

Performance Measurement for International Center for Agricultural Research in the Dry Areas

Indicators of Results Element One: Outputs

Indicator 1: % MTP output targets achieved in 2005

Definition: Output and Output Target

Outputs are the products of research with a defined time line, contributing to reaching the Center goals by offering solutions to problems identified during the planning process.

Output Targets are the annual deliverables, defined by quantity and type, expected in a specific year and contributing to achieving the MTP Project Outputs. Output targets are deliverables in the following categories: materials, policy strategies, practices, capacity, and other kinds of knowledge.

Percent of output targets achieved: **89% (118/132)**

Optional attachment with commentary on outputs: Not provided.

Existing Projects and Outputs:

Project	Output	Output target, 2005	Output target category	Achieved?
MP1. Management of Scarce Water Resources and Mitigation of Drought in Dry Areas	3. Methods, options and strategies for drought characterization, preparedness and mitigation in the dry areas.	3.2 Network on Drought Management for the Near East, Mediterranean and Central Asia (NEMEDCA DroughtNet) established and activities started (10 countries and 3 international institutions)	Capacity	Achieved
	5. Enhanced human capacity to improve water use in agriculture in dry areas	5.1 Improved capacity of NARS: 25 engineers trained on improving WUE and the use of marginal quality water	Capacity	Achieved
	5. Enhanced human capacity to improve water use in agriculture in dry areas	5.2 Enhanced communal management of water harvesting in Syria and Jordan with 40 stakeholders given on-the-job training	Capacity	Achieved
	2. Options for improved productivity (economic, social and environmental) of rainwater, irrigation and marginal-quality water in rainfed and irrigated systems through WH, SI, agro management, and improved germplasm and cropping systems	2.1 Six varieties of wheat, barley and vetch with high water use efficiency are identified for the water benchmark sites	Materials	Achieved

	2. Options for improved productivity (economic, social and environmental) of rainwater, irrigation and marginal-quality water in rainfed and irrigated systems through WH, SI, agro management, and improved germplasm and cropping systems	2.2 Methodology developed and characterization conducted for the rangeland benchmark site in Jordan	Other kinds of knowledge	Achieved
	1. Assessment of available water resources, including precipitation, surface water, ground and marginal water, and the productivity, benefits and costs at different scales (plant, field, farm, and basin) of their use in agriculture in the dry areas	1.3 Assessment of wheat yield gap for Morocco, Syria and Turkey completed under various agro-ecological situations	Other kinds of knowledge	Achieved
	1. Assessment of available water resources, including precipitation, surface water, ground and marginal water, and the productivity, benefits and costs at different scales (plant, field, farm, and basin) of their use in agriculture in the dry areas	1.4 Assessment of wastewater used for irrigation in Syria	Other kinds of knowledge	Achieved
	4. Policy and institutional options for improved water use and irrigation demand management	4.1 Methodology for the valuation of natural resources at the benchmark developed in Morocco	Other kinds of knowledge	Achieved
	4. Policy and institutional options for improved water use and irrigation demand management	4.2 Structure and performance of water user associations in irrigation in Egypt documented	Other kinds of knowledge	Achieved
	3. Methods, options and strategies for drought characterization, preparedness and mitigation in the dry areas.	3.1 GIS-based methodology for mapping drought was developed for CWANA	Other kinds of knowledge	Achieved
	1. Assessment of available water resources, including precipitation, surface water, ground and marginal water, and the productivity, benefits and costs at different scales (plant, field, farm, and basin) of their use in agriculture in the dry areas	1.1 Methodology developed and tested for the assessment of water harvesting in Syria and Tunisia.	Other kinds of knowledge	Not Achieved
	1. Assessment of available water resources, including precipitation, surface water, ground and marginal water, and the productivity, benefits and costs at different scales (plant, field, farm, and basin) of their use in agriculture in the dry areas	1.2 Methodology developed and tested for the assessment of supplemental irrigation in Syria and Tunisia	Other kinds of knowledge	Not Achieved

	4. Policy and institutional options for improved water use and irrigation demand management	4.3 Water policies influencing water productivity reviewed in two provinces of KRB	Policy strategies	Not Achieved
	2. Options for improved productivity (economic, social and environmental) of rainwater, irrigation and marginal-quality water in rainfed and irrigated systems through WH, SI, agro management, and improved germplasm and cropping systems	2.3 Management package developed for cool-season wheat supplemental irrigation in central Anatolia of Turkey	Practices	Achieved
	2. Options for improved productivity (economic, social and environmental) of rainwater, irrigation and marginal-quality water in rainfed and irrigated systems through WH, SI, agro management, and improved germplasm and cropping systems	2.4. Agronomic package for improved water productivity developed for rainfed wheat in Iran highlands	Practices	Not Achieved
MP2. Integrated Gene Management	1. Biological resources conserved ex situ and available for use.	4. New cold store fully functional.	Capacity	Achieved
	9. Enhanced capacity of national agricultural research program.	1. 38 individual researchers received training in IGM in 2005.	Capacity	Achieved
	9. Enhanced capacity of national agricultural research program.	2. IGM organized 5 group courses in Aleppo attended by 127 participants.	Capacity	Achieved
	9. Enhanced capacity of national agricultural research program.	3. Nine new PhD and M.Sc. students were affiliated 2005. 6 PhD and M.Sc. students completed their degree programs in 2005.	Capacity	Not Achieved
	3. Genetic diversity characterized and documented for traits relevant for use in dry areas agriculture	3. Variability of pathogens/pests assessed.	Materials	Achieved
	6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	3. Crosses made to form mapping populations for Hessian fly and yellow rust through DH methodology in bread wheat.	Materials	Achieved
	6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	5. 14 mapping populations of durum wheats developed for 4 agro ecological zones, involving different traits.	Materials	Achieved
	6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	7. Transformed lentil and chickpea lines produced and under field testing.	Materials	Achieved
	6. Biotechnological tools for	8. Transformation of bread	Materials	Achieved

breeding for resistance/tolerance to biotic and abiotic stresses.	wheat for drought tolerance negotiated and devolved to AGERI, Egypt.		
8. Seed of promising ICARDA / NARS varieties distributed to farmers through formal and informal seed systems.	1. High quality seed produced at Tel Hadya, ICARDA of mandate crops and 40 tons distributed to NARS in Turkey, Iraq, Jordan, Pakistan and Syria.	Materials	Achieved
8. Seed of promising ICARDA / NARS varieties distributed to farmers through formal and informal seed systems.	2. In Afghanistan 20 village based seed enterprises were established with > 200 farmers are involved in the production and marketing of improved seed.	Materials	Achieved
1. Biological resources conserved ex situ and available for use.	1. Collection mission conducted in a CWANA country	Materials	Achieved
1. Biological resources conserved ex situ and available for use.	2. 10,000 seed samples distributed from the gene bank to users on request and all incoming and outgoing seed samples health tested.	Materials	Achieved
1. Biological resources conserved ex situ and available for use.	3. Biocontrol agents for Sunn Pest assessed and conserved	Materials	Achieved
3. Genetic diversity characterized and documented for traits relevant for use in dry areas agriculture.	1. Subsets of germplasm of mandate crops assessed for performance under dry conditions.	Materials	Achieved
3. Genetic diversity characterized and documented for traits relevant for use in dry areas agriculture.	5. Subsets of germplasm of mandate crops/wild relatives assessed for biotic stress resistance.	Materials	Achieved
4. Genetic variability enhanced through pre-breeding to reduce genetic vulnerability and meet present and future crop improvement needs.	2. Landraces and synthetic wheats employed in the bread wheat program to broaden the genetic base.	Materials	Achieved
4. Genetic variability enhanced through pre-breeding to reduce genetic vulnerability and meet present and future crop improvement needs.	3. Cyst nematode resistance in chickpea recombined with Kabuli-type, large seed size.	Materials	Achieved
4. Genetic variability enhanced through pre-breeding to reduce genetic vulnerability and meet present and future crop improvement needs.	4. Drought tolerant Hordeum spontaneum lines crossed onto barley landraces.	Materials	Achieved
4. Genetic variability enhanced through pre-breeding to reduce genetic vulnerability and meet present and future crop improvement needs.	5. Lines of barley and lentil were analyzed for Zn and Fe content and lines with high nutrient levels identified. (CP HarvestPlus)	Materials	Achieved

4. Genetic variability enhanced through pre-breeding to reduce genetic vulnerability and meet present and future crop improvement needs.	6. Faba bean line identified with combined Orobanche tolerance, low tannin content, and resistance to chocolate spot and Ascochyta blight.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	1. Superior malt barleys identified in Syria and Eritrea and used by Private Sector in Syria.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	2. Barley line with superior Zn and Fe distributed through international nursery.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	3. Varieties of barley have been selected through Participatory Plant Breeding (PPB) in Syria and Egypt. Scaling up of PPB continued in Syria and started in Jordan.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	4. PPB was initiated in Eritrea on barley, wheat, chickpea, lentil and faba bean. (CP Water and Food). Informal seed production started in Eritrea.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	5. Participatory Varietal Selection conducted for chickpea and lentil in Syria, and Yemen.	Materials	Achieved
4. Genetic variability enhanced through pre-breeding to reduce genetic vulnerability and meet present and future crop improvement needs.	1. Sources of resistance to pests and diseases identified among tetraploid wheats and used in during breeding program.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-	6. Bread and durum wheat lines with abiotic stress tolerance and rust resistance identified and disseminated in CWANA.	Materials	Achieved

ecological zones.			
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	7. Chickpea lines with combined resistance to drought, cold and Ascochyta blight and Fusarium wilt identified and distributed to NARS.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	8. Lentil lines with combined resistance to drought and fusarium wilt also identified and distributed to NARS.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	9. Faba bean populations with resistance to Orobanche, Ascochyta blight and chocolate spot were distributed to NARS.	Materials	Achieved
5. Improved germplasm with high and stable yield, superior end-use and nutritional quality, and better biotic and abiotic stress resistance/ tolerance, and that are adapted to climate change and targeted agro-ecological zones.	10. Vicia sativa lines with low content of B-cyano-alanin and cold tolerance were identified, as was V. narbonensis with low tannin content and drought tolerance. These were supplied to NARS in CWANA with other feed legumes on demand.	Materials	Achieved
6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	1. Routine production of doubled haploid (DH) lines of spring and winter bread wheats in 2005.	Materials	Achieved
3. Genetic diversity characterized and documented for traits relevant for use in dry areas agriculture.	2. Small ruminant genetic resources workshop held (Aleppo 15-17 Nov. 2005).	Other kinds of knowledge	Achieved
1. Biological resources conserved ex situ and available for use.	5. Global inventory of barley resources made available on Internet. (Currently available on CD-ROM. Systemwide Genetic Resources Program still has to do web enabling.)	Other kinds of knowledge	Achieved
2. Technical, institutional and policy options to support in situ conservation of agro-biodiversity.	2. Indigenous management practices and uses of plant and animal genetic resources in all 4 countries documented, and income generation options based on local agro-biodiversity identified and implemented at community level.	Other kinds of knowledge	Achieved

2. Technical, institutional and policy options to support in situ conservation of agro-biodiversity.	1. Wild relatives of cereals, food legumes and fruit trees surveyed, identified and documented in Jordan, Lebanon, Palestine and Syria.	Other kinds of knowledge	Achieved
9. Enhanced capacity of national agricultural research program.	4. IGM organized and hosted international conferences on 1) Participatory Plant Breeding, and 2) In situ Conservation of Agro-Biodiversity.	Other kinds of knowledge	Achieved
7. Methodologies to enhance the efficiency of germplasm development and dissemination.	2. Dryland breeding methodology that produces genotypes combining high productivity, resistance to drought and temperatures extremes, and yield stability available.	Other kinds of knowledge	Achieved
2. Technical, institutional and policy options to support in situ conservation of agro-biodiversity.	4. International Conference on Sustainable Management for Agro-Biodiversity was held in April 2005 at Aleppo, Syria.	Other kinds of knowledge	Achieved
7. Methodologies to enhance the efficiency of germplasm development and dissemination.	4. Software programs to estimate heritability under spatial variability and the repeatability of G x E interaction published.	Other kinds of knowledge	Achieved
6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	6. Molecular markers for cold tolerance in lentil identified.	Other kinds of knowledge	Not Achieved
8. Seed of promising ICARDA / NARS varieties distributed to farmers through formal and informal seed systems.	3. An economic analysis of profitability of village-based enterprises was undertaken in North Africa and Afghanistan.	Policy strategies	Achieved
2. Technical, institutional and policy options to support in situ conservation of agro-biodiversity.	3. Policy options for sustained agro-biodiversity conservation developed and proposed to NARS of Jordan, Lebanon, Palestine and Syria at appropriate level.	Policy strategies	Achieved
6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	2. Maize system for DH production in wheat and H. bulbosum system in barley were carried out. This methodology will be used for large production in 2006.	Practices	Achieved
7. Methodologies to enhance the efficiency of germplasm development and dissemination.	1. Utility of improved statistical designs in breeding programs assessed.	Practices	Achieved
6. Biotechnological tools for breeding for resistance/tolerance to biotic and abiotic stresses.	4. Marker-assisted selection in barley conducted.	Practices	Achieved
3. Genetic diversity	4. Two virus diagnostic kits	Practices	Achieved

	characterized and documented for traits relevant for use in dry areas agriculture.	developed.		
	7. Methodologies to enhance the efficiency of germplasm development and dissemination.	3. Identification of drought tolerant lines using selection for physiological and morpho-physiological adaptive traits associated with crop adaptation under stress in durum and barley breeding program (CP-Generation).	Practices	Not Achieved
MP3. Desertification	6. Enhanced human capacity to manage natural resources in areas affected/prone to land degradation	Increased capacity to manage natural resource through training and workshops and training modules	Capacity	Achieved
	1. A holistic Integrated Natural Resources Management (INRM) approach for combating desertification	INRM framework and toolbox available for NARS and other stakeholders.	Other kinds of knowledge	Achieved
	2. Assessment of the location, extent, driving forces, causes, impacts and consequences of desertification in dry areas	Comprehensive joint assessments of natural resources and land degradation conducted by ICARDA and NARS partners.	Other kinds of knowledge	Not Achieved
	5. Improved policy and institutional options for developing enabling environment to enhance private and public investment in dryland development and to combat desertification	Increased level of consideration of desertification and sustainable land management in the agendas of research, development and decision making organizations in CWANA. Policy and institutional options to support sustainable land management available to policy makers.	Policy strategies	Not Achieved
	3. 'Best-bet' technologies for the management of land, vegetation and rangeland resources, including the livestock grazing system they support, to prevent and reverse land degradation and improve household livelihoods and security	Number of 'best-bet' land, vegetation and rangeland management technologies formulated, evaluated for the environmental and socio-economic merits and made available to NARS.	Practices	Achieved
	4. Community-based land management measures	Number of community-based land management measures formulated, and evaluated for the environmental and socio-economic merits.	Practices	Achieved
MP4: Diversification and Sustainable Improvement of Rural Livelihoods in Dry Areas	6. Knowledge and information to enhance the diversification of income generation options and reduce risk through training, networking and access to information accessible to NARS and other stakeholders (producers, handlers, marketers, policy makers)	Training courses (short) on production and protection of cash crops (IPPM) and on greenhouse installation and management for Afghan and Yemeni growers, extension agents and researchers in Afghanistan and Yemen. On-the-Job Training (medium	Capacity	Achieved

		duration) on greenhouse management and IPPM for Afghan and Yemeni growers, extension agents and researchers in leading centers in Oman and Egypt.		
	6. Knowledge and information to enhance the diversification of income generation options and reduce risk through training, networking and access to information accessible to NARS and other stakeholders (producers, handlers, marketers, policy makers)	Farmers from West Asia (Jordan, Syria), Latin America (Brazil, Mexico) and Afghanistan trained in improved milk processing, milk recording and feeding	Capacity	Achieved
	6. Knowledge and information to enhance the diversification of income generation options and reduce risk through training, networking and access to information accessible to NARS and other stakeholders (producers, handlers, marketers, policy makers)	Scientists from Latin America trained in market-oriented research methodology and improved feeding and research/extension staff from Iraq, Syria, Sudan, Ethiopia, Uzbekistan, Oman, Afghanistan trained in integrated crop-livestock production	Capacity	Achieved
	6. Knowledge and information to enhance the diversification of income generation options and reduce risk through training, networking and access to information accessible to NARS and other stakeholders (producers, handlers, marketers, policy makers)	PhD student from University of Aleppo, Syria finished forage dissertation	Capacity	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Guidelines and recommendations disseminated among NARS for soilless culture packages for cash crops production under protected agriculture in the Arabian Peninsula	Capacity	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Guidelines produced and under test with NARS for identification of pests and bio-control agents, application of solarization and integrated production and protection management (IPPM) of major cash crops under protected agriculture in the Arabian Peninsula	Capacity	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and	Guidelines on greenhouse type, installations, covering materials, management and maintenance of cooling and ventilation systems produced for Arabian Peninsula	Capacity	Achieved

end-use value of crop products.			
2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Effect of mechanical weed control on input-use efficiency and profit margins in food legumes documented. Media materials available with NARS	Capacity	Not Achieved
2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Test machine designed/constructed and durum wheat cultivars assessed for end-product frike production	Materials	Achieved
2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Indigenous forages with valuable attributes (high water-use efficiency) tested for adaptation and forage quality in UAE and Oman in the Arabian Peninsula. Quality testing delayed to 2006	Materials	Achieved
4. Options for adding value to crop and livestock products through improved post-harvest handling and processing accessible to NARS and farmers	Community-based seed units established in Afghanistan, Tunisia and Algeria	Materials	Achieved
3. Technologies to increase the productivity of livestock and to diversify and increase the quality and value of their products, through improved breeding, feeding, health and reproductive management practices tested with NARS and farmers in CWANA	Tested options (least cost strategies that reduce feed cost and increase productivity) for livestock production systems in Syria assessed and available	Other kinds of knowledge	Achieved
4. Options for adding value to crop and livestock products through improved post-harvest handling and processing accessible to NARS and farmers	Impact of post-harvest handling on quality of conserved fodder in Lebanon and Syria assessed	Other kinds of knowledge	Achieved
2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Validation of APSIM model for the profitability of cropping systems completed	Other kinds of knowledge	Achieved
2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities	Land suitability assessments in pilot sites available	Other kinds of knowledge	Achieved

	available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.			
	3. Technologies to increase the productivity of livestock and to diversify and increase the quality and value of their products, through improved breeding, feeding, health and reproductive management practices tested with NARS and farmers in CWANA	Community-based research sites established in CWANA and Latin America in Northern Syria (dairy sheep); the semi-arid Altiplano in Mexico (milk and meat goat); and semi-arid northeast Brazil (meat sheep and goat)	Other kinds of knowledge	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	On-farm pilot protected agriculture facilities (plastic houses) established in farmers fields: five in Afghanistan and 18 in Yemen	Other kinds of knowledge	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Medicinal and herbal crops: Germination characteristics assessed and major diseases and pests affecting selected medicinal plants identified	Other kinds of knowledge	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products	50 accessions of pasture/forage species tested in Lebanon, Syria, Afghanistan	Other kinds of knowledge	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Opportunities for expanding research in malting barley reviewed. Barley lines identified with high b-glucans, iron, zinc and carotene (CP HarvestPlus).	Other kinds of knowledge	Achieved
	3. Technologies to increase the productivity of livestock and to diversify and increase the quality and value of their products, through improved breeding, feeding, health and reproductive management practices tested with NARS and farmers in CWANA	Assessment of breeding out-of-season to improve the targeting of market opportunities for lambs and for milk derivatives in West Asia.	Other kinds of knowledge	Not Achieved
	5. Policy and institutional options to support diversification of options for	Review of policies and regulations for the import and export of milk derivatives for	Other kinds of knowledge	Not Achieved

	income generation including links to the private sector	West Asia		
	1. Analysis of market constraints and opportunities for value-added crop and livestock products in the dry areas	Market opportunities for livestock (lamb and milk) products evaluated in CWANA and Latin America. Data collection completed and analysis underway in Jordan, Syria, Tunisia, Brazil and Mexico	Other kinds of knowledge	Not Achieved
	1. Analysis of market constraints and opportunities for value-added crop and livestock products in the dry areas	Two market databases for greenhouse crops developed in Afghanistan and Yemen. Data analysis in Afghanistan is in progress and data collection in Yemen under way	Other kinds of knowledge	Not Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	IPM on-farm pilot sites and Farmer Field Schools for different cropping systems developed: three for Ascochyta blight control in chickpea, four for Hessian fly and six for Sunn pest control in wheat, and six for Orobanche control in faba bean.	Practices	Achieved
	2. Options to increase the productivity of agricultural systems and to diversify income generating opportunities available to rural households, by diversifying cropping systems and increasing the quality and end-use value of crop products.	Oil crops: Performance of olive cultivars and safflower adaptation documented	Practices	Achieved
	4. Options for adding value to crop and livestock products through improved post-harvest handling and processing accessible to NARS and farmers	Technologies to diversify milk derivatives with market opportunity, especially yogurt production to overcome collapsing during transport developed	Practices	Achieved
MP5. Poverty and Livelihood Analysis and Impact Assessment in Dry Areas	6. Capacity of national and extension programs in the application of economic tools, livelihood analysis, and impact assessment enhanced	6.1 Organized 4 workshops on adoption and impact assessment & 3 training workshops on participatory research	Capacity	Achieved
	6. Capacity of national and extension programs in the application of economic tools, livelihood analysis, and impact assessment enhanced	6.2 20 visiting scientists from Morocco, Ethiopia, Sudan, Turkey, Syria, Pakistan, Uzbekistan, Jordan and Iran	Capacity	Achieved
	6. Capacity of national and extension programs in the application of economic tools, livelihood analysis, and impact assessment enhanced	6.3 Graduation of 2 MSc students in Aleppo University	Capacity	Achieved
	6. Capacity of national and extension programs in the	6.4: One internship from Syria with University of Washington	Capacity	Achieved

application of economic tools, livelihood analysis, and impact assessment enhanced			
1. Causes of poverty and determinants of livelihood strategies in the dry areas are quantified, documented and accessible to stakeholders	1.1 Rural poverty in marginal dry areas in Syria quantified	Other kinds of knowledge	Achieved
1. Causes of poverty and determinants of livelihood strategies in the dry areas are quantified, documented and accessible to stakeholders	1.2 Status of child nutrition in different livelihood systems and household typologies assessed	Other kinds of knowledge	Achieved
3. Impacts of natural resource management (NRM) research on economic, social, and environmental sustainability quantified and made available to stakeholders	3.1 Adoption and impact of NRM in crop/livestock production systems completed in Morocco and Tunisia	Other kinds of knowledge	Achieved
1. Causes of poverty and determinants of livelihood strategies in the dry areas are quantified, documented and accessible to stakeholders	1.3 A methodology for linking poverty to resource endowment developed for Syria	Other kinds of knowledge	Achieved
1. Causes of poverty and determinants of livelihood strategies in the dry areas are quantified, documented and accessible to stakeholders	1.4 Impact of micro-credit on rural poverty in Syria documented	Other kinds of knowledge	Achieved
2. Impacts of agricultural research on productivity, income, and rural welfare in the dry areas quantified and accessible to stakeholders	2.1: Adoption and impact assessment of improved technologies in crop/livestock production systems of WANA countries completed	Other kinds of knowledge	Achieved
2. Impacts of agricultural research on productivity, income, and rural welfare in the dry areas quantified and accessible to stakeholders	2.2: Status and impact of agrobiodiversity conservation in dry areas assessed in Jordan, Lebanon, Palestine and Syria	Other kinds of knowledge	Achieved
2. Impacts of agricultural research on productivity, income, and rural welfare in the dry areas quantified and accessible to stakeholders	2.3: Ex ante assessment of agricultural technologies in dry marginal areas in Syria completed	Other kinds of knowledge	Achieved
4. Framework for community-based research approaches adapted/developed and made available to stakeholders	4.1 ICARDA experience in participatory research assessed, gaps identified, and plan for capacity building developed	Other kinds of knowledge	Achieved
4. Framework for community-based research approaches adapted/developed and made available to stakeholders	4.2 The changing demands for social research in dry areas documented	Other kinds of knowledge	Achieved
5. Policy and institutional options analyzed and priorities	5.1: Returns to investments in Atriplex and Cactus alley	Policy strategies	Achieved

	for public investment to improve rural livelihoods in dry areas identified	cropping systems in Morocco and Tunisia documented		
MP6. Knowledge Management and Dissemination For Sustainable Development of the Dry Areas	5 Enhanced capacity of national research and technology transfer programs to better manage and disseminate K&T	Training courses on crop expert systems; and design and analysis of experiments	Capacity	Achieved
	5 Enhanced capacity of national research and technology transfer programs to better manage and disseminate K&T	72 participants attended two regional and one national seed workshop and 364 participants attended seed courses [seed enterprise (19), seed technology (81) and alternative seed systems (231)]	Capacity	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	Workshop on policy and regulatory reforms organized	Capacity	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	Three seed technology units established in Arabian Peninsula	Capacity	Achieved
	1 Enhance access by end users to technology, institutional and policy options (TIPOs) for sustainable agricultural production through the use of participatory approaches and public/private partnership	Video, and other media messages prepared for delivery of information on weed control in chickpea and winter sowing of chickpea	Materials	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	47 tonnes of improved varieties and promising lines produced and distributed to NARS	Materials	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	NARS assisted in variety maintenance and breeder seed production (draft manual prepared)	Materials	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	Business plans prepared and financial analysis and profitability carried out for 21 village-based seed enterprises (VBSE) in Afghanistan	Materials	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	VBSEs become operational in five provinces in Afghanistan producing and marketing over 2000 tonnes of seed	Materials	Achieved
	5 Enhanced capacity of national research and technology transfer programs to better manage and disseminate K&T	Training materials and innovative learning approaches developed by inputting to CGIAR on-line learning resource website and learning materials	Materials	Achieved
3 Improved preparedness and resilience of national programs for natural disaster and post-	Improved seed of adapted germplasm of ICARDA mandate crops provided annually to	Materials	Achieved	

	conflict situations	countries in post-conflict and disaster situations		
	3 Improved preparedness and resilience of national programs for natural disaster and post-conflict situations	15 tonnes of released varieties and promising lines for technology demonstration as well as 250 kg breeding lines and international nurseries of ICARDA mandate crops provided for rehabilitation of agriculture in Iraq	Materials	Achieved
	3 Improved preparedness and resilience of national programs for natural disaster and post-conflict situations	Draft lessons learned from FHCRAA activities in Afghanistan prepared	Other kinds of knowledge	Achieved
	4 An institutionalized and coordinated ICT-KM program developed, supported by key-working principles (ownership, coordination, capacity building, sustainability, impact and appropriateness)	Scientific international info systems for barley (IBIS) and chickpea (ICIS), and soil data base developed and accessible to users	Other kinds of knowledge	Achieved
	4 An institutionalized and coordinated ICT-KM program developed, supported by key-working principles (ownership, coordination, capacity building, sustainability, impact and appropriateness)	Integrated Library Management System (LIMS) developed; and development of Virtual Library initiated	Other kinds of knowledge	Achieved
	1 Enhance access by end users to technology, institutional and policy options (TIPOs) for sustainable agricultural production through the use of participatory approaches and public/private partnership	Strengthen dissemination networks, regional fora and linkages with Int. inst. By assessing Regional Agricultural Information System (RAIS) for WANA	Other kinds of knowledge	Achieved
	2 Strengthened seed systems through increased private sector participation and alternative delivery systems	International seed trade conference organized attracting 225 participants from over 40 countries	Other kinds of knowledge	Achieved
	1 Enhance access by end users to technology, institutional and policy options (TIPOs) for sustainable agricultural production through the use of participatory approaches and public/private partnership	Technology options developed by ICARDA and partners from experience in Matrouh project (Egypt) and Barani project (Pakistan) documented	Other kinds of knowledge	Achieved
	1 Enhance access by end users to technology, institutional and policy options (TIPOs) for sustainable agricultural production through the use of participatory approaches and public/private partnership	Experience of community-based participatory approach documented and disseminated (TANs from M&M)	Other kinds of knowledge	Achieved

Element Two: Outcomes

Definition: Outcome

Outcome is the external use, adoption, or influence of a Center output(s) (e.g. by partners, stakeholders, clients).

Outcome 1: Integrated Pest Management of Sunn Pest: An example of Partnership between IARC's, NARS's and ARI's

Sunn Pest is a destructive insect pest of wheat in West and Central Asia. About US\$150 million is spent each year on pesticides for its control. In collaboration with its partners NARS in West Asia and several international collaborators, ICARDA has been developing integrated pest management options for the management of Sunn Pest.

Major achievements of this collaborative program include:

- Establishment of an integrated research and development effort on IPM of Sunn Pest between Iran, Syria and Turkey. These countries have adopted IPM as their national strategy for management of this pest.
- The beneficial role of egg parasitoids in reducing Sunn Pest populations has been recognized in Syria, Iran and Turkey, and as a result these countries have started mass rearing these natural enemies and releasing them in wheat fields.
- Exploratory activities for entomopathogenic fungi completed in West and Central Asia, and some 230 isolates are held at ICARDA. The effectiveness of certain *Beauveria bassiana* isolates has been confirmed in laboratory and small-scale field tests.
- Several sources of resistance have been identified in wheat and its wild relatives for Sunn Pest feeding at the vegetative stage. These sources of resistance are currently used in breeding programs. Key publications:

Parker, B.L., M. Skinner, Scott D. Costa, S. Gouli, W. Reid and M. El Bouhssini. 2003. Entomopathogenic fungi of *Eurygaster integriceps* Puton (Hemiptera: Scutelleridae): collection and characterization for development. *Biological Control* 27: 260-272.

N. Trissi, M. El Bouhssini, J. Ibrahim, M. Abdulhai, Bruce L. Parker, W. Reid and F. J. El-Haramein. 2006. Effect of egg parasitoid density on the population suppression of Sunn Pest, *Eurygaster integriceps* (Hemiptera: Scutelleridae), and its resulting impact on bread wheat grain quality. *Journal of Pest Science* (In press).

Outcome 1 attachment: [Q2a_Bouhssini5.pdf](#)

Outcome 2: Micro-Catchment Water Harvesting Technology

ICARDA undertook research for five years with the NARS of Syria and Jordan to test and determine the suitability and design parameters of a micro-catchment water harvesting system for improving shrubs plantations for livestock feed and combating desertification in degraded rangelands. A research site at Mehaseh, Syria was used as a demonstration site for policy makers, specialists and farmers from Syria and Jordan to show the superior performance of the technology compared with traditional shrub plantations. A four-year continuous drought during the project duration left all vegetation dry except those under the recommended practice.

The technical, social and economical factors were studied and optimal parameters were determined and documented with NARS. A joint document on "Micro-catchment water harvesting for improved vegetation cover in the Syrian rangeland" was published in 2004 based on the research conducted jointly with the Directorate of Irrigation and Water Use of the Ministry of Agriculture in Syria.

Policy makers in the two countries decided to adopt the practice and to transfer to users. The Ministries of Agriculture in Syria and Jordan then developed and implemented a program to transfer the micro-catchment water harvesting technologies to suitable areas in the rangeland of both countries. Further, the Ministries of Agriculture of Jordan and Syria engaged with ICARDA in a community management project of the mechanized micro-catchment water harvesting equipment (Vallerani) and the system was installed in four communities in the rangeland of Jordan and Syria. The Syrian NARS won the annual award of Arab Organization for Agricultural Development for this joint research.

<http://www.aoad.org/prize/Listall.htm>

Outcome 2 attachment:

Outcome 3: Institutionalization of Integrated Natural Resources Management (INRM)

The INRM approach developed by the CGIAR Task Force on INRM was refined and combined with a tool box of methodologies for the implementation of NRM projects in projects in Syria, Morocco and Iran with partners from NARS. In Syria results were presented to policy makers (State Planning Commission of Syria and Ministry of Agriculture). A National Committee has been established in 2005 to replicate the work done at the Khanasser Valley Integrated Research Site (KVIRS) at 3-4 sites within the marginal dryland zone (Zone 4 under Syrian classification system). This zone is marginal in terms of rainfed agriculture (200-250 mm annually) represents 11% of the Syrian land area and houses over 2 million people. The establishment of a National Committee is a major departure from the usual single Ministry or Departmental approach to the implementation of rural development projects in Syria. Meetings are planned for this committee in 2006 to develop project proposals. As a result of exposure to the INRM project government departments in Aleppo have formed a Committee to develop plans for the management of the Jabboul Salt Lake. This area abuts the KVIRS and has a number of environmental and livelihood problems that are amenable to the adoption of the INRM approach. ICARDA facilitates meetings of this committee at the request of the Aleppo governorate. Meeting reports are available to verify these outcomes.

In Morocco and Iran two projects, where the INRM approach is being introduced, are underway and involve training and capacity building of NARS and community-based organizations. As above these projects are facilitating the cooperation amongst NARS institutions and communities and are testing ranges of interventions to improve agricultural productivity and sustain livelihoods.

Outcome 3 attachment: [Q2c To his Excellency Dr.doc](#)

Outcome 4: Conservation Cropping in Central and West Asia and North Africa Conservation cropping (zero-tillage, stubble mulching, crop diversification) has been widely researched and promoted by ICARDA in association with NARS and CIMMYT in Central Asia where heavy cultivation and mono-cropping are widespread. Demonstrated benefits include improved productivity, profitability, water use efficiency, soil quality and carbon sequestration along with reduced compaction and erosion. Adoption is under way with zero-tillage and stubble mulching systems for crop establishment attracting strong farmer interest and now covering 100,000+ha in wheat-growing areas in Kazakhstan and 50-60% of the wheat-phase in irrigated cotton-wheat systems in Uzbekistan, Tajikistan and Turkmenistan. Crop diversification is also being taken up with areas of summer crops increasing to 70,000ha for safflower, 400,000ha for sunflower and 43,000ha for soybean in southern Kazakhstan and Kyrgyzstan. Through interactions with policy makers in Kazakhstan, cereal mono-crop areas are becoming more diversified with uptake of buckwheat (17,000ha), food legumes (25,000ha), rapeseed (160,000ha) and forages (600,000ha), encouraged by subsidies for machinery, chemicals and processing facilities and availability of zero-tillage machinery. This conservation cropping Outcome is related to Outputs 1 and 3 of Project 2.2 in the ICARDA MTP 2002-04. The technology is being out-scaled in WANA, building on experience from CAC and elsewhere. A Morocco CGIAR grant is supporting NARS/ICARDA dissemination of no-till systems through community-based evaluation in farmer's fields in 2005/06. The Arab Authority for Agricultural Investment and Development is promoting adoption through testing/demonstration on stations and farmer's fields in Sudan, Egypt, Iraq, Jordan, Morocco, Syria, Saudi Arabia, Tunisia and Oman. ICARDA will continue to refine and promote conservation cropping systems, in association with NARS and other institutions, with wide adoption expected as production and sustainability benefits are realized, zero-tillage machinery becomes more available, and concerns increase about resource degradation, finite fossil fuels and global warming.

Outcome 4 attachment: [Q2d References for Conservation Cropping in Central and West Asia and North Africa.doc](#)

Outcome 5: Policy changes induced by West Asia Dryland Agrobiodiversity Project

The GEF-funded project on "Conservation and sustainable use of dryland agrobiodiversity in Jordan, Lebanon, the Palestinian Authority and Syria coordinated by ICARDA aimed to develop technological, socio-economic, institutional and policy options to promote in situ/on-farm conservation of landraces and the wild relatives of species which originated from the West Asia center of diversity (such as wheat, barley, lentils, allium, forage legumes, olive, fig, pistachio, pear, prune and almond).

Case 1: Use of native fruit tree wild species in afforestation As a result all four countries decided to use wild relatives of almonds, pistachio, pear, prune and other neglected forest species as *Crateagus*, *Rhus*, etc in at least 30% of the planned afforested areas. Government forestry nurseries in Syria, Palestine and Jordan are respectively multiplying annually since 2004 approximately 3.5 million, 1 million and 180,000 seedlings of these species. In Lebanon, NGOs are multiplying and distributing the species. In Jordan, the Forestry Directorate of Ministry of Agriculture has established a biodiversity unit. Case 2: Introduction of biodiversity conservation into educational curricula An outcome of the dryland agrobiodiversity project is the introduction of biodiversity conservation within the

education curriculum of all four countries. A specific thematic group was established including representatives from the respective Ministries of Education and Agriculture. School curricula and the teachers' methodological guides were produced and published by each country in a common format, and the teacher's scientific guide was drafted at the regional level. The use of the biodiversity curriculum has started in Syria for 9th and 10th grades and is being initiated in Palestine. For Jordan and Lebanon, the curricula will be implemented with the application of new education reforms in 2006 or 2007. A school thematic painting competition was organized in all four countries on biodiversity conservation.

Outcome 5 attachment: [Q2e_Agrobiodiversity_Paintings_Guides.ppt](#)

Element Three: Impacts

Definition: Impact

Impacts are the longer range social, environmental and economic benefits that are consistent with CGIAR goals and the center's mission and objectives.

Indicator 3A: SC/SPIA rating of Overall Impact Assessment Performance

Please specify and document (up to 1000 words) the *ex-post* impact assessment activities, outputs and outcomes during 2005, particularly related to: (a) ex post impact assessment studies; (b) innovation in and advancement of ex post impact assessment; (c) communication/ dissemination and capacity enhancement; and (d) impact culture. For your report please also consider the more specific criteria and guidelines that will be used to assess Centers.

To foster the ex-post impact assessment process and culture, ICARDA research program on "Poverty-Livelihood Analysis and Impact Assessment" has led the Center's efforts in full cooperation with other programs in the center, NARSs, and ARIs. Major activities are summarized below: a) Ex-post impact assessment studies:

- A study of 10 chapters assessing the ex-post impact of improved technologies in crop/livestock systems was published. The study was implemented in Iraq, Jordan, Lebanon, Syria, Algeria, Morocco, and Tunisia and assessed the adoption and impact of various improved crop and livestock technologies in WANA region. The study documented technology uptake by end users and major constraints hindering its wide dissemination. In addition, technology impact on productivity, income level and its distribution, and returns to investments were quantified. Main methodologies used include econometric analysis, enterprise budgeting, production functions, capital budgeting, and risk analysis using stochastic dominance analysis. • Impact of natural resource management research was given more attention. Ex-post impact of natural resources management research in crop/livestock systems was evaluated using atriplex and cactus alley cropping systems in Morocco and Tunisia, respectively. The study used both econometric and dynamic programming approaches. It was subject to peer review by outside reviewers and SPIA members. To better assess the impact of improved crop and water technologies, a study on assessing the status of on-farm water use efficiency was published. It includes the development of a new methodology and six empirical case studies implemented in Iraq, Jordan, Egypt, and Syria under farmers' conditions. • A study on assessing the economic impact of durum wheat research in Morocco was published. It estimated effects of modern durum varieties on wheat productivity growth using regression analysis, diffusion patterns of improved varieties using logistic model, and IRR and related sensitivity analysis using capital budgeting. • The status and impact of agro-biodiversity conservation was assessed in Jordan, Lebanon, Palestine, and Syria. Results of this research was presented at the international conference on "Promoting Community-driven Conservation and Sustainable Use Dryland Agro-biodiversity", ICARDA, Aleppo- Syria, April 2005 • A study on assessing the impact of village credits (micro-finance) and savings on poverty in Jabal Al-Hoss region in Syria was completed and a paper was presented at DFID- Crop Post Harvest Workshop entitled "Beyond Agriculture: Markets work for the poor", March 2005, London • Several on-going ex-post impact studies, as follows: o A regional study in Egypt, Ethiopia, Sudan, and Yemen to assess the impact of improved technologies of cereals and cool-season food legumes o A study on winter chickpea research in Syria o A study on supplemental irrigation in Syria o A study on the costs and returns of participatory barley breeding program

b) Innovation in and advancement of ex-post impact assessment • Working closely with SPIA on assessing the impact of NRM research and other impact-related issues • Developing methodology for documenting the impact of agricultural research on poverty reduction and child nutrition in dry areas through cooperation with ARIs, including Yale University and International Nutritional Foundation- USA. • The development of a novel approach to assess on-farm water use efficiency to enable assessment of the impact of crop and water improved technologies on land and water productivity and water use efficiency. This research was jointly developed with ESCWA and NARS in this water scarce region • National institutionalization of impact upscale through identification of focal points for impact assessment studies in CWANA countries c) Communication/dissemination and capacity enhancement • A regional workshop on valuation of water resources and assessing the impact of water management research was organized in Morocco in January 2005 with the

participation of 12 scientists from Egypt, Jordan, and Morocco, in collaboration with SPIA. • Organization of two regional workshops for assessing the status and impact of agro-biodiversity conservation, as follows: o Amman, Jordan, Feb., 05 (12 participants from Jordan, Lebanon, Palestine, and Syria) o ICARDA, Aleppo-Syria, Mar., 05 (8 participants from Jordan, Lebanon, Palestine, and Syria) • Organization of a training workshop on “community approach, baseline information, and adoption and impact assessment”, turkey 5-9 May 2005 (6 participants from Turkey) • A report was completed, which summarized previous impact studies implemented by ICARDA and lessons learned. • An M.Sc thesis on adoption and impact of improved crop and livestock technologies introduced by the M&M project in Syria was completed. • Sharing the results of impact studies with policy makers through consultation meetings • Production of impact briefs (flyers) and sharing them with visitors and display them at conferences, and workshops • Training of an ICARDA researcher, Dr. F. Shomo, on “dealing with the data from participatory studies- bridging the gap between qualitative and quantitative methods”, the University of Reading- U K, September 2005 • Hosting 8 visiting scientists from Ethiopia, Morocco, Pakistan, Sudan, and Uzbekistan and 3 visiting scientists from ARIs (University of Hanover, Yale University, and Masch. University) • Having 3 Ph D students from Jordan and Syria working on impact assessment studies d) Impact culture • Impact assessment has been streamlined in all ICARDA research projects, starting from project proposal, planning, implementation, and evaluation. Accordingly, the first step in the implementation of each project is the determination of its impact pathway (output, outcome, and impact), identification of performance indicators, characterization of project sites, and collection of related baseline information. • The development of clear and well focused research plan for impact assessment within the research portfolio of ICARDA programs • Collection of baseline information for all projects and related meta data bases are developed • Presentations on impact assessments at the center annual planning meeting, seminar series, and technical and coordination meetings of regional projects • Organizations of several in-house meetings involving biophysical and socioeconomic scientists to follow up on the implementations of planned impact studies • Initiation of inter centers collaboration. A meeting was organized at ICARDA on November 2005 to discuss with CIMMYT joint implementation of wheat impact studies in CWANA region. To this end, a training workshop on impact assessment will be jointly implemented in Turkey this year.

Historical narrative (one-time submission, for year 2006 only) - please submit a historical narrative (less than 500 words) that describes previous impact assessment activities at the Center prior to the year 2005. The narrative should explain how impact assessment has been institutionalized in the Center, as well as major ex post impact assessment products produced prior to the period for the current PM exercise. This description will not be rated, but it will help place 2005 activities in perspective.

When ICARDA was founded, the main focus of social science research was on diagnostic and descriptive studies of prevailing farming systems in WANA. In the first decade, the focus was on characterizing farming systems in the region; ex-ante socio-economic evaluation of on-station and on-farm trials; and training and capacity building of NARS counterparts.

In the late 1980s, when new technologies, particularly new seed varieties, became available to farmers, ICARDA initiated research on technology adoption. Farm survey methods and informal interviews were used to study farmers' perceptions and uptake of new technologies. In the early 1990s research priorities shifted from initial diagnostic studies of farming systems and economic evaluation of on-station experimental results to economic assessment of technologies at farm and community levels, and impact studies at farm, national, and regional levels. More notably a number of studies were implemented within a regional project on crop-livestock integration, which analyzed technology adoption and impact, as well as constraints encountered by farmers in adopting the new technologies. During the 1990s, the research on impact assessment gained new momentum. The demand for quantifying agricultural research impacts beyond technology evaluation has increased. Impact assessment has now become a common feature in ICARDA's research, which is reinforced by SPIA when two global studies on returns to international and national investments in barley and lentil improvement research were published. Likewise, a number of studies on the impacts of germplasm improvement in different counties were thus completed also analysed the spill-over impacts of ICARDA's germplasm improvement research. Previous efforts on impact assessment research were mainly project-based studies implemented on an ad hoc basis with no much of contact with ARIs or systematic manner. Until 2005 the quantified and published impacts of ICARDA's research are predominantly on germplasm improvement. Less work has been done on the impacts of NRM research, partly because analysing them is more problematic due to data limitations, and accounting and attribution problems, and partly because the development and diffusion lags of NRM research outputs have longer time lags. Currently ICARDA is implementing a SPIA supported study assessing the impact of NRM technologies in crop/livestock systems. The NRM research impact is an area of high priority for ICARDA in the future. In addition, previous impact evaluation studies are economic studies which quantify gains from productivity improvement. This assumes that benefits from productivity increase will achieve the ultimate goal of poverty alleviation. Although, there is significant literature which demonstrates the impacts of productivity gains on poverty reduction through employment, low food prices, the direct impacts of technological and institutional innovations on poor reduction, particularly, in the dry areas are not sufficiently documented. This is an area of great importance to the center's mission and should be given a high priority. Since January 2005 ICARDA impact assessment research has been streamlined within the center's research portfolio and institutionalized under ICARDA new research program on “Poverty-livelihood analysis and impact assessment in dry areas”.

Indicator 3B: SC/SPIA rating of two Center impact studies done in the period 2003-05 for rigor

Impact Study 1: [Q3b1_aw-hassan5.pdf](#)

Impact Study 2: [Q3b2_aw-hassan7.pdf](#)

Indicators for Potential to Perform

Element Four: Quality and Relevance of Current Research

Indicator 4A: Number of peer-reviewed publications per scientist in 2005

Indicator Value: 3.05 List of publications: [Q4a_4A.rtf](#)

Indicator 4B: Number of peer-reviewed publications per scientist in 2005 that are published in journals listed in Thomson Scientific/ISI

Indicator Value: .52 List of publications: [Q4b_4BJA_List.rtf](#)

Indicator 4C: Percentage of scientific papers per scientist that are published with developing country partners in refereed journals, conference and workshop proceedings in 2005

Indicator Value: 51.82% List of publications: [Q4c_4C.rtf](#)

Indicator 4d: Science Council endorsed EPMR rating of Center research quality

Element Five: Institutional Health

1. Governance

5A. Checklist on Center governance

Please complete the checklist below.

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?
21-40%
2. What percent of Board leadership positions (Chair, Vice Chair and Committee Chairs) are held by women?
1-20%
3. How many Board members have professional expertise in financial management? ¹
3 or more
4. How many Board members have professional expertise in corporate, non-profit, or public governance?²
3 or more

Orientation and Assessment

5. Have all new Board members (starting their terms in 2004 or 2005)
- attended a CGIAR Board Orientation Program? YES

- attended a comprehensive ³ center-specific orientation program? YES
6. Has the Board conducted a self-assessment in 2005? YES

7. Has each Board Committee conducted a self-assessment during 2004-2005? YES
8. Has the Center completed a Board commissioned CCER on Center governance and Center management during 2003-2005?
NO

Board Engagement with Center's Strategic Business

Involvement in Strategic Planning

9. Is the entire Board engaged with formulating or modifying the Center's strategic plan?
YES - Fully

Involvement in Program Review

10. Does the Board discuss and act on any significant deviations from previously announced targets and strategic goals as defined in the MTP?
YES - Fully
11. Has the Board approved and implemented a schedule for commissioning CCERs and following-up?
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. Is there a Board approved investment policy in place?
YES
14. Does the Board implement clear policies for the appointment, review, and rotation of external auditors?
YES
15. Does the full Board receive information on key financial indicators on a quarterly or more frequent basis?
YES
16. Did the 2005 financial outcome deviate significantly (more than 10 percent) from the budget planned for 2005?
NO
17. Has the Board discussed the adequacy of the Center's risk management and internal control mechanisms as an explicit Board meeting agenda item during 2004-2005?
YES

Involvement in Policy Development

18. Has the Board discussed / reviewed the Center's human resources policies during 2004-2005?
YES
19. In 2005, has the Board received and acted upon Center staffing numbers and trends (including consultants and gender and diversity information)?
YES

Donor Community, Partnership Facilitation and Fund Raising

20. Is the Board actively involved in establishing public relations and fund raising strategies?
YES - Fully
21. With how many Centers does your Board have an ongoing close association (e.g. common Board members, joint Board meetings, joint ExCom meetings, hosting of a Center Board meeting by another Center)?
2 (number of Centers)

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

Transparency and Accountability

23. Does the policy governing your Center's compensation structure allow for the compensation structure to be publicly accessible (i.e. through the Center website)?
NO
24. Does your Center have a formal code of conduct / ethical principles (including conflict of interest rules) for staff, managers and board members?
YES - Fully
25. Are your procurement policies and their implementation fully consistent with the CGIAR Procurement of Good, Works and Services Guidelines (FG 6)?
YES - Fully

5b. Board Statements

1. The Board reviewed its self-assessment procedures and developed a simpler process that could be used on regular basis to improve its governance function. The implementation of this process resulted in the impetus to revise the modus operandi of the Program Committee for enhancing efficiency and effectiveness. As a result, the Program Committee (PC) started using a procedure that would permit more effective guidance and oversight on programmatic and strategic issues brought up by the Management including the examination and approval of the Center's Medium-term Plan, optimum interaction with scientific staff through 'Dialogue and Discussion Group', and providing time for conducting a close session of the PC to further discuss strategies, do self-assessment and devise methods for improvement of the functioning of the Committee. This procedure is also having a positive effect on staff members, who now have better opportunity to discuss the thrust, strategies and achievements of their work with the Members. 2. The Board devoted considerable time to review the inter-Center relationships with a view to optimize these relations and harness maximum synergy for the system. Notable in these efforts was a very intense engagement by the Members in amicable resolution of tension between CIMMYT and ICARDA with respect to wheat research mandate in the Central and West Asia and North Africa (CWANA) region. The Board Chair, in consultation with the Senior Management of the Center, appointed an ad hoc committee of the Board to go into the whole issue. The Committee examined in detail all the relevant information, held discussions with all concerned and developed recommendations, which were accepted by both the Centers. As a result, the two Centers have now signed an agreement for implementing and governing the joint wheat improvement Program for the CWANA region. This has reinforced the "Alliance" concept of the System. The Board's desire to pay increased attention to the inter-Center relationship was partly reinforced by the action taken collectively by the Board to let its Members have the opportunity of attending the CGIAR Board Orientation Workshops. Eight Board members benefited from this training during 2005, which provided a common understanding of the new and challenging role of the Board in the System. 3. The Board continued to revisit and revise the Personnel Policy Manual of the Center recognizing that a clearly worded and transparent Policy Manual increases effectiveness of the Board's governance activities. The Policy Manual was effectively used by the Board in dispensing a staff grievance case that came before the Board in this period.

2. Culture of learning and change

5c. Checklist on culture of learning and change

Please complete the checklist below.

1. Has the Center conducted a staff satisfaction or attitude survey of ALL staff in 2004 or 2005, where the results were shared with staff?
NO
2. Does the Center have an active leadership development program covering current and prospective staff in managerial positions?
YES
3. Does the staff appraisal system include the development and follow-up of individual learning plans?
YES - Fully
4. Percentage of the overall budget spent on staff development activities in 2005:
 - a. What percentage of the overall budget was spent for attendance at international conferences and professional society meetings, for a short sabbatical at a university, etc?
0.51-1.0%
 - b. What percentage of the overall budget was spent on staff training (e.g. computer, language, project management, leadership training etc.)?
0.51-1.0%
5. Considering staff training only (question 4b), what is the total number of training days in 2005 for all IRS staff, divided by the total number of IRS staff?
3-4
6. Considering staff training only, what is the total number of training days in 2005 for all NRS staff, divided by the total number of NRS staff?

5-6

7. On average, how many days did IRS staff spend in 2005 on program planning and review?
More than 5
8. Completed CCERs in 2003-2005
 - a. How many Board commissioned CCERs on program-related matters were completed in 2003-05?
3
 - b. What is the percentage of your program budget (average for 2003-2005) that has been covered by CCERs completed in 2003-05?
71%-90%
 - c. How many board commissioned CCERs on Center governance, finance or administrative matters were completed in 2003-05?
0
9. How many SWPs/CPs was the Center actively engaged in as a partner during 2005?
7-10
10. Do you preserve the Center's "institutional memory" (e.g. databases on partnerships, training, and projects records management programs)?
YES, we have a comprehensive program
11. Do you systematically preserve research project data (primary and secondary data sets), including documentation, and are the data internally available?
YES, we have a comprehensive program

Diversity

5D. Gender diversity goals

Does your center have Board-approved gender diversity goals? YES

5E. Percentage of women in management: Calculation of the percent of management positions, either research or non-research, occupied by women as of 31. December 2005. 12 %

Definition: "Management position" includes Director General, Deputy Directors General, Directors of major programs/divisions and senior heads of administration.

5F. IRS Nationality concentration.

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

Most prevalent nationality: Syrian Percent: 12.40

Second most prevalent nationality: USA Percent: 11.50

5G. Diversity in recency of PhDs: % scientists receiving the Ph.D. in the last five years (2001-2005).

22.07 %

Note: For verification purposes please keep available the supporting evidence, e.g. Board minutes, copy of staff survey report, copy of leadership development plan, CCERs etc.

Information will be obtained from the peer-review exercise by April 25

Element Six: Financial Health

6A. Short term solvency (liquidity)

6A Indicator: 170 days

6B. Long-term financial stability (adequacy of reserves)

6B Indicator: 117 days

6C. Efficiency of Operations (indirect cost ratio)

6C Indicator: indirect cost ratio: 18

6D. Cash Management on Restricted Operations

6D Indicator: 82

