



Aceh-Nias Reconstruction and Rehabilitation: Progress and Challenges at the End of 2006

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Abstract

This study examines the recovery and reconstruction experience of Indonesia, following the December 2004 Asian tsunami that destroyed much of Aceh island, inflicting some 167,000 fatalities and destroying much of the island's housing and infrastructure. This was followed soon after by a major earthquake in the neighbouring island of Nias. A large reconstruction programme was launched by the government, with pledges from international donors to meet most of the reconstruction costs. The changed approach in Aceh following the tsunami paved the way for a peace settlement that ended a decades-long military conflict in the province. However, two years after the tsunami key reconstruction plan targets have not been met and are unlikely to be met in the foreseeable future. The Indonesian experience highlights coordination problems between the many government agencies, international donors, and NGOs; difficulties for reconstruction agencies in using funds effectively; and the dangers of a large funding gap emerging because of underestimation of local cost increases. Lessons and implications are drawn for institutional development and policy formulation to cope with future natural disasters. These have relevance not only for Indonesia but also for many other developing countries.

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List of Abbreviations

ABAS	Aceh Barat Selatan
ADB	Asian Development Bank
ALA	Aceh Leuser Antara
AusAID	Australian Agency for International Development
Bappeda	<i>Badan Perencana Pembangunan Daerah</i> or Regional Development Planning Agency
Bappenas	<i>Badan Perencana Pembangunan Nasional</i> or National Development Planning Agency
BNP	<i>Badan Pertanahan Nasional</i> or National Land Administration Agency
BPS	<i>Badan Pusat Statistik</i> or Central Statistics Agency
BRR	<i>Badan Rekonstruksi dan Rehabilitasi (Aceh-Nias)</i> or (Aceh-Nias) Reconstruction and Rehabilitation Agency
CGI	Consultative Group on Indonesia
CIDA	Canadian International Development Agency
EC	European Commission
ECLAC	(United Nations) Economic Commission for Latin America and the Caribbean
ETESP	Earthquake and Tsunami Emergency Support Project
GAM	<i>Gerakan Aceh Merdeka</i> or Aceh Freedom Movement
GDP	Gross Domestic Product
Gol	Government of Indonesia
IDP	Internally Displaced Persons
LPEM	<i>Lembaga Penyelidikan Ekonomi dan Masyarakat</i> or Institute for Economic and Social Research
MDF	Multi Donor Fund
MOF	Ministry of Finance
MOU	Memorandum of Understanding
NAD	Nanggroe Aceh Darussalam
NGO	Non Governmental Organization
NZAID	New Zealand Agency for International Development
OCHA	Office for the Coordination of Humanitarian Affairs
Perpres	<i>Peraturan Presiden</i> or Regulation of the President
Perpu	<i>Peraturan Pengganti Perundang-undangan</i> or Regulation in Lieu of Law

PP	<i>Peraturan Pemerintah</i> or Government Regulation
RALAS	Reconstruction of Aceh Land Administration System
Rp	Rupiah
Satker	<i>Satuan Kerja</i> or Working Unit
SPAN	<i>Sensus Penduduk Aceh dan Nias</i> or Aceh and Nias Population Census
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNORC	United Nations Recovery Coordinator
U.S.	United States (of America)
US\$	United States Dollar (Unless otherwise stated, US\$1 was equal to Rp. 8,600 in 2003, Rp. 9,000 in 2004, Rp. 9,800 in 2005 and Rp. 9,200 in 2006)
USAID	United States Agency for International Development
UU	<i>Undang-undang</i> or Law
WHO	World Health Organization

1. INTRODUCTION

Indonesia, the country worst hit by the December 2004 tsunami that struck numerous countries across Asia, is located in the “Ring of Fire” consisting of volcanic arcs and oceanic trenches partly encircling the Pacific Basin. The Basin sits between the Indo-Australian and Eurasian plates, making it a zone of frequent volcanic eruptions and earthquakes. Historically, several of the natural disasters that have occurred in Indonesia have been among the worst in the world. The Tambora and Krakatoa eruptions in 1815 and 1883 were among the largest eruptions in history. Further, the contour and climate of the archipelago increase the likelihood of other deadly natural disasters such as cyclones, droughts, and floods. From 1907 to mid-2006 there were 338 natural disasters in Indonesia—an average of around three to four disasters per year.¹ On average, approximately 700 people died, 1,200 were injured, 5,200 became homeless, and 64,000 people were affected per event.² Indonesia is considered to be among the five countries that most frequently experience deadly natural disasters—the others being the US, the People’s Republic of China, India, and the Philippines. Recent data suggests that the frequency of these deadly events may be increasing in these countries (Figure 1).

In terms of human fatalities the tsunami on 26 December 2004 was the worst natural disaster in Indonesian history. Most people in Aceh and North Sumatra and other nearby parts of Indonesia felt the tremor caused by a massive earthquake measuring 9.0 on the Richter scale that occurred beneath the seabed about 30 kilometres off the west of Sumatra at about 8 am local time. Shortly after, a great tsunami hit the northern and western parts of Aceh and North Sumatra as well as other smaller islands such as Nias and Simeulue. Ten-metre waves struck Banda Aceh, the provincial capital city of the province of Aceh, at a tremendous speed of around 800 kilometres per hour. In some places waves swept over seven kilometres inland. Waves as high as twelve metres hit the towns of Meulaboh, Calang, and Lamno in western Aceh and in some places up to about ten kilometres from the coastline were submerged (Soehaimi et al., 2005). The official death toll (including missing) in Aceh and Nias was close to 167,000. More than 500,000 persons were displaced. Official reports also listed widespread destruction, including the loss of over 110,000 houses, 3,000 kilometres of roads, 14 seaports, 11 airports and air strips, 120 arterial bridges, 2,000 school buildings, and 8 hospitals, among much other damage (BRR and International Partners, 2005; BRR, 2006)

On 28 March 2005, while Aceh was still coping with the first emergency, another major earthquake devastated the western part of Sumatra. The epicentre of this earthquake, 8.7 on the Richter scale, was located to the north of Nias—halfway between Simeulue and the Nias islands (Map 1). Although the government never declared this to be a national disaster, for an island as small and poor as Nias the impact was overwhelming. Over 800 people died and 6,300 were injured. In the capital city of Gunungsitoli around 70 per cent of the buildings collapsed. There was widespread fear and it was estimated that over 15,000 people fled the island. The earthquake disrupted the livelihood of the entire population of Nias, most of whom

¹ This is based on records maintained by the World Health Organization’s Center for Research on the Epidemiology of Disasters at the Université Catholique de Louvain, Brussels. To be included in this WHO database of natural disasters, a disaster should fulfill at least one of the following criteria: (1) ten or more people reported killed, (2) 100 people reported affected, (3) a call for international assistance, or (4) a declaration of a state of emergency.

² See <http://www.em-dat.net>

are farmers and fishermen (*Kompas*, 29 March 2005; *Aceh Media Center*, 5 May 2005; BPS Kabupaten Nias, 2005).

This survey aims to evaluate the rehabilitation process in Aceh and Nias following the tsunami and earthquake. Our evaluation sets out to assess progress and to identify the challenges of redevelopment. With this goal in mind, we undertook three main activities. First, we conducted a survey of the data sources on the impact of the disasters in Aceh and Nias and on the progress of reconstruction. Second, we analysed data from the census (*Sensus Penduduk Aceh dan Nias* or SPAN 2005) carried out by the Indonesian Central Statistics Agency (*Badan Pusat Statistik* or BPS) in Aceh and Nias in September 2005 to obtain a detailed picture of the impact at household level (see BPS, 2005a; 2005b, hereafter cited as SPAN 2005).³ Third, we arranged interviews with national government officials in Jakarta, local government officials, officials at the *Badan Rekonstruksi dan Rehabilitasi* (BRR) reconstruction agency, contractors, and many others (Appendix I). Most of the interviews took place in January, May, and June 2006. A triangulation procedure was applied to draw inferences from these in-depth interviews (Patton, 2002).⁴

This monograph is structured as follows. Following this introduction, background material is provided on the socio-economic and political situation in Aceh and Nias before the disasters. In particular, information is provided about political conflicts and the Aceh freedom movement. The next section summarises the impact of the December 2004 tsunami in Aceh and the March 2005 earthquake in Nias. This section is followed by a discussion of the emergency relief stage. Three main issues need to be elaborated upon concerning the foundations of the recovery:

- the Master Plan,
- the establishment of the reconstruction and rehabilitation agency (BRR), and
- the peace agreement between the Government of Indonesia (GoI) and the Free Aceh Movement (GAM).

Then we describe recent progress in various areas—land titling, housing, livelihood arrangements, school and health services, and infrastructure—and note that progress towards meeting goals is slow and that huge challenges remain. In this section we also discuss issues relating to managing expectations, coordination and

³ The census was conducted by BPS, Bappenas, and UNFPA (with the help of the international donor agencies CIDA, AusAID, and NZAID) in response to the need for accurate demographic data after the disasters in Aceh and Nias. BPS, the main agency conducting the field survey, must be congratulated on this achievement for several reasons. First, the census was prepared very quickly. By comparison, for example, preparations for the 2010 Indonesian National Census are already being made now in 2006. Second, the challenges involved in conducting a population census in the post-disaster area of Aceh and in the remote areas of Nias were enormous. These included security challenges in several conflict regions of Aceh. Third, BPS has been able to include all people in Aceh and Nias in the census. The actual work, in the form of instrument finalisation, started in June 2005, and the census date as the reference for the data was set as 15 September 2005. The data set has been publicly available since early 2006. In addition to collecting demographic data at the time of the reference date, the census also collected data on internally displaced persons (IDPs) defined as persons that, due to a natural disaster, have had to leave their usual dwelling. These IDPs could be located in tents, ruined houses, or other family houses.

⁴ In a triangular procedure, any information obtained from an interview is used only when reconfirmed by at least two other respondents.

commitments, budget realisation, and the exit strategy of the BRR. Finally, we set out some conclusions.

2. ACEH AND NIAS BEFORE THE DISASTERS

There are significant differences between the socio-economic and political structures in Aceh and on the island of Nias. Aceh is a much larger and more heterogeneous region than Nias. Aceh is itself a province while Nias is only a small region of the province of North Sumatra (Map 1). Although the majority of the population in Aceh work in the agricultural sector, the economy of Aceh has been dominated for decades by the oil and gas industry. In contrast, Nias has a less sophisticated and a predominantly semi-subsistence economy. Aceh has experienced three decades of serious political conflict while there has not been any serious political turmoil in Nias.

2.1. Economic Conditions in Aceh

Aceh's GDP in 2003 was approximately US\$4.5 billion, about 2 per cent of the GDP of Indonesia. While the Acehnese economy has generally benefited from the regional oil and gas industry, in 2004 the local energy sector contracted somewhat, contributing to negative growth in the province (Table 1). The agriculture sector, which makes up around 32 per cent of regional GDP, also plays a key role in the local economy. Agriculture absorbs almost 50 per cent of labour in Aceh. Other major sectors of employment are trade (21 per cent) and public services (18 per cent) (Bappeda Aceh, 2005).

In the early 2000s Aceh's exports to other parts of Indonesia were small, around 8 per cent of regional output. About 26 per cent of Aceh's output was exported abroad and 66 per cent was consumed within the province. Imports from other parts of Indonesia and from abroad were a small part, about 6 per cent and 4 per cent respectively, of the total material inputs needed for Aceh's productive sectors (Athukorala and Resosudarmo, 2005).

Regional inflation (as measured in the provincial capital of Banda Aceh) was moderate in the period just before the tsunami (Figure 2).

Aceh's population was around 4.1 million in 2003. Although, on paper, Acehnese GDP per capita (almost US\$1,100) was among the highest in Indonesia because of the statistical boost to measured production provided by the oil and gas sector, in fact many local areas in Aceh did not receive noticeable benefits from the enclave energy sector and were quite underdeveloped. Indeed, before the tsunami the Ministry for the Development of Least Developed Regions had classified eleven districts in Aceh (around half of the total in the province) as "least developed districts". In 2003 it was estimated that the percentage of poor people in Aceh was almost 30 per cent (almost 20 per cent and 34 per cent in urban and in rural areas, respectively), while the figure for Indonesia as a whole was around 17 per cent (14 per cent and 20 per cent in urban and rural areas, respectively). Aceh was among the five provinces with the highest percentage of poor people (BPS, 2005). The long-term socio-political conflict was widely believed to be one of the major causes for the lack of development in the province (Soesastro and Ace, 2005).

The Indonesian national decentralisation program which became effective in 2001 brought dramatic changes to the public revenue and expenditure patterns in Aceh. Regional government spending in 2004 was double that in 1999. However, the bulk of the expenditure was still for routine administrative expenses (such as salaries and building maintenance) (World Bank, 2003 and 2006b; Bappeda Aceh, 2005).

2.2. Economic Conditions in Nias

With a population of about 700,000 people, Nias is considered to be one of the poorest regions in the province of North Sumatra. The island's economy is still primarily subsistence-based. There is not much trade between Nias and other parts of North Sumatra and its contribution to the provincial economy of North Sumatra is very small. Per capita income was estimated at about US\$340 per annum in 2004. The share of the population living below the poverty line in 2002 was 31 per cent, roughly twice North Sumatra's level of 16 per cent or the Indonesia-wide figure of 18 per cent. Further, compared to the regions in the North Sumatra province and nationally, human development results were low and signs of progress were also very slow. Close to half of the household heads in Nias only have elementary schooling. About one-third of children between 7–18 years of age did not attend school in 2002. Despite the availability of health centres throughout the island, lack of access to satisfactory basic health services was still widespread because of inadequate services and poor infrastructure (BPS Kabupaten Nias, 2005).

Lack of infrastructure is commonly cited as one of the main reasons for the backwardness of the region. Poor infrastructure limits mobility across the island and isolates villages from markets, leading to low levels of economic development. In 2004 the local Nias economy was still mainly reliant on agriculture and trade services, accounting for almost 37 and 35 per cent, respectively, of the total regional GDP. Trade services in Nias, however, are largely limited to activities conducted in the informal sector. As in other backward regions, the role of local government in the formal sector of the economy was quite high. In 2004, total local government expenditure was around Rp 200 billion (a little over US\$20 million), approximately 10 per cent of the Nias GDP (BPS Kabupaten Nias, 2005).

2.3. Conflict and Freedom Movements in Aceh

Socio-political conflict between the Free Aceh Movement (GAM) and the Indonesian government began in the mid-1970s. This conflict escalated in the five years prior to the 2004 tsunami, destroying or damaging about 900 schools, causing a dramatic decline in school attendance, and displacing over 100,000 people. Meanwhile, health care became less accessible because people were afraid to visit medical centres for security reasons (Soesastro and Ace, 2005; World Bank, 2005). Another significant impact was the drop in the number of economic establishments and in the quality of infrastructure in the region. The total number of firms declined from around 7,600 in 2001 to only around 1,200 by 2004. Many roads were not properly maintained and people were often afraid to travel outside of their towns and villages, particularly at night (Bappeda Aceh, 2005).

The basic causes of the separatist movement can be found in the history of the relationship between the people of Aceh and the central authorities in Jakarta. During the Dutch colonial period the region was never formally annexed. Consequently, during the early years of Indonesian independence in the late 1940s there was a strong feeling in some quarters of Aceh that the region should not be automatically incorporated into the new state of Indonesia and that, certainly, the Acehnese people should have been consulted as to whether they wanted to join with Indonesia or to form an independent state. Twenty years later, the centralised mode of government during Soeharto's "New Order" government strengthened this sentiment among some Acehnese, particularly when the central government signed contracts with foreign companies for the mining of natural resources in Aceh without consultation with the people of Aceh. Much local resentment was generated when the Acehnese realised

that most of the income from the oil and gas activities in the region flowed to the central government rather than into local coffers.

The armed struggle waged by the GAM guerrilla movement escalated in the 1980s when they allegedly received support from overseas groups. The Government of Indonesia responded with repressive measures and placed the region under Operational Military status. This led to an increase in local conflict, causing deaths and a rise in the number of internally displaced persons. During the military operations, both GAM and the Indonesian government accused each other of violating human rights. The military operation officially ended in 1996. However, the military presence in the region was not reduced, even after Soeharto stepped down from office in 1998. In fact the military presence is thought to have increased in the early 2000s during the Megawati Sukarnoputri administration (World Bank, 2006b).

3. THE IMPACTS

This section reviews the impact of both disasters—the December 2004 tsunami in Aceh and the March 2005 earthquake in Nias.

3.1. Human Loss and IDPs

Within days of the December 2004 tsunami international news reports led the world to expect huge losses in Aceh. Nevertheless, it was several months before the world knew of the real extent of the death toll and the numbers missing, and of the continuing plight of internally displaced persons (IDPs) in Aceh. Indeed, different agencies provided different numbers. The official death toll in Aceh was estimated at close to 167,000 by the Department of Social Affairs in mid-March 2005, and the number displaced was put at 811,000, of whom 920 were in hospitals while approximately 477,000 were living in refugee camps. Based on information collected during field visits and interviews, several organisations reported that children, women, and the elderly accounted for more than two-thirds of the tsunami victims (see also Athukorala and Resosudarmo, 2005). This meant that the demographic structure of many villages and towns hit by the tsunami had changed dramatically. By 1 June 2005, the Secretary General of the United Nations, Kofi Annan, described the Aceh tsunami as “the largest natural disaster the organisation has had to respond to on behalf of the world community, in the 60 years of our existence” (UN Press Release SG/SM/9666 IHA/978, 6 January 2005).

In contrast, Nias did not suffer greatly as a result of the tsunami. The March earthquake resulted in a high local death toll which was, however, small in total compared to that in Aceh. The official BRR report reported that 850 people had been killed and 6,000 injured (BRR Nias, 2005).

As noted earlier, in response to the need for accurate demographic data after the disaster, BPS conducted the Aceh-Nias population census (SPAN 2005) in September 2005 (Table 2). The earthquakes and tsunami displaced a total of almost 900,000 people. In September 2005, almost 260,000 people still held IDP status. The data indicate that the districts of Aceh Jaya, Aceh Barat, Aceh Besar, and the city of Banda Aceh suffered most from the tsunami. Table 3 provides rough estimates of the number of people killed and missing per region. Though it is impossible to determine the exact numbers more precisely, this seems to provide a reasonably accurate picture of the overall impact in terms of the numbers of people killed and missing. However, the impact of the earthquakes and tsunami was indeed concentrated in these areas.

It is important to note that the relatively high percentage of IDPs on Simeulue Island was not preceded by a high death toll. Only seven deaths were recorded on the island despite the fact that Simeulue is situated only about 100 kilometres from the epicentre of the March earthquake. The island was indeed severely hit by the December tsunami: approximately 5,500 houses were destroyed and hundreds of people were injured (*Kompas*, 1 April 2005). There are two probable explanations for the relatively small number of fatalities. First, the coastal ecosystem—the coral reef, sea grass, and mangrove forests—softened the force of the giant waves. Second, local customs and traditions on the island include important information about the warning signs of a tsunami: According to local tradition a tsunami is always preceded by the retreat of the sea, knowledge that has been transferred from one generation to another. Indeed, the retreat of the sea did occur on the morning of 26 December 2004. Local inhabitants who recognised the signs of an impending tsunami ran to the closest hills shouting “*smong . . . smong . . . smong*” (*tsunami* in the local language). Others took up the warning, running to the hills while contributing to the chorus of “*smong . . . smong . . . smong*”. This simple procedure proved to be very effective in Simeulue when the tsunami struck (Wetlands International–Indonesia Programme, 2005; *Kompas*, 1 April 2005). Sadly, in other areas of Aceh and North Sumatra such simple traditional mitigation procedures imbedded in local cultures had never existed or had been long forgotten. The experience in Simeulue suggests it is important to develop programs strengthening local knowledge about natural disasters. One way of doing so would be to introduce special training courses on natural disasters into the national elementary education system across Indonesia.

SPAN 2005 also provided information on the impact of the disaster on personal livelihoods and the daily lives of affected people (Table 4). Almost 265,000 people in Aceh and over 85,000 in Nias lost their sources of income; over 190,000 people in Aceh and almost 62,000 in Nias lost their houses; and around 391,000 people in Aceh and 539,000 in Nias suffered damage to their houses.

3.2. Physical Impacts

The immediate physical impacts of the December tsunami in Aceh and the March earthquake in Nias were tremendous. The tsunami wiped out practically all physical objects in many parts of Aceh’s western and northern coastal areas, flattening hundreds of thousands of houses, infrastructure of all kinds, and many other facilities (Table 5).

While the disasters in Aceh and Nias wrought similar types of devastation on local people, there was an important difference as to the causes. In Aceh, a great wave smashed buildings, cars, trees, people, and everything else in its path. Most of those who were able to climb up trees or onto roofs or those in higher storey premises, survived. In Nias, the earthquake preceding the December tsunami did not do much damage and caused few deaths. But things were quite different in March. The March earthquake in Nias destroyed numerous buildings. The fact that the March earthquake occurred when most people were asleep added to the toll because when the earthquake struck, houses collapsed and many sleeping occupants were buried. In addition, the typical construction of houses in urban areas in Nias also added to the fatalities. As is the case in other towns in Indonesia, typical urban houses in Nias are made of bricks that have usually replaced previous wooden structures. The foundations are usually not sufficiently strong for a brick structure because compliance with building codes is mostly lax. Worse, some homeowners add a second storey imposing additional strains on the inadequate foundations. This non-compliance with building codes is the main reason why four out of five houses in Nias were damaged (BRR Nias, 2005).

In many cases in poorer areas of Aceh and Nias, the heavy physical damage to infrastructure (such as falling bridges) was apparently due to the low quality of the structures or insufficient maintenance rather than to the severity of the natural disasters. In rural areas, lack of proper maintenance probably contributed to the destruction of schools or health facility buildings. In December 2005, the BRR announced its initial estimates of physical damage in Aceh and Nias caused by the natural disasters. In April 2006, the BRR corrected its estimates of damages, particularly regarding damages in Nias (Table 6).

3.3. Economic Impacts

The World Bank's assessment of the total damage caused by the Aceh tsunami was US\$4.45 billion, almost equal to Aceh's GDP in 2003.⁵ Of this total, 60 per cent was estimated to be physical damage and 40 per cent was from losses of income flows through the economy. Almost 80 per cent of total damage and losses was borne by the private sector while the rest was borne by the public sector (World Bank, 2005). The Institute for Economic and Social Research (LPEM) at the Faculty of Economics, University of Indonesia, estimated the total damage in Aceh to be slightly higher than the World Bank's estimate at US\$4.6 billion (LPEM, 2005). The World Bank also estimated the damage of the March earthquake in Nias to be around US\$392 million. Therefore, after adjusting for predicted inflation, the World Bank put the expected cost of repairing the damage caused by the two disasters at around US\$5.8 billion (BRR and International Partners, 2005).

According to the World Bank, Aceh's GDP in 2005 could contract by 7–28 per cent of the 2004 level (World Bank, 2005). LPEM (2005) arrived at a slightly lower estimate than the World Bank's upper estimate (22 per cent). The destruction in the province of North Sumatra was mainly concentrated in Nias, the poorest district in the province and one whose contribution to the overall regional economy is rather small. In Nias, the island economy was predicted to contract by around 20 per cent (BRR and International Partners, 2005).

The oil and gas industry in Aceh escaped the tsunami virtually unharmed. The most seriously affected sector in terms of both the number of casualties and capital destroyed was agriculture, particularly fisheries. (Soesastro and Ace, 2005).

According to information gathered by the Ministry of Marine Affairs and Fisheries, by mid-January 2005 approximately 55,000 fishermen and aquaculture workers were confirmed dead (approximately one-half of the total number of fishermen in Aceh) and around 14,000 were still missing. The UN Food and Agriculture Organization of the United Nations (FAO) reported that 40–60 per cent of coastal aquaculture ponds along coastal Aceh and between 36,000 and 48,000 hectares of brackish-water aquaculture ponds (which mainly produced shrimp and milkfish) were seriously damaged. It is estimated that about 65–70 per cent of the small-scale fishing fleet and associated gear was destroyed in Aceh (FAO, 2005a).

In Aceh about 30,000 hectares of rice fields—around 10 per cent of the area under rice cultivation in the province—were badly affected. Soil salinity problems were the main concern. Fortunately, because of humid conditions, salt-polluted arable land was cleaned by rainfall and by irrigation water relatively quickly. A survey carried out by FAO in early 2005 indicated that salt deposited in more than two-thirds of the

⁵ The World Bank's estimate was based on a standard assessment technique developed by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC, 2003).

affected agricultural land was leached out within a few months allowing planting to resume in April and May 2005. It was estimated that only 9,000 hectares could no longer be used for farming (*China View*, 31 March 2005; FAO, 2005b).

The impact of the decline in Aceh's GDP on Indonesia's overall economic performance is expected to be small. Both the World Bank and the LPEM estimated that Indonesia's GDP growth in 2005 was expected to be no more than around half a per cent less than the pre-tsunami growth forecast (World Bank, 2005; LPEM, 2005). An increase in poverty is probably the most serious economic problem caused by the tsunami and earthquake. In 2004, the Indonesian Central Agency of Statistics calculated that almost 30 per cent of people in Aceh were living below the poverty line. LPEM predicted that this figure could grow to around 50 per cent.

4. THE IMMEDIATE RESPONSE

4.1. Rescue and Relief

In the first couple of days after the tsunami, little information was received by the outside world so initial rescue operations were relatively limited and slow. In this early stage, local people had to depend on their own resources to survive for some days before Indonesian government agencies responded. Soon after, when the outside world started to realise what had happened, international responses began to get underway. It is worth noting that during this first week, the Indonesian military—which has come under some criticism for their military operations in Aceh—provided crucial assistance in conducting rescue and relief operations and in helping to cope with the large number of dead.

By the beginning of the second week the numbers of domestic and international aid organisations arriving in Aceh increased significantly. Although there was reportedly some lack of coordination between these organisations, the fact that they were able to provide relief for the tsunami victims was much more important. In the third week, the number of international organisations arriving in Aceh continued to rise—around 250 domestic and international organisations sent workers to Aceh. Countless others provided other types of assistance (Sen and Steer, 2005; Indrawati, 2005). The media also played a very important role by attracting these domestic and international supports.

By mid-February 2005, the UN Office for the Coordination of Humanitarian Affairs (OCHA) recorded that total pledges and commitments from over thirty countries and various organisations had reached approximately US\$800 million (OCHA, 2005). Around 2.3 million people were directly affected by the disaster so the aid contribution for rescue and relief activities per person was about US\$350. The norm in previous international fundraising attempts in the face of natural disasters in developing countries has been a mere US\$40 per person (*Economist*, 5 February 2005; Athukorala and Resosudarmo, 2005).

The Indonesian central government also responded quickly by announcing at the end of December 2004 that the government would release approximately US\$5 million to support relief activities. The Government also announced that it would support operations in three phases: (1) emergency rescue and relief operations, (2) rehabilitation and reconstruction of basic socioeconomic infrastructure and restoration of law and order, and (3) reconstruction of the economy and government system. The first phase was completed by April 2005. The second phase has been in progress since April 2005 and was expected to last for around two years. The third

phase will take around three to five more years (BRR and International Partners, 2005).⁶

It can be said that the relief efforts conducted by both domestic and international organisations provided great physical and financial assistance. It should also be noted, however, that local people were obliged to depend on their own resources during the first couple of days after the disaster. This fact shows the importance of establishing strong and resilient local communities.

4.2. Funding

The international focus on victims of the Aceh tsunami as well as the Nias earthquake continued well beyond the initial relief period. The Paris Club of creditor nations at its meeting in Paris on 12 January 2005 declared a moratorium on the foreign debt of the tsunami-hit countries. Some key players in the international aid community, including World Bank President James Wolfensohn, suggested that debt write-offs would be preferable to debt deferral. However this proposal was not agreed to on the grounds that it might raise moral hazard issues: countries absolved of debt might be tempted to borrow excessively in the future in the expectation that they would eventually be bailed out if, for some reason, they had difficulties in meeting repayments. The IMF and World Bank officially endorsed the moratorium and the major international credit-rating agencies agreed that they would not regard deferral of debt service payments as a negative factor in their risk assessments and credit ratings. Subsequently, the IMF and the World Bank also announced considerable debt relief for the affected countries, particularly the Maldives, Sri Lanka, and Indonesia (Soesastro and Ace, 2005; *Economist*, 5 February 2005).

Members of the Consultative Group on Indonesia (CGI) at a meeting convened hurriedly on 19–20 January 2005 agreed to contribute US\$1.7 billion in 2005 for the reconstruction of Aceh. Of this amount, US\$1.2 billion was promised in the form of grants and the remaining US\$0.5 billion was pledged as soft loans at zero or near-zero interest rates. Of the US\$1.2 billion in grants, only US\$0.2 billion was to be distributed through the Indonesian Government. The rest was to be distributed through non-governmental organisations (NGOs) (Soesastro and Ace, 2005).

In February 2005, the Asian Development Bank (ADB) set up a US\$600 million Asian Tsunami Fund to provide grants for emergency technical assistance and reconstruction projects. Indonesia would receive half of the grant, divided into US\$290 million for the Earthquake and Tsunami Emergency Support Project (ETESP) and US\$10 million as the ADB's contribution to the Multi Donor Fund (MDF) for Aceh-Nias. The ETESP is intended to support disaster management, reconstruction, and rehabilitation in affected areas of Aceh and North Sumatra. The sectoral targets of the grant include agriculture, fisheries, micro and small enterprises, health, education, water supply, irrigation, housing, power, roads, and spatial planning (ADB, 2006).

Commitments from various countries, organizations, and private individuals to support the reconstruction effort were considered generous. For example, Australia agreed to provide financial support amounting to about A\$1 billion—A\$500 million was expected to be in the form of grants and A\$500 million in soft loans—over the period 2005–2010. According to records maintained by the BRR, 78 countries, 30 organisations, and many individual donors pledged support (both grants and soft

⁶ There is no clear information yet on when the third phase will be ended. The current mandate of BRR to coordinate reconstruction in Aceh-Nias, however, will be ended in 2009.

loans) of around US\$6.1 billion in total by November 2005. The total amount given through direct private contributions was quite large; according to some estimates, this amounted to US\$2.5 billion out of the total donor pledges. In some cases, such as in the United Kingdom, United States, and Italy, private contributions exceeded government contributions by a wide margin (BRR and International Partners, 2005).

A multi-donor trust fund for Aceh-Nias, the MDF, was established by the Indonesian Government in early 2005. The main goal of this fund was to attract and pool bilateral and other resources so as to ensure a coordinated approach to the support of rehabilitation activities in Aceh and Nias.⁷ Contributions were also expected from the private sector, foundations, and NGOs. The fund was designed to support two types of activities (MDF, 2005):

1. New projects or new components of existing projects, including the co-financing of existing or new projects supported by multilateral agencies or other financiers.
2. Assistance for government programs that were part of the rehabilitation and reconstruction efforts.

By January 2006 about 66 per cent of the US\$530 million pledges had been formalised in the form of a contribution agreement and the MDF had received US\$229 million in cash. Disbursements had been made to seven projects amounting to US\$79 million. These projects included land titling, rural and urban community recovery, housing and settlements, waste management, and technical assistance to the BRR. By December 2006 the amount provided to the fund had reached US\$655 million with pledges from fifteen donors (Table 7). About 77 per cent of these pledges had been formalised in the form of contribution agreements and approximately US\$480 million had been allocated to 17 projects in four sectors: recovery of communities, infrastructure and transport, capacity building and governance, and sustainable management of the environment. Disbursement to these projects had reached around US\$170 million (<http://www.multidonorfund.org/>).

The Indonesian Government also provided large-scale support for reconstruction in Aceh and Nias. The 2005 government budget allocation for Aceh's reconstruction (which included some of the funding received from international agencies) was approximately US\$880 million (*Kompas*, 27 August 2005) and in 2006 was approximately US\$960 million. Over five years, the total government budget for Aceh's reconstruction, including government loans, is expected to be around US\$3 to US\$4 billion (*Tempo Interactive*, 27 March 2005).

In total, according to the BRR, the composition of funding commitments for rehabilitation and reconstruction activities until 2009 is as follows:

	US\$ Billion
Domestic sources through the government budget	3.0
Foreign governments	3.6

⁷ The MDF is co-chaired by the BRR, the European Commission (EC) as the largest donor, and the World Bank as the Trustee. The steering committee of this fund comprises the Government of Indonesia, contributors, civil society, and other international NGOs and the UN. The broad representation of the steering committee was expected to allow the MDF to act as a donor coordination mechanism and a forum for dialogue on recovery policy between the Government of Indonesia and the international community.

Private sector and NGOs	<u>2.5</u>
Total	9.1

This total amount of over US\$9 billion, which is much larger than the initial estimate of damages and losses, reflects an intention to “build back better” in Aceh and Nias. By the end of 2005 around US\$4.4 billion had been allocated to specific projects (BRR and International Partners, 2005).

5. FOUNDATIONS FOR RECOVERY

As noted earlier, the Indonesian Government responded to the disasters in three main phases: (1) emergency rescue and relief operations, (2) rehabilitation and reconstruction of basic socioeconomic infrastructure and restoration of law and order, and (3) reconstruction of the economy and government system. Due to the difficult economic and political conditions of Aceh and the sheer magnitude of the destruction of its infrastructure, the first phase of crisis management took much longer than expected.

With the second phase, there were three main concerns regarding the process of reconstruction. The first was the need to coordinate the activities conducted by the very large number of official and other agencies active in the field. The national government appointed Bappenas as the central agency for developing recovery planning for the tsunami-affected areas. The main challenge for Bappenas was to develop a master plan that satisfied all of the main institutions working in the province. For a considerable time, dialogue between Bappenas on the one hand, and local governments in the region on the other, was rather limited. Lacking direct involvement in much of the planning process, many local governments felt that they had been excluded from the reconstruction process by the central government. As a result, local governments had drawn up programs that in some cases were incompatible with Bappenas plans. At times, this led to duplication of activities and the inefficient utilisation of funds.

There were also cases of poor coordination of activities between NGOs and Bappenas. Many NGOs resisted accepting plans that emanated exclusively from Bappenas. Indeed, several groupings of NGOs developed their own reconstruction programs for Aceh and Nias although it was not clear how they intended to relate these plans to those of Bappenas or local governments.

In these difficult circumstances the Indonesian national government decided to establish a new agency to coordinate recovery activities. However local governments, communities, and private sector firms as well as NGOs were not very keen on this approach. They were worried that this new agency would add an additional bureaucratic layer to the problems of working in Aceh. They were also concerned that construction work would be tendered in Jakarta and would be won by large construction companies with good connections to high-ranking officers in the central government and that the implementation of these activities would be conducted without proper attention to the needs of local people. Local people and NGOs therefore pressed for a more decentralised approach (Athukorala and Resosudarmo, 2005).

A second concern related to security conditions in Aceh. The three decades of conflict between the Free Aceh Movement (GAM) and the Indonesian Government had held back development in the province and had severely limited the flow of news

out of Aceh, both to other parts of Indonesia as well as to the rest of the world. For example, it was not until 28 December 2004—two days after the tsunami—that most of Indonesia and the rest of the world knew how badly the tsunami had hit Aceh. In contrast, news of the scale of the disaster in Sri Lanka and Thailand reached the international media almost immediately. Poor roads and telecommunications also made it difficult to provide speedy assistance to many villages along the coast of Aceh. Additionally, there were worries that the ongoing political conflict would hinder reconstruction operations.

A third concern was to ensure that commitments pledged by international donors would materialise in a timely manner. For various reasons beyond the control of Indonesian officials, there was a risk that some of the commitments would never translate into actual aid flows. It is also true, however, that limitations on Indonesia's ability to absorb aid quickly were relevant. For these and other reasons, it soon became apparent that it was very important for Indonesian officials and local NGOs to work effectively with donors to minimise the mismatch between donors' interests on the one hand and local reconstruction priorities on the other (Athukorala and Resosudarmo, 2005).

5.1. The Master Plan

The central government seemed to understand the need for more effective coordination with local governments and NGOs as well as for a more decentralised approach to the reconstruction effort. From March 2005 onwards, Bappenas conducted intensive consultations with community and political leaders in the affected areas as well as with NGOs and donors. Syiah Kuala University in Banda Aceh was given assistance to organise input from local communities into the consultation process while central and local government line agencies also provided expertise. Donors were also encouraged to contribute suggestions. The Master Plan that resulted was quite comprehensive though the central government recognised that no one plan could address every issue likely to arise in the rehabilitation process.⁸

Nevertheless, despite the extensive consultations, many local communities and NGOs reacted negatively to the Master Plan. Many local communities felt that their aspirations had not been properly reflected. In response, as a conciliatory gesture only a couple of days after his inauguration in April 2005, the new Head of the BRR, Dr. Kuntoro, agreed that many aspects had not been adequately covered in the Master Plan. He indicated that the BRR would not follow the plan to the letter and that rather, it would be used as a reference document in a flexible way (*Kompas*, 3 May 2005). The local Head of the BRR in Nias also agreed that the Master Plan was not necessarily a suitable strategy for redevelopment in Nias (*Kompas*, 19 August 2005). It was therefore soon agreed that an evolutionary approach would be adopted and that there would not be any single rigid "blueprint approach" that would guide the process of reconstruction (Indrawati, 2005; World Bank, 2005). For example, under the new approach communities were to be provided with opportunities to participate in decision-making about where, how, and by whom houses and other buildings were to be reconstructed. The central government would concentrate on the provision of principal infrastructure facilities such as main roads, electricity and water sanitation structures. Earlier plans that had outlined regulations for tough zoning, mandatory

⁸ The Master Plan was released through the President Regulation (*Perpres*) No. 34/2005 in April 2005. The main book, which was effectively an extended summary of the whole study, comprised 129 pages. The sectoral information which is the detailed version of the Master Plan comprised twelve books totalling 1,400 pages.

setbacks from the sea, relocation of local markets, and so on were set aside. Leaders in Jakarta committed themselves to ensuring that local people in Aceh and Nias were involved in the decision-making processes about such matters (Sen and Steer, 2005). In this way, disagreements between the central government on the one hand and local governments and communities on the other were kept to a minimum. If the reconstruction process in Aceh turns out to be successful over the long-term there is a strong likelihood that this pattern of strong collaboration between stakeholders will be adopted as the blueprint for regional development in other parts of Indonesia.

5.2. The Aceh-Nias Rehabilitation and Reconstruction Agency (BRR)

The central government preferred to set up a special Aceh-Nias Rehabilitation and Reconstruction Board as a one-stop shop for the coordination of all agencies and donors in Aceh and Nias. There was no strong objection from local governments, communities, NGOs, and international donors to this decision. There were two main reasons for this. First, the central government had shown that it was willing to collaborate with local stakeholders as well as donors in developing the Master Plan and to be flexible in implementing the plan. Second, the person appointed to head the BRR, as well as the deputies, had a reputation for being “clean” and capable.

In April 2005 the Government embarked on the second phase of recovery operations. On 16 April 2005, the Government established the *Badan Rekonstruksi dan Rehabilitasi* (BRR) Aceh-Nias, with the stated mission of restoring livelihoods and strengthening communities in Aceh and Nias by overseeing a coordinated, community-driven reconstruction and development program. Initially, the BRR was established as a coordinating rather than executive agency to operate for a four-year period. It is based in Banda Aceh, with a branch office in Nias and a representative office in Jakarta. Operationally, the BRR comprises three bodies: the Executive Agency (*Badan Pelaksana* or Bapel), the high-level Advisory Board (*Badan Pengarah*), and the Supervisory Board (*Badan Pengawas*). Since the end of 2005, the BRR has received an additional mandate to build around 120,000 houses in Aceh and Nias starting in 2006. With this mandate, the BRR to some extent took over responsibilities earlier given to the Ministry of Public Works (*Tempo Interaktif*, 26 December 2005).

The organisational structure of the BRR, since mid-2006, can be seen in Figure 3. The Executive Agency (Bapel), commonly referred to by the term BRR, is the body responsible for managing the reconstruction and rehabilitation activities. The BRR has four main offices and several regional offices. This structure is much leaner than in the initial period of its establishment.

The BRR has an Advisory Board chaired by the Coordinating Minister for Political and Security Affairs. This board consists of 17 representatives from central and regional governments, religious and *adat* (local custom) institutions, and other participants from civil society. It is responsible for ensuring that the aspirations of agencies and groups that they represent are reflected in the BRR's operational planning. The Supervisory Board, meanwhile, consists of nine members appointed by the President. It is made up of community representatives and technical advisers, including representatives of donor organisations. This board is responsible for ensuring that the reconstruction and rehabilitation activities are carried out effectively in a manner corresponding with the needs of local people (Kuncoro and Resosudarmo, 2006).

5.3. Peace Agreement

One of the few unexpected benefits of the bitter wind brought with the tsunami was a new willingness among political disputing parties in Aceh to cease military hostilities, and later to begin negotiations. The Government of Indonesia and the GAM understood that a peace treaty was an essential part of a successful reconstruction process in Aceh. A series of talks was conducted to bring about the process. Facilitated by the former President of Finland, Martti Ahtisaari, GAM and Indonesian government officials commenced talks in February 2005 and signed an official peace agreement just six months later on 15 August 2005. The agreement provided for the cessation of all hostilities between the Government of Indonesia and the GAM. Key points of the agreement included the following (World Bank, 2006a):

- The Government of Indonesia and GAM would cease all hostilities; to this end, the Government of Indonesia would withdraw non-local military and police forces from Aceh by the end of 2005.
- GAM would decommission all arms, demobilise its 3,000 troops, and surrender 840 weapons.
- The Government of Indonesia would facilitate the establishment of Aceh-based political parties.
- Aceh would be governed under a new special law and would be entitled to 70 per cent of revenues from its natural resources.
- GAM members and political prisoners would be granted amnesty.
- A human rights court and a truth and reconciliation commission would be established.
- An Aceh Monitoring Mission (AMM) would be established by the EU and ASEAN.

Following the agreement, GAM surrendered all weapons and the Government of Indonesia withdrew all non-local military and police by the end of 2005. The EU and ASEAN oversaw the disarmament process by establishing the Aceh Monitoring Mission. A presidential decree was later issued granting amnesty to GAM members in exile in other countries and about 1,400 GAM members were released unconditionally from jails. The Government of Indonesia agreed to facilitate the formation of a local political party, which would participate in the election of local regional government representatives (World Bank, 2006a; World Bank, 2006b).

To reintegrate ex-GAM personnel into the community, the Indonesian Government agreed to provide assistance in both cash and kind. Each ex-combatant and released prisoner was to receive Rp5 million support (around US\$500) in the form of cash and in kind from the Indonesian Government. It was estimated that around 3,000 ex-GAM combatants and 1,400 political prisoners would receive this support.

At the implementation stage, the planned package for former combatants was changed due to difficulties in providing rigorous proof of eligibility. Hence, the Government of Indonesia distributed three rounds of Rp1 million per person (around US\$100) of livelihood assistance as a form of minimum social security.

In reality, as reported by the World Bank, the actual amount received by each former GAM member was much less, often being only around Rp170,000–260,000 (US\$18–30). This is because ex-GAM leaders included orphans and widows in their calculation of who should receive support, resulting in a greater number of people claiming assistance. The process of allocating the amount of money involved local people and was relatively transparent so that in general this approach was accepted without trouble (World Bank, 2006a).

The peace agreement, nevertheless, had several immediate side effects. It refueled efforts to form new provinces in Aceh by sub-dividing Aceh into several separate provinces. Since early 2000 various groups had aspired to form new provinces within Aceh. The two most favoured new provinces were Aceh Leuser Antara (consisting of Aceh Tengah, Aceh Tenggara, Aceh Singkil, Gayo Lues, and Bener Meriah districts) and Aceh Barat Selatan (consisting of Aceh Barat, Aceh Selatan, Simeulue, Aceh Barat Daya, Aceh Jaya, and Nagan Raya districts). The symbolic declaration of these two new provinces was made by several local government officers, local parliament members, and informal leaders in these eleven districts before thousands of supporters in Jakarta on 4 December 2005 (*Kompas*, 6 December 2005 and 14 August 2006).

The central government, however, is ambivalent about these plans to establish new provinces. Law 32 of 2004 on Regional Government allows for the formation of new administrative units, although, in practice, the exact mechanism involved is not clear. In various interviews officials from the Ministry of Home Affairs have said that consideration of the division of current Aceh into new provinces still has a long way to go. The current provincial government of Aceh has also maintained an ambivalent position delaying recommendations to the central government for the formation of the new provinces. Moreover, the ex-GAM activists who supported the Helsinki MoU were also opposed to the division of Aceh into several provinces because the Helsinki MoU states that the borders of Aceh correspond to those of 1 July 1956, and as such constitute the current province of Aceh. This reluctance may also be seen as a way for ex-GAM activists to maintain useful bargaining power.

On 11 December 2006, almost two years after the tsunami, for the first time in Indonesian history the Acehnese people voted to directly elect their own governor and district/municipality heads. The election process was widely judged as successful. There were no major conflicts, the division of Aceh did not become an issue, and the participation rate was very high. Interestingly, a prominent ex-GAM member, Irwandi Yusuf, won the election to be Governor of Aceh from 2007 to 2012. The success of this election and the fact that an ex-GAM member was able to win the election were promising signs that the peace agreement might eventually lead to a truly peaceful and democratic environment in Aceh.

6. REHABILITATION, RECONSTRUCTION, AND RECOVERY

The BRR commenced operations in May 2005 and began to implement the agreed plans for rebuilding housing, infrastructure, and livelihoods. It followed the sequence of emergency and recovery activities shown in Figure 4. The plan was that the intensive relief operations that began in early 2005 would be wound down by mid-2005 and formally ended in mid-2007. The main priority in the early period was to be house building. House building activities were expected to peak at the end of 2006 and be completed by the end of 2007. The second priority in the early period was rebuilding livelihoods. Rebuilding infrastructure would take longer—only limited activity was expected until 2006, but the activity was then expected to intensify

rapidly and become the main priority from mid-2006 onwards. The process of rebuilding livelihoods and infrastructure was expected to be mostly complete by the end of 2009.

6.1. Land Titles

Significantly, the tsunami changed much of the physical landscape in some parts of Aceh. Not only were houses destroyed but worse, in many places boundaries and reference marks of land simply disappeared. Although less tragic than losing family members, the loss of land is one of the greatest blows that can befall an Acehnese family. For many people, land is their most valuable physical asset. In many cases, however, the legal documents of ownership were lost after the disaster. The changes the tsunami made to the contours of the landscape in some places also complicated claims of land ownership. There was also a risk of land-grabbing. In urban areas land-grabbing was more likely to affect the more vulnerable groups: women, children, and orphans. Because of all these concerns, tsunami survivors were sometimes seen installing markers on land where they believed their house had stood. In contrast, problems with land titles were much less serious in Nias. The earthquake in Nias caused houses to collapse but proprietary landmarks were unchanged. Where difficulties for individuals were concerned, land title problems in Nias were limited to the loss of legal documents.

Looking to the future, the protection of land rights is a high priority. Land rights provide the foundation for spatial planning, compensation, and long-term economic development. Indeed, already there have been some important cases where reconstruction activities have been delayed because people in the affected area were not satisfied with the arrangements under which ownership rights to land had been assigned for construction activities.

In response to this serious problem of land ownership, a US\$28.5 million Multi-Donor Fund project for the Reconstruction of Aceh Land Administration System (RALAS) was launched in August 2005. RALAS has two major components: first, the reconstruction of property rights and the issuance of land titles, and second, the reconstruction of a land administration office in Aceh. The project, executed by the National Land Administration Agency (*Badan Pertanahan Nasional* or BPN), is designed to identify land ownership and to issue land titles through establishing a community land inventory, recovering land records, and establishing a land database. It is estimated that when the project is finished in 2008, about 600,000 land titles will have been issued in Aceh and Nias (<http://www.multidonorfund.org/>).

Project implementation was expected to take place in several stages. First, community land mapping would be arranged, facilitated with the support of NGOs. After that, a team from BPN would arrange adjudication procedures that measured the land parcels and validated ownership and boundary demarcations. BPN would then issue public notifications of adjudication, and provided there were no objections, BPN would subsequently issue the land titles. Under the RALAS project all services were to be provided free of charge.

The first supervision team fielded in November 2005 observed that progress had been slow. The team noted that there had been delays on the part of the Indonesian Ministry of Finance in signing regulations for the waiver of taxes and other charges relating to the issuance of land titles. However the supervision team remained optimistic that the 2006 targets would still be met. The team also noted that the first component of RALAS was more advanced than the second. By end of 2006, about 17,400 land titles had been signed and 134,300 land parcels had been measured

(BRR and Partners, 2006). This was certainly an achievement, demonstrating that local communities can effectively resolve such problems at grass root levels (UNORC, 2006).

6.2. Housing

Major housing rehabilitation, resettlement of displaced people, and restoration of basic utilities only began in mid-May 2005. According to SPAN 2005 data, around 66,700 displaced families (almost 300,000 IDPs) in Aceh and around 62,600 (around 340,000 IDPs) in Nias had returned to their areas by September 2005 (Table 8). However in Aceh only around 7,000 families (who were no longer considered internally displaced) and around 5,000 families in Nias had received new houses by this time. Most of the others (around 59,000 families in Aceh and 57,000 families in Nias) returned to their old properties even though their houses had not yet been renovated or rebuilt. For these people the first priority was to reclaim their properties and then wait until it was their turn for their houses to be rebuilt or renovated. Many families had to rent houses or stay with relatives.

During the second half of 2005 building activity gathered pace. The BRR estimated that by October 2005 around 10,000 houses had been built, by December around 16,000, by April 2006 around 42,000, and by December 2006 around 57,000 had been completed (Table 6). However, although activity accelerated in 2006, the number of houses completed was expected to be well behind the BRR target of 90,000–100,000 houses completed by the end of 2006.

The total estimated budget committed by donors and the Government of Indonesia for housing was almost US\$976 million. Initially the BRR estimated that the cost of building a 36 square metre house was around US\$3,000. Meanwhile, compensation to rehabilitate damaged houses varied, but for planning purposes the upper limit was also set at US\$3,000. With this figure in mind, it was estimated that the total committed funding for housing would be enough to build or rehabilitate around 200,000 houses (BRR and International Partners, 2005).

However there were significant cost escalations. By the end of 2005 it was reported that the cost of building a new 36 square metre house had increased to around US\$5,000 (BRR and International Partners, 2005). Table 9 illustrates the significant increase in building costs compared to the situation before the disasters. Consequently, by early 2006, the BRR revised their estimate of the cost of a new 36 square metre house to around US\$4,000 (BRR and International Partners, 2005).⁹

Why did construction costs rise after the tsunami? The issue of cost increases is an important one because recent reports from other places in the world hit by disasters (Pakistan, US/Katrina, and even in Yogyakarta/Indonesia after the Yogya earthquake) indicate that sharp cost increases in disaster zones are not unusual. But unusual or not, it is important to establish whether the cost increases reflected plausible economic factors or, instead, unacceptable profiteering. Looking at the components of construction costs in an effort to find answers, it is notable that increases in labour costs in Aceh and Nias were not as markedly high as the increase in prices in some other material inputs. It seems, therefore, that the supply of labour was apparently more elastic than the supply of materials. One likely reason for this is that the peace agreement in Aceh quickly led to an improvement in the security situation in the region. Hence, workers from elsewhere in Indonesia were

⁹ BRR might predict that the cost per house only temporarily increased and so the average cost per house in 2006 would be around US\$4,000.

apparently willing to move to Aceh for only small premiums over their existing wages. In addition, North Sumatra, adjacent to Aceh, is a relatively labour abundant region; it became the main source of outside labour for reconstruction in Aceh. Nias, on the other hand, never had a serious security problem. The main issue affecting the supply of labour there was the ease of transportation to the island after the reconstruction begun. It appears that the reconstruction efforts attracted outside labourers to take up work in Nias.

At first glance, a large increase in the price of timber is surprising given that Indonesia, and Sumatra in particular, is well endowed with forest resources. The BRR estimated that the housing reconstruction activities would need about 1.5 million cubic metres of timber. Many observers estimated that this amount could easily be supplied from normal domestic timber production supplemented by drawing on seized illegal timber stocks held by the Indonesian Government as well as small amounts of imported timber and supplies provided by donor countries. However, it is now thought that the significant increases in timber prices are probably related to difficulties in accessing the stocks of seized illegal timbers and in using imported and donated timbers. To explain further, from the outset there was a consensus among the BRR, donors, and NGOs that reconstruction activities in Aceh and Nias would only use legal timber, and where possible would only use timber available locally or from elsewhere in Indonesia (*Jawa Post*, 27 December 2006). This attitude introduced legal and administrative bottlenecks that restricted the supply of timber in the short-run. Moreover, the legal status of the stocks of seized illegal timbers needed to be clarified before the timber could be released use for in Aceh. Similarly, criteria establishing the amount of timber that could be imported and the guidelines for the use of timber provided by donor countries needed to be established. Reflecting general concerns about these issues, there has been a call for serious efforts from the Government to legalise the use of illegal timbers so that they could be utilised immediately. The matter was not as straight-forward as it might seem since there were valid concerns that the legalisation of illegal timber might encourage further illegal logging because of the possibility of legalising this product.

It may seem surprising that the supply of other building material inputs has not been more elastic. Construction activities in other parts of the country since the crisis have been relatively sluggish compared to the situation before the 1997 crisis and it is likely that there was excess capacity in other regions. But even if inputs for house reconstruction can be accessed relatively easily elsewhere in Indonesia, it takes time to physically move materials and for labourers to arrive. There are therefore practical constraints on the rate at which housing can be supplied. Realistically, the upper limit of housing construction achievable may be significantly lower than the original BRR target of 90,000–100,000 houses by the end of 2006.

6.3. Livelihoods

Efforts to rehabilitate livelihoods involved several activities. First, steps were taken to restore the agriculture and fishery sectors through revitalising agricultural and plantation land, rebuilding ports, and replacing lost fishing boats. Second, microfinance, other forms of cheap credit, and assistance were made available for small and medium enterprises. Third, employment programs such as cash-for-work and training programs were developed (BRR and International Partners, 2005).

By December 2006 the BRR reported that approximately 50,000 hectares of agricultural land had been restored (around 70 per cent of the total area damaged). In the fishery sector about 4,400 boats had been replaced and around 6,800

hectares of fish ponds had been repaired (approximately 30 per cent of the total area of fish ponds damaged) (Table 6).

The information available on how many activities need to be rehabilitated and created, however, is not very clear. Table 4 indicates that more than 260,000 people in Aceh and 85,000 in Nias lost their sources of income. But it is also important to note that unemployment and poverty were serious problems in Aceh and Nias before the disasters.

SPAN 2005 data indicates that in September 2005 around 46 per cent of the population in Aceh above the age of ten (around 63 per cent of the population in Nias) were engaged in some form of employment while around 10 per cent in Aceh (6 per cent in Nias) were unemployed (Table 10). Of those who worked, around 49 per cent in Aceh (56 per cent in Nias) were self-employed (Table 11), which is common in the informal sectors. Approximately 14 per cent in Aceh (24 per cent in Nias) of those who were working were unpaid workers, most likely family members involved in family businesses. Around 15 per cent in Aceh (7 per cent in Nias) of IDPs and ex-IDPs were unable to find any employment, suggesting that reconstruction activities in the early post-disaster period were not able to generate employment for significant numbers.

Overall, around 300,000 jobs in Aceh and around 30,000 in Nias need to be created, certainly a challenging task. By April 2006, the BRR reported that around 148,000 people had received some skill training to enable them to re-enter the job market and that more than 41,000 farmers had been assisted to return to their fields (BRR, 2006). By December 2006, the BRR claimed that around 69 per cent of the male and 36 per cent of the female labour force in urban areas as well as around 68 per cent of the male and 45 per cent of the female labour force in rural areas of both Aceh and Nias were actively engaged in some form of work (BRR and Partners, 2006). Nevertheless, reliable data on how many of the people who were unemployed in mid-2005 actually obtained some form of employment is not available.

6.4. School and Health Services

Table 6 indicates that in the aftermath of the disasters around 2,000 school buildings needed to be rebuilt and approximately 2,500 teaching positions needed to be refilled. It should be noted that there was a serious shortage of teachers in Aceh even before the tsunami. By December 2006, the BRR reported that around 750 school buildings had been built and approximately 5,400 teaching positions had been filled. In other words, in terms of school buildings, only around 40 per cent of the target had been reached but the number of teachers now exceeded pre-tsunami levels, thus partially alleviating the teacher shortage (BRR and Partners, 2006).

In rebuilding the education system in Aceh and Nias, besides taking into account the damage caused by the disasters it is important to understand local needs. Table 12 shows the numbers of children and young adults who have never been to school and those who have dropped out. Around 23,000 young persons aged 7 to 24 years old in Aceh and around 31,000 in Nias have never been to school. Table 13, furthermore, shows that among those who have dropped out of school, around 50,000 in Aceh and 30,000 in Nias did not obtain any elementary education degree. Thus, considering the low elementary school attainments and the low attainments at higher educational levels, even if the elementary schools and teacher numbers are restored to pre-disaster levels they will still fall well below those needed to rebuild a better Aceh and Nias.

In the health sector, by December 2006 324 hospitals and health centres had been rebuilt. This far exceeds the number of hospitals and health services damaged by the earthquakes and tsunami. It should be said that health facilities before the disasters were in a state of neglect and the need for health facilities has substantially increased in the aftermath. Approximately 63,000 people in Aceh and Nias suffered some mental problems following the disasters and although reconstruction activities are underway, the risk of communicable disease outbreaks remains high. Looking at household sources of drinking water and sanitation facilities (Tables 14 and 15), it can be seen that access to piped water in Aceh and Nias has been very limited and relatively few households have septic tanks.¹⁰ Moreover, many people are still living in shelters. With the majority of people in Aceh depending mainly on wells for drinking water, it is important to monitor the water quality of these wells.

6.5. Infrastructure

Towards the end of 2005 USAID signed an MOU with the Ministry of Public Works to reconstruct 240 kilometres of road from Banda Aceh to Meulaboh. Phase 1 of the project (80 km—connecting Banda Aceh to Lamno) was expected to be completed by August 2006. Phase 2 of the project, the remaining 160 kilometres, was expected to take another two or more years. Meanwhile, the Japan International Cooperation Agency agreed to rehabilitate the existing 122-kilometre road from Calang to Meulaboh (BRR and Partners, 2006).

Moreover, the Asian Development Bank has agreed to finance the rehabilitation of another main route, a 490-kilometre road connecting Banda Aceh with North Sumatra. Overall the total road length needing to be rehabilitated or built in Aceh following the disaster was around 3,000 kilometres (Table 6). Nias, naturally, does not need as many roads as Aceh (BRR and International Partners, 2005).

Besides roads, the BRR also indicated that 14 seaports, 11 airports and air strips, 120 arterial bridges, and around 1,500 minor bridges need to be rebuilt (Table 6). Compared with progress in other sectors, infrastructure reconstruction has been relatively slow. The BRR reported that around 1,200 kilometres of roads in Aceh and 300 kilometres in Nias had been built or repaired as at December 2006. Further, 14 ferry terminals and harbours, 8 airports and airstrips, and 158 bridges had been restored (BRR and Partners, 2006). The types of problems causing slow progress in this area can be illustrated by an example. The construction of the road from Banda Aceh to Meulaboh is experiencing serious delays. Issues concerning land acquisition and poor weather have been mentioned as the main reasons for the delay (USAID, 2006). As far as land acquisition is concerned, significant differences have emerged between the kind of road that local people want and what USAID wants to build. USAID plans to build a highway with seven-metre carriageways and two-metre shoulders. Locals, however, not only fear speeding traffic but would also like to be able to sell snacks and tea from stalls along the roadside (*The New York Times*, 9 October 2006). The dilemma is an interesting one. While, as noted earlier, the Indonesian Government has been willing to set aside the Master Plan and follow a more bottom-up approach by taking into account local voices, some donors seem to be committed to a top-down approach.

¹⁰ In Aceh only around 30 per cent of households have toilets with septic tanks. In Nias the percentage is even lower; i.e., around 6 per cent. Thus a large proportion of households utilise toilets without septic tanks or use a pond or river as their toilet.

7. CHALLENGES

There are four main challenges that the reconstruction and rehabilitation process now faces. The first arises from the unrealistically high community expectations generated by the various statements and pledges from government leaders, NGOs, donors, and others. Local communities now expect not only to have their houses rebuilt and their livelihoods restored but also to participate in reconstruction activities. It is hoped that expectations can be managed by focusing on reasonable targets although the BRR's operational approach does not yet provide for this.

The BRR's budget realisation for the 2005 and 2006 fiscal years is quite low. This is the second challenge faced in the reconstruction process. We discuss this further in section 7.2. The third challenge relates to issues of coordination and commitment. As a coordinating agency, the BRR needs to establish smooth coordination arrangements with local governments and donor agencies. The relationship with local governments is pivotal to spending monies effectively while the relationship with donor agencies is vital to ensure that aid commitments are implemented efficiently. Finally, there is the challenge of establishing a viable exit strategy for the BRR. The current mandate of the BRR extends until 2009. By then it is expected that the BRR will have arranged the transfer of the whole redevelopment process to local governments. There is, therefore, a challenge for both the BRR and local governments in handling the transition processes well.

The following sections elaborate on these four challenges.

7.1. Managing Expectations

The ambitious plans for reconstruction and rehabilitation in Aceh and Nias have created high expectations. During the initial emergency stage, local inhabitants witnessed the arrival of large-scale support from both the government and non-governmental organisations alike. Figure 4 indicates a peak of activity in the early stage which was much more intensive than the more sustained work carried out later in the recovery stage. But as the diagram shows, there is a risk of a lull in activity when the emergency stage scales back to a lower intensity because there is no guarantee that the housing recovery stage will kick in quickly. A lull of this kind did occur and was seen by many people as reflecting inactivity on the part of the BRR. A "slow start", which is the term some observers used in referring to the first year of BRR operations, is a polite judgement compared to the views expressed by others who cynically translated BRR as *baru rapat-rapat* (just hold meetings).

For the Acehnese in general and the people of Nias in particular, the disasters aroused expectations of significant improvements at the local level. Development in these areas has long lagged behind development elsewhere in Indonesia. People in these regions feel marginalised and isolated from the national development process, economically as well as politically—in Aceh because of the long socio-political conflict, and in Nias because of the separation from Sumatra and the remoteness of the island.

The establishment of the BRR in 2005 led to considerable excitement among the local populace in Nias. Many people imagined that they would take part in the reconstruction process following the plans set out by the agency. Who would the BRR recruit if not locals who know the region well? It has to be acknowledged that in Indonesia the sentiment of *putera daerah* (local people) is still important in isolated areas. Local people were therefore very disappointed to find that their involvement in the administration of the BRR in Nias was quite limited.

In the case of Nias, the irony is that for non-locals, an assignment to Nias is generally regarded as a punishment rather than a promotion. In the first six months of the operation of the BRR branch in Nias, only one out of twelve heads of BRR working units lived on the island. This problem was remedied in early 2006 when the heads of BRR working units were instructed to live in Nias.

Local businesses and contractors in Aceh and Nias were also excited by the prospect of involvement in BRR projects. Most local contractors, however, were disappointed to find that in practice they were unable to participate in the construction projects. The reason for this, they reported, was that the procurement procedures and requirements set down by the BRR for redevelopment construction were so complicated that local contractors were effectively excluded from participating.

Finally, the BRR's target of building around 92,000 houses in Aceh and Nias during 2006—which, added to those built in 2005, amounted to a target of around 108,000 houses in total by the end of 2006—raised special expectations. Although restoration of the housing stock was justifiably seen as the main priority, the feasibility of this target was questionable from the start, even allowing for the fact that the size of the new homes was expected to be small (only 36 square metres). Typically, the number of new homes constructed nationwide in Indonesia is only around 60,000 per annum. In the absence of any decline in house construction elsewhere, the BRR target implied an increase of roughly 150 per cent in the output of the national housing construction industry, a very ambitious target.

Even with the relatively modest rate of construction achieved in 2005 in Aceh and Nias, wages in the construction industry and the price of building materials increased during the year at levels higher than elsewhere in Indonesia (BRR and International Partners, 2005). Adhering closely to such an ambitious target thus ran the risk of encouraging the lowering of construction standards, and this implied that the much-publicised opportunity to “build back better” would be missed. Moreover, the heavy additional demand for timber, if not carefully managed, threatened to hasten deforestation in Aceh and other parts of Indonesia.¹¹

Nevertheless, BRR officials declared themselves confident of meeting the housing targets and mentioned the following considerations in support of their optimism. First, after a delay of some months in its establishment, the agency had generally been able to demonstrate leadership in the reconstruction effort and hence had been able to encourage major participants to focus their efforts on housing. Second, the BRR has been allowed—at least up until the time of writing—to modify the Master Plan stipulations where appropriate after consultations with local communities. This pragmatic approach has worked to overcome a number of conflicts between the perceived interests of local communities and the constraints of the Master Plan on housing programs. Third, most problems of land identification had been solved through the Reconstruction of Aceh Land Administration System (RALAS) project. Fourth, the central government and the Free Aceh Movement (GAM) agreed to end their thirty years of conflict on 15 August 2005. The result was that the general level of safety in Aceh improved greatly allowing reconstruction activities to be conducted in a conducive environment. Fifth, the BRR's special new authority, which allowed for the implementation of housing projects through direct contracting, helped to offset delays in other government agencies responsible for building houses, such as the Ministry of Public Works. Finally, funds for reconstruction activities

¹¹ This issue has caused considerable controversy. Some local environmental groups have argued that reconstruction activities in Aceh have contributed to faster deforestation. See Sijabat (2007).

began to flow smoothly (Kuncoro and Resosudarmo, 2006). In spite of this optimism by the BRR, however, it should be noted that, judging by the number of houses built by November 2006, it seems highly unlikely that the housing target will be achieved. Delays in reaching targets, in turn, may weaken the credibility of the BRR as a reliable reconstruction partner in the region.

There is a quite widespread view that the BRR should put more emphasis on the quality of reconstruction—that is, maintaining house construction as its main priority but without committing itself to ambitious numerical targets—while meanwhile ensuring that all those waiting to receive new housing are properly accommodated in temporary comfortable living conditions. Arguably, there should also be stronger emphasis on supporting the restoration of livelihood activities through provision of suitable fishing boats, support for farming activities (such as the provision of seeds), repair of the relevant infrastructure, and so on (Kuncoro and Resosudarmo, 2006).

7.2. BRR Spending

As at September 2006, spending by the BRR has lagged well behind budget (Table 16). Underexpenditure of this kind can lead to widespread dissatisfaction among local people. The inability of the BRR to achieve its reconstruction target is reflected in the planned budget for BRR operations. Indeed, for the 2005 budget, the BRR's fiscal year was extended up to 2006. Thus, during January–September 2006, there were two fiscal budgets running.

However, even after the extension of the fiscal year, the level of budget spending was still very low. Out of Rp4 trillion (around US\$410 million) allocated in the 2005 budget for the BRR, only 63 per cent was spent. Moreover, the higher spending areas appear to have been on administrative activities related to offices, planning, and programming.

There was a sharp increase in the BRR budget for 2006.¹² The main reason for this was that, beginning in 2006, the BRR received an additional mandate to implement housing construction in an effort to speed up activity in this sector following the earlier disappointing performance. The agency was provided with additional funding of Rp4 trillion (around US\$430 million) to build up to 40,000 houses during the year. Mainly because of this initiative, the budgeted expenditure for the BRR in 2006 was set at around Rp10 trillion (around US\$1 billion), an increase of over 150 per cent on its budget for 2005. It is not clear, however, that this approach will be successful. As a new agency lacking experience in managing large-scale construction projects, it is uncertain whether the BRR will be able to implement this daunting new task more successfully than the other organisations involved. Moreover, this major additional spending program is likely to further constrain the capacity of the BRR to coordinate other reconstruction programs. And if it turns out that the BRR does not perform well, this is likely to further lessen its moral authority to oversee the programs of other institutions. Perhaps of greatest concern is whether, having such a large budget, the BRR can avoid the taint of mismanagement. There is bound to be considerable pressure on its officials to engage in corrupt behaviour. If they succumb to this pressure, the ability of the BRR to continue to lead the reconstruction effort will quickly diminish.

Data up to 30 September 2006 suggest that expenditure outcomes throughout the financial year remained well behind target (Table 16). While a slow start in 2005 was

¹² Table 16 shows the old format of BRR's budget, while Table 17 presents the new format and an additional budget of around Rp1 trillion in 2006.

perhaps understandable, the continued underspending must raise concerns about the ability of the BRR to deliver on the promises that have been made. Nine months into 2006 only about 18 per cent of the budget had been spent. The challenge for the BRR in the remaining months therefore was important.

What can be said about these problems? First, from the point of view of the local people, the spending delays are most unfortunate. In 2005 alone, actual spending reportedly lagged behind planned expenditures by about Rp2.8 trillion (around US\$290 million), the bulk of which reflected underspending in the areas of housing, infrastructure, and land use coordination. One widely mentioned reason for spending delays was said to be the BRR's commitment to careful management of project procurement activities. This explanation, however, was not well-received at the local level. What the locals know is that they have not received the things that were promised to them by the BRR. People still living in barracks feel that they should by now have been able to move into permanent housing, and fishermen and farmers feel that their operations should, by this stage, have returned to normal. Second, this continuing underexpenditure naturally begs the question of whether the BRR will be able to execute planned budgets into the future.

What are the policy options? First, the BRR could perhaps have tried to speed up spending in the last three months of fiscal 2006. The danger is that quality would be compromised for the sake of quantity. Worse, the emphasis on careful project procurement might be compromised. Alternatively, the BRR could have asked for a technical extension of the 2006 budget into the next year. However, the Indonesian Government would have been unlikely to agree to this because it would be reluctant to accept the idea that budget extensions were a normal way of doing business.

The BRR seems to have preferred the first option. In the last three months of 2006, the BRR spent around Rp8.8 trillion or almost 60 per cent of its total budget for 2006 (Table 17). In order to speed up spending the BRR explored the idea of decentralising expenditure authority to local BRR offices across Aceh and Nias. For example, starting in April 2006 the BRR experimented with the idea of placing a liaison officer at the local level by creating joint secretariats with local governments in Nias. The secretariats were given a wide range of duties including coordinating activities carried out by stakeholders, sharing information on the progress of recovery activities, involving local governments in the recovery process, and assisting local governments with the management capacity to be professional lead agencies for development activities. Additional liaison officers were appointed in seven or more regional offices by the end of 2006.

This innovation seems to have helped to accelerate the housing and infrastructure development program in that more decisions will, hopefully, be made at the local level under this approach. The current plan is to continue to decentralise activities considerably during the next few years. In 2005 some 90 per cent of BRR staff were in Banda Aceh. However it is now expected that the proportion of staff in the central Banda Aceh office will go down to just 50 per cent by 2008. By gradually shifting the decision-making and management to district and local town authorities across Aceh and Nias, it is expected that the BRR's role will be reduced mainly to monitoring, countering corruption, problem solving, gap filling, and donor relations.

But another option that perhaps should be considered—which is also a very effective form of decentralisation—is the establishment of a much larger program of direct cash transfers. If this approach were adopted, households would receive cash and be able to organise building and rehabilitating their houses themselves.

The donor community, too, has naturally been important in all of these activities. But unfortunately little public information is available regarding the expenditure programs of donors. There are no comprehensive reports easily available on how much the international donor community has spent so far. It would be particularly interesting to find out how much has been spent on the ground in Indonesia and how much, in contrast, donors have spent on their own administrative activities. More accountability on the part of donors is clearly needed.

7.3. Coordination and Commitments

Developing effective coordination within the BRR, between the BRR and local governments, as well as between the BRR and other organisations has been a continuing challenge.

The three key structures within the BRR itself are the Executive Agency, the Advisory Board, and the Supervisory Board. The question of how these three bodies can interact efficiently so that the BRR as a whole can be effective has been a major issue ever since the BRR was established in early 2005.

Since the early days of the BRR, the Executive Agency has shown flexibility, choosing to follow the Bappenas Master Plan when practical but being ready to modify it when necessary. However the definition of “practical” is not clear. There is no agreement on this matter between the Executive Agency, the Advisory Board, and the Supervisory Board. There is a perception that the Executive Agency can do whatever it wants, even though the Advisory and Supervisory Boards may have different views. Even within the Executive Agency itself there is no clear guidance on this for staff. The result is a lack of consistency in operations. Some directors follow the stipulations of the Master Plan—even when doing so is problematic—on the grounds that abandoning the Plan would be tantamount to ignoring the law because it is embodied in a presidential decree (Kuncoro and Resosudarmo, 2006).

Thus there is now a growing view that the role of the Supervisory and Advisory Boards needs to be strengthened. There are also some calls to reevaluate the original Master Plan with the aim of removing the parts that create problems, simplifying others, and strengthening those that are important—particularly those relating to land use planning. It is hoped that a revised version of the Plan might then provide guidance that would be followed by both the BRR and by all other institutions contributing to the reconstruction effort (Kuncoro and Resosudarmo, 2006).

BRR coordination with local governments has so far been rather weak. Initially, local governments expected that the BRR would help them implement local priorities. However, seeing that local governments lacked comprehensive rehabilitation plans, the BRR devised its own plan and spent considerable time in 2005 establishing offices and learning about local problems. This approach did not work very well. Local governments felt that they already had sufficient knowledge about local concerns and were furious over what they regarded as a late start by the BRR. The weak coordination between the BRR and local governments should not be attributed to a lack of commitment. There were many meetings and discussions. However, the different organisations just did not relate to each other very well. As noted in the publication of BRR and International Partners (2005): “...most meetings, ostensibly for coordination, achieved little more than information-sharing rather than strategic planning [and] ... agency leaders were so busy on their own programs that they were frustrated when they attended a meeting that wasn’t useful ... [so that] they were likely to send junior staff in future, so reinforcing the information rather than strategy content”.

The result was that local Bappeda *kabupaten* (district) and *kota* (municipality) agencies did not align their 2006 regional budgets with the BRR's 2006 plan. Indeed, many regional governments complained that they did not know what the BRR planned to do in their regions.

The BRR also struggled to develop relations with other agencies involved in the Aceh-Nias reconstruction activities although, in general, the BRR was able to take the lead in management. The struggle was evident in several areas. First, there were significant imbalances within the various components of the rehabilitation effort between the minimum requirements and the available funds. Figure 5 shows the difference between total current commitments of funding by government and donors in each sector and the minimum funding requirements. It can be seen that funding far in excess of actual needs has been allocated to areas such as health, culture and religion, governance and administration, enterprise rehabilitation, education, and water and sanitation, while energy supply, the environment, flood control and irrigation works, and transport are significantly under-funded. So far, the BRR has not been able to persuade donors to reallocate funding from excessively funded to under-funded sectors. Another example of the BRR's limited ability to coordinate the recovery effort is that several of the NGOs involved have not been able to deliver the outcomes they have promised, particularly in relation to housing construction and provision of income earning opportunities.

Second, it is not apparent that the BRR has the ability to ensure that commitments by international and domestic donors will materialise in a timely manner. Some commitments may not translate into actual fund flows for various reasons beyond Indonesia's control. Indonesia's capacity to absorb domestic aid is also an important factor. It is vital that the BRR maintains effective communication with donors and engages donors in developing activities so as to minimise any mismatches between donors' interests and reconstruction priorities.

7.4. Exit Strategy

It is important that reconstruction programs following a natural disaster should fit into broader programs of economic development for the affected regions. The current plan is for the mandate of the BRR to end in 2009. The question of the BRR's exit strategy therefore becomes relevant. Figure 4 suggests that the agency might start phasing out its activities by mid-2008. For housing, the target was to finish rebuilding by mid-2007. The dotted lines at the far right of Figure 4 suggest that the BRR will no longer execute projects itself, but will leave certain activities for other agencies. Indeed, at the end of its term, the expectation is that the BRR will hand over the resources it has been using to local governments (at both the provincial and district or municipality levels), which will be expected to continue reconstruction and development activities.

Sustainability, then, is an issue that needs to be considered. First is the sustainability of the development process initiated by the BRR. In its operations, the BRR had introduced procedures and practices that appear in some cases to be different from the operational procedures currently in use by local governments. It is important that the BRR's governance systems can be implemented by local governments while at the same time allowing for different local values and cultures. During the period to the end of 2009 when the BRR is expected to cease operations, the BRR and local governments must work together to find governance systems that, given the local context and capability, are workable and acceptable to local people. Second, the BRR currently also acts as a focal point for various budgetary matters including the coordination of funds from donor agencies. In many instances the BRR matches local

needs with possible funding from both national and international donor agencies. This task requires understanding and sensitivity to local needs on the one hand, and on the other calls for effective networking and good diplomatic skills to liaise with donors and upper level governments. As 2009 approaches, the BRR should increasingly share its knowledge and information about financial networks with local governments.

The issue of an exit strategy certainly emphasises the need for close communication between the BRR and local governments across Aceh and Nias.

8. CONCLUSION

This paper has discussed recent progress in the reconstruction and rehabilitation of Aceh and Nias following the greatest natural disaster in recorded Indonesian history. On the economic front, the December 2004 earthquakes and tsunami severely affected the livelihood of hundreds and thousands of people in the region. Furthermore, despite large-scale reconstruction activities in the aftermath of the disaster, many people have still been unable to find jobs. Moreover, the region was also affected by relatively high inflation partly caused by the reconstruction process itself.

Notably, the various stakeholders in the reconstruction process have been virtually unanimous in claiming that progress has been too slow. Many reconstruction plan targets have not yet been met and it appears likely that achievements will tend to fall short of targets in the foreseeable future. Budget expenditures have fallen well behind targets as well, even though a four-month extension of the 2005 fiscal year was agreed to with the aim of providing leeway in implementing activities. Late and non-realisation of the 2006 budget are no less worrying—a mere 18 per cent of spending had taken place up to the end of September 2006.

Several observations may be made about this slow progress. Effective coordination among agencies, both domestic and foreign, is essential. The BRR as a coordinating agency needs to operate in close collaboration with local people, local governments, and donor agencies. If there is inadequate consultation and coordination, reconstruction programs will be delayed, parties will lack a sense of ownership towards the various activities, and the risk that different agencies will operate at cross-purposes will increase. A second issue relates to the overall financing needs of reconstruction. In the longer-term, unanticipated and large cost increases in reconstruction activities can be expected to produce a funding gap that must be met one way or another if reconstruction work is to be completed.

In one respect at least, the awful natural disasters brought some benefits to the conflict-ridden region of Aceh. Three decades of political and military conflict before the tsunami had caused widespread suffering in the province. Peace talks had commenced before the tsunami but progress had been slow. The natural calamity put sharply renewed pressure on the parties to the peace negotiations to reach early agreements on key issues so that reconstruction activities could proceed smoothly. In short, suddenly the great majority of people in the region were united in their demand that there be peace.

One nagging question remains: How can Indonesia best prepare to cope with natural disasters in the future? It seems clear that in a developing country such as Indonesia, disaster management should start with local society, at the local level. In this context there are two main lessons to learn. First, it is important to improve local early warning systems across the nation and to increase awareness of the local indications

that a natural disaster might be about to occur. Indeed, as we have discussed, local knowledge of some of these indications currently exists among some traditional community groups in Indonesia. As a country prone to natural disasters, Indonesia should acknowledge the great importance of disseminating such traditional knowledge throughout the country by, for example, including the topic of natural disasters in the national curriculum beginning at the elementary school level (*Kompas*, 12 October 2006). Second, it is important to note that community self reliance is vital in a society facing severe natural disasters, especially during the critical first hours following a disaster. It is inevitable that outside help will take time to arrive, especially in remote areas. Indeed, by the time that news of the disaster has been reported on the national, and especially the international media, it is often that case that many of the injured have already died. And, of course, international agencies also need to improve their ability to respond much faster and much more efficiently to disasters in developing countries.

As a last observation, it should be emphasised that reconstruction after a natural disaster poses numerous difficult challenges. Close coordination between all of the agents involved is essential, as is a peaceful socio-political environment and active community involvement in program implementation. Further, it is important that there are no false promises of assistance so that local people have realistic expectations about the speed of reconstruction work. Targets should be realistic, significant cost increases must be expected and budgeted for, and plans should reflect a sensible approach to the sequencing of programs. In particular, from the very beginning, rebuilding economic livelihoods and housing reconstruction should be seen as top priorities. Strategies must be developed to ensure that there is efficient coordination among different agencies, that commitments of assistance from both domestic and international organisations are fulfilled, and that those agencies are accountable for the promises that they have made. Finally, reconstruction agencies should set out clear exit strategies to allow for a smooth transfer of activities into the hands of local governments and organisations at the end of the reconstruction period.

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Table 1: GDP with and without Oil and Gas (billion rupiah), Aceh, 2000–2004

Year	GDP (with oil & gas) (Rp. bn.)	GDP (without oil & gas) (Rp. bn.)	Growth (%) (with oil & gas)	Growth (%) (without oil & gas)
2000	35,883	19,259	--	--
2001	32,565	19,136	-9.3	-0.6
2002	39,961	20,426	22.7	6.9
2003	42,239	21,204	5.7	3.7
2004	39,664	21,778	-6.1	2.7

Note: Based on 2000 constant prices. 2004 data are preliminary figures.

Source: Bappeda Aceh (2005)

Table 2: Population and Internally Displaced Persons (IDPs), Aceh and Nias, 2005

Region & sub-region	Current population	IDP	% IDP	Still IDP in Sept 2005	No longer IDP by Sept 2005	% IDP in Sept 2005
<i>Aceh province</i>	<i>4,031,589</i>	<i>508,671</i>	<i>13</i>	<i>209,822</i>	<i>298,849</i>	<i>5</i>
Aceh Jaya	60,660	34,198	56	27,755	6,443	46
Simeulue	78,389	56,606	72	15,498	41,108	20
Aceh Barat	150,450	47,660	32	28,018	19,642	19
Aceh Besar	296,541	67,554	23	46,998	20,556	16
Banda Aceh	177,881	92,589	52	24,210	68,379	14
Sabang	28,597	7,122	25	2,061	5,061	7
Nagan Raya	123,743	11,828	10	6,314	5,514	5
Aceh Singkil	148,277	28,040	19	7,106	20,934	5
Pidie	474,359	42,876	9	19,906	22,970	4
Bireun	351,835	34,647	10	10,032	24,615	3
Aceh Selatan	191,539	19,366	10	4,547	14,819	2
All other areas	1,949,318	66,185	3	17,377	48,808	1
<i>Nias region</i>	<i>712,075</i>	<i>387,102</i>	<i>54</i>	<i>47,055</i>	<i>340,047</i>	<i>7</i>
<i>TOTAL</i>	<i>4,743,664</i>	<i>895,773</i>	<i>19</i>	<i>256,877</i>	<i>638,896</i>	<i>5</i>

Source: BPS et al. (2005a, 2005b)

Table 3: Estimated Number of People Killed and Missing in Aceh and Nias, December 2004 and March 2005 Tsunami and Earthquake Disasters

	No. of People Killed	No. of People Missing
<i>Aceh Province</i>		
Aceh Barat	10,874	2,911
Aceh Barat Daya	3	n.a.
Aceh Besar	92,166	15,176
Aceh Jaya	16,797	77
Aceh Selatan	1,566	1,086
Aceh Singkil	22	4
Aceh Tamiang	n.a.	n.a.
Aceh Tengah	n.a.	n.a.
Aceh Tenggara	n.a.	n.a.
Aceh Timur	52	n.a.
Aceh Utara	2,098	218
Banda Aceh	n.a.	15,394
Bener Meuriah	n.a.	n.a.
Bireuen	461	58
Gayo Alas	n.a.	n.a.
Langsa	n.a.	n.a.
Lhokseumawe	189	11
Nagan Raya	1,077	865
Pidie	4,401	877
Sabang	25	108
Simuelue	44	1
<i>Nias Region</i>		
Nias	784	18
Nias Selatan	177	n.a.
n.a. indicates data not available		

Source: Satkorlak Report (10–16 October 2005)

Table 4: Impact on Livelihood and Daily Life Situation Following December 2004 and March 2005 Tsunami and Earthquake Disasters, Aceh and Nias.

Type of impact:	Aceh	% of population	Nias	% of pop.
House damaged	391,316	10	538,816	76
Loss of primary source of income	264,650	7	85,462	12
Loss of house	191,353	5	61,588	9
Loss of household members	106,480	3	3,097	...
Mental illness	62,794	2	18,849	3
Disabled	6,639	...	2,457	...
Other impacts	279,877	7	109,331	15

Source: Authors' calculation from SPAN 2005

Table 5: Housing Damage Assessment following December 2004 and March 2005 Tsunami and Earthquake Disasters, Aceh and Nias

Region & sub-region	Total houses	Damage level			Total damage	% damaged in total
		Mild	Severe	Destroyed		
<i>Aceh province</i>	<i>865,744</i>	<i>66,597</i>	<i>26,760</i>	<i>14,670</i>	<i>99,738</i>	<i>12</i>
Simeulue	17,315	6,573	4,214	31	10,818	63
Banda Aceh	35,443	7,011	2,509	94	10,202	29
Aceh Barat	31,252	4,692	2,298	2,125	8,033	26
Nagan Raya	29,169	5,236	1,640	2,278	7,299	25
Aceh Singkil	31,442	5,972	1,564	7	7,650	24
Aceh Selatan	41,445	5,117	1,475	24	6,635	16
Aceh Jaya	11,539	733	438	32	1,716	15
Bireun	74,564	7,623	2,426	5	10,379	14
Aceh Barat Daya	24,685	2,068	855	149	2,976	12
Aceh Utara	106,581	8,273	2,068	1,449	11,764	11
Sabang	6,721	443	194	4	695	10
Aceh Besar	56,104	2,701	1,904	157	5,559	10
Lhokseumawe	32,824	1,901	526	5	2,452	8
Pidie	108,948	4,353	1,729	129	6,690	6
All other areas	257,712	3,901	2,920	8,181	6,870	3
<i>Nias region</i>	<i>131,217</i>	<i>57,378</i>	<i>37,090</i>	<i>10,070</i>	<i>104,538</i>	<i>80</i>
<i>TOTAL</i>	<i>996,961</i>	<i>123,975</i>	<i>63,850</i>	<i>24,740</i>	<i>204,276</i>	<i>21</i>

Source: Authors' calculation from SPAN 2005

Table 6: BRR Estimate of Destruction in Aceh and Nias following December 2004 and March 2005 Tsunami and Earthquake Disasters, and Periodic Progress towards Reconstruction, October 2005–November 2006

	Destruction	Progress	
		by December 2005	by December 2006
Housing	80-110,000 houses in Aceh and 13-14,000 in Nias	16,000 new houses	57,000 new houses and 15,000 transitional shelters
Infrastructure	3,000 km of roads	235 km of roads restored (and major road projects underway)	over 1,200 km of roads in Aceh and 300 km in Nias built/restored
	14 seaports	5 major ports being built	All ports operational; 11 ferry terminals and harbours in Aceh and 3 in Nias built/under development
	11 airports/air strips		all airport operational: 5 airport and 1 airstrip in Aceh and 2 in Nias built/under development
	120 arterial bridges and 1,500 minor bridges	35 arterial bridges rebuilt	121 bridges in Aceh and 37 in Nias repaired
Education	2,000 school buildings	335 new schools built	623 new schools in Aceh and 124 in Nias built
	2,500 teachers	more than 1,000 new teachers trained	5,100 teachers in Aceh and 285 in Nias trained
Health	8 hospitals and 114 health centres	38 hospitals and health centres rebuilt (and 51 more under reconstruction)	305 health facilities in Aceh and 19 in Nias
Fisheries	around 5,000 fishing boats	3,122 boats replaced	4,420 fishing vessels replaced
	20,000 ha of fish ponds	5,000 ha of fish ponds repaired	6,800 ha of fishponds rehabilitated
Agriculture	60,000 farmers displaced	40,000 farmers assisted to return	68% of male and 45% of female labour force are working in rural areas
	70,000 ha of agricultural land	13,000 ha of farmland restored	50,000 ha of farmland restored
Enterprises	more than 100,000 small business persons lost livelihoods	7,000 workers given skills training (and over 120,000 benefited from cash-for-work schemes)	69% of male and 36% of female labour force actively engaged in urban areas

Source: BRR and International Partners (2005); BRR and Partners (2006)

Table 7: List of Pledges through MDF as at December 2006

	Pledges (US\$million)
European Commission	253
Netherlands	174
United Kingdom	72
World Bank	25
Sweden	20
Denmark	18
Norway	18
Germany	14
Canada	11
Belgium	10
Finland	10
Asian Development Bank	10
United States of America	10
New Zealand	9
Ireland	1
Total Contributions	655

Source: <http://www.multidonorfund.org/>

Table 8: Location of Internally Displaced Persons (IDP) and ex-IDP as at September 2005, Aceh and Nias

As at September 2005:	Aceh	Nias
Still internally displaced families	48,181	8,729
No longer internally displaced and:	66,721	62,585
* Already obtained a house	7,147	5,003
* Still not obtained house so they:	59,574	57,582
* Return to old house	41,882	40,485
* Contract and rent	8,541	1,670
* Stay with family/relative	6,433	6,532
* Stay in an official house	5,262	724

Source: Authors' own calculation using data from SPAN 2005

Table 9: Rough Estimates of Costs of Labour and Housing Materials in Aceh and Nias, late 2004–early 2006

	Cost	End 2004	Mid- 2005	Early 2006	Oct 2006	Change (%)
Aceh:						
Labour	Rp 000 / day	30	40	50	50	67
Wood	Rp million / m ³	1.0	1.5	1.9	2.2	120
Cement	Rp 000 / 50 kg	20	26	34	37	85
Sand	Rp 000 / 3 m ³	150	300	300	300	100
Red Brick	Rp each	250	580	700	700	180
Wall Paint	Rp 000 / 25 kg	66	75	90	110	67
Wood Paint	Rp 000 / litre	22	27	32	34	55
Nias:						
Labour	Rp 000 / day	40	40	50	50	25
Wood	Rp million / m ³	1.2	1.6	1.8	2.0	67
Cement	Rp 000 / 50 kg	22	27	34.5	37	66
Sand	Rp 000 / 3 m ³	150	150	300	300	100
Red Brick	Rp each	400	600	700	1,000	150
Wall Paint	Rp 000 / 25 kg	90	90	125	135	50
Wood Paint	Rp 000 / litre	22	25	25	38	73

Note: change in the percentage increase in prices is from end 2004 to Oct 2006.

Source: Authors' own market survey

Table 10: Employment Activity¹ of the Population Aged 10 Years and Over as at September 2005, Aceh and Nias ('000 people)

	Still IDP* by Sept '05	Ex-IDP	Total for IDP and Ex-IDP	Never been IDP	Total
Aceh:					
Employed	65	98	163	1,277	1,440
%	39	41	40	47	46
Seeking work	18	17	35	148	183
%	11	7	9	5	6
Available for work	14	11	25	112	136
%	8	5	6	4	4
In school or taking care of children	68	112	180	1,162	1,342
%	41	47	44	43	43
No answer	2	3	5	24	28
TOTAL	166	241	407	2,723	3,130
%	100	100	100	100	100
Nias:					
Employed	20	152	171	156	327
%	57	62	61	66	63
Seeking work	3	11	14	8	22
%	8	4	5	3	4
Available for work	1	6	7	4	11
%	3	2	2	2	2
In school or taking care of children	11	78	89	69	158
%	32	32	32	29	31
No answer	...	...	...	...	...
TOTAL	34	245	281	237	518
%	100	100	100	100	100

¹ During the week prior to the survey

* IDP = internally displaced person

Source: Authors' calculation from SPAN 2005

Table 11: Occupational Status of the Population Aged 10 Years and Over as at September 2005, Aceh and Nias ('000 people)

	Still IDP* by Sept '05	Ex-IDP	Total among IDP & Ex-IDP	Never been IDP	Total
Aceh:					
Self-employed with no assistant	34	48	82	621	702
%	52	49	50	49	49
Self-employed with temporary or unpaid labour	3	5	8	141	149
%	5	5	5	11	10
Employer	6	6	12	45	56
%	9	6	7	4	4
Employee	18	31	49	264	313
%	28	32	30	21	22
Unpaid worker	3	6	9	188	197
%	4	7	6	15	14
No answer	1	2	3	19	22
TOTAL	65	98	163	1,277	1,440
%	100	100	100	100	100
Nias:					
Self-employed with no assistant	12	81	93	90	183
%	60	54	54	58	56
Self-employed with temporary or unpaid labour	2	17	19	17	36
%	9	11	11	11	11
Employer	...	1	1	1	2
%	1	1	1	1	1
Employee	1	11	13	9	22
%	7	8	7	6	7
Unpaid worker	4	39	43	37	80
%	21	26	25	24	24
No answer	...	2	3	3	5
TOTAL	20	152	171	156	327
%	100	100	100	100	100

¹ During the week prior to the survey

* IDP = internally displaced person

Source: Authors' calculation from SPAN 2005

Table 12: Educational Status of the Population Aged 7–24 Years, Aceh and Nias, 2005 ('000 people)

Age	Never attended school	Not in school anymore	In school	No answer	Total
Aceh					
7–12	12	14	514	2	542
%	2	3	95	...	100
13–15	2	34	238	1	275
%	1	12	87	...	100
16–18	2	98	169	2	271
%	1	36	62	1	100
19–24	6	370	8	4	389
%	2	95	2	1	100
Total	23	516	929	9	1,477
%	1	35	63	1	100
Nias					
7–12	9	5	105	...	118
%	7	4	89	...	100
13–15	4	11	37	...	52
%	8	21	71	...	100
16–18	6	24	23	...	53
%	11	45	44	...	100
19–24	12	59	8	...	79
%	15	75	10	...	100
Total	31	99	173	...	302
%	10	33	57	...	100

Source: Authors' calculation from SPAN 2005

Table 13: Educational Status of School Drop-Outs, Aceh and Nias, 2005 ('000 people)

Age	Not graduated from elementary School	Graduated from elementary school	Graduated from secondary school	Graduated from high school	Graduated from university	No answer	Total
Aceh							
7–12	10	5				...	14
%	67	32				1	100
13–15	8	21	5			...	34
%	23	61	16			...	100
16–18	11	37	36	14		...	98
%	11	38	37	14		...	100
19–24	22	103	105	127	13	1	370
%	6	28	28	34	4	...	100
Total	50	165	146	141	13	1	516
%	10	32	28	27	3	...	100
Nias							
7–12	4	1				...	5
%	82	18				...	100
13–15	5	5	1			...	11
%	45	50	5			...	100
16–18	7	11	5	1		...	24
%	30	45	20	5		...	100
19–24	14	22	12	10	1	...	59
%	24	38	20	17	1	...	100
Total	30	39	17	11	1	...	99
%	30	40	17	12	1	...	100

Source: Authors' calculation from SPAN 2005

Table 14: Main Household Sources of Drinking Water as at September 2005, Aceh and Nias ('000 households)

	Still IDP by Sept '05	Ex-IDP	Total for IDP and Ex	Never been IDP	Total
Aceh					
Piped water	2	14	16	75	91
%	12	22	20	10	11
Pump/well	9	36	44	556	600
%	63	54	55	72	70
Spring	2	4	6	103	109
%	12	6	7	13	12
Bottled water	1	7	7	10	17
%	4	10	9	1	2
Other	1	6	7	34	41
%	9	8	9	4	5
Total	14	67	80	778	859
%	100	100	100	100	100
Nias					
Piped water	...	3	3	1	4
%	2	5	5	1	3
Pump/well	1	22	24	19	42
%	40	36	36	31	34
Spring	1	33	34	31	65
%	51	52	52	52	52
Bottled water	...	...	...	6	6
%	1	...	...	9	5
Other	...	4	4	4	8
%	6	7	7	7	6
Total	3	63	65	60	125
%	100	100	100	100	100

Source: Authors' calculation from SPAN 2005

Table 15: Household Sanitation Facilities as at September 2005, Aceh and Nias ('000 households)

	Still IDP by Sept '05	Ex-IDP	Total for IDP and Ex-IDP	Never been IDP	Total
Aceh					
Toilet with septic tank	4	28	32	221	253
%	31	42	40	28	29
Toilet without septic	1	7	8	125	134
%	10	11	11	16	16
Pond/river	3	9	12	186	198
%	20	14	15	24	23
Directly on cesspool	1	5	6	117	123
%	9	8	8	15	14
Yard/bushes/forest	3	13	16	104	120
%	21	19	19	14	14
Other	1	4	5	25	31
%	9	6	7	3	4
Total	14	67	80	778	859
%	100	100	100	100	100
Nias					
Toilet with septic tank	...	4	4	3	7
%	5	6	6	5	5
Toilet without septic	1	15	16	15	31
%	24	24	24	25	25
Pond/river	...	11	12	9	21
%	17	18	18	15	17
Directly on cesspool	...	11	11	11	23
%	17	17	17	19	18
Yard/bushes/forest	1	11	11	10	22
%	24	18	18	17	17
Other	...	11	11	11	22
%	13	17	17	19	18
Total	3	63	65	60	125
%	100	100	100	100	100

Source: Authors' calculation from SPAN 2005

Table 16: BRR's Budget Realisation, as at 30 September 2006 (Old Format)

(billion rupiah)	2005 Budget Plan	% of realisation by 12/2005	% of realisation by 04/2006	% of realisation by 09/2006	2006 Budget Plan	% of realisation by 09/2006
Total budget (US\$ million approx.)	3,967 (410)	10	63	63	9,618 (1,050)	18
By sectoral specification						
Planning and programming	90	0	73	73	176	22
Institutional	770	4	47	46	1,063	14
Housing, infrastructure, and land use coordination	1,619	10	67	68	5,613	17
Economic and business empowerment	546	5	73	73	1,065	23
Religious, social, and cultural	271	3	55	55	358	30
Health and education	480	30	56	56	1,115	17
Secretariat, Nias branch, finance, and communication	191	26	82	83	228	26
By types of expenditures						
Personnel costs	372	47	82	n.a	269	n.a
Equipment	744	7	53	n.a	1,461	n.a
Capital expenditures	2,147	5	54	n.a	5,602	n.a
Social support expenditures	704	12	89	n.a	2,286	n.a

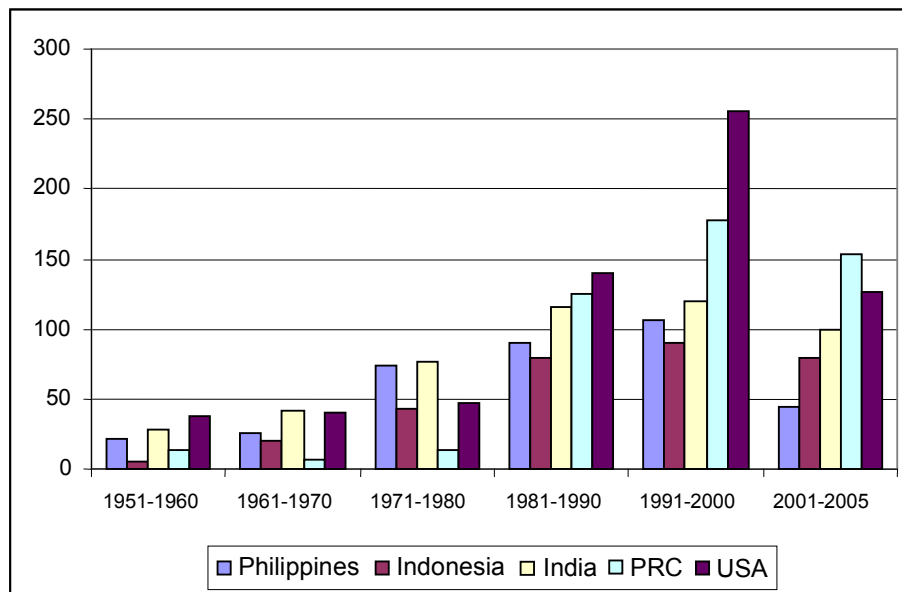
Source: BRR website (<http://www.e-aceh-nias.org/home/>)

Table 17: BRR's Budget Realisation, as at 28 December 2006 (New Format)

(billion rupiah)	2005 Budget Plan	% of realisation by 12/2006	2006 Budget Plan	% of realisation by 12/2006
Total budget (US\$ million approx.)	3,967 (410)	63	10,553 (1,150)	74
By sectoral specification				
Finance and planning	57	77	72	82
Institutional and human resources	770	47	1,028	53
Infrastructure, environment, and maintenance	1,244	61	2,416	87
Housing and settlement	408	82	4,355	75
Economic and business	546	73	843	70
Religious, social, and cultural	213	57	277	82
Health, education, and women's participation	538	55	1,143	64
Secretariat	191	83	390	65

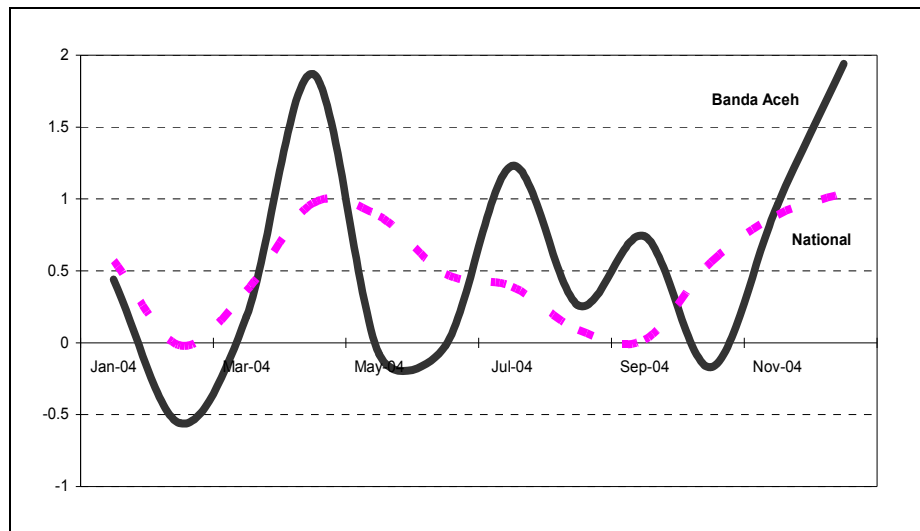
Source: BRR website (<http://www.e-aceh-nias.org/home/>)

Figure 1: Frequency of Natural Disasters in the Five Most Natural Disaster-Prone Countries, 1951-2005

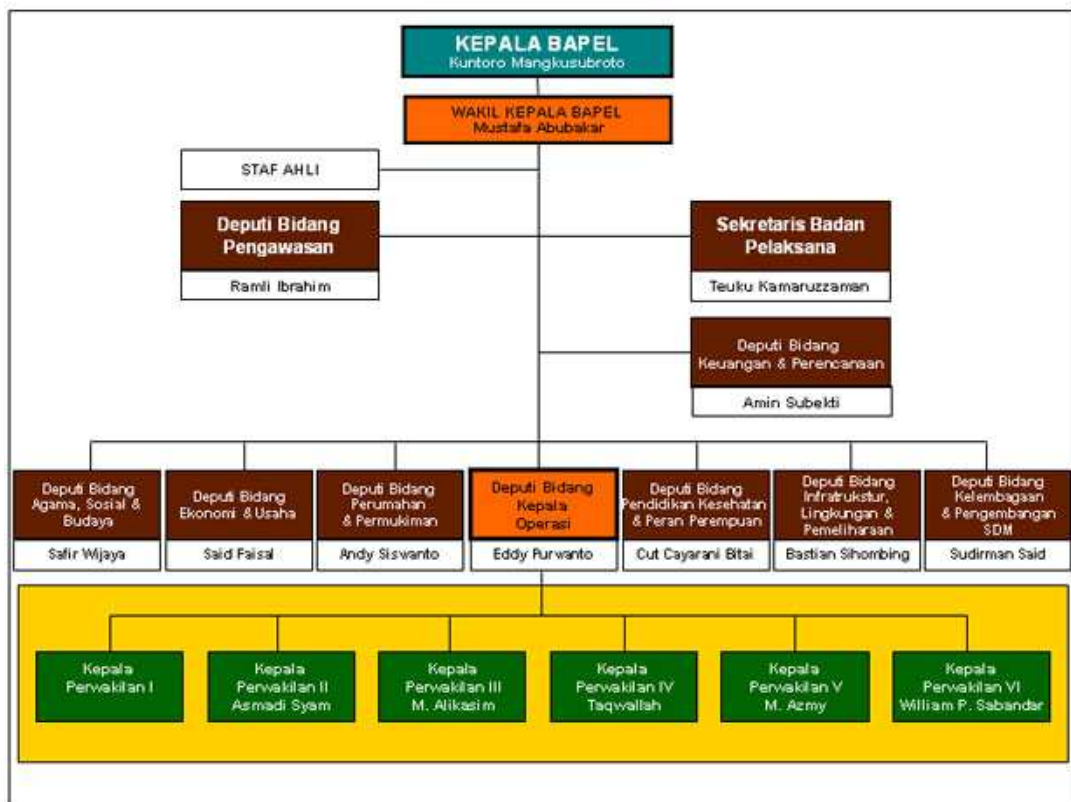


Source: <http://www.em-dat.net/>

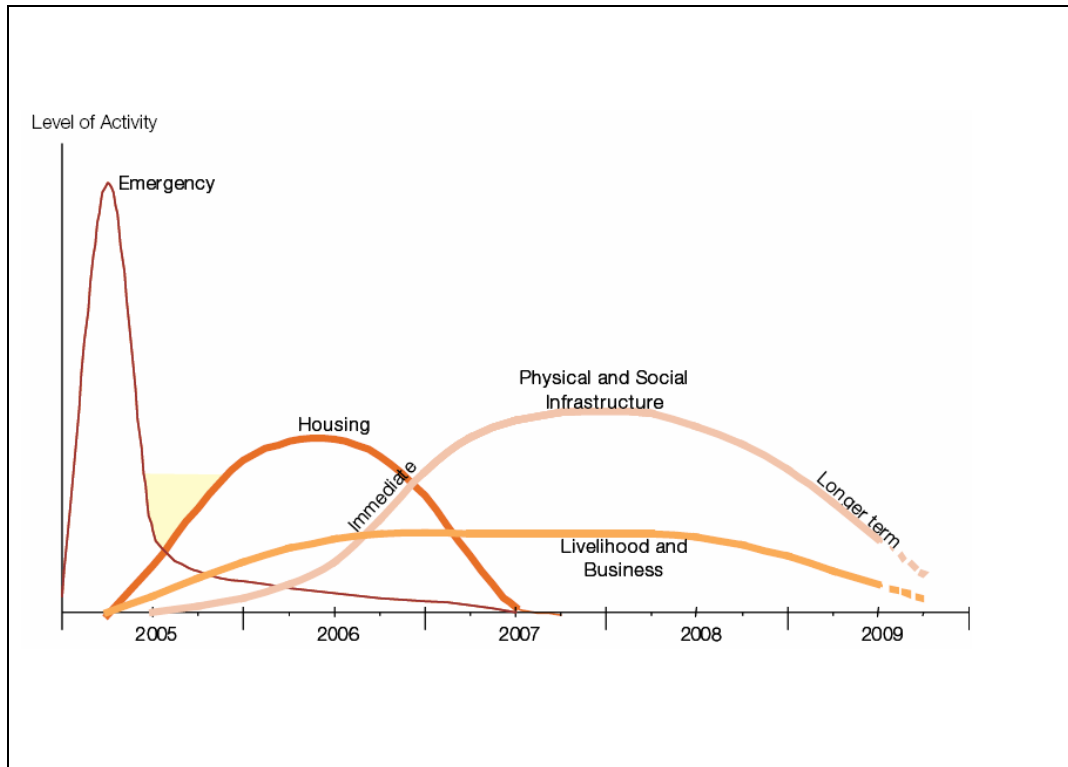
Figure 2: Monthly Rates of Inflation (%), Banda Aceh, prior to December 2004 Earthquake and Tsunami



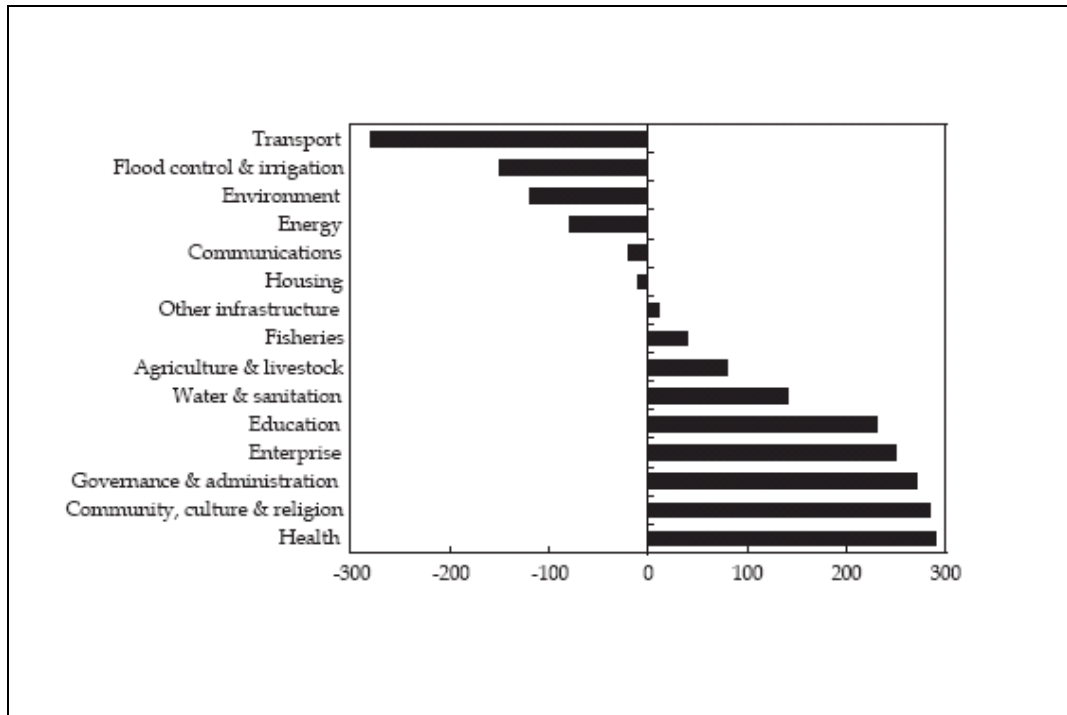
Source: Bappeda Aceh (2005)

Figure 3: Organisational Structure of the BRR

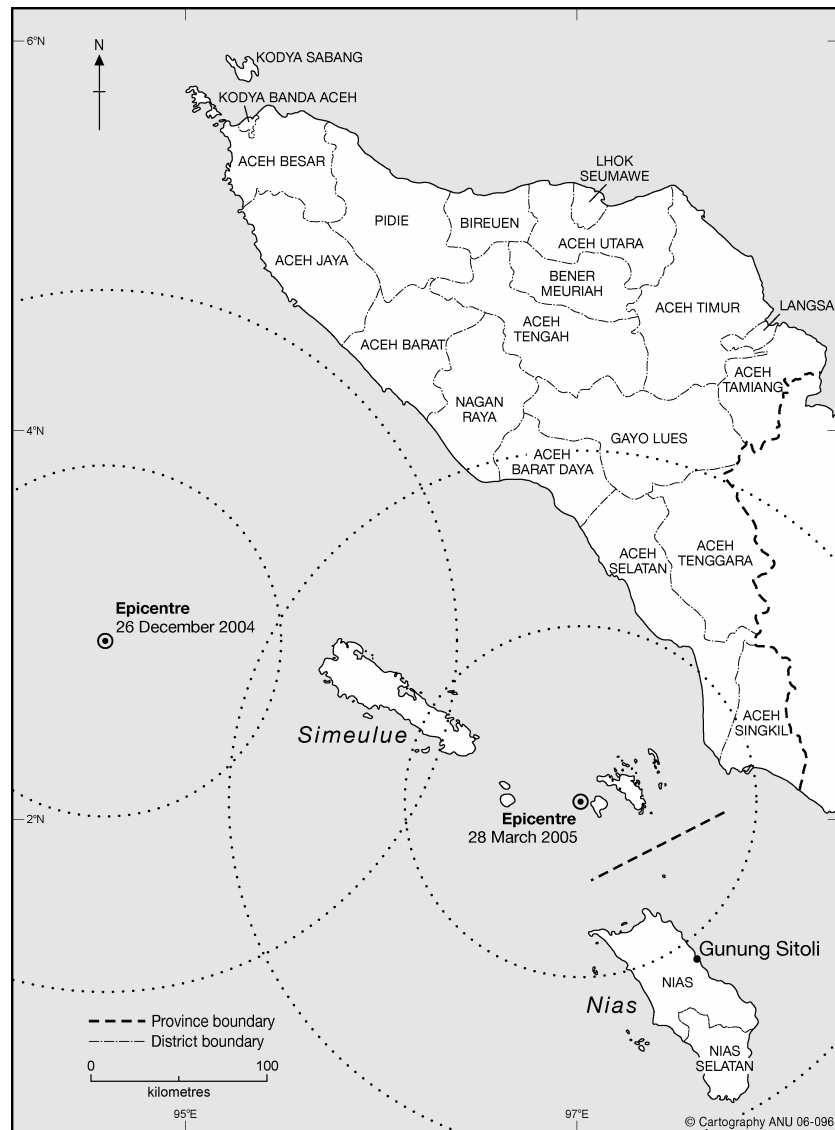
Source: BRR website (http://e-aceh-nias.org/about_brr/organization_structure.aspx) (last accessed 10 December 2006)

Figure 4: Sequencing Emergency and Recovery

Source: BRR and International Partners (2005)

Figure 5: Gaps between Funding and Minimum Requirements (US\$ million)

Source: BRR and International Partners (2005); Kuncoro and Resosudarmo (2006)

Map 1: Aceh's Districts, Nias and the Earthquakes' Epicentres

APPENDIX I. List of People Interviewed

No.	Name of Respondent	Status/Position	Institution
Nias			
1	Melkhior Duha	Head	Badan Pemberdayaan & Warisan Nias
2	Hazoulu Wau	Father	Household
3	Rostiana Sihombing	Mother	Household
4	Baziduhu Zebua	Head	Badan Perencanaan Pembangunan Daerah (Bappeda Nias)
5	Suasana Dachi, SH	Contractor and Head of local NGO	Lembaga Pemberdayaan Masyarakat Gerakan Pemberantasan Korupsi dan Diskriminasi
	Fendi Hartono	Contractor	
6	Ina Intan	Mother	Household
7	Y. Restu Gulo, SH	Director	CV. CIBSA (Cipta Bangun Perkasa)
8	Fauzaro Zein	Father	Household
9	Tony Raharjo	Senior Operations Assistant - Indonesia Disaster Recovery Program	IOM (International Organization for Migration)
10	William Sabandar	Head	BRR-Nias
Aceh			
1	Abdul Rahman Lubis	Head	Badan Perencanaan Pembangunan Daerah (Bappeda Aceh)
2	Purnomo Sidi	Staff member	GTZ
3	Ulrich Klingshirn	Director	GTZ
4	Teuke Rizal	Staff member	GTZ
5	Tini	Mother	Household
6	Baharudin	Village head (Pa Keci & Panglima Laut)	Village in Banda Aceh
7	J. Kamal Farza	Director of Participatory Development Initiative	BRR NAD-Nias
8	Ary Fathra	Staff member at the Monitoring and Evaluation Section	BRR NAD-Nias
9	H. Fadlullah Wilmot	Country Director	Muslim Aid
10	Ir. Zainal Arifin	Head of Economic Division	Badan Perencanaan Pembangunan Daerah (Bappeda Aceh)
11	Tarbani	Manager of Investment and Tourism Section	BRR NAD-Nias
12	Zulkifli	Head of Development Planning Division	Badan Perencanaan Pembangunan Daerah (Bappeda Aceh)

13	Fazri Jakfar	Expert on Environment and Natural Resources	Dewan Pengawas BRR NAD-Nias
14	Cut Hindon	Executive Director	Walhi-Aceh
15	Mizwar Fuady	Coordinator	Sorak
16	Abas Ali	Village head (Imo Mukim)	Pemda Lokal (Kepala desa)
17	Azhar	Informal leader	Youth organization
18	Yarmen Dinamika	Director	Aceh Recovery Forum
19	Asna Husin	Lecturer	IAIN Banda Aceh
20	Didi Marjimi	Staff member	AusAID
21	Adiwarni Husin	Mother	Household
22	Nazamuddin	Lecturer	Syiah Kuala University
23	Khairul	Staff member	Mess Bappenas Banda Aceh
24	Saifuddin Bantasyam	Lecturer	Syiah Kuala University
25	Humam Hamid	Lecturer	Syiah Kuala University
26	Wahed	Vice Chairman	Asosiasi Jasa Konstruksi Aceh

Jakarta

1	Luky Eko Wuryanto	Deputy of Regional Development	Bappenas
2	Suprayoga Hadi	Director of Less Developed Regions	Bappenas
3	Pungky Sumadi	Director	Bappenas
4	Teuke Afrizanur	Staff member	Bappenas
5	Joe Leitmann	Staff member	World Bank/MDF
6	Tim Brown	Staff member	World Bank
7	Ida Aju Indira	Staff member	World Bank
8	Bambang Brodjonegoro	Lecturer	University of Indonesia
9	Ahmad Zaki Fahmi	Staff member	World Bank
10	David Green	Staff member	Asian Development Bank
11	Ari Kuncoro	Lecturer	University of Indonesia
12	Raymond Ace	Staff member	CSIS
13	Rizal Sukma	Staff member	CSIS
14	Farah Sofa	Deputy Director	WALHI

Source: Authors