



INITIAL ENVIRONMENTAL EXAMINATION

for

GRANT 002-INO

EARTHQUAKE AND TSUNAMI EMERGENCY SUPPORT PROJECT (FISHERIES COMPONENT)



FISHERIES REHABILITATION AND RECONSTRUCTION SUBPROJECT IN ACEH BARAT

August 2006

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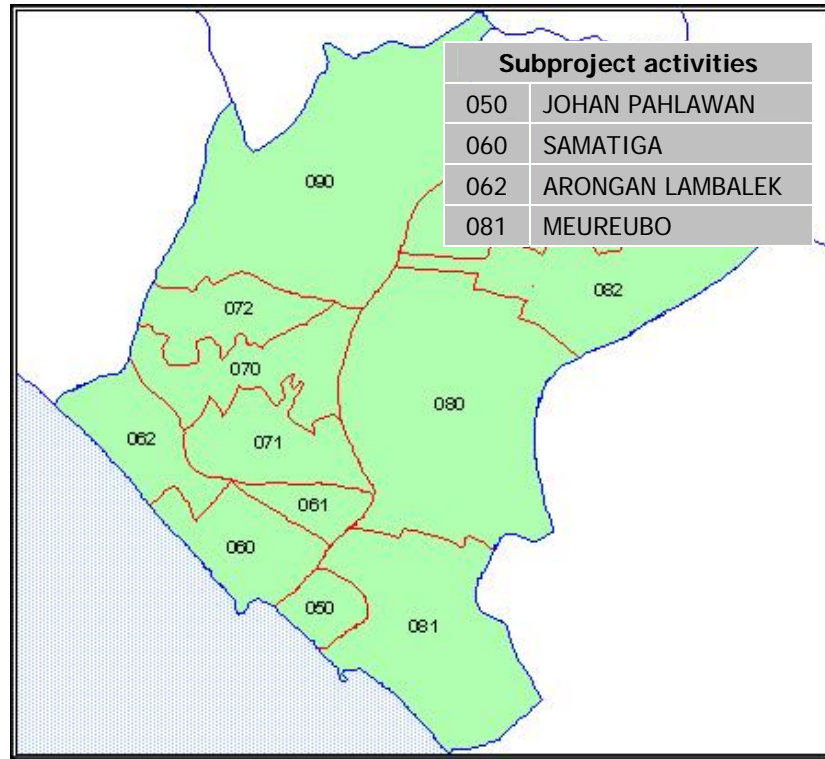
ABBREVIATIONS

ADB	–	Asian Development Bank
BRR	–	Aceh-North Sumatra Agency for Rehabilitation and Reconstruction <i>Badan Rehabilitasi dan Rekonstruksi</i>
CAP	–	Community Action Plan
CLAP	-	Community Livelihood Action Plan
DCN	–	District Concept Note
DIU	–	District Implementation Unit
DKP	–	Dinas Kelautan dan Perikanan (provincial /district fisheries departments)
EARP	-	Environmental Assessment and Review Procedure
EIA	-	Environmental Impact Assessment
EMS	–	Extended Mission to Sumatra (ADB)
ETESP	–	Earthquake and Tsunami Emergency Support Project
IEE	–	Initial Environmental Examination
MMAF	–	Ministry of Marine Affairs and Fisheries
NAD	–	Nanggroe Aceh Darussalam
NGO	–	Non Government Organization
Satker	–	Project Management Unit (Banda Aceh)
REA	-	Rapid Environmental Assessment
SPAR	–	Subproject Appraisal Report
SPEM	–	ETESP Spatial Planning and Environmental Management
SPPR	-	Subproject Preparation Report
VFLG	–	Village Fisheries Livelihood Grant

NOTE

In this document, "\$" refers to US dollars.

MAP OF SUBDISTRICTS IN ACEH BARAT AND LOCATIONS OF SUBPROJECT ACTIVITIES



A. Introduction

1. The Asian Development Bank (ADB) Earthquake and Tsunami Emergency Support Project (ETESP) includes allocation to support restoration of the livelihoods of earthquake and tsunami affected people in the fisheries sector. The executing agency for the ETESP is the Aceh-North Sumatra Agency for Rehabilitation and Reconstruction (BRR). BRR is also the Implementation Agency for the 2006 and 2007 budgets of ETESP Fisheries.

2. ETESP has been classified as a Category B Project¹ and therefore an Initial Environmental Examination (IEE) is required for each subproject, with the exception of subprojects that can be identified as activities/"non-physical" interventions (e.g. rebuilding human resources capacities, fiduciary and governance frameworks).

3. The present document is the Initial Environmental Examination (IEE) for the fisheries rehabilitation and reconstruction subproject being carried out under funding provided in DIPA 2006 for Aceh Barat District.

4. The Environmental Assessment and Review Procedure (EARP) takes into account any relevant post-tsunami government regulations and procedures (e.g., guidelines for waste disposal and management, reconstruction of housing etc.). The IAs must ensure that all activities are carried out in accordance with both existing guidelines and any new guidelines and technical standards, as well as with ADB's environmental assessment requirements, as set out in ADB's *Environment Policy* (2002) and ADB's *Environmental Assessment Guidelines* (2003).

5. The following review procedures are established in the Grant Agreement between GOI and ADB for ETESP to facilitate identification and mitigation of potential environmental problems/risks related to each subproject:

(i) Responsibilities of Implementing Agencies (IAs)

- Carry out an IEE for each subproject² and submit it to ADB as part of the subproject proposal.
- Obtain environmental clearance from the relevant project approving agency and ADB for environmental compliance before awarding any contracts for that subproject.
- Irrespective of whether or not the subproject required an IEE, basic environmental safeguards to be adopted during construction shall be included in the contract documents. For subprojects that require an IEE, the contract documents will include clauses for the implementation of environmental mitigation measures as described in the IEE report and the approving agency clearance.
- Full responsibility for monitoring and reporting to ADB on implementation of the environmental mitigation measures described in the IEE report.

(ii) ADB's Responsibilities

- Review the IEE reports and approve qualifying subprojects.

¹ Based on EARP in ETESP Grant Agreement and ADB Environmental Policy.

² Except subprojects with solely capacity building and fiduciary/governance-related activities.

- Disclose the findings of the IEE and summary IEE in accordance with the requirements under ADB's *Environment Policy (2002)* and ADB's *Disaster and Emergency Assistance Policy (2004)*.
- Monitor the implementation of mitigation measures through project review missions, and conduct environmental performance monitoring as necessary.

6. The Implementing Agencies (IAs) will ensure that ADB is given access to undertake environmental monitoring of subprojects, if needed, and will submit progress review reports describing the progress of environmental monitoring and highlighting any other environmental issues that may have arisen during implementation, and measures taken to address such issues. The IAs will also ensure that all environmental assessment documents, including the environmental monitoring reports, are maintained systematically as part of the subproject-specific record. The IA Agency for the Fisheries Sector of ETESP for DIPA 2006 is the BRR. At the Provincial level, a Satker has been established in Banda Aceh, with responsibility for project management. In each district, the District Fishery Services (*Dinas Kelautan dan Perikanan – DKP*) has established a Project Implementing Unit (PIU), with responsibilities for management and supervision of activities in each participating district or city/town (*kota*).

7. Prior to the preparation of this IEE, the Satker with assistance from the ETESP-Fisheries consultants prepared Guidelines for Fisheries Rehabilitation, that include technical and environmental criteria for rehabilitation and reconstruction activities. These were based on recommendations made in the ETESP-Fisheries Inception Report and were used by the Project Implementation Unit (PIU) for Aceh Barat and the Satker to select sites for the DIPA 2006.

8. The selection criteria for subprojects in Aceh Barat consider ADB's siting restrictions and recommendations on mitigation measures from the IEE of ETESP, that is, rehabilitation sites will not be located in or adjacent to environmentally sensitive areas such as (i) protected area, (ii) buffer zone of protected area, (iii) wetland, (iv) mangrove, (v) estuarine, (vi) special area for protecting biodiversity or with other significant ecological or other values, and (vii) pollution hotspots.

9. The preparation of this IEE follows on from the REA (Rapid Environmental Assessment) checklist (Annex A) that was used for each subproject activity, and this indicated that there would be no serious negative environmental impacts from DIPA 2006 activities, thus categorizing the subproject as Category B. The Satker/PIU team then carried out an IEE, as required under Category B. The Consultant Team of ETESP-Fisheries Component provided technical support to the Satker/PIU for the preparation of the IEE. This involved a review and further analysis of information, field visits and further consultations with selected stakeholders.

10. The Satker, PIU, and consultants of ETESP-Fisheries Component visited all the sub-project locations in Aceh Barat to confirm the information collated for the IEE, including the social and environmental assessment.

B. Description of the Subproject

11. The Fisheries Sector is one sector of the ETESP, that covers 11 tsunami and earthquake affected districts and cities in the province of Nanggroe Aceh Darussalam (NAD) and Aceh Barat island, including the subdistrict of Aceh Barat. There are six subcomponents supported under the ETESP-Fisheries. Support in Aceh Barat will cover the following.

12. **Sub-component 1: Community Mobilization.** The community mobilization sub-component will support up to 32 villages through 2006 and 2007 budgets, across four subdistricts in Aceh Barat. Six village fisheries livelihood grants are provided in the 2006 DIPA, and an additional 12 in the DIPA 2007. The community mobilization supported by the NGO Bina Swadaya will assist in mobilizing communities for planning and implementation of fisheries rehabilitation work and for restoring livelihoods. The community plan will be elaborated in a Community Livelihood Action Plan (CLAP) that will be implemented with a Village Fisheries Livelihood Grant (VFLG) to be provided by ETESP or goods and services delivered through ETESP Subcomponents 2-5. The plan and grant will provide the basis for recovery of livelihoods and improved fisheries resource management in the villages. Village Fisheries Livelihood Grants (VFLGs) will provide up to the equivalent on average of \$20,000 for eligible activities, to improve community fisheries infrastructure or support individual or group livelihood recovery. The short-list of villages selected for community mobilization in Aceh Barat is provided in Table 1. The activities supported will be small-scale activities and have been tentatively identified by communities as shown in Table 1 and Annex B.

Table 1. Coastal subdistricts and villages selected for subcomponent 1 in Aceh Barat

Subdistrict	Village (Villages)	Tsunami effect	Population	No. of Families	Project activity ^{a/}
JOHAN PAHLAWAN					
	Suak Indrapuri	Severe	3.159	816	C 06, VFLG
	Kampung Pasir	Severe	896	312	C 06, VFLG 07
	Padang Seurahet	Severe	3.535	883	C 06, VFLG 07
	Runding	Severe	5.032	915	C 06
	Ujung Baroh	Severe	6.772	1.151	I 06
	Suak Ribee	Severe	2.732	364	VFLG
	Panggong	Severe	1.793	434	VFLG 07
	Ujung Kalak	Severe	6.412	1.516	VFLG 07
SAMA TIGA					
	Lhok Bubon	Severe	323	74	VFLG 07
	Gampoeng Teungoh	Severe	486	120	C 06, VFLG
	Kuala Bubon	Severe	673	231	VFLG
	Cot Darat	Severe	851	204	A 06
	Gampoeng Cot	Severe	473	102	C 06
	Suak Pandan	Severe	691	171	C 06
	Suak Seukee	Severe	324	192	C 06
	Suak Pante Breuh	Severe	724	192	C 06
	Suak Geudebang	Severe	175	108	C 06
	Suak Seumasih	Severe	843	213	C 06, VFLG 07
	Cot Pluh	Severe	485	133	A 06
	Suak Timah	Severe	1485	370	VFLG 07
	Alue Raya	Severe	466	117	VFLG 07
ARONGAN LAMBALEK					
	Peuribu	Severe	637	192	I 06, VFLG
	Arongan	Severe	513	135	A 06, VFLG
	Suak Keumudee	Severe	217	76	C 06, VFLG
	Kubu	Severe	439	156	A 06
	Suak IE Beusou	Severe	632	125	C 06
	Pante Mutia	Severe	276	53	C 06
	Keub	Severe	676	178	C 06
MEUREUBO					
	Langung	Severe	1758	371	C 06, VFLG
	Meureubo	Severe	2044	461	VFLG 07
	Ujung Drien	Severe	1284	243	I 06, C 06
	Pasi Pinang	Severe	1039	242	VFLG, C 06

a/C=capture fisheries, FP=Fish Processing; FM=Fish Marketing; A = Aquaculture, H=hatchery; I = Fisheries Infrastructure ; VFLG = Village Fisheries Livelihood Grant, provided under Sub-component 1.
Source: PIU, ETESP Consultant project files. 06 (2006 DIPA budget); 07 (2007 DIPA budget)

13. **Sub-component 2: Small-scale capture fisheries rehabilitation.** The objective of sub-component for restoration of capture fisheries is to rehabilitate

fishing activities for local fishers whose livelihoods are affected by the tsunami. The following activities will be supported:

- Reconstruction of **twenty six** medium size gillnetters and hand liners (5 GT) in four subdistricts in Aceh Barat (10 for Johan Pahlawan; 4 for Arongan Lambalek; 8 for Sama Tiga; and 4 for Meureubo)

The boats will be delivered with gear, support to operational costs and supported by training of fishers. Villages for receipt of the 5GT boats under 2006 budgets will be identified from an ongoing village consultation process.

14. **Sub-component 3: Small-scale aquaculture.** The small-scale aquaculture sub-component will support small-scale aquaculture farmers to recover from the earthquake and tsunami with the follow assistance:

- Rehabilitation of **two** small-scale fish cage farming units in the villages of Arongan and Kubu (subdistrict Arongan Lambalek).
- Provision of **20 packages** of small-scale crab fattening provided as livelihood support for aquaculture farmers and their families in 2 villages, Cot Pluh and Cot Darat village in the subdistrict of Sama Tiga.

15. The NGO Bina Swadaya will support the mobilization of communities for aquaculture, and ensure effective participation of the community in each subproject activity (through sub-component 1). Each aquaculture subproject activity is supported by training packages, designed to build capacity among communities for environmentally responsible aquaculture and community-based management of aquaculture.

16. **Sub-component 4: Small-scale fisheries infrastructure.** The small-scale fisheries infrastructure sub-component will support the rehabilitation of three fisheries infrastructure facilities required by small-scale fishers in three villages in Aceh Barat:

- Reconstruction of **one mini fish landing places** (PPI) in the village of Peuribu in the sub-district of Arongan Lambalek
- Reconstruction of **supporting facilities for two fish landing places** in the village of Ujung Baroh in the sub-district of Johan Pahlawan and in the village of Ujung Drien in the sub-district of Meureubo. The facilities include fence, fish packing room, fisher auction hall and docking facilities.
- **One fuel station** (SPDN = Solar Packed Dealer Nelayan) for fishers on government land (owned by DKP, Aceh Barat) at the newly reconstructed fish landing area at Ujung Baroh village in Johan Pahlawan. The SPDN replaces one lost during the tsunami, but in a new location. The previous location is not available as the land was lost during the tsunami. The fuel station will have a capacity for 20,000 litres of fuel (with potential to expand in future to around 100,000 litres) and provide essential fuel for fishers operating from both kecamatan Johan Pahlawan and Meureubo which consists of 14 fishers villages.

17. The three fish landing sites and the jetty are under management of Dinas Kelautan dan Perikanan of Aceh Barat. The SPDN facility will be operated by Koperasi Bunga Laut with management supervision of PERTAMINA Unit I and DKP Aceh Barat.

18. **Sub-component 5: Coastal environmental rehabilitation.** There is no separate subcomponent activity design report (ADR) in the SPPR for coastal environmental rehabilitation. DIPA 2006 includes a budget of Rp 200 million for coastal environmental rehabilitation at Johan Pahlawan that will be used for a

community-based coastal environmental rehabilitation activity in this sub-district. This small-scale activity will be defined in a village plan for the selected village to be prepared with facilitation by Bina Swadaya under Sub-component 1, taking account of the SPEM Kecamatan Action Plan for environmental rehabilitation in this sub-district.

19. **Sub-component 6: Fishery service recovery.** There is no separate subcomponent activity design report (ADR) in the SPPR for recovery of the fishery service, but the DIPA 2006 does include training, minor equipment and operational expenses that will be used to strengthen DKP operations and management of the subproject activities.

20. The proposed implementation schedule for the subproject activities is provided in Table 2.

Table 2. Implementation schedule for sub-project activities

	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Sub-component 1 Community Empowerment							
(i) Confirmation of selected villages	■						
(ii) Mobilization of village facilitator	■	■					
(iii) Group selection/formation			■				
(iv) Preparation of community work plan/CLAP				■	■	■	■
(v) Community contract disbursement							
(vi) Monitoring, evaluation and reporting	■	■	■	■	■	■	■
Sub-component 2 Restoration of Capture Fisheries							
(i) Tender preparation/issuing contracts	■	■					
(ii) Construction of boats			■	■	■	■	■
(iii) Supervision			■	■	■	■	■
(iv) Monitoring, evaluation and reporting	■	■	■	■	■	■	■
Sub-component 3 Restoration of Aquaculture Facilities							
(i) Tender preparation/issuing contracts	■	■					
(ii) Construction/procurement of equipment			■	■	■	■	■
(iii) Supervision			■	■	■	■	■
(iv) Monitoring, evaluation and reporting	■	■	■	■	■	■	■
Sub-component 4 Restoration of Fisheries Infrastructure							
(i) Tender preparation/issuing contracts	■	■					
(ii) Construction			■	■	■	■	■
(iii) Supervision			■	■	■	■	■
(iv) Monitoring, evaluation and reporting	■	■	■	■	■	■	■

21. Maps of location of the sub-project activities in the selected sub-districts and listed villages are in Annex B.

22. The budget for the four subcomponent activities is provided in Table 3, together with indicative numbers of sub-project participants.

Table 3. Estimated costs of activities and indicative number of participants

Activity report		Budget Year	Cost estimate Rp mil	Primary participant class	Number of families
	Subcomponent 1				
1	Community Empowerment	2006/07	1200	Fishers and to some degree other community members	300
	Subcomponent 2				
2	West Coast Vessels (5-15GT)	2006	3600	Skippers and crew on c. 26 vessels	78
	Subcomponent 3				
3	Fish cage rehabilitation	2006	600	Fish cage farmers in Aceh Barat and their employees	60
4	Livelihoods	2006	100	Small-scale aquaculture farmers and fishers	32
	Subcomponent 4				
5	Facilities for PPI at Meureubo	2006	600	Local fishers (plus fish traders/processors)	>150
	Facilities for PPI at Ujong Baro, Johan Palawan	2006	500	Local fishers (plus fish traders/processors)	>430
	Mini-PPI Arongan Lambalek	2006	1,000	Local fishers (plus fish traders/processors)	>47
6	SPDN Johan Palawan	2006	650	Local fishers c. 40 vessels + crew	50
	Subcomponent 5				
	Ecosystem Rehabilitation	2006	200	Fishers, local villagers [to be defined]	Na
	Subcomponent 6				
	Fishery service recovery and project management	2006	395	Vehicle, minor equipment and training, operational expenses	Na

Source: PIU, Satker, ETESP Fisheries Consultant Project Team

C. Description of the Environment

1. Physical Environment

23. Aceh Barat is situated along the west coast of NAD. The west coast of Aceh belongs to the so called Western Coastal Plains and Hills Region of Sumatera. In general the coastal lowland of the west coast can be classified into four different coastline types. Each has its specific parent material, age, elevation and slope. There are also similarities in soil characteristics and layout of alluvial systems, deltas and modified estuaries.

24. Aceh Barat District is located on 04⁰ 61' – 04⁰ 47' N and 95⁰ 52' – 86⁰ 30' E. The climate of Aceh Barat district is tropical. Mean annual rainfall is relatively high with an average of 290 mm per month. Minimum air temperature in Aceh Barat is approximately 21-22.3 °C with maximum air temperature from 29.9-31.4 °C. Air humidity is approximately 83% to 88%.

25. Aceh Barat is located in the Meulaboh Embayment that includes also adjacent sub-districts in Aceh Jaya. This region can be characterised as a wave-dominated beach barrier-system which blocks drainage of meandering rivers and inland backswamps (former lagoons). In Calang (Aceh Jaya) the depth of the embayment is 100 metres, while nearer Meulaboh it is approximately 2000 metres. The long shore current drift causes a highly energetic environment with waves depositing tonnes of coarse sandy material along the primary beaches.

26. Due to tsunami impact this coastal environment has been completely disrupted: sedimentation and deposition are still not balanced and estuary layout is still changing shape. Since the alluvial plains of the embayment are very flat, river

gradients are low and sedimentation is slow. This results in low level energy river systems which do not produce high levees. Therefore they tend to flood before they can break through the blocking beach ridge in the estuarine river mouth.

27. The lowland soils in this area consist mainly of marine and riverine loamy to clayey deposits, and pre-tsunami this land was very productive agriculturally. There is also potential occurrence of acid sulphate soils and high salinity in the former alluvial depressions and oxbowlakes.

28. The impact of the tsunami was devastating in the coastal areas, destroying most of the beachridges, brackish water ponds and tambaks, and a large part of the coastal-alluvial lowland. Drainage of both fresh and saline water is a problem as natural flow has commonly been blocked. The tsunami impact was devastating but, due to the coast characteristics, quite different to other zones. Most damage occurred as a result of the backwash, causing many deep gullies and open water bodies. Most of the existing arable land was destroyed and broad sand deposits filled in tambaks and paddyfields. The gullies and water bodies have slowed down road reconstruction and rehabilitation of arable land.

29. The arable land along the coast is fragmented by the steep hills and, due to the tsunami, soil quality has deteriorated. Topsoil and organic matter has been eroded, large gullies have formed and sandy material has been deposited in places. Trapped saline water, a result of the wave inundation and sediment loads, caused localised death of fruit trees. Inland some arable alluvial land is available (new location of Mata le), but still a lot of land lies fallow or is abandoned. Before these areas can be productive again, infrastructural rehabilitation has to be completed.

30. In the four subdistricts selected for support, 95 % of villages suffered severe damage from the tsunami (Table 2).

Table 2 Extent of tsunami damage to coastal village, Aceh Barat

Extent of damage	Number of villages	%
None	3	5
Slight	0	0
Moderate	0	0
Severe	61	95
Total	64	100

Source: MapFrame

2. Ecological Resources and Land Use

31. The resources of Aceh Barat have been analysed recently by the ADB ETESP Spatial planning and Environmental Management (SPEM component). Total area of 292,795 ha, and land use can be summarized as:

- 21,445 ha of irrigated area and agricultural area
- 46,668 ha of Fallow land
- 74,336 ha of Up land
- 165,252 ha of Commercial Agriculture Enterprise
- 136,390 ha of Forest
- 19,743 ha Non government forest
- 37,549 ha of protected forest
- 23,839.35 ha “critical area” land

32. The coastal lowlands in Aceh Barat are surrounded by forested (primary and secondary) hills and hilly upland outlayers of the Barisan Range. The steep hills are

in many places logged and although some ladang (shifting cultivation) occurs, these areas are predominantly not suitable for agriculture.

33. Aceh Barat district has 37,549ha of protected forest, but apparently no officially protected areas or designated nature reserves near the coast or sub-project areas.

34. There are some rare and endangered species in the remaining Aceh Barat forests, but no rare or endangered species recorded in the coastal areas near subproject locations.

35. The coastal resources of Aceh Barat were modified by human activity before the earthquake and tsunami, and have been further extensively damaged by the tsunami. The living aquatic resources of Aceh Barat supported a productive fishing sector, with many coastal people heavily dependant on the inshore fishery resources. The capture fisheries production in 2004 was estimated by DKP figures as 31,209.18 tonnes, worth an estimated Rp 405 billion, and has not yet fully recovered from the earthquake and tsunami.

36. All sites selected for fisheries rehabilitation are situated in tsunami -affected coastal plains. Land use in the sub-project areas includes existing cassava (*Manihot utilissima*) needle grass (*Andropogon aciculatus*) turkey berry (*Solanum torvum*), durian (*Durio zibethinus*), breadfruit (*Artrocarpus comuni*), coarse grass (*Imperata cylindrica*), rickets grass (*Chloris barbata*), lemongrass (*Cytopogon nardus*), guava (*Psidium guajava*), mango (*Mangifera indica*), sugar cane (*Saccharum officinale*), coconut tree (*Cocos nucifera*), banana (*Musa* sp), soursop (*Annona muricata*), tamarindo (*Tamarindus indica*) and bamboo (*Bambusa* sp) occurring on low-lying sites on coastal plain.

37. Like the physical environment, the ecological resources have been affected by the earthquake and tsunami in Aceh Barat. Ecological conditions of the coastal areas and wetlands have been analyzed through field visits, satellite imagery and review of secondary information, and review of information from the ETESP Spatial Planning and Environmental Management (SPEM) Kecamatan Action Plans for the west coast.

38. The resource value classification system developed by ETESP Spatial Planning and Environmental Management (SPEM) was used to determine the environmental sensitivity of the subproject location to project interventions. According to this classification system each ecounit is assigned a Combined Value and Sensitivity Score (CRVSS) based on a Biological Importance Value (ETESP SPEM, November 2005). This value takes into consideration the extent of the tsunami damage and if the area is a protected area or designated for special forest use. The environmental sensitivity map for Aceh Barat is given in Annex B.

39. Based on the site visits and this qualitative analysis using SPEM criteria, the activities proposed under Subcomponent 2 (capture fisheries) and Subcomponent 3 (small-scale aquaculture and fish cages) and Subcomponent 4 (fisheries infrastructure) are located in a **low environmental sensitivity** area. Siting of these subproject activities therefore assures there will be no impact on environmentally sensitive sites.

40. The analysis of Subcomponent 1 (community mobilization) however shows that some of the villages identified for community mobilization do contain areas that would be defined by SPEM as environmentally sensitive sites, potentially coastal/green belt buffer zones and mangrove wetlands. The activities in

Subcomponent 1 therefore require some mitigation measures to avoid potential environmental impacts.

3. Socio-Economic Conditions

41. Table 3 provides a summary of the population in Aceh Barat sub-districts after the earthquake and tsunami, clearly demonstrating the high incidence of poverty in many sub-districts. The tsunami has also significantly increased the number of poor families, and in the villages and sub-districts supported by this sub-project the incidence is high.

Table 3. Population in tsunami affected subdistricts of Aceh Barat, 2005

Subdistrict/ Village	Impact Tsunami	Population			Families	Agriculture, including fisheries		Poverty	
		Male	Female	Total		Total	%	Total	%
Johan Pahlawan									
Suak Indrapuri	Severe	1,878	1,281	3,159	816	0	0	380	46
Kampung Pasir	Severe	716	180	896	312	0	0	258	82
Padang Seurahet	Severe	1,693	1,832	3,535	883	0	0	406	46
Runding	Severe	2,415	2,617	5,032	915	0	0	228	25
Ujung Baroh	Severe	3,183	3,589	6,772	1,151	35	3	254	22,1
Suak Ribee	Severe	1,431	1,301	2,732	364	109	29,9	209	57,4
Panggong	Severe	997	796	1,793	434	0	0	104	24
Ujung Kalak	Severe	3200	3212	6,412	1,516	0	0	833	55
Sama Tiga									
Lhok Bubon	Severe	152	171	323	74	60	81	23	31
Gapoeng Teungoh	Severe	240	246	486	120	85	71	13	10,8
Kuala Bubon	Severe	336	337	673	231	207	89,6	48	20,7
Cot Darat	Severe	412	439	851	204	157	76,9	37	18,1
Gampoeng Cot	Severe	218	255	473	102	90	91,8	25	24,5
Suak Pandan	Severe	332	359	691	171	152	88,8	37	21,6
Suak Seukee	Severe	207	117	324	192	172	89,5	33	17,2
Suak Pante Breuh	Severe	358	366	724	192	168	87,5	33	17,2
Suak Geudebang	Severe	130	45	175	108	81	75	37	34,2
Suak Seumasih	Severe	410	433	843	213	142	66,6	40	18,7
Cot Pluh	Severe	244	241	485	133	72	54	29	21,8
Suak Timah	Severe	739	746	1485	370	299	81	33	9
Alue Raya	Severe	217	249	466	117	107	91	28	24
Arongan Lambalek									
Peuribu	Severe	355	282	637	192	182	95	58	30,2
Arongan	Severe	247	266	513	135	95	70	70	51,9
Suak Keumudee	Severe	136	81	217	76	72	95	76	100
Kubu	Severe	251	188	439	156	109	70	156	100
Suak IE Beusou	Severe	289	343	632	125	109	87	65	52
Pante Mutia	Severe	153	123	276	53	44	83	53	100
Keub	Severe	346	330	676	178	169	95	89	50
Meureubo									
Langung	Severe	859	899	1758	371	260	70	65	17,5
Meureubo	Severe	1004	1040	2044	461	373	81	59	12,8
Ujung Drien	Severe	569	715	1284	243	199	82	21	8,6
Pasi Pinang	Severe	364	675	1039	242	206	85	56	23,1

Source : Analysis by Site Adviser Aceh Barat ADB ETESP-Fisheries, from MapFrame

42. The earthquake and tsunami significantly impacted small-scale fishers and their families, with loss of life, damage and losses of boats, engines, fishing gear, and aquaculture facilities. Many vessels covering a range of sizes were destroyed. As a result of these events many fishers are now unemployed, since they have no vessels and insufficient capital or access to credit to acquire new vessels. Damage to ice plants is causing a shortage of ice, though two ice plants have been provided - a mobile one ton per day plant in Meureubo (NGO donated) and a 10 ton private sector plant in Sama Tiga subdistrict. The main private sector ice factory at the PPI site in Meulaboh was destroyed. As in many other locations, fish is being open air dried for human consumption in uncontrolled and often squalid conditions leading to poor product quality.

43. Many of the people in subdistrict villages identified by ETESP Fisheries have lost their houses and livelihoods. The community mobilization supported by Subcomponent 1 will provide well targeted interventions to assist some of the most vulnerable and poorest people living in coastal villages in Aceh Barat to restore their livelihoods.

44. Social and cultural resources have been investigated during preparation of the IEE. This investigation confirms that there are no historic or cultural sites near the subproject locations. There are no important tourism sites near the subproject locations.

D. Screening of Potential Environmental Impacts and Mitigation Measures

45. The Public Consultations with villagers, local government and NGOs, the REA Checklists, and field observations provide the necessary basic information for this screening of potential impacts on the environment. The possible environmental impacts that may be encountered during implementation together with mitigating measures are presented in Table 4.

46. The identification of adverse environmental impacts likely to arise from the implementation of this subproject showed that most of the subproject activities falling under Category B are not expected to result in significant impacts. Potentially minor adverse impacts and corresponding suggested mitigation measures are identified for each subcomponent activity in Table 4. The following describes the potential environmental impacts and mitigation measures for each sub-component activity.

47. **Community mobilization.** Community mobilization subcomponent activities proposed by villagers will all be small-scale that will not cause any negative environmental impacts. Most are environmentally positive. The villages that will be supported include some environmentally sensitive, although severely damaged, ecosystems, therefore, eligibility criteria as described in Annex D will be used by the PIU to screen all investments under the village grants. Only eligible activities will be supported by ETESP. The responsibility for screening of community investments lies with the PIU with technical and management support from the Satker and ETESP Consultant Team. The process for community mobilization facilitated by the NGO will also include training and awareness-raising on environmental issues, and opportunities for environmental improvement will be included in the Community Livelihood Action Plans and grants to be supported by ETESP.

48. **Small-scale capture fisheries.** Based on fishers' and Aceh Barat DKP estimates, fish catches are much reduced after the tsunami. Recorded DKP data for 2005 indicate that production of fish in Aceh Barat has declined by around 55% compared to pre-tsunami levels. This is mainly due to losses of and damage to boats by the tsunami. Thus the rebuilding of fishers' livelihoods targeting these resources is considered feasible and sustainable. No significant negative environmental impacts are anticipated from the small numbers of boats supported under the subproject. It is noted though that stock data in Aceh Barat are currently non-existent, and that improved stock assessments are recommended in future to support management of fishing and stocks at better defined sustainable levels.

49. Although quantities are small (estimated as 208m³), the contracts for boat construction will specify that only legally certified wood will be allowed for construction of fishing boats. Timber is available from certified wood yards in Aceh Barat or neighbouring districts in NAD. Timber quality is a key factor in vessel

construction; therefore timber will be acquired from certified yards that can supply quality timber.

50. Fishing gear will be provided to replaced boats. No significant adverse environmental impacts will result from operation of the gears, which are all legal types, and not designated by the Government of Indonesia as destructive fishing practices. Training will be provided to all fishers in environmentally sound operational management of fishing vessels, particularly in relation to bilge pumping in port and the safe disposal of oil products.

51. **Small-scale aquaculture.** The aquaculture rehabilitation subproject supports only rehabilitation of two marine fish cage units and small-scale crab culture. No new pond or hatchery development is supported. None of the aquaculture subproject activities are located within environmentally sensitive locations. The small-scale structures can also easily be moved, if required, should there be further change in coastal and river hydrology.

52. Fish farming requires fish seed and feed. Fish seed from certified disease free fish will be used (purchased from Medan where they are readily available) to avoid collection of wild stocks and risks of disease. Fish farmers will be encouraged to use artificial feed, rather than collection of “trash fish” from the wild and training will be provided in proper feeding practices to minimise risks of water pollution from waste feed. Small-scale crab farming uses small amounts of fish which cannot be used for human consumption.

53. Training and technical supervision are included in the design of all aquaculture sub-project activities to promote awareness and build capacity among farmers in environmentally sound aquaculture management practices.

54. **Small-scale fisheries infrastructure.** The proposed activities will have no significant negative environmental impact since the location of the fish landing and fishing port areas are not near any environmentally sensitive ecosystems. The port facilities will provide better environmental management than current systems, and moreover will represent a more attractive built environment and thus will have some aesthetic benefits. Training and technical supervision are included in the design of all port facilities to promote awareness and build capacity among fishers and traders in environmentally sound management practices.

55. The presence of a fuel station (SPDN) will in practice improve the environment, through reducing the level of spillage compared to the present system of transferring fuel to vessels using jerry cans and plastic containers. The design will include drains to catch any fuel spills and training will be provided to operators, and fishers, in minimising fuel spills and environmentally safe handling and disposal of any waste materials generated during fuel station operations. Spilt fuel will be treated using sawdust or similar absorbent and then disposed of in a suitable land fill site.

Table 4. Environmental Screening of Subproject Activities by Sub-component

a) Subcomponent 1: Community mobilization in Aceh Barat, 2006

Activity	Environmental Impact/Issue	Magnitude			Duration			Mitigation Measures	Location	Time Frame ³	Responsibility
		L	M	H	S	M	L				
1. Siting	Small-scale fishery, aquaculture and post-harvest activities without negative environmental impacts.							Eligibility criteria for village grants will ensure investments are environmentally sound and not located in environmentally sensitive ecosystems. Training will be provided to District PIU in using environmental eligibility criteria in screening of community activities	18 villages for village grants [see Annex B]	Months 1-3	-UPP PIU/SA for screening of village grants -Bina Swadaya (NGO) for community mobilization -PIU/SA for technical support
2. Design	None anticipated							Capacity building will assist villagers and fisher/aquaculture groups to design environmentally sound activities	18 villages for village grants [see Annex B]	Months 2-5	-UPP PIU/SA for screening of village grants -Bina Swadaya (NGO) for community mobilization -PIU/SA for technical support
3. Reconstruction	None anticipated							Only eligible investments will be supported. Technical supervision by PIU supported by the Satker will ensure any reconstruction activities cause no environmental impacts	18 villages for village grants [see Annex B]	Months 5-19	-UPP - PIU/SA for screening of village grants -Bina Swadaya (NGO) for community mobilization -PIU/SA for technical support
4. Operation	None anticipated							Only eligible investments will be supported. Supervision by PIU supported by the Satker will ensure any reconstruction activities cause no environmental impacts. Training will be provided to encourage hygienic and environmentally sound operations.	18 villages for village grants [see Annex B]	Months 4-19	-UPP -PIU/SA for screening of village grants -Bina Swadaya (NGO) for community mobilization -PIU/SA for technical support

PIU = District Project Implementing Unit (PIU); SA = ETESP consultant Site Adviser; UPP = Unit Pelayanan Pengembangan

³ After subproject start up.\

b) Subcomponent 2: Small-scale capture fisheries in Aceh Barat, 2005 - 2006

Activity	Environmental Impact/Issue	Magnitude			Duration			Mitigation Measures	Location	Time Frame ⁴	Responsibility
		L	M	H	S	M	L				
1. Siting	- Mooring/use of boats from chosen locations will cause no environmental impact.							- No mitigation measures required	10 boats in Johan Pahlawan; 4 for Arongan Lambalek; 8 for Sama Tiga; and 4 for Meureubo	Month 1	- Satker for technical & management support -PIU/SA for prioritizing locations and technical & management support
2. Design	-Safety and quality of traditional boat designs preferred by fishers - Wood requirements	X			X			-Design specifications to include improved safety and quality specifications -Designs to make efficient use of wood	As above	Months 1-2	Satker for ensuring appropriate design in tender documents -PIU/SA for technical and management support
3. Reconstruction	-Timber use for reconstruction (estimated 208 m ³ required) -Limited noise, nuisance or garbage from building and repair of boats	X			X			-Timber used for boat building will come from certified legal sources. Wood sourcing will follow ADB/BRR wood sourcing guidelines -Contractors to follow good boat construction practices	As above	Months 3-5	-PIU/SA for supervision and monitoring; technical & management support - Satker for contracting supervision; technical & management support -Boat building contractor
4. Operation	-Fishing pressure -Fishing methods -Waste discharge to marine waters from oil dumping/bilge flushing -Sea safety	X			X			-Fishing boats provided will not contribute to overfishing -No destructive fishing practices and gear are supported by the subproject -Training and public awareness campaigns for local fishers in responsible fishing practices and safe operational management of boats	As above	Months 5 - 17	-PIU/SA for supervision monitoring; technical & mgmnt support -Training contractor -Satker for supervision and monitoring; technical & management support -Bina Swadaya community mobilization

PIU = District Project Implementing Unit (PIU); SA = ETESP consultant Site Adviser

⁴ After subproject start up.

(c) Subcomponent 3: Small-scale aquaculture in Aceh Barat, 2005 - 2006

Activity	Environmental Impact/Issue	Magnitude			Duration			Mitigation Measures	Location	Time Frame ⁵	Responsibility
		L	M	H	S	M	L				
1. Siting	- Site locations and environmentally sensitivity - Ensuring no impacts from siting of fish cage sites	X			X			Fish farming conducted only in environmentally suitable locations. No siting with environmentally sensitive sites.	<u>Marine fish</u> Arongan, Kubu <u>Livelihood activities</u> Cot Pluh, Cot Darat	Months 1-2	-Satker for technical & management support -PIU/SA for prioritizing locations and technical & management support -Bina Swadaya, UPP and PIU/SA for organizing community consultations to confirm sites are agreed by village community
2. Design	- Ensure design/location of cages is suitable for river environment	X				X		No mitigation measures required (except suitable siting)	As above	Months 2-3	- Satker in preparation of tender documents and contracts -PIU/SA for technical supervision of contractors -Contractor for design of rehabilitation -Bina Swadaya, UPP for assistance in community mobilization for mangrove planting
3. Reconstruction	- Timber for marine fish cages from legal sources	X				X		Hiring of experienced contractors and proper planning of marine fish farming		Months 3-5	- Satker for tendering and contracting -Contractor for implementation of rehabilitation/ reconstruction -Bina Swadaya (NGO)and UPP for community mobilization -PIU/SA for technical and

⁵ After subproject start up.

4. Operation	- Effluents from fish cages from feeding	X	X	<ul style="list-style-type: none"> - Amounts of feed used are small - Artificial feeds will be encouraged and training provided in feed management. - Fish cages sited in areas with sufficient depth and good water circulation. - Quality and disease free fish seed will be used. - Training will be provided in better management practices to encourage hygienic and environmentally sound operations of aquaculture activities. 	Months 3-5	management support
	- Fish seed collection and quality	X	X			<ul style="list-style-type: none"> - Satker for technical and management support - PIU and SA for technical supervision, and management support - Bina Swadaya (NGO) and UPP for community mobilization - Training contractor for training in environmentally sound farming operations
	- Fish disease control					

Satker = Project Management Unit; PIU = District Project Implementing Unit (PIU); SA = ETESP Consultant Site Adviser

(d) Sub-component 4: Small-scale fisheries infrastructure in Aceh Barat, 2005 -2006

Activity	Environmental Impact/Issue	Magnitude			Duration			Mitigation Measures	Location	Time Frame ⁶	Responsibility
		L	M	H	S	M	L				
1. Siting	None anticipated							None required	Ujung Drien, Ujung Baroh and Peuribu	Month 1	-Satker in preparation of tender documents and contracts -PIU/SA for technical and management support - DKP Aceh Barat
2. Design	Need for adequate design of wastewater and disposal management facilities	X			X			Fishing landing site design will include simple measures for waste collection and waste management	As above	Month 1	-Satker for technical and management support -PIU/SA for technical and management support - DKP Aceh Barat
3. Reconstruction	Dust and noise during construction Litter/garbage	X			X			Proper construction planning Field Inspection Providing disposal box Supervision of quality of construction	As above	Months 2-5	- Satker for tendering and contracting -Contractor for implementation of rehabilitation/reconstruction -Bina Swadaya (NGO) for community mobilization -PIU/SA for technical support and management support; technical supervision -DKP Aceh Barat for technical and management support, supervision & monitoring
4. Operation	Discharge of solid and liquid wastes (fuel spills, leakage) Litters/garbage	X			X			Proper design of fuel depot (as above) Provision of sorbants to collect waste fuel, and safe disposal in landfill Training of operators and fishers in solid/liquid waste management at fuel depot	As above	Months 4-7	-Satker for technical & management support - PIU/SA for technical assistance and supervision & monitoring - DKP Aceh Barat for technical and management support, supervision & monitoring

PIU = District Project Implementing Unit (PIU); SA = ETESP consultant Site Adviser

⁶ After subproject start up.

E. Institutional Requirements and Environmental Monitoring

1. Institutional Requirements

56. BRR is the Executing Agency for ETESP and also the Implementing Agency for ETESP Fisheries' 2006 and 2007 budget. The management of the ETESP is conducted by a BRR Satker located in Banda Aceh. At town/district levels, the activities of ETESP are coordinated and supervised by District Project Implementation Units (PIUs) located in each of the 11 target districts and towns in NAD and Nias.

57. The Satker is responsible for:

- Monitoring and coordinating ETESP-Fisheries activities;
- Coordinating with other similar programs and projects being implemented in the province;
- Facilitating backstopping to districts and towns on technical aspects;
- Facilitating collection and dissemination of district level implementation experiences;
- Formulating work plans; and
- Responsible for overseeing the institutional development of the districts.

58. The District or Town PIU has similar responsibilities to the Satker at the town/district level, and primary responsibility for implementation of activities in the districts or city/town. Because of the size of the area being designed and the number of villages (sites) involved, primary responsibility for the identification, design, implementation, monitoring, and evaluation of activities at the community level lies with the PIU.

59. In this subproject, the PIU will be responsible for supervision of all Subcomponents in Aceh Barat, including ensuring the community investments proposed under the village grants are eligible for funding according to the environmental eligibility criteria provided in Annex D. The PIU is also responsible for implementation of any mitigation measures required for subcomponent 1. The PIU will be provided with technical assistance and oversight by the ETESP consultant Site Adviser assigned to Aceh Barat and Satker.

60. A multidisciplinary team, international and domestic consultants, and government administration staffs (provincial and district levels), was established under the Satker for carrying out the Fisheries Sector IEE. The team has worked in close consultation with staff of the ETESP component on Spatial Planning and Environmental Management and the Environment and Social Safeguard Division of EMS/PMO. The Consultant team has also met with provincial BAPEDALDA NAD to clarify the IEE process for Aceh Barat.

2. Environmental Monitoring

61. Environmental monitoring involves the measurement of indicators before, during, and after the establishment of the subproject activities to determine the effectiveness of management measures adopted, assess the subproject benefits on the environment, allow early detection of environmental damage, and ensure that environmental safety criteria are complied with. For this subproject in Aceh Barat, the interventions listed above as having potential negative environmental impacts will be monitored.

62. The Satker and PIU, supported by Coastal Environmental Specialist from the ETESP Fisheries Consultant Team, will conduct compliance inspections during the

rehabilitation phase to ensure mitigation measures are being implemented appropriately by local communities and contractors. The Satker Environment Specialist will be the person responsible in the Satker for implementation of the environmental monitoring program. At the DIU level, a specialist has been appointed for each subproject activity; the assigned persons (fisheries, fisheries infrastructure or aquaculture specialist) who will be responsible for environmental monitoring of their respective subproject activities.

63. During the design phase, supervision by these persons will be conducted to check that design is complete and includes all relevant mitigation measures. During the construction/implementation phases, field inspection will be carried out to check and ensure construction is conducted according to the design, to monitor the quality of works, and ensure activities are not generating negative environmental impacts.

64. Satker staff have sufficient capacity for environmental monitoring, but training in environmental monitoring will be required for PIU staff. The Satker Environment Specialist, supported by the Coastal Environmental Specialist from the ETESP Fisheries Consultant Team, will conduct a one day training of PIU staff. Simple equipment for environmental monitoring (Water Quality Checker, Secchi disk, pH meter, handheld salinometer, ammonia and alkalinity test kits, thermometer and digital camera) will be provided through subcomponent 6 of ETESP Fisheries budgets. The estimated budget for environmental monitoring is provided in Table 5.

Table 5. Budget estimates for environmental monitoring equipment for Aceh Barat subproject activities

Equipment	Estimated costs (Rp)
1. Secchi disk	25,000
2. pH meter (pen type)	350,000
3. Salinometer (hand held)	1,800,000
4. Thermometer	50,000
5. Test kit (alkalinity)	600,000
6. Test kit (ammonium)	1,000,000
7. Digital camera	2,500,000
8. Water Quality Checker (Horiba)	15,000,000
Total	21,325,000

65. The flow of monitoring reports will begin during the design phase and follow through the reconstruction/implementation, monitoring and evaluation phase. The reports will be prepared by the PIU for all four Subcomponents. The ETESP Fisheries Consultant Team, supported by the EMS Environmental safeguards team, will provide technical assistance and training for PIU staff in compliance inspections and environmental monitoring.

66. Environmental Monitoring Reports will be sent on a quarterly basis to BAPEDALDA NAD, BRR, and Satker and PIU. The reports will be made available to other interested agencies and organizations upon written request.

67. Monitoring for these subproject activities is outlined in Table 6. This table includes activities, responsibilities, frequency and location of monitoring, as well as reporting.

Table 6. Environmental monitoring for proposed sub-project activities

Period	Activities	Responsibility	Schedule	Reporting
Sub-component 1	<ul style="list-style-type: none"> Review of village fisheries development plan to ensure proposed community investments are acceptable according to environmental eligibility criteria 	<ul style="list-style-type: none"> PIU responsible for review against environmental eligibility criteria PMU responsible for technical supervision and compliance inspections ETESP Site Adviser and Coastal Environment specialist to provide regular technical support and assistance 	Review of draft community livelihoods action plan when complete. Month 3	<ul style="list-style-type: none"> PIU responsible for reporting to PMU PMU responsible for collation of reports from PIU , and to be circulated to Bapedalda, BRR
Sub-component 2	<ul style="list-style-type: none"> Compliance inspection during boat construction Review of documentation to confirm legal wood supply for boat building 	<ul style="list-style-type: none"> PIU responsible for review of documents PMU responsible for technical supervision and compliance inspections ETESP Site Adviser and Coastal Environment specialist to provide regular technical support and assistance 	Monthly inspection during construction. Months 3-7	<ul style="list-style-type: none"> PIU responsible for reporting to PMU PMU responsible for collation of reports from PIU , and to be circulated to Bapedalda, BRR

Sub-component 3	<ul style="list-style-type: none"> Monitoring of construction and disposal of debris during marine cage reconstruction: 	<ul style="list-style-type: none"> PIU for technical supervision and reporting Satker for technical support of PIU and weekly site visits and reporting ETESP Site Adviser and Coastal Environment specialist to provide regular technical support and assistance 	Weekly inspections during construction Months 3-4	<ul style="list-style-type: none"> PIU responsible for preparation of weekly reports to PIU Satker responsible for collation of PIU reports and preparation of quarterly reports and report on completion of construction activities, to be circulated to Bapedalda and BRR
	<ul style="list-style-type: none"> Monitoring of environmental conditions during operations following reconstruction (pH, salinity, cage yields) 	<ul style="list-style-type: none"> PIU for technical supervision and reporting Satker for technical support of PIU and weekly site visits and reporting ETESP Site Adviser and Coastal Environment specialist to provide regular technical support and assistance 	Monthly, from start of operations Months 3-onwards	<ul style="list-style-type: none"> PIU responsible for preparation of monthly report to Satker Satker responsible for collation of PIU reports and preparation of quarterly reports on operations and report on completion of first crop, and to be circulated to Bapedalda and BRR

Sub-component 4	<ul style="list-style-type: none"> • Compliance inspections during construction 	<ul style="list-style-type: none"> • PIU for technical supervision and reporting • PMU for occasional site visits • ETESP Site Adviser and Coastal Environment specialist to provide regular technical support and assistance 	Weekly inspections Months 2-4	<ul style="list-style-type: none"> • PIU responsible for preparation of monthly report • PMU responsible for preparation of report • Report to be circulated to Satker and Bapedalda, BRR
	<ul style="list-style-type: none"> • Compliance inspections during operations 	<ul style="list-style-type: none"> • PIU for technical supervision and reporting • PMU for occasional site visits • ETESP Site Adviser and Coastal Environment specialist to provide regular technical support and assistance 	Monthly inspections Months 3-7	<ul style="list-style-type: none"> • PIU responsible for preparation of monthly report • PMU responsible for preparation of report • Report to be circulated to Bapedalda, BRR

F. Consultation and Public Disclosure

68. Meetings have been held with local communities in each village, concerned government agencies, and NGOs to determine/discuss the issues and environmental concerns related to each of the proposed subproject activities.

69. Meetings with villagers confirm the priority given to the proposed subproject activities. Community mobilization activities have been planned with community participation thus ensuring their concerns, including environmental issues, have been addressed. The major issues raised with villagers during these consultations were:

- For **Sub-component 1: Community empowerment**, the urgent need for various small-scale fishery investments to be supported through early disbursement of village grants.
- For **Sub-component 2: Capture fisheries rehabilitation**, the request from village fishers to give priority to engaging local fishers and boat builders in boat building, thus creating employment in the local community; and the difficulties being faced by communities in recovery their fishing after the tsunami and earthquake due to lack of boats, gear and capital; the need for equitable participation and sharing of benefits from the subproject activities.
- For **Sub-component 3: Small-scale aquaculture rehabilitation**, the importance of assistance with marketing of fish and small scale aquaculture activities eg: crab fattening; the need for training in order to improving farmer capacity in fish cages and crab fattening farming activities.
- For **Sub-component 4: Small-scale fisheries infrastructure rehabilitation**, the need to ensure equity in operations and access to the facilities at the fishing landings.

70. No other environmental issues were raised during the consultations. The PIU, with assistance from the Satker and ETESP Fisheries consultants, will work with communities to ensure that environmental eligibility criteria are being followed in community investments.

71. Annex E provides a list of the community stakeholders consulted for each subcomponent activity.

G. Findings and Recommendations

72. The screening process, including the consultations with local villagers and local government confirm the proposed investments as being prioritized and needed for rehabilitation and restoration of livelihoods. Potential negative impacts are minimal, and if present are localized, short-term, and can be mitigated using local resources.

73. The process shows that community mobilization subprojects will have a number of positive environmental and social impacts, including restoration of livelihoods and strengthening of local communities for sustainable natural resource management.

74. Much fishery and aquaculture infrastructure in Aceh Barat was destroyed by the earthquake and tsunami, together with many boats and gears in the district, including gill netters/long liners, and other small vessel types. As a result, fishing and aquaculture production is still significantly lower than pre-earthquake/tsunami levels. The small number of replacement boats and gear supported by ETESP will therefore have no negative impacts on fish stocks.

75. The rehabilitation of small-scale aquaculture in Aceh Barat will assist villagers to recover their livelihoods through crab aquaculture and small-scale fish farming. Potential environmental issues will be avoided through the use of clear selection criteria and guidelines for RKAKL 2006, a proper siting and consultation process. Only low risk aquaculture practices will be supported in Aceh Barat, and farmers will receive training and technical support to improve their management practices.

76. The screening process showed that there are no significant environmental impacts needing further detailed study. Thus, no further study or EIA are needed.

H. Conclusions

77. This IEE for rehabilitation and reconstruction activities to be supported under RKAKL 2006 for Aceh Barat documents:

- Environmental assessment and review procedure for sub-projects
- Description of sub-project covered by the IEE
- Description of the environment where sub-project is being implemented
- Screening of potential environmental impacts and mitigation measures
- Institutional requirements and environmental monitoring.

78. The screening process was effective in identifying the environmental issues associated with the sub-project.

79. The sub-project is likely to bring about positive benefits in the form of (i) recovery of the livelihoods of earthquake and tsunami affected fishers and aquaculture farmers, labourers and their families; (ii) improved hygiene and quality of fish and shrimp for human consumption; (iii) greater community awareness of responsible aquaculture and fisheries; (iv) improved services for fisheries through rehabilitation of important fisheries infrastructure; and (v) improved fisheries operations and management.

80. In conclusion, the IEE shows that no significant environmental impacts are expected to result from the proposed rehabilitation work. Thus, the IEE with the recommended institutional requirements and monitoring program becomes the completed subproject environmental assessment. Consequently, there is no need for a full-scale EIA.

**Annex A-1. Rapid Environmental Assessment
for Sub-component 1 : Community Empowerment in Aceh Barat**

1		Yes	No	
2				
3	A. Project Siting			
4	Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
5	▪ Cultural heritage site		✓	No cultural heritage sites within or adjacent to activity sites
6	▪ Protected Area		✓	No protected area within or adjacent to activity sites.
7	▪ Wetland		✓	NGO community empowerment will build capacity for planning and management of activities and improve environmental performance.
8	▪ Mangrove	✓		NGO community empowerment will build capacity for planning and management of activities and improve environmental performance.
9	▪ Estuarine		✓	Activities will not be approved if they are likely to cause damage to the estuarine environment.
10	▪ Buffer zone of protected area		✓	Activities will not be located within or adjacent to the buffer zone of protected area in this district.
11	▪ Special area for protecting biodiversity		✓	Activities are not located within or adjacent to a special protected area for biodiversity in this district.
12	B. Potential Environmental Impacts			
13	Will the Project cause...			
14	▪ overexploitation of fish stocks and long-term degradation of resource base?		✓	Community training in management and sustainable fishing practices will be introduced to fishing communities. Small boat construction will probably not be supported under this subcomponent.
15	▪ capture of non-target species and habitat damage through use of destructive fishing methods and gears?		✓	Community training in management and sustainable fishing practices will be introduced to fishing communities.
16	• Accidental damage to coral reefs by divers and fishing vessel anchors?		✓	Community training in management and sustainable fishing practices will be introduced to fishing communities.
17	▪ pollution from oil and fuel spills and bilge flushing?		✓	Community training will build capacity in waste management
18	▪ ecological protection resulting from clearing for conversion of coastal wetlands to fishponds?		✓	Participatory planning facilitated by the NGO will be used to improve planning effectiveness for rehabilitation or brackish water fish ponds.
19	▪ social problems arising from conflicts with other site uses?		✓	Social problems may be encountered in prioritizing activity investments in aquaculture, capture fisheries and fisheries infrastructure. NGO will mobilize communities and ensure community participation in planning and implementation of activities under the CLAP.
20	▪ downstream water pollution from discharge of pond effluents with drain water?		✓	Community training will build capacity in pond effluent management
21	▪ reduction of water supplies for competing uses (eg, irrigation or domestic)?		✓	Community action facilitated through integrated approach with agriculture and irrigation.

22	▪ restriction of water circulation, obstruction to navigation by fish pens/cages, and reduction of stream capacity from siltation?		✓	Not applicable
23	▪ dislocation or involuntary resettlement of people		✓	No dislocation or involuntary resettlement of people will be caused and/or supported in any activities.
24	▪ social problems due to land tenure and use conflicts?		✓	NGO mobilization and facilitated participatory planning will reduce risks of social problems due to land tenure and use.
25	• soil erosion and siltation during construction?		✓	Not applicable
26	▪ noise and dust from construction?		✓	Activities will have no significant effects from dust and noise during construction as the activities are small-scale and principally take place in a humid environment.
27	▪ social problems especially when workers from other areas are hired?		✓	Activity civil works and services will prioritize use of local labor and craftsmen and no social problems from outside workers are anticipated.
28	▪ reduction of water available to down-stream users during peak seasons?		✓	Activities will not impact on water availability
29	▪ pollution of nearby aquatic environments by pond drainage water and inadequate farm management?		✓	NGO facilitated community training will build capacity in pond effluent management
30	▪ depletion of local fish populations by stocking of wild fry/fingerlings in ponds?		✓	Not applicable
31	▪ spread of diseases and parasites from exotic cultured species or escape of pond fish to the wild?		✓	NGO facilitated community farmer training will build capacity to manage disease risks
32	▪ increased public health risks due to the increased incidence or introduction of waterborne or water-related diseases?		✓	Not applicable to any activities supported; positive effects to human health through food security and increased affordable protein availability.

**Annex A-2. Rapid Environmental Assessment
for sub-component 2 :Small-scale Capture Fisheries Rehabilitation (Gill netters/hook
and line fishing boats) in Aceh Barat**

	Yes	No	
A. Project Siting			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		✓	Not applicable
▪ Protected Area		✓	Not applicable
▪ Wetland		✓	Not applicable
▪ Mangrove		✓	Not applicable
▪ Estuarine		✓	Training will be provided to reduce pollution due to bilge pumping or jettisoning of rubbish.
▪ Buffer zone of protected area		✓	Not applicable
▪ Special area for protecting biodiversity		✓	Not applicable
B. Potential Environmental Impacts			
Will the Project cause...			
▪ overexploitation of fish stocks and long-term degradation of resource base?		✓	Vessels will target mainly pelagic species, whose stocks are generally considered to be sound.
▪ capture of non-target species and habitat damage through use of destructive fishing methods and gears?		✓	Sub-projects do not support destructive fishing methods and gears.
• accidental damage to coral reefs by divers and fishing vessel anchors?		✓	Boats will not usually anchor at sea. There are few coral reefs on the east coast where the vessels will fish
▪ pollution from oil and fuel spills and bilge flushing?		✓	At the PPI Merueubo and PPI Ujong Baroh, Johan Pahlawan, there will need to be enforcement of regulations to prevent oil dumping and bilge flushing. Training will be provided boat owners from all subdistricts to assist in avoiding polluting activities
▪ ecological protection resulting from clearing for conversion of coastal wetlands to fishponds?		✓	Not applicable
▪ social problems arising from conflicts with other site uses?		✓	Community mobilization and participatory planning will be used to avoid/manage potential conflicts
▪ downstream water pollution from discharge of pond effluents with drain water?		✓	Not applicable
▪ reduction of water supplies for competing uses (e.g., irrigation or domestic)?		✓	Not applicable
▪ restriction of water circulation, obstruction to navigation by fish pens/cages, and reduction of stream capacity from siltation?		✓	Local adat does not permit blocking navigation channels
▪ dislocation or involuntary resettlement of people		✓	Not applicable
▪ social problems due to land tenure and use conflicts?		✓	Not applicable
• soil erosion and siltation during construction?		✓	Not applicable
▪ noise and dust from construction?		✓	Not applicable

▪ social problems especially when workers from other areas are hired?		✓	Not applicable
▪ reduction of water available to down-stream users during peak seasons?		✓	Not applicable
▪ pollution of nearby aquatic environments by pond drainage water and inadequate farm management?		✓	Not applicable
▪ depletion of local fish populations by stocking of wild fry/fingerlings in ponds?		✓	Not applicable
▪ spread of diseases and parasites from exotic cultured species or escape of pond fish to the wild?		✓	Not applicable
▪ increased public health risks due to the increased incidence or introduction of waterborne or water-related diseases?		✓	Not applicable

**Annex A-3: Rapid Environmental Assessment
for sub-component 3: Small-scale Aquaculture Rehabilitation in Aceh Barat**

a) Small-scale crab farming

		Yes	No	
1.	A. Project Siting			
2.	Is the Project area adjacent to or within any of the following environmentally sensitive areas?			Subproject sites are not within environmentally sensitive sites as identified by ADB SPEM
3.	▪ Cultural heritage site		✓	Not applicable
4.	▪ Protected Area		✓	Not applicable
5.	▪ Wetland		✓	Not applicable
6.	▪ Mangrove		✓	The subproject sites are not located in previous mangrove areas
7.	▪ Estuarine		✓	The subprojects will be conducted in damaged tambak ponds
8.	▪ Buffer zone of protected area		✓	Not applicable
9.	▪ Special area for protecting biodiversity		✓	Not applicable
10.	B. Potential Environmental Impacts			
11.	Will the Project cause...			
12.	▪ overexploitation of fish stocks and long-term degradation of resource base?		✓	Not applicable
13.	▪ capture of non-target species and habitat damage through use of destructive fishing methods and gears?		✓	Not applicable
14.	▪ accidental damage to coral reefs by divers and fishing vessel anchors?		✓	Not applicable
15.	▪ pollution from oil and fuel spills and bilge flushing?		✓	Not applicable
16.	▪ ecological protection resulting from clearing for conversion of coastal wetlands to fishponds?		✓	Not applicable
17.	▪ social problems arising from conflicts with other site uses?		✓	Not applicable as subprojects are small-scale activities not conflicting with other land/water users.
18.	▪ downstream water pollution from discharge of pond effluents with drain water?		✓	Not applicable, as only micro-scale activities with no pollution potential
19.	▪ reduction of water supplies for competing uses (e.g., irrigation or domestic)?		✓	Not applicable
20.	▪ restriction of water circulation, obstruction to navigation by fish pens/cages, and reduction of stream capacity from siltation?		✓	Not applicable, as only micro-scale activities. Sites selected are old tambak ponds not used for navigation

21.	▪ dislocation or involuntary resettlement of people		✓	Not applicable
22.	▪ social problems due to land tenure and use conflicts?		✓	Not applicable, as only micro-scale activities. Sites selected are old tambak ponds. Owners are involved in subproject activities and so no land tenure conflicts anticipated
23.	▪ soil erosion and siltation during construction?		✓	Not applicable
24.	▪ noise and dust from construction?		✓	Not applicable
25.	▪ social problems especially when workers from other areas are hired?		✓	Kelompok members will be responsible for subproject implementation
26.	▪ reduction of water available to downstream users during peak seasons?		✓	Not applicable
27.	▪ pollution of nearby aquatic environments by pond drainage water and inadequate farm management?		✓	Not applicable, as only micro-scale activities with no pollution potential
28.	▪ depletion of local fish populations by stocking of wild fry/fingerlings in ponds?		✓	Fish aquaculture activities will use hatchery reared fry. Small numbers of crabs collected from the wild for fattening will not cause depletion of wild crab stocks.
29.	▪ spread of diseases and parasites from exotic cultured species or escape of pond fish to the wild?		✓	Not applicable. Potential fish disease problems will be minimised through procurement of quality fish seed and training of farmers in good aquaculture management. All proposed activities are considered low risk.
30.	▪ increased public health risks due to the increased incidence or introduction of waterborne or water-related diseases?		✓	Not applicable

b) Rehabilitation of fish cage farm

		Yes	No	
1.	A. Project Siting			
2.	Is the Project area adjacent to or within any of the following environmentally sensitive areas?			Subproject sites are not within environmentally sensitive sites
3.	▪ Cultural heritage site		✓	Not applicable
4.	▪ Protected Area		✓	Not applicable
5.	▪ Wetland		✓	Not applicable
6.	▪ Mangrove		✓	The subproject sites are not located in previous mangrove areas
7.	▪ Estuarine		✓	The subprojects will be conducted in a sheltered area in a river.
8.	▪ Buffer zone of protected area		✓	Not applicable
9.	▪ Special area for protecting biodiversity		✓	Not applicable
10.	B. Potential Environmental Impacts			
11.	Will the Project cause...			
12.	▪ overexploitation of fish stocks and long-term degradation of resource base?		✓	Not applicable
13.	▪ capture of non-target species and habitat damage through use of destructive fishing methods and gears?		✓	Not applicable
14.	▪ accidental damage to coral reefs by divers and fishing vessel anchors?		✓	Not applicable
15.	▪ pollution from oil and fuel spills and bilge flushing?		✓	Not applicable
16.	▪ ecological protection resulting from clearing for conversion of coastal wetlands to fishponds?		✓	Not applicable
17.	▪ social problems arising from conflicts with other site uses?		✓	Not applicable as subprojects are small-scale activities not conflicting with other land/water users. Sites will be selected by community.
18.	▪ downstream water pollution from discharge of pond effluents with drain water?		✓	Limited impacts, as only small-scale activities with no pollution potential
19.	▪ reduction of water supplies for competing uses (e.g., irrigation or domestic)?		✓	Not applicable
20.	▪ restriction of water circulation, obstruction to navigation by fish pens/cages, and reduction of stream capacity from siltation?		✓	Not applicable, as only micro-scale activities.
21.	▪ dislocation or involuntary resettlement of people		✓	Not applicable

22	▪ social problems due to land tenure and use conflicts?		✓	None expected
23	▪ soil erosion and siltation during construction?		✓	Not applicable
24	▪ noise and dust from construction?		✓	Not applicable
25	▪ social problems especially when workers from other areas are hired?		✓	Kelompok members will be responsible for subproject implementation
26	▪ reduction of water available to downstream users during peak seasons?		✓	Not applicable
27	▪ pollution of nearby aquatic environments by pond drainage water and inadequate farm management?		✓	Minimal risks, as only micro-scale activities. Training in good feed management, use of suitable feeds and suitable site selection to reduce risks.
28	▪ depletion of local fish populations by stocking of wild fry/fingerlings in ponds?		✓	Fish aquaculture activities will use hatchery reared fry. No impacts on wild stocks.
29	▪ spread of diseases and parasites from exotic cultured species or escape of pond fish to the wild?		✓	Not applicable. Potential fish disease problems will be minimised through procurement of quality fish seed and training of farmers in good aquaculture management. All proposed activities are considered low risk.
30	▪ increased public health risks due to the increased incidence or introduction of waterborne or water-related diseases?		✓	Not applicable

**Annex A-4: Rapid Environmental Assessment
for sub-component 4: Small-scale Fisheries Infrastructure Restoration in Aceh Barat**

	Environmental issue	Yes	No	
1	A. Project Siting			
2	Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
3	Cultural heritage site			
4	Protected Area		✓	
5	Wetland		✓	No fuel depots will be in wetlands
6	Mangrove		✓	No fuel depots in mangroves.
7	Estuarine		✓	Fuel depots will be constructed at fishing ports, many of which are located adjacent to estuaries. Measures will be incorporated into the design of the SPDNs to minimise spillage or leakage to estuaries
8	Buffer zone of protected area		✓	No depots to be constructed in buffer zones
9	Special area for protecting biodiversity		✓	Not relevant
10	B. Potential Environmental Impacts			
11	Will the Project cause...			
12	Over exploitation of fish stocks and long-term degradation of resource base?		✓	Fishing effort is below pre-tsunami levels in all areas. Depots will not of themselves increase fishing effort
13	capture of non-target species and habitat damage through use of destructive fishing methods and gears?		✓	Not applicable
14	accidental damage to coral reefs by divers and fishing vessel anchors?		✓	Depots constructed on land within fishing ports
15	pollution from oil and fuel spills and bilge flushing?		✓	Fuel depots include measures for waste collection and waste management to avoid risks of oil and fuel spills
16			✓	Depots will include above-ground tanks. These will be enclosed by containment bunds constructed to a sufficient standard to contain the full contents of the tank in the event of an accidental or deliberate spillage
17	ecological protection resulting from clearing for conversion of coastal wetlands to fishponds?		✓	Not applicable
18	social problems arising from conflicts with other site uses?		✓	No conflicts are envisaged. Fuel supplies will benefit the entire community, directly or indirectly
19	downstream water pollution from discharge of pond effluents with drain water?		✓	Not applicable
20	reduction of water supplies for competing uses (e.g., irrigation or domestic)?		✓	Not applicable
21	restriction of water circulation, obstruction to navigation by fish pens/cages, and reduction of stream capacity from siltation?		✓	Not applicable
22	dislocation or involuntary resettlement		✓	No resettlement required

	of people			
23	social problems due to land tenure and use conflicts?		✓	No land tenure or use conflicts anticipated.
24	soil erosion and siltation during construction?		✓	No erosion or siltation problems anticipated
25	noise and dust from construction?		✓	Construction needs are basic, and will not cause excessive noise and dust
26	social problems especially when workers from other areas are hired?		✓	Not applicable
27	reduction of water available to downstream users during peak seasons?		✓	Not applicable
28	pollution of nearby aquatic environments by pond drainage water and inadequate farm management?		✓	Not applicable
29	depletion of local fish populations by stocking of wild fry/fingerlings in ponds?		✓	Not applicable
30	spread of diseases and parasites from exotic cultured species or escape of pond fish to the wild?		✓	Not applicable
31	increased public health risks due to the increased incidence or introduction of waterborne or water-related diseases?		✓	Not applicable

b) SPDN (fuel depot)

	Environmental issue	Yes	No	
1	A. Project Siting			
2	Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
3	Cultural heritage site			
4	Protected Area		✓	
5	Wetland		✓	No fuel depots will be in wetlands
6	Mangrove		✓	No fuel depots in mangroves.
7	Estuarine		✓	Fuel depots will be constructed at fishing ports, many of which are located adjacent to estuaries. Measures will be incorporated into the design of the SPDNs to minimise spillage or leakage to estuaries
8	Buffer zone of protected area		✓	No depots to be constructed in buffer zones
9	Special area for protecting biodiversity		✓	Not relevant
10	B. Potential Environmental Impacts			
11	Will the Project cause...			
12	Over exploitation of fish stocks and long-term degradation of resource base?		✓	Fishing effort is below pre-tsunami levels in all areas. Depots will not of themselves increase fishing effort
13	capture of non-target species and habitat damage through use of destructive fishing methods and gears?		✓	Not applicable
14	accidental damage to coral reefs by divers and fishing vessel anchors?		✓	Depots constructed on land within fishing ports
15	pollution from oil and fuel spills and bilge flushing?		✓	Fuel depots include measures for waste collection and waste management to avoid risks of oil and fuel spills
16			✓	Depots will include above-ground tanks. These will be enclosed by containment bunds constructed to a sufficient standard to contain the full contents of the tank in the event of an accidental or deliberate spillage
17	ecological protection resulting from clearing for conversion of coastal wetlands to fishponds?		✓	Not applicable
18	social problems arising from conflicts with other site uses?		✓	No conflicts are envisaged. Fuel supplies will benefit the entire community, directly or indirectly
19	downstream water pollution from discharge of pond effluents with drain water?		✓	Not applicable
20	reduction of water supplies for competing uses (e.g., irrigation or domestic)?		✓	Not applicable
21	restriction of water circulation, obstruction to navigation by fish pens/cages, and reduction of stream capacity from siltation?		✓	Not applicable
22	dislocation or involuntary resettlement of people		✓	No resettlement required

23	social problems due to land tenure and use conflicts?		✓	No land tenure or use conflicts anticipated.
24	soil erosion and siltation during construction?		✓	No erosion or siltation problems anticipated
25	noise and dust from construction?		✓	Construction needs are basic, and will not cause excessive noise and dust
26	social problems especially when workers from other areas are hired?		✓	Not applicable
27	reduction of water available to downstream users during peak seasons?		✓	Not applicable
28	pollution of nearby aquatic environments by pond drainage water and inadequate farm management?		✓	Not applicable
29	depletion of local fish populations by stocking of wild fry/fingerlings in ponds?		✓	Not applicable
30	spread of diseases and parasites from exotic cultured species or escape of pond fish to the wild?		✓	Not applicable
31	increased public health risks due to the increased incidence or introduction of waterborne or water-related diseases?		✓	Not applicable

Annex B: Indicative activities for Sub-component 1: Community Mobilization in Aceh Barat

Subdistrict	Village (Villages)	Project activity ^{a/}	Tentative investment
JOHAN PAHLAWAN			
	Suak Indrapuri	C 06, VFLG	Sosialisasi / VFLG
	Kampung Pasir	C 06, VFLG 07	Sosialisasi / VFLG 07
	Padang Seurahet	C 06, VFLG 07	Sosialisasi / VFLG 07
	Runding	C 06	Sosialisasi
	Ujung Baroh	I 06	Sosialisasi
	Suak Ribee	VFLG	Sosialisasi / VFLG
	Panggong	VFLG	VFLG
	Ujung Kalak	VFLG	VFLG
SAMA TIGA			
	Lhok Bubon	VFLG 07	VFLG 07
	Gampoeng Teungoh	C 06, VFLG	Sosialisasi / VFLG
	Kuala Bubon	VFLG	Sosialisasi / VFLG
	Cot Darat	A 06	Sosialisasi
	Gampoeng Cot	C 06	Sosialisasi
	Suak Pandan	C 06	Sosialisasi
	Suak Seukee	C 06	Sosialisasi
	Suak Pante Breuh	C 06	Sosialisasi
	Suak Geudebang	C 06	Sosialisasi
	Suak Seumasih	C 06, VFLG 07	Sosialisasi / VFLG 07
	Cot Pluh	A 06	Sosialisasi
	Suak Timah	VFLG	VFLG
	Alue Raya	VFLG	VFLG
ARONGAN LAMBALEK			
	Peuribu	I 06, VFLG	Sosialisasi / VFLG
	Arongan	A 06, VFLG	Sosialisasi/ VFLG
	Suak Keumudee	C 06, VFLG	Sosialisasi/ VFLG
	Kubu	A 06	Sosialisasi
	Suak IE Beusou	C 06	Sosialisasi
	Pante Mutia	C 06	Sosialisasi
	Keub	C 06	Sosialisasi
MEUREUBO			
	Langung	C 06, VFLG	Sosialisasi, VFLG
	Meureubo	FVLG 07	VFLG 07
	Ujung Drien	I 06, C 06	Sosialisasi
	Pasi Pinang	CF 06, VFLG	Sosialisasi / VFLG

a/ A = Aquaculture, CF= Capture Fisheries, I=Fisheries Infrastructure; SC-1(VFLG) = village grant

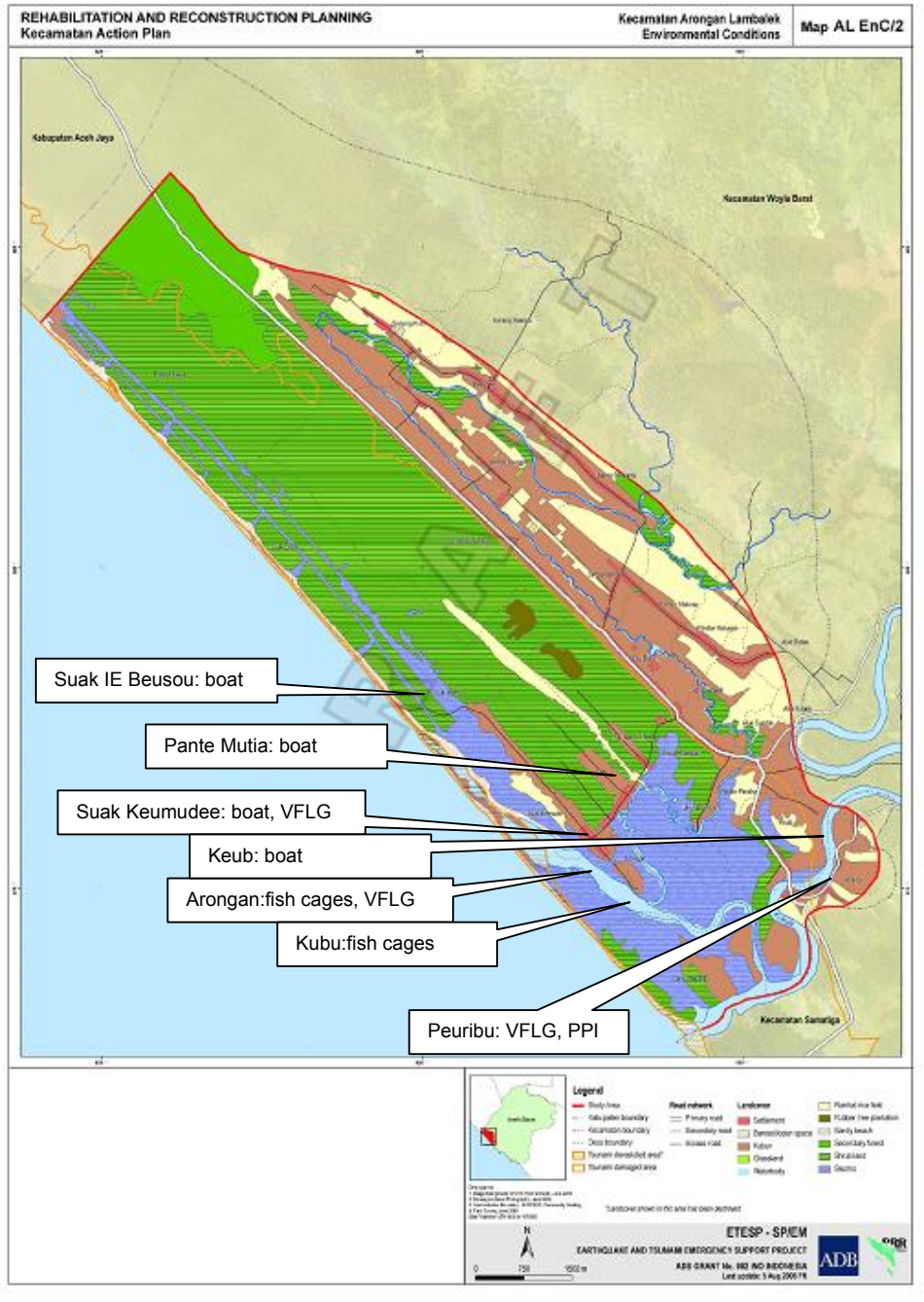
06 = 2006, 07=2007; tbs = activities to be specified;

Source: PIU, Consultant project files

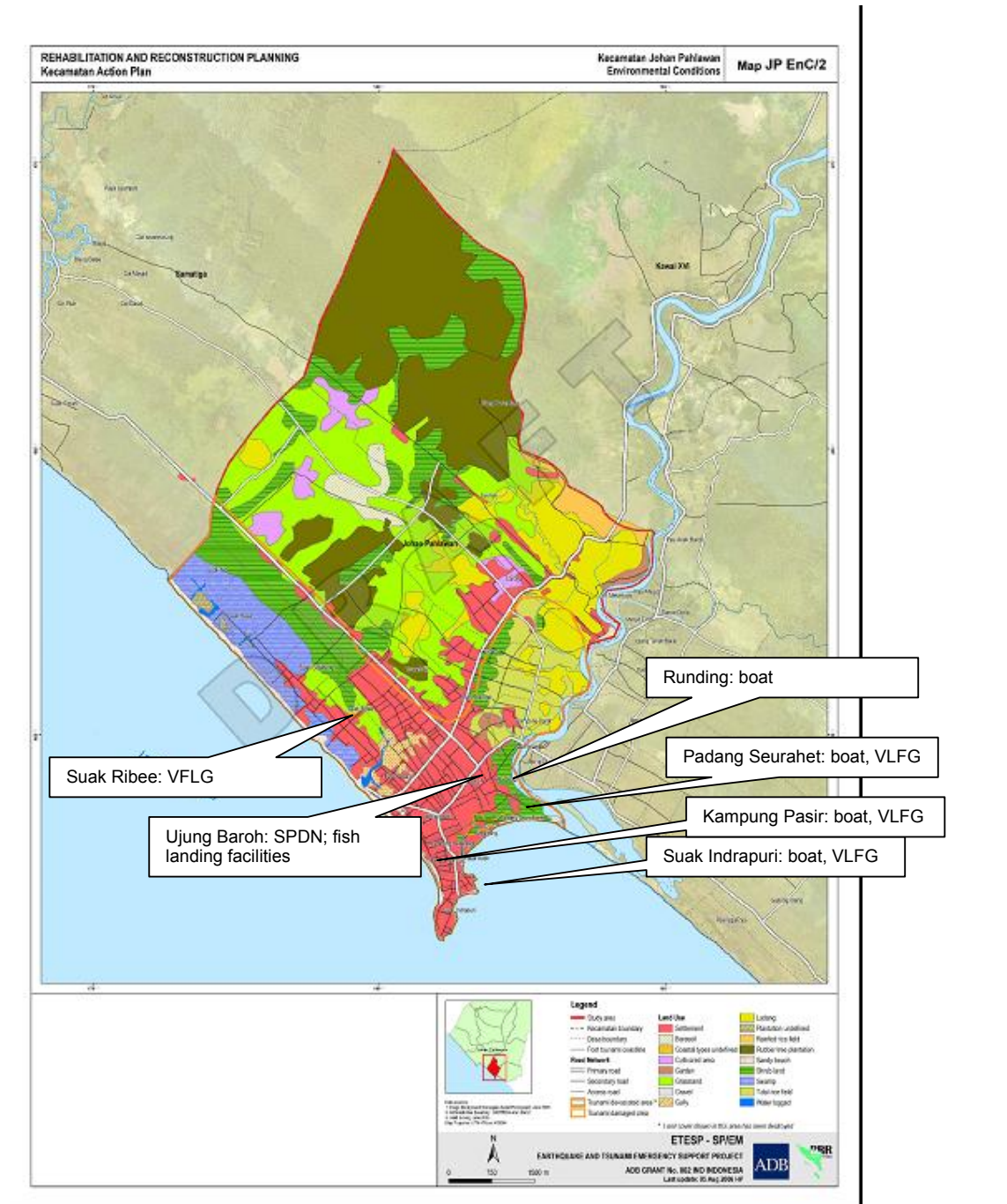
AnnexC: LocationMaps

The following (draft) maps from the ETESP Spatial Planning and Environmental Management (SPEM) show the location of subproject activities within each sub-district in relation to environmental resources.

a) Arongan Lambalek



c) Johan Pahlawan



Annex D: Investments considered eligible for funding under Subcomponent 1

The following provides an indicative list of items that may be considered for funding support under Sub-component 1 village grants without further environmental screening. Activities not included on this list will be referred by the PIU to the PMU for additional screening against ADB and GOI environmental policy and ETESP guidelines for conduct of an IEE or other environmental management measures as appropriate prior to starting investments.

Training will be provided to the PIU in the procedures for assessing Subcomponent 1 subproject activities and screening, including the ADB building code, review of environmental sensitivity maps and ETESP Fisheries implementation guidelines.

Location screening

Prior to the start of any activities, a village environmental sensitivity map will be prepared by the PMU and ETESP Fisheries consultants, using SPEM information and site visits and in a participatory way through consultations with villagers. The locations of all proposed activities would be included on the map, and then the PIU would screen the map to make sure no activity takes place in environmentally sensitive areas. The maps would also be discussed with the village and help raise awareness of environmentally sensitive sites.

Subproject activities proposed in environmentally sensitive locations would trigger a higher level review by PMU and ADB safeguards advisors, for further advice on appropriate measures (including preparation of IEE and EIA as appropriate).

1. Capture fisheries

Small-scale capture fishing activities will be supported when prioritized by the villagers, and may include the following activities.

- Small-scale boat engines of less than 25 HP
- Repair of small boats (less than 2GT)
- Canoes and other boats of less than 2 GT (around 1 m³ of wood/boat) (boats will only be supported with evidence of demand from village, and discouraged on mainland Sumatra, restricted to less than 10% of the pre-tsunami boat numbers in district)
- Small-scale non destructive fishing gear:
 - a. Cast, gill and trammel nets of legal mesh size;
 - b. Lift nets for small pelagics e.g. sardines, anchovies;
 - c. traps with adequate escape for undersize fish and crustacea;
 - d. restriction on the capture of eggbearing lobsters;
 - e. bottom-set long lines;
 - f. crab and shrimp fishing nets and traps for estuaries
- Small scale fishfinders and GPS
- Safety equipment - life jackets, flares, compass
- Lights
- Fish attraction devices (FADs) based on government regulation, Ministry regulation KEP. 30/MEN/2004.
- Moorings in non-coral areas
- Fuel to restart fishing

Materials to be used for boat repairs will come from legal timber sources.

2. Aquaculture

Small-scale village aquaculture will be supported when prioritized by the villagers, and may include the following activities:

- Minor aquaculture pond rehabilitation (water gate repair, cash for work for dyke repair in <5ha ponds)
- Repair or construction of small-scale mariculture facilities, such as crab fattening or soft-shelled crab culture in small nets or cages (less than 20mx20m surface area/village)
- Nursing of marine fish (milkfish and grouper) in small nets or cages (less than 20mx20m/village)
- Seaweed farming covering sea area less than 100mx100m (1 ha) per village
- Fertilisers, feed, lime, fish and shrimp seed and minor agroinputs and equipment (pumps, nylon feeding nets) required to restart small-scale aquaculture activities

In all cases, aquaculture facilities will all be located outside of environmentally sensitive, that includes mangroves for land based ponds and over or adjacent to corals for mariculture activities.

3. Small-scale fisheries infrastructure

Small-scale fisheries infrastructure will be supported when prioritized by the villagers, and may include the following activities.

Marketing and processing facilities:

- Provision of packing, fibre and ice/fish transportable storage boxes for fish holding/transport
- Simple equipment for small-scale processing
 - a. fish drying racks
 - b. boiling/cooking facilities
 - c. smoking kilns
 - d. other minor tools
- Simple infrastructure that can rapidly restore hygienic and safe working places for handling and processing of fish (such as a provision of water supply, simple drainage system, clean floor, or clean processing area).
- Waste disposal boxes/containers in fish landing/packing places

Small-scale community fishing structures

- Wharves (gabion, concrete or wood) less than 20m in length
- Docking facilities (simple, hand operated facilities for removing boats from water)

Small community buildings

- Small-scale fish stalls and stores
- Small-scale fisheries buildings (meeting rooms, markets, repair shops)
- Boat building sheds/equipment
- Storage sheds for community to store fish or equipment
- Engine repair shops/tools
- Small community fisheries buildings (meeting rooms, village markets, repair shops)

The following criteria will be applied to fisheries infrastructure:

- Buildings will follow the ADB building code - where timber is used, it should be sourced from a certified supplier when available.

- Non-timber materials are preferred where possible. White ant control should be considered through the use of non-timber materials or pressure treated timber or the use of antcaps.
- Buildings should not be located in environmentally sensitive areas such as (original) wetlands etc.
- Construction waste should be disposed of in an environmentally sensitive way (offsite)

4. Coastal environment

- Mangrove replanting (less than 1 ha in area/village)
- Mangrove nursery establishment
- Planting of cocos, pandan trees or *Casuarina sp.*
- Marine protected areas (support to the concept and implementation - eg negotiation, demarcation, training, policing (eg, watch house construction)).
- The planting of *Rhizophora sp.* to provide nursery habitat is encouraged.

5. Services

- Extension support (eg, office for farmer/fisher funded extension worker)
- Community training activities
- Workshops, meetings, group exchange visits to technical sites
- Motorcycle, fish transporting equipment
- Capacity building for fisheries cooperative

6. Activities subject to additional screening

The following activities if requested by villagers will require additional environmental screening to be conducted by PMU. In this case, the PIU will forward the request to the PMU and ADB safeguards advisors who will review the request and recommend preparation of an IEE or CAP as appropriate.

- Civil works beyond that identified in above list
- Aquaculture activities beyond the scope of the above
- Mangrove replanting in areas >5ha/village
- Introduction of exotic species for aquaculture
- Clearance of dead coral for navigation purposes
- Artificial reefs
- Requests for more than 10% of the pre-tsunami boat (< 2 GT) numbers in district
- Any requests for boats > 2 GT
- Any activities involving land acquisition

7. “Red list” activities not supported

The following activities will not be supported.

- Pond aquaculture in government designated green belt
- Use of hazardous chemicals for aquaculture
- Use of chemicals for fishing and other destructive fishing practices
- Other activities designated as illegal by Indonesian fishery or environmental legislation.
- Utilization of illegally harvested timber to the list of activities that will not be supported.

Training on the utilization of the Village Grant screening guidelines will be provided to the PIU by the PMU and ETESP Consultants.

Annex E : Contact persons consulted in Aceh Barat

No.	Name	Title	Number	Note
Johan Pahlawan				
1	T. Amin Basyah	Panglima Laut	-	Kabupaten
2	Ir. T. Risman	Skretaris	081534044035	
3	Pjs. Tgk.Nofrizal, S.Stp	Camat	08126939975	
4	Tgk. Nofrizal, S.Stp	Secretary	08126939975	
5	H.M Amin Ubat	Panglima Laut		
6	M. Yunus	Panglima Laut Lhok	085260335355	Padang Seurahet
7	Susilawati	Secretary		
8	Herlina	Treasurer		
9	Fajri Nur	Panglima		Lhok Panggong Lhok Suak
10	Yahya	Panglima		Ribee Padang Seurahet
11	M. Yunus, S.pd	Village Head	081370965677	
12	Syarifudin Yus	Village Head		Suak Ribee
13	Yanimar, B.Sc	Village Head	081534023485	Suak Indrapuri
14	Ishak, SE	Village Head	06557013334	Gampoeng pasir
15	Sri Mulyati, SE	Village Head	081360059426	Runding
16	Ibnu Umar, S.pd	Village Head		Ujung Baroh
Sama Tiga				
1	Zaenal,SE	Camat	081360472227	
2	Nuryanto	Secretary		
3	T. Marhaban	Panglima Laut	085260768850	
4	Irman Razali	Panglima laut (Secretary)		
5	T. Ridwan Basar	Panglima laut (Treasurer)		
6	Zainal Salam	Panglima Lhok		Suak Timah
7	Cut Rahman	Panglima Lhok	08126937641	Lhok Bubon Lhok Kuala Bubon
8	Rizwan Bakar	Panglima Laut		Lhok Suak Seumasih
9	M. Nastir	Panglima Laut	085262517742	
10	Alimin Isa	Village Head		Kuala Bubon
11	Husaini	Village Head	081360434674	Lhok Bubon Gampoeng
12	Saifuddin,S.Pd	Village Head		Tengoh
13	Adnan Ieman	Village Head		Suak Seumasih
14	Razali	Village Head		Suak Pante Breuh
15	Usman Mc	Village Head		Suak Suekee
16	Sudirman Hamzah	Village Head		Geudebang
17	Tajuddin	Village Head		Suak Pandan
18	Mukhtar Ariff	Village Head		Gampoeng Cot
19	Marhaban	Village Head		Cot Pluh
20	Zainal Abidin Adam	Village Head		Cot Darat
Meurebu				
1	Moh. Djamin G, SE	Camat	081360530424	
2	Idrus	Sekcam	081360049035	
3	M. Husni B	Panglima Laut		
4	Bustami A	- Sekretaris panglima laut		
5	Yusran	- Bendahara Panglima laut		
6	Ruslan	Panglima Lhok Meurebu		
7	Anhar	Panglima Lhok langung		
8	Bustami	Village Head	081360316905	Pasi Pingang
9	Marliansah	Village Head		Meurebu

10	Husaini	Village Head		Langung
11	Zainuddin	Village Head		Ujung Drien
Arongan Lambalek				
1	Arifin Yahya, SH	Camat	0813600830526	
2	Rustam, SE	Camat Secretary		
3	Amirudin	Panglima Laut	081360272991	
4	Samsuri	Secretary		Panglima laut
5	Farijal	Treasurer		Panglima laut
6	Hamid Ali	Panglima Lhok Cot Kumbang	081360830504	
7	Zulfitri	Panglima Lhok Suak Ulee	085262585562	
8	M. Yusuf M	Village Head		Peuribu
9	Abdullah	Village Head		Cot Kumbang
10	M. Isa H	Village Head		Suak le Bieso
11	Nurdin B	Village Head		Suak Kemudiee
12	Abd. Waheb	Village Head		Keub
13	Abd. Hamid	Village Head		Pante Meutia
14	Banta Lidan	Village Head		Kubu
15	Junaidi	Village Head		Arongan

Source: PIU, ETESP Fisheries Consultant team, Personal Communications / Camat