

# **Auditing of Tsunami Funds with Geophysical and Environmental Perspectives<sup>1</sup>**

**by**

**Dr. Anwar Nasution<sup>2</sup>**

## 1. Background

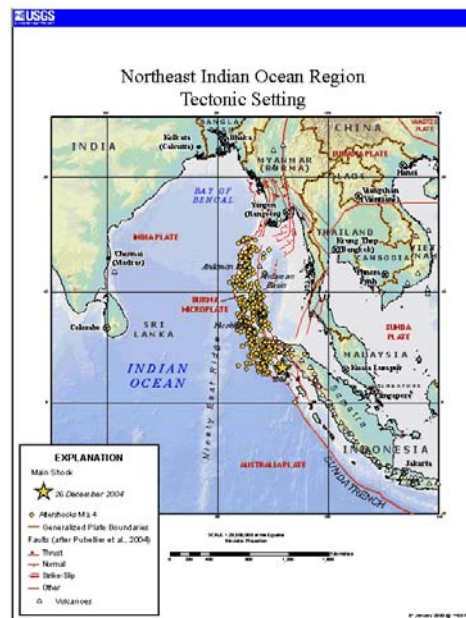
The Indian Ocean tsunami that occurred on 26 December 2004 had two unique, international features. First, it was the world's first global natural disaster, covering countries in two continents, Asia and Africa, on the rim of the Indian Ocean. Second, the response to the disaster has also been global as private sector, non governmental organizations, governments, and international institutions quickly provided badly needed helping hands. The tsunami was spawned by a magnitude 9.0 earthquake that occurred at 8 AM local time on Boxing Day in deep seas off the west coast of Sumatra. The epicenter of the earthquake was on the Australia-Asia tectonic plate around 150 km south of Meulaboh and 250 km from Banda Aceh. The earthquake set off a string of powerful tidal waves that caused one of the worst natural disasters in recorded human history. The powerful waves generated by the earthquake radiated at speeds of up to 800 km per hour across the Indian Ocean, directly impacting coastal areas of the Asian and African continents.

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<sup>1</sup> A paper prepared for the Tenth Meeting of INTOSAI-WGEA, Moscow, the Russian Federation, 27 October to 1 November 2005.

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## Exhibit 1. Northeast Indian Ocean Region Tectonic Setting

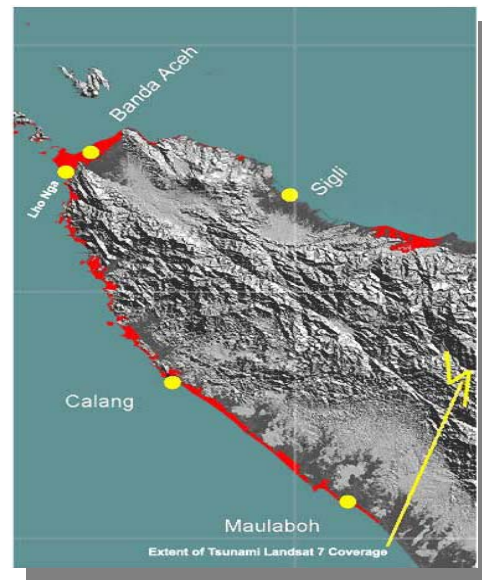


In Indonesia, within 20 minutes after the earthquake, the tsunami crashed into the western coast of Sumatra and northern part of Aceh, as well as islands in this region such as Nias and Simeuleu Islands (Exhibit 1). Waves as tall as a three-story building smashed into Banda Aceh, the capital city of Nanggroe Aceh Darussalam (NAD) Province, located in northern tip of Sumatra. In some places, waves traveled inland 6 km from the coastline. In Meulaboh, Calang, and Lamno – cities located in the western coastline of Aceh – 12-meter waves submerged areas up to 10 km from the coastal line. As illustrated, the red zone shows the extent of salt-water penetration from the ocean caused by the tsunami. Walls of water flushed away entire towns, villages, infrastructures, tropical rain forests and agriculture lands. Coastal landscapes, habitats and fish ponds at numerous locations have been completely washed away, leaving only minor fractions of the original landscape.

Exhibit 2. Map of Aceh and Nias



Exhibit 3. Tsunami Impacted Areas in Aceh



The worst affected areas were the cities mentioned above, Banda Aceh, Meulaboh and Calang, and other towns and villages along the northwest and northern coast of that province in the four districts of Aceh Singkil, Aceh Selatan, Aceh Barat, Aceh Jaya and Aceh Besar and the Banda Aceh Municipality. Even before the tsunami struck, many buildings and basic infrastructure collapsed or failed due to the earthquake, and there is some evidence of land subsidence in coastal areas (Exhibit 3). The ensuing tsunami swept debris and sea water into homes and buildings, crushing them and further damaging roads, bridges, telecommunications, water and electricity systems, coastal forests, rice fields and plantations, irrigation channels, fisheries, and factories (Exhibit 4).

The Government of Indonesia quickly declared a national disaster on the same day the calamity occurred. The Vice President, acting as the Head of *Bakornas PBP*, the Indonesian Emergency Relief Coordination Agency, rushed to Banda Aceh to lead the rescue operation, and brought with him much-needed supplies and medical team. It took several days, however, before the full impact of the event was recognized.

Exhibit 4. Damaged Coastal Areas



Exhibit 5. Damaged Bridge



### Another Earthquake in Nias

Then, a scant three months after the Boxing Day disaster, another massive earthquake of magnitude 8.7 struck around midnight on March 28, 2005, near the island of Nias in North Sumatra Province, just south of Aceh. The quake's epicenter was located close to the epicenter of the first earthquake on the same Australia-Asia plate, located between the islands of Nias and Simeuleu, about 200 miles to the northwest of Medan, the capital city of North Sumatra.

The combined destructive impact of the earthquake and the tsunami will never be fully known. Official casualty figures as of May 2005 are 129,738 people buried, 37,090 people missing, and 517,278 people displaced (Appendix 1). About 16% of the population of Banda Aceh died in the catastrophe, and virtually everyone suffered immensely through the loss of friends, relatives, and livelihoods.

### 2. Damage And Loss Assessment

The World Bank office in Jakarta, in cooperation with the National Development Planning Agency, made a preliminary estimate of damages and losses in January 2005. Total damages and losses were put at about \$4.5 billion, of which around 12% or \$0.5 billion, constitutes direct environmental costs such as

damage to mangroves, coral reefs, seaweed beds, rice fields, losses of livestock, increased air pollution, and solid wastes. These estimates have not been updated due to the emphasis on the rehabilitation and reconstruction process.

The impact of the earthquake and tsunami has affected 654 villages in 18 districts/ cities in Aceh and North Sumatra. The economic costs in some areas, particularly those located on the western coast and northern tip of Sumatra, are sizeable. Homes, economic and social infrastructure and thousands of hectares of forest and agriculture land have been destroyed and washed away by the powerful tidal waves. The sand and seabed mud deposits on the agricultural fields plus erosion and salinization means that much of the agricultural land is either permanently lost or will suffer reduced crop yields for years to come. Meanwhile, the industrial complexes suffered possible contamination, including negative effects to human health and the environment, caused by the damage of industrial installations.

#### Domestic And International Assistance

Thanks to prompt and wide coverage on TV and other mass media, the response to the Indian Ocean tsunami has been global in a way rarely seen before. In addition to assistance from domestic source, Indonesia, like other tsunami hit countries, immediately received donations and technical assistance from private and official sources around the world. In major donor countries, such as the UK, Germany, Italy, and the US, private donations surpassed the sizable government aid commitments and for the first time corporate donors figured prominently among private donors. Over one hundred international NGOs with a total committed assistance amounted about US\$920 million and many local NGOs, now are operating in Aceh and Nias (Appendix 3).

Donor assistance came in the form of cash, goods and services, including the valuable services provided by military units being sent to the disaster areas. The services included vital helicopter flights carrying drinking water, food, blankets,

medicines, and tents to many of the traumatized survivors in the remnants of remote villages cut off by landslides, buckled roads and destroyed bridges. The helicopters were also the only means for carrying many of the injured from those devastated areas. Domestic and foreign voluntary groups provided badly needed medical treatments for the wounded, helped bury dead bodies, restored basic infrastructure, and cleared the debris. The USS Abraham Lincoln, an aircraft carrier, of the US Navy was the first foreign military vessel to arrive off the coast of Meulaboh for immediate rescue operation followed by others (Appendix 4). The foreign militaries leaved Aceh and Nias in March 2005 at the end of emergency phase and replaced by civilian to continue providing valuable assistance.

As of March 22, 2005, domestic donations amounting to almost US\$ 140 million had been channeled to the devastated areas in Aceh and Nias. At the annual Indonesia donor's meeting held in mid-January, an International Multidonor Trust Fund for Aceh and Nias was established to support the rehabilitation and reconstruction of the disaster areas in 2005-2009. Administered by the World Bank Representative Office in Jakarta, which is acting as the Trustee, eight donors, including the World Bank, pledged US\$ 444 million to the fund. In addition, the Paris Club official creditors have offered a debt moratorium to tsunami-affected countries. In March 2005, the Paris Club agreed to provided Indonesia the moratorium worth US\$2.6 billion until the end of 2005. The availability of the new funds and debt relief helps ease pressures on fiscal policy and the balance of payments of these countries particularly during this time when Indonesian economy has not fully recovered from the economic crisis of 1997.

#### 4. BPK Initiatives

The constitution gives independent status to BPK with the responsibility to audit state finances in three tiers of government, from the national level down to the provincial and sub provincial or district levels. BPK also audits state-owned

enterprises either owned by the central government or by the lower levels of government.

As the supreme state audit institution, the scope of audit work of BPK includes auditing public funds channeled to the tsunami-hit areas of Aceh and Nias. BPK is currently auditing the financial report prepared by (1) the Bakornas PBP for relief operations during the emergency period, between December 26, 2004, to April 30, 2005, and (2) the Aceh Rehabilitation and Reconstruction Agency or BRR (*Badan Rehabilitasi dan Rekonstruksi Aceh*) for the rehabilitation and reconstruction period, beginning on May 1, 2005. Established by the President of the Republic on April 16, 2005, the BRR is an agency tasked to coordinate community-driven rehabilitation and reconstruction programs in the Provinces of Aceh and Nias of North Sumatra. Based in Banda Aceh, with a branch office in Nias and a representative office in Jakarta, the BRR is scheduled to operate throughout the reconstruction process until 2009.

Because of the international character of the disaster, BPK, with the cooperation of Asian Development Bank (ADB), organized an International Conference on Promoting Financial Accountability in Managing Funds Related to Tsunami, Conflict and Other Disasters in Jakarta on 25-27 April 2005. The conference was attended by 142 delegates from State Audit Institutions (SAIs) from both tsunami hit countries in Asia and major donor countries, as well as auditors and/or representatives of regional and international organizations. SAIs from tsunami-hit countries in Africa were invited, but none responded. Participants from tsunami-hit countries in Asia included the Maldives, Sri Lanka, India, Bangladesh, Thailand, Malaysia, and Indonesia. SAIs from major donor countries include the USA, Germany, UK, Netherlands, Japan, and Australia. The international organizations represented by, among others, the UN, INTOSAI, ASOSAI, the World Bank, IMF, and ADB.

The agenda of the conference included a one-day visit on 26 April to the tsunami-hit areas in Aceh so that the participants could see for themselves the severity of the calamity and talk to the local governments. The clear weather

allowed them to observe from the sky the destruction in the cities of Meulaboh and Calang along the west coast of Aceh. They continued on land to see the destruction in the business and residential areas in the city of Banda Aceh, the totally destroyed main seaport of Ulee Lhee, and the devastated cement plant owned by Lafarge of France in the city of Lhonga, about 30 kilometers to the southwest of the capital city.

The main purpose of the April conference was to enhance financial accountability and transparency in managing funds related to the tsunami, conflict and other disasters. The topic of auditing in a conflict area was included in the agenda as the province of Aceh and Sri Lanka were both in a state of military conflict when the tsunami struck. The tsunami is a natural disaster and the military conflict caused by man. When the tsunami hit in December, Aceh was under a second period of civil emergency. An extension of the preceding martial law, the civil emergency imposed restrictions on the local population. It is encouraging to note that the tsunami has been the catalyst for a peace agreement in Aceh with the local rebels. Facilitated by the Former President Martti Ahtisaari of Finland, a Memorandum of Understanding between the Free Aceh Movement (GAM) and the Government of Indonesia was signed in Helsinki on August 15, 2005, ending a civil war that had been raging for the last 30 years.

The Jakarta conference identified a number of recommendations that included:

- To develop internal control systems in the recipient countries to ensure the assistance funds are disbursed efficiently, effectively and economically for the purposes intended.
- To ensure transparency and accountability of the accounting, reporting and monitoring of the assistance fund balances and progress of the rehabilitation and reconstruction programs.



- To arrange joint audits among auditors of donor countries and local auditors to enhance audit efficiency, facilitate technology and knowledge transfers, and help build institutional capacity.
- To establish an independent advisory body, consisting of representatives of SAIs of donors, INTOSAI and BPK. Through this body matters such as coordinated audits could be mapped out to ensure adequate audit coverage, eliminate duplication of audit efforts, maximize audit efficiency and minimize costs.
- To create an ad-hoc task force under the auspices of INTOSAI to create an audit manual and conduct audits of disaster relief activities.

Prior to the April conference, BPK opened a new Representative Office in Banda Aceh to help local governments and the BRR to strengthen their internal control systems, to speed up the auditing process, and to work closely with external auditors of donor countries and international and regional organizations operating in the region.

To build up its internal capacity in conflict auditing, BPK, with the assistance of *Cour des Comptes* (SAI of France), has sent its auditors to join a UN audit team conducting audits in conflict areas within Congo, Eritrea, and Kosovo in 2005. Moreover, in January – March 2006, BPK will work together with a French audit team to conduct audits of tsunami funds from the French Government.

In line with the recommendations of the Jakarta conference, BPK has also conducted a performance audit with an environmental perspective in Aceh. The focus of the audit was on the planning and implementation of a coastal forests rehabilitation program to built greenbelts or natural buffers in earthquake and tsunami prone areas in Aceh and Nias. The audit was another new challenge for BPK since it was our first environmental audit. Our lack of expertise in doing such audits led us to seek assistances from other SAIs. During the preliminary audit,

our team received valuable technical assistance from the Office of Auditor General of Norway in developing the audit methodology and research questions. The results of this environmental audit will be explained further in a parallel session.

#### 5. Recommendation to Support the Reconstruction of the Environment in Aceh

The process of environmental degradation in NAD began long before the tsunami. Tropical forests had been either damaged by logging activities or transformed into modern plantations producing commercial crops. Mangrove forests replaced by fish and shrimp ponds, and swamps near major cities refilled for housing complexes. The eco-development has often been mentioned, but hardly implemented in practice. Of course the tsunami accelerated this devastation. To ensure long-term sustainable development, geophysical and environmental considerations must be emphasized in the rehabilitation and reconstruction programs. These are particularly important as the livelihood of the affected population largely depends on primary industries including traditional and subsistence agriculture, fishing, and exploitation of natural resources.

As mentioned above, peace has only been recently restored in NAD. To speed up the healing process, BPK should also strive to ensure that the rebuilding of that province regains the hearts and minds of local population. For this objective the programs should take into account the unique social and cultural conditions of the local population.

As the rehabilitation and reconstruction process requires the coordinated work of many government and non-government organizations, it is essential that this coordination be conducted effectively and efficiently. This coordination must encompass all sectoral efforts and cannot be divided into discrete sectors. For example, land use and development of the housing sector cannot be separated from geophysical factors and environmental issues such as water, sanitation, illegal logging, and the creation of greenbelts or buffer zones. BPK will play a role

here to ensure that BRR maintains a focus on the importance of geophysical and environmental concerns during the rehabilitation and reconstruction effort.

BPK is making the following recommendations to support Aceh's environmental reconstruction:

- *Integrated environmental consideration for sustainable reconstruction.* All reconstruction planning and action should consider environmental issues. To use natural buffers or greenbelt in earthquake and tsunami prone areas. Several trees or plant species, such as mangrove, can be used effectively.
- *Land-use policies should take into consideration geophysical factors.* Seismic zoning and building codes must be used and enforced.
- *Environmental friendly and disaster resilient spatial planning.* Sound spatial planning principles and strategy should be established prior to any sectoral reconstruction.
- *Environmentally sound planning of temporary housing and other installations.* Selection of locations for temporary housing should consider potential long-term environmental implication.
- *Participatory rebuilding of the environment.* The involvement of local communities and civil society organizations will ensure that environmental issues are taken into consideration in the reconstruction process, thereby ensuring sustainability.
- *Ecosystem based restoration.* The restoration should take place utilizing ecosystem recovery potential and in such a manner that ecosystem goods and services are used for local livelihoods.
- *A comprehensive environmental assessment of disaster damages should be conducted as a follow up to preliminary assessment.*

## 6. Conclusion

In conclusion, BPK, the State Audit Board of Indonesia pursues three key objectives in the rehabilitation and reconstruction of Aceh, namely (1) to ensure that the tsunami fund are properly accounted for and used efficiently and effectively for the purposes intended, (2) to ensure that geophysical, geological and seismological information and environmental concerns and issues of sustainable development are considered in all rehabilitation and reconstruction efforts; (3) to engage the hearts and minds of the local population in the reconstruction effort.

Appendix 1. Number of People Affected by the Aceh Tsunami As Of May 2005)

	Region	Population(*)	Killed(*)	Missing(*)	Refugee(**)	Total Affected	Affected/Population
<b>Aceh Province</b>							
1	City of Banda Aceh	260,478	92,166	15,394	49,921	157,481	60.46%
2	Aceh Besar District	302,405		15,176	98,223	113,399	37.50%
3	City of Sabang	26,303	25	108	3,712	3,845	14.62%
4	Pidie District	517,898	4,401	877	81,532	86,810	16.76%
5	Bireun District	361,528	461	58	49,945	50,464	13.96%
6	Aceh Utara District	523,717	1,583	218	30,510	32,311	6.17%
7	City of Lhokseumawe	167,362	189	11	2,494	2,694	1.61%
8	Aceh Timur District	331,636	52	-	12,422	12,474	3.76%
9	Langsa District	122,865	-	-	6,156	6,156	5.01%
10	Aceh Tamiang District	225,011	-	-	3,396	3,396	1.51%
11	Aceh Jaya District	98,796	16,797	77	40,422	57,296	57.99%
12	Aceh Barat District	195,000	10,874	2,911	72,689	86,474	44.35%
13	Nagan Raya District	143,985	1,077	865	17,040	18,982	13.18%
14	Aceh Barat Daya District	115,358	3	-	3,480	3,483	3.02%
15	Aceh Selatan District	167,052	1,566	1,086	16,148	18,800	11.25%
16	Simeuleu District	77,761	44	1	18,009	18,054	23.22%
17	Aceh Singkil District	124,758	22	4	105	131	0.11%
18	Aceh Tengah District	160,453	192	277	5,288	5,757	3.59%
19	Aceh Tenggara District	150,776	44	-	809	853	0.57%
20	Gayo Lues District	86,448	-	3	158	161	0.19%
21	Bener Meriah District	112,000	2	-	819	821	0.73%
	<b>Total</b>	<b>4,271,590</b>	<b>129,498</b>	<b>37,066</b>	<b>513,278</b>	<b>679,842</b>	<b>15.92%</b>
<b>North Sumatra Province</b>							
1	Nias District	422,170	233	24	4,000	4,233	1.00%
2	Nias Selatan District	275,422	1	n/a	n/a	1	0.00%
3	Tapanuli Tengah District	272,333	1	n/a	n/a	1	0.00%
4	Serdang Bedagai District	549,091	4	n/a	n/a	4	0.00%
5	Mandailing Natal District	369,691	1	n/a	n/a	1	0.00%
	<b>Total</b>	<b>1,888,707</b>	<b>240</b>	<b>24</b>	<b>4,000</b>	<b>4,240</b>	<b>0.22%</b>

Source:

(\*) United Nation Information Management Service, May 19, 2005

(\*\*) Bakornas, May 17, 2005

## Appendix 2. Assessment of Damages and Losses in Aceh and Nias

Sector	Damages and Losses							
<b>Housing</b>	Number of affected house in Aceh and North Sumatra							
	No	Province	Before earthquake & tsunami		After earthquake & tsunami			
			Permanent House	Semi permanent House	Total Damage		Major Damage	
				Permanent House	Semi permanent House	Permanent House	Semi permanent House	
	1	Aceh	227,456	432,235	43,148	42,174	53,041	89,330
2	North Sumatra	315,445	91,107	3,155	9,111	3,155	9,111	
	<b>Total</b>	<b>542,901</b>	<b>523,342</b>	<b>46,303</b>	<b>51,285</b>	<b>56,196</b>	<b>98,441</b>	
Source: National Development Planning Agency								
<b>Education</b>	Number of victims include 1.823 teachers and 17.228 students							
	Number of affected education facilities are:							
	Education Level			Number of Damaged Facilities				
				NAD	North Sumatra			
	Preschools and Primary Schools (TK + SD)			1,144	642			
Junior Secondary Schools (SMP)			246	75				
Senior Secondary Schools (SMA)			154	31				
Vocational Senior Secondary Schools (SMK)			16	10				
Schools for Disabled (SLB)			5	-				
Higher Education Institutions			18	-				
<b>Total</b>			<b>1,583</b>	<b>758</b>				
Source: <a href="http://www.eduforaceh.org">www.eduforaceh.org</a> as of 27 April 2005								
<b>Health</b>	Number of affected health facilities are:							

Facilities	Damage			Total
	Total Damage	Moderate Damage	Minor Damage	
Hospital				
-Public	1	2	1	4
-Private	2	0	0	2
Public health center	26	10	5	41
Public health sub-center	37	12	10	59
Polindes	172	109	109	390
Private health center	2	2	2	6
District health office	1	2	0	3
Laboratory	0	1	0	1
Port health facility	3	0	0	3
District drug warehouse	1	1	1	3
Health Polytechnic	4	4	0	8
Ambulance	14	0	0	14
Mobile health facility	0	39	0	39
Health training complex	0	1	0	1

Source: National Development Planning Agency

Religion and Culture		
Number of damaged worships facilities are:		
	Aceh	Nias
Mosques/ Meunasah/Prayer Room	1059	2
Churches	8	8
Confucian Temples/Temples	2	
<b>Total</b>	<b>1069</b>	<b>10</b>

Source: National Development Planning Agency

Infrastructure	Road condition before and after tsunami and earthquake:
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Description	Road Condition (km)		
	Good	Minor Damage	Major Damage
Before tsunami and earthquake	1139.22	1249.02	1096.36
After tsunami and earthquake	990.43	1244.47	1249.70

Source: Ministry of Transportation

The total damage of the bridge is estimated reached 25 % of the bridge length, which is 21,340 m for the national bridges and 14,015 m for the provincial bridges.

The Directorate-General of Sea Communication reported that five ports were heavily damaged and eleven ports were lightly damaged. Two airport infrastructures were seriously damaged and two airports were lightly damaged, whereas three airports are in an operation-worthy condition

<b>Energy</b>	<p>The majority of the damage in the energy sector is in the distribution networks in both electric power and petroleum fuel supply. Electric power supply suffered light damage to generation capacity, no damage to the transmission network but substantial damage to the distribution network in the affected areas. The damaged distribution network includes: (i) the isolated m-system Voltage Network particularly in the central and west parts of NAD territory, including the Medium Voltage Network (JTM) as far as 1,046 km (11.76%); (ii) Low Voltage Network (JTR) as far as 2,394 km (21.61%); (iii) Distribution relay station as many as 736 units (16.24%); (iv) House Connections (SR) for as many as 119,253 customers (18%); and (v) Connecting Relay Stations (GH) as many as 6 units (7.44%). Damaged power stations includes 16 units of diesel powered electric generators (PLTD) or 7.44 percent; whereas other damages includes electronic meters as many as 246 units (41.48 percent) and office buildings as many as 6 units.</p> <p>Pertamina reported heavy damage to its two depots, and lesser damage to its three depots. Many SPBU's (Roadside Fuel Stations) have been damaged, particularly in Banda Aceh. Pertamina's branch office in Banda Aceh has also suffered some damage.</p>
<b>Communication</b>	<p>Nineteen post offices were seriously damaged. Telecommunications suffered severe damage, primarily to the fixed connection services and to transceiver facilities for cellular phones. The rural telephone facilities with PFS technology were damaged including up to 66 lines in the Province of Aceh, and up to 6 lines in Nias -North Sumatra. Facilities using radio technology were damaged up to 62 lines in the Province of Aceh and 9 lines in Nias -North Sumatra. Total damages were estimated to be Rp 40 billion.</p>
<b>Water Supply and Sanitation Damage</b>	<p>Sanitation facilities such as sewage systems, septic tanks, pit latrines, waste disposal, and sludge treatment facilities were severely damaged. Virtually the entire network of macro and micro drainage systems do not function as they are covered with sand, mud, and ruins of buildings. Reports indicate that the damage to both urban and rural water supply systems was significant. Water supply facilities such as laboratories, equipment, and water piping networks were destroyed. Thousands of wells and boreholes are either fully or partly destroyed or contaminated, and require replacement, cleaning, and disinfections. The World Bank estimated that the total losses for water supply and sanitation are Rp 276 billion.</p>



<b>Flood Control, Coastal Protection, and Irrigation</b>	The assessment from Ministry of Public Works stated that the total areas affected by tsunami are estimated at 33,142 ha (technical, semi technical and simple irrigation system), comprising 13,698 ha in the coastal area and 19,444 ha in the non-coastal area. The degree of damage varies but it appears that the northern and western part of the province experienced the maximum damage. In addition to irrigation facilities, the flood protection infrastructure (about 46.2 km in length) and sea wall system (about 35.06 in length) were damaged. Satellite photos showed that about 2 kilometers of flood control embankment for the recently constructed floodway in Aceh River was damaged.																					
<b>Agriculture</b>	Damages and losses based on Master Plan (Main Book) and Ministry of Agriculture of Indonesia included rice fields 34,600 ha, dry land crops 22.785 ha, food crops 27,905 ha, irrigation areas 8.257 ha, estate crops 43.500 ha (coconut 23.533 ha, rubber 5.395 ha, coffee 6.242 ha, mente 6.931 ha, oil palm 1.600 ha, areca nut 2.761 ha, cacao 2.768 ha, patchouli 710 ha, clove 4.600 ha, nutmeg 1.808 ha and ginger 218 ha). Losses for livestock base on the same sources were cattle 46,002, buffaloes 50,781, goats 68,934, sheep 8,481, poultry 1,401,768, ducks 534,783 and livestock housing 24,617.																					
<b>Fisheries</b>	<p>The report from Ministry of Marine Affairs and Fisheries shows that the total damage is estimated at Rp1.2 trillion with details as follow:</p> <p style="text-align: center;">(Rp million)</p> <table border="1" data-bbox="573 670 1171 930"> <thead> <tr> <th>Description</th> <th>Physical</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Fishing ports</td> <td>38 unit</td> <td>147,300</td> </tr> <tr> <td>Fishing boats</td> <td>14,949 unit</td> <td>286,220</td> </tr> <tr> <td>Fishing equipments</td> <td></td> <td>161,953</td> </tr> <tr> <td>Brackish water culture ponds</td> <td>14,523 ha</td> <td>586,314</td> </tr> <tr> <td>Fishing production</td> <td></td> <td>21,407</td> </tr> <tr> <td><b>Total</b></td> <td></td> <td><b>1,203,194</b></td> </tr> </tbody> </table>	Description	Physical	Total	Fishing ports	38 unit	147,300	Fishing boats	14,949 unit	286,220	Fishing equipments		161,953	Brackish water culture ponds	14,523 ha	586,314	Fishing production		21,407	<b>Total</b>		<b>1,203,194</b>
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<b>Enterprises</b>	<p>A report from Ministry of Industry stated that 92.000 small/house industries in Aceh and 12.500 in Nias were damaged. Assuming that each small business had around Rp 30 million in total assets and that all of this was a destroyed-this amounts to a total damage figure of Rp31 trillion.</p> <p>The assessment from Ministry of Trade estimated that about 65 shopping centers, 123 traditional markets (54 permanent and 69 semi permanent), 69 wholesale markets, 1 cattle market, 19 fish markets, 25 private banks, and 4 ROE's banks were damaged.</p>																					
<b>Regional Governments</b>	<p>The total of losses among Central and Local government personnel are 3.374 death and 3.528 missing.</p> <p>Seriously damaged facilities and infrastructure of office buildings in the province of Aceh are found in (1) the Provincial Government of Aceh, (2) Banda Aceh City, (3) Aceh Barat, District (4) Aceh Besar District and (5) Aceh Jaya District. At sub-district level, 24 of 241 sub-districts were not functioning. Fifty percent of sub-district in Aceh Jaya was not functioning. At village level, 640 of 5,947 villages are not functioning. The earthquake on March 28, 2005 also damaged the Simeuleu District Office, Nias District Office and 4 sub-district offices in Nias</p>																					

<b>Financial</b>	The number of Commercial and Rural Banks affected by the tsunami is up to 17.6 percent (25 units) and 8.9 percent (4 units) respectively. About Rp.2 trillion of the total Rp.3.9 trillion in credits/loans extended by the banks is estimated to become bad credits (IDB, January 2005).
<b>Environment</b>	<p>The damage is estimated to occur to 90% of the 525 ha of mangrove, 30% of the 97,250 ha of coral reef and 20% of the 600 ha of seaweed farming.</p> <p>654 of 5,736 villages in 18 districts/cities are estimated to have been affected by the disaster. The impact of disaster is estimated to have reached 667,066 ha out of around 4 million ha of land in 18 districts/cities. The community's damaged rice field has reached 20,101 ha. The nonagricultural land, which also experienced the disaster impact, includes 113,929 ha of plantation, 91,517 ha of state-owned land, 44,312 ha of housing, and 1,714 ha of industrial complexes. There are regions sinking in 4 kecamatans namely in sub district of Meuraya, Syiah Kuala, Kuta Raja and Jaya Baru</p>

Appendix 3. Existing Non Governmental Organizations in Aceh and Nias

(US\$ million)

No	Non Governmental Organization	Committed Assistance
1	Action Contre	10.317
2	Agency for Cooperation and Technical Development	4.514
3	Aide Medical Internationale	0.335
4	ALISEI	8.000
5	American Redcross	35.000
6	Ananda Marga Universal Relief Aceh	1.700
7	Atlas Logistique	4.772
8	Australian Red Cross	n/a
9	Austria Red Cross	n/a
10	Belgium Red Cross	n/a
11	British Red Cross Society	0.080
12	Bundesanstalt Technisches Hildswerk	7.996
13	Caritas Australia	4.000
14	Caritas Austria	0.903
15	Caritas Czech Republic	1.220
16	Caritas Germany	n/a
17	Catholic Organization for Relief and Development Aid	25.793
18	Catholic Relief Services	12.000
19	Center for Earthquake Resistant Houses	0.225
20	Child Fund Indonesia	0.279
21	Church World Service	10.000
22	Comite d Aide Medicale	0.967
23	Concern Worldwide	10.317
24	Consortium for Assistance and Recovery Toward	24.958
25	Croix-Rouge Francaise	25.148
26	Danish Red Cross Society	8.430
27	Deutch Gesellschaft Fuer Technische Zusammenarbeit	7.738
28	Emergency Architects	1.548
29	Enfants Refugies Du Monde	n/a
30	Fauna & Flora International	3.100
31	Food for the Hungry International	1.500
32	German Agro Action	16.121
33	German Red Cross	10.000
34	Global Peace Mission	2.750
35	Global Sikhs/Waves of Mercy	0.650
36	Greenhelmets	0.270
37	Handicap International	2.017
38	Helen Keller International	3.400
39	HELP eV Germany	n/a
40	HELP Hilfe zur Selbsethilfe	7.196
41	Hivos Foundation	3.224
42	Hong Kong Red Cross	10.875
43	Helping Orphaned Peoples Everywhere	0.322
44	Hilfswerk Austria	6.771
45	Indonesian Development of Education of Permaculture	0.500
46	International Personnel Services. LLC	2.000

(US\$ million)

No	Non Governmental Organization	Committed Assistance
47	International Catholic Migration Commission	7.000
48	International Disaster	5.000
49	International Federation of Red Cross and Red Crescent Societies	200.000
50	International Relief Development	10.000
51	Istanbul International	1.000
52	Istanbul Metropolitan Municipality Banda Aceh Aid	5.000
53	Japanese Red Cross Society	20.000
54	Johns Hopkins Program for International Education in reproductive Health	5.000
55	Medical Emergency Relief	4.000
56	Medicine du Monde Canada	0.700
57	Medicine du Monde France	64.484
58	Medicine du Monde Greece	0.257
59	Medicine Sans frontieres	7.222
60	Medicos Del Mundo	0.645
61	Mercy Corps	20.000
62	Mercy-USA for Aid and Development. Inc	0.980
63	Muslim Aid Indonesia	2.579
64	Nehemia Christenhilfsdienst e.V.	0.167
65	Norfolk and Suffolk Islamic	0.150
66	Norlink International	74.383
67	North West Medical Team International	3.500
68	Norwegian Red Cross	n/a
69	Opportunity International	2.299
70	Oxfam Great Britain	67.000
71	Pelayanan advokasi untuk Keadilan dan Perdamaian	2.150
72	Pharmaciens sans	0.546
73	Planete Urgence	1.031
74	Project Concern International	5.000
75	Project HOPE (The People to People Foundation. Inc)	8.000
76	Asih Eka Abadi. PT	0.300
77	Republic of Korea National	3.000
78	Saudi Red Crescent Society	0.010
79	Solidarites	0.124
80	Sos Desa Taruna Indonesia	n/a
81	Spanish Red Cross	n/a
82	Swiss Red Cross	0.017
83	Taiwan Red Organization	0.650
84	Terre des Hommes	11.607
85	The Foundation for Human Right and Freedom and Humanitarian Relief	0.370
86	The Mentor - Initiative	n/a
87	The Netherlands Red Cross	16.751
88	The Source (Yayasan Sumber Utama)	0.250
89	Triangle Generation Humanitaire	1.354
90	Union Aid Abroad - Australian People for Health Education	0.996
91	VIVAT International	8.000
92	World Harvest	n/a
93	World Relief	19.000
94	World Vision International	40.000

(US\$ million)		
No	Non Governmental Organization	Committed Assistance
95	Yakkum Emergency Unit	n/a
96	"Berkati Indonesia" Foundation	5,500
97	"Bina Perdamaian" Foundation	0,792
98	"Dinamik Sistem" Foundation	2,299
99	"Jesuit Refugee Service Indonesia" Foundation	10,627
100	"Sosial Kreasi" Foundation	0,900
101	"Sumber Utama" Foundation	0,250
102	Zoe's Ark Foundation	2,579
	<b>Total</b>	<b>920,405</b>

Source: Data from the Rehabilitation and Reconstruction Agency as of August 31, 2005

Appendix 4. International Assistance Received During Relief/Emergency Period

No	Countries	Assistance
1	Afghanistan	20 medics, relief goods
2	USA	USS Abraham Lincoln, 6 Hercules C-130s, 12 helicopters, USS Essex, USNS Mercy, medicines, drinking water, relief and humanitarian goods, generators, emergency medical kit
3	Armenia	4 medics
4	Australia	288 medics and 35 non medics, 600 soldiers, 4 Hercules, 1 Boeing 707, Antonov, 3 helicopters, HMAS Kanimbla (ship), medicines, food, clothes, evacuation equipment, relief/humanitarian goods, generators
5	Brunei Darussalam	15 medics, relief goods
6	Netherlands	4 teams of non-medics, medicines, emergency and relief goods, mobile phone & radio equipments
7	Czech Republic	22 non-medics, drinking water
8	China	35 medics and 89 non-medics
9	Chile	5 medics and 1 expert
10	Estonia	15 medics
11	Philippines	23 medics, medicines, relief goods, water equipments
12	Hungary	14 medics
13	India	Indian Naval ship "Nirupak" (floating hospital) and "Khukri" (medical ships), medicines, relief goods
14	UK	3 non-medics, 3 experts, vehicles, medicines, humanitarian goods, water equipment
15	Italy	7 medics
16	Japan	23 medics, emergency medical kit, emergency and humanitarian goods
17	Germany	Flying hospital and rehabilitation of regional general hospital " Zainal Abidin), medicines, evacuation equipment, relief and humanitarian goods
18	South Korea	32 medics, 91 non medics, medicines, clothes, relief goods, emergency medical kit
19	Cuba	23 medics
20	Kuwait	56 heavy equipments and 150 boats
21	Malaysia	383 medics, medicines, food, drinking water, clothes, relief and humanitarian goods, water equipment, emergency medical kit
22	Mexico	5 experts, 2 Naval ships "Zapoteco" and "Usumacinta (floating hospital), 3 helicopters
23	Egypt	6 medics
24	Nigeria	31 medics
25	Norway	31 medics, 1 field hospital with 100 person capacity
26	Pakistan	300 medics, 1 field hospital, 2 Naval ships "PNS Khaibar" and "PNS Moawin", 3 helicopters
27	France	72 medics, 1 team of non-medics, 2 experts, Antonov, 2 ships "Jeanne d'Arc" and "Gorges Leygues", 8 helicopters, emergency hospital "Escrim", medicines, food, evacuation equipments, relief and humanitarian goods, water equipment, vehicles
28	Portugal	24 medics, mobile hospital, generators
29	Russia	1 field hospital, relief and humanitarian goods
30	Singapore	2 experts, 800 soldiers, helicopters: 6 Chinook, 2 Super Puma, 2 landing ships helicopters, several C-130 airplanes, medicines, food, drinking water, evacuation equipments, relief and humanitarian goods, generators
31	New Zealand	1 C-130 airplane, relief goods
32	Slovakia	4 medics
33	Spain	600 soldiers, 1 ships functioning as field hospital and water purification, 5 airplanes, 2 helicopters, body bags, relief and humanitarian goods, vehicles
34	Sudan	4 medics

35	Switzerland	2 medics, 53 non-medics, 17 experts, 3 helicopters, medicines, relief and humanitarian goods, vehicles
36	Syria	5 medics
37	Turkey	37 medics, relief goods
38	United Arab Emirates	31 medics, trucks, clothes, relief goods, emergency medical kit
39	Jordan	32 medics
40	Greece	10 experts, military trucks, water purification, medicines, humanitarian goods

Source: Report from the Indonesian Emergency Relief Coordination Agency as of March 22,2005