



# Economic and Environmental Challenges in the post-Tsunami post-Conflict Coast Land and Upland in Aceh and Nias

## Introduction

1. Deforestation and land degradation are strongly linked to rural poverty and economic opportunities. Major natural disasters are often followed by large number of reconstruction and rehabilitation projects, that can lead to serious deforestation, often beyond the site of disaster.
2. The earthquake and tsunami of December 2004 in Aceh and Nias of Indonesia was soon followed by a 'tsunami' of unprecedented national and international aid for emergency relief and reconstruction. The narrow strips of coastal areas that were directly affected by the Tsunami waves were the focus for most projects.
3. Aceh remains one of the poorest provinces in Indonesia despite its rich natural resources. The 3-decade long political conflict had affected the social structures in the province. The fact that the earthquake and tsunami occurred in a province that was already experiencing prolonged violent conflict is largely ignored in the post-tsunami development programs.
4. As part of situation analysis of local livelihoods and natural resources, a study was conducted in June-August 2007 along coastal and upland areas in three locations - accessible East Aceh with strong conflict history, less accessible West Aceh with some conflict history, and the remote island of Nias with no conflict history.



Tree crops in Aceh and Nias - major source of household income



Timber business picked up rapidly during the construction 'boom'.

Table 1. Relative importance of tree crops (% of total income of respondents)

	Coastal Area			Inland area		
	W Aceh N=31	Pidie N=29	Nias N=35	W Aceh N=32	Pidie N=31	Nias N=34
<b>Rubber</b>	97.8	-	85.5	43.2	-	93.3
<b>Oil palm</b>	-	-	-	1.1	-	-
<b>Coconut</b>	1.3	45.5	14.5	0.3	2.3	-
<b>Cacao</b>	0.9	54.5	-	44.2	44.8	6.7
<b>Areca nut</b>	-	-	-	8.9	41.1	-
<b>Coffee</b>	-	-	-	2.4	11.7	-



Road construction in peat land



Post-tsunami housing in peat area near Meulaboh, West Aceh



Stones extracted from the road side in village.

## Method

- Survey of local livelihoods, household economics in three locations - using household interviews, group appraisals and expert consultations from sample villages
- Analysis of available data on demography, livelihoods, forest resources
- Observation of damage on natural resources in the post-tsunami context
- Consultation with district officials

Table 2. Activities contributing to local economy in the inland and coastal areas of the three study sites

Type of Household Income	Coastal Area			Inland Area		
	West Aceh	Pidie	Nias	West Aceh	Pidie	Nias
<b>Farm Income (%)</b>	<b>87.0</b>	<b>56.3</b>	<b>75.8</b>	<b>79.6</b>	<b>64.3</b>	<b>79.0</b>
Paddy field	0	0	16.4	1.5	0	0
Tegalan	4.1	0.2	4.4	7.2	25.4	0
<b>Tree crops</b>	<b>59.5</b>	<b>0.7</b>	<b>32.7</b>	<b>62.1</b>	<b>36.0</b>	<b>77.8</b>
Aquaculture	0	46.8	0	0	0	0
Livestock	22.4	0.8	14.2	8.9	2.8	1.2
Fishing	1.0	7.8	8.3	0	0	0
<b>Off-farm Income (%)</b>	<b>12.2</b>	<b>41.7</b>	<b>13.3</b>	<b>18.4</b>	<b>35.6</b>	<b>14.5</b>

## Summary findings and conclusions

1. The upland communities and their natural resources suffered seriously from pre and post Tsunami activities; but development programs have largely ignored these upland-lowland links.
2. Higher proportion of inland population relies on agriculture and forest resources than the coastal communities. Among the agricultural activities, tree crops are the most important providing 60 to 78% of total income. Rubber, cocoa, areca nuts, coffee, coconut and oil palm are important income generating tree crops.
3. In general, more people in the inland are poorer compared to coastal population both before and after the Tsunami. There is also disproportionate distribution of poverty between locations (accessible East Aceh (strong conflict history), less accessible West Aceh (conflict history) and the remote island of Nias (no conflict history).
4. During the 'construction boom', the high demand for construction materials (sand, stone, timber and brick) led to intensified logging and sand/rock mining activities throughout Aceh and Nias. Most of these changes occurred in the inland areas.
5. The clearance of peat area for human settlements, intensive agriculture and other construction is a major environmental problem.
6. There is an urgent need for an increased awareness among development and policy professionals of the livelihood-environment links of upland-lowland communities in post-disaster support initiatives. Environmental concerns should be integrated into all aspects of reconstruction activities in order to minimize negative impacts of reconstruction.
7. Lack of spatial planning and uncoordinated activities have led to 'tragedy of commons'. Strong and active participation of local institutions and systems could be promoted for a more sustainable development programs that optimize environmental goods and services as well as