

IFDC *report*

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An update on the work and progress of IFDC

Cocoa for a Better Life
UDP Trials in Kenya
Agriculture Sector in Bangladesh
IFDC Hosts FIRT Board of Directors
“Faces of Agriculture” Launched

25 Years
IFDC –
Committed to Africa



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

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Frequently Used Acronyms:

AGRA – Alliance for a Green Revolution in Africa • FAO – Food and Agriculture Organization of the United Nations • ha – hectare • IFAD – International Fund for Agricultural Development • IITA – International Institute of Tropical Agriculture • ISFM – integrated soil fertility management • kg – kilogram • MoA – Ministry of Agriculture • NGO – non-governmental organization • PIO – public international organization • PPP – public-private partnership • TVA – Tennessee Valley Authority • UDP – urea deep placement • USAID – U.S. Agency for International Development • VFRC – Virtual Fertilizer Research Center



IFDC – Committed to Africa

IFDC was established in 1974, and actual program activities began in July 1975 in temporary facilities on the Tennessee Valley Authority (TVA) Reservation. By August 1, 1976, there were 45 IFDC staff members, including 26 technical positions. On March 14, 1977 – 35 years ago – IFDC was granted status as a public international organization (PIO) by Presidential designation (see article on pages 28-29).

in Lomé, and the East and Southern Africa Division (ESAFD) is based in Nairobi, Kenya.

The IFDC staff who have worked in Africa since 1975 (first project in Africa) and 1987 (first office) have contributed to the food security and economic development of the continent's smallholder farmers. 'Islands of success' have been achieved, but a great deal of work remains. IFDC is committed to helping Africa's smallholder farmers (and smallholder farmers throughout the developing world) break free from the poverty cycle and move to the prosperity cycle.

▲ Women farmers in Togo, where IFDC established its first Africa Division office. IFDC projects promote gender equity in agricultural intensification.

The articles on pages 2-7 are taken from *IFDC Report* archives and focus on early projects in Africa. The information in them may have been updated to improve relevance; they highlight IFDC activities from its founding through the establishment of the Africa Division office in Lomé, Togo, in 1987. The articles are part of a year-long series that commemorates the founding of IFDC's first Africa Division. Future articles will cover early fertilizer studies, training and key milestones in IFDC's work in Africa.

Early IFDC Projects in Africa

The First Mission in Africa (1976)

The first IFDC mission in Africa occurred in late January 1976, when Don Waggoner helped the Ghana Fertilizer Company (GFC) prepare for and receive the first shipment of bulk fertilizer at Port Tema, near Accra. The shipment demonstrated the technical and economic benefits of shipping bulk fertilizers to that port.

Waggoner, a chemical engineer with IFDC's Outreach Division, trained GFC staff to properly unload the bulk fertilizer, bag it and transport the fertilizer to an appropriate storage facility. Robert Grisso, an agricultural economist with TVA assigned to the U.S. Agency for International Development (USAID) mission in Ghana, assisted with the project.



A container ship unloading fertilizer in an African port.

IFDC Team Appraises Zimbabwe's Fertilizer Sector (1981)

At the request of the Industrial Development Corporation of Zimbabwe, an IFDC team visited the country in June 1981 to review its fertilizer industry and to make a preliminary appraisal of alternatives in that sector. The team included: Dr. Donald McCune, IFDC managing director; Owen Livingston, Fertilizer Technology Division director; and John Hill, marketing development specialist in the Outreach Division.

At that time, agriculture in Zimbabwe was divided into commercial agriculture and tribal trust lands (TTLs). Commercial agriculture, comprising 5,200 commercial farms, produced about 80 percent of Zimbabwe's agricultural production. The IFDC staff visited five commercial farms and a large sugar plantation. Commercial farms were well-managed and used the latest varieties, cultural practices and technology. The farms' crop yields were equal to or higher than those in many developed countries.

About 850,000 small-scale farmers, almost wholly in the TTLs, grew the remaining 20 percent of the country's agricultural production. TTLs were located in areas of low rainfall, had rapidly growing populations, very meager rates of agro-input use, extremely low production levels and a disproportionately poor share of Zimbabwe's infrastructure. The IFDC team visited Seke TTL, where they met with nine saving clubs, each composed of 10-25 farmers. Farmers in a saving club banded together to buy fertilizer.

The country produced a variety of high-yielding crops. However, a large percentage of the arable land in both agricultural sectors was not being fully utilized. The IFDC staff and other experts knew that if irrigation and widespread fertilizer use were introduced in the TTLs, the country's agricultural production would be significantly increased and would support significantly more people. Zimbabwe's 1981 population was estimated at about 7.4 million (12.6 million now); 75 percent derived their livelihoods from agriculture. In the early 1980s, Zimbabwe was one of the few countries in Africa that was able to not only feed its own population but also export crops to neighboring countries.

Fertilizer consumption in Zimbabwe totaled about 500,000 mt. Because of a shortage of local production capacity, fertilizer imports in 1981 equaled one-half of the fertilizer nutrients used. At that time, the agricultural sector was expected to expand rapidly, as was the need for imported fertilizer. There were plans for major investments to increase local fertilizer production. IFDC offered to develop a long-range fertilizer plan to complement the country's agricultural plan.

But Zimbabwe ceased to be a breadbasket for surrounding countries. Almost all commercial farms were seized to benefit landless Zimbabweans. This led to decreases in production and led to the collapse of the agriculture-based economy. The country has endured rampant inflation and critical food and fuel shortages ever since.

Aid agencies and critics partly blame food shortages on the government's land reform program; the government blames a long-running drought. Perhaps one day Zimbabwe will again enjoy food security.



IFDC's goal is to help smallholder farmers...



...move from the cycle of poverty to the cycle of prosperity.



These "Faces of Agriculture" are from some of IFDC's earliest projects in Africa (1976-1987). See article on pages 34-35.

Research Network Helps Solve Africa's Food Production Puzzle (1985)

At the 1985 "Management of Nitrogen and Phosphorus Fertilizers in Sub-Saharan Africa" symposium (held in Lomé, Togo), 57 prominent scientists from national and international agricultural research centers in 17 countries of tropical Africa reviewed results from IFDC's African Fertilizer Research Program (AFRP).

More than 25 years later, IFDC and other organizations are still working with African countries, scientists and farmers to improve the continent's soils and crop yields.

Established in 1981, AFRP was a network of soil scientists, agronomists and social scientists who worked with African countries to use native fertilizer resources to grow more food. AFRP was coordinated by Dr. Uzo Mokwunye, a soil scientist at IFDC.

Collaborating with IFDC on the research and the symposium were the International Institute of Tropical Agriculture (IITA) in Nigeria and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Niger. Funding for AFRP came from the International Fund for Agricultural Development (IFAD).

"Different agro-climates exist in tropical Africa," Mokwunye stated. "Crop growing conditions are different for each agro-climate. AFRP's network approach enables IFDC to introduce results obtained at appropriately located benchmark sites into the national research programs of the network members. Relevant findings are used as a basis for on-farm research and validation tests on farmers' fields. Experiences of different network members are shared during annual workshops."

What is striking is that many of the AFRP participants' observations and recommendations are as true in 2012 as they were in 1985. For example, it was the consensus of the network members that the most immediate and direct way to solve Africa's food shortages was to make fertilizer more available to smallholder farmers.

McCune put the African situation into perspective: "Direct food aid, which is being offered by a myriad of benefactors, can help alleviate the present hunger problems of Africa, but a long-term solution requires the establishment of a more stable agricultural sector in each country."

Participants agreed that to revive the ailing agricultural sectors of African countries would require the use of fertilizer, improved seeds, pesticides, effective extension services and reasonable pricing policies. Most of the fertilizer used in Africa in 1985 was imported at a very high cost. Therefore, Africa's fertilizer consumption was the lowest in the world. That situation has not changed. One of IFDC's goals

in 1985 (and now) was to help African countries use their own resources for fertilizer wherever and whenever economically and technically feasible. IFDC began its formal field research (AFRP) in Africa in 1981. The research focused, in part, on the use of African natural resources for the production of nitrogen and phosphorus fertilizers across the continent.

In many African countries, the land itself holds one of the keys to solving the food production puzzle – it contains phosphate rock. The IFDC research network studied phosphate deposits in Benin, Burkina Faso, Mali, Niger, Senegal, Togo, Uganda, Zambia and Zimbabwe. The phosphate rock deposits in Mali and Senegal were/are suitable for direct application; that from other deposits has to be processed to be effective during the first year after application.

Mokwunye said at the symposium, "Data from our research indicates that phosphorus is the most limiting nutrient in Sahelian West Africa while nitrogen is most important in the more humid regions." He also said, "Approximately half of the nitrogen in fertilizer applied to Sahelian soils is lost. In years of high rainfall much of the nitrogen-based fertilizer applied in the humid region is lost. Also, incidences of sulfur, potassium, zinc and magnesium deficiencies have been noted across all agro-climatic zones."

More than 25 years later, IFDC and other organizations are still working with African countries, scientists and farmers to improve the continent's soils and crop yields.

IFDC's First Decade of Service (1985)

"At the time we were only three in number," reminisced Dr. John A. Hannah, the first chairman of the IFDC board of directors during a presentation on September 25, 1985, marking IFDC's tenth anniversary. He was speaking of the three original members of the IFDC board. Hannah served as president of Michigan State University for 28 years (1941-1969) before becoming administrator of USAID from 1969 to 1973. The other two original board members were Lynn Seeber, general manager of TVA, and Webster Pendergrass, vice president for agriculture at the University of Tennessee.

to as 'basket cases,' which included India, Pakistan, Bangladesh, China and others.

"Many of these countries have not perished and now stand proudly on their own feet. They recognized that agriculture had to be their solution and were brave enough to support agriculture at the expense of other things. In every case, the increased use of the right types and amounts of fertilizer played an important role," Hannah continued. "In many of these cases, there is evidence that IFDC – through its research, training and technical assistance programs – has helped these countries and many others to feed themselves and, in some instances, even to export large quantities of food."

But the world agricultural leader urged IFDC not to stop. "Some parts of the dream have become a reality," Hannah said. "But we have a whole new group of countries that are in deep trouble – Ethiopia, Sudan, Chad, Mali, Niger – in fact, almost all of Africa."

"Our original dream must continue. We must have confidence that countries will recognize that these solutions will increase food production and improve nutrition. Fertilizers will play an extremely important role and IFDC must provide the leadership."



The original IFDC board of directors, Webster Pendergrass, Lynn Seeber and John Hannah, are pictured with IFDC Managing Director Donald McCune (right).

The organization that they helped form would do much toward "increasing food production and alleviating hunger in a world that many thought was either at or beyond the brink of disaster." In his presentation, Hannah reviewed the accomplishments of IFDC's first decade. "We heard of countries that were referred

In concluding his speech, Hannah shifted his audience's thoughts toward the future. "As we look back on the first decade, let us also look forward to when people will be able to say...that IFDC played a significant role in helping the hungry nations of the world feed their citizens."

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– Dr. John A. Hannah

Africa's Agricultural Blueprint (1986)



A group of farmers work in a field.

In his closing address to the African Workshop on Fertilizer Sector Development (held at IFDC in June 1986), IFDC's Managing Director Dr. Donald McCune reflected on the recent famine in Africa. "I knew that had fertilizers been playing their rightful role, many who died as well as those who suffered need not have done so."

He asked the African delegates attending the workshop to help chart a new course for Africa's agricultural future. "Now let us all dedicate ourselves to do all in our power to not let famine happen again because of a lack of the proper use of fertilizers."

Twenty-one senior-level administrators from 18 African countries participated in the workshop. Its goal was to formulate action guidelines for improving the cost-effectiveness of the various components of the national fertilizer sectors. Supported by the United Nations Development Programme, the workshop addressed several issues. Among them were: strategies for improving the effectiveness of yield-increasing technology transfer to farmers; research involving farmers in problem identification and solution development; and components of a successful fertilizer program integrating research, extension and marketing.

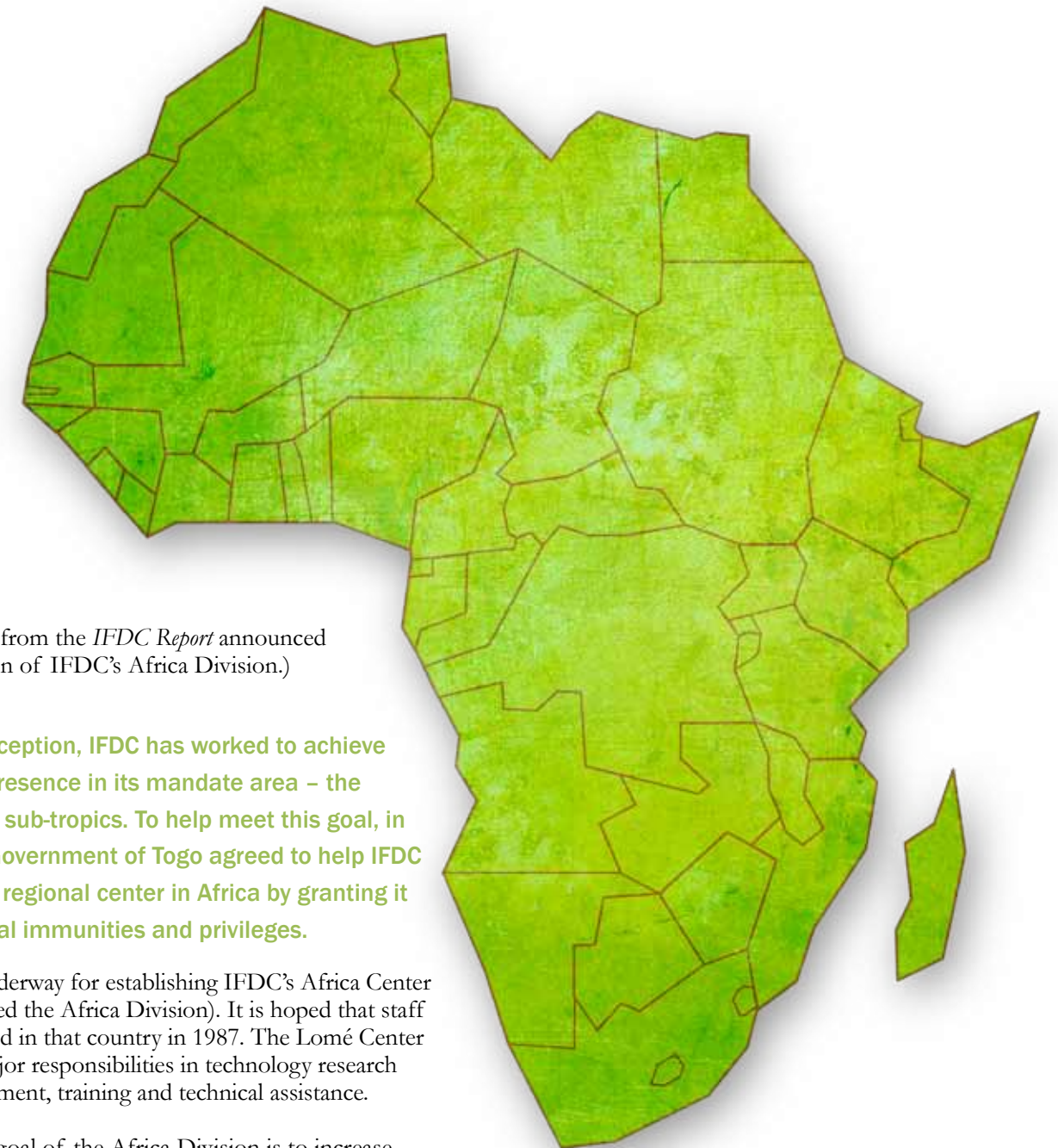
One of the delegates, Kenya's Henry Ogola, president of MEA, Ltd., discussed the information on private-sector fertilizer marketing. "USAID has emphasized the need for a private-sector approach in fertilizer marketing," Ogola said. "It is of great interest to me to see IFDC not only advocating the same approach but also outlining the means of accomplishing it."

During the workshop, various constraints to fertilizer marketing such as low margins, a poor transportation network and a lack of finance and credit were highlighted, and serious attempts were made to find solutions. Workshop attendees agreed that a marketing system must be cost-effective and that a system must adequately remunerate those involved in performing various services to supply fertilizer to farmers.

The Sudanese delegate, Faiza Mirghani Mohamed Ali, an agricultural economist in the Ministry of Finance and Economic Planning, was grateful for the chance to participate in the workshop and gathered many useful ideas that she planned to put into action in her job.

(Unfortunately, decades of civil war befell Sudan. Only now, following the partition of Sudan into two countries, is there renewed hope for a revitalized agricultural sector in the new nation of South Sudan.)

IFDC Gains African Connection (1986)



(This article from the *IFDC Report* announced the formation of IFDC's Africa Division.)

Since its inception, IFDC has worked to achieve a greater presence in its mandate area – the tropics and sub-tropics. To help meet this goal, in 1985 the Government of Togo agreed to help IFDC establish a regional center in Africa by granting it international immunities and privileges.

Plans are underway for establishing IFDC's Africa Center (later renamed the Africa Division). It is hoped that staff will be posted in that country in 1987. The Lomé Center will have major responsibilities in technology research and development, training and technical assistance.

The overall goal of the Africa Division is to increase food production by overcoming the constraints to fertilizer use and promote the exploitation of indigenous resources as fertilizer sources. Specific objectives are to conduct and promote research and provide technical assistance for sector development.

The director of the Africa Division, Dr. Paul L.G. Vlek, clearly sees the value of an Africa-based division. "By establishing an ongoing presence in Africa we can work more closely with each individual country; we can increase our impact and assist smallholder farmers more directly."

A soil scientist who has been with IFDC for the past 10 years, Vlek was recently selected to head the newly formed IFDC-Africa Center. In early 1987 Vlek, who has been director of the Agro-Economic Division, will be posted in Togo. During his tenure at IFDC, Vlek has been instrumental in the development of collaborative projects with national programs in Burkina Faso, Cameroon, India, Kenya, Senegal, South Korea and Togo. In addition, he served as a consultant to the World Bank in Madagascar and Rwanda.



Cocoa for a Better

▲ Cocoa pods.
▶ (Opposite top): IFDC staff collect data from a fertilized cocoa plot.
▶ (Opposite bottom): Cocoa pods.

Much of the world's population agrees that things go better with chocolate! To West and Central Africa, cocoa, chocolate's primary ingredient, is a crop of huge economic and social significance. Cocoa exports generate over \$8 billion for the region's national economies. Moreover, cocoa supports about two million smallholder farm households in West and Central Africa.

West and Central Africa are critically important to the global cocoa/chocolate industry. This area is the source of 70 percent of the world's cocoa supply. With projected strong, long-term demand, cocoa can be a very profitable cash crop for more smallholder farmers and their families in this region.

Currently there are several new efforts to double cocoa productivity for at least 100,000 farm households in the region, particularly in Cameroon, Côte d'Ivoire, Ghana and Nigeria. The African Cocoa Initiative (ACI) is a public-private partnership (PPP) bringing together the World Cocoa Foundation (WCF), cocoa industry members, the Dutch Sustainable Trade Initiative (IDH) and USAID. This five-year, \$13.5 million Global Development Alliance program also advances the goals of USAID's Feed the Future Initiative, which is active in a number of African countries.

The ACI, which began in January 2012, will help further develop the cocoa sector in the four countries in four critical areas: foster public-private cooperative

Life

investments in cocoa and agriculture; improve the genetic quality and productivity of the cocoa varieties under cultivation; expand farmer

education and training programs; and improve the agro-input supply chains that serve the farmers.

One of the implementing agencies for the ACI, IFDC is providing expertise to improve participating farmers' access to fertilizer and is recommending appropriate fertilizer use. Other agencies joining the initiative are the IITA, which will provide expertise in genetics, and the Alliance of Cocoa-Producing Countries, experienced in cocoa policy development. The program will be headquartered at the WCF's office in Accra, Ghana.

From 2007 to 2009, IFDC was involved in an association-building project to increase incomes and improve livelihoods of resource-poor cocoa farmers in Ghana. The project (Establishment of the Cocoa Abrabopa Association [CAA]) was a PPP funded by the

Royal Embassy of the Netherlands and Wienco. IFDC helped CAA become financially sustainable, improved members' business skills and technical knowledge, improved their access to agro-inputs, improved cocoa quality and helped to create a favorable trade environment.

IFDC also worked to build CAA's capacity in integrated soil fertility management (ISFM). Before *Abrabopa*, cocoa production in the project area was declining. Farmers were harvesting only 250 to 450 kilograms (kg) of dried cocoa per hectare (ha). This was far less than the 800 kg/ha that was produced using ISFM and appropriate fertilizer recommendation packages. Farmers noticed the significant yield improvement in their cocoa crops with these changes and by project-end, CAA's membership totaled over 10,000 Ghanaian cocoa farmers. Today membership has almost doubled.



Recently, IFDC and its partners conducted a baseline study on the soil fertility management practices used by cocoa farmers. Surveys were conducted with about 150 cocoa farmers in each of the seven cocoa regions of Ghana (Ashanti, Brong-Ahafo, Central, Eastern, Volta, Western North and Western South). This was followed by an assessment of soil fertility of the major soils on 21 cocoa plantations located in the various agro-ecozones of Ghana.

According to Dr. Abdoulaye Mando, IFDC country representative and program leader for IFDC's Natural Resource Management program in NWAFD, the survey revealed that cocoa farmers in Ghana do not yet have adequate know-how in ISFM and other yield-enhancing production practices. Poor farm management practices appeared to be the major constraint to farmers achieving higher cocoa yields. Mando and other IFDC staff members are convinced that farmers need additional instruction in ISFM principles and that it is important that site-specific fertilizer formulation and validation be offered to Ghana's cocoa producers. Mando reports that Participatory Learning and Action Research modules are being fine-tuned and finalized to meet the farmers' specific needs.

The original IFDC cocoa project was aptly named. *Abrabopa* means 'cocoa for a better life' in Twi, a local Ghanaian language. IFDC seeks to contribute to a better life for cocoa farmers in West and Central Africa and to stronger economies for their countries. (For more information about the CAA project, go to <http://bit.ly/y5Skoq>.)

Fertilizer Voucher Program – the ‘Smart Subsidy’ Works Again

More than 51,000 farmers in Nigeria’s Taraba State received fertilizer in 2011 through a fertilizer voucher program (FVP). This was the first time that many of the farmers had access to subsidized fertilizer.

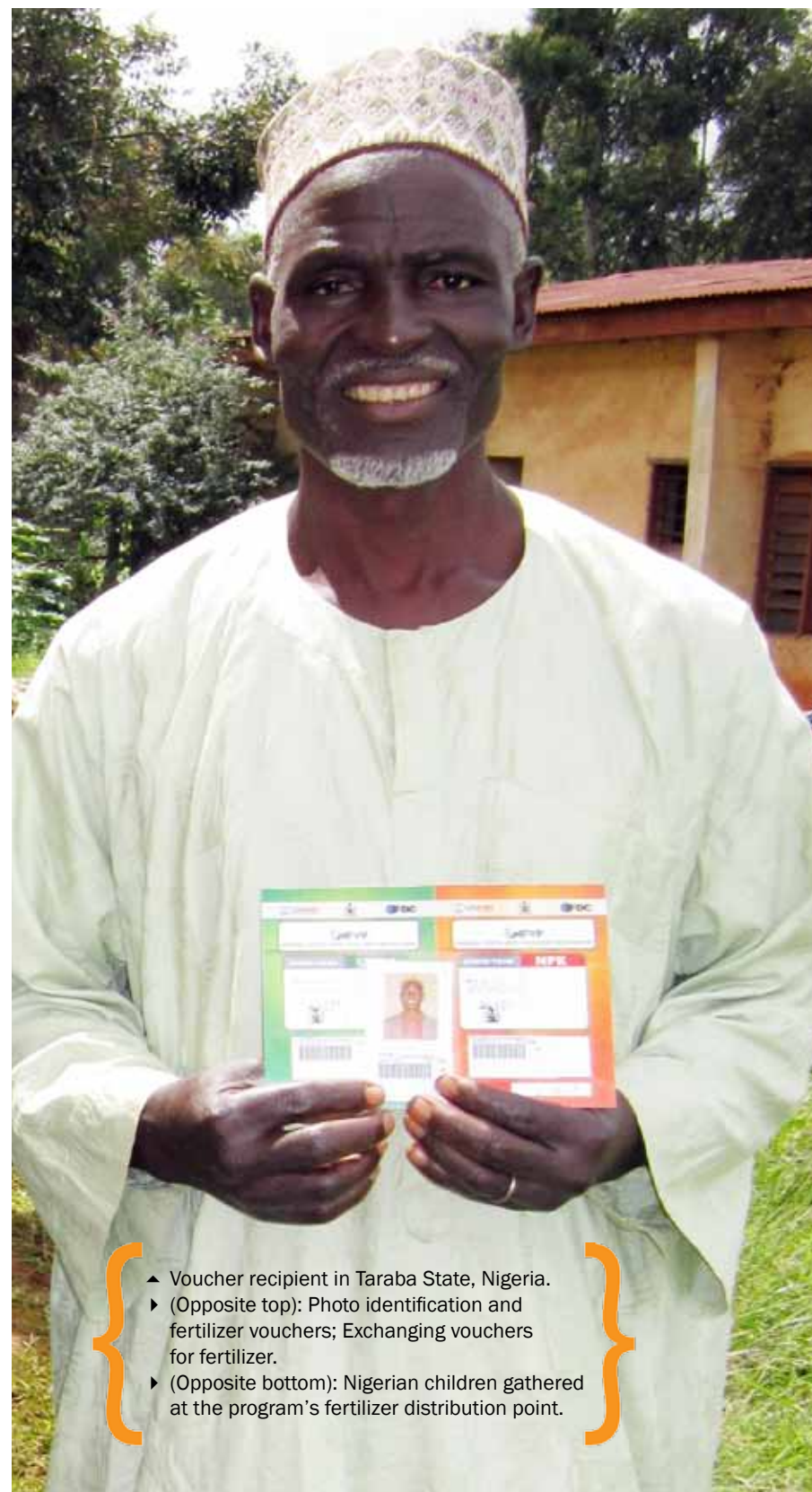
Funded by USAID and the Taraba State government, the FVP was modeled upon similar successful voucher programs implemented by IFDC in Nigeria in 2009 and 2010. Prior to 2009, fertilizer was procured and distributed by the state government. This practice – common across Nigeria – constrained the private sector distribution of fertilizer, and only 10 to 20 percent of intended beneficiaries ever received the subsidized product.

In contrast, about 90 percent of targeted farmers received subsidized fertilizer under the FVP. The program empowered the private sector to compete to deliver quality fertilizers to farmers by creating direct linkages from suppliers to distributors and from distributors to local fertilizer dealers.

IFDC worked with state extension agents to identify and provide fertilizer vouchers (coupons) to farmers. Farmers used vouchers to purchase fertilizers from agro-dealers at a 2,000 Naira (US \$12.50) discount. The agro-dealers then redeemed the vouchers from a committee of program stakeholders.

Often called ‘smart subsidies,’ vouchers help farmers obtain agro-inputs while simultaneously building business for rural agro-dealers. According to a recent evaluation by the FVP monitoring and evaluation team, participating agro-dealers have increased sales by 106 percent since 2008. All agro-dealers surveyed indicated that the FVP benefited their businesses and were eager to participate in future voucher programs.

IFDC is continuing to work with USAID and the Nigerian Ministry of Agriculture (MoA) to expand the voucher program in 2012 to reach more farmers while continuing to strengthen the supply chains of fertilizer companies in rural areas.



- ▶ Voucher recipient in Taraba State, Nigeria.
- ▶ (Opposite top): Photo identification and fertilizer vouchers; Exchanging vouchers for fertilizer.
- ▶ (Opposite bottom): Nigerian children gathered at the program’s fertilizer distribution point.

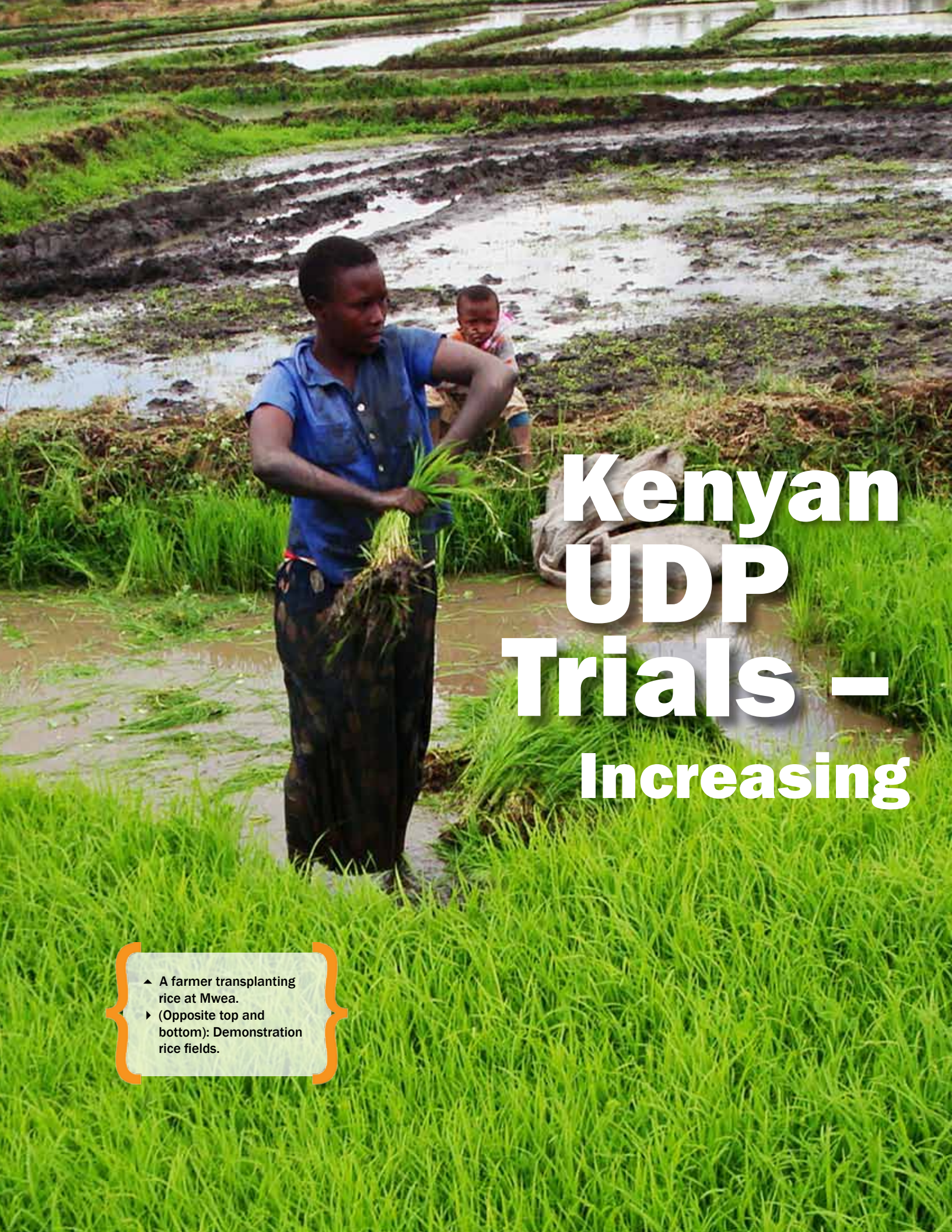
“The National Agricultural Council in Nigeria...has called for the voucher program to be scaled up across the whole country.”

– Akinwunmi Adesina
Minister of Agriculture and Rural Development
Nigeria



Since IFDC began this program in Taraba, our rural farmers have been full of thanks.

– Danbaba Suntai
Governor
Taraba State, Nigeria



Kenyan UDP Trials - Increasing

Urea deep placement (UDP), a technology developed by IFDC, has been highly successful in increasing rice production in Bangladesh for over three decades. Today, UDP technology is being employed on over one million ha of Bangladeshi farmland, representing about 12 percent of the nation's annual irrigated rice crops.

UDP technology specializes in countering plants' low uptake (absorption) of nutrients (most critically nitrogen [N]) supplied by traditional broadcast fertilizers. Low uptake is commonly attributed to losses from ammonia volatilization, nitrification/denitrification, leaching, immobilization and ammonium fixation.

The deep placement of nitrogen-rich urea briquettes near the plant's root zone is proven to reduce traditional nutrient losses, mitigate environmental risks and substantially reduce the advent of weeds, pests and plant diseases. In addition, less fertilizer is used, replacing multiple broadcast applications with the single UDP application. The result has been an 800 to 1,200 kg/ha increase in Bangladesh rice yields, which led to use of the technology in other Asian countries, including Cambodia, India, Nepal and Vietnam.

Other parts of the world have shown interest in UDP as well, including Africa. The continent produces around 25 million metric tons (mmt) of paddy rice annually, according to statistics from the Food and Agriculture Organization (FAO) of the United Nations (UN). Yet, Africa continues to be a net importer of rice. UDP is an

and the Mwea Irrigation and Agricultural Development Center (MIAD) in Kirinyaga South district.

The current fertilizer recommendation for rice production in Mwea is an application of 40 kg of N/ha and 60 kg of phosphorus (P₂O₅)/ha at transplanting, and top dressing with 40 kg N/ha at 42 days after transplanting. Average rice yields in Mwea are only about 5.0 metric tons (mt)/ha; yields in other parts of Kenya are even lower. By comparison, rice yields above 7.0 mt/ha have been recorded in Egypt, Japan and South Korea, so using the UDP technology should generate a substantial increase in Kenyan rice production.

Results from the early trials are promising. Using a 2.7 gram (g) UDP briquette gave the highest total grain weight and fertile grain weight. The use of the



Africa's Rice Yields

effective way to increase rice yields and decrease imports. The fertilizer technology also negates the need for land expansion to increase yields. Instead, UDP increases the total grain output on the same amount of land.

IFDC has been conducting UDP field trials and demonstrations in several countries across Africa, including Kenya. About 80 percent of Kenya's national rice production is achieved by smallholder farmers growing rice on irrigated land with water managed by the National Irrigation Board. These irrigated areas are concentrated in Mwea in central Kenya and Ahero, West Kano and Bunyala in western Kenya. The UDP trials have been conducted by IFDC's Extending Agro-Input Dealer Networks (EADN) project, funded by IFAD. The project has collaborated closely with Kenya's MoA

2.7 g UDP briquette resulted in 37 percent higher yields compared with the standard method of broadcasting urea on the standing water and a 56 percent increase in yield above the control (no fertilizer).

In order to collect measurable statistical data, the trials will continue through a number of cropping seasons. When the final results are tabulated, IFDC will utilize the data to formulate an action plan for greater use of the UDP technology in Kenya and other African countries.

A video about UDP made by IFDC's NWAFFD can be found at <http://bit.ly/udpafrika>.

▲ A farmer transplanting rice at Mwea.
▶ (Opposite top and bottom): Demonstration rice fields.

Agro-Dealer Program Increases Fertilizer Supply and Use in Rwanda

Gloriose Musanabandi started an agro-dealer shop in March 2008 in Gasogi, a village in the Ndera sector of Gasabo district. The village is 10 kilometers (km) outside of Kigali, Rwanda's capital. Like most modern agro-dealers, Musanabandi sells a variety of quality fertilizers, seeds and crop protection products.

To grow her business, Musanabandi rented a small plot at the roadside next to her shop in order to demonstrate the benefits of fertilizers. She received technical support from IFDC's Rwanda Agro-Dealer Development (RADD) project, which is funded by the Soil Health Program of the Alliance for a Green Revolution in Africa (AGRA). The maize demonstration

region of Rwanda indicates that soils are generally deficient in N and available P. These deficiencies were countered with the application of DAP and urea to the fertilized maize crop.

Farmers passing by the demonstration plot were impressed by the results and now frequently visit Musanabandi's shop for advice and supplies. During the 2012-A growing season (September 2011 through January 2012), she sold 5.25 mt of fertilizers to 88 farmers. The farmers applied the fertilizers to about 37 ha. Their crops were healthy and strong and would ultimately yield about 3.5-4.0 mt/ha – double the typical yield without fertilizers. The monetary value of these increased yields is estimated at US \$800/ha. In addition to Musanabandi, the RADD project has trained 1,062 agro-dealers in Rwanda's 30 districts.

Together, these dealers serve about 800,000 farmers and supplied 39,935 mt of fertilizers in 2011. Because of an increase in rural agro-dealer locations, farmers now travel shorter distances to purchase agro-inputs. The agro-dealers have also planted 377 demonstration plots (just as Musanabandi has done for the second year) and are providing valuable training on the importance of fertilizer use to smallholder farmers in their respective areas. It is estimated that 60,000 farmers working 42,000 ha have benefited from these demonstrations.

The dealer-operated demonstration plots are geo-referenced using a global positioning satellite (GPS), and their soil characteristics are being monitored from planting to harvest. The emerging data (crop yields, fertilizer volumes used and soil characteristics) will be published by RADD. The data will also be supplied to a national fertilizer recommendation project that is funded by AGRA's Soil Health Program and implemented by the Rwanda Agricultural Board.

Additionally, the shops of Musanabandi and fellow agro-dealers across the country have helped the Government of Rwanda implement a 'smart input subsidy' program, which would not have been

plot was divided into two areas. One area was used as a control (on which no agro-inputs were used) while the other area was given proper fertilizer applications (diammonium phosphate [DAP] and urea at 100 kg/ha and 50 kg/ha, respectively).

The impact on the December 2011 crop was dramatic. The crop grown in the control plot, which was not fertilized, showed high N deficiencies and overall poor growth. The fertilized crop grew extremely well, with no symptoms of the nutrient deficiencies demonstrated in the control. Soil analysis for this



possible without the participation of the agro-dealers. Subsidized fertilizer is bought by smallholder farmers at 50 percent of the market price using vouchers provided by the government. The vouchers can only be redeemed for use on maize and wheat crops. Thanks to these agro-dealers, farmers are also buying fertilizers for other crops such as climbing beans, an important crop in the highlands of Rwanda.

RADD and other IFDC projects are working closely with the Ministry of Agriculture and Animal Resources (MINAGRI). Under the leadership of H.E. Minister Agnes Kalibata, MINAGRI has led the modernization of Rwanda's agricultural sector.

As it enters its final year in 2012, RADD aims to intensify its monitoring systems and improve access to financing for agro-dealers from local banks and micro-finance institutions. Access to affordable credit is a major challenge for the agro-dealers. Better access to credit will allow those who have been trained to establish their own businesses, and like 25-year-old Musanabandi, to become agents of change in their rural communities.



◀ (Opposite): Rwandan agro-dealers who took part in a combined RADD-COMRAP training program stand near advertising banners for the training program.
 ▲ (Above): Musanabandi in her agro-dealer shop in Gasogi village in Rwanda. Her annual sales are estimated at 15 million Rwandan Francs (US \$25,000). She keeps detailed records of her customers and their purchases on a daily basis.

IFDC Donates to Red Cross Relief for Somali Refugees



On behalf of IFDC's board of directors, management and staff, Robert Groot (left) and Charles Ngutu presented a check for 500,000 Kenyan shillings (about US \$5,000) to Pamela Indiaka of the Kenya Red Cross Society to assist in the Society's Somali refugee relief effort. Groot is the director of the East and Southern Africa Division (ESAFD) and Ngutu is the regional coordinator of administration and finance for the division. ESAFD is based in Nairobi, Kenya.

The International Committee of the Red Cross (ICRC) has an effective operational presence in Africa and works closely with national Red Cross and Red Crescent Societies in many of the same countries that IFDC serves. The ICRC and the Kenya Red Cross Society are providing aid in the Dadaab refugee camps in Kenya.

Throughout its history, IFDC has worked in the developing world to help smallholder farmers improve their agricultural productivity, incomes and livelihoods. ICRC seeks to assist those suffering from civil war, droughts, floods and other natural disasters and humanitarian crises.



Albania's Agricultural Sector

▲ IFDC consultant Ylli Biçoku (left) discusses healthy greenhouse plants with ELITE AE's manager.

Albania emerged from more than 50 years of isolation (Nazi occupation in World War II and then decades of communist rule) in 1991. The country was suffering from an agricultural crisis that required immediate international assistance. USAID provided funds in 1991 to import 20,000 mt of urea fertilizer and asked IFDC to handle distribution of the fertilizer to farmers.

One of IFDC's strategies was to help develop a strong agribusiness sector by linking farmers, agro-dealers, extension specialists, researchers, government officials, non-governmental organizations (NGOs) and media. IFDC created the Albanian Fertilizer and Agribusiness Dealers Association (AFADA) in 1993. AFADA was very successful and inspired other agribusinesses to form trade associations along industry lines. AFADA is one of the most active members of the Albania Association and Business Management Center (ABMC), established in 2001 and funded by 11 agribusiness associations, including AFADA. ABMC has been a strong presence in Albania, providing members with many business management services.

The Albania Credit Enhancement Fund (ACEF), a multi-year program that ended in December 2011, was funded with monetized proceeds from the U.S. Department of Agriculture's (USDA) Food for Progress (F4P) program. F4P was comprised of two main components. The credit component improved Albania's agribusiness sector's access to commercial credit. It also led to the introduction of technologies

scientist – marketing. ABMC is implementing the plan and is guardedly optimistic that it will be able to generate adequate revenues for its operations. Particular attention is being given to increasing revenues from dues, providing improved services and also developing stronger linkages with the Albanian agribusiness and donor community. ABMC is cooperating with the USAID-funded Albania Agriculture Competitiveness project, mainly through the grants program. Examples of Albanian agribusiness firms that benefited from IFDC assistance in areas such as improved technologies and trade expansion include the following:

- **Sejega** – an agribusiness that has value-added processing facilities and has started a mushroom production facility near Tirana with ABMC grant proceeds. This enterprise converted communist-era military tunnels into production sites for mushrooms (see article on page 18).
- **ELITE AE** – a Rinas-based agribusiness that is expanding its greenhouse operations to improve competitiveness in fresh herbs for export. The expanded greenhouse operation will allow for a production and packaging facility near the airport.
- **Agro-Koni** – an agribusiness that is fully integrated, from input supply to post-harvest processing and domestic marketing. The firm provides 1,000-1,500 farmers with planting materials and other inputs needed for a quality harvest. Agro-Koni provides advisory services to farmers and collects/procures the farmers' harvest. Temporary storage, grading and packaging are done as needed for the domestic marketing of fresh produce. ABMC grant funds were used to expand and upgrade the firm's cold-processing facility.

Strengthened

that contributed to improved productivity (e.g., importation of improved cattle breeds, access to quality feed), an expansion in value-added processing (e.g., modern production and processing equipment) and trade opportunities in agricultural products. The market development component provided technical assistance to agribusiness to improve efficiency and performance, formal training programs to build capacity and market linkage development to expand trade. It also contributed to policy analyses to support improved private sector participation in agribusiness.

As a part of IFDC's exit strategy, a business plan for ABMC was prepared by Paul Makepeace, IFDC senior

AFADA received grant funds to transfer and adopt new technologies in growing corn and potatoes and to learn the proper use of water-soluble and blended fertilizers.

Albania has made remarkable progress over the past 20 years. Now there is an increasingly self-sufficient agricultural sector – domestic crop production is thriving and export crops are doing well. Private sector agribusiness is functioning and prospering. As a component of IFDC's exit strategy, the balance of money under the ACEF's revolving credit fund remains with the cooperating bank in Albania and will continue to be made available to Albanian agribusiness.

New Product Generates Profits for Albanian Entrepreneur

Genci Mita, owner of Sejega Fruit and Vegetable Processing Company, started his business in 1994 and ultimately became one of the largest processors and exporters in Albania. He has successfully tapped into Albanian markets by adopting useful agrotechnologies. Moreover, he has expanded his product line by adding and effectively promoting fresh and processed mushrooms.

Diversifying his business in 2001, Mita started to import mushrooms for processing from several European markets and China. He is very entrepreneurial; market research he conducted about foreign and local markets during the last 10 years made it clear that his best course of action was to start growing mushrooms in a way that would be more sustainable and efficient.

Mita used his financial resources and a grant from the USDA F4P program (ACEF), implemented by IFDC, and ABMC to start his expansion. He renovated

two tunnels (built during the communist regime as military tank repair facilities) by adding shelves needed for mushroom production.

His plan is to produce 50 mt of mushrooms in 2012. Mita's objective is to produce 100-150 mt of mushrooms annually within two to three years. He wants to be the largest mushroom producer in Albania, which will lead to more local employment and increased profits for his company.

"A small grant from USDA, IFDC and ABMC helped the company," said Mita. "This USDA grant allowed Sejega to design and build a mushroom production line with quality standards and production costs are 50 percent less than the cost of imported mushrooms."

Once Mita has fine-tuned the technology, he hopes to produce fresh mushrooms for consumption in the local market as well.



▲ Left to right: Tritan Cako, ABMC executive director, entrepreneur Genci Mita and Ylli Biçoku, IFDC consultant, examine a former military tunnel, which now makes an ideal location to grow mushrooms.

Rewarding Retirement for Bangladeshi Accountant



Mosharraf Hossain, previously a retired assistant accounting officer at Daulatpur Jute Mills in Khulna, is now a farmer and a Guti (compact urea briquette) fertilizer producer/dealer. At age 57, Hossain has found retirement to be very interesting and rewarding.

"I retired in 2002 and was concerned that I would be too idle, but things are very different now. I have a fertilizer shop in Uzirpur, Barisal district, where I produce fertilizer. I also grow rice, using the fertilizer deep placement (FDP) technology," Hossain said.

Hossain formerly cultivated rice using the traditional methods, but he was always looking for ways to improve his crop. He heard about the Accelerating Agriculture Productivity Improvement (AAPI) project, funded by USAID and implemented by IFDC. He met IFDC's field officer and learned about the benefits of Guti fertilizer and FDP technology. Because of his affiliation with the AAPI project, he was offered a briquette machine at an 80 percent subsidized rate. He and his business partner, Salim Sardar, were also able to purchase the fertilizer retail dealership at the initial cost of Tk 2 lakh (US \$4,166).

Because people in Hossain's area are learning about the benefits of FDP, the demand was quite high for the product during the 2009/10 Boro season. "I produced and sold 220 metric tons of briquettes. The net profit was around Tk 1 lakh [US \$2,083]," he said, adding that farmers mainly use Guti fertilizer during the dry season. During the 2010 Aus season, he produced and sold only 6 mt of briquettes, but he more than made up for that with sales of 230 mt during the

2010/11 Boro season. He also produced and sold 3 mt of a mixture of urea, DAP and muriate of potash, better known as NPK.

Hossain believes his success as a businessman is because he sets an example by using the Guti briquettes in his own field with excellent results. He occasionally invites farmers to his shop for tea and explains the benefits of FDP.

Hossain used FDP on 150 decimals (1.5 acres) of land. He leased 100 decimals and he owns the rest. His total production was 90 maunds (37.4 kg). "Previously my rice yield during Boro season was about 8 maunds for each 20 decimals, but now it is over 12 maunds because of FDP," Hossain said. The production costs were also reduced. "Initially, it took six laborers to deep place the briquettes, but now four are enough," Hossain said.

In his 'retirement,' Hossain has provided jobs for four people and local farmers are producing more rice using Guti fertilizer bought at his shop. "IFDC's AAPI project has changed my life!"

Sardar, Hossain's business partner, previously worked part-time as an electrician. "During the peak seasons of Boro and Aman, I work in the fertilizer shop and during the lean season, I work as an electrician. I now am employed all year. The fertilizer shop has increased my income and I can provide more for my family," said the 45-year-old entrepreneur. "My dream to better educate my three children is coming true."

Agriculture Sector Development in Bangladesh Remains a Priority



IFDC has a long history of working with the government and people of Bangladesh. With a priority focus on soil fertility management (to support agricultural productivity improvement on a sustainable basis), agribusiness and fertilizer sector development, IFDC has maintained a presence in Bangladesh for more than three decades. In 1992, the Government of Bangladesh granted IFDC international organization status.

According to John Allgood, EurAsia Division director, the Center's first involvement in Bangladesh was a short-term consultancy assignment in 1978. At that time, farmer access to and use of fertilizers were major constraints to productivity improvement. In the late 1970s, USAID and the Bangladesh MoA asked IFDC to assist with the Fertilizer Distribution Improvement (FDI) project. The focus of the FDI project was on improving knowledge transfer systems to better educate farmers on soil fertility management and the fertilizer distribution system so farmers could get more timely access to fertilizers.

Bangladesh's population is approximately 156 million (about 1,083 people per square kilometer [sq km]), making it one of the most densely populated countries in the world. The country's total land area is 143,998 sq km, slightly smaller than the nation of Tajikistan or the state of Iowa in the U.S. Bangladesh is also one of the world's poorest countries with an estimated 40 percent of the population below the national poverty line (2005 figures). Nearly two-thirds of Bangladeshis are employed in the agriculture sector; rice is the single most important crop. Rural poverty alleviation and food security remain key challenges.

"The FDI project was remarkable in its early successes," Allgood said. "Following completion of the initial phase of the project in 1984, the Ministry and USAID extended the project for a second phase. Under FDI II, progress in fertilizer use improvement continued and a series of policies were progressively introduced to 'open up' the market to increased private sector participation." He continued, "The results were dramatic. Improved operational efficiency and effectiveness in improving 'on-time' availability of fertilizers to farmers, extended agro-dealer networks to provide convenient access even in remote villages and reduced transaction costs at the import, wholesale and retail levels were all realized. Fertilizer subsidies, which played an important role in stimulating demand and reducing the cost burden on farmers, were eliminated in 1994.

"We have remained very active in Bangladesh during the two decades following the FDI projects. In the early 1990s, the scope of IFDC activities was expanded to include agribusiness in a broader context and improving soil fertility management through technology improvement," Allgood stated.

The Agro-Based Industries and Technology Development project (ATDP), designed and implemented by IFDC with USAID funding, focused on improving performance in numerous agricultural sub-sectors. In more recent years, attention has been focused on working with the MoA and the Department of Agricultural Extension (DAE), as well as the national agriculture research system, to improve farmer awareness and knowledge of UDP technology.

IFAD also sponsored a multi-year IFDC project in Bangladesh, Nepal and Vietnam. The Adaptation and Adoption of Environmentally Friendly Nutrient Management Technologies for Resource-Poor Farmers (ANMAT) project focused on methods to scale up the UDP technology in order to reach more farmers.

IFDC activities have included both supply- and demand-side issues, engaging small and micro-enterprises to service the UDP technology needs of farmers. Across more than one million ha, Bangladesh farmers using UDP technology in rice production have increased yields by 15 to 20 percent while using 33 percent less urea fertilizer.

In 1980, the country's rice production stood at 10 mmt harvested from 10 million ha. By 2009, production had increased to 34 mmt from the same 10 million ha. DAE attributes the more than three-fold yield increases and quality improvements to "modern technologies developed by research organizations and effective agricultural extension services."

For 34 years, IFDC's commitment to Bangladesh has remained steady, and the organization has worked closely with the government to build the fertilizer market, introduce quality agro-inputs, transfer innovative technologies, build sustainable market practices and help improve the livelihoods of Bangladesh's smallholder farmers.



- (Opposite): Bangladeshi farmers deep-placing briquettes in a demonstration paddy field in Barisal.
- (Left): A close-up of urea supergranules. While UDP technology is currently labor-intensive, a single application replaces multiple broadcast applications during a crop's growth cycle.

KAED Follow-On Project Extends Seed/Voucher Program

USAID recently awarded a modification to the Cooperative Agreement (CA) of IFDC's Kyrgyz Agro-Input Enterprise Development (KAED) Follow-On project. This CA increased the project budget under the Economic Development Fund (EDF) Phase II and added an Agricultural Seed Investment Support program, extending the project for a third year.



A family from Jayil rayon (district) receiving seeds in the USAID/KAED seed voucher program.

The purpose of the seed production sector support is to upgrade this vital sector to better serve the needs of farmers and to increase seed exports. The program will provide selected seed farms with agricultural equipment and with technical and business assistance and training.

The interventions build on the past achievements, lessons learned and relationships established to encourage Kyrgyz farmers to adopt practices that will increase crop and seed production. In turn, these will increase rural incomes and support the growth of more effective agro-input enterprises. Kyrgyz farmers are being encouraged to adopt no-till land cultivation. That agro-technology minimizes soil disturbance, increases water filtration and decreases erosion – improving soil health, increasing crop productivity and ensuring sustainable agricultural production. Because of its benefits, Kyrgyz farmers are embracing no-till cultivation very quickly (see accompanying success story).

The results of the EDF Phase I Seed Distribution Program were recently released. According to the report, all farmers who received seed through vouchers in 2011 increased crop yields – by three percent for

sunflowers, 10 percent for potatoes, 37 percent for barley, 51 percent for wheat and 132 percent for sugar beets. As a result, the voucher seed farms reached or exceeded national average yields. Estimates of the benefits of the increased yields on national farm income were an additional \$12.2 million in 2011 compared with 2010.

“This new seed support initiative fits well with the ongoing scope of project work and greatly reinforces the effort to achieve the current project objectives – to improve access to essential yield-enhancing agricultural inputs and to enhance food security,” said Ian Gregory, IFDC agribusiness market development specialist.

Applications were received from 45 seed farms interested in the project; 16 seed farms met the criteria established by the Selection Committee. Field visits to the 16 farms will be conducted (four in Chui, three in Jalalabat, two each in Issyk-Kul, Naryn, Osh and Talas and one in Batken).

The project is preparing for the 2012 spring planting season. In addition to the planned trainings, the project team will work on: the final selection of seed farms that will receive support under the EDF Seed Assistance Program; the development of PPPs in poultry feed; land rehabilitation in two other communities to replicate the Markaz Joint Agricultural Initiative; implementation of a pilot program to produce liquid fertilizer from manure; and the introduction of compost as a complementary fertilizer for a large-scale potato demonstration pilot program.

Since October 2011, the KAED project has organized three field days on winter wheat for 225 farmers from across the country. In addition, four technical trainings were conducted for 96 farmers. A networking roundtable on soybean production and processing and improving Kyrgyzstan's soybean value chain was organized in December. The 52 attendees represented international donor organizations, the poultry and livestock sectors, farmers and soybean processors. This networking event allowed participants to discuss programs for increasing and developing soybean production for animal feed and boosting commercial production of protein-based feed in Kyrgyzstan.

Advanced Technologies Improve Farmers' Livelihoods



Kyrgyz farmer Kanybek Imankulov applies no-till technology on his farm in northern Kyrgyzstan.

Imankulov was trained to apply a new no-till technology for land cultivation by using modern agricultural machinery. He also received improved seeds at a subsidized price and 100 kg of mineral fertilizer free of charge.

The KAED project is promoting no-till technology, which helps preserve land from mechanical erosion and considerably decreases farmers' expenditures on fuel, planting and other field operations. This environmentally friendly agro-technology increases crop productivity, enhances soil quality, reduces the use of fertilizers and increases water filtration into the soil. The technology ensures efficient land use and sustainable agricultural production. Because of its visible benefits, farmers are quickly embracing the technology. In 2009, no-till technology was applied on only 20 ha of farmland. In the 2010 planting season, approximately 4,750 ha throughout Kyrgyzstan were planted using the no-till approach. Analysis at the farm level indicates that this technology has proven to be very cost-effective for farmers.

Kanybek Imankulov, a father of four, owns 45 ha of non-irrigated land in the village of Luxembourg in northern Kyrgyzstan. He has been farming since 1995 and primarily grows wheat, but has also planted alfalfa, cereals and corn. However, he had difficulty finding proper tillage and harvesting equipment. “I would spend weeks searching for available equipment and never managed to plant the crops on time,” he said.

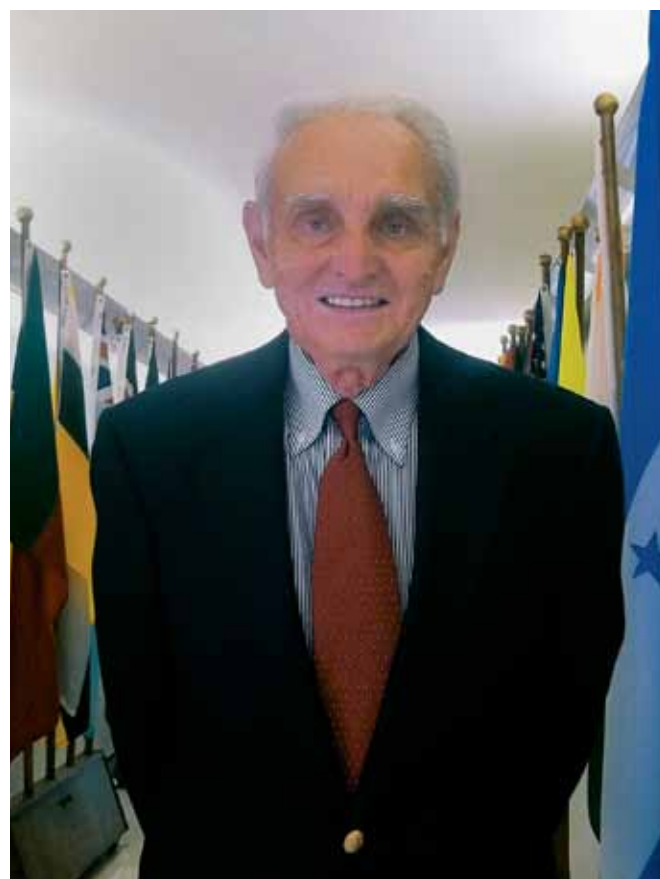
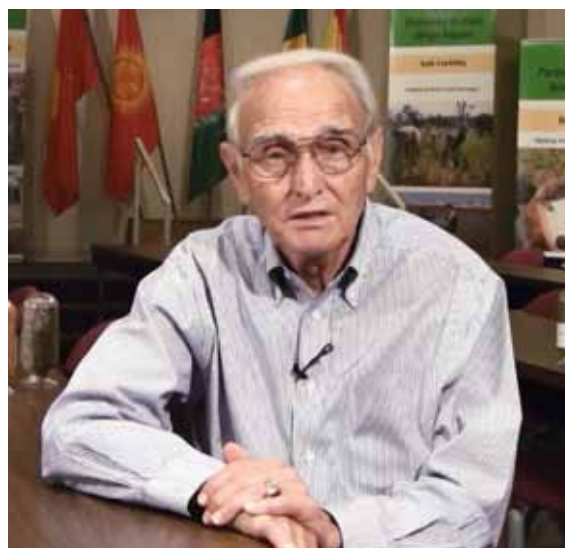
In 2009, Imankulov started participating in the Global Development Alliance that was implemented jointly by USAID's KAED project and the Eurasia Group.

In 2011, Imankulov's wheat yield was 3.5 mt/ha, significantly higher than his previous yields. “I was impressed with the high quality of the seeds I received. I was surprised that my production costs were reduced this year, and I managed to earn more. Thanks to KAED I have become a progressive farmer who uses the best agricultural machinery and I am learning farm management from the best agronomists in the country. I am motivated to learn more and apply these new technologies on my farm because I see that they make a real difference in my life and the life of my family.”

Thanks to KAED, I have become a progressive farmer who uses the best agricultural machinery and I am learning farm management from the best agronomists in the country. I am motivated to learn more and apply these new technologies on my farm because I see that they make a real difference in my life and the life of my family.

– Kanybek Imankulov
owner of Bay Farm in northern Kyrgyzstan

Q & A With John Shields



In the following interview, John Shields of IFDC discusses fertilizer technology, research and innovation. Shields has more than 45 years of experience in chemical product research and development, production, marketing and management. Prior to joining IFDC, Shields was a consultant to several multi-national corporations on fertilizer technology development, assessment and deployment. Shields retired from TVA in 1993 after 30 years in various management and leadership positions in fertilizer research and development and technology transfer.

Q: In light of rising food prices and the need to produce enough food for a growing population, what criteria are scientists using to determine which technologies or research to pursue?

A: Scientists are very judicious when it comes to pursuing new technologies to research. Factors such as local knowledge and experience and the need for new technology are evaluated. Before pursuing new research, scientists collaborate with one another, conduct extensive literature reviews and assess current technology deficiencies. Generally, researchers use a ‘gap analysis’ approach to determine the difference between the current technologies and what is needed to improve or change the technologies, and the impact of those changes.

Q: What is IFDC doing to make existing fertilizer technologies more effective?

A: IFDC scientists are pursuing new fertilizer technologies from three points of view – improving nutrient efficiency, reducing harm to the environment and ensuring cost-effectiveness for the farmer. This starts with researching improvements to existing products as well as developing new products. IFDC scientists are applying new tools such as nano-technology that may improve the nutrient efficiency of phosphate fertilizer. They are also fortifying fertilizers with micro- and secondary nutrients and utilizing and integrating waste materials into conventional fertilizers – recycling nutrients from the waste stream. Fertilizer deep placement technology improves nutrient use efficiency, which saves farmers money while reducing environmental pollutants and the release of greenhouse gas.

Q: With climate change being such a large concern, is IFDC researching products specifically designed to counter extreme weather conditions?

A: As you know, climate change is a very controversial subject among scientists. As researchers move forward to create more effective and efficient fertilizer products, water availability or lack thereof is a serious consideration. To a certain extent, controlled- or slow-release fertilizer products address this concern. In regard to fertilizer use, in what form, how and when the fertilizer is applied to the soil are critical concerns for addressing extreme weather conditions. Scientists are linking crop modeling and climate variability in order to better understand crop and weather issues.

Q: There has always been concern about the new technology/farmer adoption ratio. How does the question of adoption fit into IFDC research?

A: Farmer adoption of new technology is the final test of the worthiness of a product. Researchers must consider how and at what cost the product will be

delivered; thus, it must fit the value chain that connects the researcher with the end user – the smallholder farmer. The research teams of the future will have to include engineers, agronomists, socio-economists and policymakers who must connect with the farmer if rapid adoption is to take place.

Q: In the past decade, scientists have begun to explore new innovations in fertilizer technology development – for example, bio-char, microbes and bio-solids. Do you see this period as a research renaissance?

A: I definitely see a renewed and fresh interest in fertilizer research and innovation. Scientists, developers, governments and donors have recognized a need for new and innovative fertilizer technology and have begun to address the critical issues. Scientists are pursuing every avenue possible to improve soil health, productivity and sustainable food security. Regardless of how one describes this period of research, I think future successful fertilizer technologies will be driven in part by pursuing innovative organic/inorganic research systems.

Q: Once a technology has been identified as a focus for research, what are the stages of development, and how long does it take to get a product out of the lab and into the field?

A: Some researchers use the term ‘cradle to grave’ to describe the technology journey. In general, this means that new product development must pass several critical tests before commercialization. It must come out of the laboratory, pass greenhouse and farmer field trials and be successfully scaled up and produced in pilot and demonstration facilities, accepted for commercialization and ultimately accepted by the farmer. This usually takes a minimum of three to five years and sometimes much longer.

Q: In order to find solutions to feed as many as 9.4 billion people by 2050, international cooperation in research is more critical than ever. What role will the Virtual Fertilizer Research Center (VFRC) play in reaching that goal?

A: The VFRC will have many critical and important roles in searching for solutions to feed the world’s population. Initially, the VFRC can – and I think will – create the environment and the capability for the ‘next generation’ of fertilizer processes and products to be developed by engaging global expertise in partnership on a common technology agenda. It will serve as a catalyst and change agent by providing a forum to ensure efficient and consistent leadership for the technology agenda.

FIRT Board of Directors Meeting Hosted by IFDC

The Fertilizer Industry Round Table (FIRT), a forum for industry leaders from across the supply chain to share best practices, innovations and market trends, held its annual board of directors meeting at IFDC's headquarters in February.

The board, consisting of 37 members and chaired by William O'Neill, Jr. of International Raw Materials Ltd. (IRM), is comprised of both established and emerging companies with research and production interests in the fertilizer industry. Among them are Honeywell, J.R. Simplot, Mosaic Company, Potash Corporation and Shell Sulphur Solutions. The research community is represented on the board by such organizations as IFDC, the International Fertilizer Industry Association (IFA), office of Indiana State Chemist at Purdue University, The Sulphur Institute (TSI) and The Fertilizer Institute (TFI).

"This is a unique organization that truly cuts across all disciplines in the fertilizer sector, which is what makes it so interesting," said Luc Maene, IFA director-general, referring to the fertilizer manufacturers, distributors, researchers and advocacy organizations who are members of FIRT.

When asked about the biggest challenges facing the industry, Maene stated, "To feed 9.4 billion people by 2050, the fertilizer industry needs to help generate higher agricultural productivity. The industry must work with the world's growers to promote best management practices using existing fertilizer products. But the industry should also participate in the research and development of the fertilizers of the future that will respond to the seeds of the future." (Maene's reference was to enhanced seed varieties that continue to be modified to produce higher yields and to be more resistant to adverse climatic and environmental conditions.)

These two major points – the efficient use of existing fertilizer and the development of new fertilizer technologies – appear to be common topics of industry conversation, and both subjects were covered equally by board members during the meeting.

"All of the organizations involved in FIRT recognize the importance of making the efficient use of existing fertilizer technologies a priority," said John Shields of IFDC. "Critical to this effort is educating the various actors in the value chain – suppliers, agro-dealers and

farmers – in improved nutrient and crop management practices. This is a particularly important effort in the developing world." Shields also shared thoughts on future technological advancements. "It is also important that these stakeholders be made aware of new and promising technologies on the horizon," Shields said.

The subject of new fertilizer technologies was highlighted by Dr. Amit Roy, president and CEO of IFDC, who gave a presentation on the progress of



▲ (Top): Dr. Amit Roy, IFDC president and CEO, discusses the VFRC and the industry's necessary role in fertilizer research and development.
 ▲ (Bottom): More than 20 industry professionals representing fertilizer manufacturing, distribution and research attended the annual FIRT board meeting.
 ▶ (Opposite): Board Chairman William O'Neill, Jr. of IRM (left) conducts FIRT business. To his left is Luc Maene, director-general of IFA.

the VFRC for the FIRT board. The Center is bringing together scientists from all disciplines in fertilizer, seed and agro-economic research in a virtual setting to more efficiently partner on common research goals. The VFRC is aligned with the fertilizer industry's continuing efforts to develop new fertilizer technologies and is expected to fast-track the most promising research into development.

"Fertilizers contribute 40 to 60 percent yield increases when properly applied to crops, but the current products are not necessarily the most efficient. For example, the loss of nitrogen from urea, the most widely used nitrogen fertilizer, ranges from 45 to 75 percent," said Roy. "A new generation of more efficient fertilizers is needed to meet both current and future food production challenges. The VFRC is singularly positioned to connect the best minds in the rapid development of these new products."

The cornerstone of FIRT is its general membership meeting to be held in November, presented with

TFI. The annual meeting is designed to review best practices and processes across a wide range of fertilizer, agricultural and environmental topics. These proceedings are published annually, creating a permanent record of developments in the world fertilizer industry. For more information on the Fertilizer Industry Round Table, visit www.firt.org.



Proposals Sought for New Fertilizer Technology Development and Commercialization

The VFRC is now accepting proposals and providing funding support to develop and commercialize new fertilizers and fertilizer technologies that will help ensure more responsible and sustainable food security by specifically addressing the needs of smallholder farmers in developing regions. South Asia and Sub-Saharan Africa are the VFRC's initial geographic priorities.

The VFRC has established the following four outcomes as the initial priorities for the development of these new fertilizers and fertilizer technologies:

- Fertilizers with higher nitrogen use efficiency
- Improved micronutrient delivery
- On-site fertilizer purity detection
- Increased self-reliance in fertilizer supply

US \$2.5 million is available over the next 24 months to support development proposals; \$750,000 will be obligated by April 30, 2012. A 12-week process of open competition will be used by the VFRC Requests for Proposals (RFP) Committee to solicit, review and select proposals.

Scientists and researchers in educational institutions, research laboratories and commercial enterprises using advanced know-how in multiple science and technology disciplines are invited to participate in PPPs to develop the next generation of fertilizers and fertilizer technologies.

For further information visit the VFRC website (www.vfrc.org).

presidential documents

Title 3—The President

Executive Order 11977

March 14, 1977

Designating Certain Public International Organizations Entitled to Enjoy Certain Privileges, Exemptions, and Immunities

By virtue of the authority vested in me by Section 1 of the International Organizations Immunities Act (59 Stat. 669, 22 U.S.C. 288), Reorganization Plan No. 4 of 1965, and Section 301 of Title 3 of the United States Code, and as President of the United States of America, and having found that the United States participates in the following organizations, it is hereby ordered as follows:

SECTION 1. The African Development Fund, in which the United States participates pursuant to Section 202 of the Act of May 31, 1976 (90 Stat. 593, 22 U.S.C. 290g) and the Agreement Establishing the African Development Fund, is hereby designated as a public international organization entitled to enjoy the privileges, exemptions, and immunities conferred by the International Organizations Immunities Act, provided that such designation shall not affect in any way the applicability of the provisions of Article 43 of such Agreement or the Declaration made by the United States pursuant to Article 58 of such Agreement.

SEC. 2. The International Fertilizer Development Center, in which the United States participates pursuant to Section 301 (f) of the Foreign Assistance Act of 1961, as amended (89 Stat. 866, 22 U.S.C. 2221 (f)), and the Agreement entered into by the International Fertilizer Development Center with the United States and the Consultative Group on International Agricultural Research, is hereby designated as a public international organization entitled to enjoy the privileges, exemptions, and immunities conferred by the International Organizations Immunities Act.

SEC. 3. Executive Order No. 11269, as amended, is further amended by adding "and African Development Fund" after "Asian Development Bank" in Sections 2 (c) and 3 (d), respectively.

SEC. 4. Executive Order No. 11269, as amended, is further amended by adding to Section 3 thereof the following new subsection:

"(e) The Secretary of the Treasury is hereby delegated the functions conferred upon the President by Section 203 (b) and Section 207 of the Act of May 31, 1976 (90 Stat. 593 and 594, 22 U.S.C. 290g-1 and 290g-5)."



THE WHITE HOUSE,
March 14, 1977.

[FR Doc. 77 7953 Filed 3-15-77; 10:23 am]

FEDERAL REGISTER, VOL. 42, NO. 51—WEDNESDAY, MARCH 16, 1977



IFDC Celebrates 35 Years as a Public International Organization

IFDC was created in October 1974 at the urging of U.S. Secretary of State Henry Kissinger as a center of excellence with expertise in fertilizers to service the needs of developing countries. It was first established as a private, non-profit corporation under the laws of the State of Alabama, United States.

"As a public international organization, IFDC became truly international in composition, financing and operation," said Dr. Amit Roy, IFDC president and CEO. "The designation has contributed greatly to the organization's success over the years."

Under U.S. law, the designation allows IFDC to receive widespread support, cooperation and backing from the world community it was created to serve. As a PIO, IFDC is entitled to the privileges, exemptions and immunities conferred by the International Organizations Immunities Act.



- ▲ Former U.S. Secretary of State Henry Kissinger.
- ◀ (Opposite): Former U.S. President Jimmy Carter.
- ▶ Dr. Amit Roy discusses IFDC's designation as a PIO with former President Jimmy Carter.

March 14, 2012, marked the 35th anniversary of IFDC's designation as a PIO by Executive Order 11977, signed by U.S. President Jimmy Carter in 1977.



Dr. Mohamed Badraoui Elected to the IFDC Board of Directors



Badraoui has more than 30 years of experience in agricultural research, specializing in soil science. His work has focused on soil fertility management and crop fertilization and fertigation; soil mapping for land management; and soil salinity management under irrigated systems for intensive crop production. He is also experienced in evaluating the sustainability of cropping systems and evaluating and refining agricultural development projects in arid and semi-arid areas.

"I am truly honored to be a part of the IFDC board of directors," said Badraoui. "I look forward to helping guide the organization as it seeks to improve lives through agricultural research."

Badraoui has served as the director general of INRA since 2008. INRA, based in Rabat, Morocco, is a public organization dedicated to improving research for agricultural development. The organization is responsible for increasing the modernization and competitiveness of Morocco's agricultural sector.

Prior to joining INRA, Badraoui was the director of Combating Desertification and Nature Protection for Morocco's High Commission for Waters, Forests and Combating Desertification from 2005 to 2008. He assisted in the implementation of government policies regarding resource conservation and sustainable rural development.

For more than two decades (1981-2005), Badraoui provided training and continuing education for professionals in science and technology as professor of soil sciences at the Institute of Agronomy and Veterinary Medicine (IAV) Hassan II in Rabat. The institution conducts innovative research and higher education in agriculture, rural development and natural resource management.

Badraoui also is the secretary general of the Morocco National Council on the Environment and a member of the High National Council on Water and Climate. He has been the president of the Moroccan Association of Soil Science since 1992 and was elected as a member of the French Academy of Agriculture in December 2011. A Moroccan citizen, Badraoui holds a bachelor's degree in general agronomy and a master's degree in soil science from IAV Hassan II. He earned a Ph.D. in soil chemistry, mineralogy and fertility from the University of Minnesota (United States).

Dr. Mohamed Badraoui, director general of Morocco's National Agronomic Research Institute (INRA), was elected to a three-year term on the IFDC board of directors, effective January 1, 2012. He serves on the board's Africa Committee.

"Dr. Badraoui is an immense asset to the leadership of IFDC," said Peter McPherson, chair of the IFDC board of directors and president of the Association of Public and Land-Grant Universities. "His expertise in soil science and land management will help further the organization's efforts to strengthen sustainable agricultural productivity around the world."

IFDC Board of Directors and the VFRC Board of Advisors

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



African Union Commissioner for Rural Economy and Agriculture
H.E. Rhoda Peace Tumusiime participated in Water, Climate and Development Day on December 3, 2011, at the 17th Conference of Parties (COP17), an

annual UN meeting to assess progress in dealing with climate change. Tumusiime stated: "In Africa, water is life. This is an absolute matter of fact. Climate change in Africa means longer and more frequent droughts; more intense floods; and less food. In Africa, every single country shares water with its neighbor. Climate change is about managing the water cycle...but limited adaptive capacity keeps us vulnerable..." Tumusiime has been a member of the IFDC board of directors since 2010 and serves on the Africa Committee.

Dr. Vo-Tong Xuan, rice agronomist and rector of Tan Tao University in Vietnam, participated in a panel discussion on "Responding to Environmental Challenges," January 11, 2012, at the Vietnam Summit 2012. The discussion addressed the fact that Vietnam could be one of the most affected nations if climate change progresses as predicted. Xuan has been a member of the IFDC board of directors since 2007. He chairs the board's Program Committee and is a member of the Executive, Africa, Budget and Nomination committees.



Mark Huisenga, senior program manager for the USAID Bureau for Food Security, participated in a panel on "Enabling a Private Sector-Led Seed Industry: Policy Perspectives" as part of a USAID Agriculture Sector Council Seminar held December 14,

2011. Huisenga pointed out that more than 60 percent of seed in Africa is sold informally and highlighted the importance of training farmers in proper seed selection and safe storage. Huisenga has been a member of the VFRC board of advisors since 2010 and serves on its Executive and Commercialization committees.

In Memoriam

Dr. David Hopper, agricultural economist and former chairman of the IFDC board of directors (1990-1997), passed away on November 22, 2011, at the age of 84. He served as a member of the board from 1980-1997. Hopper was responsible for approving the funding that helped establish IFDC, via his position as the founding president of Canada's International Development Research Centre.



"Hopper led IFDC through a critical time when agriculture was not a primary focus for many countries and funding for sustainable agricultural development was limited," said Dr. Amit Roy, IFDC president and CEO. "Hopper's guidance was critical in helping IFDC become a vital force in the development arena."



Dr. Robert Wagner, former IFDC board member, passed away on March 31, 2011, at the age of 90. Wagner had a long and illustrative career in agriculture and served IFDC for more than two decades (1976-1997). From 1975 until his retirement in 1988,

Wagner was the president of the Potash and Phosphate Institute, which later became the International Plant Nutrition Institute (IPNI).

According to Dr. Terry Roberts, IPNI president, “Dr. Wagner will be remembered as an energetic and forward-looking leader, one who understood the importance of agronomic research, the fertilizer industry and production agriculture.”

Dr. E.T. (Travis)

York, former chairman of the IFDC board of directors (1998-2004), passed away April 15, 2011, at the age of 88. He served on IFDC’s board from 1997 to 2004. York was the founder of the University of Florida Institute of Food and Agricultural Sciences and former chancellor of the State University System for Florida.

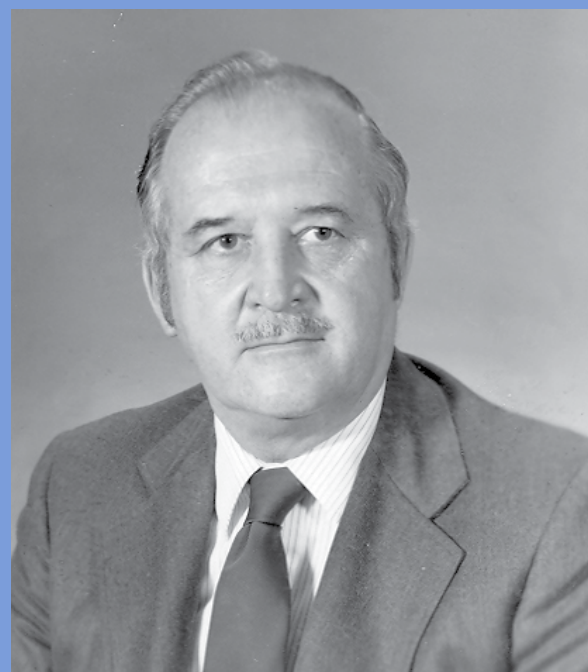


York tirelessly focused on alleviating world hunger, particularly on expanding food production to meet rapidly growing needs, making food safer and more accessible and increasing production efficiency. “His guidance and counsel helped lay the foundation for the expansion of IFDC’s global presence, particularly in Africa,” said Dr. Amit Roy.



In Memoriam

Dr. Donald McCune IFDC’s Founder and First Managing Director



The IFDC staff and board of directors were deeply saddened by the passing of Dr. Donald L. McCune, IFDC’s founder and former managing director, on September 12, 2011, at the age of 86.

McCune, along with Dr. John Hannah, the first chairman of the IFDC board of directors, planned and organized the establishment of IFDC in November 1974. During his tenure at IFDC (1974 to 1990), McCune traveled extensively and guided the Center as it helped to serve the agricultural development needs of more than 80 developing countries.

“Dr. Donald McCune worked tirelessly in his efforts to improve soil fertility and food security worldwide during his career, which spanned almost four decades of work in international development,” said Dr. Amit Roy. “Moreover, he was an inspirational leader who guided IFDC during its critical early years.”

Prior to founding IFDC, McCune held leadership positions with the Rockefeller Foundation in Chile and TVA in the United States. He served as TVA’s director of international development from 1969 to 1974.

McCune will be remembered for his recognition of “the urgency of the world food situation” and his enthusiasm to develop ways to feed people through the use of fertilizer technology. He was a visionary scientist with strong compassion for the welfare of others in the United States and around the world.

IFDC Staff News

Dr. Sampson Agyin-Birikorang, IFDC scientist and systems agronomist, recently co-authored “Agro-Ecological Nitrogen Management in Soils Vulnerable to Nitrate Leaching: a Case Study in the Lower Suwannee Watershed,” published in *Nutrient Cycling in Agroecosystems* (Volume 92, Number 1). Other authors include Yoana C. Newman, Augustine K. Obour and Gabriel N. Kasozi.

Agyin-Birikorang also co-authored “Environmentally Sustainable Nitrogen Fertilizer Management for ‘Tifton 85’ Hay Production in Sandy Soils,” published in *Crop Science* (Volume 52, Issue 1). Other authors were Yoana C. Newman and Gabriel N. Kasozi.

Dr. Joshua Ariga, IFDC scientist and economist, wrote “Encouraging Private Investment in Agricultural Research: Myth or Necessity for Developing Countries.” The article, published as a part of CTA’s Science and Technology Policy Dialogue, discusses public and private investments in agricultural research and development.

In December 2011, **Dr. Porfirio Fuentes**, IFDC senior scientist in trade economics, and **Dr. Maria Wanzala**, an IFDC secondment to the New Partnership for Africa’s Development, were invited by FAO to make a presentation at the FAO-Africa “Peer Learning Seminar on Policy Implementation: A Case of Fertilizer Subsidy Programs.” Fuentes presented, “Market Smart Subsidies: A Theoretical Perspective.” The presentation postulated that for market-smart subsidies to be effective, the proper conditions for business development must exist in the market.

Ian Gregory, IFDC agribusiness market development specialist, conducted an Agriculture Council Seminar on “Voucher Schemes for Enhanced Fertilizer Use” on January 25, 2012, in Washington, D.C., held by the USAID Bureau for Food Security. The presentation discussed the essential objectives of voucher schemes; the detailed planning and targeting required for successful implementation; voucher systems’ role as only one tool in sustainable market development; and the need for exit strategies.

Dr. André de Jager, interim director of IFDC’s North and West Africa Division, participated in a panel discussion on “How to Boost Cocoa Production in Producing Countries” during the IDH Cocoa Day, held December 15, 2011, in Amsterdam, The Netherlands. According to de Jager, the development of a sustainable cocoa sector in West Africa requires a substantial increase in productivity, which can be attained through adequate technical assistance, well-functioning agro-input markets and supply chains and well-coordinated value chains (see the article on pages 8 and 9).

De Jager also participated in the International Supply Management Congress, December 15-16, 2011, in Amsterdam, which brought together private sector partners, researchers, NGOs and public sector representatives involved in sustainable value chain development.

Dr. Richard Jones, agribusiness program leader for IFDC’s East and Southern Africa Division, attended the McKnight Foundation Collaborative Crop Research Program (CCRP) Annual Leadership Meeting, January 9-13, 2012, in Faro, Portugal. Jones chairs the CCRP Advisory Committee and has been a member of the Committee since 2001. The vision of the CCRP is to contribute to a world in which all have access to nutritious food that is sustainably produced at the local level.

The 4th Global Transdisciplinary Processes for Sustainable Phosphorus Management (Global TraPs) Workshop was held in March in El-Jadida, Morocco. In attendance were **Dr. Amit Roy**, IFDC president and CEO and Global TraPs practice leader; **Dr. Debbie Hellums**, acting leader of the IFDC Agro-Economics Research Program and Global TraPs practice manager; **Steven Van Kauwenbergh**, senior scientist and project leader of the IFDC Phosphate Research and Resources Initiative; and **Dr. Sampson Agyin-Birikorang**, IFDC scientist and systems agronomist. The workshop produced an initial picture of the global phosphorus (P) supply and demand chain and explored the critical aspects of P use efficiency and supply management.

Dr. Upendra Singh, IFDC principal scientist – systems modeling (soil fertility), was recently invited to serve on the Editorial Board of *Scientific World Journal* in the journal’s agronomy domain. Published since 2000, *Scientific World Journal* is a peer-reviewed open access journal that publishes research and reviews articles on a wide range of subjects regarding the medical, life and environmental sciences.

Dr. Paul Wilkens, IFDC scientist and programmer, co-authored a chapter in the recently published book *Methods of Introducing System Models into Agricultural Research*. The chapter, “Estimating DSSAT Cropping System Cultivar-Specific Parameters Using Bayesian Techniques,” is co-authored by Wilkens, James W. Jones, Jianqiang He, Kenneth J. Boote, C.H. Porter and Z. Hu.



IFDC Inducted into Alabama Engineering Hall of Fame



Below, Dr. Amit Roy, IFDC president and CEO, accepts the award on behalf of IFDC upon induction into the 2012 Alabama Engineering Hall of Fame. Presenting the award and congratulations is Maury Gaston, chairman of the Hall of Fame's board of directors. IFDC was the only corporation/organization inducted in 2012. The awards ceremony was held February 18 in Huntsville, Alabama, USA.



“Faces of Agriculture” Campaign Brings New Perspective to Global Efforts

Since its founding in 1974, IFDC has focused on increasing and sustaining food security and agricultural productivity in more than 100 developing countries through the development and transfer of effective crop nutrient technology and agribusiness expertise. Over that time, IFDC staff and partners have documented the Center's efforts not only through extensive reports but also through photography.

On January 3, 2011, IFDC began its website-based “Faces of Agriculture” photo essay series. The photo series – which will be updated daily throughout the year – commemorates the efforts of those who have helped to increase agricultural productivity around the world.

These faces illustrate the effort and often backbreaking work that defines smallholder farming in the developing world. They are generally anonymous faces, but faces that will live throughout history. They are also the faces of progress and of change. Most importantly, they are faces of hope that represent the billions of men, women and children who strive for sustained food security, good health and a better quality of life.

The Center's Information and Communications Unit will be taking photography submissions throughout the year from IFDC staff and development partners. If you have a photograph that illustrates the agricultural development efforts taking place in your area, email the high-resolution image to cgreene@ifdc.org with an appropriate description of the photograph. To view the IFDC website gallery, visit <http://bit.ly/yTO5uq>.

▶ (Opposite): The faces of the people that IFDC staff has encountered over the last 36 years show unique determination and remarkable pride in their accomplishments.



Educational Video Series Raises Awareness of Fertilizer's Role in Plant Health and Global Food Security

IFDC has released an educational video series, "The Primary Nutrients in Plant Growth," that explores the roles of nitrogen, phosphorus, potassium and secondary and micronutrients in plant nutrition. The five-part series of four- to eight-minute videos is hosted by John Shields of IFDC. The series raises awareness of how these nutrients affect plant nutrition and healthy growth, and the role of chemical fertilizers in delivering these vital nutrients to plants.

FAO estimates that to feed more than 9.4 billion people by 2050, global food production must increase by 70 percent; developing countries may even need to double food production. Growth in the world's population, especially in Africa, is forcing farmers to grow crops on ever-decreasing land area, stripping those soils of their natural nutrient content.

Fertilizers are critical to improving the world's food security because they deliver the missing nutrients that plants must have to grow, in a form they can use. The balanced application of fertilizers is critical to returning nutrients to the soil – not only stabilizing crop yields but dramatically increasing output as well. In its growth cycle, a plant can only develop to the point that its nutrients make possible. With the proper combination of natural and chemical fertilizer amendments to the soil, crops are able to grow to their full genetic potential – a factor that will be crucial to increasing agricultural production over the next four decades.

The goal of the video series is not only to gain broad exposure among those interested in agriculture and plant science but also to encourage all viewers to

become part of the conversation about the necessity of plant nutrition and growth – and the looming question of how to feed the world by the midpoint of this century. The series is being distributed to high school and college educators, agricultural extension services, educational websites and U.S. agricultural development policymakers. It is also being provided to government policymakers around the world, NGOs and international associations whose missions involve agricultural intensification and food security.

To view the series online, visit www.bit.ly/plant_growth.



New IFDC Videos

IFDC has produced new videos about the organization and its projects. The following videos can be found at IFDC's Video Gallery (www.ifdc.org/Media_Info/Video_Gallery).

Extending Agro-Dealer Networks (EADN)



"Extending Agro-Dealer Networks" documents the impact of the EADN project, which trained more

than 1,400 agro-dealers throughout Kenya, Tanzania and Uganda. As a market-oriented initiative, the project focused on private sector development and investment in all segments of the agro-input value chain. EADN-trained agro-dealers play a vital role in the distribution of inputs to smallholder farmers in remote regions. The video highlights EADN's technology transfer activities, such as field demonstrations and field days, and the project's role in association building and facilitating and strengthening linkages among actors in the value chain. The 32-minute video includes interviews with agro-dealers and farmers who have benefited from the project, government agricultural officials, extension workers and project implementers. A shorter, seven-minute video provides highlights of the project as well. Both videos were produced by Mark Kamau on behalf of IFDC.

Improving Agriculture and Lives in Mozambique



A new film, titled "Mozambique and IFDC – Working Together to Improve Agriculture and Lives," demonstrates the nation's increased agricultural production as a

result of IFDC projects. The 10-minute film includes IFDC-trained smallholder farmers who participated in IFDC-led voucher programs to purchase quality inputs, and shows the subsequent increase in their yields and incomes. The film also focuses on private sector

participation – in particular, agro-dealers who were trained and provided with access to a credit guarantee program to assist them in funding their supplies of agro-inputs. The film includes comments from IFDC officials, government representatives and supply chain partners expressing support for IFDC projects and acknowledging the benefits of increased fertilizer use in the country. The video was produced by Larry Badger on behalf of IFDC. Badger served as an Encore volunteer in IFDC's ESAFD office in 2011.

Competitive Agricultural Systems and Enterprises (CASE)



"Building Through Markets" is a 44-minute video that illustrates IFDC's CASE solution. The film presents the experiences of entrepreneurial

individuals who are building small- to medium-scale businesses through new relationships with colleagues and agribusiness cluster and value chain partnerships. The four case studies from Ghana and Togo are part of a larger West African initiative coordinated by IFDC's 1000s+ project. The video was produced by Dr. Toon DeFoer on behalf of IFDC.

Fertilizer Voucher Program in Nigeria



This seven-minute video chronicles the efforts to improve the availability of fertilizers to smallholder farmers through pilot-scale smart subsidy voucher programs in Nigeria.

The Nigeria Fertilizer Voucher Program (NFVP) was funded by USAID and implemented by IFDC from 2009 to 2011. Due to the success of the pilot voucher programs, the Government of Nigeria (under its Agricultural Transformation Agenda), intends to upscale the availability of smart subsidies to reach a greater percentage of the nation's smallholder farmers in 2012. The "Nigeria Fertilizer Voucher Program" video was produced by Communications for Change for IFDC.



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2012 International Training Calendar

Training Program	Dates	Location	Program Fee (USD)
Linking Farmers to Markets in Africa (conducted in French)	April 9-13	Bamako, Mali	\$1,300
Improving Agricultural Productivity and Net Returns Among Smallholder Farmers Through Efficient Use of Nutrients and Water in Partnership with the Agricultural Research Organization (ARO) Volcani Center	May 6-10	Tel Aviv, Israel	\$1,600
Decision Support Tools for Agricultural Production, Fertilizer Recommendations and Climatic Variability	July 2-13	Arusha, Tanzania	\$1,300
Designing and Implementing Agro-Input Marketing Strategies in Developed and Developing Countries	July 23-August 3	USA (Alabama, Illinois, Kentucky, Maryland, Missouri and Washington, D.C.)	\$1,900
Increasing Agricultural Input and Output Trade Through Innovative Market Information Systems in Africa	August 27-31	Nairobi, Kenya	\$1,300
Technology Advances in Agricultural Production and Fertilization	October 8-19	USA (Alabama, Missouri, Illinois and California)	\$1,900
Fertilizer Granulation and NPK Production Alternatives	November 12-16	Bangkok, Thailand	\$1,600
Developing and Managing Profitable Agro-Input Business Through Sustainable Value Chains	December 3-7	Accra, Ghana	\$1,300