



Goals that matter

Following the declaration of independence by East Timor, donated rice seed created major difficulties for farmers. Inadequate harvests resulted from the mix of poorly adapted varieties that lacked uniform growth rates and maturity. ACIAR was among the first agencies to establish crop trials to put farming on a reliable footing, to increase agronomic capacity, crop quality and crop diversity. This 'Seeds of Life' project in East Timor has become a case study for building in-country research and extension capabilities.

Planting rice in Baucau, East Timor, January 2009.

The role agricultural science can play in achieving the Millennium Development Goals creates a special role for ACIAR in promoting prosperity among developing-world farmers

BY WARREN PAGE

The Millennium Development Goals (MDGs) were first announced in September 2000, with a deadline of 2015. Nine years later, and with only six years remaining until that deadline, progress is being made to eradicate poverty.

Eight goals have been set to focus national and international development efforts on the factors that create and entrench poverty—hunger, exclusion, and a lack of infrastructure and shelter. The MDGs also seek to promote gender equality, education, health and environmental sustainability to create avenues out of poverty for the poor.

Half the world's poor are smallholder farmers. People relying on forests, pastures and

fisheries make up another 8% of the poor, with a further 22% being those living in rural areas without access to land. The remaining 20% of the poor live in urban areas.

The Australian aid program has worked towards achieving the MDGs through programs that support broad-based economic growth and development, in particular in rural development, infrastructure and private-sector development. Accelerating progress towards the goals is a core principle of the Australian aid program.

ACIAR's role has focused on rural development, utilising Australian scientific expertise to work with developing-country partners in agricultural research to create sustainable productivity gains. Only sustained increases in agricultural production can help

create economic growth and, through this, opportunities for the poor to create a better life.

Food security is a key component in creating such opportunities. A lack of sufficient food results in carbohydrate and protein intakes below recommended daily levels. Where there is no surplus of food, smallholders cannot sell the excess to earn income that can be used to educate their children, improve health and boost production.

East Timor is an example of a country where poverty remains both widespread and entrenched. The World Bank estimates that value-added agriculture contributes 26% of GDP, with industry value-adding contributing only 19% to GDP. In developing countries value-added agriculture is the main industry, typically contributing significantly to GDP. About 80%

of East Timor's population is engaged in agriculture, yet only a quarter of GDP comes from agriculture. This low level of contribution to GDP is a measure of the low productivity levels and subsistence agriculture in East Timor. Life expectancy is 61, with only 69% of children completing primary education.

By comparison life expectancy in Indonesia, East Timor's nearest neighbour, is 71, with 99% of children completing primary education. Value-added agriculture contributes only 14% of GDP and industry value-adding contributes 47%, a reflection of Indonesia's more advanced economy.

In East Timor, ACIAR has worked in partnership with several CGIAR centres to improve agricultural productivity. The World Food Program indicates that food insecurity affects more than half the population of East Timor. A survey of subsistence farmers in 2007 by the ACIAR team working on the Seeds of Life project revealed the realities of this situation.

No family of those surveyed had sufficient rice or maize to last a full year. Seven out of 10 families went without maize for four or more months each year. All families surveyed were forced to practice food rationing for between one and six months of each year. Many families reported that they were forced to gather wild food regularly, with the worst affected families consuming the seed needed for planting crops in the following season.

ACIAR's two Seeds of Life projects have linked five CGIAR centres with East Timorese and Australian institutions to test and introduce improved seed varieties of staple crops. The centres are the International Maize and Wheat Improvement Center, the International Center for Tropical Agriculture, the International Rice Research Institute, the International Crops Research Institute for the Semi-Arid Tropics and the International Potato Center. They have selected a number of varieties of sweetpotato, maize, peanuts, cassava and rice for testing.

The success of field trials of several new varieties prompted a follow-on project to continue testing the most suitable varieties and scale up seed production for dissemination to villagers. Every new variety tested has out-yielded traditional varieties, with families reporting yield increases of 17–138%.

Since the second Seeds of Life project began in 2005, 114 of East Timor's 442 sucos (villages) have seen improvements in food security as a result of seed dissemination and field trials. In addition, seven NGOs have distributed seed from the project to farmers, seed producers and Ministry of Agriculture,



(Above) peanut field day in Manufahi district, East Timor, May 2008.



(Left) sweetpotato harvest in Viqueque, East Timor, May 2009.

Forestry and Fisheries collaborators. During the 2008–09 season, 9,877 farmers received at least five kilograms of seeds each, representing a total of 6.8 tonnes of rice, 3.9 tonnes of peanuts and 27,000 sweetpotato cuttings.

An external review held in 2009 interviewed 20 farmers participating in the project. Of those 20 farmers, 11 had sold, on average, one-third of their Seeds of Life crop production. The extra income was used to buy rice, protein and other produce to enrich the family diet. Some of the excess income was used for non-food essential household expenses.

Preliminary research indicates that the Seeds of Life project is helping progress towards other MDGs besides eradicating poverty and hunger. During times of need women take responsibility for foraging and preparing wild foods. This coincides with the peak labour demand for weeding subsistence crops, forcing women to undertake increased labour.

Initial data collected from 199 women interviewed by the project show that improved productivity is reducing the time women spend on wild food collection,

thereby decreasing their labour. These data also demonstrate that both men and women are involved in nearly all activities associated with cultivating food crops, helping progress towards the promotion of gender equality and empowerment of women.

The project is also preserving germplasm from local varieties of staple crops. A small collection of cassava is stored at the University of Timor Leste, with project personnel assisting in maintaining the collection. A germplasm officer is being trained in collecting and conserving seeds, with recent collections undertaken for peanut and cassava varieties. As germplasm increases, duplicate collections will be assembled and CGIAR centres approached to maintain these.

The Seeds of Life project is one example of how ACIAR projects are assisting developing countries to build the skills needed to implement domestic initiatives to achieve the MDGs, and are linking with multilateral development initiatives to help achieve the goals established nine years ago by the United Nations. ■