

Performance Measurement
For The International Center for Agricultural
Research in the Dry Areas (ICARDA)

Pilot Year 2004

April 15th 2005

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ICARDA Remarks on Element One: Outputs

ICARDA had 19 MTP projects in 2004. On this basis ICARDA should submit 95 outputs. However at the CDDC meeting with Ruben Echeverria (Science Council) in February at ICRISAT, it was agreed with Dr Echeverria that the maximum number of outputs required was 35. The ICARDA 19 MTP projects map onto the CGIAR outputs as follows:

<i>CGIAR Outputs</i>	<i>Number of 2004 MTP Projects</i>	<i>Number of 2004 milestones achieved</i>
<i>Germplasm Enhancement</i>	<i>6</i>	<i>10</i>
<i>Production Systems Management</i>	<i>5</i>	<i>9</i>
<i>Natural Resource Management</i>	<i>4</i>	<i>9</i>
<i>Socioeconomics and Policy</i>	<i>3</i>	<i>5</i>
<i>Institutional Strengthening</i>	<i>1</i>	<i>2</i>
<i>Total</i>	<i>19</i>	<i>35</i>

To balance the outputs entered into the performance appraisal interface with the research thrust at the Center, ICARDA has entered 35 outputs as per the CG outputs (above).

In January 2005 ICARDA re-structured out of the 19 MTP project structure into a six MegaProject structure.

Indicators of Results

Indicators for Potential to Perform

1A. Each center specifies its expected outputs in its medium term plan. Please use your medium term plan for 2004 to provide the following information.

1. For each of the major program areas outlined in your center's MTP for 2004, identify the five most significant outputs you expected to produce that year. Fill in the output template (Appendix A), indicating the category (use Table 1 for categories).
2. For each of the five outputs, indicate whether it was not achieved, partially achieved, achieved, or exceeded. You can provide text explaining not achieved or partially achieved expectations.
3. Calculate the percent of output targets achieved. This is the performance indicator. The output template should also be submitted.

Element One: Outputs

Definition of Outputs

Outputs are deliverables in knowledge, technology, policies, or services with an expected date of delivery. Outputs can be roughly categorized into five types (see examples in [Table 1](#)): Materials, Practices, Policy strategies, Other kinds of knowledge, Capacity.

Existing programs and Outputs:

Program	Outputs	Output target/ Milestone, 2004	Output target category	Achieved?
Crop Germplasm Enhancement-Cereals	1	Project 1.1: Methodology to enhance barley adoption.	Other kinds of knowledge	Exceeded
	2	Project 1.1: Methodology to enhance barley adoption.	Materials	Achieved

	3	Project 1.1: Barley breeding methodology for stress environments.	Molecular markers for physiological traits associated with drought tolerance identified. Product Achieved: QTLs and associated markers for several traits, including plant height under drought, growth vigor, and time to heading were identified.	Materials	Achieved
	4	Project 1.4: Facultative and winter wheat germplasm with improved yield potential enhanced adaptation to local environments, and better grain quality developed for use by NARS	Improved bread-making quality realized in new cultivars. Product Achieved: New variety 'Bitarap' with good local bread making quality was released in Turkmenistan for use in irrigated and high-temperature areas.	Materials	Achieved
	5	Project 1.4: Genetic diversity for enhanced tolerance to biotic stresses in facultative and winter wheat.	Genetic stock for Russian wheat aphid (RWA) tolerance produced and made accessible to NARS. Product Achieved: In 2004 22 lines from F7, and 75 lines from F6 generations with tolerance to RWA selected. Genetic stocks of winter and facultative wheat tolerant to RWA were distributed to NARS.	Materials	Achieved
Crop Germplasm Enhancement- Food Legumes	1	Project 1.5: Improved lentil genetic stocks with higher seed and straw yields for food and feed, and combined resistance to key prevailing stresses.	Germplasm targeted for various agro-ecological conditions developed and delivered to national programs. Product Achieved: In 2004 87 lentil lines selected and distributed to NARS through international nurseries. A	Materials	Achieved

		total of 7 varieties were released by NARS of USA, Ethiopia, Nepal and Turkey for commercial cultivation from ICARDA supplied germplasm in 2004.		
2	Project 1.5: Improved lentil genetic stocks with higher seed and straw yields for food and feed, and combined resistance to key prevailing stresses.	Impact assessment completed in Bangladesh and initiated in Morocco. Product Achieved: Adoption and impact assessment in Bangladesh completed indicating that 28,000 t of extra lentil is being produced from improved variety and production package worth US\$ 13 million per ann. Similar impact studies are being conducted in Nepal and Ethiopia.	Materials	Achieved
3	Project 1.5: NARS research capabilities improved in food legume research: 20 researchers per year trained on breeding methods, selection and screening techniques, data management and analysis.	20 persons from different NARS trained. Product Achieved: Training courses on food legume improvement conducted in Iran & Afghanistan. Specialized training course on faba bean conducted in Iran Regional traveling workshop with 11 participants from 8 CAC countries conducted in AZE, ARM & GEO 11 trainees from five countries (AFG, TUR, ETH , ERI & SYR) received specialized training in food legumes 1 MSc degree completed	Capacity	Exceeded
4	Project 1.5: Faba Bean: Alternative faba bean plant types of faba bean for NARS and their recombination	Development of elite materials with combined resistance for Ascochyta blight and chocolate spot in progress, and identified sources shared with NARS for testing in sub-regional	Materials	Achieved

		with biotic stress resistance.	programs. Product Achieved: Seeds of total of 172 new breeding lines with resistance to chocolate spot, Ascochyta blight and combined resistance to chocolate spot and Ascochyta blight were increased, and 26 lines distributed to NARS.		
	5	Project 1.5: Alternative faba bean plant types of faba bean for NARS and their recombination with biotic stress resistance.	Development of elite materials with resistance to Orobanche in progress, and developed populations shared with NARS. Product Achieved: Seeds of 104 lines tolerant to Orobanche were increased and 20 lines distributed to NARS	Materials	Achieved
Production Systems Management	1	Project 2.1: Research capability and expertise of national scientists improved	30 NARS scientists and 400 farmers trained in IPM practices. Product Achieved: 20 individual trainees from IRQ, ERI, ETH, SYR, AFG, PAL & YEM trained in IPM research at ICARDA. 12 participants from Nile Valley attended IPM course at ICARDA. 30 participants from 8 CAC countries attended IPM course on Cereal diseases and insect pests in Uzbekistan. 15 individual trainees from CHI, YEM & ETH trained on virus surveys. > 400 farmers trained in IPM research & implementation at IPM pilot sites. One PhD thesis on IPM completed	Capacity	Exceeded
	2	Project 2.2: Conservation tillage systems for	Review of conservation tillage practices in CWANA	Practices	Achieved

		nutrient, water and energy use efficiency and C sequestration.	Product Achieved: Review of conservation tillage practices in CWANA has been completed. With results reported in three papers.		
	3	Project 2.3: Management recommendations that provide the highest economic at a minimum cost from pasture and forage legume rotations.	<p>The potential use of drainage water to irrigate forage crops and range species assessed.</p> <p>Product Achieved: The potential use of drainage water to irrigate eight range species was assessed in Turkmenistan. <i>Atriplex heterosperma</i>, <i>A. ornate</i>, <i>A. dimorphstida</i>, <i>A. canescens</i> and <i>Suaeda altissima</i> were the most promising.</p>	Practices	Achieved
	4	Project 2.4: Management plans for rangeland natural resources in CWANA.	<p>A rotational grazing scheme with community involvement to restore seasonal rotational grazing in CWANA developed and tested.</p> <p>Product Achieved: A pilot community in Morocco has established a controlled grazing scheme after applying range rest. A survey completed in Syria of social and ecological data of 11 cooperatives was completed to assist them develop rotational grazing schemes.</p>	Practices	Achieved
	5	Project 2.4: Inventory of rangeland vegetation and key species for feed, fuel-wood, or erosion control.	<p>Staff of Syrian Steppe Directorate trained and collect data on vegetation assessment, production (integrated in GIS), biodiversity on protected areas, livestock use.</p> <p>Product Achieved: Staff of Syrian Ministry of Agric. (Badia Project) was trained; then they collected data with ICARDA supervision at 11</p>	Capacity	Achieved

			community sites completing vegetation assessment for range health, production (integrated in GIS), plant species identification, biodiversity on protected and un-protected project areas, and livestock use. Additionally rangeland vegetation inventoried in three pilot sites in Morocco, Tunisia and Algeria.		
Production Systems Management-Other Information	1	Project 2.1: Improved understanding of occurrence, spread, variability and losses caused by pests in West Asia and North Africa.	Variability of five pests in five countries characterized. Product Achieved: Pest variability characterized on Hessian fly (KAZ, SYR, MOR), Russian wheat aphid (YEM, MOR, SYR), yellow rust (SYR, TAJ, AZE), wheat leaf rust (MOR), and barley scald (SYR, TUN, ETH, JOR).	Other kinds of knowledge	Achieved
	2	Project 2.1: Improved understanding of occurrence, spread, variability and losses caused by pests in West Asia and North Africa.	Four pest surveys in four countries. Product Achieved: Virus disease surveys were conducted in CHI, YEM, and ETH; cereal disease surveys were conducted in ERI, MOR, TUN and UZB; three insect surveys were conducted in AFG, UZB and MOR; and one legume disease survey was conducted in CHI.	Other kinds of knowledge	Exceeded
	3	Project 2.2: Validated cropping systems simulation models for the spatial extrapolation and generalization of site specific	Evaluation and reporting of crop and cropping system simulation models tested in selected sites in CWANA. Product Achieved: Evaluation of crop and cropping system simulation models were done in	Other kinds of knowledge	Achieved

		results through use of GIS	Morocco, Syria and Turkey and reported in two workshops.		
	4	Project 2.5: Markets and market opportunities for small ruminant products, identifying niches where small ruminants have a comparative advantage, are assessed for a better orientation of the production systems with a community action focus.	Methodology of market analysis of sheep milk products is expanded to Jordan and North Africa. Product Achieved: The methodology developed for market analysis of sheep products, targeting producers, intermediaries and consumers was implemented and is currently used by the UoJordan to assess the market aspects of fattening systems in Jordan and by INAT-Tunisia to assess the effect of market and consumer preference trends on genetic diversity in Tunisia. In addition, this methodology was transferred to research projects in Brazil and Mexico.	Other kinds of knowledge	Exceeded
	5	Not Specified	Not Specified	Not Specified	Not Specified
Natural Resources Management-Practices and Capacity Building	1	Project 3.1: Methodologies, recommendations and information available to the NARS on efficient capture, storage and utilization of rainwater through water harvesting and integrated watershed management.	ICARDA's research on water harvesting published. Product Achieved: The Book "Indigenous Water Harvesting Systems in WANA" was published. Research report "Micro-catchment water harvesting for improved vegetation cover in the Syrian Badia" was published. Poster on olive water harvesting in Khanasser Valley presented and paper submitted. MSc thesis on prospects for water harvesting in Khanasser Valley written.	Practices	Achieved
	2	Project 3.1: Optimal strategies	Recommendations on the management of supplemental	Practices	Achieved

		and practices for using limited water resources conjunctively with rainfall in rainfed agriculture.	irrigation of legumes published. Product Achieved: Three journal papers on supplemental irrigation of lentils, chickpea and faba beans were published.		
	3	Project 3.2: An integrated multi-scale research approach for land degradation assessment and problem solving for degrading dry areas.	Land degradation analysis method finalized. Product Achieved: Livelihood-based land degradation analysis (LILAF) tool completed (M.Sc. thesis completed + reported at International conference on land degradation at Spain).	Practices	Achieved
	4	Project 3.3 : Strengthened capacity of national and regional genetic resources institutes	One short-term group training course. Product Achieved: Three short-term group training courses given in GEF/UNDP Agrobiodiversity projects.	Capacity	Exceeded
	5	Not Specified	Not Specified	Not Specified	Not Specified
Natural Resources Management-Genetic Resource Materials and Other Information	1	Project 3.3: Germplasm characterization and preliminary evaluation for biotic and abiotic stresses and morphological and agronomic traits using international descriptors, and genetic diversity analysis and assessment of the potential of conserved material for crop enhancement.	500 Vicia accessions characterized. Product Achieved: 4,000 Vicia accessions characterized and their taxonomic status verified.	Materials	Exceeded
	2	Project 3.3:	200 accessions collected in	Materials	Exceeded

	Expanded ex situ collections of the genetic resources to be utilized in crop improvement programs of ICARDA and NARS or in ecosystem restoration.	strategic plant collection mission in a CAC country. Product Achieved: 1467 accessions including wheat + wild relatives and primitive wheats, barley + wild relatives, forage and range species were collected from over 200 sites in Azerbaijan, Armenia and Tajikistan. Additional 83 accessions collected in Syria and 66 accessions collected in Afghanistan by NARS with ICARDA's backstopping.		
3	Project 3.3: Expanded ex situ collections of the genetic resources to be utilized in crop improvement programs of ICARDA and NARS or in ecosystem restoration.	15,000 seed samples distributed from ICARDA gene bank to users on request. Product Achieved: 21,000 seed samples distributed from ICARDA genebank to users on request.	Materials	Exceeded
4	Project 3.3: Documentation of ICARDA plant genetic resources collections available to users worldwide.	CD-ROM catalog 'Wild wheat relatives'. Product Achieved: CD-ROM catalog of ICARDA wild wheat relative collections is available.	Other kinds of knowledge	Achieved
5	Project 3.4: Digital databases on climate, land resources, land use/cover, ecological crop requirements and genetic characteristics, linked to databases describing the	Digital archive of improved regional soil map for CWANA available. Product Achieved: Spatial database of derived soil properties at 1 km resolution established for CWANA	Other kinds of knowledge	Achieved

		socioeconomic environments			
Socio-economics and Policy	1	4.1 Market and non-market Evaluation of natural resources and estimation of the economic and social costs of their degradation	<p>Economic analysis of policies affecting land use options and conservation practices in mountain terraces in Yemen.</p> <p>Product Achieved: A study on the policies that affect use options in Yemen Mountains has been completed. The study reveals wide gap between policies and programs as intended and their actual outreach to the needy poor in the Yemen Mountains.</p>	Other kinds of knowledge	Achieved
	2	4.1 Economic assessment of the environmental impact of resource management strategies	<p>On-farm water use efficiency of wheat production in Iraq assessed (ICARDA/ESCWA)-exceeded</p> <p>Product Achieved: A study completed and published entitled “Enhancing Agricultural productivity through on-farm water use efficiency: An empirical case study of wheat production in Iraq”. The study is based on a far-survey data of 284 farms and it reveals that supplemental irrigation has increased land productivity by 58 100% depending on the variety and type (bread wheat and durum wheat). Water productivity increased by 32% and 15% in bread and durum wheat, respectively, with an average of 31% for all wheat varieties. On-farm water use efficiency varied among different segments of farmers. 80% of farmers over-irrigated wheat by 23-60%, whereas only 20%</p>	Other kinds of knowledge	Exceeded

			under-irrigate the crop by 10%		
3	4.2 Rural households and their livelihood strategies characterized and the circumstances that constraint or enhance the adoption of technological and institutional options identified	<p>Analysis of the socio-economic determinants of poverty and child nutrition in Syria completed.</p> <p>Product Achieved: Research on child nutrition and poverty in Syria has been published. The study reveals that stunting of children under 10 years ranged from 12% to 23% with the highest in the less favorable, the barley/livestock, systems, followed by the olive/fruit tree system.</p>	Other kinds of knowledge	Achieved	
4	4.2 Rural households and their livelihood strategies characterized and the circumstances that constraint or enhance the adoption of technological and institutional options identified	<p>Analysis of the role of local (informal) institutions on rural livelihoods with emphasis on rural women</p> <p>Product Achieved: A poster has been produced and presented at international conference on local institutional arrangements in dairy sheep systems in dry areas in Khanasser, Syria. The study describes local institutional arrangements and dairy sheep system and embedded social capital; and the factors determining the poor's access to these arrangements.</p>	Other kinds of knowledge	Achieved	
5	4.2 Evaluation of the economic of livestock production in the low rainfall areas of CWANA	<p>Analysis of the economic performance of sheep production systems completed.</p> <p>Product Achieved: A study on the economic performance of sheep production systems completed using farm survey data of 20 villages in 7</p>	Other kinds of knowledge	Achieved	

			provinces, and 262 producers were interviewed. Using total factor productivity, the study compared the economic performance between different farm clusters and identified the main production constraints in different production systems.		
Institutional Strengthening	1	Project 5.1: Enhanced knowledge and expertise in national seed programs	<p>Training course on Seed Enterprise Development.</p> <p>Product Achieved: Five Seed Enterprise courses conducted: 1. Train-the-Trainer course on Seed Production Technology and Enterprise Management (41 Afghans) 2 & 3 Follow-up courses on Seed Production Technology and Enterprise Management (98 Afghans) 4 & 5 Courses on Seed Business Management and Financial Analysis & Enterprise Management (127 Afghans)</p>	Capacity	Exceeded
	2	Project 5.1: Informal seed sector concerns reflected in national seed system development as a result of awareness created on this issue.	<p>Model alternative seed delivery systems in specific countries explored on the basis of information and knowledge from various studies and projects.</p> <p>Product Achieved: Village-based seed enterprises become operational in Afghanistan to provide seed at local levels</p>	Capacity	Achieved
	3	Not Specified	Not Specified	Not Specified	Not Specified
	4	Not Specified	Not Specified	Not Specified	Not Specified
	5	Not Specified	Not Specified	Not Specified	Not Specified

Element Two: Outcomes

Outcomes are the changes resulting from uses of center outputs by stakeholders and clients, e.g., changes in knowledge, attitudes, policies, research capacities and agricultural practices. Eventually, the performance measurement system will include a wider set of outcome indicators. For this pilot phase, please report Indicator 2A, using the definition below.

Definition of Outcomes

Outcomes are the changes resulting from uses of center outputs by stakeholders and clients, e.g., changes in knowledge, attitudes, policies, research capacities and agricultural practices.

2A. Describe the five most significant outcomes that appeared in 2004 of outputs expected under your MTPs for 2001, 2002, and 2003.

The description of each outcome should be no more than 250 words. Please provide a reference to the documentation that supports each description.

Outcome 1:

Participatory Plant Breeding at ICARDA

Participatory plant breeding (PPB) has been proposed as a way to address three problems of conventional plant breeding, namely its low effectiveness in marginal environments, the long time needed to develop a variety and the poor level of adoption, particularly in developing countries. PPB complements both Mendelian and molecular breeding and being based on the same genetic principles as formal breeding, incorporates and takes full advantage of the use of modern biotechnological techniques.

PPB turns upside down the delivery phase of a plant breeding program by using adoption as a driving element of variety release and certified seed production. Therefore adoption rates are higher, risks are minimized, and last but not least, the investment in seed production is nearly always paid off by farmers' adoption.

These advantages are particularly relevant to developing countries where large investments in plant breeding have not resulted in production increases, especially in marginal environments.

There are currently more than 80 programs worldwide using PPB in a number of different countries and crops (<http://www.prgaprogram.org>). NARS in partnership with ICARDA are currently using PPB in Syria, Jordan, Eritrea and Egypt on barley, durum wheat, bread wheat, lentil and chickpea. The first varieties identified through PPB are already in farmers fields in Syria, Egypt, Eritrea and Yemen.

The NARS in Jordan and Eritrea are increasingly using PPB as their national breeding strategy. The ICARDA PPB program has been used by IDRC as one of the six case studies to mainstream PPB.

Outcome 1 attachment: [Q2a Participatory Plant Breeding at ICARDA-References.doc](#)

Outcome 2:

Rehabilitation of Afghanistan's Research and Seed Supply System

A long period of war and drought had brought agricultural production to its knees. Institutions had collapsed, infra-structure devastated and human resources reduced to virtually nothing. ICARDA founded – in January 2002 – the Future Harvest Consortium to Rebuild Agriculture in Afghanistan – FHCRAA.

The immediate challenge, to provide farmers with seed for the spring planting season, was addressed by a very speedy action, moving 3500 tons of seeds of two adapted wheat varieties to 70,000 farmer families in the interior. The success is best illustrated by the following farmer's quote: "If I had not received the seed, I would not have any crop this season, we had eaten everything"

The next step was to address long-term agricultural production. As research is the foundation for a strong agricultural system, several research stations have been rehabilitated. Experimental plots and nurseries are now planted and new technologies introduced evaluated and made available to end-users.

To rehabilitate the seed supply system, a pioneer scheme of village-based seed enterprises has been initiated in 7 provinces, which currently make available over 1000 MT of seed of a multitude of crops. To back up the system, a Code-of-Conduct for Seed Production and Marketing has been developed, which has evolved in a draft National Seed Policy and Seed Law. Implementation requires a series of seed testing stations, which have been put in place and seed testing work has resumed.

<http://www.cgiar.org/publications/healingwounds/index.htm>

Outcome 2 attachment: Not Provided

Outcome 3:

Community Approach to the Development of Integrated Crop/Livestock Production in the Low Rainfall Area

Farmer participation in technology verification and technology transfer is becoming increasingly important to introduce new technology. The Mashreq/Maghreb (M&M) Project aims to develop a community-based approach to enhance such participation.

The approach is characterized by testing and evaluating technologies at the community level and strengthening decentralization with farmers involvement in monitoring the performance of technology and its adoption.

The criteria for community selection covered representation in low rainfall areas, existence of the main production systems, participation in the technology testing and demonstration of the project, potential to achieve a noticeable impact within the project life, access to common natural resources and linkages with on-going development projects.

The process of community selection involved several field visits and meetings with farmers and local institutions. The community characterization covered description of the main characteristics of the

selected communities, a necessary condition for successful implementation of the approach.

Implementation involved establishing multidisciplinary team to work at the community level and a community steering committee.

The approach was used by IFAD in Tunisia in the PRODESUD Project Tataouine in which 47% of the project funds are for Communities who manage the funds, by national institutions: the Algerian Agency for Steppe Development for 16 agro-pastoral communities within the National plan for agricultural and rural development; the Ministry of Agriculture of Jordan for the elaboration of the Agriculture Strategy in 2003, and by donors/ in collaboration with ICARDA: BARANI development project in Pakistan.

Outcome 3 attachment: Q2c_03 TANs IFAD Agric Tech RD Poverty Allev.mht

Outcome 4:

Property rights and investment in the low rainfall areas of West Asia and North Africa

Many institutional reforms were promoted in West Asia and North Africa (WANA) to enhance the performance of rural households and communities. Existing property rights systems in the rural areas constrain agricultural development.

Land tenure systems in WANA countries are a blend of Islamic, colonial and post-colonial land policies. Institutional solutions were perceived as important policy instruments for providing incentives and enhancing the ability of rural households to manage and sustain their resources.

The governments of Morocco and Tunisia prioritized privatization as the major instrument for promoting rural development, by granting private rights to both tribes and individuals. Partial privatization approach was mainly applied in Jordan and Lebanon. Here, the state retained land ownership while the beneficiaries were granted use-rights.

Agrarian reform was the most widespread instruments used to promote equity and agricultural development, and was implemented in Algeria, Iraq, Libya and Syria. Many poor farmers and herders received lands, and were organized into cooperatives to facilitate their access to credit and inputs.

Results from Jordan, Morocco and Syria based on surveys showed that present land tenure systems provide enough incentives to farmers to invest in enhancing the productivity of their lands. In donor-funded projects (IFAD): studies and analyses were conducted in Morocco (East, Middle Atlas, High Atlas), in Tunisia in the rangelands, and in Jordan in the Badia. Awareness was raised at the level of all policy makers in these three countries.

Outcome 4 attachment: Q2d_08 TANs IFAD Agric Tech RD Poverty Allev.mht

Outcome 5:

Lentil Improvement In Bangladesh

Lentil is the most important pulse crop for nutritional security of the people of Bangladesh, and ranks the highest in consumer's preference and total consumption among all pulses. BARI (Bangladesh Agricultural Research Institute), Bangladesh and ICARDA, Syria collaboration led to release 4 improved lentil varieties, two of them, Barimasur-2 and Barimasur-4 emanated from ICARDA-supplied genetic materials. Among them, Barimasur-4 possesses combined resistance against rust and Stemphylium blight diseases, higher yield, erect growth habit, and received higher adoption by farmers. The variety was developed from a cross between a Bangladesh landrace and a breeding line developed at ICARDA from germplasm of West Asian origin. Additionally, improved production technology including optimum planting time, seed rate, weed control, seed priming, relay cropping, diseases management etc. have been delivered to Bangladesh farmers.

Barimasur-4 is the key variety, which alone has covered about 40,000 ha out of a total of 60,000 replaced by improved varieties. With the cultivation of improved varieties along with appropriate production technologies by the farmers of Bangladesh, the country is producing an increased yield of 28,000 t per year. With a farm-gate price of US\$ 450/t (Taka 25,650/t), the value of increased yield is approximately US\$ 12.6 million annually. At the farm level, impact has been realized in increased farmers income by cultivating the improved varieties with improved technologies. Farmers used extra income earned from lentil cultivation for buying cloths, meeting personal costs, purchase other foods, growing next crops, medical treatment, pay loans, children's education, making brick-houses etc.

Outcome 5 attachment: [Q2e LENTIL IMPROVEMENT IN BANGLADESH-OUTCOME 2004-References.doc](#)

Element Three: Impacts

Definition of Impact

Impacts are the longer range social, environmental and economic benefits that are consistent with the center's mission and objectives, e.g. increased agricultural productivity, improved food distribution, etc

The performance indicator for impacts focuses on your center's capacity to measure the impacts of its previous research. Please report two indicators:

3A. What steps has your Center taken to establish a comprehensive set of impact assessment results across research areas, i.e. performance in terms of developing and implementing an impact assessment process and culture? [500 words maximum]

Based on this input, the CGIAR Standing Panel on Impact Assessment (SPIA) will produce a progress rating.

Impact Culture and Process at ICARDA

To increase research effectiveness in enhancing productivity, improving the management and efficient use of natural resources, and improving the livelihoods of rural communities in CWANA region, ICARDA has

emphasized assessing the impact of its research. The following activities clearly support the Center's efforts in transforming its research outputs into impact and assessing the actual impact of the research:

- ICARDA developed in 2002, a regional and sub-regional priority setting for agricultural research in the CWANA Region. This has been clearly reflected in ICARDA strategic planning to ensure that the needs of its NARS partners and stakeholders are met.
- Establishing better linkages between research output and development projects. Tested and proven options are channeled into development as is the case in Barani project, Marsa Matrouh Project, and Mashreq and Maghreb project, where research outputs have been adopted by development projects in WANA region. ICARDA new research portfolio includes a Mega Project on “Knowledge Management and Dissemination” to increase use by stakeholders of ICARDA public goods.
- Increasing efforts are directed toward documenting research impacts and the Center has been contributing to and benefiting from SPIA initiatives in documenting the impact of CGIAR research. ICARDA has chapters on the impact of international and national investment in barley and lentil development research (Book title: Crop Variety Improvement and Its Effect on Productivity: The Impact of International Agricultural Research”). ICARDA has documented its spillover impact and assessing the impact at farm, community, and national levels.
- There is high demand by the bio-physical scientists for the involvement of the socio-economists in the planning and implementation of research projects in terms of characterizations of rural livelihoods and gender, monitoring the technology adoption and uptake of introduced options and identification of constraints that hinder the wide dissemination of technologies and practices. The socio-economic research agenda is now embedded in one new Mega Project.
- ICARDA, working closely with NARS, has contributed to the development of their capacity in adoption and impact studies. Several regional workshops and joint impact studies were implemented with NARS, including regional workshops for assessing the adoption and impact of improved technologies for Mashreq countries in March, 2002, and North Africa in May 2005, and a regional workshop on monitoring and evaluation and assessing the impact for the Agro-biodiversity project in July 2003. Standardized approaches have been used to harmonize data collection and methods.
- Establishment of baseline information. Targeted areas and communities of research projects are fully characterized and baseline information is established to be used for latter stages of adoption and impact assessment. This is accelerated by the wide uptake and use of community-based and participatory approaches. Adoption and impact assessment has become an integral part in all research projects.
- External review missions. Upon the termination of each research project ICARDA, in consultation with donors, commissioned external peer review for the project to assess its effectiveness in achieving its objectives and the quality of research outputs generated and their uptake by end users.

3B. Submit the two best impact studies your center has done in the period 2002-2004 that document the difference that the center has made in the lives of poor people. SPIA will rate these for rigor.

Impact Study 1: Q3b1_crop_variety.zip

Aw-Hassan, A. and Shideed, K. (2003). The impact of International and national investment in barley germplasm improvement in the developing countries. In Evenson, R.E. and Gollin, D(eds.) *Crop Variety improvement and its effect on productivity – The impact of International Agricultural Research*. CAB International, Wallingford, UK, pp. 241-256.

Impact Study 2: Q3b2_food_policy.zip

Brennan, J.P., Aw-Hassan, A. and Nordblom, T.L. (2003) Influence of spillovers to Australia on impacts of the International Center for Agricultural Research in the Dry Areas. Food Policy 28

Element Four: Stakeholder Perceptions

4A. This year, the CGIAR Secretariat will commission a short survey among members on their perception of the performance of your center. The results of that survey will appear under this indicator in your performance profile. For future years, a more complex stakeholder survey is under exploration. Thus, you do not need to do anything to calculate this indicator.

The survey instrument for the member perception survey:

1. I believe Center X makes significant contributions to achieving the CGIAR mission.
2. I believe that Center X undertakes sufficient efforts and achieves significant results in generating global or international public goods.
3. I believe that Center X is effectively engaged in establishing science partnerships for development.

Answer categories: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, insufficient knowledge of this center to answer.

Element Five: Quality of Research and Managerial Staff

Please calculate the following indicators.

5A. Number of all papers published in peer-reviewed journals, books, monographs as well as book chapters per scientist (please see detailed definition of the term scientist).

This should include all papers in refereed journals strictly published in 2004. Do not include anything in press or anything published in the previous year but omitted from the previous year's list. Likewise for book chapters. This category should include chapters in workshop compilation books where these have been formally published and externally refereed. Books should include those either written or edited by IARC staff. Monographs should be counted as books but must be formally published and externally refereed to be counted. International newsletter contributions should be counted as journal articles only when they have been formally published and externally reviewed. This external refereeing and their scientific content must be similar to the standard demanded of journals. No other publications should be included in this category such as working papers, internal series etc. Only one entry of each paper per

center is permitted. Where there are multiple authors including ones from different centers then both centers may count the paper in their submissions. When staff join an institute during the year in question, publications from their previous employment may be counted as long as they are agricultural or otherwise appropriate in nature. Likewise for staff leaving an institute all appropriate 2004 publications may be counted.

5a Indicator: 1.72

(105 Publications/61 Scientists)

5B. Awards.

Please indicate the number of national, regional, international, and CGIAR scientific and development awards per scientist (please see detailed definition of the term scientist). Please also provide list of awards and recipients in a separate file.

5B Indicator: 0.16

(10 Awards/61 Scientists)

Attachment for 5B: Q5b Awards for Excellence in Science-04 v2.doc

5C. Percentage of Center's top choice candidates for research and managerial positions who accept the offer.

Your backup documentation should include the formal written offer of appointment to all scientists (please see detailed definition of the term scientist) and to all administrative managers. These positions include Research Staff Levels 1-4, Service/Administrative Staff Level 3, and Management Levels 1.

5C Indicator: 88%

(8/9 candidates)

Element Six: Quality and Relevance of Programs

Ultimately, ratings on the quality and relevance of programs provided by EPMRs will be included in the performance measurement system. For this year, the following placeholder measures will be used.

6A. Science Council assessment of program quality based on 2003 and 2004 EPMRs and CCERs. You do not need to do anything to calculate this indicator.

6B. Please indicate the number of scientific papers per scientist published with developing country partners in 2004 in refereed journals, conference and workshop proceedings.

Calculate the number per scientist (please see detailed working definition of the term scientist) by including

1. all papers included under Indicator 5A and
2. papers published and those presented at formal conferences with external attendance.

Do not include internal presentations. The papers must clearly articulate the formal authorship including the authors who are NARS based.

6B Indicator: 1.48

(90 Papers/61 scientists)

Element Seven: Institutional Health

1. Governance

7A. Checklist on Center governance

Please complete the checklist on the questionnaire below (filled by Board Chair).

Organization and Management of Board Business

Composition and Structure

1. What percent of Board leadership (Chair, Vice Chair and Committee Chairs) comes from developing countries?
41-60%
2. What percent of Board leadership positions (Chair, Vice Chair and Committee Chairs) are held by women?
41-60%
3. Number of Board members with professional expertise in financial management
2
4. Number of Board members with professional expertise in institutional governance
3 or more

Orientation and Assessment

5. Did all new Board members (starting their terms in 2003 or 2004)
- attend a CGIAR Board Orientation Program? Yes

- attend a comprehensive center-specific orientation program? Yes
6. Has the Board conducted a self-assessment in 2004?
No
7. Has each Board Committee conducted a self-assessment during 2003-2004?
Yes
8. Has the Center completed either an EPMR or a CCER on Center governance during 2002-2004?
Yes

Board Engagement with Center's Strategic Business

Involvement in Strategic Planning

9. The entire Board is engaged with formulating or modifying the Center's strategic plan
Yes - Fully

Involvement in Program Review

10. Has the Board discussed and acted on any significant deviations from previously announced targets and strategic goals as defined in the 2004 MTP?
Yes - Fully
11. Has the Board approved and implemented a schedule for using CCERs?
Yes - Fully

Involvement in Fiscal Oversight

12. Is the management's authority to make financial decisions (e.g., spending, divestment, and budget adjustments) limited to an amount beyond which the approval of the Board is necessary?
Yes
13. Does the Board implement clear policies for the appointment, review and rotation of external auditors?
Yes
14. Does the full Board receive information on key financial indicators on a quarterly or more frequent basis?
Yes
15. Has the system-wide peer-review committee of finance officers confirmed that the Center is in compliance with CGIAR accounting guidelines?
Yes
16. Did the 2004 financial outcome deviate significantly (more than 10 percent) from the budget planned for 2004?
No
17. Has the Board discussed the adequacy of the Center's internal control mechanisms as an explicit Board meeting agenda item during 2003-2004?
Yes

Involvement in Policy Development

18. Has the Board discussed / reviewed the Center's human resources policies during 2003-2004?
Yes
19. Has the Board discussed/ reviewed the Center's policies with respect to risk assessment and risk management during 2003-2004?
Yes

Donor Community, Partnership Facilitation and Fund Raising

20. Is the Board actively involved in establishing marketing and fund raising strategies?
Yes - Fully

Effective Performance of Committees

21. Were committee reports circulated to all Board members and used as major input to decision making by the full Board during 2004?

Yes

Adequacy of the annual DG evaluation process

22. Do Board members other than the Board Chair participate in the annual performance appraisal of the DG, including decision-making on compensation?

Yes - Fully

2. Culture of learning and change

7B. Checklist on culture of learning and change

Please complete the checklist below.

1. Has the Center conducted a staff satisfaction survey in 2003 or 2004?
No
2. Does the Center have a leadership development plan in implementation?
Yes - Partially
3. Does the staff appraisal system implement the development of individual learning plans?
Yes - Partially
4. Are there clearly defined and announced opportunities for staff members to interact with Board members outside Board meetings?
Yes
5. What percentage of the overall budget is spent on training for staff in 2004?
0-0.75%
6. What was the average number of days of training for staff per IRS staff member in 2004?
1-2
7. What was the average number of days of training for staff per NRS staff member in 2004?
1-2
8. On average, how many days did IRS staff spend in 2004 on internal program planning and review?
More than 4
9. How many CCERs were completed during 2002-04?
2

3. Diversity

7C. Gender diversity goals

Does your center have Board-approved gender diversity goals? No

7D. Percent of women in management. Please calculate the percent of management positions (see definition), either research or non-research, occupied by women as of 12-31-2004.
4 %

(1/25 members of the Management Committee)

7E. IRS Nationality concentration.

Two most prevalent nationalities represented on the IRS staff of this institution:

Most prevalent nationality: Syrian Percent: 9.1000

Second most prevalent nationality: Egyptian Percent: 8.1000

7F. Diversity in seniority. Please calculate the % of scientists (please see detailed definition of the term scientist) receiving the Ph.D. in the last five years (2000-2004).
26 %

(16/61 Scientists)

Element Eight: Financial Health

8A. Short term solvency (liquidity)

Please compute this indicator as following: **Current assets plus long term investment minus current liabilities divided by per day operating expenses excluding depreciation.**

Long term investments are included because they can be liquidated before term (at a cost of course) and as such form a potential part of the resources available to contribute to the debt-paying capability of a centre, which what this indicator seeks to measure.

90-120 days is the recommended acceptable range. Use your audited numbers.

8A Indicator: 196

8B. Long-term financial stability (adequacy of reserves)

Please compute this indicators as follows: **Unrestricted net assets less net fixed assets divided by per day operating expenses.**

75-90 days is the recommended acceptable range. Use your audited numbers.

8B Indicator: 136