World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

Livelihoods and poverty in coastal and inland parts of Aceh

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Background

Three years have passed since the notorious earth--quake and tsunami of December 2004. Most rehabilitation efforts are now addressing longer term economic development and livelihood improvements.

The earthquake and tsunami occurred in a province that was already experiencing prolonged violent conflict. Throughout the province, and particularly in rural areas, infrastructure sustained serious damage and further deteriorated because the security situation made maintenance difficult or impossible.

The study included locations based on access and conflict history: accessible East Aceh (strong conflict history); less accessible West Aceh (conflict history); and the remote island of Nias (no conflict history).

District, Zone	Physical Characteristics	Livelihood activities
PIDIE		
Coastal (tsunami affected zone)	Coastal area	Fishery: Brackish water aquaculture
Inland (non affected zone)	Mountainous with steep slope, upland	Agriculture: upland paddy, cacao
WEST ACEH		
Coastal (tsunami affected zone)	Coastal with relatively flat area, lowland	Agriculture : paddy, rubber, and coconut
Inland (non affected zone)	Mountainous with steep slope, upland	Agriculture : upland paddy and tree crop
NIAS		
Coastal (tsunami affected zone)	Coastal area with flat and lowland	Fishery and tree crops: cacao, rubber, coconut
Inland (non affected zone)	Hilly with steep slopes, upland	Livestock and tree crop farming : rubber , cacao

The study was designed to get a quick insight into the socio-economic conditions and forest resources of Aceh and Nias Island through consultation, detailed household surveys and rapid appraisal techniques. In this way, an understanding could be gained into people's livelihoods and their preference for tree-based systems from both livelihood and environmental perspectives.

Livehood and Income

Rural livelihoods in Aceh and Nias are essentially based on three resources: fisheries; paddy cultivation (and some dry-land crops grown in rotation); and tree crops. The relative importance of these three varies with landscape position; fishing for people living near the coast, rice cultivation in river valleys, tree crops both in the coastal and inland areas (rubber, cacao, coconut, pinang palms, fruit trees) and peat domes (sago palms, rubber, some conversion to oil palm).

In terms of living standard, people in the coastal areas are better off than those living further inland. The highest income per capita is in the coastal area of Pidie (IDR 6.86 million). However, the difference between the two zones in Pidie is very wide, reflecting a very high income from tambak cultivation in the coastal area. Per capita income was lowest in Nias.

There appears to be an unequal distribution of land holdings in the study area with 20% households controlling about 57% of the total land the bottom 60% of the households owning only 22% of the total land (graph 1).

Table 1. Farm and off-farm income sources of people in the study sites (%)

Type of Household Income	Costal			Inland		
	West Aceh	Pidie	Nias	West Aceh	Pidie	Nias
	(%)	(%)	(%)	(%)	(%)	(%)
Agriculture Income	**87.02**	**56.32**	**75.85**	**79.59**	**64.28**	**79.03**
Food crop	4.12	0.25	20.76	8.66	25.41	
Tree crops	**59.53**	0.69	32.68	**62.06**	36.03	**77.82**
Aquaculture and fishery	0.98	**54.62**	8.25			
Livestock	22.39	0.76	14.16	8.86	2.84	1.21
Off Farm Income	**12.18**	**41.69**	**13.35**	**18.43**	**35.64**	**14.50**
Other Income	**0.80**	**1.99**	**10.80**	**1.98**	**0.08**	**6.46**
Remittance	0.76	1.99	1.29	1.98	0.08	
Aid programme	0.05		9.52			6.46

Table 2. Household income and per capita income (IDR 000) In West Aceh, Pidie and Nias.

	Coastal area			Inland area		
	West Aceh	Pidie	Nias	West Aceh	Pidie	Nias
Number of respondents	31	32	29	31	34	35
Number of family members	122	117	172	157	197	245
Total family income (000/year)	442,019	802,625	302,648	351,536	237,392	389,875
Average family income per HH (000/year)	14,259	25,082	10,436	11,340	6,982	11,139
Income per capita (000/year)	3,623	6,860	**1,760**	2,239	**1,205**	**1,591**
Proportion of household below poverty line[1]	**43%**	**39%**	**74%**	**47%**	**74%**	**66%**

Indonesia poverty line - National Statistic Bureau (BPS) 2007 IDR 1,834,164 capita-1 year-1

Table 3. Financial profitability of main agricultural systems

Agricultural Systems	Return to land (NPV) (IDR '000 per ha)	Return to Labour (IDR per ps-day)	Cost of Establishment (IDR '000 per ha)
Tree-based systems			
Rubber Peat	(4,522)	12,399	19,809
Cocoa home garden	5,536	25,264	4,758
Cocoa	177	19,907	5,002
Cocoa - coconut	1,755	22,023	14,660
Oil Palm NES	2,599	28,673	6,257
Oil Palm Smallholder	5,426	36,446	7,234
Brackish water aquaculture (*tambak*)			
Traditional	20,555	44,802	29,203
Semi intensive	85,716	74,529	82,079

Macro-economic assumptions
Discount rate (real interest rate) 11%

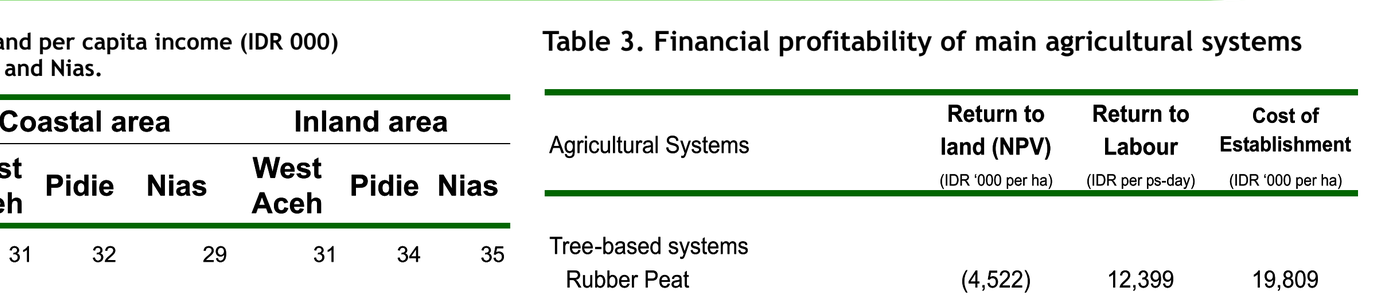
	IDR	US/$
Agricultural wage rate (real term)	19,638	2.11
Exchange rate (IDR/US$)	9,306	

Tsunami, Natural Capital and Livelihood

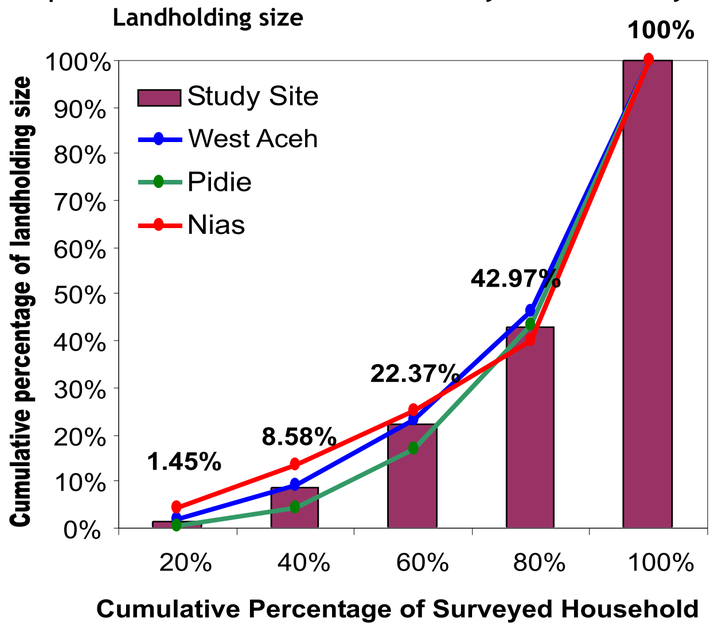
The 'human causation' element of the tsunami impact has received a lot of attention for the costal area of Aceh which lost its protective mangroves in the 1980s due to conversion to lucrative aquaculture farm and urban use. Although estimates indicate that the 'social value' of intact mangroves is much higher than the 'private value' of converted mangroves, there is no mechanism to provide benefits which might prompt those with the right to convert mangroves to reconsider their decisions. Part of the tsunami damage can thus be seen as the result of institutional failure to internalize externalities.

The capacity of coastal ecosystems to regenerate after disasters and to continue to produce resources and services for human livelihoods can no longer be taken for granted. Socio-ecological resilience must be understood at a broader scale and actively managed and nurtured. Incentives for generating ecological knowledge and translating this into information that can be used in governance are essential.

Regarding tree-based systems, in general, the tree crop plantations in the study sites cultivated by self supporting systems without recommended technology. The farmers do not have convenient access to productivity-enhancing inputs or information and technologies associated with their use, and are not well informed about the full market potential of their products.



Graph 1. Cumulative distribution of surveyed household by Landholding size



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