFRC Report 2014/2: Eliminating Zinc Deficiency in Rice-Based Systems

*Duffner, A., E. Hoffland, T.J. Stomph, A. Melse-Boonstra and P.S. Bindraban, 2014. Eliminating Zinc Deficiency in Rice-Based Systems. VFRC Report 2014/2. Virtual Fertilizer Research Center, Washington, D.C. 35 pp.; 1 table; 5 figs.; 1 text box; 200 ref.*

This report presents an overview of the soil factors controlling plant-available Zn, explains the synergistic or antagonistic behavior among nutrients on their uptake by plants and discusses the mobility of Zn within a plant. This provides leads as to how Zn nutrients could be best supplied to rice plants. The report also evaluates biofortification of rice against other nutrient-increasing strategies.

### VFRC Report 2014/3: Se Fertilization: An Agro-Ecosystem Approach

*Ros, G.H., A.M.D. van Rotterdam, G.D. Doppenberg, D.W. Bussink and P.S. Bindraban, 2014. Se Fertilization: An Agro-Ecosystem Approach. VFRC Report 2014/3. Virtual Fertilizer Research Center, Washington, D.C. 62 pp.; 1 table; 21 figs.; 282 ref.*

This research identifies factors for developing a decision support tool for determining when application of Se fertilizer would be effective. Adapting fertilizer strategies to site-specific agro-ecosystem properties might increase the uptake efficiency from 10 percent up to 50 percent. Biofortifying food items in itself is also an effective avenue for human health improvement but may not reach the neediest.

### VFRC Report 2014/4: Establishing a Viable Fertilizer Quality Detection System

*Perumal, K., S. Ananthi, J. Arunkumar, T.A. Sambanda Moorthy, B. Karthik, U. Singh and P.S. Bindraban, 2013. Establishing a Viable Fertilizer Quality Detection System, VFRC Report 2014/4. Virtual Fertilizer Research Center, Washington, D.C. 23 pp.; 9 tables; 3 figs.; 8 ref.*

This research has aimed to develop a quick and cheap method to determine fertilizer nutrient content and trace contamination. Promising results were found with chromatogram imaging, but the method needs further development to be sufficiently accurate, speedy and affordable, revealing the formidable challenge of developing quick and robust methods.

### VFRC Report 2014/5: Environmentally Friendly Phosphate Fertilizers

*Goldstein, A., 2014. Strategies for the Development of Environmentally Friendly Phosphate Fertilizers Based on Gram-Negative Phosphate Solubilizing Bacteria. VFRC Report 2014/5. Virtual Fertilizer Research Center, Washington, D.C. 51 pp.; 5 tables; 27 figs.; 45 refs.*

This report provides a way forward for the development of phosphate fertilizers leveraging the abilities of phosphate soluble (PS) bacteria. The report calls for an industrial-scale biotechnological intervention to process rock phosphate ores into soluble P fertilizer products, with concrete research and development (R&D) activities and timelines to arrive at a PS bacteria-enabled crop nutrition product.



## 2014 Special Initiatives

### African Fertilizer and Agribusiness Partnership (AFAP)

AFAP works with fertilizer companies to establish more competitive and sustainable fertilizer markets in Africa that meet the needs of their principal client – the smallholder farmer. Partners include AfricaFertilizer.org, Agricultural Market Development Trust (AGMARK), Alliance for a Green Revolution in Africa (AGRA), the African Development Bank (AfDB), IFDC and the New Partnership for Africa's Development (NEPAD). IFDC supports the development of more efficient fertilizer value chains by identifying technical and marketing opportunities for fertilizer companies. In 2014, AFAP and IFDC jointly convened two workshops. More than 60 participants attended a workshop in Accra, Ghana, on improving the management of fertilizer value chains. More than 70 fertilizer experts attended a second workshop in Johannesburg, South Africa, on balanced fertilizers.



### Association of International Research and Development Centers for Agriculture (AIRCA)

AIRCA is a nine-member alliance focused on increasing global food security by supporting smallholder agriculture within healthy, sustainable and climate-smart landscapes. In 2014, consortium leaders participated in an international event on agricultural development and published articles on healthy soils, agricultural technology and agriculture's role in the sustainable development goals.



### AfricaFertilizer.org (AFO)

AfricaFertilizer.org facilitates the exchange of information on soil fertility, fertilizers and good agricultural practices in Africa. The initiative coordinates partnerships and data-sharing mechanisms that provide fertilizer statistics and fertilizer market intelligence. In 2014, AFO validated fertilizer production, trade and consumption statistics in 12 sub-Saharan countries in partnership with FAO's CountrySTAT program. National studies on fertilizer consumption and use by crop are ongoing in Côte d'Ivoire, Ghana, Kenya, Mozambique, Nigeria, Tanzania and Uganda. Recently, AFO launched a new version of their web portal with expanded features and content. AfricaFertilizer.org is led by IFDC, in partnership with the International Fertilizer Industry Association (IFA), AFAP, the Food and Agriculture Organization of the United Nations (FAO) through CountrySTAT and the African Union Commission.



### Global Transdisciplinary Processes for Sustainable Phosphorus Management (Global TraPs)

Ending in 2014, the Global TraPs project analyzed phosphorus use, management and sustainability from a supply chain perspective through a transdisciplinary process (science-practice). The program brought together more than 300 representatives from academia, development organizations, advocacy groups and the private sector to build solutions for sustainable phosphorus use. In 2014, Global TraPs published *Sustainable Phosphorus Management - A Global Transdisciplinary Roadmap*. The book provides a comprehensive analysis of phosphorus flows, use, trade and finance.









# EAD

## EurAsia Division

### Overview

*The EurAsia Division (EAD) focuses on increasing food security, environmental sustainability and rural incomes through enhanced agricultural productivity and agriculture sector performance, including expansion in agribusiness and the adoption of improved technologies and practices. In 2014, the division targeted countries in Central, South and Southeast Asia, including Bangladesh, Kyrgyzstan and Myanmar.*

*The division engages in a wide range of activities related to crop and livestock agriculture and associated agribusinesses. Working together with the private and public sectors, EAD programs are epitomized by the improvement of soil fertility management along with crop and livestock development systems supporting sustainability and economic growth.*

*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; agronomic and environmental research; and linking farmers to markets and agro-processing/trade opportunities. Institutional development, policy advisory services, gender integration and human capacity building are included in all EAD activities.*



Bangladesh  
Kyrgyzstan  
Myanmar

### Accelerating Agriculture Productivity Improvement in Bangladesh

2010-2015

**Objective** – The Accelerating Agriculture Productivity Improvement in Bangladesh (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 fertilizer deep placement (FDP), which is well-suited to rice production. FDP technology is being extended to other crops, often at the initiative of smallholder farmers; results are impressive. 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 greenhouse gas (GHG) emissions. It is IFDC's hypothesis that GHG emissions from nitrogen fertilizer will be reduced when FDP is used, compared with conventional surface application of fertilizers. Last 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.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises; Analyze, Inform and Influence Policy Reform

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

**Donors** – USAID and the Walmart Foundation

**Location** – Bangladesh

### Fertilizer Sector Improvement Project

2014-2017

**Objective** – The Fertilizer Sector Improvement (FSI) project works with Burmese farmers to boost rice yields by 15-25 percent. A secondary focus includes raising vegetable yields by 5-25 percent. The project is also focusing on setting up private sector control of fertilizer, including FDP technology. Farmers using FDP technology in other countries experienced an up to 25 percent improvement in crop yields while simultaneously using one-third less fertilizer. FSI seeks to improve fertilizer access and farming productivity for 80,000 Burmese smallholder farmers. Responses have been encouraging so far. Farmers who had never seen or heard of FDP before were prepared to take it on word from farmer training and try it on small areas. Early monitoring of responses in farmer fields and responses emerging from trials and demonstrations indicate a remarkable



visible response in UDP plots, stimulating more comment and interest for later seasons. Applicators continue to be tried and tested, with 61 injector applicators currently being shared among 682 farmers in 37 villages. Due to a lack of fertilizer plants, Myanmar presently imports 88 percent of its fertilizer instead of producing its own. FSI also aims to strengthen the fertilizer sector, which will ensure timely access to fertilizer and competitive prices for farmers, enabling them to increase the currently low use of fertilizer in their fields.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises

**Donor** - USAID

**Location** - Myanmar

## USAID Kyrgyz Agro-Input Enterprise Development Follow-On Project

2010-2014

**Overview** - The USAID Kyrgyz Agro-Input Enterprise Development (KAED) Follow-On project extended the impact of KAED on improving food security and rural incomes. The project enhanced food security through expanded adoption of improved production technologies, value chain linkages and PPPs. In 2013, 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, assisted the livestock sector in increasing 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. In 2014, the first year of use of the new equipment and better breeds, the livestock farms obtained 35 percent more milk and 80 percent better weight gain in beef cattle from the supplied heifers. Completion of the KAED Follow-On project culminates a 13-year sustained effort by USAID with IFDC to help improve agriculture in Kyrgyzstan. Much has been achieved by this and the many other donor-funded projects since the country's independence, but there are areas and opportunities that likely will still require continued outside support to realize their potential.

**Related Intervention Areas** - Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises; Strengthen and Support Robust Output Markets; Analyze, Inform and Influence Policy Reform

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

**Donor** - USAID

**Location** - Kyrgyzstan







## Into Myanmar

Myanmar was once the world's largest producer of rice, a position which helped secure its place as the second-wealthiest country in Southeast Asia. Beginning in the 1930s, though, agricultural productivity plummeted due to a combination of political and economic factors, including the sharp decline of international rice prices.

Despite these temporary setbacks, Myanmar still holds the potential to more than double its rice exports. Rice production has steadily been improving since the 1960s. However, there is still much that can be done.

In 2014, the FSI was launched to boost Myanmar's rice yield by 15-25 percent and its vegetable yield by 5-25 percent using FDP technology. The project will help 80,000 Burmese smallholder farmers. This goal will be met through dialogue with farmers and the introduction of FDP technology. This innovation currently plays an integral role in the restructuring of Myanmar's agricultural system.

First trial runs have shown success in the form of significant yield increases of up to 23 percent when UDP is used, compared with broadcast urea applications. Continued replacement of outdated broadcasting methods with FDP will enable Myanmar to see a continued rise in yield and productivity, leading to increased farmer profits and the reduction of greenhouse gas emissions from rice production.









### Overview

*The East and Southern Africa Division (ESAFD) works to increase the agricultural productivity and incomes of smallholder farmers. These goals are accomplished by strengthening farmers' knowledge of best agricultural practices and improved post-harvest treatment and by increasing 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 developing farmers' organizations, association building, enhancing policy analysis and dialogue, and disseminating market information via information and communication technologies (ICT).*



Burundi  
Democratic Republic of  
Congo (DRC)  
Ethiopia  
Kenya  
Mozambique  
Rwanda  
South Sudan  
Tanzania  
Uganda  
Zambia

### Agricultural Growth Program - Agribusiness and Market Development in Ethiopia

2011-2016

**Objective** - The Agricultural Growth Program - Agribusiness and Market Development in Ethiopia (AGP-AMDe) is a multi-partner initiative under USAID's Feed the Future strategy for Ethiopia. The project includes several value chains and is USAID/Ethiopia's largest contribution to the Ethiopian Agricultural Growth Program. IFDC's role is to improve farmers' access to inputs, support development of the commercial input market and promote adoption of yield-enhancing inputs. With IFDC technical support, Ethiopia's first blending plant has been established, and four more plants are under development.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets

**Lead Implementing Organization** - ACIDI/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 III

2012-2015

**Objective** - Agricultural Input Market Strengthening (AIMS) III is an integrated program focused on the development and transfer of agricultural technology to strengthen public sector R&D capacity, build private sector-led agro-input markets and support development of a favorable policy environment for agriculture. This is accomplished through improved public R&D capacities and continued support to build a skilled private agriculture sector to achieve sustainable targets for food security and agricultural development. IFDC focused on developing local capacity for business development support services. AIMS III was a continuation of the AIMS and AIMS II programs, which ran from 2006-2009 and 2009-2012, respectively.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Analyze, Inform and Influence Policy Reform

**Collaborators** - National Directorate of Agrarian Services (DNSA), National Directorate of Agricultural Extension (DNEA), Mozambique Institute for Agrarian Research (IIAM), Platform for Agricultural Research and Innovation in Mozambique (PIAIT) and private sector actors in the input supply chain

**Donor** - USAID

**Locations** - Beira and Nacala Corridors (Manica, Sofala and Nampula provinces) of Mozambique

## CATALIST-2

2012-2015

**Objective** - Catalyze Accelerated Agricultural Intensification for Social and Environmental Stability (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 intensification, scarce development resources are maximized through public-private partnerships. By the end of the project, it is estimated that 700,000 smallholder farmers will experience increases in incomes of 50 percent; an additional 1 million metric tons of marketable cereal equivalents will be produced, which will greatly enhance food security in the project's target areas.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises, Strengthen and Support Robust Output Markets, Analyze, Inform and Influence Policy Reform

**Collaborators** - National and international non-governmental organizations (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)

**Donors** - The Netherlands' Directorate-General for International Cooperation (DGIS), Embassy of the Kingdom of the Netherlands in Rwanda and the Swiss Agency for Development and Cooperation (SDC) in Rwanda

**Locations** - Burundi, DRC and Rwanda



## CATALIST-Uganda

2012-2016

**Objective** - CATALIST-Uganda is raising smallholder incomes and enhancing food security through improved productivity and market access development. The project is developing integrated cropping systems for several value chains, including Irish potatoes, cassava, oil seeds (sunflowers and soybeans) and rice using the accelerated agribusiness cluster development model. Project activities also focus on seed and fertilizer market development, output marketing, agribusiness linkages and an improved policy environment for smallholder farmers. By the end of the project, an estimated 110,000 smallholders will have doubled yields and increased their incomes by 50 percent.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Management Capability and Profitability of Farm Enterprises, Strengthen and Support Robust Output Markets, Analyze, Inform and Influence Policy Reform

**Collaborators** - Farmer-based organizations, national and international NGOs and the Uganda Ministry of Agriculture, Animal Industry and Fisheries

**Donors** - DGIS and the Embassy of the Kingdom of the Netherlands in Uganda

**Location** - Uganda



## Integrated Seed Sector Development Burundi

2014-2018

**Objective** - Integrated Seed Sector Development (ISSD) Burundi will improve farmers' access to affordable quality seeds, stimulate entrepreneurship and strengthen institutions involved in the seed sector in Burundi. The project focuses on increasing the volume of quality seeds by 500 percent for rice, maize, potato, banana, cassava and beans. Project activities target 20 percent increases in yields and incomes and the emergence of 200 new companies that provide seeds at the local and national level.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises

**Collaborators** - Ministry of Agriculture and Livestock in Burundi and the Royal Tropical Institute (KIT)

**Donors** - Embassy of the Kingdom of the Netherlands in Burundi

**Location** - Burundi





## Mozambique Agro-Dealer Development II

2013-2015

**Objective** – Mozambique Agro-Dealer Development (MADD) II builds on the achievements of the initial 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.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises

**Lead Implementing Partner**– Agricultura e Mercados Organização para o Desenvolvimento Sustentavel (AGRIMERC)

**Collaborators** – Agro-dealers, farmer-based organizations and private sector input dealers

**Donor** – Alliance for a Green Revolution in Africa (AGRA)

**Locations** – Manica and Tete provinces of Mozambique



## Support Project - National Fertilizer Subsidy Program in Burundi

2012-2015

**Objective** – IFDC is providing support for the creation and implementation of Burundi's National Fertilizer Subsidy Program, which is the only demand-driven subsidy system in Africa. IFDC has worked with partner institutions to develop new fertilizer formulas suitable to Burundian soil conditions and to build the capacities of the private sector involved in the input market. A new follow-on program is currently under design.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Analyze, Inform and Influence Policy Reform

**Collaborators** – Burundi Ministry of Agriculture, the National Institute of Agricultural Sciences (ISABU), private sectors entrepreneurs, financial operators and farmer associations

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

**Location** – Burundi



## Privatization of Rwanda's Fertilizer Import and Distribution System

2010-2015

**Objective** – Privatization of Rwanda's Fertilizer Import and Distribution System (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.

**Related Intervention Areas** – Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises, Strengthen and Support Robust Output Markets, Analyze, Inform and Influence Policy Reform

**Collaborators** – Private sector entrepreneurs, Rwandan government and MINAGRI

**Donor** – USAID

**Location** – Rwanda



## Production, Finance and Improved Technology Plus

2012-2016

**Objective** – IFDC's role in Production, Finance and Improved Technology Plus (PROFIT+) is to improve the productivity of selected value chains and increase links to commercial agricultural input markets. IFDC is introducing integrated soil fertility management (ISFM) to smallholder farmers who are participating in maize-based farming systems in the Eastern Province and to horticultural producers in the peri-urban districts of Lusaka, Zambia. A range of improved agricultural technologies are demonstrated on farmers' fields. Sustainable agro-input supply systems are being improved to meet the increased farmer demand stimulated by the innovative demonstrations.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets

**Lead Implementing Partner** – ACDI/VOCA

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

**Donor** - USAID

**Location** - Zambia

## Scaling Cassava in Mozambique

2014-2017

**Objective** - The project increases access to high-yielding, disease-resistant planting materials for small-scale cassava farming households through the development of community-level commercial seed multiplication businesses. The project aims to develop profitable and sustainable farming systems through an enhancement of input-output market linkages.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises, Strengthen and Support Robust Output Markets

**Donor** - USAID-funded Scaling Seeds and Technologies Partnership in Africa, implemented by AGRA

**Location** - Mozambique



## Staples Value Chain in Tanzania

2011-2016

**Objective** - Staples Value Chain in Tanzania (NAFAKA) is increasing food security by improving the competitiveness and productivity of the maize and rice value chains. Primary beneficiaries are women, youth and other groups. IFDC is working with agro-dealers, farmer-based organizations and financial institutions to increase the availability of quality inputs and to demonstrate their proper use at the farm level.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes, Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises, Strengthen and Support Robust Output Markets

**Lead Implementing Partner** - 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 and farmers

**Donor** - USAID

**Location** - Tanzania



## Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship

2012-2017

**Objective** - Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship (2SCALE) is improving rural livelihoods, nutrition and food security in nine countries in sub-Saharan Africa, aiming to help 500,000 smallholder families significantly increase their net incomes and multiply sales for 2,500 entrepreneurs. The objective of 2SCALE is to support and expand 50 public-private partnerships to achieve a sustainable supply of food to regional, national and local markets.

**Related Intervention Areas** - Improve Efficiency of Input Markets, Improve Management Capability and Profitability of Farm Enterprises, Strengthen and Support Robust Output Markets

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

**Collaborators** - Dutch knowledge centers, other agribusiness projects, private enterprises, agribusiness clusters and value chains

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

**Locations** - Benin, Ethiopia, Ghana, Kenya, Mali, Mozambique, Nigeria, South Sudan and Uganda; project activities in Burkina Faso, Niger and Togo phased out in 2014







## Balanced Nutrition Approach

Nitrogen, phosphorus and potassium (N, P and K) are often the only fertilizers accessible to smallholder farmers in Africa. Yet these fertilizers often provide only modest yield increases and returns on fertilizer investments. Soil analyses conducted by IFDC in various countries identified multiple nutrient deficiencies of secondary and micronutrients, in addition to NPK deficiencies. Adding deficient secondary and micronutrients greatly increases yields as well as NPK use efficiency.

IFDC projects mapped soil nutrient levels in Burundi, Rwanda and parts of Mozambique, Uganda and Zambia and revealing large areas of multiple nutrient deficiencies. These studies show the nutrients most commonly lacking in standard recommendations in this region are the secondary nutrients sulfur, calcium and magnesium and the micronutrients zinc, boron and copper.

“Balanced nutrition” addresses deficient nutrients simultaneously, ensuring optimal response and economic returns. For example, IFDC field trials on seven crops in six countries showed yield increases of up to 60 percent when standard NPK fertilizers were supplemented with secondary and micronutrients. Wide-scale demonstrations in Rwanda and Burundi show farmers the benefits of balanced fertilizers. To meet farmers’ demand for these new products, IFDC encourages companies to manufacture innovative fertilizer in small, more affordable packages. IFDC also advocates for policies that support farmer adoption of improved products.







# NWAFD

## North and West Africa Division

### Overview

The North and West Africa Division (NWAFD) encompasses an area with huge agriculture potential, facing major infrastructure, climatologic and agronomic challenges. NWAFD works in close partnership with organizations at regional, national and local levels, including regional economic communities (RECs), FBOs, 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 the Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (WAEMU). For more than 25 years, NWAFD projects have assisted millions of smallholder farmers, helping to move them away from subsistence farming toward "farming as a business" and allowing them to participate actively in local and regional agricultural trade.



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

### AfricaFertilizer.org

2010-ongoing

**Objective** – AfricaFertilizer.org (AFO) is providing timely and transparent information on fertilizer trade, prices and consumption 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.

**Related Intervention Areas** – Improve Efficiency of Input Markets; Analyze, Inform and Influence Policy Reform

**Collaborators** – African Fertilizer and Agribusiness Partnership (AFAP), Food and Agriculture Organization of the United Nations (FAO)'s CountrySTAT program, International Fertilizer Industry Association (IFA) and New Partnership for Africa's Development (NEPAD)

**Donors** – AFAP, IFA and USAID

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

### Agricultural Value Chain Mentorship Project

2011-2015

**Objective** – Agricultural Value Chain Mentorship Project (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 FBOs, smallholder farmers, agro-dealers and small and medium enterprises (SMEs) to improve their entrepreneurial and technical skills, develop business plans and link to commercial banks to access capital through 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 FBOs to domestic, regional and international markets; creating awareness of Integrated Soil Fertility Management (ISFM) technologies through radio programs, video, drama, print media and farmer learning centers and capacity building of national institutions to support the scaling up of ISFM technologies.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Management Capability and Profitability of Farm Enterprises; Strengthen and Support Robust Output Market

**Collaborators** – Ghana Agricultural Associations Business & Information Centre (GAABIC) and Savannah Agricultural Research Institute (SARI)

**Donor** – AGRA, through DANIDA

**Location** – Ghana

## Agro-Input to Production Expansion

2014-2017

**Objective** - The Agro-Input to Production Expansion (APEX) project aims to support private sector investments in the input sector (estimated at more than \$5 billion over the next five years) as the Nigeria Growth Enhancement Support (GES) Scheme transitions from government-dominated supply of agricultural inputs to private sector supply systems. APEX will increase private sector input suppliers' capacity to provide high-quality inputs at competitive prices to farmers. The APEX strategic objectives are in line with the USAID Nigeria intervention priorities under the sectors Agriculture and Food Security as well as Economic Growth and Trade.

**Related Intervention Areas** - Improve Efficiency of Input Markets

**Donor** - USAID

**Location** - Nigeria



## Cocoa Rehabilitation and Intensification Programme

2013-2017

**Objective** - The Cocoa Rehabilitation and Intensification Programme (CORIP) is providing support services to cocoa farmers in Ghana through improvements in the cocoa production system and training. Through a public private partnership between producers, traders, government researchers, NGOs and farmers, the project increases cocoa product sustainability by improving farmers' access to better planting material, quality fertilizers and safe pesticides. The main strategy for implementing CORIP is through the establishment and operation of cocoa Rural Service Centers across the cocoa belt of Ghana. The project will design models for supporting cocoa farmer groups and individual cocoa farmers throughout the major cocoa regions of Ghana.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises

**Collaborators** - Cocoa Research Institute of Ghana of the Ghana Cocoa Board (COCOBOD/CRIG), the Dutch Sustainable Trade Initiative (IDH) and Solidaridad West Africa (SWA)

**Donor** - Embassy of the Kingdom of the Netherlands

**Location** - Ghana



## Communal Approach to Agricultural Market Access in Benin

2013-2017

**Objective** - The Communal Approach to Agricultural Market Access in Benin (ACMA-Benin) 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.

**Related Intervention Areas** - Improve Management Capability and Profitability of Farm Enterprises; Strengthen and Support Robust Output Markets

**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

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

**Location** - Benin



## Feed the Future USAID Agriculture Technology Transfer

2013-2018

**Objective** - Feed the Future USAID Agriculture Technology Transfer (FTF USAID ATT) increases the competitiveness of rice, maize and soya value chains, fostering broad-based and sustained economic growth through the increased availability of agricultural technologies and increasing productivity in Northern Ghana. This will be achieved through: the increased role and capacity of private sector actors in developing and disseminating improved seed and ISFM technologies; increased efficiency and transparency of government functions to support seed, fertilizer and ISFM technology development, release and dissemination; and increased efficiency of targeted agricultural research to develop, release and communicate technologies that support sustainable agricultural productivity.



**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Management Capability and Profitability of Farm Enterprises

**Implementing Partners** – GAABIC, the College of Agriculture and Life Sciences of Iowa State University (ISU) and the Centre for Development Innovation of Wageningen University and Research Centre (WUR-CDI)

**Donor** – USAID

**Location** – Ghana

## Commercial Vegetable Sector Development in Ghana

2013-2017

**Objective** – The mission of the Commercial Vegetable Sector Development in Ghana (GhanaVeg) project is to establish a sustainable and internationally competitive vegetable sector that contributes to inclusive economic growth and has the capacity to continuously innovate in terms of products and services. The initiative targets the high-end domestic and international markets (high-end supermarkets, hotels, restaurants and exports). Driven by the guiding principle of fast-paced and results-oriented, the program initiated a number of business-led initiatives through a Vegetable Business Platform; Business Opportunities Fund, R&D Co-Innovation Fund and Consultancy Fund; a high-level Public-Private Dialogue; and Business-to-Business activities.

**Related Intervention Areas** – Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises

**Implementing Partners** – WUR-CDI and the Netherlands-African Business Council

**Donors** – Embassy of the Kingdom of the Netherlands and the private sector

**Location** – Ghana



## Grassroots Development of Agribusiness Clusters in Mali

2009-2014

**Objective** – An extension of the completed From Thousands to Millions (1000s+) project, the Grassroots Development of Agribusiness Clusters in Mali (DEBPEA) project 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.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Management Capability and Profitability of Farm Enterprises; Strengthen and Support Robust Output Markets

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

**Location** – Mali



## Growth Enhancement Support Touch and Pay Pilot

2013-2014

**Objective** – The Growth Enhancement Support Touch and Pay (GES-TAP) pilot utilized new technology to: 1) improve the speed and veracity of information collected about each farmer; 2) permit farmers to redeem offline (with no need for a mobile phone, network coverage or power) by using an NFC TAP card; 3) expedite the speed of the redemption process while simultaneously improving authentication and reducing fraud; and 4) generate reports in near real-time regarding number of farmers redeemed, quantities and value of inputs per agro-dealer store.

**Related Intervention Areas** – Improve Efficiency of Input Markets

**Donor** – UK Department for International Development (DfID)

**Location** – Nigeria



## Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites II

2012-2017

**Objective** – Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites (MARKETS) II is working directly with identified rice and maize farmers in groups and clusters in 11 states to build their capacities on the best agronomic practices to improve their yields and standard of living. IFDC is continuing to strengthen Nigeria's fertilizer sector by developing a competitive, market-led and sustainable agro-input sector supporting targeted farmers. IFDC is supporting several components of the project, including involvement in the Federal Government of Nigeria's (FGN) GES program, increasing the use of UDP among rice farmers and providing training for crop protection spraying services.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises

**Lead Implementing Partner** – Chemonics

**Collaborators** – Notore Chemical Industries Ltd. and National Programme for Food Security (NPFS)

**Donor** – USAID

**Location** – Nigeria



## Professionalization of Agro-Input Dealers in Burkina Faso

2011-2014

**Objective** – The Professionalization of Agro-Input Dealers in Burkina Faso (PRODIB) project strengthened the ability of agro-dealers to create business linkages with input suppliers and extend their retail networks to reach more farmers. The primary goal was to increase agricultural productivity and boost the incomes of the country's smallholder farmers. This was achieved by increasing the availability, accessibility and affordability of quality agro-inputs in rural areas. Activities included 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.

**Related Intervention Areas** – Improve Efficiency of Input Markets; Analyze, Inform and Influence Policy Reform

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

**Donor** – AGRA

**Location** – Burkina Faso



## Produce More Rice with Less Fertilizer

2014-2019

**Objective** – The Produce More Rice with Less Fertilizer (PRIME) project aims at promoting the dissemination and large-scale adoption of UDP technology in West African irrigated rice schemes. It is expected that wide adoption of this technology by rice farmers will induce an increase in paddy rice yields and production as well as a reduction of rice imports by ECOWAS Member States.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes

**Donor** – ECOWAS

**Locations** – ECOWAS Member States



## Scaling Up Fertilizer Deep Placement and Micro Dosing Technologies in Mali

2014-2017

**Objective** – The Scaling Up Fertilizer Deep Placement and Micro Dosing Technologies in Mali (FDP-MD) project aims to improve food security and incomes of smallholder farms and rural agro-entrepreneurs in Mali. Its strategic objective is to increase cereal crop productivity through the promotion and dissemination of innovative fertilizer-based technologies for targeted commodities (rice, millet, sorghum) in Mali. The project is introducing FDP and MD technologies through demonstration plots and training.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes

**Donor** – USAID

**Location** – Mali



## Support Project for Agricultural Development in Togo

2012-2014

**Objective** - The Support Project for Agricultural Development in Togo (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.

**Related Intervention Areas** - Improve Nutrient Use Practices for Better Economic and Environmental Outcomes

**Donors** - International Fund for Agricultural Development (IFAD), ECOWAS Bank for Investment and Development, West African Development Bank and the Global Agricultural and Food Security Program

**Location** - Togo



## Support to the Growth Enhancement Scheme in Nigeria

2013-2014

**Objective** - The GES being implemented by FGN is aimed at providing a targeted input subsidy to smallholder farmers, while simultaneously encouraging the development of robust private sector input supply and distribution networks. 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.

**Related Intervention Areas** - Improve Efficiency of Input Markets; Analyze, Inform and Influence Policy Reform

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

**Location** - Nigeria



## Syngenta - Nigeria Agro-Input Support

2014-2015

**Objective** - The Nigeria Agro-Input Support (NAIS) project aims to model a private sector-led agricultural input supply channel in Nigeria linked to smallholder farmers in order to ensure improved availability, accessibility and utilization of high-quality agricultural inputs. Targeted agro-dealers in three states are supported by Syngenta through a retail "Store-in-Shop" campaign. These agro-dealers are further linked to a select group of lead farmers that display the Syngenta solutions (or package of practices) via demonstration farms.

**Related Intervention Areas** - Improve Efficiency of Input Markets

**Donor** - Syngenta

**Location** - Nigeria



## Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship

2012-2017

**Objective** - Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship (2SCALE) is improving rural livelihoods, nutrition and food security in nine countries in sub-Saharan Africa, aiming to help 500,000 smallholder families significantly increase their net incomes and multiply sales for 2,500 entrepreneurs. The objective of 2SCALE is to support and expand 50 public-private partnerships to achieve a sustainable supply of food to regional, national and local markets.

**Related Intervention Areas** - Improve Management Capability and Profitability of Farm Enterprises; Strengthen and Support Robust Output Markets

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

**Collaborators** - Dutch knowledge centers, other agribusiness projects, private enterprises, agribusiness clusters and value chains

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

**Locations** - Benin, Ethiopia, Ghana, Kenya, Mali, Mozambique, Nigeria, South Sudan and Uganda; project activities in Burkina Faso, Niger and Togo phased out in 2014

## USAID C-4 Cotton Partnership Program

2014-2018

**Objective** – The USAID C-4 Cotton Partnership (C4CP) program aims to increase food security and incomes for cotton farmers in targeted areas of Benin, Burkina Faso, Chad and Mali. The project will raise the incomes of cotton producers and processors by introducing competitive and sustainable strategies to boost farm productivity and improve post-harvest processes. The project will help regional organizations achieve their objectives and focus particularly on the regional coordination capacity of cotton developed by WAEMU. C4CP specifically addresses the challenges women face in cotton-producing households and will introduce economic and social strategies to benefit these farmers.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Management Capability and Profitability of Farm Enterprises

**Implementing Partners** – Cultural Practice (CP) and ICRA

**Donor** – USAID

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



## USAID Liberia Food and Enterprise Development

2011-2016

**Objective** – IFDC, through the Office of Programs, is leading a technical assistance component to recruit and train agro-dealers and promote UDP in rice 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 Food and Enterprise Development (FED) project is developing rice, cassava and vegetable 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 was also established. The voucher system stimulates demand for agro-inputs and facilitates a competitive input supply chain.

**Related Intervention Areas** – Improve Nutrient Use Practices for Better Economic and Environmental Outcomes; Improve Efficiency of Input Markets; Improve Management Capability and Profitability of Farm Enterprises

**Lead Implementing Organization** – DAI

**Donor** – USAID

**Location** – Liberia



## USAID West Africa Fertilizer Program

2012-2017

**Objective** – The USAID West Africa Fertilizer Program (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.

**Related Intervention Areas** – Improve Efficiency of Input Markets; Analyze Inform and Influence Policy Reform

**Collaborator** – AFAP

**Donor** – USAID

**Locations** – ECOWAS Member States







# OoP

## Office of Programs

### Overview

*The Office of Programs (OoP) operates under the idea that agricultural productivity enhancement is the cornerstone for improved food security and economic growth in developing and emerging market economy countries. OoP's extensive experience in cost-effective fertilizer production, soil fertility management, fertilizer policy and supply/demand strategies provides the scientific and policy knowledge base required to help transition smallholders from low-input/low-output systems to one in which investments in proven nutrient management strategies and required agro-inputs are possible. Together, OoP and IFDC's field projects target fundamental and applied research geared toward nutrient use efficiencies and policy actions that produce improvements in the fertilizer supply chain in order to support IFDC's global efforts in fertilizer market development for smallholders. As a result, OoP's staff collaborate with public and private sector organizations, international institutions and development partners in issues related to fertilizer production and use.*

### Fertilizer Technology

The Fertilizer Technology group conducts research and development projects that characterize and identify the most efficient use of fertilizer raw materials and recovery of nutrients from waste and by-products to develop fertilizer production processes. These activities are conducted under contract and in collaboration with private companies, government institutions and international organizations. In 2014, the group conducted research/testing for 25 private client projects in the 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 11 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.

### Soil and Plant Nutrition

The Soil and Plant Nutrition team develops and promotes technologies, information, decision support tools and management practices that improve the efficiencies of cropping systems and soil and water resources. The program contributes to more economical, sustainable and environmentally sound crop food production. This is accomplished by fostering the adoption of technologies that enhance efficiency of nutrient use by crops, nutrient recycling and soil fertility. The program works closely with universities, international agricultural research centers and national agricultural research and extension systems from developing countries.

Major areas of research included:

- Field studies on zinc (Zn)-fortified wheat.
- Cooperation with land-grant universities to improve the UDP single row applicator.
- Ongoing development of Zn seed core technology (ZSCT).
- Evaluation of greenhouse gas (GHG) emissions from lowland rice.
- Expansion and updating of the Phosphate Rock Decision Support System (PRDSS).
- Matching plant phosphorus (P) demand to P supply from applied P fertilizer.
- Phosphate rock for direct application using in-situ rhizosphere acidification with organic acids.
- Agronomic evaluation of nano-size phosphate rock for direct application.

### Markets and Economics

The Markets and Economics team provides policy and economic expertise to support the achievement of IFDC's mission. Through extensive market assessment, project development and advisory services and policy analysis and dialogue, the unit supports developing and transitional economies in providing an enabling environment for agricultural markets. Additionally, the unit analyzes the feasibility of investment programs, socio-economic effects of new technologies, implications of regional trade on agriculture and agribusiness and policy measures required to advance national agricultural growth objectives. The group also provides analysis for more effective implementation of agro-input subsidy programs.

During 2014, the group developed a number of studies and assessments for partners and donors such as AFAP, AU/NEPAD, DGIS, FAO, the USAID FTF program and the Walmart Foundation, among others.

### Market Information Unit

The Market Information Unit conducts research and maintains data and information on fertilizer raw materials and products worldwide. As a result, it increases the use of regional agricultural information by improving and linking efforts to generate, disseminate and commercially use input market information. The ultimate objective is to improve information flows among public and private sectors



associated with policy creation, agricultural production, input markets and trade.

Publications produced in 2014 include:

- 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 confidential 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. The following publications and studies were completed for TFI in 2014:

- *Fertilizer Record (monthly)*.
- *U.S. Phosphate Material Exports Report (monthly)*.
- Ammonia Production Costs, 2013.
- Toxic Release Inventory Summary, 2013.
- Operating Rates, July-December 2013.
- Operating Rates, January-June 2014.
- North America Fertilizer Capacity.

## Analytical and Greenhouse Services

OoP analytical chemists provide critical support to the office's research efforts. 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.

The Greenhouse Services team maintains IFDC's two greenhouse facilities and some field trials and coordinates with OoP scientists to move research from the laboratory to the greenhouse evaluation stage of the technology development process. In some instances, the team is involved in the final evaluation at field level, particularly for trials conducted domestically. 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.

## Greenhouse Gas Field Research in Bangladesh

Due to IFDC's focus on improving nitrogen use efficiency (NUE), the organization is placing greater emphasis on mitigating nitrous oxide (N<sub>2</sub>O) and nitric oxide (NO) emissions. In addition to its global warming effect, which is 298 times more potent than carbon dioxide, N<sub>2</sub>O is now the dominant gas responsible for ozone destruction.

The global mean fertilizer-induced emissions for N<sub>2</sub>O and NO are equivalent to 0.98 million tons per year and 0.76 million tons per year, respectively. With total nitrogen fertilizer consumption at 109 million tons - and increasing at 1 million tons per year - the N<sub>2</sub>O and NO emissions are expected to increase unless mitigation options are implemented.

Beginning in the summer of 2013, IFDC conducted field experiments at two locations in Bangladesh to quantify the effect of UDP fertilization on GHG emissions in intensive rice cropping systems. Specially designed chambers continuously monitored emissions of three fertilizer treatments under two water management regimes during the three rice-growing seasons in Bangladesh.

Results, to be published in 2015, demonstrated that UDP reduced N<sub>2</sub>O emissions by up to 72 percent compared with broadcast prilled urea, particularly under continuously standing water conditions. NO emissions, were negligible under this treatment. UDP, a climate-smart technology, presents a win-win-win for smallholders. It increases crop productivity, mitigates GHG emissions and reduces overall fertilizer use.

## Training and Workshop Coordination Unit

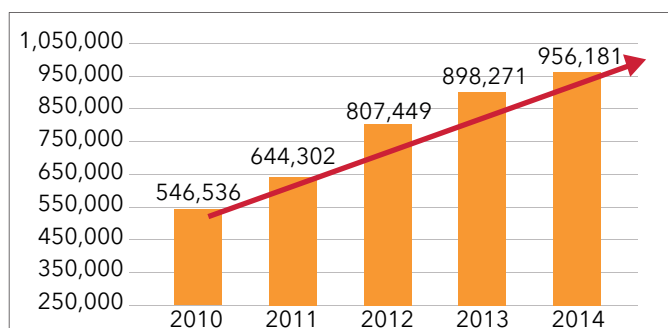
### More than 950,000 Trained

Training is a strategic tool that IFDC uses to strengthen the capability of fertilizer producers, suppliers, farmers and agro-dealers to increase sustainable agricultural productivity. IFDC conducts field trainings at the project level in its three geographic divisions and coordinates specialized global trainings from its headquarters in Muscle Shoals, Ala., USA.

Between 2010 and 2014, the number of field training participants accelerated from nearly 550,000 to more than 950,000, with a 12 percent compound annual growth rate. This growth serves as an example of the critical role that technology and innovation transfer plays in the implementation of IFDC's mission. A core component of IFDC's mandate is building human capacity to improve performance and efficiency across agricultural value chains. IFDC envisions a future in which developmental assistance will no longer be necessary to ensure freedom from hunger and poverty. Realizing that goal requires strengthening local actors and institutions that ultimately are responsible for transforming their countries. "It is not enough to have innovation," says Dr. Amit Roy, IFDC president and CEO. "We need to get innovation and technologies to those who need it."

IFDC sees development as a long-term, continual process that involves all stakeholders, including entrepreneurs, governments, regional economic communities, local authorities, private sector companies, non-governmental organizations, community members, academics and donors. IFDC is building human, scientific, technological and organizational capabilities in the countries in which it works at all levels: individual, community, institutional and societal. The training topics covered vary according to the specific needs of each IFDC geographic region along the field project lines.

**IFDC Field Training Participants (2010-2014)**



### EurAsia Division (EAD)

The Accelerating Agriculture Productivity Improvement (AAPI) project in Bangladesh, together with Walmart Foundation Activity (WFA), recorded 164,368 participants, of which 38 percent were women. Compared with 2013, the attendance rate decreased by 33 percent because AAPI activities had settled into a slower pace. These results could be attributed to the project entering its fifth year, and most training targets have been met. However, the number of women trained under WFA increased by 50 percent from 14,360 in 2013 to 21,560 in 2014. To create sustainable FDP technology adoption and briquette supply, AAPI strengthened private sector business networks that link fertilizer briquette machine owners to existing retailers to increase sales. Consequently, the training focused on both machine operation for local mechanics and on retailer training programs. WFA provided women with training on FDP technology in vegetable crops and provided nutrition education (see sidebar).

### East and Southern Africa Division (ESAFD)

With projects in ten countries, ESAFD has increased the number of participants trained by 27 percent from 333,532 in 2013 to 423,541 in 2014; 51 percent of trainees were women. CATALIST-2 training accounted for 67 percent of the division's total training attendance. The programs targeted agribusiness cluster stakeholders, including farmers, agro-dealers, collectors, processors, sellers and consumers. Training focused on business management, financial education, cooperative management, cost and benefit analysis, marketing, business negotiation, agribusiness, value chain development and gender inclusion in value chains. CATALIST-2 linked agribusiness cluster actors with financial institutions and farmers with potential buyers. In addition, farmers were trained in integrated soil fertility management, quality seed production, positive selection for seed multipliers and seed entrepreneurship.



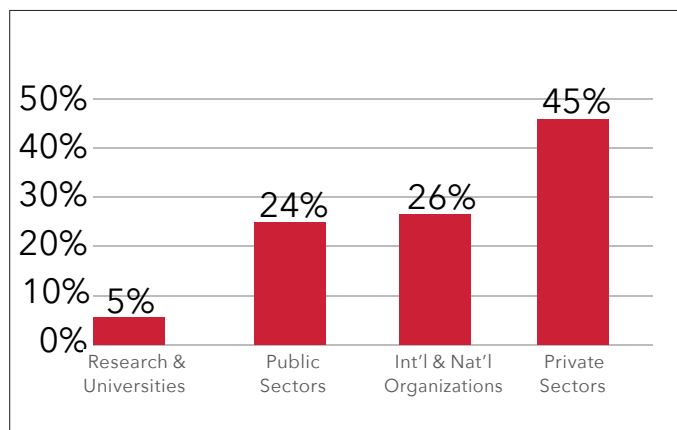
## North and West Africa Division (NWAfD)

The total number of attendees increased by 15 percent from 321,138 in 2013 to 368,272 in 2014 in eight countries. Accounting for 75 percent of the total training reach, MARKETS II focused on UDP technology in rice and targeted farmers, agro-dealers, extension agents and seed producers in Nigeria. The MARKETS II team transfers technical knowledge to Nigerian smallholder rice farmers on methods to improve their yields and livelihoods. The project is achieving this objective through training and capacity building and establishment and maintenance of technology transfer centers (TTCs) and demonstration plots.

## Training and Workshop Coordination Unit (TWCU)

During 2014, the TWCU held seven international training sessions for 315 participants, one of the highest attendance rates in the last 15 years. Locations included Ghana, Mali, Senegal, South Africa, Tanzania, Thailand and the United States. Participants came from five continents. Combined, Africa and Asia represented 85 percent of the attendees. International training programs attracted professionals from both the public and private sectors along with national and international development agencies, agricultural research centers and universities. Topics included fertilizer value chains, agro-input smart subsidy programs, farm-to-market linkages, technological advances in agricultural production, water and nutrient management, balanced fertilizers, market information systems and granular fertilizer production. On average, 81 percent of the participants rated the 2014 programs as “very good” or “excellent” on technical delivery, program content, methodology and administration.

### Participants Per Categories in 2014



## Training Empowers Female Farmers in Bangladesh

The AAPI WFA aims to train 40,000 Bangladeshi women in FDP for vegetable production. The initiative empowers female farmers by providing them with better employment opportunities, increased income and enhanced access to technology and knowledge.

AAPI WFA training emphasizes FDP and the use of high-quality seeds. Each participant receives a fertilizer kit containing 10 kilograms (kg) of urea briquettes (known as *Guti* urea in Bangladesh). The training also covers good nutritional practices and gender relations.

In 2014, 21,560 women farmers participated in the program. Namita, a trainee from Jessore Sadar, says “The knowledge I gained from the training on FDP technology and nutrition has allowed me to farm vegetables in a new and effective way. I have transformed into a professional vegetable farmer. Now, I can help my husband in his business and contribute to my family’s income.”

Training participant Taslima Begum commented that her confidence soared after earning increased returns from the higher rice yields. She has inspired many women in her village to use *Guti* urea in their vegetable plots.

AAPI WFA capacity-building opportunities are increasing family incomes and dietary diversity. This enhances women’s participation in agricultural production and marketing decisions.

# Selected Presentations and Publications

## Presentations

"Simulating Nitrogen Response to Rice under Ambient and Future Climate Conditions" by Upendra Singh, Job Fugice and Stephen Butler and presented by Job Fugice at the 2014 AgMIP Rice Team Annual Workshop, Nanjing, China, December 1-4, 2014.

"Quantifying the Impact of N Fertilization and Water Management on GHG Emissions from Rice Fields in Bangladesh" was presented by Upendra Singh to the Bureau of Food Security (BFS), USAID, Washington, D.C., October 22, 2014.

"Quantifying Nitrous Oxide and Nitric Oxide Emissions from Rice Fields," (<https://scisoc.confex.com/scisoc/2014am/webprogram/Paper87199.html>) by Upendra Singh, Rick Austin, Yam Gaihre, Joaquin Sanabria, Wendie Bible and Abdus Satter was presented at the American Society of Agronomy/Crop Science/Soil Science, Long Beach, CA, November 2-5, 2014.

"Access to and Demand for GM Traits by Seed Companies in India, China and East Africa," paper by C.E. Pray and L. Nagarajan and presented at the Final Templeton Project Workshop at Rutgers University, New Brunswick, NJ, September 18-20, 2014.

"Impacts of GM Maize on Maize Supply Chain and Economic Interest Groups in Kenya," by L. Nagarajan, C.E. Pray and A. Naseem was presented at the Final Templeton Project Workshop at Rutgers University, New Brunswick, NJ, September 18-20, 2014.

"Fertilizer Subsidies in Africa - Lessons for India?" by Sarah Gavian (co-authored by Maria Wanzala-Mlobela) was presented at the Fertilizer Policy Session of the 50th FAI Annual Seminar, Unshackling the Fertiliser Sector, held at the JW Marriott Hotel, Aerocity, New Delhi, India, December 10-12, 2014.

"Sharing the Experience of Fertilizer Subsidies in Sub-Saharan Africa" by Sarah Gavian was presented at the FAI-IFA Round Table on "Fertiliser Subsidies: A Way Forward," held at the JW Marriott Hotel, Aerocity, New Delhi, India, December 10-12, 2014.

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## Publications

"Impacts of Urea Deep Placement on Nitrous Oxide and Nitric Oxide Emissions from Rice Field in Bangladesh" by Yam Kanta Gaihre, Upendra Singh, S.M. Mofijul Islam, Azmul Huda, M.R. Islam, M. Abdus Satter and Joaquin Sanabria was submitted to *Geoderma* for publication.

*Operating Manual on Automated Continuous Measurement of Greenhouse Gas Emissions* by Y.K. Gaihre, M.A. Satter, U. Singh and R. Austin. 2014. IFDC Technical Bulletin T-76. International Fertilizer Development Center, Muscle Shoals, AL 35662. USA. 82 p. <http://www.ifdc.org/Publications/Technical-Bulletins>.

"TRIPS Compliance of National Patent Regimes and Domestic Innovative Activity, The Indian Experience" by Sunil Mani, Sudip Chaudhuri, V.K. Unni, Carl Pray and Latha Nagarajan. IN S. Mani and R.R. Nelson, *Trips Compliance, National Patent Regimes and Innovation: Evidence and Experience from Developing Countries*. Edward Elgar Publishing, Cheltenham, United Kingdom. 2014.

"Producer Choice" by Ari Novy and Latha Nagarajan. In *Socioeconomic Considerations in Biotechnology Regulations*. K. Ludlow, S. Smyth, F. Jose (Eds). Cambridge University Press, United Kingdom. 2014.

"Biotechnology and the Inputs Industry" by A. Naseem and Latha Nagarajan. Chapter 26 of *Handbook on Agriculture, Biotechnology and Development*. Stuart J. Smyth, Peter W.B. Phillips and David Castle (Eds.). Edward Elgar Publishing, Ltd., Northampton, MA, USA.







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Azamat Mamutov, Agri-Input Specialist (Osh office) – KAED<sup>1</sup>  
Maksatbek Mamytbekov, Livestock Specialist – KAED<sup>1</sup>  
Luiza Mukhamedova – Public Relations Assistant – KAED<sup>1</sup>  
Jyrgal Musaev, Extensionist (Osh office) – KAED<sup>1</sup>  
Jyldyz Niyazalieva, Public Relations/Outreach Coordinator – KAED<sup>1</sup>  
Ulan Orozbek Uulu, Driver (Osh office) – KAED<sup>1</sup>

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#### **Staff**

Grahame Hunter, FSI Chief of Party  
Kyaw Zin Lin Saing (BoBo), Grants Specialist/Administrative Officer  
Htoo Htoo Aung, Senior Technical Transfer Advisor  
Myint Aung, Senior Agronomist  
Toe Toe Aung, Field Officer  
Aye Aye Cho, Field Officer  
Aye Theingi Htun, Field Officer  
Ko Ko Htwe, Janitor  
Dolly Kyaw, Monitoring and Evaluation Specialist  
Aung Swe Latt, Training Officer  
Mi Mi Kyaw Myint, Secretary  
Zay Yar Myint, Union Agronomist  
Tin Nandar Win Thein, Accountant  
Soe Thura, Junior Agronomist  
Si Thu Tun, Mechanical Engineer

<sup>1</sup>Left during 2014

<sup>2</sup>Retired during 2014

<sup>3</sup>Short-term staff 2014

<sup>4</sup>On extended leave

<sup>5</sup>Deceased 2014

<sup>6</sup>Student attachment

# FINANCIAL HIGHLIGHTS

## Balance Sheet

<b>Balance Sheet – For the year ended December 31, 2014</b>		<i>US \$'000</i>
<b>Assets:</b>		
Cash and cash equivalents		10,733
Contracts receivable, net of allowance for doubtful accounts		7,557
Other receivables		453
Supplies inventory		117
Prepaid expenses and advances		1,063
<b>Total Current Assets:</b>		<b>19,923</b>
Buildings and equipment, net		13
<b>Total Assets</b>		<b>19,936</b>
<b>Liabilities and Net Assets:</b>		
Accounts payable		530
Accrued salary, w/holding and leave		1,530
Deferred revenue		17,840
<b>Total Current Liabilities</b>		<b>19,900</b>
<b>Unrestricted Net Assets</b>		<b>28</b>
<b>Permanently Restricted Net Assets</b>		<b>8</b>
<b>Total Liabilities and Net Assets</b>		<b>19,936</b>

## Revenue Sources

- ACDI/VOCA
- African Fertilizer and Agribusiness Partnership
- Agricultural Materials Group, LLC
- AgriMerc ODS
- Alliance for a Green Revolution in Africa
- Centre for Development Innovation (CDI)
- Chemonics International Inc.
- Development Alternatives, Inc.
- Enviro Applied Products Ltd.
- Food and Agriculture Organization of the United Nations (FAO)
- Forum for Agricultural Research in Africa
- Government of Nigeria
- GRM International Limited
- International Fertilizer Industry Association
- International Food Policy Research Institute
- International Institute of Tropical Agriculture (IITA)
- Kumtor Gold Company
- Ministry of Agriculture (Togo)
- Netherlands' Directorate-General for International Cooperation
- NFT Industries, LLC
- OCP S.A.
- Ostara USA LLC
- Plantacote B.V.
- PotashCorp
- Royal Embassies of the Kingdom of the Netherlands
- Rutgers University
- Saudi Basic Industries Corporation (SABIC)
- Shell Oil Products U.S.
- Solidaridad West Africa (SWA)
- Swiss Agency for Development and Cooperation (SDC)
- Syngenta Crop Protection AG
- Taraba State Government (Nigeria)
- The Economic Community of West African States (ECOWAS)
- The Fertilizer Institute
- The Walmart Foundation
- U.S. Agency for International Development
- VitAG Corporation



# FINANCIAL HIGHLIGHTS

## Statement of Revenue and Expenses

Statement of Revenue and Expenses – For the year ended December 31, 2014		US \$'000
<b>Revenue and Support:</b>		
ACDI/VOCA		1,862
AFAP		929
AGRA		783
Chemonics International Inc.		1,191
DAI		490
DGIS		7,949
Embassies of the Kingdom of the Netherlands		16,248
Government of Nigeria		784
GRM International Limited		1,547
ICRISAT		593
IFA		161
SDC		2,913
Shell Oil Products U.S.		732
Syngenta Crop Protection AG		660
The Fertilizer Institute		180
USAID		22,464
Wal-Mart Foundation, Inc.		644
Others		4,124
<b>Total Revenue and Support</b>		<b>64,254</b>
<b>Expenses:</b>		
Research and development		3,162
Agribusiness		35,724
Natural resource management		5,935
Capacity building		9,813
VFRC		1,026
Support activities		10,385
<b>Total Expenses</b>		<b>66,045</b>
<b>Increase (Decrease) in Unrestricted Net Assets</b>		<b>(1,791)</b>

# PARTINGSHOT



**"Moving from plow to tractor, I increased my planting area from 11 to 50 hectares and transformed from a peasant into an entrepreneur."**

Abdramane Traoré, an IFDC beneficiary in Mali, learned to use ISFM in conjunction with updating his farm machinery. Now, he harvests a greater amount of crops and is a member of a cooperative that aggregates its crops and bargains for higher prices in the marketplace. "IFDC helped us diversify our crops, control soil fertility, improve our returns and access profitable markets. More importantly, training on the Competitive Agricultural Systems and Enterprises (CASE) approach has made us united and therefore stronger."



# Acronyms & Abbreviations

2SCALE	Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship	ISFM	integrated soil fertility management
AAPI	Accelerating Agriculture Productivity Improvement	kg	kilograms
AFAP	African Fertilizer and Agribusiness Partnership	MAP	Monoammonium Phosphate
AFO	AfricaFertilizer.org	MINAGRI	Rwanda Ministry of Agriculture and Animal Resources
AGRA	Alliance for a Green Revolution in Africa	MIS	market information systems
AIMS	Agricultural Input Market Strengthening	N	Nitrogen
AIRCA	Association of International Research and Development Centers for Agriculture	N <sub>2</sub> O	nitrous oxide
AU	African Union	NEPAD	New Partnership for Africa's Development
AWD	alternate wetting and drying	NGO	Non-Governmental Organization
BRRRI	Bangladesh Rice Research Institute	NO	nitric oxide
CAADP	Comprehensive Africa Agriculture Development Programme	NUE	nitrogen use efficiency
DAE	Department of Agricultural Extension	NWAFD	North and West Africa Division
DAP	Diammonium Phosphate	OoP	Office of Programs
DfID	Department for International Development	P	Phosphorus
DGIS	Directorate-General for International Cooperation	PPP	public-private partnership
DRC	Democratic Republic of Congo	PRDSS	Phosphate Rock Decision Support System
EAD	EurAsia Division	PS	phosphate soluble
ECOWAS	Economic Community of West African States	R&D	research and development
ESAFD	East and Southern Africa Division	REC	Regional economic community
FAO	Food and Agriculture Organization of the United Nations	SME	small and medium enterprises
FDP	fertilizer deep placement	TFI	The Fertilizer Institute
FGN	Federal Government of Nigeria	TTC	technology transfer centers
FTF	Feed the Future	TWCU	Training and Workshop Coordination Unit
GES	Growth Enhancement Support	UDP	urea deep placement
GES-TAP	Growth Enhancement Support - Touch and Pay	USAID	U.S. Agency for International Development
GhanaVeg	Commercial Vegetable Sector Development in Ghana	VFRC	Virtual Fertilizer Research Center
GHG	greenhouse gas	WAEMU	West African Economic and Monetary Union
IFA	International Fertilizer Industry Association	WFA	Walmart Foundation Activity
IFAD	International Fund for Agricultural Development	WUR-CDI	Centre for Development Innovation of Wageningen University and Research Centre
IFDC	International Fertilizer Development Center	Zn	Zinc

## Publication Credits

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All photographs are from the IFDC  
Photo Archives



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IFDC  
Circular IFDC S-38  
ISSN - 1536-0660  
May 2015  
2.5 M

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