

Afghanistan and ICARDA

Ties that Bind
No. 21



International Center for Agricultural Research
in the Dry Areas (ICARDA)

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FHCRAA Partners and Donors

CG Centers:

International Center for Agricultural Research in the Dry Areas (ICARDA)
International Center for Tropical Agriculture (CIAT)
International Center for Maize and Wheat Improvement (CIMMYT)
International Potato Center (CIP)
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
International Food Policy Research Institute (IFPRI)
International Livestock Research Institute (ILRI)
International Plant Genetic Resources Institute (IPGRI)
International Water Management Institute (IWMI)

Other International Institutes:

The Asian Vegetable Research and Development Center (AVRDC)
International Centre for Development Oriented Research in Agriculture (ICRA)
International Fertilizer Development Center (IFDC)

Afghanistan:

Local institutes, particularly the Ministry of Agriculture, Animal Husbandry and Food (MAAHF)

Non-Governmental Organizations:

The International Federation of Red Cross and Crescent Societies (IFRC)
The International Medical Corps
The Aga Khan Development Network
Mission d'Aide au Développement des Economies Rurales en Afghanistan (MADERA)

The Pamir Rehabilitation Bureau
Legacy International
SOLIDARITES
Ghazni Rural Support Programme (GRSP)
International Mercy Corps (IMC)
Agency for Technical Cooperation and Development (ACTED)
CARE International
Helping Afghan Farmers Organization (HAFO)
Agricultural Development of Afghanistan (ADA)
FOCUS
Concern Worldwide
Catholic Relief Services
The Danish Committee for Aid to Afghan Refugees (DACAAR)
Islamic Relief Agency (ISRA)

United Nations Agencies:

Food and Agriculture Organization (FAO)
World Food Program

United States Institutions:

Texas A&M
Cornell University
University of California, Davis
University of Vermont
Michigan State University

Donors:

United States Agency for International Development (USAID)
International Development Research Centre (IDRC)
Department for International Development (DFID)
Japan International Cooperation Agency (JICA)
OPEC Fund for International Development

INTRODUCTION

After more than two decades of war and years of crippling drought, agricultural production capacity and food security were greatly compromised in Afghanistan. The country which had once boasted of an agricultural sector that contributed to more than 80% of the national income was now heavily dependent on food aid from international donors. In the late 1970s, Afghanistan had almost reached self-sufficiency, importing only 2500 tons of cereals, due to an efficient research program that developed and promoted high-yielding, disease-resistant varieties of cereals, horticultural, industrial, and oil crops. There were 19 agricultural research stations in the different agroclimatic zones of the country and the extension department routinely disseminated results to farmers through demonstration plots.

Conflict and drought changed all that. The government infrastructure and research institutes were destroyed. Qualified staff left the country. Equipment in research stations was looted and destroyed. Improved varieties lost their yield potential and succumbed to new races of pathogens. There was no water for irrigation, no pesticides or fertilizers, few roads to transport produce, and, most crippling of all, there was no seed to plant. An agricultural system that had once provided a steady income for about 80% of the population urgently needed to be revived.

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THE POWER OF PARTNERSHIP

In January 2002, ICARDA, with the support of the United States Agency for International Development (USAID), brought together 74 experts from 34 organizations including the CGIAR centers and other research institutes, relief and development organizations, NGOs, U.S. universities, donor agencies, and the Afghanistan Ministry of Agriculture and Livestock (MOAL) at a meeting in Tashkent, Uzbekistan. The result was the creation of the Future Harvest Consortium to Rebuild Agriculture in Afghanistan (FHCRAA).



Seventy-four representatives from 34 organizations gathered in January 2002 in Tashkent, Uzbekistan, to help plan the rehabilitation of Afghanistan's agriculture sector.

The Consortium identified four key areas that needed attention: seed systems and crop improvement; soil and water management; livestock, feed and rangeland improvement; and horticulture. With the ultimate goal of restoring Afghanistan's agriculture, the Consortium developed specific objectives and workplans for each area. USAID provided a grant of US\$ 9.52 million for the Consortium to provide emergency seed and technical assistance in Afghanistan.

Objectives of FHCRAA

- Multiply and deliver quality seed of adapted varieties through effective delivery systems to reach affected farmers in time, and to build, with Afghan partners, an efficient regulatory system that enforces standards and promotes the use of high quality seed and varieties

- Establish a framework and strategy for CGIAR technical assistance, in cooperation with partners, for the development of seed systems and sustainable agricultural production systems in Afghanistan at the central, regional, and local levels
- Restore an enabling environment through capacity building



H.E. Mr Hamid Karzai (right), President of Afghanistan, discussed the status of agriculture in his country and the work of the Future Harvest Consortium to Rebuild Agriculture in Afghanistan (FHCRAA), with ICARDA Director General, Prof. Dr Adel El-Beltagy, in Kabul on 7 October 2002.

ICARDA Director General, Prof. Dr Adel El-Beltagy met with H.E. Dr Abdullah Abdullah (right) Minister of Foreign Affairs, Afghanistan, in February 2005 to discuss ways to strengthen the activities of FHCRAA and achieve the goal of rebuilding agriculture in Afghanistan more effectively and speedily.



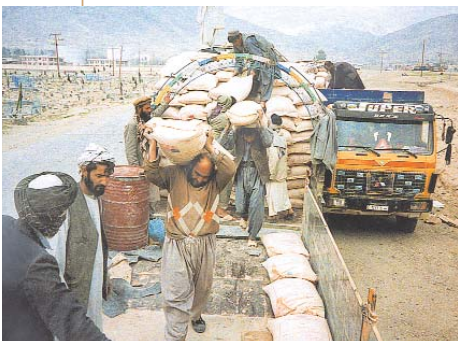
First Steering Committee Meeting of FHCRAA held at ICARDA, Syria, August, 2002.

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IMMEDIATE AID

The FHCRAA was quick to realize the imminent threat of famine in Afghanistan. Wheat is critical to the Afghan diet, but farmers in the country had no seed to plant in their fields. So, in late March and early April 2002, just in time for the spring planting season, the Consortium procured 3500 tons of improved wheat seed and coordinated transport and distribution with other agencies and Afghan partners who knew where to find around 70,000 farm families most in need. ICARDA also distributed paddy, mung bean, flax, sesame, chickpea, lentil, and vetch to farmers.

The Consortium immediately began to lay the plans for fall planting in September 2002. Instead of simply shipping wheat seed from other countries as they did in April, ICARDA staff provided training in seed production and contracted Afghan farmers to produce their own seed for fall distribution. A rigorous quality control program which included field inspections, removal of off-type



Improved wheat seed provided by the Consortium being unloaded in Kabul.

plants, post-harvest treatment against disease, and proper packaging techniques was implemented.

Farmers benefited from internal investment, training, access to high quality seed, and a reduced risk of importing pests. The seed cleaning and distribution operations also provided a source of income for Afghans living in the surrounding villages. More than 300 women were employed to clean the seed.



More than 70,000 farm families benefited from the Consortium-provided seed for the 2002 spring planting.



H. E. Mr Sayed Hussain Anwari (right), Minister of Agriculture, Afghanistan, and Prof. Dr Adel El-Beltagy, Director General of ICARDA, signed a comprehensive agreement of collaboration when the Minister visited ICARDA in July 2002.

Thanks to the fall 2002 FHCRAA Wheat Seed Campaign, Afghan farmers produced nearly 5000 tons of wheat seed which was subsequently distributed to 90,000 farmers in 11 provinces. This distribution of high-quality, disease resistant wheat seed yielded more than 100,000 tons in 2003. ICARDA also shipped 53 tons of foundation seed, including seed of bread and durum wheat, barley, lentil, chickpea and vetch, to Afghanistan for on-station testing, large-scale evaluation and pre-release multiplication in the fall of 2002.



Seed cleaning provided a critical source of cash income for farm families, particularly war widows.

NEEDS ASSESSMENTS



Agricultural land and road sides are still littered with live mines in Afghanistan.

While emergency seed supplies were being made to the farmers, the Future Harvest Consortium started looking at the long-term needs of Afghanistan's agricultural sector. Needs assessments were commissioned for four main areas: seed systems and crop improvement; soil and water management; livestock, feed and rangeland improvement; and horticulture. Consortium scientists and survey teams visited every

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province in Afghanistan often passing through mine-littered roads and fields, and checkpoints in villages controlled by warlords. Thousands of farmers willingly answered questions and told their stories of deprivation and heartbreak. The needs assessment teams presented their results to representatives of the Afghanistan Ministry of Agriculture and Livestock (MOAL), U.S. universities, NGOs, the Food and Agriculture Organization (FAO) of the UN, the private sector, and the CGIAR Centers at a meeting held at ICARDA on 18-20 November 2002.

The seed systems and crop improvement assessment reported that increasing crop productivity at the household level would substantially reduce rural poverty and hunger for families whose debt insecurity averaged about US\$ 800 per household. The soil and water needs assessment listed lack of credit, nutrient deficiency, seeds, and water as the major constraints faced by farmers. They also noticed that farmers needed more information on effectively managing their water resources and using fertilizers. The livestock, feed and rangelands assessment recommended institutional strengthening and human capacity building, integrated small ruminant production and animal health management, and improved dairy production for households. The horticulture and marketing assessment presented horticultural crops as the best option for replacing poppy production in Afghanistan. While there is a market for the traditional Afghan horticultural crops, many of the country's cultivars and practices are unacceptable. The lack of roads, transportation, and storage facilities also limits horticulture from returning to its previous status of contributing 30-50% to Afghanistan's export earnings.

REHABILITATING RESEARCH CAPABILITY

During the civil war, Afghanistan lost its research stations and the national genebank that held the country's agricultural heritage. ICARDA, with help from USAID, rebuilt five agricultural stations in five provinces: Kabul, Baghlan, Kunduz, Takhar, and Nangarhar. The stations develop and evaluate new crop genotypes for distribution throughout the region and farmers visit the stations to select lines suitable for their fields. In 2003, experimental plots of wheat, barley, chickpea, lentils, faba bean, tomato, onion, and pepper were harvested for the first time in many years. The stations also serve as centers for small business

development, market creation, crop improvement, technology transfer, and training for farmers. Three seed quality testing laboratories in Kabul, Herat, and Nangarhar and several satellite testing stations in Kunduz, Mazar, and Baghlan were also established to ensure that marketed seeds are of superior quality. Meteorology stations were installed in six provinces and Ministry and Meteorology Department staff were trained.



Badam Bagh seed testing station, near Kabul—before (left) and after refurbishing.

Several international nurseries were planted for testing yield, drought and cold tolerance, and disease resistance in a variety of crops. This international nursery program will identify adapted germplasm for Afghanistan's varied agroecological zones. A variety maintenance program has been initiated in Darul Aman, Baghlan, Kunduz, and Taloqan to maintain varietal purity and initiate seed multiplication of improved varieties. ICARDA produced 171,771 fruit saplings and 13,134 non-fruit saplings in four research stations for distributing to farmers in the area.

PRESERVING THE GENETIC HERITAGE

In September 2002, the international media reported that looters had destroyed Afghanistan's largest crop seed collection. The seed was dumped so that looters could take the plastic containers in which samples were stored. The FHCRAA has begun to repatriate seed from duplicate collections around the world. So far seed samples of 41 barley landraces and 250 kg seed of several cereal and legume landraces have been sent back to Afghanistan.

The Consortium has also organized collection trips to try to replace lost seed, landraces and wild relatives of important crop species. For

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example, some 60 almond, 47 pistachio, 14 pomegranate, and 16 melon samples were collected. Fruit tree nurseries were established on the research stations in Nangarhar, Baghlan, Kunduz, and Takhar provinces which resulted in the production of 183,000 grafted saplings of different fruit trees. These were distributed to farmers and local authorities for the establishment of orchards. In 2005, ICARDA established 95 orchards in northeastern Afghanistan.

Germplasm from Afghanistan preserved in the genebank of the Consortium members of the CGIAR.

Centers	Crop collections	Number of accessions
CIAT	Beans	73
CIMMYT	Maize, wheat	21
ICARDA	Genetic resources collection, wheat, barley, lentil, chickpea, forage legumes	2217
ICRISAT	Chickpea, small millets, sorghum	723
IITA	Genetic resources collection	77
ILRI	Genetic resources collection	23
IRRI	Rice collection	69

CIAT: Centro Internacional de Agricultura Tropical; CIMMYT: Centro Internacional de Mejoramiento de Maiz y Trigo; ICARDA: International Center for Agricultural Research in the Dry Areas; ICRISAT: International Crops Research Institute for the Semi-Arid Tropics; IITA: International Institute of Tropical Agriculture; ILRI: International Livestock Research Institute; IRRI: International Rice Research Institute.

ESTABLISHING REGULATIONS FOR THE SEED INDUSTRY

Like its physical infrastructure, Afghanistan's administrative structures and policy guidelines also suffered serious damage leaving farmers with unsuitable varieties and poor-quality seed that failed to germinate. To ensure quality seed production in Afghanistan, regulatory guidelines needed to be established for production, import, and distribution of seed and planting materials. In May 2002, more than 80 participants helped develop a Code of Conduct for seed production and marketing. The Code takes into account Afghanistan's specific conditions while urging the nation to participate in developments in the seed industry taking place around the world. Afghanistan's Acting Interim Government adopted this Code of Conduct. A National Seed Policy and a Seed Law are also being finalized with support from FAO.



Participants discuss standards and definitions for the development of a Seed Code of Conduct for Afghanistan.

SPREADING THE MESSAGE

Partly due to a low literacy rate of only 31%, Afghans mostly depend on the radio for information, entertainment, and news from other provinces and the central government. The FHCRAA is capitalizing on this dependence by producing a weekly program on agriculture that is aired on 50 government and private radio stations all over the country. The program features interviews with farmers in their fields, researchers, and extensionists, and provides information on technologies for improved agricultural production. Farmers, who now identify closely

with the program, usually meet in groups to listen to the broadcasts. Farmers from Nangarhar, Warkdak, and Maidan Shar have praised the program for addressing issues that concern them.



Afghanistan Minister of Agriculture and Livestock (MOAL), H.E. Mr Sayed Hussain Anwari, cuts the ribbon on the Ministry's refurbished recording studio, assisted by Dr Nasrat Wassimi (right), Executive Manager of ICARDA's Kabul office, and Mr Amir Muhammad Safi (left), Head, MOAL Communication Section, on 11 September 2003 in Kabul.

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The Consortium also organized a five-day workshop in Kabul on agricultural journalism in 2003. Radio reporters from 13 provinces were trained in basic journalism, interview techniques, and creative production. Each participant also selected a specific topic such as water management or fertilizer application, conducted interviews with appropriate agricultural resource people, and produced a 3-minute script that was recorded on CDs.

SHORT-TERM, HIGH-IMPACT PROJECTS

Eight short-term, high-impact projects funded by USAID complemented other efforts to shift Afghanistan from emergency relief to an economically productive, sustainable, and diverse rural economy. ICARDA managed this grant program that awarded a total of US\$ 1.25 million and ended in August 2003.

POTATO SEED PRODUCTION AND MULTIPLICATION

The International Potato Center (CIP) increased the supply of virus-free potato seed in Afghanistan for local needs as well as future export to neighboring countries by developing a farmer-based seed multiplication system. The project successfully trained farmers and tested new varieties in Jalalabad, Kabul, and Bamyan.



Seed potato production training in Bamyan province.

SUSTAINABLE MAIZE SYSTEMS: SEEDS FOR PEACE

The International Center for Wheat and Maize Improvement (CIMMYT) scientists implemented an open-pollinated maize improvement program. Researchers identified candidates for training and chose 20 locations for trials around Afghanistan. CIMMYT distributed seeds for trials and arranged for the planting of experiments near key villages. Farmer survey documents were prepared and a manual in Pashto and Dari was produced for farmers and extension agents. After training, farmer-cooperators were able to observe production problems and identify maize populations for on-farm commercialization.



Maize cultivar in Kunduz Province.

BUILDING HUMAN RESOURCE CAPACITY IN WHEAT AND MAIZE RESEARCH

CIMMYT contributed to building human resource capacity by training around 30 scientists. Five Afghan scientists participated in the wheat improvement training course, and two attended the advanced agronomy course in Mexico. One maize breeder attended the advanced maize improvement course and two wheat scientists joined the CIMMYT-Turkey office for training. An in-country training course was held for 20 Afghan scientists.

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An example of a MODIS image.



RANGELAND INFORMATION PRODUCTS FROM REMOTELY SENSED IMAGERY

Michigan State University utilized satellite remote sensing and Geographic Information Systems (GIS) technology to create detailed maps to improve rangeland management. GIS experts accessed and overlaid Moderate Resolution Imaging Spectroradiometer (MODIS) imagery and digital elevation model (DEM) data layers and integrated the information from Landsat images for all of Afghanistan from May 2002. The on-ground data validation study began in June, and despite enormous security and logistical problems, was a success. The crew traveled around the rainfed regions of Afghanistan with Global Positioning System (GPS), video and computing equipment to compare and validate on-ground forage productivity with Landsat-based estimates. The resulting maps along with training in interpretation and utilization of the data for improved rangeland management were provided to farmers and agricultural professionals at the MSU website.

AGRICULTURAL PRODUCTION ON DEGRADED/SALINE LAND

Drought has reduced surface water supplies and the bulk of the irrigation systems which helped to produce more than 80% of Afghanistan's food supply in the past. The International Center for Biosaline Agriculture (ICBA), based in the United Arab Emirates, provided apprenticeships for extension agents to improve their basic skills in designing and operating improved irrigation systems suitable for saline soils and water. Three trainees worked at ICBA for six weeks and attended a two-month water and soil management course at ICARDA.



FARM WATER MANAGEMENT AND IRRIGATION

Groundwater resources have been overexploited and the water tables have dropped significantly over large areas of Afghanistan causing wells to go dry. Soil salinization and degradation is a priority issue in five provinces - Helmand, Ghazni, Faryab, Shaberghan, and Kandahar. The Danish Committee for Aid to Afghan Refugees (DACAAR) worked to introduce best management practices for farm water management and irrigation. Their project commitment was fulfilled by training eight Afghan scientists in best water management practices at the water and soil management course at ICARDA.

BEST MANAGEMENT PRACTICES FOR WATER AND SOIL

A team from Cornell University, Ithaca, New York held a workshop on "Best Management Practices for Water and Soil" at the College of Agriculture, Kabul University. Seventy-four Afghans attended the first day's course on water management and approximately 200 attended the second day's training in crop and soil management. The researchers also organized a traveling workshop for 35 participants. The participants visited irrigation systems and farms in Baghlan and Balkh provinces, and toured the Parwan irrigation project. During the workshop, the investigators conducted field schools to help farmers better understand water and nutrient management practices. Handouts in local languages on key factors in wheat production, soil nutrient deficiencies, wheat diseases and water management were distributed at the workshop.

BUILDING CAPACITY TO CONTROL SUNN PEST INFESTATIONS

The indiscriminate use of pesticides has created resistance in and killed the natural enemies of Sunn Pest. ICARDA and the University of Vermont addressed the Sunn Pest problem by providing integrated pest management training to Afghan agronomists, farmers and NGOs. The training covered biological and behavioral knowledge of Sunn Pest, farming practices, host-plant resistance, entomopathogenic fungi and the use of conventional pesticide. ICARDA also conducted an in-country training course. Crop production guides on insect management were translated into Dari and Pashto. The group also delivered a Sunn Pest Management Guide to the Central Asia Development Group (CADG),

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based in Afghanistan, which enabled local farmers to save 32,000 hectares of irrigated wheat worth US\$ 12.8 million. Researchers also re-established the Kabul University Entomology Laboratory and furnished it with equipment purchased through this grant.

CURRENT PROJECTS

REBUILDING AGRICULTURAL MARKETS PROJECT (RAMP)

RAMP aims to reinvigorate the market chain by introducing new crops, facilitating information and technology exchanges, and creating employment for farmers and other rural folk. ICARDA and the International Potato Center (CIP) are implementing four projects funded by USAID under RAMP in 27 districts in 5 provinces of Afghanistan.



H.E. Mr Obaidullah Ramin (at podium), Afghanistan Minister of Agriculture, Animal Husbandry and Food, opened the FHCRAA Steering Committee Meeting on 23 February 2005 in the company of (seated from left to right) Dr Serge Verniau, FAO Representative in Afghanistan; Prof. Dr Adel El-Beltagy, ICARDA DG and Chair of FHCRAA; H.E. Mr James Moseley, Deputy Secretary, Ministry of Agriculture, USA; and Dr Richard Hogg, DFID.

DEMONSTRATING NEW TECHNOLOGY IN FARMERS' FIELDS TO FACILITATE RAPID ADOPTION AND DIFFUSION

The overall aim of this project implemented by ICARDA is to increase agricultural productivity and rural incomes by demonstrating and encouraging the adoption of improved varieties and new technologies. ICARDA conducted 362 demonstrations of wheat, potato, onion, tomato, rice and mung bean to showcase the 30-85% higher yields of 11 improved varieties. The project organized 27 farmers' field days that attracted 2000 farmers and developed five Best Practice Manuals (one each for wheat, potato, tomato, rice and onions) in Dari and Pashto. The project's activities including field days and training sessions were covered by local radio and TV stations, effectively increasing the audi-



Farmer-based seed production in Kunduz.

ence to thousands. The plan for the demonstration of new technologies added peanuts, okra, mung bean, and cotton in 2004. A total of 341 demonstrations were planned for 2004-2005 and the demonstration plots produced 121.5 tons wheat, 62 tons paddy, 182 tons potato, 231 tons onion, 133 tons tomato, and 3.3 tons of mung bean seeds.

DEVELOPMENT OF VILLAGE-BASED SEED ENTERPRISES (VBSEs)

In an effort to provide rapid access to quality seed of profitable varieties, ICARDA is establishing VBSEs in five provinces. The Center provided the start-up input of cash or agricultural implements, seed, and agrochemicals on credit to each VBSE and also trained 325 members in quality seed production, storage and marketing. The VBSEs have collectively produced more than 1000 tons of pure seed of wheat, rice, chickpea and mung beans. Most of the VBSEs have been able to pay their credit installments regularly proving the sustainability of the idea.

INTRODUCING PROTECTED AGRICULTURE FOR CASH CROP PRODUCTION IN MARGINAL AND WATER-DEFICIT AREAS OF AFGHANISTAN

Protected Agriculture represents a dynamic form of crop production which controls both the environment and the timing of production to substantially increase yields. ICARDA has previously used this technology with farmers in Yemen with promising results. The Center established a Protected Agriculture Center (PAC) with four greenhouses at the Badam Bagh Research Station in Kabul in 2004. PAC conducts adaptive research in protected agriculture and serves as a hub for demonstration, training, and technical support for growers, extension agents, agricultural engineers and NGO personnel. A greenhouse manufacturing workshop was also established at PAC. By the end of March 2005,

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the project had trained 46 trainers and more than 150 growers in the construction, maintenance, and management of greenhouses. In addition, 10 local technicians were trained in greenhouse manufacturing. An additional five greenhouses in Kabul and 10 in the five targeted provinces of Parwan, Ghazni, Kunduz, Helmand, and Nangarhar were also established in farm-

ers' fields and impressive crops of cucumber and tomato are attracting neighboring farmers. A market survey is being conducted and a database developed to understand the trends in supply, demand, and prices to design crop calendars and market strategies.



Installation of greenhouses at the Protected Agriculture Center (PAC), Badam Bagh Research Station, in Kabul, Afghanistan.

CLEAN SEED PRODUCTION, MULTIPLICATION AND MARKETING FOR INCREASED POTATO PRODUCTION IN AFGHANISTAN

Afghanistan's climate is particularly suited for growing potatoes. But there was no organized seed sector in the country. This project, jointly implemented by CIP and ICARDA, aims to increase the supply and provide rapid access to quality seed of the most profitable potato varieties. The project supplied seed of improved varieties and trained nearly 500 farmers, and staff of the Ministry of Agriculture, Animal Husbandry and Food (MAAHF), previously known as MOAL, and NGOs through eight courses on best practices, integrated crop and disease management, tissue culture, and marketing. The average potato yield has increased by 30% in four provinces and the introduction of fall season seed production in Nangarhar has led to the production of two crops per year. In an effort to find sustainable alternatives to cold storages, the project has constructed 15 country seed storages in four provinces.

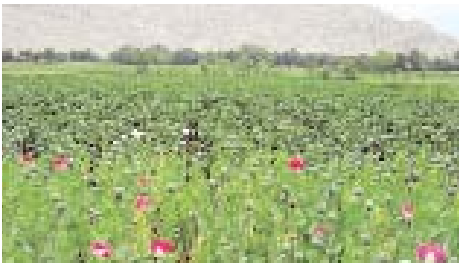
RESEARCH IN ALTERNATIVE LIVELIHOODS FUND (RALF)

Afghanistan has been the world's major supplier of illicit opium in recent years. The production and processing of narcotic drugs grossly distorts the economy and jeopardizes the security and stability of the region as

well as the development of Afghanistan. The Transitional Islamic State of Afghanistan adopted a National Drug Control Strategy (NDCS) in March 2003 with the objective of reducing poppy cultivation by 70% in five years and complete elimination in ten years.

The livelihoods of around 20-30% of the rural population are at least partially dependent on the production of opium poppy. Poppy is a particularly attractive source of livelihood as it yields a high economic return, and, because it has a high labor demand, it provides access to employment, land and credit for a large number of people. If both the development and counter-narcotics objectives of the Government are to be achieved, sustainable alternative livelihoods must be identified for those who are currently engaged in illicit drug production. The United Kingdom coordinates international counter-narcotics in Afghanistan, and has adopted a plan, including research on sustainable livelihoods, to support implementation of the NDCS.

ICARDA is managing RALF, a competitive grant mechanism established in 2004 and funded by the UK's Department for International Development (DFID), to develop and promote innovative alternative livelihood options for rural Afghans currently economically dependent



Horticulture is being promoted as an alternative to poppy cultivation. Here, a farmer grows potato (background) and poppy in the same field to compare the returns.

on opium poppy. The projects are implemented by a partnership of an international or non-Afghan research institution and an Afghan-based organization to maximize synergy between international research and local knowledge (see Appendix, inside back cover.)

STRENGTHENING SEED SYSTEMS FOR FOOD SECURITY IN AFGHANISTAN

This project, funded by the International Development Research Center (IDRC), aims to obtain a thorough understanding of local seed systems in the rainfed areas of northern Afghanistan in order to identify interventions to strengthen the informal/local seed systems and forge links with

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the formal system. The project will be implemented in two phases. Phase 1, which began in 2002, will understand the functioning of local and formal seed systems and the impacts of interventions. It will also determine the impact of Afghanistan's recent drought on seed systems and determine whether the crop genetic diversity has changed since the 1920s. Phase 2 will establish farmer participatory breeding in Afghanistan, strengthen local seed systems and develop a mechanism to link it to existing formal systems.



Participants of the meeting on "Strengthening Seed Systems for Food Security in Afghanistan," held on 27-29 September 2004 in Kabul.

The project conducted household surveys, focus group discussions and key informant interviews. Based on these findings, participants at a stakeholders' meeting for the project held on 27-29 September 2004 in Kabul identified four major areas for further interven-

tion: (i) improving farmers' access to good and local crop varieties; (ii) improving seed markets (seed demand assessment, promotion, marketing etc.); (iii) promoting farmer organizations and village based seed enterprises; and (iv) monitoring and evaluating project impacts. The project has also collected a total of 677 accessions of a variety of crops including wheat, barley, mung bean, cowpea, kidney bean, rice, melon and flax. Preliminary analyses suggest that there is still a large array of genetic resources in the rainfed areas of northeastern Afghanistan.

COMMUNITY-BASED RESEARCH ON AGRICULTURAL DEVELOPMENT AND SUSTAINABLE RESOURCE MANAGEMENT IN AFGHANISTAN

This project, sponsored by the OPEC Fund for International Development, promotes adaptive research in screening and identifying new varieties of cereals and food legumes, and the production of early generation seed of wheat varieties that are adapted to the agrocli-

matic conditions of Afghanistan. Since 2003 the project has re-established a program to screen and identify new varieties, and produce early-generation seed. In 2003/2004, a total of 48 trials were conducted, and the project produced 133,774 kg of high-quality seed of 15 different wheat varieties that are being cultivated by farmers in the eastern and northeastern zone in Afghanistan. This seed, if properly managed, will produce some 2675 tons of wheat seed in 2005.

Mung bean varietal trial in Sheesham Bagh research station in Nangarhar.



HUMAN RESOURCE DEVELOPMENT

The ability to increase and share knowledge is the most basic component necessary for human progress. As the conflict in Afghanistan spanned decades, this ability was eroded. Professionals left to find jobs in other countries and those that remained were isolated from their peers and progress. Human capacity building became an important focus for the FHCRAA and a training component was inserted into every project. Afghan researchers, staff from MOAL, agricultural univer-



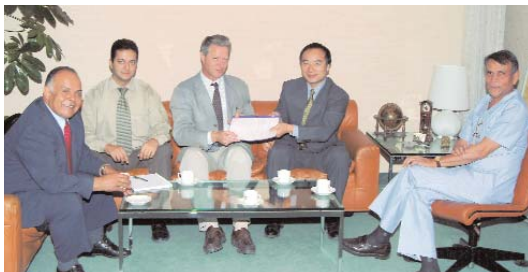
Afghanistan researchers participate in a water management training course at ICARDA.

sity faculty members, and farmers have been trained in seed production and multiplication, seed enterprise development, variety management, integrated pest management, operation and management of experimental stations, use of field equipment, fertilizer and pesticide application, meteorological equipment/

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station operation, management of water resources and improvement of water-use efficiency, advanced radio production, agricultural journalism, protected agriculture, and computer technology. Since 2002, ICARDA has trained more than 1000 Afghan farmers through a series of headquarters and non-headquarters training courses.

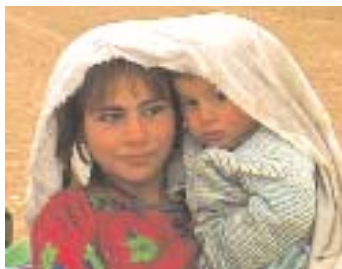
In September 2004, ICARDA and the Japanese International Cooperation Agency (JICA) signed a 5-year agreement for training in Afghanistan. This "Third Country Training Program" aims to strengthen agricultural research and human resource development by organizing training courses and workshops in a variety of topics including cereal and legume crop improvement; agricultural information management; experimental design and data analysis, forage and pasture seed production; liberalization of the national seed sector; and participatory plant breeding. A workshop on seed policy and regulatory reform was held in February 2005 as part of this project.



In the presence of Dr Mohan Saxena (right), ADG (At-Large), Mr Kazuhide Nagasawa (second from right), JICA Regional Representative in Syria, and Dr William Erskine (center), ADG (Research), exchange signed copies of the Third Country Training Program agreement for Afghanistan.

ONGOING COMMITMENT

Much has been achieved in Afghanistan since the ICARDA-led Future Harvest Consortium began its work in 2002. The hard work of the past three years has placed the FHCRAA in a position to restore Afghanistan's agricultural system, improve livelihoods and provide options for struggling farmers, and, most importantly, ensure food security in the nation.



Afghanistan's future.