

## **Project 8: Poverty and Livelihood Analysis and Impact Assessment in Dry Areas**

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### **Rationale**

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In the Dry Areas poverty in all its dimensions – economic, nutritional and natural resource – is widespread. For example, in the CWANA region it is estimated that 70% of the poor are found in rural areas even though only some 43% of the total population lives there. The rural population is largely dependent on agriculture, which is facing a number of converging environmental trends that reduce options, drive migration and threaten the future sustainability of livelihoods, particularly in the most marginalized areas (e.g., mountains and desert margins). A deeper understanding of the determinants of this poverty, and of the livelihood strategies adopted by rural communities, is necessary to continually refine the targeting of ICARDA's research, enhance and track its impact, and identify pathways out of poverty. The gender nature of agricultural production will influence research and approaches to defining pro-poor interventions. Research on gender will include critical factors affecting access, generation and adoption of improved technological, institutional, and policy options for improved food security and natural resources sustainability.

Despite modest growth in some parameters (e.g., in national GDP and cereal production during the last five decades), recent data show that poverty is increasing. Poverty-targeted research programs and policies are needed to achieve sustainable reductions in poverty. The Millennium Development Goals (MDGs), including the objective of cutting poverty in half by 2015, provide the global framework for ICARDA's research strategy. Poverty, in its broadest sense (income poverty, water poverty, educational opportunity, gender equity, and vulnerability) is a significant issue in the dry areas. While poverty is a real problem, a significant portion of the population is vulnerable to lapsing into poverty, given the ecoregion's volatility and variable climatic conditions that have an impact on agricultural outputs and the livelihoods of the rural communities. Countries experiencing natural and man-made disasters (drought, conflict) or in transition (e.g., Central Asia and the Caucasus) have experienced dramatic increases in poverty rates over relatively short periods of time.

The poorest of the poor tend to be associated with marginal production environments in rural areas. New technologies, policies and institutional options compatible with these marginal and risky environments of non-tropical dry areas are challenging to develop, and constitute an evident priority for ICARDA. Identifying small farmers' constraints to technology adoption and impact assessment continues to be a priority issue.

### ***Project Description***

The rural poor in dry areas are characterized by insufficient asset holdings, low returns to their assets, numerous market failures and unfavorable terms of market participation, large institutional gaps, and lack of access to public goods and services, in particular to improved agricultural technologies, resulting not only in poverty but also in vulnerability to risks of change in their biophysical and economic environments. Project 8 will contribute to the identification of research pathways to implement technological, institutional, and policy options to reduce rural poverty at international and regional levels. This can be done through, among others, improved characterization of the rural poor (assets, context, depth and duration of poverty, vulnerability, basic needs, and choice of livelihood strategies) in relation to agriculture and its environment, including patterns of adoption of improved technologies and natural resources management practices and their impacts. Another important dimension is understanding the structure, conduct and performance of domestic markets for agricultural commodities across different countries to evaluate the generalizable implications of market imperfections for small farmers.

In its current research portfolio, ICARDA gives stronger emphasis to enhancing its capacity to reach the poor by obtaining a deeper understanding of the nature, causes, intensity, and effects of poverty at the community and household levels, and by promoting technical, institutional and policy options that can respond to their needs. Similarly efforts are directed toward the involvement and active participation of end-users in research development, testing and verification so that relevance and adoption by individuals, communities and institutions is maximized. Frameworks and methodologies for participatory and community-based research are also being developed and implemented in partnership with NARS to enhance the impact on rural livelihoods.

Using detailed analyses of the organization of households and communities, employing a sustainable livelihoods approach, assessing the adoption and impact of research outputs, and the valuation of the

natural resources on which they depend, Project 8 supports the entire ICARDA research agenda by providing the knowledge and feedback needed to clarify technical, institutional and policy options that support the development of sustainable livelihoods. Given the gendered nature of production systems in agriculture, the Project will pay specific attention to the gender dimension of poverty and the structures and constraints that determine differential access to resources and income earning opportunities. In addition work will focus on the analysis of production systems and markets in order to improve livelihoods and enhance market opportunities for rural communities.

Major elements of this poverty-targeting project comprise:

- Analysis of the determinants of poverty, vulnerability and rural livelihood strategies, with specific attention to the gender dimension of poverty.
- Assessments of the impact of agricultural research and identification of pathways out of poverty.
- Market and non-market valuation of the natural resources used by rural communities and analysis of the adoption and impact of NRM research on rural livelihoods and environmental sustainability.
- Analysis of policy and institutional options and the returns to investments in the dry areas.
- Institutional strengthening and capacity building.

Project 8 responds to the CGIAR System Priorities, especially Priority 5 on “improving policies and facilitating institutional innovation to support sustainable reduction on poverty and hunger” and elements of other priority areas.

More specifically, Project 8 contributes to sub-priority 5B on “making markets work for the poor” through better understanding to structure, conduct, and performance of markets; food chain; and improved access to markets. Output 1 (poverty analysis and livelihood characterization), output5 (policy and institutional options), and Output 6 (capacity building and training) are designed to address sub-priority 5B. Likewise, it contributes to sub-priority 5C on “rural institutions” through innovative approaches in establishing and activating local institutions in relation to natural resources management and contribution to technology generation, testing, verification, and adoption. Project 8 is addressing sub-priority 5C through Output 4 (community-based and participatory research approaches), Output 5 (policy and institutional options), and Output 6 (capacity building and training). Similarly, Project 8 contributes to sub-priority 5D on “options to reduce rural poverty and vulnerability” through improved characterization of rural poor in dry areas with respect to assets, context, depth, causes, vulnerability, and livelihood strategies, and, also, through assessment of the adoption and impact of improved technologies and natural resources management practices. In addition to the identification of enabling policy and institutional options to improve resource use efficiency and reduce risks affecting livelihoods of smallholders and rural poor. Sub-priority 5D is addressed through Output 1 (poverty analysis and livelihood characterization), Output 2 (adoption and impact assessment), Output 3 (impact of NRM research), Output 5 (policy and institutional options), and Output 6 (capacity building and training).

EPMR 2006 recommendations on increased emphasis on measuring the outcomes and impacts of NRM research, and policy and institutions are clearly reflected in Output 3 (impact of NRM research) and Output 5 (policy and institutional options), respectively.

Research under Project 8 generates several international public goods (IPGs), among which are:

- Improved characterization of rural poverty in dry areas in terms of causes, depth, assets, and context, vulnerability, and livelihood strategies under different agro-ecologies. This includes linking financial indicators to natural resources endowment to better identify poverty hot spots in dry areas and related pathways-out-of poverty.
- Methods and techniques for assessing the impact of crop improvement and natural resources management research and lessons learned from their applications under different agro-ecologies in dry areas
- Patterns of adoption of improved crop and livestock technologies and natural resources management practices and constraints for wide adoption of improved options under different livelihood typologies and production systems
- Better understanding to the gender dimension of poverty, local institutions, and the constraints that determine differential access to resources, markets, and income earning opportunities.

- Effectiveness of existing commodity and natural resources policies and trade-offs among economic, environmental, and social outcomes of alternative policy options
- Social, environmental, and economic indicators for assessing the impact of integrated natural resources management research
- Options for linking small farmers to markets along value chains of major commodities in dry areas

The socio-economic and policy research agenda of ICARDA contributes directly and indirectly to the Millennium Development Goals (MDGs), namely MDG1 on poverty and hunger, MDG3 on gender equality, MDG7 on environmental sustainability, and MDG8 on development partnership.

The research agenda of Project 8 is carried out in close collaboration with poverty related research by other CGIAR Centers (e.g., with IFPRI in policy and institutional research; CIMMYT in adoption and impact assessment and poverty targeting; ICRISAT on new challenge programs, SMART and Oasis; ILRI on livestock marketing; and CIAT on livelihood resilience), challenge programs (water and food and new challenge programs on SMART and Oasis), system-wide initiatives (CAPRI, PRGA, SPIA), and ARIs (International Institute of Nutrition and Yale University on nutrition research; Virginia Tech on marketing and research impact on poverty; CIRAD-France on institutional research; University of Wales-UK on impacts of NRM research; and University of Berne- Switzerland on economics of water harvesting). This is in addition to active collaboration with several national universities of dryland countries on research implementation and degree training.

Moreover, Project 8 provides much needed synthesis of ICARDA's approaches across all programs, as reflected in its research output on community-based and participatory research approaches. Outputs on adoption and impact assessment research provide important information on relevance, uptake, targeting, effectiveness, and accountability of research investments in dry areas. Livelihood characterization and poverty analysis help the center in better targeting the poor. Policy and institutional research provides enabling options to enhance the uptake and impact of technologies developed by other programs.

Project 8 is highly integrated with all other research projects and eco-regional programs by contributing directly to the implementation of socio-economic and policy research in all projects:

- Project 8's research on livelihoods and poverty analysis contributes to and is utilized within all three other research programs
- Project 8 is currently conducting adoption and impact assessments together with Biodiversity and Integrated Gene Management Program, Integrated Water and Land Management Program, and Diversification and Sustainable Intensification of Productions Systems Program.
- The research on natural resource valuation and impact assessment of NRM research is conducted together with Integrated Water and Land Management Program
- Policy and institutional research contributes to and is utilized within all three other research programs
- Research on market chain analysis and market constraints and opportunities for value-added and livestock products is conducted together with "Diversification and Sustainable Intensification of Production Systems" program.
- Finally, Project 8 staff contributes to human resource capacity building activities in other research programs.

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## Outputs

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The project goal, purpose, outputs, output targets and associated expected outcomes and impacts are provided in the attached Project Logframe. Where an Output Target contributes to a Challenge Program or a Systemwide/Ecoregional Program, this is indicated in the Project Logframe.

Below, we describe for each Output: (a) the impact pathway, (b) the research approach to developing international public goods (IPG), and (c) the role of partner organizations.

**Output 1: Causes of poverty and determinants of livelihood strategies in the dry areas are quantified, documented and accessible to stakeholders.**

**1.13 Relation to SP goals**

This output relates to the goals of SP 5D to identify agricultural research and development pathways, in order to implement options to reduce rural poverty, through improved characterization of the rural poor (assets, context, depth and duration of poverty, vulnerability, basic needs, and choice of livelihood strategies) in dry areas. It also meets the specific goal 2 of SP 5B, by improving the marketing environment for smallholders through analysis of market constraints and opportunities for high value crops and livestock production along the value chain.

**1.14 Description of Impact Pathways**

Immediate users of the methodologies/approaches in poverty and livelihood analysis developed by the Project are ICARDA researchers and NARS, national planners and decision makers. The international aid community and development agencies can benefit directly from the estimates of returns to research investment in the dry areas to better target poverty reduction.

Because of the problem-solving participatory research approach employed, the immediate beneficiaries are the resource users involved in the case studies. The approaches and methodologies developed in these studies will be disseminated for use by NARS and other partners.

Both ICARDA and NARS researchers will benefit from the feedback provided by the Project, through better targeting of their research and greater awareness of the problems and constraints faced by farm households. Farmers will, in turn, benefit from the development of appropriate technologies and solutions to production problems that take into account their needs and constraints. The information generated from the analysis of rural poverty and the micro-studies of farm households will ensure that technical solutions are developed in response to different needs of the rural poor.

This in turn will enhance the wide use of the poverty-targeting outputs by policy makers in these countries through consultation meetings with policy makers and policy briefs. As policy makers understand improved livelihood options, they will design targeted interventions based on generated information so that R&D is better targeted toward the poor. Under the assumptions that development projects and donors will invest in identified poverty-targeted research and that livelihoods approach mainstreamed into NARS research portfolio, the research effectiveness will be increased in improving rural livelihoods.

**1.15 Research Approach to Develop International Public Goods**

This research produces knowledge outputs in the forms of tools and methods for poverty mapping, characterization of livelihood strategies, and pathways out-of-poverty that have applicability beyond the borders of countries where they are developed.

Scientific understanding to the nature, causes, intensity, and driving factors of poverty in dry areas under different production systems, agro-ecologies, and livelihood groups will generate important lessons learned for technological, institutional, and policy options interventions for poverty reduction.

**1.16 Partners' Roles**

**National research and extension programs** are jointly implementing research projects in their respective countries. This involves the joint research development, planning, and implementation. Rural communities in these countries are major collaborators through their involvement and participation in farm surveys and technology development, testing and verification, adoption, and impact (please see partners list in MP5 in MTP 2007-2009).

**Advanced research institutes:**

- International Institute of Nutrition and Yale University, USA, are involved in implementation of research on rural nutrition
- Yale University and Virginia Tech are involved in developing methodology for assessing the impact of research on poverty reduction

**System Linkages:**

- ICARDA and ILRI are collaborating in livestock marketing.

- Challenge Programs: The Project participates in the Challenge Program on Water and Food through a project on *Strengthening Livelihood Resilience in Upper Catchments of Dry Areas by Integrated Natural Resources Management*, in cooperation with CIAT.
- The Project participates in the Ecoregional Program for Central Asia and the Caucasus, the Systemwide Program on Collective Action and Property Rights (CAPRI), and the Systemwide Program on Participatory Research and Gender Analysis (PRGA)

**Output 2: Impacts of agricultural research on productivity, income, and rural welfare in the dry areas quantified and accessible to stakeholders.**

**2.1 Relation to SP goals**

This output meets the specific goal 1 of SP 5A to enhance technology strategies and priority setting through conducting ex-ante and ex-post impact assessment research to evaluate the uptake and impact of improved technological options on rural livelihoods and poverty reduction in dry areas. Identification of adoption constraints and working on their solutions will help in developing better strategies for technology targeting to enhance their adoption and to accelerate dissemination.

**2.2 Description of Impact Pathways**

Immediate users of the methodologies/approaches in impact assessment developed by the Project are ICARDA researchers and NARS, national planners and decision makers. The international aid community and development agencies can benefit directly from the estimates of returns to research investment in the dry areas to better target poverty reduction.

Early identification of constraints that hinder the wide adoption of improved options (TIPOs) will help extension systems, research institutions, and development projects to work on their solutions, and thus enhance technology dissemination to targeted communities.

The knowledge under this Output is gained through joint research with partners in national programs. Adoption information generated by this research is then used by NARS, development programs, and donors. This in return will contribute to better understanding of technology uptake by end-users and the identification of the main constraints affecting the widespread dissemination of improved technologies and practices. This in turn, under the assumption of enabling policy environment, will lead to work on solving the adoption constraints, which in turn will lead to increased technology adoption and thus contributes to improved livelihoods of rural communities. Impact studies will lead to the identification of best-bet options, which if they are promoted by NARS, will improve food security and increase the income of farming communities. In addition, the use by NARA of developed frameworks and methodologies on ex-ante and ex-post impact assessments will enhance NARS capacity. Meanwhile, feedbacks and lessons learned will be used by ICARDA and NARS to enhance the effectiveness of ICARDA and NARS research to reach the poor.

**2.3 Research Approach to Develop International Public Goods**

Development of methods and indicators, at various scales, of ex ante and ex post impact assessment that have applicability to more than one country to ensure the full relevance of technological, institutional, and policy options to the poor.

International and regional comparative studies on technology adoption and impact in dry areas and related NARS capacity building that involves more than one country.

*Ex post* assessment of the actual impact pathways and of documented impacts in relation to the planned impacts, provides valuable information for future planning of IPG research outputs and the identification of constraints that could be the subject of further research and/or development investments in dry areas.

**2.4 Partners' Roles**

*National Programs:* primary collaborators directly involved in implementing adoption and impact studies. This involves the joint research development, planning, and implementation. Rural communities in these countries are major collaborators through their involvement and participation in farm surveys and technology development, testing and verification, adoption, and impact (please see partners list in MP5 in MTP 2007-2009).

#### *Advanced Research Institutes:*

- Yale University, USA: Joint research on methodology development on assessing research impact on poverty
- Virginia Polytechnic: Joint research on assessing the impact of agricultural research on poverty

#### *System Linkages:*

- ICARDA and CIMMYT are developing collaborative research on adoption and impact studies in CWANA countries (e.g., Iran and Turkey)
- The Project participates in the systemwide project on assessment of impacts of NRM research, convened by Standing Panel for Impact Assessment (SPIA).

### **Output 3: Impacts of natural resource management (NRM) research on economic, social and environmental sustainability quantified and results made available to stakeholders.**

#### **3.1 Relation to SP goals**

This output relates to specific goal 1 of SP 5A to enhance technologies and priority through implementing ex-ante and ex-post research impact assessment on natural resources management practices and technologies. It also relates to specific goal 1 of SP 4C on improved management practices that enhance water productivity through relating real costs of water (water valuation) to farm costs, identification of sources of inefficiencies in irrigation water use, which will lead to better-targeted research interventions to maximize water use efficiency (economic returns of crops per unit of water used). This output also meets the specific goal 1 of SP 4A to develop analytical methods and tools for the management of multiple use landscapes through the development of related economic, environmental, and social indicators for impact assessment and quantification of economic and environmental tradeoffs of alternative natural resources management options. This output also relates to the goal of SP 5D to identify agricultural research and development pathways to reduce poverty through assessing patterns of adoption of improved technologies and natural resources management practices.

#### **3.2 Description of Impact Pathways**

Immediate users of the methodologies/approaches in natural resource valuation and impact assessment developed by the Project are ICARDA researchers and NARS, national planners and decision makers. The international aid community and development agencies can benefit directly from the estimates of returns to research investment in the dry areas to better target poverty reduction.

Because of the problem-solving participatory research approach employed, the immediate beneficiaries are the resource users involved in the case studies. The approaches and methodologies developed in these studies will be disseminated for use by NARS and other partners.

Farmers will, in turn, benefit from the development of appropriate technologies and solutions to production problems that take into account their needs and constraints.

Information generated from valuation of the benefits of natural resource and environmental services, and the costs of resource degradation can be used by policy makers to advice on investment options and natural resource management policies.

Despite the large investment in the CGIAR in research on natural resources management, the methodology to measure the impact of this research is still poorly developed compared to crop improvement research. The development of appropriate impact assessment methodologies for NRM research with related social, economic, and environmental indicators will contribute to knowledge to better assess the impact of NRM research. The development of appropriate valuation methods for NRM benefits and environmental attributes will in turn impact on the quality and rigor of impact assessment studies. The adoption and use of frameworks and methodologies by NARS will enhance their capacity and increase research effectiveness.

If development projects and NARS adopt profitable options, this in turn will increase investment in such practices as water harvesting techniques, which will contribute to natural resource sustainability and enhancing the productive capacity of household natural assets, marginal land and rangeland.

The successful documentation of social and environmental impacts of natural resource management research will provide more adequate measure of returns to investment, which will be underestimated if based on economic indicators alone. As a result, NARS, development projects, and policy makers will be

convinced to increase public and private investments in natural resource conservation in dry areas, which have been underinvested. Increased investment in improved natural resource technologies, under enabling policy environment, will enhance livelihood resilience and sustain the environment.

The final beneficiaries of this research will be the poor resource users in Dry Areas.

### **3.3 Research Approach to Develop International Public Goods**

Tools and methods for assessing the impact of NRM research and valuation of NR benefits and environmental attributes have applicability to more than one country in dry areas.

International and regional comparative impact assessment studies and related social, economic, and environmental indicators for INRM research that involve more than one country for suggesting the relevance of technological, institutional, and policy options.

Feedbacks and lessons learned contribute to technology development for INRM-based production systems that can be used for more than country in dry areas.

### **3.4 Partners' Roles**

*National Programs:* see partners list in MP5 in MTP 2007-09.

*Advanced Research Institutes:*

- ESCWA (UN Economic and Social Commission for West Asia): joint research on assessment of on-farm water use efficiency
- CIRAD (Centre de Cooperation Internationale en Recherche Agronomique pour le Développement), France : joint appointment on assessing the impact of NRM research in Morocco and Tunisia
- University of Hannover, Germany: Cooperation in assessing the *ex post* impact of NRM research
- University of Berne, Switzerland: joint supervision on PhD students assessing the social, environmental, and economic impacts of water harvesting techniques
- Imperial College, UK: Developing collaborative research on social, environmental, and economic indicators for monitoring INRM research

*System Linkages:*

- ICARDA and IFPRI share a joint appointment in property rights and collective action (currently vacant - recruitment pending).
- Challenge Programs: The Project participates in the Challenge Program on Water and Food through a project on *Water Productivity in Upper Catchments of Karkheh River Basin in Iran*
- Systemwide Programmes and other CG Consortia: The Project participates in Systemwide project on assessment of impacts of NRM research, convened by Standing Panel for Impact Assessment (SPIA): Jointly implementing ex-post impact assessment studies of NRM research in dry areas

## **Output 4: Framework for community-based and participatory research approaches adapted or developed and made available to stakeholders (in collaboration with other research programs).**

### **4.1 Relation to SP goals**

This output meets the specific goal 3 of SP 5A on improving incentives for technology generation, access and use through analyzing the implications of participatory research, as an incentive mechanism, on the management of common natural resources and the uptake of new agricultural technologies. This includes research on gender-specific approaches depending on technology and region and related institutional arrangements for their implementation. It also relates to the specific goal 1 of SP 5C to enhance the role of rural organizations and institutions in maximizing impact from agricultural research through design, monitoring and evaluation of participatory and community-based processes and methods in dry areas.

### **4.2 Description of Impact Pathways**

Immediate users of the methodologies/approaches in community-based and participatory methods developed by the Project are ICARDA researchers and NARS, national planners and decision makers.

The information generated from the analysis of rural poverty and the micro-studies of farm households will ensure that technical solutions are developed in response to different needs of the rural poor.

Early identification of constraints that hinder the wide adoption of improved options (TIPOs) will help extension systems, research institutions, and development projects to work on their solutions, and thus enhance technology dissemination to targeted communities.

Participatory and community-based approaches need to be institutionalized by NARS. This in turn will enhance technology adoption by end users and empower rural communities and enhance household social capital on a wider scale. As the technology relevance is enhanced and its uptake will be increased. Consequently the impact will increase and more poor farmers will benefit.

#### **4.3 Research Approach to Develop International Public Goods**

This output is targeted to the development of tools, methods, and institutional arrangements for participatory and community-based approaches that have applicability to more than one country in Dry Areas.

Contribution to technology development through active participation and involvement of end-users in project implementation that can be effectively used in more than one country of similar conditions

#### **4.4 Partners' Roles**

*National Programs:* Joint development, planning, and implementation of research with national research and extension programs in Central and West Asia, North Africa, Sub-Saharan Africa, South Asia, and Rural communities in these countries are major collaborators through their involvement and participation in farm surveys and technology development, testing and verification, adoption, and impact. See list of partners in MP5 in MTP 2007-09.

*System Linkages:* The Project participates in:

- Systemwide Program on Collective Action and Property Rights (CAPRI).
- Systemwide Program on Participatory Research and Gender Analysis (PRGA)

### **Output 5: Policy and institutional options analyzed and priorities for public investment to improve rural livelihoods in dry areas identified (joint research with IFPRI)**

#### **5.1 Relation to SP goals**

This output meets the specific goals 1 and 2 of SP 5B to enhance livelihoods and competitiveness of small holder producers and improving the efficiency of domestic markets through assessing existing and developing conducive credit and microfinance schemes and mechanisms, improve understanding of levels and sources of risks, and estimation of costs and benefits of different options for smallholders in dry areas. It relates to the goal of SP 5D to identify research and development pathways to reduce rural poverty through improving the quality of the context of policies by assessing their effectiveness and identification of enabling policy and institutional options. This output meets the specific goal 5 of SP 4A to improve governance of natural resources through policies and institutions by analyzing and identifying policy instruments and institutional options of collectively used and managed rangelands in dry areas. It meets the specific goal 3 of SP 4C on improved water-focused policies and institutions through assessing the effectiveness of existing policies and regulations and their welfare and environmental implications, identifying new options for optimal, sustainable and equitable use of scarce water resources, and understanding tradeoffs in water management and use policies and develop options that benefit the poor.

#### **5.2 Description of Impact Pathways**

Information generated from valuation of the benefits of natural resource and environmental services, and the costs of resource degradation can be used by policy makers to advice on investment options and natural resource management policies.

Improved policy and institutional options if adopted by policy makers will increase technology adoption by end users, which contributes to increased food security and poverty reduction. Likewise, profitable options promoted by development projects, as a result of their comparative returns to investment, will result in improved rural livelihoods. ICARDA through its active coordination with NARS will communicate the alternative policy and institutional options for improved water management to policy makers. Adoption of policy makers of these enabling policy and institutional environments will enhance the adoption and uptake of improved technologies by end users. This in return will contribute to the sustainable use of scarce water resources, and increase investment in dry area farming through adoption of improved

irrigation technologies. The final beneficiaries of this research will be the poor resource users in Dry Areas.

### **5.3 Research Approach to Develop International Public Goods**

The development of tools and methodologies for assessing the returns to investment in dry areas that have applicability to more than one country.

International and regional comparative studies for assessing the effectiveness of existing policies on the uptake of improved technologies and the management of natural resources that involves more than one country.

Lessons learned from the collective management of common natural resources (e.g., communal management of rangelands) for technology, institutions, and policy relevance.

### **5.4 Partners' Roles**

*National Programs:* See list of partners in MP5 in MTP 2007-09.

*Advanced Research Institutes:*

- CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), France : research on Institutional options for improved rangeland management
- University of Berne, Switzerland: joint supervision of PhD student assessing the communal management of mechanical water harvesting system
- ICARDA is exploring the opportunities for other potential partnership with U.S Universities

*System Linkages:*

- ICARDA and IFPRI shared a joint appointment in property rights and collective action. The two sister Centers are currently exploring the opportunity of a new joint appointment of policy and institutions research.
- The Project participates in the Challenge Program on Water and Food through a project on *water productivity in Karkheh River Basin in Iran*. This linkage provides an opportunity for new partnership with IWMI on water policy research
- The Project participates in the Systemwide Program on Collective Action and Property Rights (CAPRI); Systemwide Program on Participatory Research and Gender Analysis (PRGA); and the systemwide project on assessment of impacts of NRM research, convened by the Standing Panel for Impact Assessment (SPIA).

## **Output 6: Capacity of national research and extension programs in the application of economic tools, livelihood analysis, and impact assessment enhanced.**

### **6.1 Relation to SP goals**

This output relates to the specific goal 5 of SP 5A on enhancing the structure, conduct and performance of knowledge-intensive institutions through capacity building in impact assessment, policy analysis and development, poverty analysis and livelihood characterization, participatory and community-based approaches, and needs-based training for collaborating national programs in developing countries in dry areas.

### **6.2 Description of Impact Pathways**

Immediate users of the methodologies/approaches in poverty and livelihood analysis, natural resource valuation and impact assessment developed by the Project are ICARDA researchers and NARS, national planners and decision makers.

Because of the problem-solving participatory research approach employed, the immediate beneficiaries are the resource users involved in the case studies. The approaches and methodologies developed in these studies will be disseminated for use by NARS and other partners.

Enhancing NARS capacity in economic tools, livelihood analysis, and impact assessment will contribute to research effectiveness. Degree training will fill research gaps in national programs, resulting in increased investment in agricultural science and technology and contributing to gender balance in human resources of agricultural research. The final beneficiaries of this research will be the poor resource users in dry areas.

### **6.3 Research Approach to Develop International Public Goods**

Tools and materials for NARS capacity development that have applicability to more than one country  
Lessons learned from capacity building of different national programs and implications on enhancing research effectiveness.

### **6.4 Partners' Roles**

*National Programs:* See list of partners in MP5 in MTP 2007-09.

*Advanced Research Institutes:*

- ESCWA (UN Economic and Social Commission for West Asia)
- CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), France : research on Institutional options for improved rangeland management
- University of Hannover, Germany;
- University of Berne, Switzerland: joint supervision of PhD student assessing the communal management of mechanical water harvesting system
- University of Wales, UK;
- University of Massachusetts, USA; Yale University, USA.

*System Linkages:*

- ICARDA and CIMMYT are collaborating in adoption and impact assessment of wheat in CWANA and other socioeconomic research
- ICARDA and IFPRI discussing a joint appointment in policy research.
- ICARDA and ILRI are collaborating in livestock marketing.
- The Project participates in the Challenge Program on Water and Food through projects on water productivity and *Strengthening Livelihood Resilience Karkheh River Basin in Iran*
- The Project participates in the Ecoregional Program for Central Asia and the Caucasus; Systemwide Program on Collective Action and Property Rights (CAPRI); Systemwide Program on Participatory Research and Gender Analysis (PRGA); CGIAR Consortium for Spatial Information; Systemwide project on assessment of impacts of NRM research and policy oriented research, convened by Standing Panel for Impact Assessment (SPIA).

*Other Partnerships (networks, etc)*

- FAO-CIHEAM network on SARD-M (Sustainable Agriculture and Rural Development Mountain project)
- ESCWA (UN Economic and Social Commission for West Asia): collaborative research on farm water use efficiency
- CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), France: joint appointment
- University of Hannover, Germany: Collaborative research on natural resources economics
- University of Wales, UK: Collaborative research on natural resources economics

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| <b>Project 8</b> | <b>Poverty and Livelihood Analysis and Impact Assessment in Dry Areas</b>   |
| <b>Goal</b>      | Sustainable improvement of the welfare of poor people in dry areas  |
| <b>Purpose</b>   | More effective and better targeted research that contributes to development of sustainable livelihoods of rural communities in dry areas. |

| Output Targets   |  | Intended Users  | Outcomes   | Impact   |
|--|--|---|--|--|
| <b>Output 1: Causes of poverty and determinants of livelihood strategies in the dry areas are quantified, documented and accessible to stakeholders.</b> |  |   |  | Rural livelihoods improved<br>Women's access to capital and improved livelihood options improved |
| <b>2008</b>  | Determinants of livelihood strategies within different agroecological and production systems identified, documented and accessible to users  | ICARDA research program, NARS, national and international development programs, policy makers | Livelihoods approach mainstreamed into NARS research portfolio.<br>Increased research effectiveness in improving rural livelihoods |  |
|  | Potential livelihood options (pathways out of poverty) in selected sites identified ( <i>CP on Water and Food</i> )  | NARS, development projects, farmers   | Identified options used by NARS and development projects   |  |
|  | Analysis of women's access to capital and the opportunities for and constraints to women-led livelihood activities in different agro-ecologies   | NARS, development projects, policy makers   | Development projects and policy makers design pro-women micro-finance  |  |
| <b>2009</b>  | Guidelines for evaluating research priorities for targeting research towards poverty reduction developed   | NARS, ICARDA research program   | Identified priorities used by NARS and development projects  |  |
|  | Framework for analyzing women's livelihood strategies in rural areas, including tools for successful implementation of gender analysis within sustainable livelihoods approach (SLA) developed | NARS, ICARDA research program   | Developed framework used by NARS   |  |
| <b>2010</b>  | Analysis of market constraints to and opportunities for livestock and derived value-added products of small scale producers along the value chain ( <i>linked with Output 1 of Project 6</i> ) | ICARDA research program, national R&D systems and policy makers                               | National R&D systems and policy makers design targeted interventions to improve the access to markets by small scale producers.    |  |
|  | Assessment of livelihood implications of increased feminization along the value chain of major commodities in dry areas ( <i>linked with output1 of Project 6</i> )                            | ICARDA research program, national R&D systems, and policy makers                              | National R&D systems and policy makers undertake effective interventions that improve women's benefits from value added products.  |  |
|  | Analysis of the market constraints to and opportunities for high value crops of small scale producers along the value chain ( <i>linked with output1 of Project 6</i> )                        | ICARDA research program, national R&D systems and policy decision-makers                      | National R&D systems and policy makers design targeted interventions to improve the access to markets by small scale producers.    |  |
|  | Methodology for assessing the impact of agricultural research on rural poverty developed and applied.  | ICARDA research program, NARS and policy makers.  | NARS and policy makers improve research targeting towards poverty reduction.   |  |

| Output Targets   |   | Intended Users   | Outcomes   | Impact   |
|--|---|--|--|--|
|  | Farmers attitudes towards valuation and choices of drought tolerant wheat germplasm analyzed  | NARS and policy makers   | Results used by NARS and policy makers to increase investment in research and farmers access to drought tolerant germplasm to reduce vulnerability to drought                          |  |
|  | The health related constraints to small ruminant marketing determined ( <i>linked with output1 of Project 6</i> )   | ICARDA research program, national systems and policy decision-makers                               | NARS and policy makers take measures to reduce animal health issues that constraint producers access to markets.   |  |
| <b>Output 2: Impacts of agricultural research on productivity, income, and rural welfare in the dry areas quantified and accessible to stakeholders.</b> |   |  | Effectiveness of ICARDA and NARS research enhanced.<br><br>With improved feedback on the returns from past investment in agricultural research, policy makers increase future support. | Food security, farm incomes and rural livelihoods improved |
| <b>2008</b>  | Frameworks and methodologies for assessing adoption and impact ( <i>ex ante</i> and <i>ex post</i> ) developed, documented and made accessible to users                                 | NARS   | Frameworks and methodologies used by NARS  |  |
| <b>2009</b>  | Impact of winter chickpea and other crops on household income and crop productivity assessed and documented   | ICARDA, NARS   | Results and lessons learned used by ICARDA and NARS  |  |
| <b>2010</b>  | The potential impact of the new strain of rust (Ug99) on wheat production and food security described and quantified ( <i>Global Rust Initiative</i> ) ( <i>linked with Project 2</i> ) | NARS and policy makers in those countries threatened by the emergence of new strains of wheat rust | NARS and CGIAR centers used information to better target interventions to mitigate the risk (in terms of rural livelihoods and food security)  |  |
|  | Impact of lentil research in selected countries analyzed and documented   | NARS, policy makers, donors and other investors  | Adoption and impact information used by different stakeholders for research relevance, accountability, and future research and development   |  |
|  | Assess the effectiveness of linking applied research to development on the uptake and Impact of improved technologies in poor communities in dry areas                                  | NARS and policy makers   | Adoption and impact information used by different stakeholders for research relevance, accountability, and future research and development   |  |

| Output Targets  |  | Intended Users                             | Outcomes  | Impact  |
|---|--|--|---|---|
| <b>Output 3: Impacts of natural resource management (NRM) research on economic, social and environmental sustainability quantified and results made available to stakeholders.</b>            |  |  | Decision makers are informed of the economic, social and environmental benefits of investing in and enabling the adoption of improved natural resource management options | Improved productivity from sustainably managed natural resources; reduced land and water degradation; improved rural livelihoods; and reduced vulnerability of rural communities to climate change. |
| 2008  | Frameworks and methodologies for valuating natural resources and assessing the impacts of NRM technologies adapted or developed and made accessible to users | NARS, development projects, policy makers  | Frameworks and methodologies used by NARS; research effectiveness increased   |   |
| 2009  | Social, economic, and environmental impacts of mechanical water harvesting systems evaluated, documented and made accessible to users                        | NARS, development projects, policy makers  | Development projects adopt mechanical water harvesting system   |   |
| 2010  | Sources of inefficiency in irrigation water use evaluated, documented and made accessible to users   | NARS, development projects, policy makers. | Development projects and NARS used information and lessons learned to improve on-farm water use efficiency.   |   |
|   | The economic and environmental impacts of supplementary irrigation evaluated, documented and made accessible to users  | NARS, development projects, policy makers  | Development projects and NARS used information and lessons learned to improve the efficiency of supplementary irrigation.   |   |
|   | The impact of improved technologies assessed and related economic and environmental indicators in agropastoral systems developed                             | NARS, development projects, policy makers  | Development projects and NARS used information and lessons learned to improve the sustainability of agropastoral systems.   |   |
| <b>Output 4: Framework for community-based and participatory research approaches adapted or developed and made available to stakeholders (in collaboration with other research programs).</b> |  |  |   | Rural communities contribute to the R&D agenda, ensuring that the adoption of research outputs is increased, leading to improved rural livelihoods  |
| 2008  | Tools for successful implementation of participatory and community-based research approaches developed and made accessible to NARS                           | NARS                                       | Participatory tools used by NARS  |   |
| 2009  | Participatory and community-based approaches institutionalized in partner countries  | NARS                                       | Participatory and community-based approaches used by NARS   |   |
| 2010  | Sustainable use of participatory and community-based research approaches in dry areas monitored and emerging constraints identified                          | NARS and regional research projects        | Sustainable adoption of community-based approaches by NARS  |   |

| Output Targets   |  | Intended Users   | Outcomes  | Impact  |
|--|--|--|---|---|
| <b>Output 5: Policy and institutional options analyzed and priorities for public investment to improve rural livelihoods in dry areas identified (joint research with IFPRI)</b> |  |  |   | Increased public investment improves rural livelihoods in dry areas |
| <b>2008</b>  | The returns to investments in the dry areas and their effects on rural livelihoods in three countries evaluated and results made available to decision makers  | NARS, policy makers  | Results adopted by policy makers; increased investment in dry areas.  |   |
|  | Effectiveness of different policy and institutional options in dry areas in selected countries evaluated and documented  | NARS, policy makers  | Improved policy and institutional options used by policy makers;  |   |
|  | The IAASTD- CWANA Sub-Global Assessment Report completed, published and distributed  | NARS, policy makers  | Public awareness on the importance of increased investment in agricultural science and technology                             |   |
| <b>2009</b>  | Alternative policy and institutional options for improved water management identified in benchmark sites   | Policy makers  | Improved water management policy and institutional options adopted by policy makers   |   |
| <b>2010</b>  | The effectiveness of water policies in project sites analyzed and documented and alternative Policy and institutional options for sustainable use of scarce water resources identified ( <i>CP on Water and Food</i> ) | NARS, development projects, Policy makers  | Policy makers and NARS used results and lessons learned to improve water policies.  |   |
|  | Alternative policy and institutional options for improved water demand management ( <i>CP on Water and Food</i> )  | NARS, development projects, Policy makers  | Policy makers and NARS used results and lessons learned to improve water policies.  |   |
|  | The effectiveness of local institutions on rangeland management in agropastoral communities of West Asia and North Africa analyzed and documented  | NARS, development projects, Policy makers  | Policy makers and NARS used results and lessons learned to support and improve the effectiveness of local rural institutions. |   |
|  | The effectiveness of existing drought management policies in agropastoral communities of West Asia and North Africa analyzed and documented  | NARS, development projects, Policy makers of WANA countries.                     | Policy makers and NARS used results and lessons learned to improve the effectiveness of policies to better manage drought.    |   |
|  | Policies and institutional options that affect the competitiveness of agricultural commodities in dry areas evaluated and documented   | NARS, development projects, Policy makers in the countries within the dry areas. | Policy makers used results and lessons learned to improve the competitiveness of commodities in dry areas.                    |   |

| Output Targets   |  | Intended Users                            | Outcomes   | Impact                 |
|--|--|---|--|------------------------|
| <b>Output 6: Capacity of national research and extension programs in the application of economic tools, livelihood analysis, and impact assessment enhanced.</b> |  |   |  | Enhanced NARS capacity |
| <b>2008</b>  | NARS researchers trained in use of frameworks, tools and methodologies for assessing the impacts of their research     | NARS                                      | Frameworks, tools and methodologies for assessing impacts of agricultural and NRM research used by five NARS |                        |
|  | International workshop/conference on assessing the research impact and rural livelihoods in the dry areas organized    | NARS, IARCs, advanced research institutes | Experiences exchanged  |                        |
| <b>2009</b>  | Three graduate students complete supervised thesis research related to poverty analysis and natural resource economics | NARS, universities                        | Graduates are adequately trained   |                        |
|  | Five visiting scientists from advanced research institutes and NARS  | NARS, advanced research institutes        | Experiences exchanged  |                        |
| <b>2010</b>  | Two graduate students complete supervised research related to natural resource economics                               | NARS, Advanced research institutes        | NARS capacity in natural resource economics enhanced   |                        |
|  | Three training workshops on impact assessment and marketing organized for NARS   | NARS collaborators                        | Advanced methods and approaches used by NARS   |                        |
|  | Five visiting scientists from NARS to work on collaborative research in impact assessment and livelihood analysis      | NARS collaborators                        | Experiences exchanged  |                        |