Crops and knowledge emerge from tsunami fields

Gavin Tinning, project manager for the ACIAR cropping project in tsunami-affected Aceh, Indonesia, reports on efforts to restore crop production in the region’s villages. His most recent visit to the area was in March 2010.

Desa Baro is an Indonesian village of 300 people in Aceh’s Pidie district, close to the sea on the east coast. When I first visited, some time after the tsunami of December 2004, the scene looked nothing like an Indonesian village. The rice fields were covered in sediment, left unproductive and saline.

After the first attempts to grow rice and soybean had failed, the fields were abandoned. My visit to the district with T. Iskander, of the provincial agricultural service (BPTP), was in April 2007, almost two-and-a-half years after the tsunami. While many areas recovered relatively quickly from the tsunami’s impacts and healthy crops were harvested within a year, Desa Baro was one of many villages still struggling with crop failures—a calamity not previously encountered. It was a reminder that the task of rebuilding after a disaster of such enormity is a long-term program.

Our ACIAR-funded project is now helping in that rebuilding process, and allowing life to move beyond that December day, through increasing the productivity of the farming system. Following that first visit we put together a list of recommendations for the farmers:

- remove the remaining salt by flushing with irrigation water
- add organic matter to build soil fertility
- establish a trial of new varieties of soybeans

During the most recent visit, Iskander and I met local farmer Pak Burhan who undertook the role of motivating his fellow farmers. Pak Burhan is a great believer in providing farmers with the capacity to overcome their problems. He convinced his village to increase the trial area for new cropping techniques.

The tidal inundation following the tsunami had left only 45 hectares of arable land in Desa Baro. Many people are not aware that the earthquake that triggered the 2004 tsunami caused land subsidence, which led to the inundation of crop land.

This meant that high tides now covered previously productive fields. Our project team identified that a tidal gate was needed to protect the Desa Baro fields, so that farming could return to the once fertile fields now covered by sea water.

During that first visit we were told how the previous soybean crops had failed, with empty bean pods and partially developed seeds. These were common symptoms we had found in other post-tsunami legume crops in Aceh.

Four new varieties of soybean were planted in May 2007 to compare with a local variety. We demonstrated the use of *Rhizobium* inoculation and showed farmers some improved crop practices to compare. Farmers were advised to apply compost to improve levels of organic matter in the tsunami-affected soil.

Since that first visit I have heard and seen how the crops planted using our approach have performed well. In fact, they performed so well the farmers invited the Pidie District Regent, Mr Mirza Ismail, to the ceremonial first harvest in August 2007.

Yields reached 3 tonnes per hectare for ‘Anjasmoro’, a variety that has subsequently performed well in demonstrations along the east coast and is now accepted by Acehnese farmers as one of their best-performing varieties.

Pak Burhan’s enthusiasm for the crop trial has been vindicated. An average harvest in pre-tsunami years was less than 1.5 t/ha; now yields are double that.

Pak Burhan has been a champion of the new approaches, emphasising the need for communication and organisation to help farmers recover from the tsunami. He says it is important to transfer the knowledge first before distributing capital aid (such as seed.
and fertilisers). Pak Burhan tells us of cases in the past where agricultural inputs missed the target, arriving in the hands of people who had no appropriate knowledge.

The Regent’s visit also presented an opportunity for the villagers to highlight the tsunami’s impact on the coastline and the need for a tidal gate. The Regent agreed and laid the foundation stone of a new tidal gate structure on the day of his visit to Desa Baro.

With the construction of the tidal gate, an extra 20 ha are now available to Desa Baro’s farmers. The 2009 rice harvest in Desa Baro was 8.5 t/ha, providing a healthy financial return to farmers. Rhizobium inoculation, new varieties and greater control of pests at crucial stages of plant growth are now standard practices for local soybean farmers.

Unfortunately it was too wet for soybeans in 2009, but Pak Burhan hopes that Desa Baro will grow a successful crop in 2010, following their latest rice crop. That crop was planted 5 years to the day after the tsunami.

New rice varieties and better management of fertiliser applications continue to improve rice production. I am pleased to see that the high yields and a good selling price for the 2009 crop have encouraged Pak Burhan and other Desa Baro farmers to plant rice again.

There is still a way to go, but this ACIAR-funded project shows that agricultural aid is not a short-term fix. Five years after that destructive December day Desa Baro is now rebuilding its agriculture, even improving on pre-tsunami production, and looking more and more like any farming village in Indonesia.