

MEDIUM-TERM PLAN 2006–2008

OVERVIEW

A. Introduction and Context

In 2001/02 ICARDA, together with AARINENA and the CAC NARS Forum, undertook a priority setting process for agricultural research in the region of Central and West Asia and North Africa (CWANA) with NARS, sister Centers and other stakeholders. In 2003, as part of the CGIAR-wide electronic priority setting exercise led by the Science Council, a CWANA stakeholder panel consultation was held, which also informed ICARDA's visioning.

In 2004 ICARDA embarked on a re-appraisal of its strategic vision. During 2004/05 this exercise focused on a systematic scan of global and regional externalities including the socio-economic and political/institutional contexts. It also assessed the opportunities emerging from new science and technology, environmental, demographic and food production and consumption trends and lessons learned by the Center. It is intended that, after extensive stakeholder consultation, a new strategic plan will be ready in 2006.

The key driver for evolution of the Center's research agenda is a focus on poverty alleviation and sustainable rural development in the "Dry Areas" eco-region. The above priority setting exercises highlighted the key problems of water scarcity, desertification, biodiversity loss and the compelling need to diversify livelihood and income generating options to improve livelihoods in the Dry Areas in general and CWANA in particular.

In order to position ICARDA to meet its international objectives and align its work closely with the evolving international agenda, while the strategic visioning exercise is itself developing and informed by the stakeholder consultations, a review of our research project portfolio took place in 2004. This recognized the regional priorities and ICARDA's responsibility to produce international public goods. It sought to capitalize on new science and our comparative advantages, and respond to the Millennium Development Goals (MDGs) and the emerging CGIAR research priorities. Additionally in 2003 a Center-Commissioned External Review of 'Outreach' at ICARDA recommended that '*ICARDA undertakes a detailed review of the current breakdown of its research agenda, with the purpose to re-formulate the 19 MTP projects into a smaller number of interdisciplinary projects that can effectively address the research needs of the major production systems in the dry areas*'. As a result the ICARDA research project portfolio was organised into six mega-projects, as described in our new portfolio of projects presented in the Center's MTP 2005–2007 (see also Section F. Internal Organization of Research). This overview analyses the implications of the new structure in greater detail.

This research portfolio comprises the following six mega-projects (MP):

MP 1: Management of scarce water resources and mitigation of drought in dry areas

MP 2: Integrated gene management: conservation, improvement and sustainable use of agrobiodiversity in dry areas

MP 3: Improved land management to combat desertification

MP 4: Diversification and sustainable improvement of crop and livestock production systems in dry areas

MP 5: Poverty and livelihood analysis and impact assessment in dry areas**MP 6: Knowledge management and dissemination for sustainable development in dry areas**

The first four MPs (MP1–MP4) address specific thematic problems, whereas the last two MPs (MP5 and MP6) are crosscutting in nature. MP5 supports the entire research agenda through the analysis of welfare and poverty issues and constraints in dry areas and, through impact analyses and feedback, will refine the targeting of our research to alleviate poverty. MP6 focuses on the management of and dissemination to end users of the research knowledge generated in MP1–MP5.

In addition to a primary focus on poverty alleviation, the outputs from ICARDA’s research are directly relevant to a number of the Millennium Development Goals, as follows (with xx indicating a major effect and x indicating a less major effect):

MDGs	MP1	MP2	MP3	MP4	MP5	MP6
	Water	Integrated Gene Management	Desertification	Diversification	Poverty	Knowledge Dissemination
1. Poverty and Hunger	xx	xx	xx	xx	xx	xx
2. Primary Education		x				
3. Gender Equality					x	
4. Child Mortality		x		x		
5. Maternal Health		x		x		
6. HIV/AIDS & other diseases		x		x		
7. Environmental Sustainability	xx	x	xx	x	x	x
8. Development Partnerships	x	x	x	x	x	xx

Concurrent with the re-arrangement of ICARDA’s research into six mega-projects has been the preparation of the CGIAR Research Priorities by the Science Council. The alignment of ICARDA’s mega-projects with the five CGIAR Priorities is shown in the table below.

CGIAR Priority	MP1	MP2	MP3	MP4	MP5	MP6
	Water	Integrated Gene Management	Desertification	Diversification	Poverty	Knowledge Dissemination
1. Biodiversity		xx	x		x	x
2. Genetic improvement		xx			x	x
3. High-value commodities/ products				xx	x	x
4. Managing water/land	xx		xx	x	x	x
5. Policies & institutions	x		x		xx	x

The narrative and logframe (impact pathway) for each of the six mega-projects are presented in the attached Research Project Portfolio for 2006–2008.

The Science Council has requested that convening Centers present separate logframes for their Systemwide and Eco-regional Programs (SWP/ERP). ICARDA is the convening Center for the ERP: *Collaborative Research Program for Sustainable Agricultural Development in Central Asia and the Caucasus (CAC)* and, accordingly, a complete profile of the ERP is presented as a separate program in ICARDA's project portfolio. Highlights of 2004 results and 2005 developments within the ERP-CAC are presented within Section B, below.

B. Overview: Highlights of 2004 Results and 2005 Developments

Highlights are presented by region (CWANA, Sub-Saharan Africa, South and East Asia, and Latin America). Highlights of ICARDA's activities in CWANA are presented below under the CGIAR principal outputs.

CWANA

Germplasm Conservation

ICARDA's holdings of mandate crop germplasm and wild relatives exceeded 132,500 accessions in 2004. As part of the CG-wide Global Public Goods Initiative to upgrade gene banks, ICARDA has doubled its cold storage capacity for germplasm conservation. This upgrade will continue until 2006.

Work on germplasm collection (Armenia, Azerbaijan and Tajikistan), trait and gene characterization (including molecular characterization), evaluation, maintenance and distribution of accessions continued, partially funded by a new ACIAR project on the plant genetic resources of the CAC region. Approximately 23,500 accessions were distributed in 2004.

ICARDA is continuing to implement a regional collaborative project with the NARS of Jordan, Lebanon, Syria and the Palestinian Authority and with IPGRI, ACSAD (Arab Center for Studies of Arid Zones and Dry Lands) and UNDP on the *Conservation and Sustainable Use of Dryland Agrobiodiversity* funded by the Global Environment Facility (GEF). A major thrust of the project is the development of *in situ* and on-farm conservation of the biodiversity of agriculturally useful species through the appropriate management of habitats. Innovative ways to sustainably use the biodiversity have been developed and are increasingly being adopted by the participating communities.

Germplasm Enhancement

The major thrust of germplasm enhancement in mandate crops continues to be towards improving water use efficiency by exploiting our major holdings of dry areas germplasm through selection and (pre-) breeding for drought tolerance. A wide range of approaches is being employed including the use of molecular techniques and biotechnology. Increasingly enhanced drought tolerance is recognized as contributing, together with thermo-tolerance, to adaptation to the anticipated effects of climate change. A project to screen our extensive germplasm collections to identify and use new sources of heat and drought tolerance continued with BMZ funding in 2004/5. Additionally in 2004 ICARDA was awarded a competitive CCLF (Canada-CGIAR Linkage Funds) grant for chickpea drought tolerance characterization and molecular mapping.

A total of 35 cereal and legume crop varieties based on ICARDA material were released by NARS of 14 countries in 2004.

In 2004 ICARDA was awarded a project within the *HarvestPlus* Challenge Program (CP), which aims to improve the nutritional quality (β -carotene, Fe & Zn) of barley and lentil for the benefit of the poor, particularly women and children.

Within the CP *Generation*, ICARDA has been awarded commissioned research in all five themes in 2004/5 and received a grant on barley variation in the CP's first competitive call for proposals.

In 2004 ICARDA was awarded within the CP *Water and Food*, a project to improve the water use efficiency of cereals and food legumes in the Atbara basin in Eritrea.

Farmer participatory plant breeding research continued in 2004/5 with an increasing focus on institutionalizing this approach. Joint work now includes collaboration with NARS in Egypt, Eritrea, Jordan, Morocco, Syria, Tunisia and Yemen on barley and in Bangladesh, Nepal, Syria, Turkey and Yemen on chickpea and lentil. This effort was strengthened in 2004 by an IDRC grant specifically to institutionalize the approach in national systems.

Sustainable Production Systems

Research to maximize water availability, sustainable use and economic returns is a high priority in the dry areas. Our research is focused on water harvesting, supplemental irrigation and management of renewable groundwater resources, the use of non-conventional water sources including saline water and treated effluent, and farm-level management practices for improved water-use efficiency in both rainfed and irrigated conditions. Within a major project on *Community-based optimization of the management of scarce water resources in agriculture in West Asia and North Africa*, co-funded by the Arab Fund and IFAD, we have established representative benchmark sites in each of three agroecologies targeted by the project: rainfed areas, irrigated areas, and marginal lands (rangelands). At each site the project is developing and testing, with the full participation of rural communities, water management options. Research on the communal management of a cost-effective mechanized system for micro-catchment water harvesting in West Asia is supported by a new project funded by SDC. ICARDA is continuing research on on-farm water and soil management in the CAC region through the second phase of an ADB-funded project, which commenced in 2004. Additionally, ICARDA is a partner with IWMI in a new ADB-funded project on enabling communities in the Aral Sea basin to combat salinization of irrigated lands through the creation of 'bright' spots, in which ICARDA is focusing on the utilization of other available, but marginal quality, water resources.

ICARDA is a partner in the CP *Water and Food* and in 2004 was awarded two projects in the Karkheh river basin in Iran, one on improving on-farm agricultural water productivity and the other on improving watershed management. The two projects are complementary and are being implemented together in an integrated approach, representing a major new initiative in Iran.

The Second International Conference on Sunn Pest was held at ICARDA in July 2004 on the theme "Enhancing International Cereal Production for Food Security." The conference attracted over 130 participants and featured presentations on such topics as the socioeconomics, integrated management, and biology and ecology of the Sunn pest. The conference generated new impetus for regional and international cooperation in managing Sunn Pest, which ICARDA is pursuing.

Small ruminant research in 2004 focused on the development of market-oriented production and on adding value to dairy products, on-farm adaptive research and breed characterization. In 2004, ICARDA initiated collaboration with the University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria, on options for diversifying income generation from small ruminant production. ILRI and ICARDA jointly appointed a livestock epidemiologist to manage a joint IFAD-funded project on small ruminant health and market opportunities for poor farmers in the WANA region, which is looking at delivery and adoption of animal health and other livestock

services to poor farmers and constraints to local market access due to the occurrence and associated sanitary regulations of small ruminant diseases.

ICARDA is the CGIAR focal point for the UNCCD, and represents all Centers on the advisory Facilitation Committee of the Global Mechanism. ICARDA is hosting a Regional Environment Management Officer for the Global Mechanism in CAC. In 2004 ICARDA completed an inventory and gap analysis of desertification-related activities for the WANA region and results were presented to member countries at a regional workshop. A proposal for capacity building of NARS and other organizations has been formulated as an outcome of this workshop. Based on the Challenge Program pre-proposal, ICARDA and ICRISAT are leading a consortium on *Desertification, Drought, Poverty and Agriculture* (DDPA), for which a donors meeting was held at AGM04 and a state-of-the-art review on “Desertification” produced. In 2004 ICARDA joined the Strategic Partnership Agreement for Implementation of the UNCCD in the Central Asian Republics and is a Member of the Task Force formed by ADB.

ICARDA expanded its research on diversification options for improved livelihoods in 2004, through two projects promoting affordable protected agriculture (plastic house) systems to produce high value crops in Yemen and Afghanistan, with funding from France and USAID, respectively, and held a major conference on launching collaborative research on date palm improvement with the support of the Gulf Cooperation Council (GCC).

In 2004 ICARDA was contracted by DFID, UK, to manage the *Research in Alternative Livelihoods Fund* (RALF) competitive grants program for Afghanistan, with the aim of developing alternative livelihood options for rural Afghans currently economically dependent on opium poppy. Currently, eleven projects are funded by RALF, of which two are implemented by ICARDA, one on the production of mint to obtain value-added products, and the other on the improvement of forage production and small ruminant dairy products.

Socioeconomics and policy research

ICARDA’s attention to the drivers of poverty alleviation continued in 2004 to clarify the connections between the determinants of poverty and ICARDA’s research, particularly through the new mega-project on ‘Poverty and Livelihoods Analysis and Impact Assessment’. The research is directed towards refining and strengthening the alignment of the Center’s research agenda with the over-riding goal of poverty alleviation in dry areas. A methodology for resource-related poverty mapping was developed, linking agricultural income and natural resource endowments in Syria for expansion to other dry areas.

In 2004 a cooperative project with the University of Massachusetts on household food systems, poverty, and the nutritional status of women and children was concluded. Lysine and iron deficiencies were commonly found in drought-affected villages and we are examining the impact of lysine-fortified wheat flour on the nutritional status of these rural families.

Studies of small farmers’ access to credit, markets, and institutions have been initiated through the appointment of a Junior Professional Officer from Switzerland. A study on the local institutional arrangements in dairy sheep systems in dry areas has been initiated in Syria. It is aimed at describing local institutional arrangements and mechanisms of dairy sheep system and embedded social capital, and analyzing the distributional effects, disaggregated by gender, of these arrangements and the factors determining access of the poor to these arrangements. The economic efficiency of sheep production systems in Syria were assessed and completed in 2004 as a PhD research. This characterization is useful in identifying research entry points and extension strategies for ensuring technology diffusion among herders in dry areas.

In 2004 ICARDA presented two case studies on the impact of natural resources research to a SPIA workshop on NRM impact.

IFAD and AFESD agreed to continue funding the collaborative ICARDA/IFPRI/NARS research program in eight countries of WANA on improving the livelihoods of agropastoral communities through the development of integrated feed/livestock management strategies. The new phase of the program focuses on consolidating and outscaling the community approach, applied and adaptive research, testing and evaluation of technical, institutional and policy options for income generation. It also focuses on diversification and communal management of rangeland resources, and the evaluation of the returns to investment in the dry areas.

With the appointment of a natural resource economist in 2004 ICARDA has strengthened its capacity to address the socio-economic aspects of natural resource management at the farm and community levels. During 2004 our partnership with ESCWA (United Nations Economic and Social Commission for West Asia) continued with research on farmer allocation of pumped groundwater and the technical and economic efficiency of its use. This has resulted in the production of a study synthesizing the status of on-farm water use efficiency and factors affecting farmers' decisions in allocating scarce water among competing crops. The study suggests huge potential for water savings if scarce water is more efficiently managed.

A workshop was organized for ICARDA socio-economists and NARS collaborators on methodologies for livelihoods and poverty analysis at Yale University in December 2004. A number of regional workshops were organized on adoption and impact studies, natural resource valuation and participatory approaches.

Enhancing institutions

During 2004 a total of 858 participants from 37 countries were trained by ICARDA, with 73% of this training conducted outside headquarters. Short courses (4–20 days) comprised 85% of the numbers of trainees.

ICARDA continues to emphasize economic and policy issues affecting the seed supply system in CWANA, and to explore alternative (informal sector) seed delivery systems. Afghanistan has been a major focus of the Seed Unit's activities. Following the FHCRAA (Future Harvest Consortium for Rebuilding Agriculture in Afghanistan) short-term competitive grants program run by ICARDA during 2003/03, that provided funding to CIMMYT, CIP, ICARDA and IPGRI, activities have continued during 2004 through a project on village-based seed enterprises within the USAID RAMP (Rebuilding Agricultural Markets Project) and a project supported by IDRC investigating how conflict and drought have affected the local rainfed crop seed systems of Afghanistan with a view to identifying suitable interventions.

The Center has also helped rebuild Iraq's agricultural research capacity. In 2004/5 ICARDA held meetings with Iraqi officials and has focused on human resource development and capacity building, primarily with USAID and JICA support, and the provision of seed of improved varieties.

ICARDA's research outputs are incorporated within national development projects such as in the Barani area of Punjab, Pakistan, the Turkish South-East Anatolian GAP project and a new project with FAO in Balochistan, Pakistan on Food Security/Poverty Alleviation.

Other Regional Highlights

Sub-Saharan Africa

Focusing on the poor in sub-Saharan Africa (SSA), ICARDA initiatives include (a) enhancing food security in the Nile Valley region (Sudan, Ethiopia and Eritrea) through the generation and dissemination of sustainable production technologies for cereals and cool season food legumes, supported by IFAD, with two varieties each of chickpea and lentil released in Ethiopia during 2004, and (b) in Eritrea, a new project from the *CP Water and Food on Improving the Water Productivity of Cereals and Food Legumes in the Atbara River Basin*.

A project developed with the NARS of Mauritania on rangeland resource management started in 2004. This is incremental to activities initiated with the Canada Fund for Africa in Mauritania. The Canada Fund for Africa also supports specific interventions in Eritrea, Ethiopia and Sudan.

Latin America

ICARDA's cooperation in Latin America has focused on the provision of germplasm of its global mandate crops. An ICARDA barley breeder is hosted by CIMMYT, Mexico, for the genetic improvement of barley for the Andean region and for favourable environments globally. The State of Mexico released a variety of faba bean with tolerance to chocolate spot from ICARDA in 2004.

During 2004, cooperation with Brazil and Mexico within the IFAD funded project on *Strengthening institutional capacity to improve marketing of small ruminant products and income generation in dry areas of Latin America* was formalized through bilateral agreements between ICARDA and the NARS partners. In both countries the project's research activities are undertaken in areas and communities within IFAD development programs.

South and East Asia

In 2004 the Minister of Agriculture of Bangladesh recognized the impact on lentil production in Bangladesh of new cultivars derived from ICARDA in a BARI/ICARDA Day. Strong links with NARS in germplasm improvement of cereals (barley and wheat) and food legumes (lentils, kabuli chickpea, faba bean and low-neurotoxin grasspea) continue through germplasm exchange and training activities in Bangladesh, India and Nepal and to a lesser degree with Bhutan, China, South Korea, Sri Lanka and Vietnam. In 2004, ICARDA concluded an Agreement with the Rural Development Administration (RDA) of the Republic of Korea for a three-year collaborative research program on the evaluation and utilization of wild barley (*Hordeum spontaneum*) to improve the tolerance of cultivated barley varieties to various stresses.

Ecoregional Program: Collaborative Research Program for Sustainable Agricultural Development in Central Asia and the Caucasus (CAC)

Germplasm Collection

As already mentioned, ICARDA germplasm collections in the region continued in 2004. Support was provided for the establishment of Plant Genetic Resource Centers including gene banks with medium term storage facilities in Kyrgyzstan and Georgia. NARS strengthened research on fruit diversity in 2004 through a new GEF-UNDP project to IPGRI for Central Asia.

Germplasm Improvement

Six new varieties of wheat (ICARDA/CIMMYT): *Azametly 95* and *Nurlu 99* (Azerbaijan) and *Jamin*, *Zubkov* and *Azirbosh* (Kyrgyzstan), and *Bitarap* (Turkmenistan) have been released.

Based on their superior performance, lines from ICARDA of winter barley (3), spring barley (1), chickpea (6), lentil (1), grasspea (1), and four lines of wheat from ICARDA/CIMMYT have been submitted to the State Variety Testing Commissions in the region.

In 2004 two regional workshops were held in the region: one on potato improvement was held with CIP, who posted a scientist to the region. The second on groundnut was held in Tashkent with ICRISAT.

Considerable emphasis was given to multiplication and distribution to farmers of quality seed of newly released varieties (approx. 12) over the last 2–3 years, leading to increased adoption and area coverage.

Sustainable Production

Under rainfed winter wheat production system of southern Kazakhstan, working with NARS, conservation tillage was found more economic than traditional practice of deep ploughing though conservation tillage showed no effect on crop yield. Technology of direct sowing with a combine cultivator-drill is now being accepted by farmers. In Kyrgyzstan, deep conservation tillage in the fall provided better soil moisture accumulation resulting in higher yield of rainfed winter wheat than traditional deep ploughing. The technology was adopted on 50 ha during 2004. Under rainfed farming in Galla-Aral, Uzbekistan, direct seeding provided yield increase for the second successive year due to improved moisture accumulation. Adoption of this technology is expected in view of increased fuel prices, but the lack of equipment in the market remains a constraint.

Under irrigated cotton-wheat system in Tashkent and Termez provinces, Uzbekistan, broadcasting of wheat seeds in standing cotton using shallow cultivation was found to be successful in raising two crops, instead of one crop as practiced at present. Scaling-up of the cotton-wheat system has started in both Uzbekistan and Tajikistan.

Newly designed equipment for planting winter wheat into cotton stubble and seedbed preparation for soybean to raise double crop was tested by CIMMYT with NARS during 2004. Both equipments were found to be good for conservation tillage as compared to the traditional deep ploughing. The study further indicated that wheat seed rates and nitrogen fertilization rates can be reduced by 50 and 25%, respectively.

A pilot project for improved furrow irrigation was undertaken on three farms of Sokoluk district of Kyrgyzstan on an area of 29 ha. Results obtained by ICARDA and the NARS, with Asian Development Bank support, indicated increase in yield of maize by 22–44%, of soybean by 41–42%, of watermelons by 48% and of tomato by 41%. Water use efficiency of maize increased by 75–109%, of soybean by 69–128%, of watermelons by 116% and of tomato by 87%.

Policy and Institutions

In the Ferghana valley, three Canal Management Organizations and associated Committees were formed by water users with IWMI's assistance.

Enhancing NARS

The CAC Program arranged 14 short and long-term training courses with participation of 275 scientists, besides 20 study visits as well as participation in regional and national workshops and international conferences.

A Regional Forum of the CAC countries (CACAARI) has been established, which is now forging linkages among the NARS and with other international organizations at the global level. The CACAARI Secretariat has been established in Tashkent and the Forum has adopted its Constitution. The PFU is providing necessary support to CACAARI in order to strengthen partnership among NARS.

C. Implementation of EPMP Recommendations

The last EPMP of ICARDA was completed in 2000 and the next is scheduled for 2006. A CCER on 'Outreach' at ICARDA was completed in 2003. CCERs on (i) Integrated Gene Management, (ii) Natural Resources Management and Socio-economics, and (iii) Human Capacity Building in NARS are scheduled for completion by the end of 2005. These CCERs are monitoring our progress with respect to the recommendations of the last EPMP.

D. Highlights of the 2006 Project Portfolio

Following the major restructuring of the Center's project portfolio as reported in the previous MTP (2005–2007), ICARDA has not made significant changes in its six mega-projects in the MTP 2006–2008. The changes between this and the last MTP are within mega-projects.

E. Collaboration

Challenge Programs

ICARDA is participating in the three pilot Challenge Programs:

- *CP Water and Food*: ICARDA has received funding for three projects through the competitive grants program: two in the Karkeh River Basin (included in MP1: Scarce water resources/Drought) and one in the Nile River Basin within Eritrea (included in MP2: Integrated Gene Management). A fourth approved project for the Nile River basin in Ethiopia remains unfunded by the CP.
- *HarvestPlus*: ICARDA is responsible for identifying barley and lentil germplasm with high concentration of b-carotene, iron, and zinc (included in MP4: Diversification).
- *Generation*: ICARDA is a full member of the CP Consortium and is involved in a series of commissioned research and one competitive grant project (included in MP2: Integrated Gene Management).

Systemwide and Ecoregional Programs

ICARDA leads the Ecoregional Program for Sustainable Agricultural Development in Central Asia and the Caucasus (ERP-CAC) and continues to participate in Systemwide Programs: SGRP, SLP, SP-IPM, CAPRI, SWNM, PRGA, SPIA and the Comprehensive Assessment of Water Management. ICARDA is an active partner in six of the IT-KM projects and leads the project 'Utilization of Intelligent Information for Plant Protection'.

Other Collaboration

ICARDA is co-convener with ICRISAT of a Challenge Program pre-proposal on *Desertification, Drought, Poverty and Agriculture* (DDPA) that has evolved into a Consortium mode (included in MP3).

ICARDA is currently convener of the INRM group of CDC. We are also an active partner in the Consortium for Spatial Information (CSI) and the International Crop Information System (ICIS) network.

The Center has a joint appointment with IFPRI and in 2004 recruited two other joint appointments – one with IWMI on marginal quality water and the other with ILRI on small ruminant health. We also have senior visiting scientists from CIRAD and JIRCAS, who have also sent a post-doctoral fellow. ICARDA hosts a GM-UNCCD supported Environment Management Officer at its Tashkent Office.

ICARDA leads the Future Harvest Consortium to Rebuild Agriculture in Afghanistan (FHCRAA) and has formed a similar Consortium to Rebuild Agriculture in Iraq.

ICARDA began managing competitive grant funding in 2002/3 under a USAID grant to rebuild agriculture in Afghanistan. Based on the success of this model DFID Afghanistan in 2004 contracted ICARDA to manage the *Research in Alternative Livelihoods Fund* (RALF). Two international calls for proposals for RALF funding were issued in 2004 to FHCRAA members and other parties. ICARDA, on behalf of FHCRAA, also manages a USAID-funded project for CIP

on potato improvement in Afghanistan. ICARDA manages a Moroccan Collaborative Grant Facility for part of the Moroccan CGIAR contribution.

To supplement ICARDA's critical mass, the Center is outsourcing some specific research to centers of excellence in the region, for example: in the development of computer expert systems (Central Laboratory for Computer Expert Systems (CLAES), Egypt); in genetic transformation of cereals (Agricultural Genetic Engineering Research Institute (AGERI), Egypt), and in Hessian fly resistance (Institut National de la Recherche Agronomique (INRA), Morocco). The research with CLAES and AGERI is organized through Twinning Agreements. Additionally in 2005 ICARDA anticipates hosting Associate Experts/Junior Professional Officers from Denmark, Japan and Switzerland.

F. Internal Organization of Research

During 2004, following extensive internal debate and discussion with the Center's Board of Trustees, we decided to consolidate the research portfolio into six integrated mega-projects. Given the close links among human welfare, agricultural productivity, economic growth and the environment in the dry areas, ICARDA's research is designed as a single coherent poverty-focused program, sub-divided into six mega-projects, among which there are a multitude of cross-linkages and interactions. To focus ICARDA's research agenda around the key problems of the dry areas, the mega-projects have been designed to focus ICARDA's outputs onto the key problems of eco-regional concern, optimize the synergy in research and bring to bear our collective knowledge, expertise and resources in the most effective and efficient manner possible. The structure of the six mega-projects ensures continuity of current research activities and additionally accommodates a number of new approaches and avenues in research direction. These newer avenues include: improved income generation from high value crops and by adding value to staple crop and livestock products; rehabilitating agriculture in conflict/post-conflict situations; and closer alignment of agricultural research with mainstream development programs through research for development applications.

Thus, at the beginning of 2005 ICARDA moved from an arrangement of 19 MTP Projects housed in two main research Programs (Germplasm Program and Natural Resource Management Program) into the current six mega-project structure and dissolved the two research programs based entirely on the MTP framework. Six Directors were recruited for the new mega-projects. Our focus in 2005 is to consolidate this change in research structure.

G. Center Financial Indicators

In submitting the agenda for 2006–2008, it is assumed that the mode of project financing is not a constraint. Assuming full funding, ICARDA does not foresee any constraints on project activity. ICARDA is aiming for a balanced budget. However, there are external factors that affect the Center's objectives such as exchange rates and possible reduction or increase in donor contributions.

ICARDA's current estimate of 2005 financing is US\$ 26.27 million. For 2006, anticipated funding for the research agenda will be US\$ 24.29 million. Anticipated funding does not include projects in the pipeline that have not yet been approved by donors. The financing estimates for 2005 and 2006 are based on the exchange rates at the time of the preparation of the tables. Changes in these exchange rates may have an impact when the actual revenues are realized and will affect as well the performance of the Center. In computing project costs, ICARDA's indirect costs allocation rate is 22%, which is allocated across all six mega-projects in the project portfolio, on a proportional basis.

Non-financial contributions include visiting scientists from France and Japan and part payment by other Centers (IFPRI, ILRI, and IWMI) for joint positions.

CGIAR has recommended two financial health indicators to determine the financial performance of the Center. Based on these indicators, ICARDA's expected financial performance for 2005 and 2006, taking into account the financing estimates mentioned above, is as follows:

- (1) Short-term solvency (liquidity) is computed at 186 days for 2005 and 204 days for 2006. Ratio may vary by $\pm 10\%$ based on the factors cited above. CGIAR's recommended acceptable range is 90 to 120 days.
- (2) Long-term financial stability (adequacy of resources) is computed at 124 days for 2005 and 135 days for 2006. Ratio may vary by $\pm 10\%$ based on the factors cited above. CGIAR's acceptable range is 75 to 90 days.