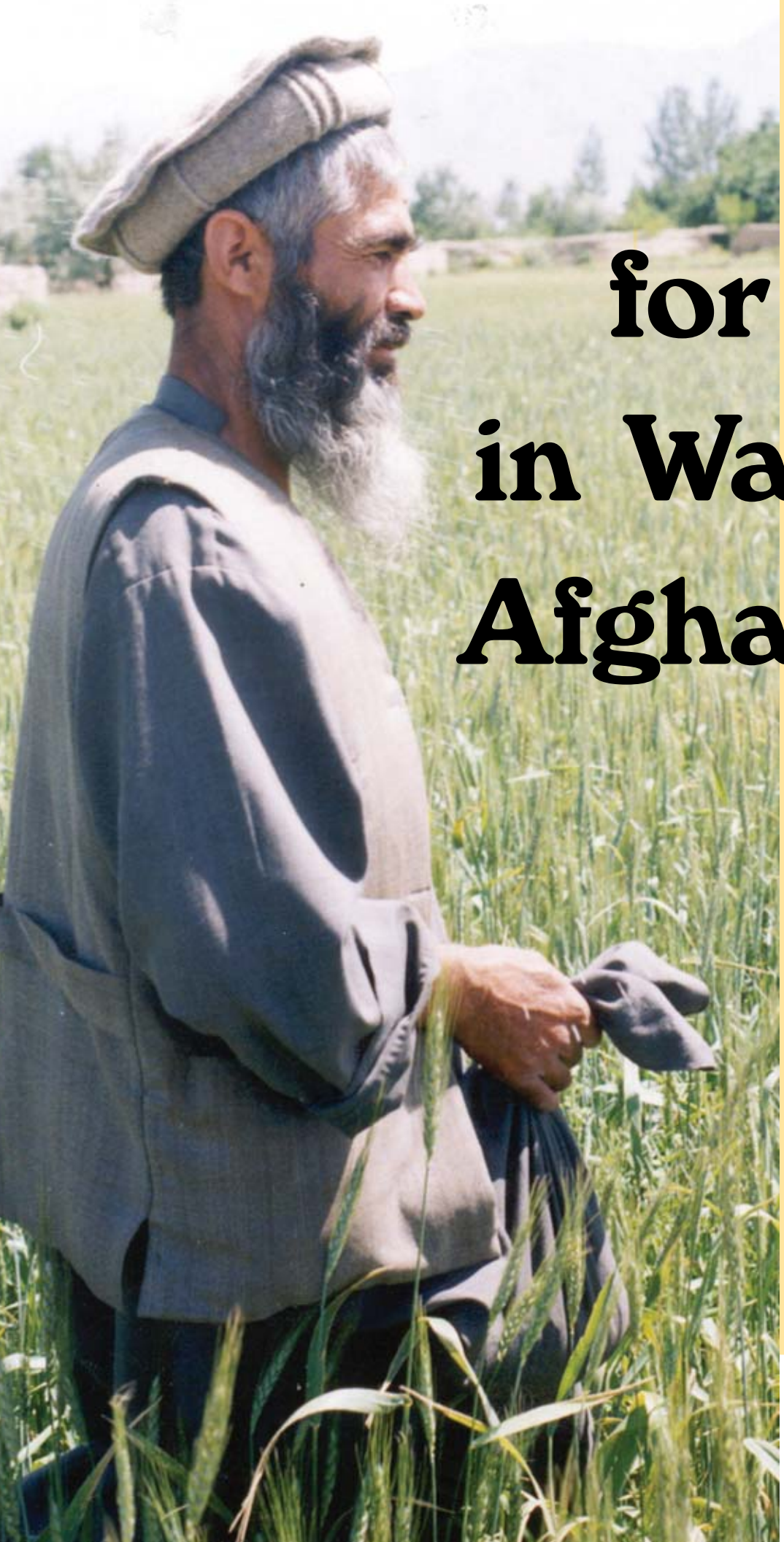


Bread for Peace in War-Torn Afghanistan

IFDC

USAID

Gholam Ishan, an Afghan farmer, has survived the Soviet invasion, warlord battles, Taliban repression, fierce fighting to drive the Taliban from his village, and 4 years of devastating drought.

But in post-war Afghanistan, hunger may threaten Ishan and his family even more than war and terrorism. Improved seeds and soil nutrients, however, offer Ishan's family bread—and hope for a better life.

Ishan's extended family of 16 persons survives on wheat they grow on their 3.6-hectare farm in Bayazed, a village 10 km from the nearest paved road, with no electricity or running water in Parwan province, 65 km north of Kabul.

"This year's wheat harvest was one of the largest ever, especially on land that I planted with high-yielding seeds and fertilizer."

—Gholam Ishan
Afghan wheat farmer

All 16 family members live in a mud house, with a tin roof and concrete floor. They own two cows and a chicken, and cook with rice hulls and wood. Before this year's wheat harvest, the family owned a bicycle and some kerosene lamps, but not much more.

Bread, from wheat, is the staple household food.

"This year's wheat harvest was one of the largest ever—especially on land that I planted with high-yielding seeds and fertilizer," Ishan says. He harvested the equivalent of 3.8 tons per hectare on the part of his land made more productive by a package of improved seeds and fertilizer. Ishan used vouchers as credit to buy the fertilizer. The nonfertilized part of Ishan's farm yielded only 1.5 tons per hectare, about the national average.

Most of Ishan's increased production went to feed his family—per-capita wheat consumption in Afghanistan is an incredibly high180 kg per year (U.S. wheat consumption is about 70 kg per year).

But Ishan earned $468—almost double Afghanistan's yearly per-capita income of $280—by selling wheat. And Ishan has saved wheat seed—the best quality that Afghan farmers have seen in 20 years—for the next planting. With the extra cash, Ishan bought the family's first radio and television.

Money that Ishan and farmers like him paid back at harvest for seed and fertilizer credit went to the local *shura*, or village organization. The *shura* is using that money to repair the village irrigation system.

Agriculture in Post-war Afghanistan

In the 1970s, Afghanistan was largely self-sufficient in production of wheat, its main staple, and most other food crops. Before the 1979 Soviet invasion, fruit exports generated 37% of its hard currency; 70% of that from raisins. The mountainous, land-locked country was also famous for exporting grapes, pomegranates, apples, peaches, plums, figs, and melons; and nuts such as almonds, pistachios, and pine nuts.

But 23 years of war have devastated Afghanistan's agriculture. The centuries-old irrigation systems have largely been destroyed, and land mines prevent use of once-productive fields. Six million refugees, including most of the educated agricultural specialists and

"Treat this country like the sovereign nation that it is and give Afghanistan, this field full of seeds, the water and sunshine it needs to bloom again."

Tamim Ansary
An Afghan-American
Parade Magazine
September 8, 2002

"Afghanistan's 2003 wheat crop will probably be 3.5 million tons—80% of the pre-war harvests. Afghanistan will probably grow 4 million tons of wheat in 2004—enough wheat to feed all Afghans for the first time since the wars began."

Dr. Amit Roy
IFDC President and CEO

countless wheat farmers, fled to neighboring countries during the Soviet invasion and occupation, warlord infighting, and fighting during the Taliban era.

Many are now returning.

But to what?

Before the wars, the University of Kabul systematically trained agricultural scientists. Afghanistan had more than 5,000 agricultural extension workers and 14 agricultural experiment stations.

Today, Afghanistan has almost no institutions for agricultural education or research, and few extension workers.

"Afghanistan's agriculture was desperate, and still is," says Dr. Amit Roy, President and Chief Executive Officer of IFDC, a center for worldwide soil fertility and agricultural development based in Muscle Shoals, Alabama, U.S.A.

"When IFDC first arrived in Afghanistan, farmers were returning to their land, but they had few seeds, no fertilizer, and no credit. The agricultural infrastructure was in shambles."

The graph shows the dramatic decline in fertilizer consumption in Afghanistan since the 1980s.

The Emergency Fertilizer Distribution Project

In early 2002, the U.S. Agency for International Development (USAID) launched an emergency program to provide critical inputs—seed and fertilizers—to Afghan farmers. USAID asked two international centers to distribute improved wheat seeds: the International Center for Agricultural Research in the Dry Areas (ICARDA) and the International Center for Maize and Wheat Improvement (CIMMYT).

USAID also asked IFDC to ensure the timely distribution of fertilizer and seeds through what became the *Emergency Fertilizer Distribution Project*, because of IFDC's experience in developing input markets in poor countries, and in rapid response in emergencies.

"IFDC helps develop the private sector in countries where economies have collapsed," Roy says. "We were among the first international agencies to help Albania after the communist system fell in 1992. And immediately after the Kosovo war, IFDC initiated a program to restore the country's agribusiness sector. We also helped Bangladesh, a country in such bad shape it was called a 'basket case,' become self-sufficient in rice production. USAID sponsored all three programs.

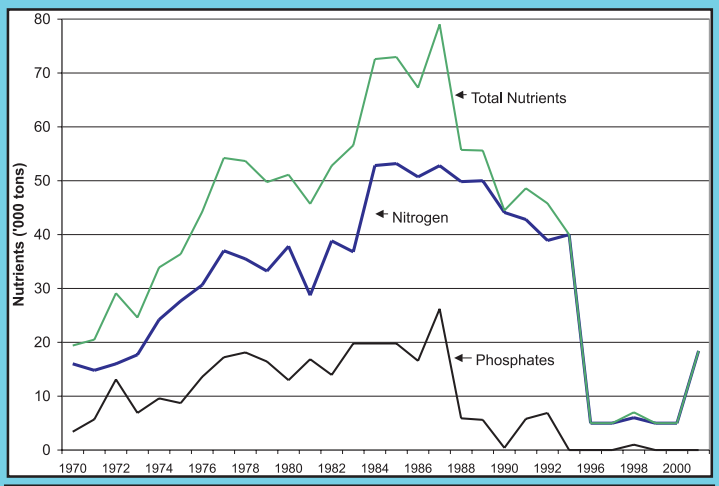
"IFDC has developed a good recipe for transforming almost lifeless agricultural sectors into vibrant, productive engines for economic development."

Afghanistan's Agricultural Land

Afghanistan has 65 million hectares of land, of which:

- Only about 8 million hectares, or 13%, of the land is arable,
- 3.2 million hectares are irrigated
- 4.8 million hectares are rainfed
- 46% is in permanent pasture,
- 39% is mountains, that can't be used for traditional agriculture, and
- 3% is in forests.

Farming employs 80% of Afghanistan's population. Most farms are less than 1 hectare in size. Wheat is the main crop and bread from wheat (called naan) is the nation's staple diet.



Fertilizer use in Afghanistan has declined dramatically since the 1980s.

Source: U.N. Food and Agriculture Organization.

"When IFDC first arrived in Afghanistan, farmers were returning to their land, but they had few seeds, no fertilizer, and no credit. The agricultural infrastructure was in shambles."

—Dr. Amit Roy, IFDC President and CEO

A Voice from Afghanistan—and USAID's Response

"Afghanistan can have no economic development until agriculture flourishes again. More than 80% of the Afghan population depends on agriculture. It generates 60% of our gross domestic product. Agriculture is vital for every person in this country."

—His Excellency Sayed Hussain Anwari, Afghan Minister of Agriculture

"We must re-establish food security as quickly as possible, so we'll emphasize Afghanistan's agriculture. Our first priority is on critical inputs: seeds, tools, and fertilizer. We must also rebuild irrigation systems and rural roads, plant new orchards, give credit to farmers—and develop alternatives to poppy cultivation."

—Andrew Natsios, Administrator, U. S. Agency for International Development, March 14, 2002

Bread for 436,000 People

The Emergency Fertilizer Distribution Project started in March 2002 and ended in August 2003—but it continues to improve the lives of farmers like Gholam Ishan.

The project aim was twofold: to prevent starvation, and to substitute domestically grown wheat for imported food aid.

Seeds of high-yielding wheat varieties—and almost 15,700 tons of fertilizer that doubles or triples their yield—reached almost 180,000 Afghan households through the emergency project.

The seeds and fertilizer distributed through the emergency project generated about 78,000 additional tons of wheat—enough to feed about 436,000 Afghans for a year at the per-capita consumption rate of 180 kg.

The value of that increased production was $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 $1 spent through the emergency project produced $2.14 in additional wheat.

"Producing the wheat locally was twice as cost-effective as importing it," Roy says.

"And that's just 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.

"So will the new entrepreneurial skills of the fertilizer dealers."

The *Shuras*

Dr. Thomas P. Thompson, IFDC Senior Sociologist, says, "After harvest, participating farmers paid off the 'voucher loans' for fertilizer and seeds, in cash or as three 50-kg bags of wheat, to the local *shuras*, or village organizations.

"The project nurtured the development of village-level democracy. Village leaders had to come together to decide how to use the money the project generated. Loan repayments have financed the building or repair of irrigation canals, roads, electricity generation, and schools."

Money generated by the project established at least 58 new *shuras*.

"The project gave both farmers and fertilizer dealers an immediate impact…something tangible," Thompson explains. "You should see the delight the project created—not just on the faces of farmers, but also on those of the extended family members.

"They saw that something good is happening…for a change."

Strengthening the Private Sector

The Emergency Fertilizer Project not only put fertilizer into the hands of farmers who need it, but also encouraged entrepreneurship and strengthened the private sector that will continue to distribute agricultural inputs.

"It was the Afghan people's entrepreneurial spirit—that drive to work hard, despite all they've been through—that convinced us that the private sector was the place to start rebuilding Afghanistan's agriculture," says Ian Gregory, Director of IFDC's Market Development Division.

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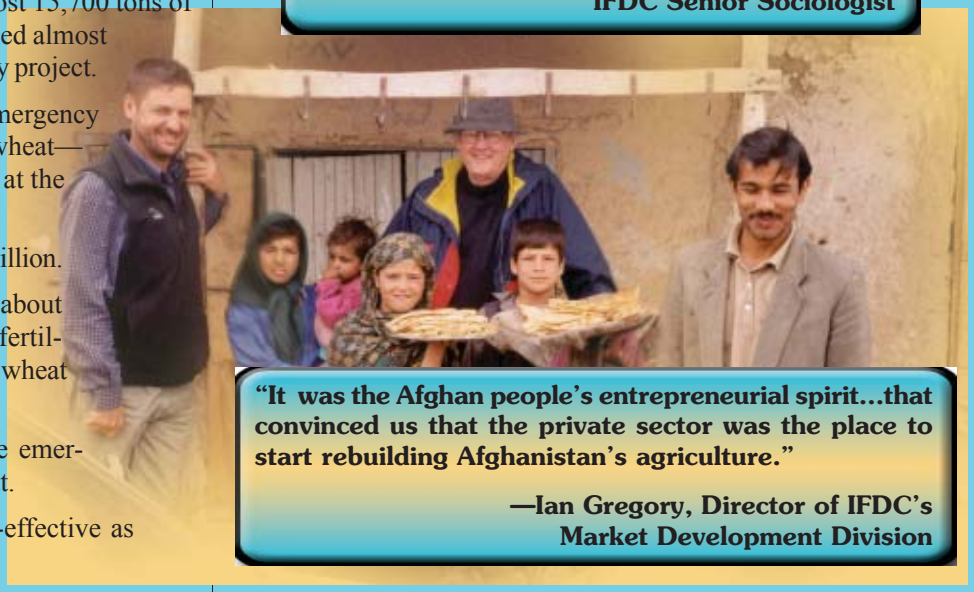

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M. Feisal Beig, IFDC Senior Marketing Specialist, agrees. "Handing out free fertilizer to farmers would have disrupted Afghanistan's private sector," he says.

"Besides, Afghan farmers don't want handouts—they want a chance."

The Voucher Scheme

Dr. Ray Diamond, IFDC Chief of Party in Afghanistan, points out that, "It's almost impossible for cash-strapped farmers to get credit to buy seeds and fertilizer, and it's difficult even for dealers to get credit."

Partners in the Emergency Fertilizer Distribution Project

IFDC's partners in the Emergency Fertilizer Distribution Project were Afghanistan's Ministry of Agriculture and Livestock (MOAL); the International Center for Agricultural Research for Dry Areas (ICARDA) and the International Center for Maize and Wheat Improvement (CIMMYT); and the following nongovernmental organizations (NGOs): Aga Khan Development Network (AKDN), Agence d'Aide a la Cooperation Technique et au Developpement (ACTED), Central Asia Development Group (CADG), Cooperative Assistance and Relief Everywhere (CARE), Focus Humanitarian Assistance, the Ghazni Rural Support Programme (GRSP), the International Medical Corps (IMC), Kunduz Rehabilitation Agency (KRA), Mercy Corps, Mission d' Aide au Developpement des Economies Rurales (MADERA), Partners in Rehabilitation Building (PRB), Solidarites, and United Methodist Committee on Relief (UMCOR).

The U.S. Agency for International Development (USAID) sponsored the project.

IFDC developed a "voucher scheme" to give farmers credit to buy fertilizer from local dealers while strengthening the local fertilizer industry.

"IFDC printed vouchers in local languages that farmers could exchange with local fertilizer dealers for 75 kg of fertilizer—50 kg of urea and 25 kg of diammonium phosphate, or DAP," Diamond says. "The dealers then submitted the vouchers to cooperating NGOs who arranged their payment, using USAID funds."

Repayment to the *shuras* after harvest was good—about 85% in some cases.

Getting the fertilizer was another Afghan mountain to climb.

"It's almost impossible for cash-strapped farmers to get credit to buy seeds and fertilizer, and it's difficult even for dealers to get credit."

—Dr. Ray Diamond, IFDC Chief of Party in Afghanistan

Beig says, "Afghanistan has only one small and inefficient fertilizer plant, set up by the Soviets in 1975 near Mazar-e-Sharif, in the north. It is operating at only 40% of the intended capacity and is currently producing 40,000 tons of fertilizer per year.

"So the dealers had to scramble to get fertilizer on their own. That's the beauty of the project. We created the demand—and the dealers found the fertilizer.

"...the dealers had to scramble to get fertilizer on their own...We created the demand—and the dealers found the fertilizer. The dealers also bartered, trading truckloads of fruits and nuts for fertilizer."

—M. Feisal Beig, IFDC Senior Marketing Specialist

"They're ingenious traders. They got the fertilizer from Pakistan, Iran, Uzbekistan, Turkmenistan. Trading was in cash payments, since the Afghan banking system was in tatters.

"The dealers also bartered, trading truckloads of fruits and nuts for fertilizer."

ICARDA and CIMMYT distributed 50 kg of improved wheat seeds, through NGOs, to each farmer. Most of the seeds were grown in Pakistan, although some were grown by selected farmers in Afghanistan.

Craig Buck, former USAID Mission Director to Afghanistan, says, "We went to field days where farmers received their vouchers. Let me tell you, we saw some happy people—knowing that they'll be able to grow enough wheat for their families this year."

"White" and "Black" Fertilizers

Beig says, "The fertilizer traders had little or no concept of the products they were dealing with." In most cases, their knowledge was limited to knowing what they term "white" or nitrogenous fertilizers such as urea, ammonium sulfate, and ammonium nitrate, and "black" fertilizers, which are phosphates such as DAP, single superphosphate, and triple superphosphate.

"The dealers also had little idea of the proper type, quantity, or timing of fertilizers for specific crops."

IFDC trained more than 800 fertilizer traders—importers, wholesalers, and retailers—in fertilizer products and their proper handling and use, basic agronomy of key crops, and basics of marketing. Thirty-two training workshops were held in 22 of Afghanistan's 32 provinces.

"Those dealers, in turn, will pass the knowledge on to farmers they serve," Beig says.

Ian Gregory says, "Agricultural input dealers in Afghanistan are hungry for knowledge, for the training that IFDC provides on how to use modern fertilizers. The results are amazing. The private sector has responded quickly. Fertilizer dealers are risking their own capital. Lasting gains are being made in developing the inputs market."

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—Ian Gregory, Director IFDC's Market Development Division

Payoff From Combining Nitrogen and Phosphorus Fertilizers

IFDC soil scientists helped develop on-farm trials that showed a huge payoff from combining both nitrogen and phosphorus fertilizers on 55 fields of the 2003 spring wheat crop across Afghanistan.

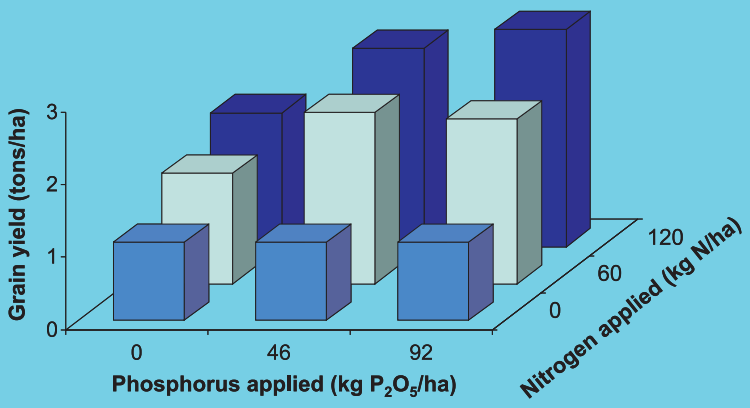
"Yields averaged a little more than 1 ton per hectare with no fertilizer," says Dr. Walter T. Bowen, Program Leader, IFDC Soil and Nutrient Dynamics Program.

"Without nitrogen, added phosphorus gave no yield response.

"But yields increased three-fold when both nitrogen and phosphorus were applied."

The bar chart shows how adding phosphorus maximizes the benefits of nitrogen fertilizer in Afghanistan.

"The data provided fodder for recommendations for fertilizer dealers.



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.

"Equally important, perhaps, the trials served as demonstration plots for farmer field days," Bowen adds.

Rescuing Past Research Data

War had destroyed almost all previous data on the soils, crops, and farming systems of Afghanistan.

"But we found two fragile laboratory books with data recorded 20 years ago on the chemistry and physical analyses of Afghanistan's soils," Bowen says.

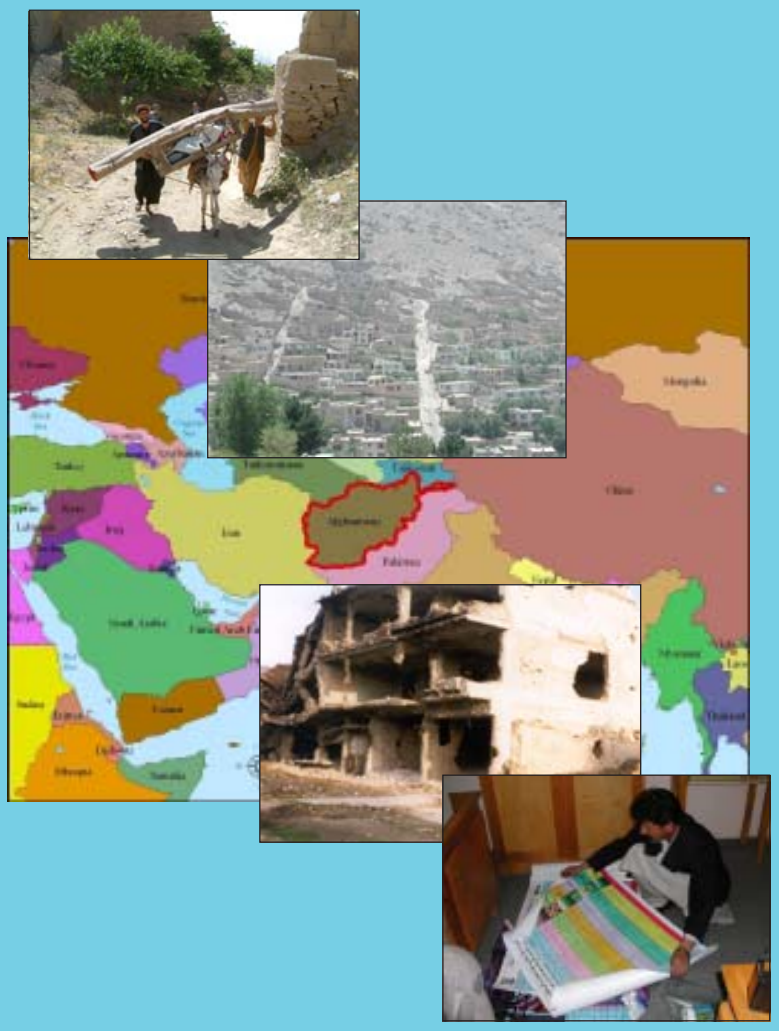
"Those data were precious. We helped the Ministry of Agriculture capture the information on computer as fast as possible."

A Bumper Crop, and Self-Sufficiency in Wheat Production this Year

IFDC President Amit Roy says, "Afghanistan's 2003 fall harvest was about 3.5 million tons of wheat—80% of the best pre-war harvests.

"Afghanistan will probably grow 4 million tons of wheat in 2004—enough wheat to feed all Afghans for the first time since war began!"

Afghan farmers will probably use 250,000 tons of fertilizer in 2003—almost 40% more than in 2002. Relative peace, good seeds, and fertilizer make the difference.



"And, perhaps most important, rains that broke the 4-year cycle of drought," Roy says.

Terrorism and Afghanistan's Recovery

Craig Buck, former USAID Mission Director in Afghanistan, says, "We all want an Afghanistan that doesn't support international terrorism. Men and women who work hard, with adequate income and health care, and can send their children to school, won't support terrorist movements. They'll work for the good of the nation."

Gholam Ishan's Hope for the Future

Farmer Gholam Ishan says, "My 11 grandchildren have hope for the future. They work part-time on the farm, but they also go to school.

"And unlike in the past, the girls, as well as the boys, are being educated."

"I hope that my family will be able to live in peace and harmony in the future."

—Farmer Gholam Ishan

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