

22 June 2004

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International networks bridge relief-development gap

In a recently released study, the Future Harvest Foundation and CARE have shown that through efficient agricultural and natural resource management international agricultural research centers and relief organizations have managed to bridge the gap between development and relief.

The study – *Weathering natural disasters: Refocusing relief and development through improved agricultural and environmental practices* – was funded by the United States Agency for International Development (USAID).

According to Dr William D Dar, Chairperson of the Future Harvest Foundation and Director General of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the study shows that concerted efforts by international agricultural research organizations and relief agencies have resulted in success stories in which development is resilient to natural disasters, and relief measures lead to long-term development.

“These comprehensive development and relief activities in the developing countries of Asia, Africa and the Americas, have disaster-proofed the local communities to a great extent. These projects build on the local knowledge base and natural resources available to strengthen the resilience of the communities,” Dr Dar added.

The Future Harvest Foundation represents a network of international agricultural research organizations known as the Future Harvest Centers of the Consultative Group on International Agricultural Research (CGIAR). ICRISAT is a member of this network. CARE, an international relief organization that helps poor and marginalized communities to strengthen their capacity to help themselves overcome adversity.

According to the report of the study, the impact of natural disasters – droughts, floods, hurricanes, earthquakes, forest fires, etc. – is overwhelming and disproportionate in developing countries. Situated mostly in the tropics, many of the developing countries are already environmentally fragile, have rapidly increasing populations, and have poor access to infrastructure. Disasters make the poor even poorer and further increase the susceptibility of their communities to future disasters.

The report notes that sustainable agriculture and natural resource management are inextricably linked. Together they are essential components of the disaster-reduction agenda in the developing world. The argument is strengthened with examples of far-sighted projects from developing countries across the world:

Asia

In early July 1998, Bangladesh suffered its worst flood, in which two-thirds of the country's area was under water. As the floodwaters receded, there were dire predictions of famine. However, it did not happen. Why it did not happen illustrates the powerful role that agricultural research can play in mitigating natural disasters.

Prior to the severe floods of 1974, the only way farmers of Bangladesh were using the floodwater for their annual crop was by growing deepwater rice. Their low yields contributed to extreme poverty of the country. In the 1974 floods, more than 2.5 million hectares of deepwater rice was destroyed, and the land remained inundated with water beyond the planting season.

What emerged, with support and assistance from international agricultural institutes, was a national rice research institute – the Bangladesh Rice Research Institute. Its scientists were trained at the International Rice Research Institute (IRRI), a Future Harvest Center based in The Philippines.

The new institute set out to develop cutting-edge farming technologies that would benefit from abundant underground water. The scientists adapted modern high-yielding varieties of rice developed at IRRI for conditions in Bangladesh, which they planted during the irrigated dry season. In the meanwhile they significantly reduced the area under deepwater cultivation.

By the time Bangladesh was hit by the raging floods of 1998, its reliance on deepwater rice had been so significantly reduced, that the dry-season crops quickly made up the loss of two million tons of rice. A follow-up economic analysis of Bangladesh's remarkable turnaround concluded that an \$18 million annual investment in rice research, irrigation, and agricultural extension produced savings to Bangladesh amounting to \$229 million per year over a 20-year period.

In Afghanistan, the story is about international agencies rehabilitating an agricultural system that collapsed during the decades of war, combined with drought, which devastated the country's once-enviable food-production capabilities and depleted critical seed stocks. A global consortium of research institutes, relief and development organizations, universities, and aid agencies have started an unprecedented multi-million dollar recovery and reconstruction effort to rebuild Afghanistan's agriculture.

The overarching goal of the *Future Harvest Consortium to Rebuild Agriculture in Afghanistan* is to create the critical mass of seed needed for Afghan farmers to be able to produce enough of their own seed to achieve food security and eliminate the need for food aid. Using some of the seeds stored in the genebanks of Future Harvest centers, the consortium has already started reintroducing traditional wheat, maize, barley, chickpeas, lentils, etc. It is also introducing new high-yielding, disease tolerant seeds.

Africa

At the height of a devastating famine that occurred in 1984-85 in Ethiopia, the Antsokia Valley came to be known as the *Valley of death*. Prior to the drought, the region had enjoyed rich alluvial soil conditions that produced a bountiful and diverse harvest.

Following an initial emergency response effort, World Vision Ethiopia (WVE) initiated a broad, longer-term program focused on natural resource management aimed at stemming the root causes of the famine. The Antsokia project, which lasted more than a decade, was one of the largest and most effective experiments in agricultural research, training, production and farmer participation funded through the US Agency for International Development (USAID).

Running side-by-side with the relief operations, World Vision introduced soil and water conservation, agroforestry, water harvesting, fertilizer production, and pest and disease control. Antsokia farmers began to redevelop their once-rich habitat with the technical help.

World Vision encouraged the people of Antsokia to combine the best of traditional and modern methods and techniques. Ethiopian farmers traditionally have employed a number of their own resource-conserving technologies, including intercropping, succession farming, agroforestry, terracing and zero grazing. The result: the Antsokian farmers started exporting fruits and vegetables.

In Somalia, it was a seed production and marketing system, created by CARE and ICRISAT that gave disaster resistance to the community. In 1998, CARE decided that the conditions were right to initiate a community based sorghum seed production project with farmers, who had access to irrigation, for supply to farmers in rainfed areas. ICRISAT was contracted to supply the foundation seed of six sorghum varieties that had shown promise during farm trials both in Somalia and elsewhere. Farmers, with the support of local NGOs working with CARE, multiplied these seeds.

Three of the sorghum varieties performed exceptionally well, and a total of 400 tons of "certified" seed was produced. A network of seed traders, predominantly women, was identified for the marketing of the sorghum seeds. These traders were asked if they would sell the multiplied sorghum seeds. They responded enthusiastically and within two weeks 4,800 one-kilogram packs were sold in one market alone.

The Americas

In 1998, Hurricane Mitch hit Central America, killing more than 10,000 people. Although initial reports after the hurricane indicated that the devastation to the agricultural sector was uniformly bad, on-site observers began to see a pattern emerge indicating that showed that the farmers using more sustainable practices had suffered less damage. These farmers were part of a multi-institutional 'farmer to

farmer' movement that promotes agro-ecology, soil conservation and sustainable agricultural practices.

World Neighbors, a relief and development organization, implemented an extensive participatory research, with support from a number of foundations, to compare the agro-ecological resistance of the sustainable farms with conventional farms.

The research results showed an overwhelming trend of higher agro-ecological resistance on the sustainable farms. Sustainable plots were found to have 20- to 40-percent more topsoil, greater soil moisture, and less erosion than their conventional counterparts. Because the sustainable farms grew diversified crops, they also averaged lower economic losses, with sustainable farmers in Nicaragua actually showing profits in spite of the hurricane.

In Honduras, the hurricane also destroyed the maize seed stored by the farmers and the national seed bank. As part of the *Seeds for Hope for Central America* program, the International Maize and Wheat Improvement Center (CIMMYT), a Future Harvest Center, sent Honduras nearly a half a ton of seed of diverse improved maize varieties and inbred lines that had high yields, good adaptability and stress tolerance.

CIMMYT then worked with the Honduran government, regional networks, funding agencies, NGOs and other players to coordinate maize seed multiplication and seed relief. For its success, CIMMYT was formally thanked by the then Vice President of Honduras, Miguel Angel Bonilla.

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