
ICARDA's Poverty Focus

Targeting Research Towards Poverty Reduction

The poor in the dry areas

- According to the UNDP development report over 100 million people in CWANA, representing more than 12% of the population in the region, earn less than \$1 a day. It is believed that actual figures would be much higher given the scantiness of the data. Poverty is more widespread in low income countries such as Djibouti, Ethiopia, Mauritania, Pakistan, Somalia, Sudan, Tajikistan, Turkmenistan, Uzbekistan and Yemen, where 13% to more than 80% of the population is living on less than \$1 a day. People in the poorest countries face occasional chronic food shortages which cause large scale hunger, malnutrition and even loss of life. This is often associated with drought-induced harvest losses and depletion of food stocks. Food security in CWANA has deteriorated recently, with increasing numbers of chronically hungry people over the period 1995-1997.
- Studies conducted by ICARDA show that child under-nutrition in dry marginal areas could be as high as 23%, particularly in the areas dominated by barley-livestock systems. The poorest households were the landless and semi-landless without agricultural assets, who depend heavily on wage labor and migration for employment. The majority of these households in the dry areas are below the \$1 a day income poverty indicator. These and other studies show that high poverty levels persist among rural households that depend on agriculture as their main source of income in the dry areas of CWANA.
- Population growth rates above 3% per annum in many countries in the region against a finite natural resource base (land and water) translate into increasing resource poverty. Landholdings are increasingly fragmented, small and economically unviable. Inherent and growing water scarcity and the growing demand for water also means that less water will be available for agriculture and higher charges for water use can be expected in the future. Based on water resource availability per capita per year, most CWANA countries suffer chronic water scarcity and/or have water demands too high to sustainably manage. DFID study reports water poverty index (WPI) in CWANA countries is the lowest among 160 developed and developing countries studied. Further, scarce water resources are misused and managed unsustainably. Water poverty has greatly contributed to food insecurity in the CWANA region; water scarcity explains nearly 50% of the variation in food security levels. Demographic pressures and resource scarcity have already led to out-migration of men to urban areas in search of work. As a result, women and children supply the bulk of agricultural labor, contributing to increased feminization of poverty.

Targeting pro-poor research

- *Poverty mapping.* Mindful of the high variability of poverty incidence, both in level and depth, as well as type of poverty (income poverty, resource poverty or social deprivation) across different CWANA countries and regions within each country, ICARDA developed a methodology for mapping the relationship between resource endowments and rural poverty. This enables the development of poverty maps that can help target research to help those who need it most. ICARDA is fully aware of the wider poverty mapping efforts by a number of institutions including the World Bank, UNDP and IFAD. It contributes to some extent, and at the same time benefits from, these global efforts.
- *Household typologies and implications for research impact.* Understanding the diversity of households in the dry areas is a critical first step to identifying feasible technological options and their potential impact on the rural poor. ICARDA has developed and used methodologies based on the Sustainable Livelihoods Framework to disaggregate and characterize rural households into typologies with similar assets and livelihood strategies. This characterization, based on agricultural assets and primary livelihood sources, allowed scientists to differentiate those households that are most likely to directly benefit from agricultural research from those that are unlikely to directly benefit. Agricultural research, if properly targeted, can directly increase incomes of poor households with some agricultural assets. But landless and semi-landless households will benefit from agricultural research only indirectly through employment and lower food prices. The direct impact of research on these landless and semi-landless households depends on their ability to acquire agricultural assets. ICARDA's research shows that poor households are able and willing to build their agricultural assets through properly managed and targeted microfinance programs.
- *Impacts of research on poverty reduction.* Almost all the released varieties of barley, lentil, chickpea, faba bean and wheat in CWANA countries originated from ICARDA's germplasm improvement program. Resource-poor farmers use these improved varieties and benefit from their yield and other advantages. ICARDA's experience in farmer participatory research confirms that resource-poor farmers with small holdings are able to use these new varieties, as also other farmers with larger holdings.

The example of lentils in Bangladesh illustrates this point. The ongoing collaboration between the Bangladesh Agricultural Research Institute (BARI) and ICARDA has greatly contributed to poverty alleviation, nutritional security of the rural poor who cannot afford animal protein, and the country's economy as a whole. With the cultivation of improved varieties and adoption of appropriate production technologies Bangladeshi farmers are producing an additional 28,000 tons of lentil annually, worth US\$12.6 million at US\$450/t at the farm gate price. This additional production has reduced Bangladesh's annual lentil imports by 37%. A recent impact analysis found that the extra income earned from lentil cultivation was used by farmers to buy clothes (15.6%),

personal items (19.5%), rice and other foods (9.9%), for cultivation of the next crop (16.6%), children's education (14.8%), medical treatment (13.7%), to pay loans (5.8%), and for other purposes (4.1%) such as purchase of cattle or threshers, construction of houses, and repair of farm implements.

Several other technologies have improved the livelihoods of resource poor farmers in the dry areas. These include drought tolerant varieties that reduce risk of harvest losses, reduced use of pesticides (IPM) with reduced health risks, improved crop varieties with market- and consumer-preferred characteristics or nutrition value (quality), forage banks used during drought years (planting of shrubs), water management technologies (increasing water productivity and reduced cost of irrigation), value added livestock production technologies (such as dairy processing), improved marketing and better animal disease management.

- *Research for development in poor regions.* ICARDA's research benefits resource poor farmers in the dry areas. The application of such research requires local adaptation under different agroecological and socioeconomic conditions in different countries. In collaboration with partners such as FAO and other CGIAR Centers, and with support from donors including IFAD, USAID, DFID and others, ICARDA actively participates in development projects through specific interventions in some of the poorest communities in the dry areas. These include communities in Afghanistan, Balochistan province in Pakistan, *Barani* areas of Pakistan, Morocco, Tunisia, north-eastern Brazil, Mexico, and Venezuela. ICARDA also conducts pioneering adaptive research in dry marginal areas in Syria (Zone 4), the Atlas Mountains of Maghreb region, WANA countries, the highland Karkheh river valley in Iran, and others.
- *Creating an enabling policy environment.* Technological research will not be successful without fully understanding the socioeconomic environment of rural households. It is therefore critical to use such understanding to create an enabling socioeconomic environment where farmers can adapt and change their production systems and improve their incomes and livelihoods. To achieve that, ICARDA carries out socioeconomics research, such as livelihoods characterization, gender analysis, market value chain analysis, local institutions and networks, technology adoption, post-harvest processing, technology evaluation and human nutrition. The results of such research are most useful when synthesized into policy briefs and presented at policy workshops. ICARDA has conducted a series of policy seminars with anticipated high impact. Past seminars include: (1) The Nutritional Status of Children: Case study of villages in three livelihood systems in Syria, Damascus, October 2005; (2) Khanasser development workshop, July 2005, Damascus; and (3) Policy briefing seminar in zonal development in Syria, at the State Planning Commission, Damascus, January 2006. Such policy seminars are part of ICARDA's strategy to maintain an active dialogue with policy makers and development planners. Socioeconomics research on broader rural development issues (nutrition, microfinance, market analysis, livelihood analysis, in addition to technology adoption,

impact evaluation) is necessary to maintaining that dialogue, and will continue to be part of ICARDA's research agenda.

- *The way forward.* ICARDA places strong emphasis on enhancing its capacity to reach the poor through 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. Equally important is the involvement and active participation of end-users in the development, testing and verification of research outputs so that relevance and adoption by individuals, communities, and institutions is maximized. ICARDA's economic impact studies have quantified gains from productivity improvement. Although numerous studies demonstrate the impacts of productivity gains on poverty reduction through employment and low food prices, the direct impacts of technological and institutional innovations on poverty reduction, particularly in the dry areas, are not sufficiently documented. This is an area of great importance to the Center's mission and will be given a high priority. To this end, ICARDA research on poverty and livelihood analysis has been streamlined within the whole research portfolio under the research program on "Poverty-livelihood analysis and impact assessment in dry areas". Furthermore, considerable efforts have been devoted to develop methodologies for documenting the impact of agricultural research on poverty reduction and child nutrition in dry areas through cooperation with advanced research institutions, including Yale University and the International Nutritional Foundation. In the near future, these methodologies will be applied on a large scale in the CWANA region.

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