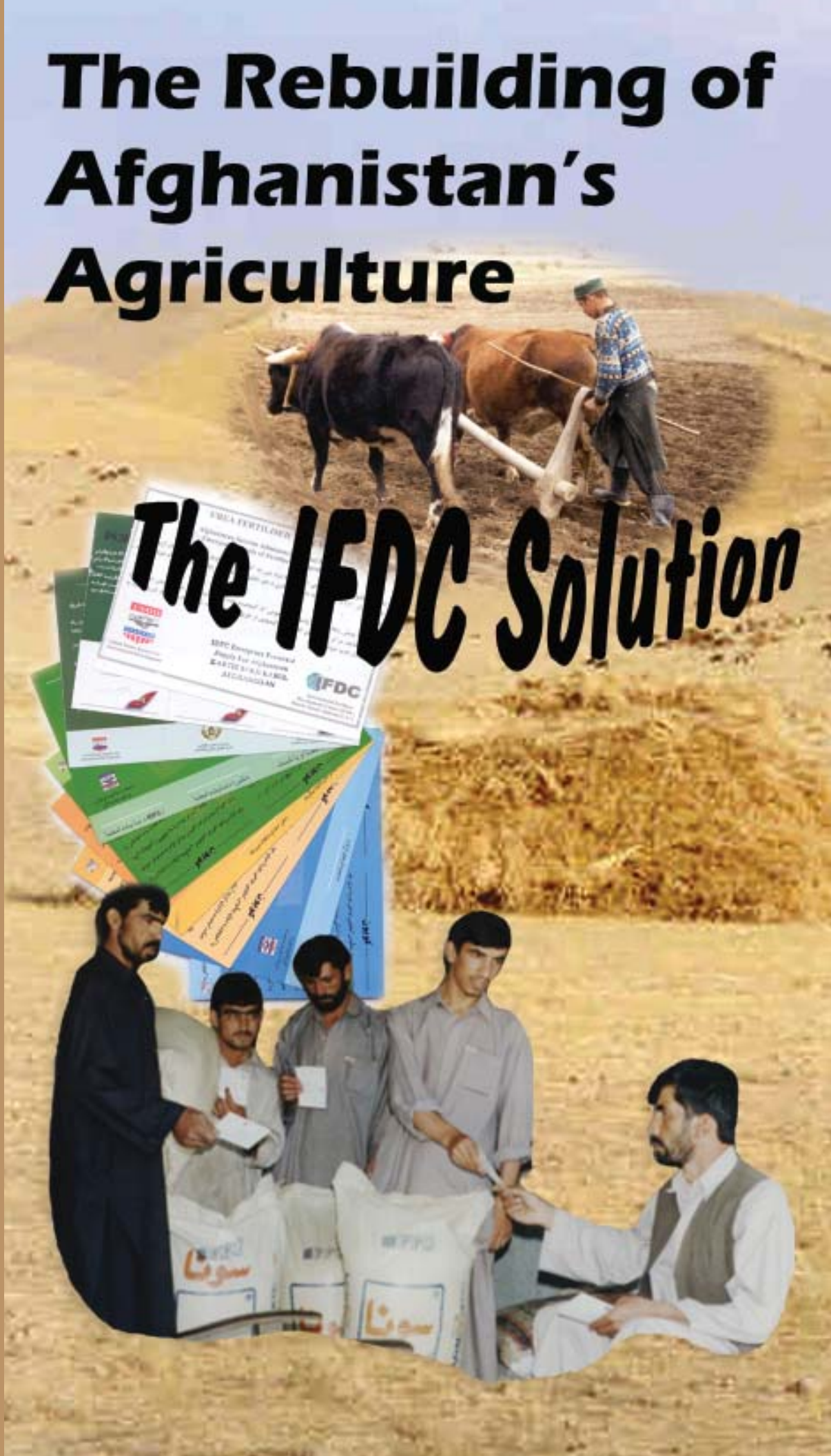
The Rebuilding of Afghanistan's Agriculture



IFDC

An International Center for Soil Fertility and Agricultural Development

The Rebuilding of Afghanistan's Agriculture: The IFDC Solution

by

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Library of Congress Cataloging-in-Publication Data

Roy, Amit H., 1947-
  The rebuilding of Afghanistan's agriculture : the IFDC solution / by Amit H. Roy.
       p. cm. -- (IFDC paper series ; P-30)
Includes bibliographical references and index.
  ISBN 0-88090-143-8
 1. Agriculture--Economic aspects--Afghanistan. 2. Agriculture and state--Afghanistan. 3. Fertilizers--Afghanistan. 4. Seed industry and trade--Afghanistan. 5. Arid regions agriculture--Afghanistan. I. International Fertilizer Development Center. II. Title. III. Paper series (International Fertilizer Development Center) ; IFDC-P-30.
  HD2065.6.R69 2003
  338.1'09581--dc22

2003021679

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IFDC publications are listed in *IFDC Publications*, General Publication IFDC–G-1; the publications catalog is free of charge.

The Rebuilding of Afghanistan's Agriculture: The IFDC Solution

Introduction

Afghanistan, for more than two decades, remained outside the mainstream of the international community. Limited international engagement over the years had greatly reduced the incentives for Afghanistan to play its role on the international stage. All this changed on September 11, 2001, following the terrorist attack on the United States. Suddenly, Afghanistan found itself at the center of world attention. After more than two decades of war and conflict, significant economic resources of the country were being diverted for the continuation of the war at the expense of civilians. Military employment offered an opportunity for economic survival to many young men, women, and their families. The fragmentation of the country and the collapse of practically all national institutions of governance allowed the development of large-scale criminalized economic activities. The nation's transportation and communication systems, heavy and small-scale industries, education, and agricultural infrastructure were nonfunctional. This economic decline exacerbated levels of poverty and economic hardship throughout the country. Primarily dependent on subsistence agriculture, the country witnessed diminishing income levels, declining food security, and reduced access to essential services.

Following the collapse of the Taliban regime in late 2001, the Afghanistan Interim Authority (AIA) was established in December 2001. A donors' meeting was convened in Tokyo, Japan, in January 2002 to discuss the emergency and development plans for Afghanistan with AIA. The vision for the natural resources and agricultural sector, as articulated by the AIA chairman H.E. Hamid Karzai in the Tokyo conference, included the following key elements (1):

1. *A "bottom-up" community-based approach to the determination of development priorities, using the micro-watershed as the planning unit.*
2. *A natural resources management and regulatory mechanism, which ensures that the use of natural resources by communities, in aggregate, does not exceed the capacity of natural systems to sustain themselves.*
3. *The critical natural resource is "water," of which the availability must be maximized and its use must be effective and efficient. In doing so, ecosystems will be sustained while agricultural output is maximized. It is essential that all communities and agencies become aware that the abstraction of water incurs a cost over and above the delivery of the water.*
4. *The transfer of modern dryland farming technologies to rainfed areas with a view to producing at least half the country's cereal needs from rainfed farming.*
5. *Rehabilitation of small, medium, and large irrigation systems managed by their communities/beneficiaries and growing predominantly high-value cash crops capable of supporting the cost of the infrastructure.*
6. *A traditional integrated livestock economy based on sustainable rangeland management and crop byproducts, plus commercial peri-urban livestock enterprises serving the main urban communities.*
7. *Private sector-led provision of agricultural services including seed, fertilizer, farm machinery, agrochemicals, and animal health products.*
8. *Agricultural marketing in the hands of the private sector, but with a significant farmer-based marketing organization segment.*
9. *A thriving off-farm income-generating subsector primarily targeted at and organized/operated by women.*

10. A lean, reformed set of sector institutions performing an agreed set of public sector functions.

11. An appropriate policy framework conducive to a thriving private sector.

Following the Tokyo conference, the international community was called upon to provide humanitarian assistance for the inhabitants and the returning refugees. This was a daunting task because of deteriorating (and sometimes lack of) infrastructure and other services. One of the immediate challenges was to revitalize the agricultural sector by providing critical inputs—seed and fertilizers—to farmers. The United States Agency for International Development (USAID) responded to this need by funding the International Center for Agricultural Research in the Dry Areas (ICARDA) to distribute seed and IFDC to develop the fertilizer sector. The latter intervention supported several of the development vision elements set forth for Afghanistan's future prosperity, peace, and health at the Tokyo conference. In particular, the elements supported by IFDC's intervention are: (1) transferring modern technologies to rainfed farming areas, (2) promotion of private agricultural inputs marketing systems, and (3) development of strong farmer marketing organizations.

This paper reviews IFDC's activities, achievements, and lessons learned in the overall context of agricultural sector development in Afghanistan.

Challenges to Agricultural Development

Afghanistan is a landlocked mountainous country surrounded by Pakistan, Iran, Tajikistan, Turkmenistan, Uzbekistan, and China. The topography of Afghanistan has the greatest influence on climate and water resources, where people live, and what they can cultivate for their livelihood.

The agricultural sector has been the main source of income, employment, and foreign exchange earnings for the economy of Afghanistan. Agriculture accounts for about 80% of the gross domestic product (GDP). The sector is characterized by small households that primarily use family labor in crop, horticulture, and livestock production for subsistence and local markets.

Most of the country is either arid or semiarid. As a result, agriculture is mainly dependent on irrigation systems that rely on rivers, streams, water catchments, and groundwater sources fed by the seasonal melting of snow on mountains. More than 80% of all crops are produced under irrigation. Limited areas of rainfed agriculture exist in the country. About 12% of the country's 65 million ha of land is arable, with 46% in permanent pastures. Mountains account for about 39% and the remainder (about 3%) is forests. The climatic and soil conditions favor irrigation-based agriculture, and a variety of grains, fibers, fruits, and vegetables have been grown and processed in the past for both domestic and export markets. Prior to the Soviet occupation in 1979, Afghanistan was practically self-sufficient in food. Horticulture (nuts, fruits, dried fruits, and spices) and livestock product (hides, wool) exports provided 40% of trade revenue. Until the early 1990s Afghanistan's production accounted for 60% of the world market for dried fruits.

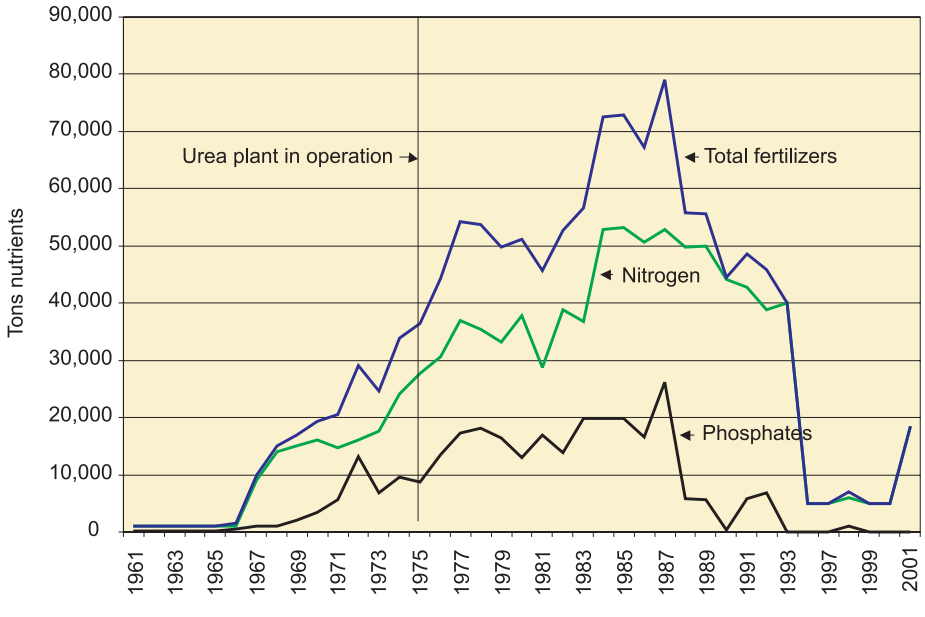
But decades of conflict, a severe drought since 1998, and the Taliban regime devastated both subsistence and commercial agriculture. The market was decapitalized and sector performance slumped. New agricultural technology was not adopted because of lack of incentives. Extension services became nonfunctional, which constrained technology transfer. Lack of investment in infrastructure resulted in its progressive deterioration. This economic climate resulted in a mass exodus of technical, professional, and managerial expertise. In early 2002, cereal production was only one-half of that of pre-war levels. Irrigated land area declined to 60% of the area covered in the 1970s. The irrigation systems and transport infrastructure fell into disrepair. Until 1988, livestock accounted for 40% of Afghanistan's national exports. Devastated during the war years, the livestock sector—sedentary farmers, transhumant tribes, and nomadic herders—suffered further as prolonged drought destroyed pastures and caused animal deaths, crisis sales, and low fertility and replacement rates.

Crops

Several crops are grown throughout Afghanistan. Wheat is by far the most important crop that is sown almost throughout the country on 2.5-3.0 million ha; the variation is due to precipitation conditions and drought. About 1.2 million ha is irrigated wheat and the balance is rainfed. Nearly 90% of this wheat is sown in the fall and only 10% in the spring. Next in importance are maize (corn) and rice, grown on approximately 300,000 ha each in some of the provinces. Cotton, potatoes, sorghum, and vegetables such as cucumbers and tomatoes are some of the other important crops. Grapes, melons, apples, pomegranates, apricots, almonds, and walnuts are a few of the important fruits grown.

Fertilizers

Fertilizer use in Afghanistan was introduced in 1962 by the Spinzar Company with the import of 5,000 tons of ammonium nitrate for cotton and sugar beets sown in Konduz, Takhar, and Baghlan (2). Later the Ministry of Agriculture started importing and distributing fertilizers. Gradually as fertilizer consumption increased, the Ministry was unable to handle it and created a parastatal in 1972—the Afghan Fertilizer Company (AFC), which later became the Afghan Fertilizer and Agricultural Services Enterprise (AFASE). This organization imported, stored, and distributed fertilizers throughout Afghanistan and sold directly to farmers and through franchised dealers or commission agents. Later, a urea plant with an annual capacity of 105,000 tons was built at Mazar-e-Sharif with Soviet technology and assistance and based on local gas. This plant started production in 1974, and initially some of the product from the plant was exported to the Soviet Union. The plant has operated at full capacity only intermittently since then. Today, it is operating at one-third of the design capacity as it currently produces about 40,000 tons of urea per year (Figure 1).



Source: FAO (6).

Figure 1. Fertilizer Consumption in Afghanistan, 1961-2001

It is estimated that over 60% of the fertilizer is used on wheat, 15% on cotton, and the 25% balance on grapes, potatoes, rice, vegetables, sorghum, and other crops. The highest amount of fertilizer distributed by AFASE was 79,000 tons, which includes 52,800 tons of urea and other nitrogenous compounds and 26,200 tons of phosphate fertilizers. This occurred during the 1987/88 cropping season. With the outbreak of civil strife during 1991/92, several institutions, including AFASE, stopped functioning. But since agriculture and farming remained the mainstay of most of the population, the demand for fertilizer continued; the private fertilizer dealers filled the void and began to procure urea from the Mazar-e-Sharif urea plant. These dealers imported the balance from Pakistan, Iran, and Uzbekistan and distributed it throughout Afghanistan. Several nongovernmental organizations (NGOs) also started importing and distributing small quantities of fertilizers during this period.

Emergency Supply of Seed and Fertilizers to Afghanistan

Following the Tokyo Conference on Reconstruction Assistance to Afghanistan in January 2002, a multi-donor mission led by the Asian Development Bank (ADB) undertook a needs assessment for the national resources and agricultural sector (1). The mission observed that the productivity levels of rainfed and irrigated farming are low even by regional standards. Country statistics have shown wheat yields of about 1.3 tons/ha, maize 1.7 tons/ha, and rice nearly 2.0 tons/ha during the past decade. The mission concluded that the high-yielding variety of seed and the correct type and amount of fertilizers could double current yields. USAID responded by funding ICARDA to procure and distribute drought-tolerant high-yielding wheat seed to selected resource-poor farmers. IFDC was funded to: (1) supply, on an emergency basis, fertilizers to cash-strapped needy farmers and the returning refugee farmers and (2) develop competitive agricultural input markets.

Initial Assessment of Fertilizer Market

Following the award of the contract, IFDC undertook a rapid assessment of the fertilizer market to determine the most appropriate method of providing fertilizers to the farmers. The team found the market to be significantly larger than earlier reports. In 2001/02 the fertilizer consumption in Afghanistan was about 170,000 tons, of which urea accounted for more than 75% (Table 1). Other fertilizers were diammonium phosphate (DAP), nitrophosphate (NP), single superphosphate (SSP), calcium ammonium nitrate (CAN), and ammonium nitrate (AN). The private fertilizer distributors and dealers handled these products. In addition, small quantities were also procured and distributed by several NGOs. The wholesalers and distributors made their own arrangements for the purchase of fertilizers. The transactions were in U.S. dollars or local/regional currency or as barter against commodities such as fruits.

Table 1. Fertilizer Consumption in Afghanistan—2001/02

Product	Tons
Urea[a]	140,000
DAP[b] (18% N, 46% P_2O_5)	10,000
NP[b] (22% N, 20% P_2O_5)	8,000
SSP[b] (16%-18% P_2O_5)	2,000
CAN[b] (26% N)	5,000
AN[b] (34% N)	5,000
Total	**170,000**

a. Includes 40,000 tons of Mazar-e-Sharif plant and the rest is imported.
b. Imported.

There is a widespread, vibrant, and active distributor and dealer network, which has led not only to a strengthening of democratic institutions and improved governance at the community level but also at the sub-regional level. Although the importers/distributors are few in number and located in large towns, the dealers or retailers are found everywhere. There are 2-3 retailers in small towns and 10-20 retailers in large towns selling from as little as 50-100 bags to 5,000 and more bags per year. They obtain supplies from the importers/distributors mainly against cash payments although a few have developed good business relationships with the distributors and are able to obtain a few days' credit. Most of them have outlets located near each other, and the competitive pressure controls prices. The margins and levels of profits are reasonable in this open market situation. The dealers sell to the farmers on a cash basis and few, if any, extend any credit.

The dealers' knowledge about fertilizers and basic agronomy is very limited, as is their knowledge of the fertilizer market, marketing, international sourcing of fertilizers, and business management. The dealers are not in a position to advise farmer customers on the proper use of this expensive but vital input. Nevertheless, they are eager to learn and improve their marketing capabilities and business acumen.

It became clear from this initial assessment that the supply of fertilizers under the USAID emergency program should not disrupt the existing private sector operations. IFDC, therefore, designed a fertilizer distribution program that would not only meet the objective of the emergency supply of fertilizers but also develop the fertilizer market by involving the private dealers. The principle of the program was income transfer to needy farmers using vouchers.

Emergency Supply of Fertilizers—The Voucher Program

The emergency supply of fertilizers was tied to the supply of improved wheat seed that was being arranged on an emergency basis by ICARDA through USAID funding. The objective was to enable the recipient farmers to acquire the maximum benefit through the good response they would obtain with fertilizer application on improved seed. The goal was to increase the production of wheat—the staple food cereal of the country—leading toward local self-sufficiency, increased farmer income, and rural stability.

The IFDC-developed voucher scheme was introduced during spring 2002 and involved the supply of a 50-kg bag of urea for topdressing of wheat. Subsequently, the vouchers have been used for fall 2002 and spring 2003 plantings (Table 2).

Table 2. Emergency Supply of Fertilizers Using the Voucher—March 2002 to July 2003

Year	Program	Fertilizer	Households That Benefited
		(tons)	
2002	Wheat Spring topdress—Urea	3,000	60,000
	Wheat Fall—Urea and DAP	9,000	120,000
2003	Wheat Spring—Urea and DAP	340	4,530
	Wheat (Fall planted) topdress—Urea	3,400	68,000
	Potato Seed Production—Urea, DAP, SOP	8	60
	Vineyard Rejuvenation—Urea	600	12,000
	Maize Seed Production—Urea, DAP	27	360
	Rice—Urea, DAP	195	290
	Mung Bean—DAP	69	1,380
	Total	**16,639**	**198,620**

The voucher, printed in the local languages of Dari and Pashtu, authorized a selected farmer to receive his/her predetermined fertilizer quantity from the local dealer without payment at that time. A schematic of the voucher system is shown in Figure 2. Vouchers were designed and printed with special markings to ensure that they could not be duplicated easily (Figure 3). The vouchers were distributed to the farmers through four NGOs, who were operating in the selected provinces. The farmers were selected on the basis of recommendations from the local community organization (shura), the staff of the extension department of the Ministry of Agriculture and Livestock (MOAL), and the NGOs. Along with the vouchers, the farmers received written instructions in the local language on the proper use of fertilizer received through the vouchers. The dealer submitted the vouchers to IFDC and was paid

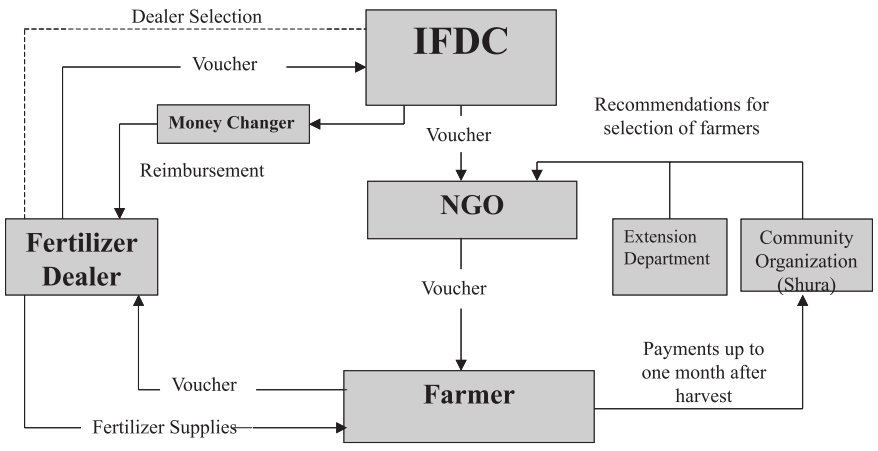


Figure 2. Schematic Diagram of the Voucher System

Figure 3. Vouchers

promptly through a designated money changer in the area. This scheme required training the NGO staff, the shura representatives, and the participating dealers in the basics of the program. The NGOs and shura representatives were encouraged to conduct meetings with the local farmers to explain the operation of the program and its benefits.

The fertilizer distribution for wheat followed that of the improved quality seed. After harvest, the farmers who received the vouchers were required to pay in cash or kind one bag equivalent of crop or the quantity stated on the voucher (in most cases this was about the same as the market price of inputs provided) to the shura who used the funds for local development and rehabilitation projects.

In 2003 the voucher system included both seed and fertilizers; however, the farmers obtained the seed from selected NGOs. Also in 2003 fertilizers and improved seed were distributed to at-risk farmers for summer crops—rice, maize, mung bean, and potato. Grapes have been traditional cash crops for Afghan farmers; however, the conflicts and severe economic hardship resulted in neglect and, in some cases, destruction of vineyards. As a part of the IFDC program, fertilizers were provided to resource-poor farmers for orchard production and vineyard rejuvenation using the voucher system.

Over 16,000 tons of fertilizer, corresponding to about 200,000 vouchers, was distributed to the needy farmers in the agriculturally important provinces of Kabul, Parwan, Kapisa, Laghman, Bamyan, Nangarhar, Wardak, Badakshan, Baghlan, Kunduz, Takhar, Ghazni and Helmand (Table 2). Through a post-operation monitoring and evaluation survey, IFDC determined that in the distribution for fall wheat, 98% of the intended farmers received the urea and DAP. It is estimated that yields of more than 4 tons/ha were obtained in many fields although the variability was high among fields and provinces due to various crop production factors. The farmers in the 42 districts in these 12 provinces were pleased with the program because it helped them to overcome their initial difficulties in re-entering the farming cycle with very limited resources of their own. Many farmers felt that they could not have made it without this program. The many independent small fertilizer dealers who willingly participated were also very pleased with the program since it improved their sales efforts by creating a good demand through the vouchers. They were also pleased with the prompt reimbursements. Overall the program did provide a boost to the local fertilizer market and cemented the relationship between the farmers and the dealers.

Development of the Agricultural Input Markets—The Dealer Training Programs

During the course of the initial market assessment, we realized that there were many fertilizer traders and retailers in the cities, towns, and villages. This network had developed in the past 10 years, from the time AFASE (the parastatal responsible for distribution of fertilizers in Afghanistan) had ceased to operate because of lack of funds and absence of an effective central government. Since the farmers needed fertilizers, Afghan traders—those at the import, wholesale, and retail level—entered the fertilizer business and supplied the market with fertilizers procured from Pakistan, Uzbekistan, Turkmenistan, and Iran. A subsequent IFDC survey found that there were 1,436 dealers, in total, serving as importers, wholesalers, and retailers with a large

concentration, (about 60%), in the agriculturally important provinces of Takhar, Helmand, Kandahar, Nangarhar, Herat, Balkh, Baghlan, Kunduz, Parwan, Laghman and Kabul. Most of the importers are concentrated in Kabul, Nangarhar, Herat, Balkh and Kandahar, whereas the wholesalers and retailers are spread in several districts.

Although these traders have been in business for the past several years, they had very little or no understanding of their products and, in most cases, their knowledge was limited to "white" fertilizers (nitrogenous such as urea, AN, CAN, AS) and "black" fertilizers (phosphates such as DAP, TSP, SSP). Additionally, they did not have any knowledge of the proper use—type, quantity, and timing—for specific crops and, thus, were not in any position to offer advice to their farmer customers. Their knowledge of marketing, business management, and fertilizer handling also was limited. The importers or wholesalers did not have much knowledge of the international fertilizer situation and markets except concerning the suppliers in the neighboring countries.

To develop the fertilizer market through the enhancement of the human resources, IFDC designed programs to train these traders—importers, wholesalers, and retailers. The training program was designed to provide basic knowledge in:

- Fertilizer product information; plant foods—the primary, secondary, and micronutrients; the important fertilizer products and their nutrient content; and the proper and balanced use of these products.
- Basic agronomy of all the important crops of the country—land preparation, seed variety and seeding rate, water management, fertilizer doses and time of application, weed control, harvesting and post-harvest techniques.
- Basics of marketing, sales promotion, and customer relations.
- Fertilizer handling—packaging, transportation and storage.
- Usefulness and importance of market information systems and dealer associations.

To minimize "time away" from business, the training programs were of 1 day duration. The training was done using slides in Dari and Pashtu, depending on the predominant language spoken in the area where the training was being conducted. In addition, brief papers on the subjects in both the languages were provided to the participants. The participants were also given a fertilizer recommendation and crop technology chart covering all important crops of the area. At the conclusion of every program participants were awarded certificates that are proudly displayed in their retail outlets with the recommendations chart.

Thirty training programs were held in 22 of the 32 provinces in Afghanistan (Figure 4). The training programs were held in conference rooms, either at local hotels, universities, NGOs, UNDP, or MOAL offices. Although most of the participants were in the fertilizer business, MOAL extension staff, university students, NGO staff, and

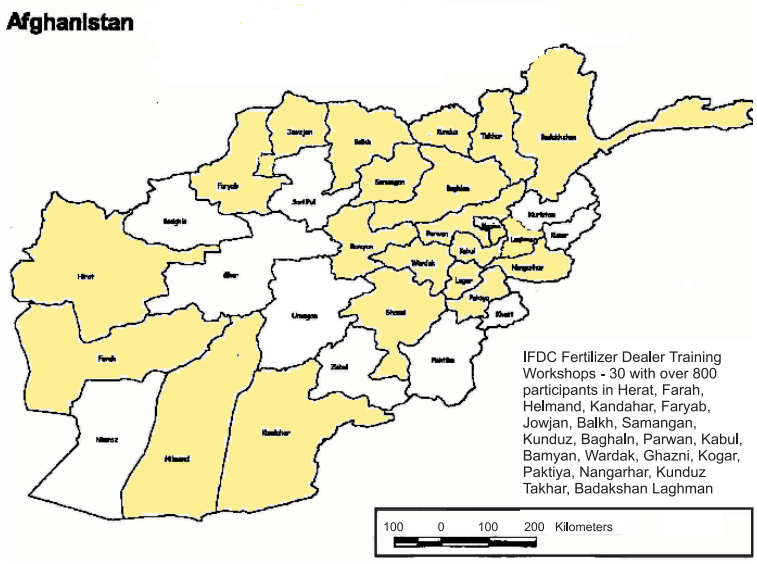


Figure 4. Location of IFDC Training Programs

shura representatives also attended the training programs. About 800 fertilizer dealers participated in the IFDC-sponsored training program.

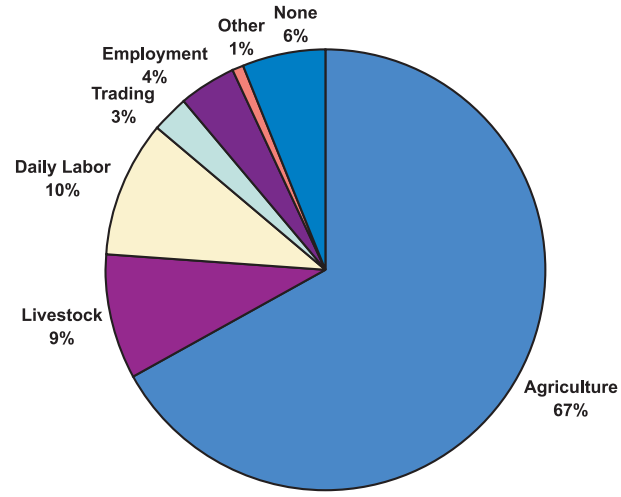
The fertilizer dealers were very appreciative of the workshops because they afforded them the opportunity to learn about fertilizers—their properties and uses—principles of marketing, and procurement. The program evaluations completed by the participants after each program indicated that most felt that they had benefited greatly, and many would like such programs to be repeated to obtain more information. One dealer in Baghe-Kazi in Kabul said that he did not know much before he attended a training program but now he knows "everything."

Program Accomplishments and Impact

IFDC, in collaboration with NGOs and MOAL, conducted several surveys at various stages of project implementation to:

1. Characterize the recipient households to estimate the effectiveness of the program in reaching needy farmers.
2. Evaluate fertilizer markets by provinces and determine the size and reach of the market and growth in fertilizer consumption by type of products in association with prices and costs of inputs and outputs.
3. Evaluate wheat production, assess farmers' activities and costs, and determine yields and economic benefits.
4. Provide and promote fertilizer technology use and development of extension services through soil testing and analysis, fertilizer recommendations, periodic farmer visits, radio programs, posters, and demonstration plots.

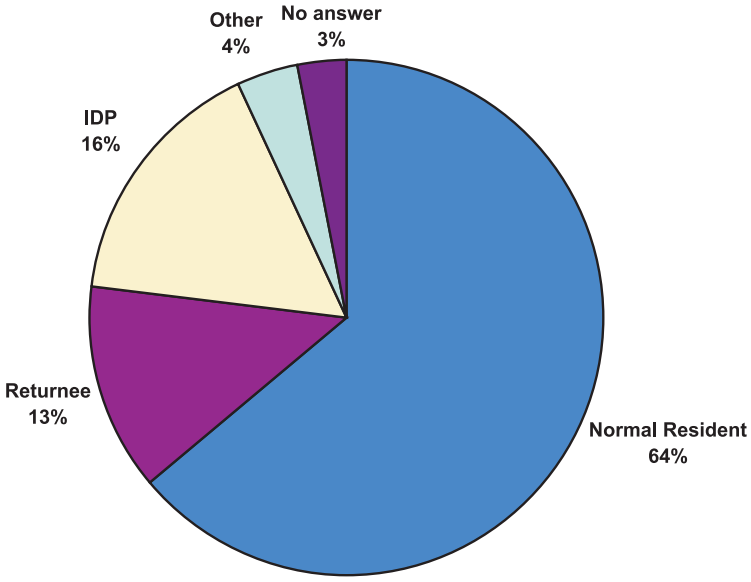
The IFDC program directly benefited 198,620 families; these farm families received a total of 16,639 tons of fertilizer through the program. Preliminary results confirmed that the households receiving the vouchers rely mainly on agriculture (Figure 5) to support a family of 10-12 members. The average farming area is about 4.7 ha in the rain-fed zones and 1.8 ha in the irrigated zones. Each farmer in the voucher program received enough fertilizer and seed for 0.4 ha. Most farmers receiving seeds and fertilizers were in irrigated areas (91%) and diversify crop production with livestock activities, principally cows, sheep, and goats. The heads of households are mostly illiterate (64%); the remainder has some level of education—elementary (18%), secondary (7%), and higher (11%). About 64% of the voucher recipients were normal residents who endured hardships under the Taliban regime, whereas 13% were returning refugees and 16% were internally displaced persons (Figure 6).



Other includes: Remittances and Social Support

Figure 5. Main Sources of Household Income

Evaluation of the fertilizer market in the country showed a nearly 50% increase in consumption in 2003 compared with 2002 for a total of 300,783 tons of fertilizer product sales. Most of the increases were in DAP and NP products. Other products were urea, CAN, TSP, SSP, and MAP (Figure 7). This surge in consumption could be attributed to several factors, including relative peace in the country, appropriate rainfall and water management, availability of high-quality seeds, promotion of crop-production technology, and production incentives by improved political environment in the country.



Other includes: Widow, Handicapped, and Social Case

Figure 6. Social Typology of Sample Households

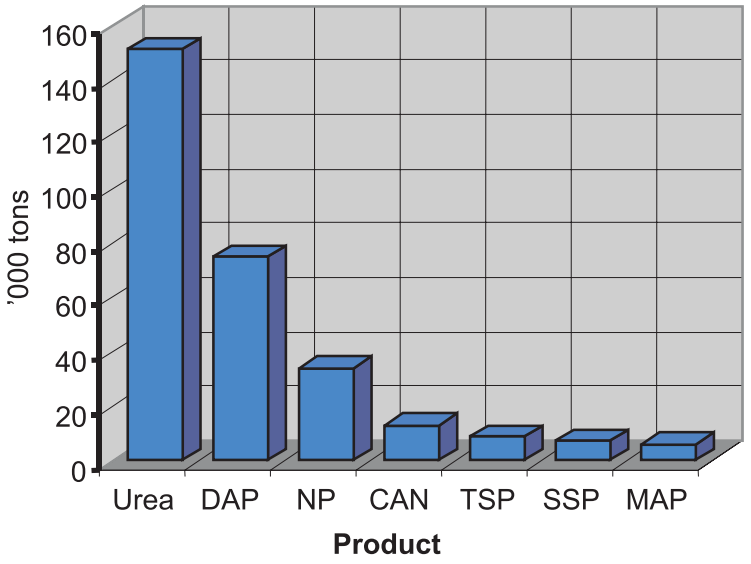
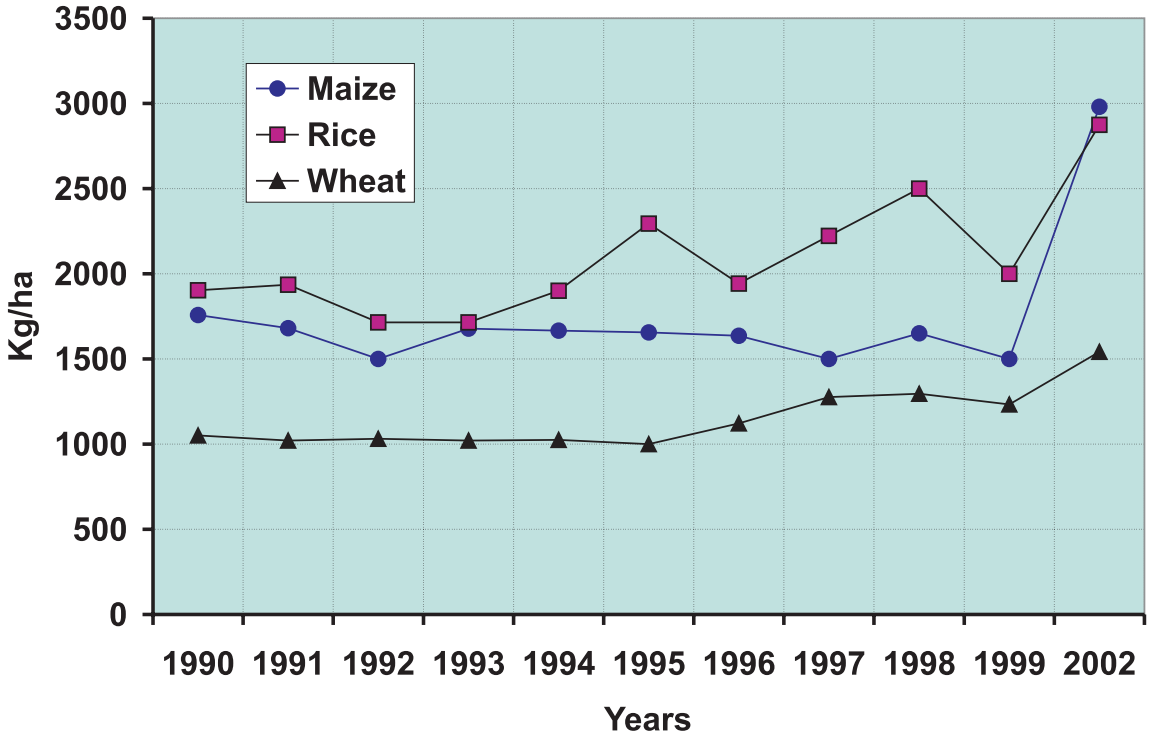


Figure 7. Fertilizer Consumption Estimates 2003

The combination of the factors mentioned above resulted in yield increases in key food crops such as maize, rice, and wheat as reported by FAO (Figure 8) (3). IFDC soil scientists helped develop on-farm trials that showed a huge payoff from combining nitrogen and phosphorus fertilizers on 55 fields of the 2003 spring wheat crop across Afghanistan. Yields averaged a little more than 1 ton/ha with no fertilizer. Without nitrogen, added phosphorus gave no yield response, but yields increased threefold when both nitrogen and phosphorus were applied. Figure 9 shows how adding phosphorus maximizes the benefits of nitrogen fertilizer in Afghanistan. The on-farm trials confirmed the benefit of N and P fertilizers; they also served as demonstration plots for several field days conducted with farmers. An evaluation of wheat yields seeded during the 2002 fall season in provinces where fertilizers and seed were provided under the voucher program has shown yields ranging from 1.6 tons/ha to 6.5 tons/ha with an average of 3.9 tons/ha (Figure 10). The increase in wheat production from the voucher program activities was estimated as an additional 78,000 tons of wheat for the 180,000 households growing wheat during the fall 2002 season. This production supports about 345,000 Afghans with their annual wheat consumption requirement (180 kg/capita). The value of that increased production is US $8.97 million. USAID economists compared the cost of bringing about that wheat production through local farmers and fertilizer dealers with the cost of sending 78,000 tons of wheat to Afghanistan as food aid. The economists found that each US $1 spent through the Emergency Project produced US $2.14 in additional wheat. Producing the wheat locally was twice as cost effective as importing it. That is only for one main fall wheat crop—which produces 90% of Afghanistan's wheat harvest—and two spring crops. Introducing new wheat seeds and teaching farmers how to exploit their yield potential with plant nutrients will carry on in future crops.

An initial countrywide survey by MOAL and FAO indicates that Afghanistan will be self-sufficient (about 4 million tons) in wheat production in 2003 (4). A recent report provided by FAO and the World Food Programme (WFP) estimates a total harvest of 5.37 million tons of cereals during 2003, the largest ever harvest, in large



Source: FAO (3).
Note: No records of production in year 2001.

Figure 8. Food Crops Productivity in Afghanistan

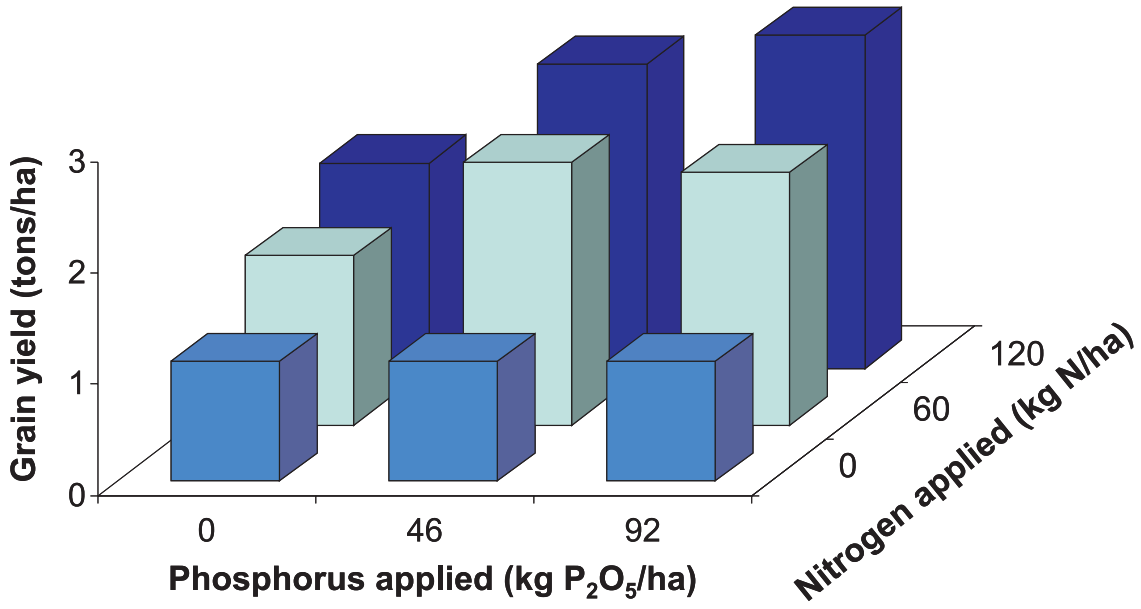


Figure 9. Wheat yields in Afghanistan averaged about 1 ton per hectare with no fertilizer. Phosphorus, without nitrogen, gave no yield increase. But combining nitrogen and phosphorus increased yields by three times. Data from 55 field trials, 2003 spring wheat crop.

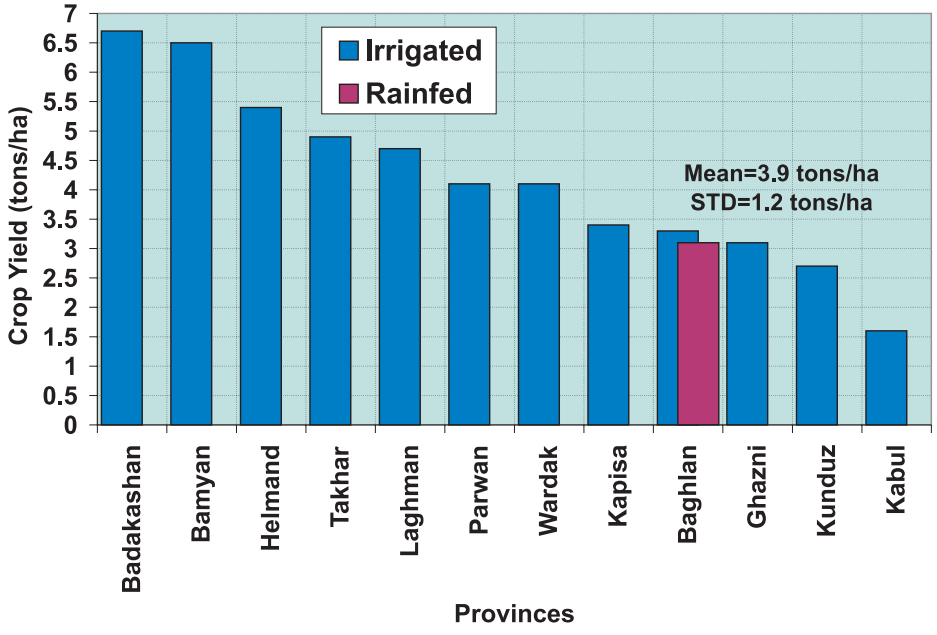


Figure 10. Wheat Yields in Provinces Receiving High-Quality Seed and Fertilizers Under the Voucher Program

part due to good precipitation and better access to seeds and fertilizers (5). Additional fertilizer provided for maize and rice is expected to produce 18,000-20,000 additional tons of those grains compared with the yields without the project's assistance.

The project was directly responsible for the creation of at least 58 shuras or village organizations. The "project seed and fertilizer package" served as a catalyst to create and enhance democratic village organizations. The new organizations provide a structure that enables other organizations to implement village development programs in a democratic and representative manner.

Conclusions

The project accomplishments clearly demonstrate that the IFDC's emergency fertilizer distribution program helped revive the private input dealers' network by stimulating demands for fertilizers through the voucher system. These dealers were instrumental in Afghanistan's becoming self-sufficient in wheat production in 2003 by meeting a 50% increase in market demands for fertilizers. Although this achievement is noteworthy, much still remains to be done. For example, an effective management information system and fertilizer quality control legislation need to be developed and implemented. The formation of a trade association rooted in democracy, free markets, and individual economic interests needs to be executed.

What are the key elements that contributed to the success of this program and can it be replicated in countries emerging from war and/or internal strife? The IFDC program could be considered a model that would require continual innovation, flexibility, and commitment to the interest of the target group. For example, in Malawi IFDC is starting another voucher program to assist resource-poor farmers and develop private dealers whereby the participating farmers provide work on feeder roads as a pre-requirement for being supplied with fertilizer vouchers. The private sector approach used in this program offers an example of what can be accomplished in a relatively short period of time, even in exceptionally challenging circumstances such as those encountered in Afghanistan. The activities demonstrate that the key to developing competitive inputs markets is integrated training, information, individual consultations, and encouragement.

References

1. Asian Development Bank. 2002. "Afghanistan Natural Resources and Agriculture Sector Comprehensive Needs Assessment," Draft Report, June.

2. IFDC. 2002. "Afghanistan Fertilizer Market: 2002 and Beyond." Internal Working Document, IFDC, Muscle Shoals, AL 35662.

3. FAO. 2003. FAOSTAT: Agricultural Data. <http://apps.fao.org/default.htm>.

4. Personal Communications. 2003. H.E. Mohamed Sharif, Deputy Minister of Agriculture and Rural Development, Afghanistan.

5. FAO. 2003. "Afghanistan Reaps Largest Ever Harvest," August 24, 2003 <http://www.fao.org/english/newsroom/news/2003/21539-en.html>.

6. FAO. 2002. FAOSTAT: Agricultural Data. <http://apps.fao.org/default.htm>.

Additional Resources

IFDC. 2003. "IFDC Conducts Seminar Outlining Results of Afghanistan Work," *IFDC Report*, Volume 28, No. 1, June. IFDC, Muscle Shoals, AL 35662.

IFDC. 2003. "IFDC Releases New Video, 'Bread for Peace: Nurturing Afghanistan's Fields of Dreams,'" *IFDC Report*, Volume 28, No. 1, June. IFDC, Muscle Shoals, AL 35662.

IFDC. 2003. *Corporate Report, 2002/03*, Muscle Shoals, AL 35662.

IFDC. 2002. "Afghanistan Farmers and Fertilizer Dealers Profit From IFDC's Project in Their Country," *IFDC Report*, Volume 27, No. 1, June. IFDC, Muscle Shoals, AL 35662.

IFDC. 2002. "Afghanistan Farmers and Fertilizer Dealers Profit From IFDC's Project in Their Country," June 18, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. "Bread for Peace: Nurturing Afghanistan's Fields of Dreams," Video produced by AGCOM International, December 2002 (can be viewed at http://www.ifdc.org).

IFDC. 2002. "Field Trip: Afghan Minister Comes to Colbert for Farm Advice," December 16, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. "IFDC and USAID in Afghanistan—Building a More Fertile Future for the Agriculture Sector," August 15, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. "IFDC Contributes to the Restoration of Afghanistan's Library Collections," December 11, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. "IFDC Technical Assistance in Afghanistan Has many Facets," August 20, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. "IFDC to Help Revitalize Agricultural Production in Afghanistan," March 13, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. "IFDC-Developed Voucher System Paves Way for Afghan Competitive Market," August 19, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. “Let It Grow: IFDC Helping Afghan Farmers,” May 1, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. “Let It Grow: IFDC Helps Afghan Farmers Bring Home the Harvest,” August 27, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. “Rebuilding Afghanistan’s Agriculture Sector—One Brick at a Time,” August 26, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. “Toward a Greener Future in Afghanistan—Mangoes, Cherries and Nuts Return to the Marketplace,” August 16, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. “Training of Afghan Farmers and Agricultural Inputs Dealers, an Integral Part of IFDC Project,” August 29, 2002 <http://www.ifdc.org/Whats_New/index.html>.

IFDC. 2002. *Corporate Report, 2001/02*, Muscle Shoals, AL 35662.

Paper Series IFDC—P-30
November 2003
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P.O. Box 2040
Muscle Shoals, Alabama 35662 (U.S.A.)

ISBN 0-88090-143-8