

Introduction

Many coastlines in the world are at risk from tsunamis. Records of large-scale tsunami events date back to the year 365 (Intergovernmental Oceanographic Commission 2013), and significant tsunamis occurred in the 20th century in Papua New Guinea, Indonesia, Hawaii, Colombia, Chile and Japan. Since the 2004 Indian Ocean tsunami, there have been significant tsunami events in the Philippines, Indonesia, Samoa, Solomon Islands and Japan. Apart from the tsunamis affecting the Indonesian province of Aceh (Slavich et al. 2006a, b), Solomon Islands (Jansen et al. 2007) and Japan (United Nations University 2012), little data and few observations are available on the impacts of tsunami events on agricultural land.

The focus of this guide is the lessons learned from post-tsunami agricultural recovery in Aceh since December 2004, during Australian–Indonesian projects funded by the Australian Centre for International Agricultural Research (ACIAR) between 2005 and 2012. The guide will complement comprehensive assessments of the post-tsunami reconstruction process in Aceh (Clarke et al. 2010; Masyrafah and McKeon 2010), which contain very limited discussion of agricultural recovery.

Consultations during development of the ACIAR projects highlighted the need to build the technical capacity of existing government agricultural services and non-government organisations undertaking agricultural projects. Needs identified during the consultations included soil and crop management strategies to restore productivity to at least pre-tsunami levels, and a communication strategy to promote regular exchange of information about agricultural recovery between governments, non-government sectors and farmers.

In 2005, ACIAR funded two projects to restore food crop production in tsunami-affected areas, and one project focusing on vegetable crops in the affected areas:

- SMCN/2005/004—Management of soil fertility for restoring cropping in tsunami-affected areas of Nanggroe Aceh Darussalam province, Indonesia
- SMCN/2005/118—Restoration of annual cropping in tsunami-affected areas of Nanggroe Aceh Darussalam province, Indonesia
- SMCN/2005/075—Integrated soil and crop management for rehabilitation of vegetable production in the tsunami-affected areas of Nanggroe Aceh Darussalam province, Indonesia.

Together, the three tsunami rehabilitation projects aimed to:

- strengthen and rebuild the technical capacity of extension services at provincial (Aceh), district and subdistrict levels to manage tsunami-affected soils
- develop and demonstrate soil management practices to restore the productivity of annual food and vegetable crops in tsunami-affected areas
- develop and implement a communication strategy to facilitate information exchange between government, non-government and community interest groups working on restoring agriculture to tsunami-affected land.

Project outcomes included:

- increased technical capacity of agricultural extension services
- technologies to reduce the impacts of soil and water constraints on production of rice and dry-season crops (palawija) in tsunami-affected areas
- communication strategies and packages to assist re-establishment of food production.

The projects also supported the Assessment Institute for Agricultural Technology in North Sumatra (BPTP SUMUT) to conduct farm trials in earthquake- and tsunami-affected communities on the island of Nias.

All projects worked with farmers through existing national and provincial government agricultural research and extension service networks.

Purpose of the guide

This guide comprises five main sections:

- **Section 1—The 2004 tsunami in Aceh** provides background information on the 2004 tsunami in Aceh.
- **Section 2—A timeframe for agricultural recovery** suggests a plan of activities after a significant tsunami, based on the Aceh experience.
- **Section 3—Post-tsunami assessment and restoration of soil and water** presents detailed information from experience and observations of tsunami impacts and recovery programs in Aceh. These experiences are also relevant to other regions of the world.
- **Section 4—Crop management** highlights the experiences of non-government organisations, government extension staff and farmers in Aceh in restoring farming activities in coastal Aceh.
- **Section 5—Aiding the recovery of agriculture and farmer livelihoods** emphasises the need for communication and coordination throughout the recovery process to ensure that governments and agencies work together with the farming community.

We hope that this guide proves useful in understanding how to help farmers recover their livelihoods as quickly as possible after a tsunami.