Female farmers, participants of sandalwood cultivation training, put into practice the new knowledge of moving the seedlings from polybag to garden. Photo: World Agroforestry Centre/Iskak N. Ismawan

product quality, enhance market access and boost incomes. As farmlands and forests are regenerated, food security and incomes from agriculture will increase through better market facilitation of livestock, short-term annual crops, medium-term perennial crops and long-term timber products.

HOW WILL IRED ACHIEVE THE GOALS?

- Improved management of smallholders' agroforestry systems through FMNR and farmers' demonstration trials.
- Implementation of regulations by the Water Management Committee to increase availability of water to farms.
- Strengthened links between farmers' groups, businesses and markets through development of the value chains of marketable crops that will increase sustainable incomes for the communities.
- Learning packages developed on natural resource management for farmers, community leaders, church groups, women and children that are based on local wisdom and environmental knowledge.
- Governance group established for regulating the use of land and natural and cultural resources.

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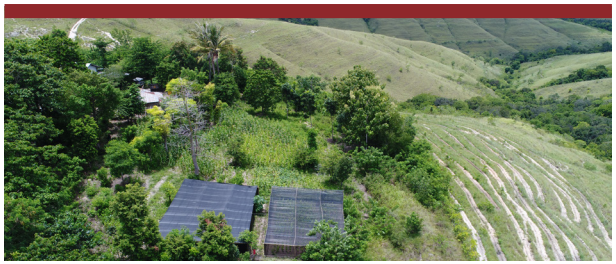
Indonesia Rural Economic Development (IRED)

BACKGROUND

Haharu is one of the sub-districts of East Sumba District in eastern Indonesia. It experiences extreme weather and poor natural conditions with more than 80% of community members there are farmers.

Aerial view of IRED project research trial garden in Mbatapuhu village, East Sumba district. Photo: World Agroforestry Centre/Yudi Nofiandi



Wairinding valley, East Sumba district.
Photo: World Agroforestry Centre/ Amy Lumban Gaol

Sandalwood nursery in Temu village, East Sumba district. Photo: World Agroforestry Centre/Iskak N. Ismawan

The soil type in Haharu is vertisol with black soil characteristics and high clay content: in the long dry season it shrinks and cracks; in the short wet season it is slippery and clogged. With shallow soil depths owing to rocks and limestone, the average depth of arable land is only 20–30 cm. Additionally, it is difficult for many plants to grow in soils with high clay content.

A few decades ago, various types of native trees grew in Haharu, such as sandalwood (*Santalum album*), lobung (*Decaspermium* sp.), injuwatu (*Pleiogynium timorense*) and kosambi (*Schleichera oleosa*) but were over-harvested, resulting in the wide, arid plains that are commonplace today.

A major impact of the absence of trees is a landscape with a micro-climate that does not encourage rainfall. The communities experience water and food shortages every year.

Attempts by various governmental and non-governmental organizations to restore the land, such as distributing various types of seedlings—for example, teak (*Tectona grandis*), mahogany (*Swietenia macrophylla*) and white teak (*Gmelina arborea*)—produced no success.

Unfortunately, despite their expressed wish to see their land forested again and the springs and rain return, the farming communities of Haharu have limited knowledge of land restoration, seed sourcing and cultivation and sustainable forest management. This, coupled with the shortage of water, freely grazing livestock that destroy young trees and burning to stimulate the growth of grasses to feed the livestock have been barriers to both successful natural and also farmer-managed regeneration.

WHAT IS THE INDONESIA RURAL ECONOMIC DEVELOPMENT PROJECT?

Indonesia Rural Economic Development (IRED) is a collaboration between Wahana Visi Indonesia (WVI), World Agroforestry Centre (ICRAF) and Lutheran World Relief (LWR) in Haharu to overcome the long dry seasons and improve rural livelihoods through forest and landscape restoration.

WHERE DOES IRED WORK?

IRED works in nine villages of Haharu: Praibakul, Rambangaru, Kalamba, Kadahang, Mbatapuhu, Matawai Pandangu, Napu, Prailangina and Wunga.

WHAT ARE IRED'S GOALS?

IRED aims to expand the successful Farmer-Managed Natural Regeneration (FMNR) trial plots in Haharu and develop agroforestry systems to help farmers regenerate degraded land and forests, increase yields, improve