

# Report

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

*Africa—*

## **IFDC Team Provides Assistance to Egypt in Policy Reform and Dealer Training**

"This was the most professionally competent and the most congenial of any team that I have worked with during my 18 years of international consulting experience. I believe that the report produced by the team provides thorough technical, organizational, and systemic analyses of the impact of the policy reforms related to fertilizer production, marketing, and usage. The recommendations contained in the report were reached after careful consideration of the results of the technical research and field investigations."

This was the way that Dr. Lyle E. Brenneman, Cooperative Business Consultant of TechMark International, Inc., described his experience with the IFDC policy team that recently provided assistance to the Government of Egypt. During January 16 to April 9, 1993, an IFDC team composed of Ian Gregory, Senior Marketing Specialist and Team Leader; Dr. Loren E. Ahlrichs, Senior Marketing Specialist; and Dr. S. S. Sidhu, Senior Economist, visited Egypt to provide assistance in the areas of policy reform and dealer training. This work was funded by the U. S. Agency for International Development (USAID).

To conduct the policy study in Cairo and other Egyptian locations, the IFDC team members were joined by Brenneman and four Egyptian consultants, Dr. M. R. Hamissa, Consulting Agronomist; Dr. Ramzy Mersal, Fertilizer Marketing Consultant; Dr. Osman Salama, Consulting Economist; and Ahmed A. Tawela, Statistician, Egyptian Fertilizer Development Center. The two primary objectives of the policy study were: (1) to make an assessment of the impact of the policy changes already enacted on the farm sector, the fertilizer production companies, the Principal Bank for Development and Agricultural Credit (PBDAC), and the private sector; and (2) to identify and recommend further policy changes required for the continued development of an open, competitive market for fertilizers and pesticides.

"Using secondary data, the policy team conducted an economic analysis to compare the 6-year pre-reform period (1979-85) with the 6-year reform period (1985-91)," says Ian Gregory. "This analysis was supplemented

by an examination of the impact of the policy changes affecting fertilizer distribution on the private and cooperative sectors. An assessment of the operation of the current fertilizer and pesticide marketing system was made following field and production factory visits during January and February 1993. Finally, an assessment was made of the future development and further policy changes required to develop an open, competitive market system."

The Egyptian fertilizer market has been essentially privatized since policy changes were made effective July 1991, when the private and cooperative sectors were allowed to purchase directly from factories and import fertilizers. The recommendations of the policy team were primarily concerned with ex-factory pricing principles and encouraging greater competition in fertilizer distribution.

*(Continued on page 8)*

**Private-sector fertilizer dealers from upper Egypt participate in the first Dealer Workshop conducted recently by PBDAC under sponsorship of USAID. IFDC provided the extensive training materials and participated in three pilot workshops as a first step in the PBDAC objective of training 1,500 new private-sector dealers in the next year.**

*(Photo by Ian Gregory)*



## IFDC Report

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IFDC is a public, international, nonprofit organization, governed by an international board of directors with representation from developed and developing countries. The Center is supported by various bilateral and multilateral aid agencies, private foundations, and national governments. IFDC focuses on creating sustainable agricultural productivity and food production in the tropics and subtropics through the development and use of improved and environmentally sound fertilizers and fertilization practices.

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## President's Report



(Photo by Charles E. Butler)

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

### **Broadened Focus**

In response to a new set of challenges confronting the world's agricultural sectors, IFDC began 1993 with a broadened mission by focusing on "increasing and sustaining food and agricultural productivity in the developing countries through the development and transfer of effective and environmentally sound plant nutrient technology and agribusiness expertise."

### **Program Areas**

After reconsolidating its programs, IFDC is now concentrating on the following thrust areas: Nutrient Dynamics; Policy, Economics, and Information Systems; Agribusiness; Engineering and Technology; Watershed Management; and Policy Reform, Market Research and Development. After being approved by the Executive Committee of the IFDC Board of Directors during its meeting in January, these programs are fully operational. (The programs are outlined in detail in a new "IFDC Profile," which is being published and will be available for distribution soon.)

### **New Structure**

The work of the Center is now conducted by four technical divisions—Research and Development, Outreach, Asia, and Africa.

The major goal of the Research and Development Division is to assist in identifying and alleviating soil fertility and plant nutrient management constraints to agricultural productivity in the developing countries in an economic, sustainable, and environmentally appropriate manner. The focus of the Outreach Division is on technology transfer to the developing countries through information development, collection, analysis, and reporting. The mission of the Africa Division is to conduct research and training leading to the systematic buildup of soil fertility as the basis for increased agricultural productivity in sub-Saharan Africa in general and West Africa in particular. The Asia Division coordinates IFDC's activities in the Asian region with major focus on policy reform leading to free and competitive fertilizer and other agri-inputs marketing systems in the countries of the region. IFDC's project in Bangladesh is being used as a model.

### **Commitment in Developing Countries Maintained/New Challenges Addressed in Eastern Europe**

IFDC has historically concentrated on the tropical and subtropical countries of Asia, Africa, and Latin America, but because of the substantial challenges in Eastern Europe, the Center has now broadened its efforts to include that region. A major portion of IFDC's work in Eastern Europe concerns the development of free competitive market systems for plant nutrients and other agricultural inputs. At the same time, the Center remains committed to meeting the challenges confronted in the developing countries.

### **Situation in Togo**

We remain concerned about the unstable political situation in Lomé, Togo, the location of IFDC's Africa Division. However, the IFDC staff posted in Togo continue to function in a very effective way in spite of the difficulties.

*Amit H. Roy*

## UNDP Steering Committee Reviews Global Project

During March 24-25, a Steering Committee of the United Nations Development Programme (UNDP) visited IFDC to conduct a mid-term review of the UNDP Global Project. The Committee included Dr. Nyle Brady (Chairman), Senior Agricultural Development Consultant with UNDP and the World Bank; Dr. John Coulter, Consultant; Igor Volodin, Industrial Development Officer, United Nations Industrial Development Organization (UNIDO); and Dr. R. N. Roy, Senior Officer, Integrated Plant Nutrition Systems, Fertilizer and Plant Nutrition Service, Land and Water Development Division, Food and Agriculture Organization (FAO) of the United Nations. Dr. Christian Pieri, Ecologist, Agriculture Department, Natural Resources Division, World Bank, attended the meeting as an observer.

During the 2-day review, the Committee members heard presentations on the various components of the UNDP Global Project. The presentations covered such subjects as biophysical and socioeconomic characterization of agroecosystems (Dr. P. K. Thornton, Senior Systems Modeling Scientist); field research in Latin America (Dr. W. E. Baethgen, Soil Fertility/Biometrics Scientist); field research in Asia (Dr. N. K. Savant, Senior Soil Chemist); greenhouse gas emissions (Dr. B. H. Byrnes, Soil Fertility Scientist); fertilizer use and cadmium accumulation in soils and plants (Dr. R. G. Menon, Senior Soil Fertility Scientist); and the use of phosphate fertilizers and biological nitrogen fixation (Dr. S. H. Chien, Senior Soil Chemist).

In the training segment of the program, R. S. Giroti, Coordinator of IFDC's Human Resource Development Unit, outlined the overall Human Resource Development component. The Committee members were briefed on a number of workshops and training programs conducted during the review period. These included a workshop on phosphate fertilizers and the environment (J. J. Schultz, Director of the Outreach Division); a workshop on policy issues affecting fertilizer sector development and sustainable agriculture (Dr. B. L. Bumb, IFDC Senior Economist); and a training program on plant nutrient management for sustainable agriculture (Dr. Byrnes).

At the conclusion of the meeting, the committee members expressed approval of the progress of IFDC's work in the UNDP Global Project. The Chairman, Dr. Brady, had this to say, "We were very pleased with the responsiveness of the IFDC staff. In fact, we are most impressed with the progress that is being made to identify the role of plant nutrients in sustainable agriculture and in the protection of the natural resource base."

A second committee member, Dr. John Coulter, summarized his assessment of the meeting in this way: "We are very impressed with the way that things are going. We have observed some very progressive programs; the IFDC staff are tackling some important problems of agricultural development through the use of fertilizer and improvement of the natural resource base. We were fa-

vorably impressed with the level of enthusiasm exhibited by the IFDC staff regarding their work. The role of IFDC in the overall development of sustainable agriculture under the constraints of the population problem is a very important one."

The UNIDO delegate, Igor Volodin, was "very pleased to participate in the Committee." He felt that IFDC's staff members are giving "good guidance to the industry, especially in relation to cadmium. I was impressed that the training component was focusing on the interaction of organic and inorganic nutrients. Many of our recommendations were well taken."

The FAO member of the team was equally pleased with the progress of the Global Project. "After hearing presentations by the researchers working in various program components, our impression is that the progress is quite satisfactory," Roy says. "We tried to pinpoint some areas such as the cadmium pollution question, measurements of methane and nitrogen gases, and the complementarity of inorganic and organic nutrients under defined agroecological conditions. These were the primary areas to which the group felt more attention needed to be focused to arrive at broad and definite conclusions at the end of this project. The Committee felt that there is a need for more collaboration with other international research institutes and international organizations such as FAO to make the work more complementary with that of others and to facilitate sharing of facilities and resources."

## IFDC Team Provides Technology Transfer Assistance to ABOCOL

At the request of Abonos Colombianos S.A., (ABOCOL), a private company with fertilizer production facilities in Cartagena, Colombia, an IFDC technology transfer team recently visited the company's facilities to assist in the startup of a modified nitrophosphate-based plant that was designed by IFDC. Since 1963 ABOCOL has been a major producer of compound NPK granular fertilizer.

ABOCOL desired to update the technology of the plant to provide (1) increased process efficiency, (2) production flexibility in the use of raw materials, (3) increased production capacity, and (4) decreased corrosion (maintenance costs) and ambient pollution. IFDC assisted in meeting these goals by performing pilot-plant tests to develop a modified process that decreased the number of reactors from 16 to 4. After the pilot-plant

runs, IFDC prepared a basic process engineering package and later helped in reviewing the detail engineering package prepared by another company.

In conjunction with this project, IFDC provided a team of two engineers--George W. Bolds, IFDC Senior Production Specialist, and Ramon Lazo de la Vega, IFDC Engineering Specialist--to assist ABOCOL in the startup of the new modified



(Photo by George W. Bolds)

**Ramon Lazo de la Vega, IFDC Engineering Specialist, examines an exhaust fan in the ABOCOL nitrophosphate NPK granulation plant.**

nitrophosphate plant. "Although the new wet section was not fully completed since one unit of the plant (ammonium nitrate solution unit) was not fully constructed, the main section of the plant could be started up," Bolds says.

The startup operation clearly proved the full performance and design capacity of the wet section of the plant. The IFDC-designed reactor and scrubber section (wet section) of the ABOCOL nitrophosphate NPK granulation plant experienced a successful startup.

The operation has been simplified by using a fewer number of vessels, permitting steadier production of more uniform products, fewer shutdowns, and lower electric energy consumption. The cost of mechanical maintenance has also decreased due to the fewer pieces of equipment used and their higher degree of corrosion resistance.

"The scrubbers for the acidulation section and those of the neutralization section performed well," Lazo says. "The scrubbers for handling

the dust from the dry section (granulators) also performed well." The new scrubbing system permits the recovery of gaseous and dust effluents that were previously lost, thus increasing the nutrient use efficiency of the operation. At the same time, pollution has decreased. The liquid effluents and particulate matter emissions have been virtually eliminated. A quantitative evaluation of the stack discharge is underway. Its appearance, however, indicates a considerable improvement over the previous operation.

IFDC is expected to provide technical assistance when the ammonium nitrate unit is complete. At present the plant is still operating successfully, and it has produced at rates of about twice the original design capacity.

## Africa—

# IFDC Continues Technical Assistance to EFDC

Through a contract with the United Nations Industrial Development Organization, which is serving as the executing agency for the United Nations Development Programme, IFDC is continuing to provide technical services to the Egyptian Fertilizer Development Center (EFDC). EFDC is in the final stage of development with the start of construction of a 1-mt per hour fertilizer granulation pilot plant, which should be completed in early 1994.

With IFDC's assistance, the imported equipment for the NPK granulation pilot plant was recently received, and fabrication was started on the domestically produced equipment. During February 1993 an IFDC team of two specialists traveled to Egypt to (1) inspect the civil work in progress and the equipment, (2) conduct a basic granulation training seminar for the pilot-plant person-

nel, (3) discuss and formulate a schedule for the pilot-plant construction, and (4) present a proposal for EFDC to use to obtain donor funds for additional pilot-plant staff training at IFDC Headquarters.

The IFDC team, which included George W. Bolds, Senior Production Specialist, and Robert C. Bosheers, Coordinator of Production Services, met with the personnel involved in the construction of the pilot plant. The purpose of the meeting was to establish a critical path with a time schedule for completion of the plant.

In addition to the pilot-plant team, an IFDC Chemist--Dr. G. Erick Peters--assisted with the installation of equipment in EFDC's nitrogen research laboratory and training of the personnel.



(Photo by George W. Bolds)

**Robert C. Bosheers, IFDC Production Services Coordinator, conducts a training session for EFDC personnel.**

## Privatization of Fertilizer Marketing in Sub-Saharan Africa is Reappraised

In late 1992 the fifth annual meeting of the African Fertilizer Trade and Marketing Information Network (AFTMIN) was conducted with the theme of "Alleviating Constraints to the Privatization of Fertilizer Importation and Domestic Marketing in Sub-Saharan Africa."

More than 50 people mainly from sub-Saharan Africa, including AFTMIN correspondents, representatives from national and international organizations, private traders, and manufacturers discussed the progress and problems with privatization. Two out of three participants financed their own participation in the meeting.

Liberalization and privatization of the fertilizer sector are advocated under structural adjustment programs. More and more countries in sub-Saharan Africa are committed to creating open and competitive fertilizer marketing systems that efficiently respond to market signals and ensure that the right kind of fertilizer is available to the farmer in the right quantity, at the right time, at the right price (and minimum costs), and at the right place (as close to the farm gate as possible).

Restructuring the fertilizer marketing system is not an easy process, and it cannot be achieved immediately. If the process is not carefully planned and supported, there is a risk that fertilizer trade will be con-

ducted in a vacuum, thereby resulting in decreased fertilizer use and irregular supply as occurred in Senegal. Fertilizer is a politically sensitive commodity; any serious reductions in consumption during the transition from a state-controlled to a privatized marketing system can be politically and economically unacceptable, particularly if such reductions tend to impair food security. Therefore, management of transition becomes a crucial issue.

The private sector needs time to grasp the changes in the macroeconomic and sectoral environment, to build confidence in the stability and the continuity of the new policies, to assess various options, to mobilize resources, and to begin participating under reformed market conditions. Fertilizers are complex commodities, and moves to market liberalization need to be accompanied by institutional orientation and training to enable both the state and private sectors to cope more effectively with the transitional changes in the marketplace. Such orientation and training should cover areas such as the legal environment, business planning, finance, and marketing, particularly in economies that are just beginning to adopt economic reforms. In the fertilizer subsector short training programs for private dealers have proved extremely useful in developing countries.

The following support strategy for market reform and liberalization was recommended during AFTMIN 5:

1. Prior to the privatization of the fertilizer sector, a detailed fertilizer reform program should be formulated based on a careful analysis of the existing fertilizer marketing system, financial arrangements, and policy environment.
2. National analytical capabilities should be strengthened that would allow a careful and smooth transition to a liberalized fertilizer marketing system, in which governments continue to play a facilitating role.
3. Monitoring mechanisms should be established that allow reform programs to be guided by an independent national committee.
4. Key skills of personnel involved in the fertilizer market reforms need to be developed and improved at all levels in the system including policymakers, bank and credit officers, importers, retailers, and farmers.
5. Financial assistance is urgently needed for the preparation and implementation of fertilizer sector reform programs.

## Intensive Training Empowers National Agriculturalists from Burkina Faso

Like many developing countries in sub-Saharan Africa, Burkina Faso has been heavily dependent on external assistance to meet its needs for agri-inputs and expertise. In 1992 as part of a renewed effort to strengthen national capacity to devise and implement agricultural development programs based on increased and more sustainable use of

agri-inputs, the Burkinabe Ministry of Agriculture and Animal Resources and the World Bank invited IFDC-Africa to prepare an intensive training project to develop the skills of key national personnel in the agri-inputs and mechanization division of the Ministry.

"Nine agriculturalists from Burkina Faso were involved in an intensive

training project planned and organized by IFDC-Africa," says Dr. Uzo Mokwunye, Director of IFDC's Africa Division, located in Lomé, Togo. "The participants in the project comprised the staff of the *Projet Engrais Vivriers* (PEV), a special project to promote increased use of agri-inputs for food production throughout the country."

During the 10-month project, the

participants attended specially selected agri-inputs development programs in Africa, Europe, and the United States. These programs were offered by IFDC, FAO, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (France), and the International Agriculture Centre (Netherlands).

The major aim was to develop well-balanced yet versatile competencies in agri-inputs among the PEV project team, especially in policy, economic, and technical aspects of agri-inputs management. Programs concentrated on disciplinary training to develop the competencies of participants in agri-inputs marketing; information systems and services including database development; economic and statistical analysis of data; and planning, monitoring, and evaluation of agri-inputs development programs and services. Participants also visited fertilizer manufacturing and blending plants in developed countries and in Africa.

"To derive optimum national benefit from the knowledge and skills obtained during the external training programs, a final program was held in Burkina Faso in late 1992,"

Mokwunye says. "This training program aimed to outline priorities for a development strategy for the agri-inputs sector as part of a general agricultural development plan for Burkina Faso."

Forty-three participants, including representatives from all major organizations involved in agricultural development in Burkina Faso, participated in the final program. The newly trained PEV specialists presented discussion papers on key areas such as fertilizer marketing, information management, monitoring, and evaluation. Working groups identified major priorities for a development strategy and subsequently refined and summarized these in plenary sessions. Finally, a synthesis report focused on the specific areas requiring urgent attention in future development plans for increased use and efficiency of agri-inputs as part of a more productive and dynamic agriculture in Burkina Faso.

The timeliness of these training programs for national agri-inputs policy development was underlined by the Minister of Agriculture and Animal Resources, M. Jean Paul Sawadogo, in his opening remarks at the final training program in

Ouagadougou. He stated that the Burkinabe Prime Minister had announced in October 1992 that a comprehensive national development plan for agriculture will be prepared to identify and achieve sustainable increases in national agricultural production.

The Minister continued:

**"This plan has to modernize our agriculture so that its improved performance will become the basis for our economic and social development. If we do not maintain and restore the fertility of our soils and promote significant increases in the use of agri-inputs, such as fertilizer, we will put at risk our food security and our future progress toward food self-sufficiency."**

IFDC continues to work with the Ministry of Agriculture and Animal Resources in Burkina Faso by providing expertise and training to consolidate the capacities already developed and supporting the adoption and implementation of active national strategies for agri-inputs development.

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Asia—

## Program in Jakarta, Indonesia, Trains 38 Marketers

In cosponsorship with Asosiasi Produsen Pupuk Indonesia, IFDC conducted a 2-week Fertilizer Marketing Training Program in Jakarta, Indonesia, during December 1992.

This program attracted 38 participants from 13 countries, including Bangladesh, Comoros, Hong Kong, India, Indonesia, Kenya, Malaysia, Nigeria, People's Republic of China, Philippines, Qatar, Sri Lanka, and Thailand.

The program's manager, C. C. Yaptenco, Jr., IFDC Senior Marketing and Credit Specialist, discussed the program's 2-week training activities, which included lectures, films, simulation exercises, case studies, discussions, and field tours focusing on the marketing function, planning,

and research; fundamentals of plant nutrition; and distribution systems and management.

Four objectives kept the program sharply focused. These included: (1) to increase the participants' knowledge of the fertilizer industry and marketing systems; (2) to improve their skills in analyzing a fertilizer marketing system and identifying constraints to more effective fertilizer marketing; (3) to develop the participant's ability to plan, organize, and implement improvements in their countries' fertilizer marketing systems; and (4) to provide an opportunity for participants from many countries to exchange ideas and experiences.

The technical aspects and program structure design, achievement of objectives, knowledge gained, program content, marketing factors, fertilizer background, distribution, and promotion all received a "very good" rating.

In addition to Yaptenco, the IFDC faculty members included Ram S. Giroti, Coordinator of Human Resource Development; A.H.M. Obaidul Bari, Consultant; W. Edward Clayton, Distribution Consultant; and T. Alan Nix, Production/Marketing Specialist. Besides the IFDC staff, the program was privileged to have a guest faculty of 10 distinguished speakers from India, Indonesia, Singapore, and Thailand.

On a visit to a tea plantation processing plant in Indonesia, training participants in the Fertilizer Marketing Training Program observe how tests are performed to determine the quality of tea products for export. From left, they are: Li Qiu-bing, Assistant for Fertilizers, China National Agricultural Means of Production Corporation, Beijing, People's Republic of China; Adel Al-Mannai, Marketing Officer, Qatar Fertilizer Company, Doha, Qatar; Mrs. Bhakti Majumder, Research Officer, Ministry of Agriculture, Dhaka, Bangladesh; and Miss Bintang Simatupang, Marketing Research Staff, P.T. Petrokimia Gresik, Indonesia.

(Photo by C.C. Yaptenco, Jr.)



## RECENT IFDC PUBLICATIONS

### Farm Servicing Handbook

IFDC recently released a *Farm Servicing Handbook*, which was prepared by C. C. Yaptenco, Jr., Senior Marketing and Credit Specialist. This publication contains papers presented in the Farm Services Training Program, which was held during 1992 in Jamaica. The handbook is part of the training project funded by the Canadian International Development Agency. Produced in close collaboration with Jamaican and IFDC expertise, this handbook is designed to assist agri-input suppliers (distributors and dealers), extension workers, field researchers, technical information officers, and other field agricultural personnel to effectively service the needs of small-scale farmers in the food-crop sector. Extracts from relevant publications have been included in the appendixes to expand the usefulness of the handbook to farm servicing.

To order this publication please send your request to the IFDC Purchasing Department and specify Miscellaneous Publication IFDC-A-3; the price of the publication is US \$20.00, which includes shipping and handling.

### Fertilizer Use by Crop

In cooperation with the Food and Agriculture Organization of the United Nations and the International Fertilizer Industry Association, IFDC recently collaborated in the preparation of a publication entitled *Fertilizer Use by Crop*. Gene T. Harris, IFDC Senior Marketing and Economics Specialist, participated in the preparation of this publication.

This publication is available from the IFDC Purchasing Department free of charge.

### 1992 Fertilizer Situation Reports for Africa, Asia, and Latin America

Recently updated *Fertilizer Situation Reports for Africa, Asia, and Latin America* have been prepared by Gene T. Harris, IFDC Senior Marketing and Economics Specialist, in collaboration with a network of correspondents. These reports contain the latest data on fertilizer production, consumption, imports, exports, prices, and supply and demand statistics. In addition to the regional perspective, data is provided by nutrient and by country. Some data on fertilizer use by crop is also included. To order these publications, please send your request to the IFDC Outreach Division, and specify IFDC Fertilizer Situation Report FSR-1 (Africa); FSR-2 (Asia); and FSR-3 (Latin America). The price of each publication is US \$15, which includes shipping and handling.

### Alleviating Soil Fertility Constraints to Increased Crop Production in West Africa

IFDC recently joint published with Kluwer Academic Publishers a book entitled *Alleviating Soil Fertility Constraints to Increased Crop Production in West Africa*. This publication, edited by Dr. A. Uzo Mokwunye, Director of IFDC's Africa Division, is part of the Kluwer series—**Developments in Plant and Soil Sciences**.

U. S. and Canadian patrons may purchase this publication from Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061 (U.S.A.). In all other countries, it is sold and distributed by Kluwer Academic Publishers Group, P.O. Box 322, 3300 AH Dordrecht, Netherlands.

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The dealer training was under the direction of Ahlrichs. David Harms, IFDC Consultant, and Gregory completed the training team. This component was very successful not only in terms of providing agri-input dealers with technical and marketing information but also in providing a forum for the dealers to interact with the PBDAC on business relationships and with USAID personnel. The first two introductory workshops, lasting 2-1/2 days, were conducted for dealers, and the last one, in Cairo, for 2 days was essentially for distributors and factory personnel. Ahlrichs followed up the pilot workshops with a 2-day train-the-trainer workshop with the PBDAC training department.

Bill Gregg, Seed Industry Development Specialist, based in Cairo, Egypt, interacted with the IFDC team and summarized the experience in this way: "This has been one of the best efforts that I have seen to promote privatization and, at the same time, improve fertilizer supply to farmers, profitability of dealer operations, cost efficiency, and environmental aspects. It has been well planned and at a level that can be understood and used by dealers; it has not been academic, showing how much the lecturers know! Further, it has trained local trainers, who can then go out and train dealers; this develops local leaders' knowledge and prestige and gains their support."



*(Photo by Ian Gregory)*

**An Egyptian farmer collects fertilizer from a private-sector fertilizer dealer in upper Egypt. Private-sector dealers now account for 80% of all fertilizer marketed in Egypt, an accomplishment achieved since July 1991 when the market was liberalized.**