

Report

*an update on
the work & progress at the
International Fertilizer Development Center*

Study Tour Bridges Gap Between Africa and Latin America

A recent study tour of Mexico and Honduras, coordinated by IFDC-Africa, presented a group of African development and extension professionals the opportunity to develop a kinship and understanding with other professionals who are engaged in similar work in Central America. With funding from the Kellogg Foundation, the group gained a firsthand view of model development programs that deserve to be tested and eventually promoted in African countries having similar constraints and environments.

One such model was found in Honduras. Mr. Jose Elias Sanchez, the owner and manager of a private International Teaching and Learning Center (Loma Linda), near Tegucigalpa, Honduras, introduced the African professionals to an extension model to emulate. "In the mountain setting of Mr. Sanchez' 40-hectare farm, 40,000 farmers have received practical training during the past 14 years," says Mrs. Ketline Adodo, IFDC-Africa Editor and a member of the study tour. "The 6-day course attended by farming couples enables farmers to transform their environments anywhere. The visit to Mr. Sanchez' Center provided us with a live demonstration of the impact that a successful private extension service can have on rural communities. The Center

emphasizes the two-way learning that must occur between the extension worker and the farmer; this develops the farmer's confidence and enhances his creative capacity and ability to control his environment."

The Loma Linda Center was only one stop on the 2-week tour. Other stops along the way included national and international research organizations, rural development programs, farmers' fields, and small local enterprises in Mexico; Honduras; Washington, D.C.; and Battle Creek, Michigan.

Besides Mrs. Adodo the other six development and extension professionals making the tour included Dr. Tunji Arokoyo, Deputy Director, National Agricultural Extension and Research Liaison Service (NAERLS), Ahmadu Bello University, Zaria,

Nigeria; Mrs. Ruby Dagadu, Senior Planning Officer, Women in Development, Ghana; Korang-Amoako, Director of Extension Services, Ghana; James Maswaya, Head of Regional Extension Services, Zimbabwe; Dr. A. Uzo Mokwunye, Director, IFDC-Africa, Lomé, Togo; and Wakili Tairou, Head of Extension Services, Benin.

"In Mexico and Honduras, we met with dedicated professionals and determined farmers who have formed partnerships and are designing and implementing rural development strategies based on two guiding principles: sustainability and self-reliance," Adodo says.

The organizations on the tour schedule are emphasizing sustainability to reduce dependency on

(Continued on page 8)



(IFDC/Africa staff photo)

In the "Granja Loma Linda," an International Teaching and Learning Center, the Director Elias Sanchez gives a demonstration of his "inducing" extension approach through a lively course on soil science.

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President's Report



(Photo by Charles E. Butler)

Dr. Amit H. Roy
IFDC President and
Chief Executive Officer

Inside This Issue

This issue of the *IFDC Report* contains highlights of our work in Africa, Eastern Europe, and Asia, and at Headquarters. A Kellogg-sponsored study tour of Mexico and Honduras by African development and extension professionals is featured in this issue. A privatization project in Ethiopia, sponsored by the U. S. Agency for International Development (USAID), is profiled as well. An interview with officials from the Bangladesh Ministry of Agriculture and the Ministry of Finance relates their opinions and impressions regarding IFDC's policy reform project in their country. Albania's entrance into the information age with its development of a national agricultural statistical system is heralded by an interview of Albanian officials of that country's statistical service. Another article reports the findings of IFDC Headquarters' research regarding methane emissions from flooded rice soils.

Intensified Focus on the Challenges in Africa

From the time of IFDC's creation, the Center has recognized the need for at-

tention to Africa's agricultural production problems created by low soil fertility and environmental degradation. IFDC became involved in providing answers to the continent's special challenges before it was the accepted thing to do.

Despite the formidable challenges in Africa, we believe Africa's agricultural future is bright. We at IFDC realize that results take time, and we are ready to do our part in providing solutions to the food and agricultural challenges facing sub-Saharan African countries. IFDC-Africa is based on that continent solely for that purpose; its staff members have been active in ensuring food security and arresting environmental degradation by addressing the problems of low soil fertility, increased soil erosion, and desertification.

In January I visited IFDC-Africa, Lomé, Togo, to review its programs and plans for the Resource Mobilization Meeting scheduled for April 7, 1994. In spite of political turmoil in Togo, our staff have been able to make measurable progress in both programs—watershed management and policy reform. Increasingly, countries in West Africa are consulting IFDC-Africa staff on fertilizer-related issues including nutrient management and crop production.

Plans for the Resource Mobilization Meeting, cosponsored by the United Nations Development Programme (UNDP) and the Netherlands Ministry of International Cooperation (DGIS), were being finalized by the committee consisting of selected staff of IFDC-Africa, Ministry of Rural Development, and UNDP. General Olusegun Obasanjo, former Head of State, Government of Nigeria, had agreed to deliver the keynote address. The Resource Mobilization Meeting will be followed by the Executive Committee Meeting of the IFDC Board of Directors.

In conjunction with my trip to Lomé, Togo, I traveled to three other African countries to discuss additional possibilities for collaboration with the national agricultural research systems and other entities in these countries.

Zimbabwe—In Harare, Zimbabwe, I met with officials of various agencies in

that country. At the African Centre for Fertilizer Development (ACFD), collaborative work, especially that concerning dealer development and soil fertility research, was discussed with Dr. Samuel C. Muchena, Managing Director, ACFD.

Visits were also made to the offices of the USAID Mission in Zimbabwe, the Royal Netherlands Embassy, Chemplex, African Capacity Building Foundation, Zimbabwe Fertilizer Limited, and the University of Zimbabwe.

Kenya—The purpose of this trip was to meet with the Ministry of Agriculture, Government of Kenya;

Kenya Grain Growers Cooperative Union; Kenya National Fertilizer Association; USAID/Kenya; World Bank; and the German Association for Technical Cooperation (GTZ) to discuss recent developments in the agriculture and fertilizer sectors in Kenya and explore opportunities for collaborative projects.

A visit was also made to the International Centre for Research in Agroforestry (ICRAF) Headquarters in Nairobi to discuss IFDC's participation in the Alternatives to Slash and Burn Initiative (Phase II).

Ethiopia—The purpose of this trip was to follow up on the recently

concluded IFDC study on the Fertilizer and Transport Sector Assessment of Ethiopia. I met with the Honorable Minister and Vice Minister of Agriculture, Government of Ethiopia; officials from the World Bank, European Community, the Food and Agriculture Organization of the United Nations (FAO), and USAID; and private fertilizer dealers. Overall the IFDC report was found to be quite useful, and most agreed with its conclusions and recommendations.

Amit H. Roy

Albania Gears up for the Information Age

Recent headlines in an international newspaper read "Albania Crumbles Into a Least Developed Nation" . . . "United Nations Classifies Albania as a Least Developed Nation—the Only One Ever in Europe." Yet a recent Gallup poll of the formerly Communist countries conducted for the European Community showed Albanians leading all in optimism. In fact, 77% said they believed that their country was moving in the right direction; 72% expressed confidence in the market economy; and 71% said they believed that the economic situation would improve in the near future.

Technologically Albania has been regarded by the United Nations and others as being 20 to 30 years behind the rest of Europe, but it is working hard to close the gap by modernizing its industries and training its human resources in the latest in information technology. IFDC is playing a role in this effort by assisting the Ministry of Agriculture and Food (MOAF) of the Government of Albania to develop a national agricultural statistical system.

As part of IFDC's project to assist the Government of Albania in rebuilding their economic system from

a central command economy to a free market system, IFDC has provided expertise and resources in the organization of management information systems to support project activities and contribute to the future development of a national agricultural statistical service. During February IFDC conducted a 2-week study tour in the United States for four officials of the Directorate of Information and Statistics, MOAF, to expose Albanian Government officers to the technologies and

developments of countries operating in free and competitive marketing systems.

In addition to visiting IFDC Headquarters, the officials toured the state agricultural statistical service offices in Alabama and Tennessee during February 12-February 26. In Washington, D.C., they visited the U.S. Geological Survey; U.S. Census Bureau; U.S. Department of Agriculture; Economic Research Service; Foreign Agriculture Services; World Bank; and the Fertilizer



(Photo by Charles E. Butler)

Dr. Julio Henao, IFDC Senior Biometrics Scientist (left), discusses the development of Albania's national agricultural statistical system with Dr. Carlos A. Baanante, Director, IFDC Research and Development Division, and members of the Albanian Directorate of Information and Statistics—Servet Kalemi, Statistician; Mynevere Rusi, Chief of Agricultural Statistics; Shkelqim Agolli, Director of Statistics, Ministry of Agriculture and Food; Zana Curakuqi, Chief of Agroindustrial Statistics; and Ilirjan Bimo, Manager of Management Information Systems, IFDC-Albania.

Institute. They observed how the agricultural statistical services are provided at the state level and the coordination of agricultural information and statistical services with Federal offices in Washington.

"The group was exposed to basic and advanced technologies in agricultural statistical services principally in the areas of data collection and survey techniques, census, and management information systems," says Dr. Julio Henao, IFDC Senior Biometrics Scientist and Study Tour Coordinator.

The visits were complemented with lengthy discussions with government officers in charge of the bureaus visited. The discussions were centered around the application of the technologies in Albania, the resources needed, and the limitations.

"After major political change in Albania, the Government recognized that international help was needed because we did not have prior experience with managing a market economy," says Shkelqim Agolli, Director of Statistics, MOAF. "From this point of view, IFDC's help has been extremely fruitful, especially

in two directions: first, in establishing in Albania a network of private sector dealers; second, in assisting us with the development of a national agricultural statistical system."

Other members of the study tour group included: Ms. Mynevere Rusi, Chief of Agricultural Statistics; Ms. Zana Curakuqi, Chief of Agro-industrial Statistics; and Servet Kalemi, Statistician. Accompanying the group and serving as their interpreter was Ilirjan Bimo, Manager of Management Information Systems, IFDC-Albania.

"IFDC's enthusiastic staff has been of tremendous help to us in Albania," says Agolli. "The IFDC experts are assisting us in establishing a statistical service that is based on contemporary technologies similar to those of the United States. During 1993 we collaborated with IFDC in applying the area sampling frame in Albania, when we conducted the first-ever national survey of estimated cropped area. This survey was of very high quality because we were privileged to have the able assistance of IFDC staff."

The Albanians have a definite schedule of future activities that should ensure the effective and efficient implementation and operation of their country's agricultural statistical service. In March-April 1994, the Albanians and their counterparts at IFDC will carry out a socioeconomic survey.

"Again IFDC will have an honored place in this effort," Agolli says. "In the future we shall organize a short-term training program for all MOAF staff; then we shall carry out a fruit tree census. In addition, during 1994 we plan to conduct a livestock census."

The Albanians and their IFDC counterparts hope that the national agricultural statistical service, when fully operational, will contribute to increased agricultural productivity in that country and help sustain the free market economy. To make better decisions regarding the future of Albanian agriculture, its policymakers must have access to a reliable national agricultural statistical service.

Ethiopia's Privatization Leads to Broad Reforms

As his cattle graze beneath acacia trees, Ayyele Neggo, an Ethiopian farmer, prepares his field for barley planting and reflects on the past—"Life is much better here now, because everything I grow is mine. Before, I had to give half to the landlord Now my family has more to eat My children will have a better life."

The Ethiopians of today are weaving a new social fabric—Hope is gradually replacing despair as the warp of the social fabric. It is a challenge, but the Ethiopian people can make it happen.

A partnership between USAID and IFDC is assisting Ethiopia in laying the groundwork for the road to a brighter future for all Ethiopians.

As part of the Economic Reconstruction and Rehabilitation Program of the Transitional Government of Ethiopia, USAID is helping to revitalize the previous administration's stagnant command economy through privatization of its agricultural sector. The USAID program seeks to increase agricultural productivity by developing competitive private marketing systems. Specific objectives of this program include the privatization of the fertilizer and transport sectors.

IFDC recently assessed the impact of the transitional government's policy initiatives and their implementation on the development of competitive market systems in the fertilizer and transport sectors. A study team composed of Ian Gregory, IFDC Senior Marketing Specialist/Financial Analyst and Team Leader; Dr. W. E. Clayton, IFDC Consultant; Dr. Henry Ssali, IFDC Senior Soil Fertility Scientist; and John Maschoff, Consultant, visited

Ethiopia to collect the necessary information.

"After 17 years of experiencing a command economy under the Derge regime and 30 years of civil war, the Transitional Government of Ethiopia (TGE), by its New Economic Policy announcement of November 1991, committed itself to transforming the stagnant economy through reducing the role of the State in the economy and through promotion of private investment and private sector participation in economic activity," says Ian Gregory, Team Leader of the Ethiopia project. "Economic liberalization and privatization programs, under the umbrella of the Economic Reconstruction and Rehabilitation Project, were agreed between the TGE and the International Monetary Fund, the World Bank, and the international donor community during 1991/92. These bold economic reforms have included a major devaluation of the Ethiopian Birr, deregulation of the trans-

port sector, and fairly effective control over inflationary tendencies.”

Ethiopia's agricultural sector has played, and will continue to play, a dominant role in the economy. It accounts for about 47% of the gross domestic product, 85% of exports, and 85% of the labor force. Approximately 6 million smallholders produce 90% of the food grains, pulses, and oilseeds production and more than 95% of the coffee, the major export crop and foreign exchange earner.

Fertilizer use in Ethiopia is extremely low; during 1991/92 maximum usage only amounted to approximately 8 kg/ha of crops and pasture. The World Bank estimates that fertilizer use will have to increase at a growth rate of 20%/year over the next 5 years to keep the food deficit at the current level of about 0.8 million tons.

“The development of a competitive private sector fertilizer market in Ethiopia can be expected to improve availability of fertilizer and services to peasant farmers that will lead directly to increases in use and that increased use will result in higher food production and higher rural incomes,” Gregory says. “The transition will take time and will require adjustments to Government policies and institutions and development of the private sector. The ultimate objective is to establish a



(Photo by W. Edward Clayton)

IFDC Senior Marketing Specialist/Financial Analyst, Ian Gregory, meets with Ethiopian farmers during the USAID-sponsored assessment of the privatization of that country's fertilizer and transport sectors.

viable, competitive private sector capable of efficiently procuring fertilizer imports and marketing these throughout the agricultural regions through multiple channels, thus providing choice of competitively priced, unsubsidized supplies to farmers with access to credit.”

The primary issues involved in increasing availability of fertilizer supplies for farmers, through the development of multiple channels of numerous retail outlets, include the provision of equal opportunities

for the private and public sectors in procurement, distribution and retailing; increased credit availability for consumption; price deregulation and subsidy removal; improved private sector skills in fertilizer procurement and marketing; and improved sector information monitoring. Secondary issues that need to be addressed include fertilizer legislation, improved dissemination of fertilizer research findings, and the development of fertilizer product mix.

Bangladesh Truly Becomes “Golden Bengal”

Bangladeshis refer to their land as *sonar Bangla*, or golden Bengal, for the gold of ripening paddies. Now they must add another adjective to indicate an endless harvest of rice since that country is now self-sufficient in rice production.

IFDC has been a key player in Bangladesh's becoming self-sufficient in rice production. As the Additional Secretary, Ministry of Agriculture, Anwarul Islam, said recently during a visit to IFDC Headquarters, “The right application of fertilizer played

a very important role. Here is IFDC's role: With the right policies and the right application of fertilizer, we have been able to make very great strides in agriculture. For the past two years, we have imported no rice in Bangladesh. With the implementation of the Fertilizer Distribution Improvement Project, which began in 1979, IFDC has advised us on the privatization of fertilizer distribution from the very beginning. This advice has been extremely valuable. Bangladesh's fertilizer importation is now totally privatized, with no major problems—to the credit of IFDC.”

Since 1979 IFDC has been involved in a project to develop and implement a free and competitive

market system for fertilizers in Bangladesh. Throughout this project, IFDC has facilitated the evolution of an extensive network of private entrepreneurs in Bangladesh. As a result of the changes instituted during the project, fertilizer demand has increased by more than 100%, and the country has virtually achieved self-sufficiency in rice production. These accomplishments were driven by the development of a highly competitive free market economy for fertilizer. The Government's heavy subsidy burden from fertilizers has been completely eliminated, yet real prices to farmers have declined and consumption has increased. The removal of fertilizer subsidies and privatization of fertil-

izer business have resulted in the Government's realizing a saving estimated at US \$40 million during 1992/93. Another advantage resulting from privatization has been the creation of 170,000 new jobs.

"Agriculture is very important to Bangladesh," Islam says. "In fact, 39%-40% of the gross domestic product comes from agriculture; 75% of the labor force is engaged in agriculture. Two-thirds of our exports are agriculture based."

Syed Amir-Ul-Mulk, Additional Secretary, Ministry of Finance (Banking), who also visited IFDC Headquarters in March, realizes the impact of the IFDC project on his country. "Because of IFDC's major influence, Bangladesh is now a role model for privatization—it has made

a dramatic transition in moving the fertilizer sector from the public to the private sector."

In order to be successful, the process of privatization had to be accomplished in an orderly fashion and involved many steps along the way. The provision of credit was a very important element in that transition process. Both Bangladesh officials recognize the importance of this element. "A credit system had to be established so that the farmers could obtain the fertilizers," Islam says. "The dealers obtain the fertilizer on credit and, in turn, the farmers get fertilizer on credit from the dealers."

"IFDC played a major role in implementing a credit system involving banks and other financial institu-

tions so that fertilizer dealers and ultimately farmers could obtain the necessary fertilizer supplies," Mulk says.

The Bangladesh officials look forward to a continuing relationship with IFDC. "IFDC will be in charge of implementing the new, upcoming project, Agribusiness and Technology Development Project (ATDP), and making a further contribution to Bangladesh agriculture by promoting the efficient and effective use of fertilizer and other inputs of agriculture. In this project, IFDC and other organizations will be assisting Bangladesh in diversifying its agriculture by introducing more vegetables and beginning to export certain crops."

IFDC Scientists Trace Methane Emissions from Flooded Rice Soils

With much attention being given to the long-term effects of various gases on the environment, for the past few years IFDC scientists have been investigating the basic factors that affect the transport of methane produced by bacteria in flooded rice soils. These soils, which produce approximately 70% of the world's rice, contribute approximately 25% of the total global emissions of methane to the atmosphere. While there have been many measurements of actual methane emissions from rice fields, the basic factors concerning the sources of carbon and the transport of methane are poorly understood. "Around the world there have been many measurements of methane emissions from rice fields, but there is little understanding of the factors that caused the results," says Dr. Bernard H. Byrnes, IFDC Soil Fertility Scientist.

Much of the methane emitted originates from carbon sources produced by the rice plants, which means that fertilizers cause an increase in



(Photo by Charles E. Butler)

B. Keith Tays, IFDC Laboratory Analyst, conducts an experiment to determine methane emissions from flooded rice soils.

methane emissions by producing bigger plants. It is not known at this time if rice yield and increased methane emission are directly related or if fertilizers can produce more yield while increasing methane emissions at a lower rate. If this were true, less land could be devoted to rice cultivation, possibly reducing overall methane emission.

Because flooded rice culture and production have increased and will continue to increase to meet world food needs, an increasing amount of methane from this source is expected and with it a greater threat of atmospheric global warming. On a molecule-to-molecule basis, methane has a warming efficiency that is 30 times greater than that of carbon dioxide, the most common greenhouse gas. Affecting the amount of heating of the earth's atmosphere, methane has more than doubled in concentration in the atmosphere during the past 200 years (approximately 45% of the methane results from agriculture).

Under the controlled conditions of a growth chamber, IFDC scientists conducted experiments during the past three years to determine the amount of methane emitted directly from flooded rice soils and through the rice plants over crop growth periods and to determine the effects of light and water transpiration by the plants on the transport of methane.

"We found that by varying the transpiration rate of the plant, the rate of methane emission was not affected," Byrnes says. "This indicates that methane does not enter the plant with absorbed water, and water movement does not apprecia-

bly affect movement of methane to the plant roots. Of the methane emissions measured in experiments conducted during the summer, approximately 79% to 87% occurred through the plants, whereas in the winter experiment 61% to 68% of

the total emissions occurred directly from the soils in the form of bubbles. As the soils were dried at harvest time, both plant and soil emissions increased tremendously for 1 to 1.5 days, accounting for 7% to 8.5% of the total seasonal emissions. Unex-

pectedly, emission of methane from the soil during the nighttime was frequently much less than the daytime emission, possibly because of increased gas mobility due to soil drying during the day."

Human Resource Development Brochure

IFDC recently prepared a brochure profiling its offerings in human resource development. To receive a complimentary copy of this brochure, interested parties may write to Ram S. Giroti, Coordinator of the Human Resource Development Unit, IFDC, P.O. Box 2040, Muscle Shoals, Alabama 35662, U.S.A.

Scenes from IFDC's International Study Tour on Fertilizer Distribution and Handling, conducted in India, Indonesia, and Singapore during February 7-25, 1994.



Dr. W. E. Clayton, manager of this training program, discusses a distribution problem with Neptali Vera, a participant from PEQUIVEN, Venezuela.

Training program participants visit a fertilizer warehouse in West Java, Indonesia, for a firsthand look at fertilizer distribution and handling.



(Photos by Ram S. Giroti)

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(Continued from page 1)

external inputs. In this regard, they are focusing on organic farming based on (1) the use of local fertilizer resources and practices (organic manure, mixed cropping, and recycling of wastes) and (2) integrated farming to bring different farming components such as crop production, animal husbandry, and agroforestry to support each other.

These institutes are concentrating on building self-reliance to reduce dependency on external assistance. Farmers are trained to prepare and organize themselves to meet changing development situations at both the individual and community levels. This especially implies controlling the financial factor, which is the most limiting constraint in rural areas.

"At the Plan Puebla Project in Mexico, we saw firsthand how a team of researchers, extension workers, coordinators, and appraisers are working with farmers not only to increase their yields of corn and beans, Mexico's staple foods, but also to train the farmers to manage their

own affairs," Adodo says. "The whole process revolves around the credit union. Through this structure, farmers have access to credit and to all the necessary means to control production, market produce, and develop their communities."

After a brief stopover in Washington, D.C., to visit with the Congressional Black Caucus and representatives of the African embassies, the tour participants visited the Kellogg Foundation in Battle Creek, Michigan, where they reported their conclusions and recommendations concerning the study tour. The participants highly recommended the development of a workshop to be conducted in a sub-Saharan country to promote the transfer of rural development concepts and strategies observed in Latin America and the establishment of a formal South-to-South network to keep alive the spirit of understanding that was developed among its members throughout the tour.

Through meetings and discussions the tour's participants harvested a

package of innovative ideas, concepts, and methods. These experiences have definitely changed their vision of rural work and will surely affect their way of dealing with farmers. At the end of the tour, the group came away with a positive feeling that the people of the South are beginning to realize that the future lies in their hands. The men and women on the tour committed themselves to speeding up this promising evolution in their own environments.

Dr. Mokwunye summarizes the primary lessons of the study tour in this way: "This new approach to rural development as an empowering process assigns a key role to extension work. The extension worker's mission is not simply to deliver ready-made technology packages but to help farmers derive innovative solutions and make appropriate decisions. They are responsible for helping farmers develop their innate capacity for innovative change."