

Lessons Learned from the Reconstruction of Aceh

Poverty and Environment Partnership (PEP) Meeting

Manila



By



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Aceh Context

Earthquake and Tsunami Impacts

The Reconstruction of Aceh

Lessons Learned

Aceh Context

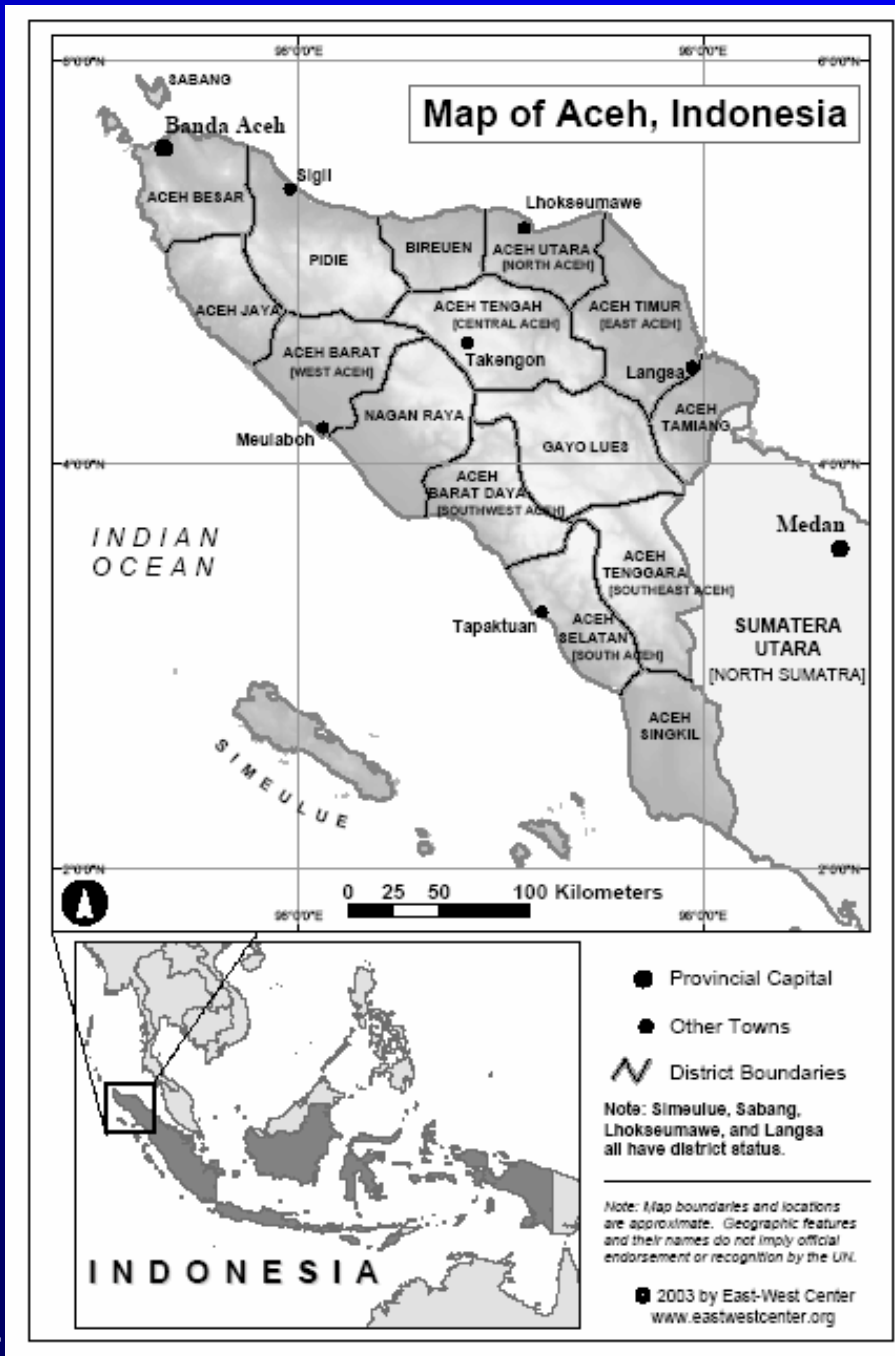
Nanggroe Aceh Darussalam (Aceh)

Area:

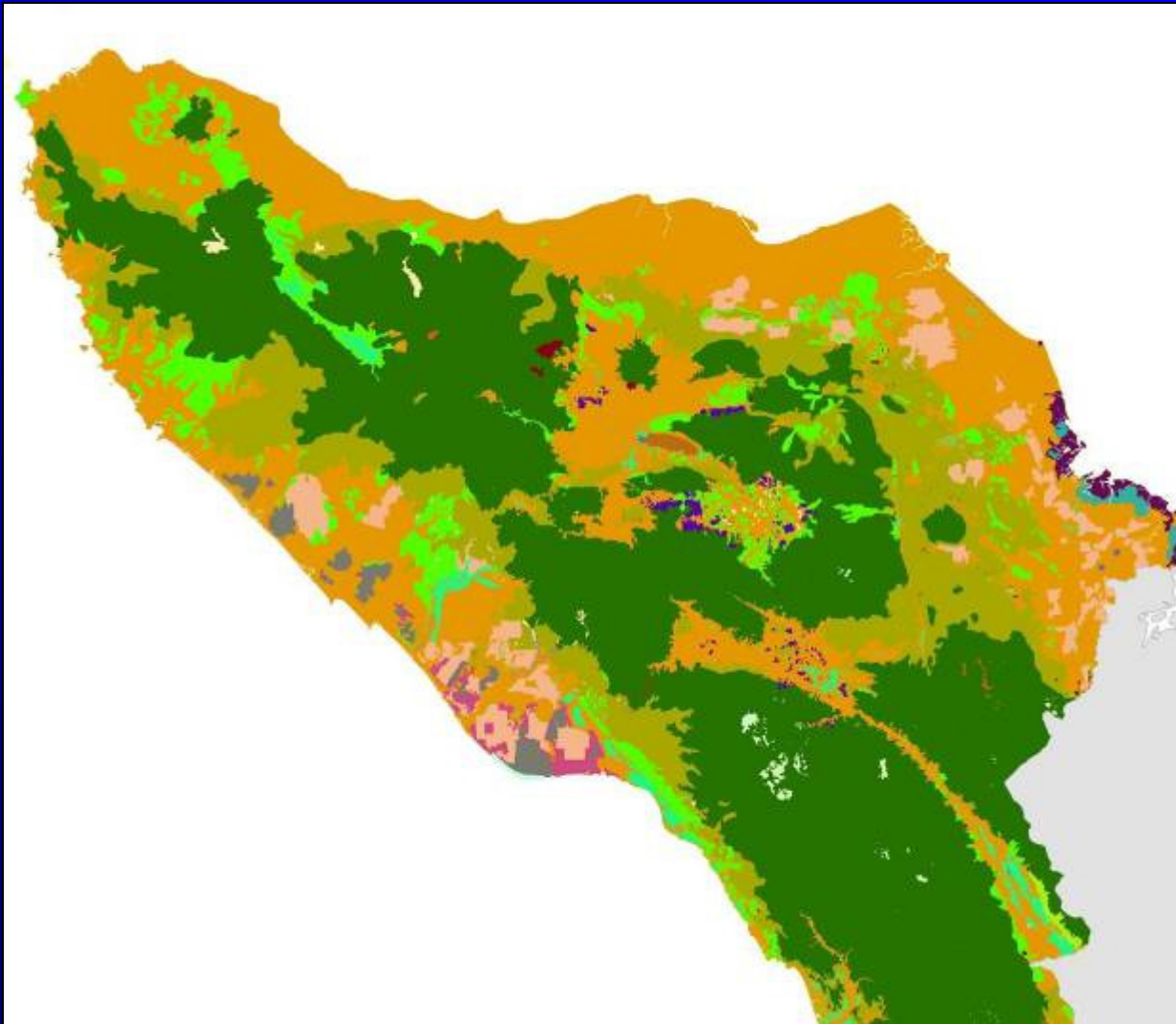
57,365.57 km²

Population:
Approximately 4
million

ADB

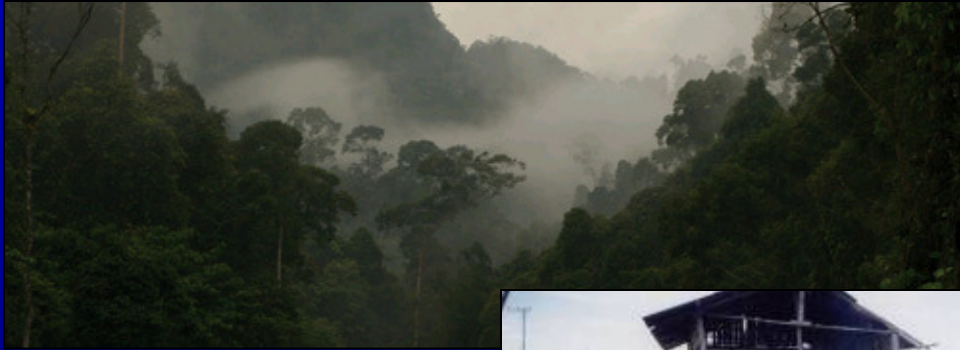


Environment



- Rich natural resources
- 66% of Aceh is forested.
- Extensive marine resources, but under pressure

Environment



Natural resources are an integral part of Aceh's economy; > 50 % of workforce involved in fisheries, agriculture or forestry

Poverty

- Civil war meant low or negative growth rates
- Rich natural resources had not resulted in higher growth rates or lower levels of poverty; pre-tsunami poverty rate was 28.4% compared to national average of 16.7%
- Poverty in Aceh is predominantly a rural phenomenon
- Large groups of people highly vulnerable to a “shock” such as a natural disaster

Earthquake and Tsunami Impacts

Earthquake and Tsunami Impacts

- Total Damages and losses estimated at \$4.5 billion in Aceh and \$400 million in Nias Island
- Damages and losses to agriculture (food crops, horticulture, estate crops, livestock) were estimated at US\$ 236 million
- Damages and losses to fisheries were estimated at US\$511 million
- Unprecedented ecological and biophysical impacts, especially on Aceh's west coast

Landscape changes due to earthquake and tsunami

Aceh Province and Nias Island
Sumatra, INDONESIA



Subsidence of the terrain and removal of coastal vegetation by tsunami



Infrastructural damage and subsidence of the terrain



Exposed coral reefs and uplift of the sea floor and terrain



Coastal erosion and subsidence of the terrain



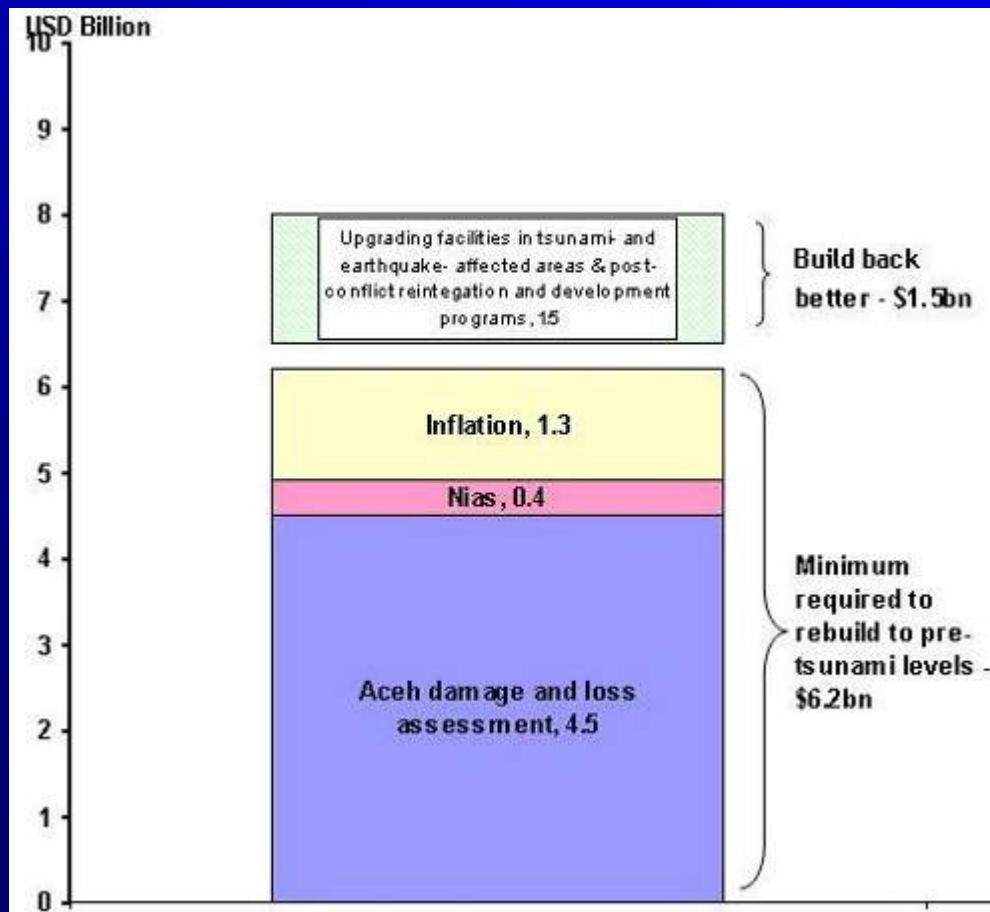
Exposed roots of mangroves and uplift of the terrain



Damage to vegetation and subsidence of the terrain

The Reconstruction of Aceh

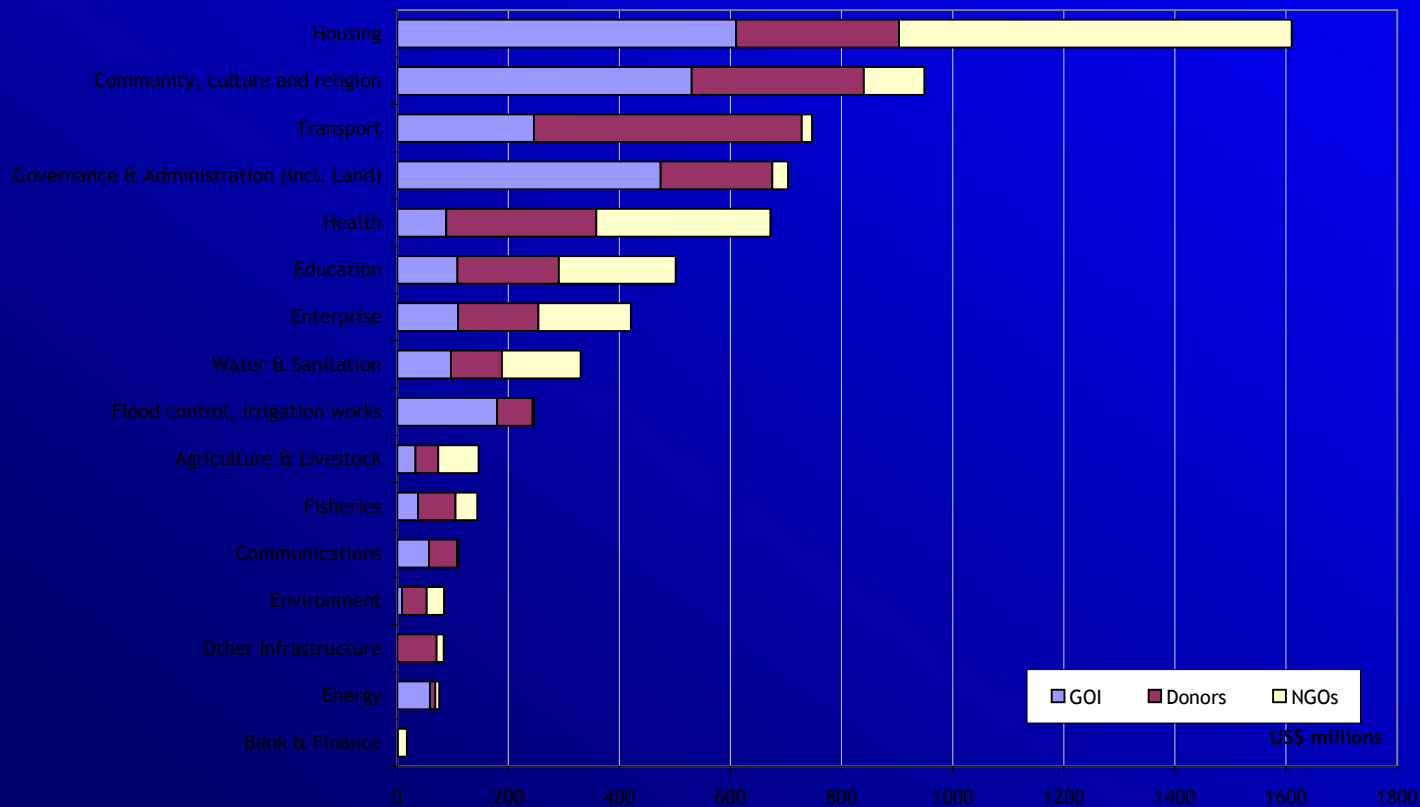
Reconstruction Funding



- Unprecedented reconstruction process under overall direction of the Badan Rehabilitasi dan Rekonstruksi (BRR)
- Total commitments of about \$7.1 billion from Government and International Community
- Exceeds minimum requirements, should allow for "building back better"

Reconstruction Funding

- \$4.2 billion or 61% disbursed as of 31 December 2007
- The housing sector has received the largest amount, key livelihoods sectors as well as environment have been arguably under funded



Reconstruction Progress

	Cost of damages (Rp billion)	Needs	Completed (February 2008)
Houses	Rp. 13,365.0	120,000 units	104,630 unit
Agricultural land	Rp. 375.0	60,000 ha	63,923 ha
Road	Rp. 4,697.0	3,000 km	2,475 km
Seaports	Rp. 259.0	14 units	17 units
Airports/airstrips	Rp. 46.0	11 units	10 units
Teachers	Rp. 4.8 (retraining)	2,500 died	25,256 trained
Schools	Rp. 1,031	2,006 units	893 units
Health facilities	Rp. 767.4	127 units	757 units

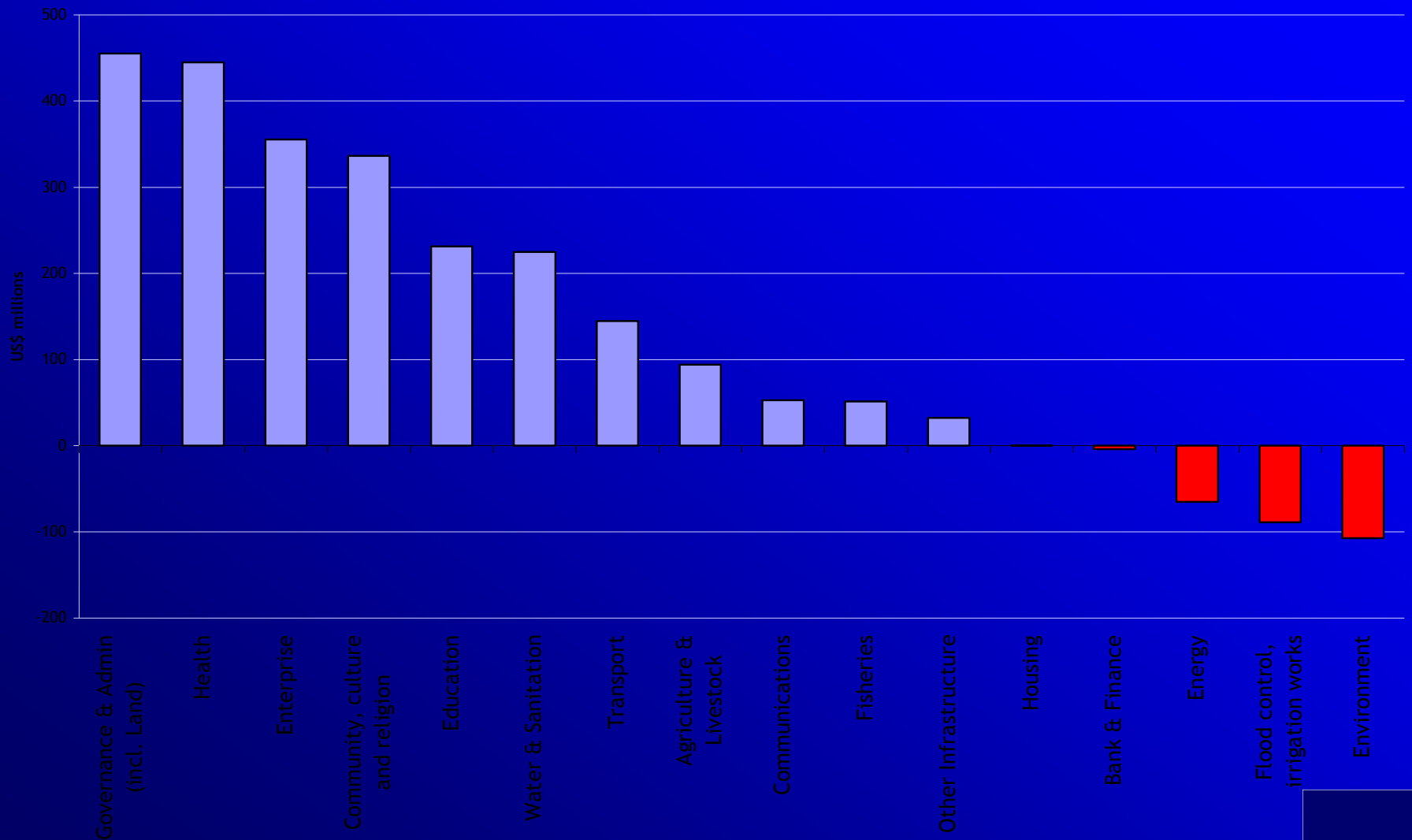
Source: BRR 2008

Ten Lessons Learned

Ten Lessons Learned

1. Environment should be integrated at earliest practical stages of reconstruction
 - Environmental issues were not considered a priority in early stages (with exception of tsunami debris)
 - Pressure was to Act Now!
 - Environment sector “under funded” compared to key sectors such as housing, roads, etc

Sectoral allocations gaps against core minimum needs



- This can be a “pay me now, or pay me more later” situation...
- For example, in housing sector, construction in flood prone/high water table areas with poor drainage



- Lack of attention paid to provision of sustainable sanitation (houses, schools, hospitals, etc)



Lessons Learned

2. Government agencies have limited capacity
 - Poses a challenge in “normal” times; exacerbated in post disaster situations.
 - While government is recovering, onus should be on donors, NGOs, to implement “best practical” practices
 - Technical assistance has been very helpful in restoring EIA, environmental monitoring, etc, capacity in Aceh

Lessons Learned

3. Know your environmental responsibilities!

- Donors, NGOs (and Government agencies) need to be aware of their environmental obligations, including the requirements to do environmental assessments for major civil works project
- Significant projects were undertaken without any form of environmental assessment;
 - Out of ignorance
 - Skepticism
 - Deliberately, to avoid perceived delays

Lessons Learned

4. Do what you know!

- Donors, NGOs working in areas outside of their expertise can lead to poorly planned interventions that further negatively impact environment and people. Some examples:
 - Donated “waste” pharmaceuticals
 - Poor quality livelihood projects
 - Houses sited in flood prone areas without adequate drainage
 - Houses, schools, hospitals without adequate sanitation systems, water supply, electricity
 - Poor general quality of civil works



Lessons Learned

5. EIA can be a useful tool

- Experience has shown that even in post tsunami Aceh, EIA can be an effective tool for integrating environmental aspects into large infrastructure reconstruction projects.



**EIA/AMDAL of US AID
funded West Coast Road**



**EIA/AMDAL of Banda Aceh
Port Reconstruction**

Lessons Learned

6. Provision of sustainable building materials is a MAJOR challenge

- Reconstruction requirements (FAO and ADB):
 - 1 million tonnes of cement
 - 3.6 million m³ of sand
 - 1.1 billion fired clay bricks
 - 508,000 m³ of concrete blocks
 - 87,000 m³ of plywood
 - 370,000 m³ of sawn timber
 - 945,000 m³ of fuel wood for brick kiln firing
- Has led to uncontrolled quarries, expanded legal and illegal logging, and ultimately the Governor's moratorium on logging in Aceh



Lessons Learned

7. Reconstruction Monitoring and QA/QC has been weak

- Eye on Aceh, 2006:
"surprised by lack of donor and implementer monitoring of projects, which might have identified ongoing problems, and of post-project evaluation, which might not only have identified issues of concern but might also have led to a crackdown on incompetent or corrupt partners."
- Applies to construction quality monitoring as well as environmental monitoring

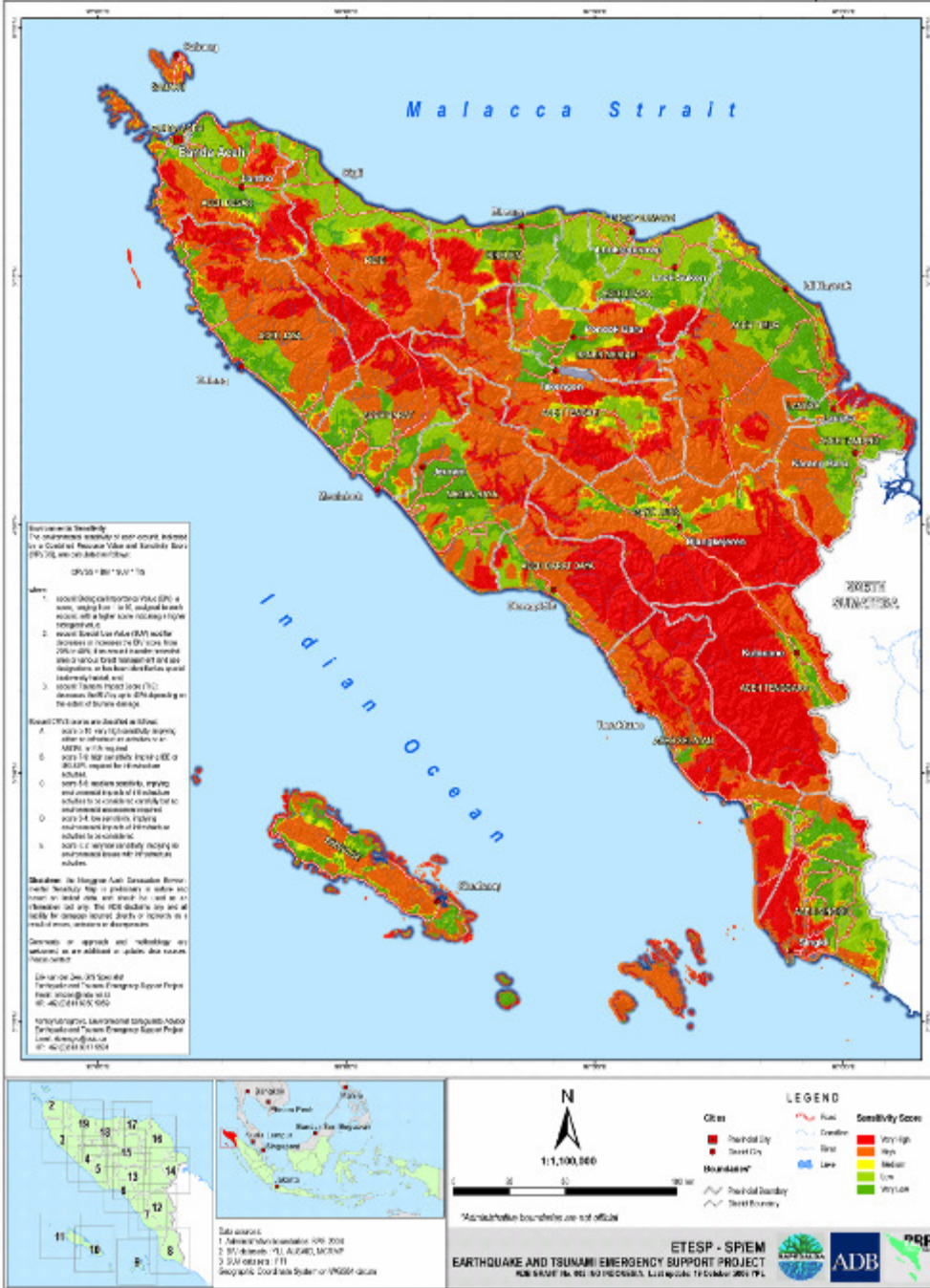
Lessons Learned

8. Structurally poor are more vulnerable to both environmental degradation and natural disasters in Aceh

- Direct impacts from tsunami, floods, landslides, etc
- Livelihood impacts
- Environmental factors that MAY exacerbate impacts
- Special attention must be paid to restoring livelihoods sectors (Agriculture, Fisheries)

Lessons Learned

9. Remote Sensing, GIS and Spatial Planning can be significant disaster response, reconstruction and environmental planning tools
 - UN provided a key mapping and information role in earlier stages
 - ETESP has undertaken village, district and regional level spatial planning, and environmental sensitivity mapping
 - Concerns about sensitive military information and unwillingness of agencies to share data can constrain their usefulness



• Aceh environmental sensitivity map (currently being updated)

Lessons Learned

10. There are also many, many success stories!

- **The cleanup of Tsunami debris**
- **Green Aceh (forests and agriculture)**
- **Sanitation Awareness**



Conclusion

Conclusion

- Balancing the urgency for immediate reconstruction against the need for a longer ecological vision is challenging!
- Enormous progress has been made in Aceh in terms of reconstruction, livelihoods restoration, etc.

Conclusion

- Nonetheless, early and more effective integration of environmental planning could have helped avoid/minimize significant problems
- We continue to face the same challenges in new disaster situations, and the same mistakes are likely to be repeated

Terima-kasih

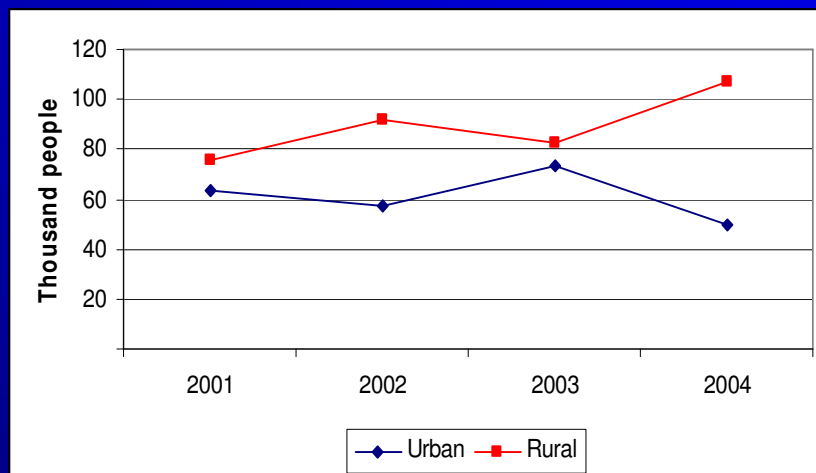
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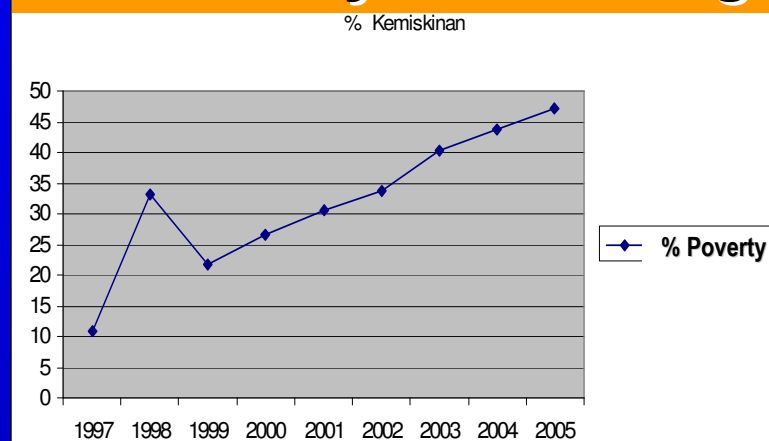
**Extra Slides for follow up
discussion if/as necessary**

Poverty in Aceh

% Rural Unemployment Increasing



% Poverty Increasing



	<u>Before Tsunami</u>	<u>After Tsunami</u>
Total Population	4.297.485 Pers	4.031.589 Pers
Employment	1.618.973 Pers	1.600.072 Pers
Unemployed	136.981 Pers (8.5%)	177.560 Pers (11.1%)
Economic Growth	3,5 % per Year	0,25 % Per Year
Incidence of Poverty	27,09 %	40,85 %

Earthquake and Tsunami Impacts

- Dec 26 2004, Magnitude 9.1 earthquake off west coast of Aceh.
- Third largest earthquake in the world since 1900; subsequent tsunami caused more casualties than any other in recorded history.
- Over 227,000 killed or were missing and presumed dead; 1.7 million displaced
- Followed by Magnitude 8.1 Magnitude earthquake on March 28 2005, killed over 1000 people on Nias

Key Environmental Issues

- Tsunami Debris
- Destruction of Fisheries and Agricultural Systems; and coastal ecosystems



Key Environmental Issues

Protection of the Leuser-Ulu Masen forest ecosystem

- Provision of building materials
- Illegal logging
- Oil Palm Plantation and Agriculture Expansion



Key Environmental Issues

- Questionable siting of housing settlements
- Provision of sustainable sanitation (houses, schools, hospitals, etc)
- Contaminated groundwater



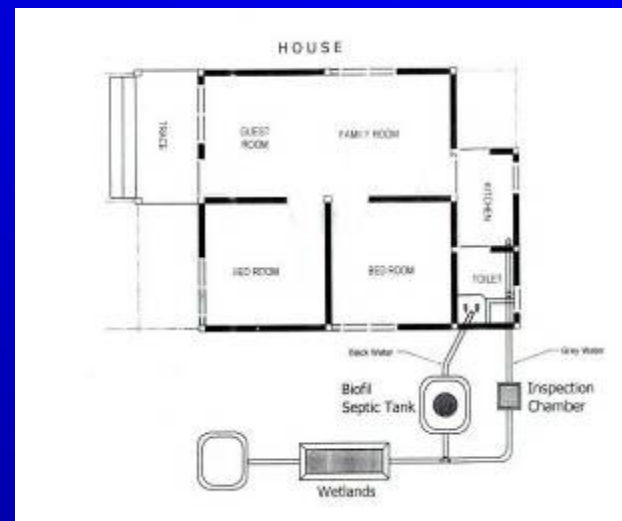
ETESP and EIA

- ETESP arguably played a leadership role in fully incorporating environmental assessment into the reconstruction project design and evaluation process;
 - All subprojects underwent screening and assessment
 - 162 environmental assessments covering 244 ETESP subprojects
 - Findings generally indicate positive social, economic and environmental benefits; negative impacts that are identified can be adequately mitigated.
 - Support provided to BAPEDALDA

- ETESP Environmental assessment process has also led to “mainstreaming” of environment into project design and implementation in fisheries, agriculture, housing, etc



Rehabilitated pond, Banda Masen village, Lhokseumawe, showing mangrove nursery.



Sustainable on-site household sanitation

Priorities for the Future

- Protect Ulu Masen-Leuser Ecosystem
- Focus development efforts on poorest areas of Aceh and on key livelihood sectors
- Livelihoods / unemployment will be a major challenge when international community and “artificial” economy moves on...
- Enhance provincial and local capacities for sustainable natural resource management, environmental planning, assessment, monitoring and enforcement
- Key environmental issues: WatSan, forest management and conservation, marine overexploitation, groundwater contamination, solid and hazardous waste management