

# Macroeconomic Impacts



## ECONOMIC IMPACTS

*I was employed as a fisherman, along with some of my friends here. We would prefer to continue fishing in the future, but I guess we could change professions if necessary. The important thing is to obtain a living – anything really, as long as it is well planned.*

Fisherman in temporary camp Banda Aceh

## MACROECONOMIC IMPACTS

### ECONOMIC SITUATION OF ACEH

As a proportion of the Indonesian economy, Aceh's share is small in some key respects. The province's regional GDP accounted for 2.3% of total GDP in 2003. Oil and gas dominate the economic production of Aceh, accounting for 43% of the region's GDP in 2003. In 2003, Aceh's nominal GDP was Rp.38.6 trillion (about \$4.5 billion), 2.3% of national GDP. According to the latest information, oil and gas fields were not damaged including Exxon Mobil's large Arun natural gas operation in Lhokseumawe. However, when considering the livelihoods of the survivors, other economic sectors are important in terms of employment. In the non-oil and gas economy, most people in Aceh work (32%), while livestock (10%) and food crops (10%) also have large workforces. As such, the lack of damage to the oil and gas fields while important for Indonesia as a whole, does not much mitigate the impact on Aceh itself<sup>28</sup>.

On an expenditure basis, the investment to GDP ratio was 7.5% in 2003, less than half of national ratio (19.7%). Aceh's investment to GDP ratio was low at 11-13% even before the crisis. In contrast, net exports (exports minus imports) were high at 42% of GDP in 2003, much higher than the national figure of 5.5%, and mainly due to exports of natural gas.

Aside from natural gas and fertilizer, Aceh represents a small share in Indonesia's exports. In 2003, Aceh's total non-oil and gas exports were \$84 million, 0.2% of national non-oil and gas exports. Among Aceh's non-oil and gas exports items, fertilizer is the main product. In 2003, fertilizer exports were \$55 million, 65% of total non-oil and gas exports and Aceh's fertilizer exports accounted for 29% of total fertilizer exports. Aceh's LNG exports from Arun have a substantive share. In 2003, it accounted for 24% of total volume.

### POTENTIAL ECONOMIC IMPACT

Some of Aceh's main economic drivers – particularly its people and their ability to generate outputs – have clearly been devastated and with it, the immediate economic prospects. Two-thirds (67%) of nominal GDP in the non-oil and gas sector (2002 accounts) are in the affected areas.

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<sup>28</sup> Central government revenues from gas are, however, an important source of income to the Aceh government.

## IMPACT OF THE EARTHQUAKE AND TSUNAMI ON ACEH AND INDONESIA'S ECONOMY

**Growth.** The impact on the 2005 GDP growth rate of Aceh and Indonesia is analyzed according to three scenarios, with varying assumptions about the potential impact on Aceh's non-oil and gas GDP and assuming that oil and gas is unaffected. As indicated, a starting point is the 67% share of non-oil and gas GDP in these kabupatens. The scenarios assume 10%, 20% and 40% of non-oil and gas GDP in Aceh will be lost.

The results are presented in Table 7.1. Aceh's GDP could be 7% to 28% lower in 2005 than in 2004 with these assumptions. These would result in a reduction in the growth rate in Indonesia's GDP to between 4.9% and 5.3%, 0.1 to 0.4 percentage points below the original growth projection of 5.4%. For example, Scenario 2 (moderate) assumes that Aceh's non-oil and gas GDP declines 20%, the 2005 growth rate would drop 13.9%, lowering the national growth rate by 0.2 percentage points from the baseline.

Table 7.1: Impact of Sumatra Earthquake on Aceh and Indonesia's GDP and GDP growth

	Scenario 1 (Minor)	Scenario 2 (Moderate)	Scenario 3 (Worst)
Aceh's Non-oil and Gas GDP Declines by 1/	10 percent	20 percent	40 percent
Aceh's growth rate	-7.0 percent	-13.9 percent	-27.8 percent
Impact on National GDP Growth	-0.1 percent	-0.2 percent	-0.4 percent
Revised GDP Growth Forecast	5.3 percent	5.2 percent	5.0 percent

1/ Compared with estimated 2004 GDP  
Source: CEIC, World Bank Staff Estimate

**Possible Positive Impact from International Assistance and Reconstruction.** International assistance and forthcoming reconstruction activities are likely to have a positive impact. As the situation clarifies this impact will be added to the analysis.

**Per Capita Income.** The GDP from the oil and gas sector does not directly flow to the people of Aceh. Instead, much is returned as revenue sharing and other central government transfers. To assess the impact of the tsunami on income, revenue sharing from the oil and gas sector (in 2004) is added to per capita GDP depending on the scenario from above. In addition, Aceh's population is assumed to have grown 1.5% in 2004 minus the estimated casualties (110,000 at this point). If there had been no tsunami, per capita income would be Rp. 1.9 trillion whereas if we assume a decline of 40% in non-oil and gas GDP, per capita income declines by 32% (see Table 7.2).

Table 7.2: Per Capita Income

Decline in Non-oil and gas GDP by	Non-oil and gas GDP (Rp.bltn, 93 constant)	Revenue Sharing (oil and gas)	Total (Rp.billion)	Aceh Population	Per capita (Rp.million)
0%	6,993	1,622	8,615	4,483	1,922
10%	6,294	1,622	7,915	4,440	1,783
20%	5,594	1,622	7,216	4,440	1,625
30%	4,895	1,622	6,517	4,440	1,468
40%	4,196	1,622	5,817	4,440	1,310

Source. World Bank Staff Calculation

### Sector Impact.

**Tourism.** Aceh and North Sumatra are not major tourism destinations and as a result, the direct impact on tourism is not likely to be large. In 2003, Indonesia had 3.8 million visitors, of which only 76,000 (2% of the total) went through Medan (capital of North Sumatra) and even fewer to Aceh due to the conflict. There are concerns about a spillover impact on tourism due to residual fears but this may be offset by tourism shifting to Indonesia from other locations not impacted by the tsunami.

**Investment.** Investment, as measured by investment approvals, was relatively limited in Aceh except for foreign investment approvals in 2003<sup>29</sup>.

**Financial Sector.** Aceh's financial sector is relatively small. For example, in terms of commercial bank loans, Aceh accounts for 0.7% of Indonesia's commercial loans as of September 2004. Banking activity is undoubtedly larger as many bank loans to larger business operations in Aceh are recorded in Jakarta or other places.

**Balance of Payments.** The main impact of the earthquake and tsunami on Indonesia's balance of payments is likely to come from the international assistance package rather than exports and imports, given that Aceh's non-oil and gas trade is small and there will be no impact on oil and gas exports.

**Employment.** The total death toll in Indonesia is currently estimated at some 110,000, more than 2% of Aceh's population. To estimate the impact on labor markets, it is assumed that the number of casualties does not affect the open unemployment rate. In other words, both employed and unemployed are assumed to be equally impacted. The three scenarios used for GDP are applied with the results in Table 7.3 showing that if 20% of total employment generating opportunities are lost, Aceh's unemployment rate would increase from 11.2% (2003 actual figure) to 29%. As a result, the national unemployment rate would increase from 9.5% to 10%. This

<sup>29</sup> These statistics do not include oil and gas or finance.

impact would be reduced by employment generated by rehabilitation and reconstruction activities.

**Table 7.3: Impact on Employment**

	2003	Direct impact	After Impact		
			10%	20%	40%
<b>Total Employment</b>	<b>90,785</b>	<b>90,729</b>	<b>90,509</b>	<b>90,014</b>	<b>89,078</b>
o/w Aceh	2,254	2,198	1,978	1,759	1,319
<b>Unemployment</b>	<b>9,531</b>	<b>9,524</b>	<b>9,744</b>	<b>9,964</b>	<b>10,403</b>
o/w Aceh	284	277	497	717	1,156
<b>Total Labor force</b>	<b>100,316</b>	<b>100,253</b>	<b>100,253</b>	<b>99,977</b>	<b>99,482</b>
o/w Aceh	2,538	2,475	2,475	2,475	2,475
<b>Unemployment Rate</b>	<b>9.5%</b>	<b>9.5%</b>	<b>9.7%</b>	<b>10.0%</b>	<b>10.5%</b>
o/w Aceh	11.2%	11.2%	20.1%	29.0%	46.7%

Source. CEIC, World Bank staff

**Poverty.** The impact on poverty is analyzed using the same three scenarios (Table 7.4) mentioned above. For example, scenario 2 assumes that non-oil and gas GDP declines 20% across non-oil and gas sectors. The simulation result shows that the number of poor would increase 0.6 million and the national poverty headcount index would increase 0.3 percentage points. Again, these simulations do not take into account the possible positive impacts on growth and employment of the eventual reconstruction effort.

**Table 7.4: Impact of the Earthquake and Tsunami on Poverty Headcount Index**

	Scenario 1 (Minor)	Scenario 2 (Moderate)	Scenario 3 (Severe)
Aceh non-oil and gas GDP decline by 1/	10%	20%	40%
Impact on national poverty headcount index	0.1%	0.3%	0.5%
Increase in the number of the poor (million)	0.2	0.6	1.1

1/ Compared with estimated 2004 constant GDP

Source. World Bank staff calculation

# Disaster Preparedness and Mitigation



Photo by: USAID / Michael L. Bak

## DISASTER PREPAREDNESS AND MITIGATION

*...there, a fearful sight met my eyes: a schooner and twenty-five or thirty prahus were being varied up and down between the drawbridge and the ordinary bridge as the water rose and fell, and nothing remained unbroken, including the telegraph wires which had been snapped by the schooner's mast.*

Notes on the Krakatao explosion 27 August 1883 (by Shruit the telegraph master located in Anjer West Java, taken from **Krakatoa: The Day the World Exploded** by Simon Winchester pg. 225)

*Actually we know about tsunamis here, and this helped us to know what to do. I looked again and could see a huge black wave coming. I ran to my house just along the beach here and alerted my family. We ran up that path there to the officer and then over the road and on further up the hill.*

Employee at National Government's fisheries research and extension unit at Air Payo, Ujung Bate

## CURRENT INSTITUTIONAL SET UP

Indonesia regularly experiences a wide range of disasters, such as earthquakes, floods, storms, wild fires, volcanic eruptions and tsunamis. The National Coordinating Board for Disaster Management and Internally Displaced People Affairs (Bakornas PBP) coordinates disaster prevention, mitigation, response and recovery nationally.

Bakornas is chaired by the Vice-President of Indonesia and is placed under the Coordinating Minister of People's Welfare. It has a core staff of about 40 people and relies on the line ministries for the implementation of disaster relief. The ministries of Home Affairs, Social Affairs, Health, Settlement and Regional Infrastructure, Communications and the Chief Commander of the Armed Forces and the Police are members of Bakornas. Coordinating units are established in provincial levels (Satkorlak PBP), with subsidiary structures at district or municipal levels (Satlak PBP). Bakornas has evolved over its almost 40 years of existence as warranted by changing national needs and the emergence of different types of disaster risks.

Bakornas controls a limited budget to execute its coordination task. A contingency budget is placed with each member line ministry that can be released by the Ministry of Finance in case of emergency. While Bakornas has a coordinating role, it has little authority over how spending decisions are made in the event of an emergency.

## INSTITUTIONAL PERFORMANCE

Bakornas reacted swiftly to the disaster despite the fact that many of its Aceh staff died, were injured or displaced, and its local facilities and equipment were severely damaged. In events of this magnitude, some initial confusion should be anticipated as the staff of local authorities are as likely to be victims as the rest of the community. To fill this immediate vacuum, senior Bakornas staff arrived in Banda Aceh two days after the disaster and have played an important role in coordinating the relief effort since then. This coordination has been undertaken in liaison with the remaining local authorities and the international relief effort led by the UN with the participation of many bilateral and international donors, official relief agencies and national as well as international NGOs.

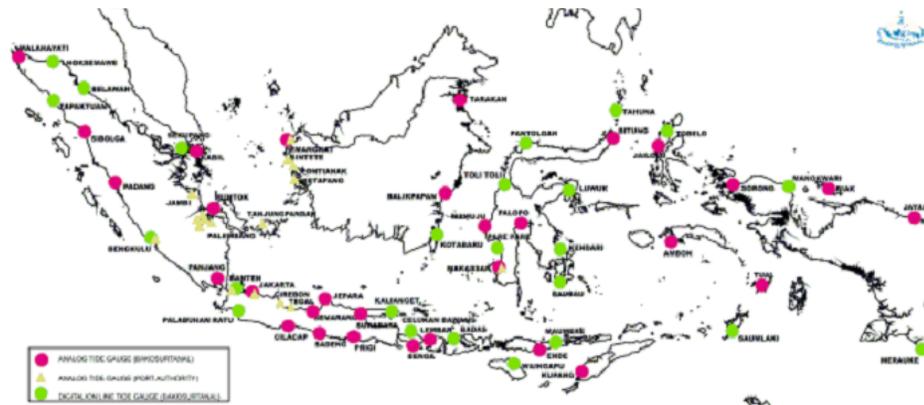
As a consequence of this displacement of senior staff, initially there was insufficient capacity for coordination at the central level. This need was met when a new secretariat was formed in the Vice President's office that absorbed the existing Bakornas staff. This secretariat is now the Jakarta-based counterpart of the Bakornas office in Banda Aceh. President Susilo Bambang Yudhoyono has recently ordered the reorganization of Bakornas in order to improve coordination and speed up humanitarian operations.

## RECOMMENDATIONS ON HOW TO MOVE FORWARD

The magnitude of the earthquake and tsunami disaster in terms of human toll and need for emergency response highlight the importance of upgrading essential coordination capacities in a country exposed to frequent disasters, as well as ensuring that the risk of any future disasters be minimized as much as possible. The availability of likely additional resources and the current focus on disaster preparedness, early warning, response and prevention and mitigation provide an opportunity to upgrade essential capacities identified previously<sup>30</sup>, but which have yet to be significantly realized.

Three lessons from the disaster experience stand out. First, current warning systems for tsunamis do not function adequately. The country has an existing tide gauge network with 54 permanent stations operated by Bakosurtanal and 10 permanent stations operated by PT Pelindo (see map). Undoubtedly, the event corroborates the need to improve these technological capacities. Most importantly however, the technology-based warning system is to transcend the predictive service to reach and serve those at risk by strengthening and better integrating existing capacities and networks and have, as an end product, contingency plans, actions and procedures to be followed on the ground in the event of an alert.

### Existing National Permanent Tide Gauge Network



- 54 permanent stations operated by BAKOSURTANAL
- 10 station permanent stations operated by PT PELINDO I-IV

Source: National Seismological Center, Indonesia Meteorological and Geophysical Agency, Department of Communication.

<sup>30</sup> Prior to the disaster the Indonesian Government made an appropriate and candid diagnosis of its needs in respect of BAKORNAS, as reflected in the submission made by the institution to the World Conference on Disaster Reduction (Kobe, January 2005). See *Indonesia, National Information prepared for the WCDR 2005*, National Coordinating Board for Disaster Management and Internally Displaced People Affairs (BAKORNAS PBP), October 2004.

Second, the route between identification of the disaster and inducement of appropriate action by the community needs to be shortened. To begin, there is a need for integration of the existing technological monitoring system with a regional or worldwide system. But even with a highly advanced technical system, the short time between the occurrence of earthquake and the subsequent tsunami may make it impossible to warn people in time. An effective approach will require information on community-based warning systems, an awareness of how to act in the event of a disaster, integration of physical vulnerability reduction techniques in the teaching curricula, civil servant training programs and community-based projects, etc.

Third, legal reform is needed to allow for the swift mobilization of decentralized functions of line ministries represented in Bakornas in the event of a disaster. Central line ministries represented in Bakornas have contingency funding available in the event of a disaster, but not control over implementation capacity. That is under control of local government which, as in the case of Aceh, may be severely affected by a disaster. Legislation should focus on improving the coordination of the response between central and local governments in the event of a disaster.

# Moving Towards a Reconstruction Strategy



Photo by: USAID / Michael L B&k

## MOVING TOWARD A RECONSTRUCTION STRATEGY

*You know we don't have a tent yet. You can see I am weaving these leaves into a temporary roof to keep the rain away. I do want to return. Actually I will return if the majority decides that this is the best thing to do.*

Woman In Lembaya Camp between Banda Aceh and Meulaboh

*For the next year we need a house. That's the first thing. Then we can work. Several of us women here are planning to do laundry for other people. But we have no community left. All of my neighbors died. Please help us all with houses, but please don't make us pay for them.*

Woman in police station building Djanto

## **A COMPREHENSIVE AND CREDIBLE RECOVERY STRATEGY**

The human cost of this tragedy is vast and will weigh upon Aceh, North Sumatra and the rest of Indonesia for many years. After the shock and grief, after the immediate crisis is confronted, after the bodies are recovered and the rubble is cleared, there will be rebuilding. This damages assessment is simply a part of rebuilding lives and communities. One thing is clear from the rush of goodwill and, importantly, donations to help the process – Indonesia will not be alone in rehabilitating and reconstructing the shattered parts of its country.

Aceh and North Sumatra need a comprehensive strategy to rebuild the lives of their population. The challenge ahead is broad with action required in many areas, demanding a comprehensive approach – lives must be rebuilt, communities protected, local economies revived, the massive inflow of relief, rehabilitation and reconstruction funds must be managed with transparency and accountability, civil administration and infrastructure modernized.

In devising a strategy to guide the reconstruction process, decision makers will need to incorporate the following key components: (a) a comprehensive damage and needs assessment; (b) rapid mobilization of reconstruction funds and activities; (c) focus on the needs of the local population; (d) establish highest fiduciary standards and efficient system managing the funds, and (e) to update and monitor needs and results. This document attempts to provide the damage assessment. However, the factor which underpins every stage of the strategy must be the needs of the local population. Global experience teaches us that those communities must be among central decision makers of the reconstruction process.

Indonesia's leaders have already expressed their vision for a National Recovery and Reconstruction Strategy. The six key principles outlined by the Government – which could underpin the National Reconstruction and Recovery Strategy – include:

- A people-centered and participative process, where the administration listens to and understands the feelings and aspirations of the people;
- A holistic approach – rebuilding based on a comprehensive strategy;
- Effective coordination for consistency and effectiveness among sectoral and regional programs at national and local levels;
- Drawing a distinction between rehabilitation – achieving minimum standards – and reconstruction, with a clear strategy for each;
- Focus on services and institutions, rather than projects;
- Incorporating fiscal transparency and effective monitoring into the rehabilitation and reconstruction programs.

A successful reconstruction strategy will result in five primary outcomes. First, it will restore people's lives – clean water to drink, health clinics and the roads to get there, roofs over heads and a source of income to support families. Second, it will restore the economy – jobs for people, markets for people to sell and buy daily necessities,

banks that lend to small-scale enterprises, shops for families to buy materials to rebuild their homes. Third, it will restore the system of local governance – local governments that represent people’s aspirations and ensure provision of basic services, like roads, water, markets, education and health services. Fourth, it will rebuild local governance and government. Fifth, the strategy will implement a province-wide regional development plan.

The common thread in all those is people and returning their lives and livelihoods. The means to achieving that outcome fall into six categories – housing and shelter; reinvigorated businesses, trade and industry; support for agriculture, fishery and rural livelihoods; public services; support for the vulnerable; and specific support for social structures.

### **HOUSING AND SHELTER**

**Rebuilding houses** – Repairing or reconstructing their houses always ranks at the top of victims’ concerns. Community-built housing is preferable as it costs less but delivers higher rates of satisfaction and a cornerstone for successful community reconstruction. It also injects cash into local economies. Given the nature of the disaster and anticipated reconstruction, local housing programs must be planned and coordinated. First, basic design standards are needed for construction quality, sanitation and so on, particularly in urban areas. Second, if large numbers of houses are rebuilt simultaneously, significant shortages of materials and house-building specialists may arise, so advance procurement planning will be needed. Third, highly vulnerable households will not be able to reconstruct their houses without additional help.

### **REINVIGORATING BUSINESS, TRADE AND INDUSTRY**

**Employment-intensive investment in infrastructure** - The rehabilitation phase would aim to bring basic infrastructure back to an adequate level of service. This will particularly involve the rehabilitation of infrastructure that is fundamental to the process of improving access and local markets which provide the potential for cash crop production and access to basic living necessities. In this phase, the key concept of people-centered infrastructure development needs to be prioritized. This implies that solutions are not imposed but developed through understanding the needs of the people. Labor-intensive methods should be used to the extent that is economically and technically feasible. The infrastructure should therefore be both asset-creating and employment-creating.

**Labor intensive public works** – Cleanup and preliminary reconstruction should begin with a simple system of paid, labor-intensive public works. Wages need to be set at or below local agricultural minimums to avoid drawing people out of other jobs. All villagers would be eligible. This system should be used only for simple clean-up and very minor repairs since it will usually not have sufficient technical oversight or tools to take on more difficult public works, which can be tackled during the reconstruction phase.

**Encouraging entrepreneurship** - A local economic revival strategy should also focus on local entrepreneurship and the promotion of micro/small enterprises, enhancing their capacity to respond to emerging market opportunities and encouraging new initiatives. During the rehabilitation phase many people will turn to micro-enterprise activities to generate an income. These re-emerging entrepreneurs will need to access to ideas, micro-finance, and know-how. Strategies that reach large numbers of people using mass-media and community-based approaches are often effective in disseminating this type of information. Special attention must be given to women entrepreneurs as they commonly constitute the largest number of micro-entrepreneurs yet are the most disadvantaged in terms of access to productive resources.

### **SUPPORT FOR AGRICULTURE, FISHERIES AND RURAL LIVELIHOODS**

**Recapitalizing household micro enterprises with grants** – Reconstruction will bring with it many opportunities to re-start small businesses that were ruined by the crisis. The farming and fishing sectors are foremost among these. Resuscitating these businesses might mean choosing between providing communities with micro-credit versus providing them with grants. Experience in rural areas elsewhere suggests that start-up grants, even for private goods such as small businesses, are a better instrument than micro-credit would be. The reason is that initial repayment rates are likely to be low (too many competing uses, local risk, no institutional backup, etc).

### **PROVIDING PUBLIC SERVICES**

**Rebuilding local administrations** – In many areas, local administrations no longer function. They should be re-launched as quickly as possible, through standard procedures for village elections. Village councils (BPDs) should be elected early, in order to aid in local reconstruction and to help prevent local capture of development aid. Getting them started in the rehabilitation phase will in many areas involve a trade-off between the need for action and the need for broad-based representation from populations that may still be dispersed elsewhere.

**Re-establishing public safety functions** – An urgent need for Aceh and North Sumatra is to re-establish a functioning administration that supports the relief, rehabilitation and reconstruction efforts in the affected areas. A collapse of law and order would complicate the recovery and rehabilitation process, and dramatically weaken foreign assistance. Currently it appears that the institutions and agents through which law and order is upheld are dysfunctional or absent. The structure of the police force and its command hierarchy are fragmented. Investigatory, prosecutorial and adjudicatory services have collapsed. Specific challenges include ensuring the protection and security of civilians (especially children, women, senior citizens, displaced persons, and aid workers); helping refine initial estimates of loss and damage to human and physical assets; restoring minimally required public services (cleaning up and disinfecting affected areas, extending health and education services; restoring communications; etc).

**Restoring the decentralized representative institutions of governance** – One immediate and continuing challenge is to ensure the local population participates in assessing local needs and priorities as part of the rehabilitation activities. For this to

be done effectively, it is essential to re-build representative institutions of governance such as DPRD and KPUDs. However, given the magnitude of the devastation, the central government will need to play a significant role in relief and rehabilitation. At the same time, Aceh is an autonomous province which has experienced a long-lasting conflict. Hence, the management of the relationship between the national government agencies, sub-national entities of governance and civil society assumes great significance.

### **ASSISTING THE VULNERABLE**

**Supporting host communities that have taken in displaced people** – It is already clear that across Aceh and Nias, neighboring communities have taken in large numbers of displaced people. They will require support. This should be provided through open community discussions so that villagers are all aware that their contribution to the reconstruction effort is acknowledged. It should also distinguish between short-term shelter, and permanent relocation since the latter will require entering new numbers into district service provision plans.

**Poverty mapping** – A recurrent problem in local development projects is that the very poor and vulnerable are hidden from view. In a crisis such as this, where their normal protection systems may have vanished entirely, not bringing these people into view can quickly turn into tragedy. Female-headed households will face a particularly severe challenge in this context because many have lost their support networks and inherited assets. A large repertoire of participatory mapping tools already exists and has previously been used with success in Aceh and northern Sumatra. Local level poverty mapping will not only provide external service providers with information about how to help the most vulnerable, but it nearly always triggers charitable responses by communities.

### **COMMUNITY-DRIVEN DEVELOPMENT**

**Rebuilding communities through Pesantren** – The reconstruction not only of houses and markets but also of social structures and communities provides an opportunity for Acehnese to participate in their own governance and society building. Revival of the social fabric after the disaster requires empowering *pesantren* leaders to take an active part in rebuilding communities. Religious leaders, especially *pesantren* heads, are natural leaders in this regard, but often have little experience in engaging in policy-making. Building on successful programs in other areas of Indonesia, and the training of a group of *pesantren* leaders on human rights and Islam, Indonesian NGOs will provide training for these leaders, giving them skills such as budget analysis and policy advocacy. In this way, *pesantren* and religious leaders will be able to ensure that the cultural values of the local Acehnese are fairly represented within the new social, governance, and economic systems that will emerge through reconstruction.

**Build institutions, not just infrastructure** – The key to developing viable service delivery in the affected urban areas of Aceh will not be found in the construction of new infrastructure and facilities alone. While new or rehabilitated facilities are indeed required, the reconstruction of the water sector is both physical and institutional. The service will only be provided when the human resources are also restored and new

and revitalized institutions established. This means new management teams with systems, structures and procedures that facilitate efficiency and financial viability. Efforts to build capacity for sanitation service delivery in local government are essential if the levels of coverage are to change to any significant degree.

## **MAINSTREAMING AND RESTORING THE ENVIRONMENT**

**Mainstreaming the environment** - Environmental issues should be considered in all sectoral reconstruction planning and actions. EIAs are to be conducted in a swift manner so that the planned reconstruction projects would not experience delay in their implementation. Overall spatial planning principles and strategy should be established prior to any sectoral reconstruction projects. Once the reconstruction projects are established, it is hard to change established land use. During spatial planning, issues such as environmental implications and disaster resilience will need to be taken into consideration. Temporary housing and resettlement camps in the affected areas may stay for a longer time depending on the reconstruction process. Selection of locations for temporary housing should be done in considering potential longer time environmental implications.

**Restoring the environment** - The damaged environment can be restored. As much as possible, the restoration should take place utilizing ecosystem recovery potential and in such a manner that the ecosystem goods and services are used for local livelihood. A comprehensive environmental assessment of damages caused by the disaster should be conducted as follow-up to the current preliminary assessment. Such assessment efforts could be done in the manner that national and local capacity is developed through the assessment. Further, environmental monitoring capacity should be established to monitor the environmental factors contributing to the disaster mitigation and preparedness. In rebuilding an institutional structure for environmental management, an effective accountability structure and clear responsibility should be defined at national, provincial and district levels.

## **IMPLEMENTATION**

Among the most important lessons from international experience for managing recovery and reconstruction in disaster-affected areas is the need for effective coordination. In Indonesia, the scale and scope of the December 26 disaster means recovery and reconstruction efforts will involve nearly all of the key ministries and state agencies, working across all levels of government – central, provincial, kabupaten, kecamatan and desa. In addition, the outpouring of domestic and international support for the reconstruction phase has resulted in many local and international NGOs, private sector actors, official donor agencies, and multilateral institutions seeking to provide assistance, often on the basis of their own internal standards and guidelines. Coordinating all these organizations within the overall

recovery and reconstruction process, while promoting the interests of the local communities, is a major task.

Setting a common framework for the implementation and administration of assistance operations is critical to prevent inconsistencies in the standards and guidelines across projects. Providing common rules for fiduciary management and performance reporting is similarly important to ensure the effectiveness, efficiency and integrity of the use of assistance funds and, hence, the ability to continue attracting the necessary funds once the initial fervor of support subsides. A management structure of the recovery and reconstructions funds, therefore, needs to be designed to provide this overarching coordination, while not at the same time over-centralizing decision-making in a manner that alienates people in the affected communities or creates unnecessary bureaucratic bottlenecks at a time when fast-disbursement of assistance is paramount.

As the main Government agency responsible for strategy and planning, Bappenas has a central role to play in coordinating the recovery and reconstruction activities following a smooth transition from the humanitarian relief efforts coordinated by Bakornas. In addition, it is recommended that a dedicated Reconstruction Management Agency (RMA) be created quickly under the leadership of Bappenas to administer the coordination responsibilities listed above.