Indian Ocean Tsunami 2004: Recovery in Banda Aceh
This study was conducted by the Tsunami and Disaster Mitigation Research Center with the support and supervision of the International Recovery Platform.

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FOREWORD

It is with great pleasure we present this report on Aceh Post-Tsunami Recovery Status written based on case studies conducted in tsunami impacted areas of Aceh involving four recovery sectors, i.e., Livelihood, Housing, Infrastructure, and Governance. This project was conducted in 2010-2011 by Tsunami and Disaster Mitigation Research Center (TDMRC), Syiah Kuala University, Banda Aceh, Indonesia in collaboration with International Recovery Platform (IRP)/ Asian Disaster Reduction Center (ADRC), Kobe, Japan. We would like to extend our sincere thanks and appreciation to IRP/ADRC for their financial support for this project. Sincere thanks also go to our TDMRC colleagues for their important role in field surveys and drafting the thematic reports as well as to our local and national partners for their constructive feedback. We hope that this report provides useful information and insights on the challenges and success stories of rebuilding tsunami devastated Aceh Province, Indonesia to readers at large.

Editors
# ACRONYMS AND ABBREVIATIONS

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>ADG</td>
<td>Alokasi Dana Gampong (Village Grant)</td>
</tr>
<tr>
<td>AIPRD</td>
<td>Australia-Indonesia Partnership for Reconstruction and Development</td>
</tr>
<tr>
<td>APBN</td>
<td>Anggaran Pendapatan dan Belanja Negara (National Budget)</td>
</tr>
<tr>
<td>AUSAID</td>
<td>Australian Agency for International Development</td>
</tr>
<tr>
<td>AUSTCARE</td>
<td>Non-government organization now known as ActionAid Australia</td>
</tr>
<tr>
<td>BBAP</td>
<td>Balai Budidaya Air Payau (Brackish Water Aquaculture)</td>
</tr>
<tr>
<td>BKRA</td>
<td>Badan Kesinambungan Rekonstruksi Aceh (Aceh Reconstruction Continuation Agency)</td>
</tr>
<tr>
<td>BOS</td>
<td>Biaya Operasional Sekolah (School Operating Cost Assistance)</td>
</tr>
<tr>
<td>BPM</td>
<td>Badan Pemberdayaan Masyarakat (Provincial Agency for Community Empowerment)</td>
</tr>
<tr>
<td>BPN</td>
<td>Badan Pertanahan Nasional (National Land Agency)</td>
</tr>
<tr>
<td>BPR</td>
<td>Bank Perkreditan Rakyat (Community Loans Bank)</td>
</tr>
<tr>
<td>BRR</td>
<td>Badan Rehabilitasi dan Rekonstruksi Aceh (Agency for Rehabilitation and Reconstruction)</td>
</tr>
<tr>
<td>CHF</td>
<td>Community Habitat Finance (US)</td>
</tr>
<tr>
<td>CWS</td>
<td>Church World Service</td>
</tr>
<tr>
<td>DKP</td>
<td>Dinas Kelautan dan Perikanan (Aceh Provincial Office of Marine Affairs and Fisheries)</td>
</tr>
<tr>
<td>DPR</td>
<td>Dewan Perwakilan Rakyat (House of Representative (Parliament))</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>GT</td>
<td>Gross Tons</td>
</tr>
<tr>
<td>HGU</td>
<td>Hak Guna Usaha (Long lease right of land tenure)</td>
</tr>
<tr>
<td>IDLO</td>
<td>International Development Law Organization</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organization</td>
</tr>
<tr>
<td>IPA</td>
<td>Instalasi Pengolahan Air (Water Treatment Plant)</td>
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<tr>
<td>IRP</td>
<td>International Recovery Platform</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>JICS</td>
<td>Japan International Cooperation System</td>
</tr>
<tr>
<td>KADIN</td>
<td>Kamar Dagang dan Industri (Chamber of Commerce)</td>
</tr>
<tr>
<td>KK</td>
<td>Kepala Keluarga (Head of Household)</td>
</tr>
<tr>
<td>KTP</td>
<td>Kartu Tanda Penduduk (Identity Card)</td>
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<tr>
<td>LKM</td>
<td>Lembaga Keuangan Mikro (Microfinance Institution)</td>
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<tr>
<td>LSM</td>
<td>Lembaga Swadaya Masyarakat (Nongovernment Organization)</td>
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<td>M</td>
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<tr>
<td>MCK</td>
<td>Mandi Cuci Kakus (Public Bathing, Washing and Toilet Facilities)</td>
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<td>NAD</td>
<td>Nanggrooe Aceh Darussalam (Aceh Province Official Name)</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernment Organization</td>
</tr>
<tr>
<td>NRW</td>
<td>Non-Revenue Water (Water losses due to water theft and metering inaccuracies)</td>
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<tr>
<td>PBB</td>
<td>Perserikatan Bangsa-Bangsa (United Nations)</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>PDAM</td>
<td>Perusahaan Daerah Air Minum (Regional Water Treatment Plant)</td>
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<td>PEMDA</td>
<td>Pemerintah Daerah (Regional or Subnational Government)</td>
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<tr>
<td>PERPU</td>
<td>Peraturan Pengganti Undang-undang (Government Regulations to Replace an Act)</td>
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<tr>
<td>PKK</td>
<td>Pendidikan Kesejahteraan Keluarga (Village level Women Group for Family Welfare)</td>
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<tr>
<td>PLN</td>
<td>Perusahaan Listrih Negara (State-Owned Electricity Company)</td>
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<tr>
<td>PMI</td>
<td>Palang Merah Indonesia (Indonesian Red Cross)</td>
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<tr>
<td>PNPM</td>
<td>Program Nasional Pemberdayaan Masyarakat Mandiri (National Program for the Improvement of Self-Reliant Society)</td>
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<tr>
<td>PPI</td>
<td>Pangkalan Pendaratan Ikan (Fishery Port)</td>
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<td>PPK</td>
<td>Program Pengembangan Kecamatan (Subdistrict Development Program)</td>
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<tr>
<td>PRONA</td>
<td>Program Operasi Nasional Agraria (National Agrarian Operations Program)</td>
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<td>Posyandu</td>
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<td>RAN</td>
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<td>Small and medium enterprises</td>
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<td>SMP</td>
<td>Sekolah Menengah Pertama (Junior High School)</td>
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<td>SMA</td>
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<td>Secour Populare Francais</td>
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<td>Tsunami and Disaster Mitigation Research Center</td>
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<td>TPI</td>
<td>Tempat Pelelangan Ikan (Fish Auction Center)</td>
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<td>UPTD</td>
<td>Unit Pelaksana Teknis Dinas (Subdistrict Coordination Unit of District Education Office)</td>
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<td>UKM</td>
<td>Usaha Kecil dan Menengah (Small and Medium Enterprises)</td>
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<td>United Nations Development Program</td>
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<td>UNIMS</td>
<td>United Nations Information Management Service</td>
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<td>USAID</td>
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<td>UU</td>
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<td>WTP</td>
<td>Water Treatment Plant</td>
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<td>Yayasan Pangkai Meuruno Aneuk Nelayan (Foundation for Fishermen’s Children Financial Assistance for Learning)</td>
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CHAPTER 1: INTRODUCTION

After five years of large-scale post-tsunami recovery assistance by the Indonesian government and the international community, Aceh has, to a large extent, returned to normal. However, some basic elements of the infrastructure, especially roads, energy, water, sanitation, and waste management have not fully recovered and remain in poor condition. The incomplete reconstruction of major roads along the west coast, the deficiency in energy supply, and the lack of water and sanitation facilities pose important obstacles to the sustainability of recovery and long-term growth of the Aceh economy.

The delay in the completion of the reconstruction of the Banda Aceh-Meulaboh road has been highlighted as a major impediment to the economic and social revitalization on the west coast of Aceh. While the livelihoods of most affected persons are back to normal, many workers are in low income jobs. High value activities are, to a large extent, limited and thereby result in low productivity. Meanwhile, there are still constraints on economic growth due to low investments, especially in non-agricultural sectors. In addition, the Aceh government is still confronted with high poverty and high unemployment rates. With regards to housing, in several affected areas around Aceh Besar and Aceh Barat, a number of affected families have demanded permanent housing after having spent five years living in temporary shelters or relatives’ homes. Furthermore, ineffective governance may also constrain, rather than speed up, the recovery process to a sustainable state. Determining what obstacles might still exist and what policy interventions are needed to remove them is a real challenge that needs to be addressed to promote long-term social and economic development after recovery.

A lot of the progress that has been made has shaped the way Aceh is approaching its long-term development. Key aspects of this progress include the fact that the Indonesian government, through the Aceh Reconstruction Continuation Agency (BKRA), has plans to complete the reconstruction efforts, maintain what has been achieved, make optimal use of rebuilt public facilities, and improve public services. Although, there are still some tsunami-affected households living in temporary shelters, livelihoods have generally been revitalized and the economy has grown at positive rates for the past few years. However, there is now a need for Aceh to really lay the foundations for sustainable and long-term development. Thus far, Aceh has no long-term post-recovery development plan.

As is the case in many other disaster-affected areas in the world, there has not been a significant, systematic post-disaster study on the Aceh tsunami that focuses on long-term and sustainable community recovery. In particular, sector-specific lessons about recovery that can be utilized by different sectoral agencies are limited. In the ex-post situation, knowledge products reflecting best practices and lessons learned are critical for effective and sustainable recovery. However, such knowledge products are currently unavailable.

There are many lessons and good practices that have been learned from the post-tsunami recovery of Aceh that can be disseminated to other areas of the world affected by various types of disasters. This Aceh recovery status report is intended to be a part of the effort to identify best practices and lessons learned. It will also provide an analysis of the challenges confronted by Aceh in moving forward that highlights some practical lessons thus far learned from the Aceh experience.

This report aims to report on the current status of the post-tsunami situation in Aceh, and also to identify further needs and describe the environment that will be necessary to improve the situation and thereby sustain long-term development. It highlights case studies, lessons learned, and good practices. The case studies will be developed as globally acceptable knowledge products, useful for other countries. Impediments to a sustainable recovery must be foreseen before ways and means can be identified to eliminate or minimize them while maintaining and maximizing the positive impacts.
This status report will begin with an overview of the conditions in Aceh five years after the disaster, the overall reconstruction efforts, and the long-term development strategy. Focus will be placed on four areas of recovery, i.e. livelihoods, shelter/housing, infrastructure, and governance.

Thematic recovery frameworks and the status of recovery efforts will be outlined by an in-depth analysis of three case studies in each theme. From the thematic case studies, general key messages and lessons learned will be extracted.
CHAPTER 2 : RECOVERY PROCESSES

2.1. Brief Summary of the Aceh Tsunami Impacts

According to Indonesia’s National Disaster Relief Coordination Agency, the 2004 earthquake and tsunami disaster in Aceh, Indonesia left 126,915 people dead and 37,063 missing, while inflicting injury and trauma on many hundreds of thousands of others. More than 500,000 people lost their homes and more than 150,000 children were left without schools. In addition, the majority of tsunami-affected individuals lost their livelihoods and had to live in temporary homes or with relatives. The loss of livelihoods was widespread. In many cases, destruction or loss of equipment meant that farmers could not cultivate their rice fields and plantations and fishermen could not go out to sea. Furthermore, the public infrastructure and services were severely damaged or partially destroyed. Hundreds of thousands of homes were flattened, 800 kilometers of coastline were destroyed, and 3,000 hectares of land washed away. Most of the roads, bridges, ports, schools, village irrigation and drainage systems, and other vital infrastructure primarily along the west coast were destroyed or damaged. Public services were paralyzed until emergency services could be put into place in 2005 and 2006. In addition to the already widely reported large-scale impacts created by the disaster, the province lost a lot of people with the knowledge and skills that are needed for a long-term development.

The billions of dollars that have been spent by the Indonesian government as well as by donors from 2005 to 2009 have brought about significant improvement and impacts in Aceh. A lot of improvements have been made in the physical infrastructure – as shown by its new and modern buildings, as well as in average standard of living – as indicated by the reduction in the poverty rate from 28.28% in 2006 to 20.98% in 2010 and the reduction in the unemployment rate from 9.84% in August 2007 to 8.60% in February 2010. These improvements have been made possible by improved security conditions since the peace accord, known as the Helsinki MoU, was signed on 15 August 2005. The peace accord ended a 30-year conflict during which almost 15,000 people died. The peace has helped create a situation in which the risk that recovery efforts might fail have been, to a very large extent, reduced.

The huge influx of capital into the province, which reached its peak in 2007-2009, has been used to rebuild the infrastructure and to revitalize communities and governments. Authorities have rehabilitated and improved both the infrastructure and institutions to an even better condition than they were in before the disaster, thus providing a better opportunity for the Acehnese to further develop and progress in all areas. However, the issue of sustainability is a concern given that less attention is being paid to continuing the established good policies and practices from the reconstruction period.

2.2. Emergency Response, Reconstruction, and transition to long-term sustainable development

In 2009, after completing its task to provide emergency response and reconstruction as stipulated in Act No 10, 2005, the Rehabilitation and Reconstruction Agency (BRR) officially completed its mandate on 16 April 2009. However, the Indonesian government passed presidential regulation No. 3, 2009 to maintain its role through the Aceh Sustainable Reconstruction Agency (known as the BKRA) to synchronize and harmonize ongoing rehabilitation and reconstruction efforts and further revitalize communities in the province.

A report by the BKRA provides a general summary of reconstruction outcomes. Of the 104,500 micro finance institutions (UKMs) that were paralyzed, 195,726 have received assistance and 155,182 workers
have been trained; of 139,195 houses damaged, 40,304 houses have been rebuilt; of 73,869 hectares of agriculture land damaged, 69,979 hectares have been rehabilitated; to replace 1,927 teachers who died, 39,663 new teachers have been trained; of 13,828 boats destroyed, 7,109 have been rebuilt and distributed; of 1,089 mosques damaged, 3,781 have been rebuilt and rehabilitated; of 2,618 km of road damaged, 3,696 have been reconstructed; to replace or rebuild 3,415 schools damaged, 1,759 schools have been repaired and rebuilt; to repair or replace 517 health centers damaged, 1,115 have been rebuilt; to repair or replace 669 government buildings damaged, 996 have been rebuilt; to repair or replace 119 bridges damaged, 363 have been rebuilt; to repair or replace 22 ports damaged, 23 ports have been rebuilt; to repair 8 airports damaged, 13 airports or airstrips have been rebuilt.

The BKRA’s role is limited to a coordinating one, and ongoing reconstruction is thus being handed over to the local governments. On 8 April 2009 the Governor of Aceh issued Governor’s Regulation No. 47, 2009 on the assignment of tasks of the agency, which includes the task of providing for the sustainability of post-reconstruction development. During the early period, emergency response efforts were made to repair and reconstruct housing, build back basic public infrastructure and services, restart economic activities, and secure the livelihoods of affected people. After the BRR completed its mandate in the first four years post disaster, the Aceh provincial government and local governments now have the responsibility for ensuring that reconstruction is fully completed and that their own capacity is strengthened as direct assistance from the central government and donors is winding down. The improved capacity of local governments is important as it will accelerate post-disaster development. The challenge faced by the local governments is great. Public services are yet to be improved. Some of the infrastructure, education, and health services are still in poor condition.

Much praise has been given to the Indonesian government for the achievements described above and Aceh’s reconstruction has been deemed a success story for large-scale recovery.

However, big questions remain, including the question of how to sustain what has been achieved and even accelerate development in the long term. The recovery, combined with peace, has provided a strong foundation for ongoing efforts to sustain development in Aceh. Maintaining the momentum and spurring the growth rate of the economy will now be a burden that falls mostly to the local governments and local communities. All the achievements of recovery are to be continued, especially in light of the fact that Aceh has been granted special autonomy under the Aceh Governance Law (UUPA), which gives greater autonomy to the province to develop on its own.

2.3. Methodology

This report covers four themes; livelihood, housing, infrastructure, and governance. Three case studies in each theme describe the current recovery status and the conditions that have shaped it, and present information on unique experiences and lessons, and how these experiences contribute to recovery. The analysis in each theme, where relevant, is also conducted in relation to cross-cutting issues such as poverty, the environment, education, health, and gender.

Information was collected from concerned persons and relevant agencies (government, private, and nongovernment). Both published reports and publications were consulted.

The status report begins with an overview of the conditions in Aceh five years after the disaster, the overall reconstruction efforts, and the long-term development strategy. Focus is placed on the four areas of recovery mentioned above. Detailed descriptions and analysis are conducted in each theme.

From the thematic case studies, general key messages and lessons learned will be extracted. The livelihood case studies describe the current socioeconomic conditions in small and medium-sized traditional industries. They identify the number and types of small and medium-scale traditional industries that have survived post-tsunami. They also analyze the characteristics of those industries that
received assistance, their profitability, assets, and productivity, the impacts of various types of assistance during recovery on their growth, the factors that have contributed to the successes, and the factors that caused failures of industries.

Small and medium-sized enterprise (SME) development is evaluated based on comparisons between the post-tsunami and present situations, and lessons learned are analyzed. A survey was conducted with a sample size of 20% of the population. Observations and questionnaire-guided interviews were also conducted.

2.4. General Status of Aceh-wide Recovery

2.4.1. Livelihood

Although some assistance activities have brought about better economic conditions compared with the post-tsunami situation, poverty and unemployment rates are still relatively high.

Livelihood assistance in the fishery sector in two villages, Lambada and Lamnga, was found to have had a positive impact on the fishery community, but some of the assistance did not suit local needs and standards, including the design and materials used for constructing fishing boats. Furthermore, the quality of the wood used for the construction of boats was so low that they easily deteriorated or began to leak. In some cases, assistance was not delivered in a complete package to the beneficiaries, which resulted in a lack of effectiveness for productive business. In other cases, the assistance was not used for productive purposes, but rather was misused by the recipients for their daily household needs.

Since 2009, no assistance has been available from donors. However, the government of Indonesia, through the Aceh Community Empowerment Board (BPM), has launched a program called PNPM Mandiri to improve community livelihoods in accordance with people’s skills and through the use of local natural resources that can be used to increase incomes. Based on information from the head of the village surveyed, each fisherman received an average of Rp 1,500,000 to be used for capture fishery or to buy items needed for aquaculture. Some fishermen used it as capital to buy and sell fish. This fund has had a positive impact on livelihoods. Based on the information obtained, even though revenue has increased, basic food prices and fishery input prices have also risen, such that incomes are not enough to meet daily needs.

With regard to microfinance institutions (case study in Teumareum, Aceh Jaya district), the number of microfinance institutions increased from two before the tsunami to 10 afterward. Various kinds of microfinance groups were established, including a savings and loan group, a cake-making group, and a sewing group. Unfortunately, these groups did not survive in the long term and the number of microfinance institution decreased to two, the same as before the tsunami. This phenomenon can be explained as follows. During the Aceh rehabilitation and reconstruction period, many United Nations agencies and foreign and domestic NGOs were involved in various efforts. These agencies provided assistance to local microfinance institutions with certain requirements. The funds could be received by legal institutions on the condition that they have a certificate of establishment from a notary. Therefore the community arranged certificates of establishment to obtain funding. The microfinance institutions that had been established started their programs after they received funding from donors, but they really had no experience or management knowledge for running the institutions. As a consequence, they were not capable of running the institutions when funds were no longer available and ultimately they went out of business.

2.4.2. Shelter/Housing

There were two types of housing assistance provided in Blang Oi village. The first was direct housing assistance, where the beneficiary was not involved in building the house, and the second was non-direct
housing assistance, where the community received funding from donors and participated in building their own houses under the supervision of donors and village authorities. The community determined the design, material, and location of the houses to be built. Even though they managed their own funds, they were responsible for the funds used. This study revealed that generally the conditions of houses built with community participation were better than the houses built by developers. This was because they could control the quality of materials and handymen/laborers.

Meanwhile, in Kajhu village, some settlements were built but not occupied. There are several reasons for this: (a) low quality of construction due to poor materials, particularly wood (porous) materials, and other materials of such low quality that they did not meet specifications, room wall partitions are made of asbestos or plywood, bathrooms are not equipped with lavatories or septic tanks, and interior floors of homes are lower than outside; (b) settlement infrastructure and facilities are inadequate, hygienic drinking water is not available, and there is no drainage network, such that water stagnates around the settlement during the rainy season; (c) location would require relocation far from former homes, leaving community fearful of losing previous livelihoods and losing their emotional bonds in the new settlement; (d) markets and schools are far from the settlement; (e) trauma, i.e., people are not willing to live near the beach; (f) some people married and moved to another village; (g) the settlements and land are too small for families; (h) heirs of deceased homeowners are not yet adults and live with relatives; and (i) in a few cases, people received housing assistance (double) in different settlements.

The government of China built 606 housing units, named the "Indonesia-China Friendship Village" in Neuheun Village. This housing is occupied by people of diverse professional and ethnic backgrounds, fisherman, merchants, handymen, pedicab drivers, and private sector employees. Some indicators of satisfaction were investigated, such as design and quality of settlement, facilities, land area, location, and distance from the city. The satisfaction level study found that most residents are satisfied with the settlement.

2.4.3. Infrastructure

In terms of infrastructure, significant progress has been made. For example, the national water treatment enterprise (PDAM Tirta Mountala) was completely destroyed by the tsunami. PDAM had 6067 customers before the tsunami, and now serves 11,016 customers in 16 sub-districts (37%) from 23 sub-districts in Aceh Besar.

The tsunami also destroyed the Ulee Lheue port and facilities, including the terminal building, access roads, pontoon docks, and breakwaters and revetments. Sedimentation occurred in port ponds.

AusAID and UNDP provided support for the reconstruction of Ulee Lheue port starting in July 2005, to be used for an area covering 150,000 m² and a capacity of 1,500 GRT. In 2007-2008, UNDP continued to support the reconstruction of the port and facilities. Project activity consisted of cleaning and dredging 210 x 350 m² of ponds to a depth of 5.10 m, reconstructing 1,670 m of breakwaters and revetments, rehabilitating a 16 m pontoon dock for the MB ferry, constructing a new 75 m jetty for speedboats, constructing an 86 m passenger ship jetty, reconstructing a 910 m² terminal building along with related facilities and parking lots, constructing fencing, and constructing a 1.4 km protective embankment, three mooring dolphins, three breasting dolphins, one movable bridge, one sea light buoy, one land lighthouse, a 25 m ticket check point, one water treatment tower, 8274 m² of roads and parking lots, a drainage system, and a green belt. The ferry now serves the Banda Aceh – Sabang shipping route 7-10 times per week, and is able to accommodate more than 8,000 passengers and 500 vehicles per month.

Ulee Lheue port is owned by the Banda Aceh city government and managed by the Department of Transportation. The port’s capacity makes it a Type B port.
2.4.4. Governance

Village governance post-tsunami can be summarized as follows. In Lambada Lhok, the total pre-tsunami population was 2,200. After the tsunami, the remaining population was only 661, around 30% of its previous level. This village (gampong) has an area of 150 hectares and is located along the coast. It was therefore completely destroyed when the earthquake and tsunami struck on 24 December 2004.

After the tsunami, the village was governed under emergency conditions. Many of the village leaders had been killed. The lack of government did not last long, as within two months the government again began serving the public. The reestablishment of governance began slowly and with a limited capacity, first with the settlement of administrative matters. The process was accelerated by the quick actions of the acting camat of Baitussalam, Teuku Iskandar, and the regent of Aceh Besar, Rusli Muhammad, who verbally appointed community figures who survived the tsunami as interim keuchik. The emergency government functioned for several years. The duty of village heads was to collect data on the remaining population, organize the community to clean up houses and streets in cash-for-work programs, and cooperate with foreign NGOs to rebuild houses that were destroyed. The speed of the government’s recovery also sped the recovery of other sectors, as fishermen returned to the sea and the market and the fish auction market began operation again. Lambada Lhok’s government and other daily activities recovered more quickly than other areas.

One thing that seems to have influenced the speed of recovery in Lambada Lhok was the "cash-for-work" programs introduced by foreign institutions to aid tsunami victims. Each worker received a daily wage: Rp 40,000 for keuchik/coordinators, Rp 37,500 for group leaders and Rp 35,000 for workers.

Coordinated efforts between the Lambada Lhok government and humanitarian aid organizations resulted in successful planning of village housing, land use, and infrastructure. Currently, every head of household in Lambada Lhok owns and occupies a permanent house, thanks to aid from donors. Nearly all of the houses are the same measurements, Type 36. The layout is also virtually identical. Several public facilities were rebuilt by NGOs, including the mosque, volleyball court, soccer field, wells, ice factory, public MCK, village meeting hall, fishermen’s hall, village head’s office, PPI, Koramil office, public health center, PKK office, kindergarten, and elementary school.

The speed with which Lambada Lhok collected its human resources to rebuild the village was extraordinary. Although human resources were minimal, they quickly identified and prioritized problems to be faced during reconstruction.

To raise the skill level of the remaining population, several trainings were held on subjects including land transfer and women’s rights (attended by 45 people and held by IDLO), village empowerment (attended by 30 people and held by AIPRD), business capital (attended by 12 people and held by BRR NAD-Nias), home industry (attended by 30 people and held by ILO), farming (attended by 20 people and held by AUSTCARE), and Posyandu cadres (attended by 3 people and held by CWS).

Regarding the land mapping and certification case study conducted in Baitussalam sub-district, Aceh Besar district, it should be noted that the sub-district has two residencies, Klieng and Silang Cadek. Klieng is comprised of nine villages: Cot Paya, Klieng Cot Aron, Klieng Meuria, Labuy, Lam Asan, Lambada Lhok, Lampineung, Lam Ujong, and Miruk Lamreudep, while Silang Cadek is comprised of four villages: Baet, Blang Krueng, Cadek, and Kajhu. Baitussalam sub-district has an area of 36 km² covering 3,652 hectares. It is 57 km from the district capital and 11 km from the provincial capital. The tsunami affected management, control, and ownership of land in Aceh. No less than 7,000 hectares were left barren as a result of the remaining mud, salt, and erosion (UNIM Sand BRR: 2005: II-5). Markings for land borders were also lost, including natural markers like trees and footpaths. Around 300,000 plots of land, 170,000 in cities and 130,000 in villages, were directly affected. As many as 15,000 plots became permanently submerged (Fitzpatrick in Hukum Agraria dan Masyarakat Di Indonesia, 2010: 249-251).
To re-implement land administration in the tsunami-affected areas, the government passed Presidential Regulation No. 30/2005 regarding the "blueprint for rehabilitation and reconstruction of areas and community life in Nanggroe Aceh Darussalam and Nias Island." To carry out its mandate, the central government formed the Rehabilitation and Reconstruction Agency (BRR). The BRR Land Directorate did not directly regulate land administration, but coordinated with BPN and RALAS (Reconstruction of Aceh Land Administration System). BRR published regulations regarding three important areas: (1) reestablishing land and residency, (2) handling renters and those occupying land without proof of rights, and (3) certifying land owned by marriage.

Exact quantitative data regarding the number of plots of land in Baitussalam before the tsunami is not available. According to an informant at the area BPN office and an official in the Baitussalam sub-district office, only 4,384 plots had been registered and certified, which accounts for less than 50% of all the plots in Baitussalam. The remaining 50% was owned by customary law (adat) and not registered or certified.

The land-related problems caused by the earthquake and tsunami can be categorized in four groups: (1) loss of physical proof of rights or certificates, (2) loss of border markers, (3) loss or death of owners of land, and (4) destruction of land.

The RALAS program was conducted over the course of three years, from 2005 to 2008, targeting 5,500 plots in Aceh Besar. The certification results were as follows. In 2005/2006, 21,500 were targeted, 7,225 (33.61%) were certified. In 2006/2007, of 20,000 plots, 14,722 (73%) were certified. And in 2007/2008, out of 10,000 targeted plots, 5,405 (54.05%) were certified (Kanwil BPN, 2010).

Regarding the coordination between the government and NGOs in the coastal recovery process in Baitussalam, activities conducted as a result of the BRR’s coordination efforts received the approval of the regent of Aceh Besar. A memorandum of understanding was signed between the NGOs and the government, represented by the regent.

Before the MoUs were arranged, the district government coordinated with sub-district and village governments in carrying out reconstruction activities, and much of the work done in that period involved members of the community. Rehabilitation and reconstruction programs were implemented cooperatively by NGOs, as shown in the case of Logica and Mercy Corps. Mercy Corps donated equipment, furniture, and computers to the keuchik’s office, and Logica held computer skills training sessions for village government officials. This is only one example of effective cooperation, in which each side played a role in accordance with the needs and demands of the situation.
CHAPTER 3: SECTOR-SPECIFIC RECOVERY AND CASE STUDY

3.1. Livelihood

Entering the sixth year after the Aceh tsunami, many things have been accomplished. Economic and living conditions, as well as tsunami victims’ spirits, have already recovered (BRR NAD-Nias, 2008). However, regarding the continuity of livelihood programs that were begun, it appears that some livelihoods cannot be sustained and improved upon, as a result of generally low self-sufficiency in the communities. In efforts to analyze the status of post-tsunami recovery in the field of livelihood, this research study focuses on three cases: fishing in Baitussalam sub-district, Aceh Besar, microfinance cooperatives (LKM) in Teumareum, Aceh Jaya, and small and mid-sized home industries (traditional cake-making, weaving, and brick manufacturing) in Miruk Taman, Darussalam sub-district, Aceh Besar. These three cases were deemed relevant because of their important effects on the lives and prosperity of the communities post-disaster.

The result of aid programs for livelihoods in the fisheries sector in two villages, Lambada and Lamnga, found that although the assistance had had a positive effect for the fishermen, some of it was not suited to local needs and standards, including the design and materials used to build fishing boats. The quality of wood used, for example, was poor and the boats were easily damaged or became leaky. In addition, some of the aid was not received in complete packages, so it could not be used productively. In several cases, the aid equipment was not used for business, but rather misused to fulfill daily consumptive needs. Since 2009, aid from donors has ceased. However, the Indonesian government, through the Community Empowerment Agency (BPM) has launched the PNPM Mandiri program to develop communities with the skill to use local resources to increase their incomes. Based on information collected from village heads, the amount of aid given to groups of fishermen was such that the fishermen received Rp 1,500,000 each to use as capital for fishing or aquaculture. These funds generally had a positive effect on the fishermen’s livelihoods. However, some information received shows that increased income has not increased their prosperity, as prices of food and fishing equipment have also increased.

Before the tsunami, the government’s community economic empowerment programs were often distributed through cooperatives. However, after the tsunami, economic empowerment assistance was distributed through microfinance institutions (Lembaga Keuangan Mikro - LKM), which had almost the same function as the cooperatives. The Rehabilitation and Reconstruction Agency (BRR) reported that 146 LKM had been established with total funding of Rp113.83 billion. The speed of growth of the numbers of LKM after the tsunami could, on one hand, serve as a catalyst and speed economic growth and recovery. On the other hand, most of the LKM that were formed were not sustained and the amount of aid given did not have a significant effect on community economic growth and equality.

The number of LKM in Teumareum, Aceh Jaya post-tsunami grew by two compared to before the tsunami, so that there were 10 LKM after the tsunami. Among these groups were savings and loan cooperatives, cake-making, and sewing groups. Unfortunately, the number of LKM has currently declined to only two. This was caused, among other reasons, by LKM members’ low awareness of the importance of repaying loans, a weak market for products funded by LKM, and low management skills and knowledge as a result of less-than-optimal accompanying support.
In the small industry sector, many aid programs were conducted to help community economic recovery, but after the rehabilitation and recovery period ended, these small industries were no longer sustained. One cause of this was that marketing networks were limited to the local level, and local demand weakened as a result of the end of the rehab-recon period, causing the failure of these small industries. In addition, some of the small industry owners were newcomers to the industry because of the assistance given, and were not able to meet the challenges of the business. Most of the industries that survived were operated by people who had experience from before the tsunami.

After the tsunami, most of the NGOs and donors that gave aid in the livelihood sector viewed the tsunami victims as the objects, rather than the subjects, of the aid. They thought of the tsunami victims as weak, so most of the aid programs were targeted at short-term needs and physical projects and took a paternalistic attitude, and the format of the aid was not in accordance with local needs. As a result of this, the communities were not self-sufficient. Moreover, many of the outside aid programs after the tsunami developed a communal attitude of relying on outside help.

In relation with this, the lesson that can be taken in the field of livelihood is that outside parties who want to help disaster victims should empower the communities and consider the role of local institutions, so that community rebuilding post-disaster is initiated by the local people themselves. Institutions on the local level can have a strategic role in rebuilding the area and their own communities so that they are self-supporting and can continue. A balance is needed in post-disaster rebuilding between physical and non-physical assistance (community capacity development). The community of disaster victims should be able to learn from the disaster to become aware and prepared for future disasters. Education and capacity development in local communities must be prioritized, particularly after disasters.

3.1.1. Case Study 1: The Impact of Livelihood Programs on a Poor Fishing Community in Baitussalam Sub District, Aceh Besar

General Description

This study was originally support to be conducted in Baet Village, Baitussalam sub-district, but a field survey of the village revealed that it did not fulfill the necessary criteria for achieving the aims and goals of this research. The population of fishermen was too small and there was no identification of those who had received aid during the post-earthquake and tsunami rehabilitation and reconstruction process. As a result, the target location was moved to Lamnga Village, where a large part of the community is engaged in aquaculture (culture fishery), and Lambada Lhok, where most of the population are fishermen (capture fishery)

The research period was three months, from October to December 2010

Population and Sample

The population examined in this study is comprised of 43 heads of household engaged in aquaculture in Lamnga Village, and 215 heads of household engaged in capture fishing in Lambada Lhok Village. The sample size was 46 people chosen randomly, with the same number of aquaculture and capture fishermen (23 from each group).

Lamnga Village in Mesjid Raya sub-district, Aceh Besar district, is located on the eastern coast of Aceh, 21 km from the sub-district capital, 64 km from the district capital, and 11 km from the provincial capital. The location of this village is as follows:

- The northern side borders the Strait of Malacca
- The southern side borders Lam Ujong Village
- The eastern side borders Neuheun Village
- The western side borders Lam Ujong and Labuy Villages
The village is easily accessible (provincial roads, asphalt/concrete), and travel time from the provincial capital, Banda Aceh, is only 30 minutes by either private or public transportation. The village is located along the coast (sea), and thus was one of the villages hardest hit by the tsunami in 2004. In addition to human lives, homes were lost, educational and economic structures were destroyed, and one hundred percent of the local fish ponds and mangrove forests were destroyed or heavily damaged. As a result, a large portion of the population lost their livelihoods and income.

Most of population of Lamnga Village works in aquaculture, with an aquaculture area of around 94 hectares owned by 43 households. Of this area, only 54 hectares, owned by 23 fish farmers, have been rehabilitated. Around 40 hectares remain to be rehabilitated. The commodities cultured are tiger shrimp and milkfish, both in monoculture and polyculture, using traditional and "traditional plus" patterns. Traditional plus is thus named because several cultivation technologies have been implemented, but the number of shrimp seeded is still relatively low at 10,000 shrimp/ha. According to Djuhriansyah and Abdusyahid (1999), the seed stocking density for a semi-intensive pond is 20,000-50,000 per hectare. In addition, the layout, equipment, and management of the ponds do not yet fulfill the criteria for semi-intensive aquaculture. The rate of production of tiger shrimp before the tsunami was 300-400 kg/ha. After the tsunami, productivity declined drastically to around 150-200 kg/ha.

Desa Lambada Lhok, which covers an area of 150 hectares and is located 9 km from Banda Aceh city, is the capital city of Baitussalam sub-district. This village borders directly on the east coast of Aceh and is another village that was heavily damaged by the 2004 tsunami. The borders of this village are as follows:

- The northern side borders the Strait of Malacca
- The southern side borders Klieng Cot Aron Village
- The eastern side borders Lampineung Village
- The western side borders Cot Paya Village

Besides destroying all public facilities and private homes, the tsunami resulted in the death of 1,536 victims, around 70% of the total pre-tsunami village population of 2,200 people. Most of these victims were children, women, and the elderly; few were adult males (fishermen). The population post-tsunami was 664 people, while the current population is 877, living in 351 households (Lambada Lhok Village Head, 2010). The increase of population by 213 people in the last six years is due to (1) births, (2) new residents brought to the village because of marriage, and (3) former residents who have returned to Lambada Lhok.

Public facilities and homes have already been rebuilt by the government and various NGOs. Among the public facilities that have been built are mosques, wells, an ice factory, public MCK, village meeting hall, fishing hall, office for the village head, PPI, TPI, public hospital, PKK building, and kindergarten and elementary school buildings. The construction of homes was carried out as planned and every family, 450 households, received an aid house built by an NGO, including, SOS Children’s Village (Austria), Kadian, and others.

More than 90% of the population of Lambada Lhok is fishermen or fish traders. Of the fishermen, a large part use thep-thep boats (≤ 5 GT), and only 2 boats have larger measurements, around 30 GT. The estimated number of boats in Lambada Lhok at present is 25, and they include all types and measurements. The income level of fishermen using small boats is between Rp 900,000 and Rp 1,300,000 per month, while those who use large boats earn between Rp 1,000,000 and Rp 1,500,000 per month. Fishermen work 26 days per month (Fridays are taboo for sea-going), making one trip per day. Fish traders sell fish in TPI Lambada Lhok and the Peunayong fish market (in Banda Aceh). In addition, some of the residents work in coffee shops or small restaurants, or as peddlers selling building materials and fishing equipment.
Recovery Status

Before the tsunami, both capture and culture fisheries had received physical aid (from the government and NGOs) in the form of capacity building improvements like education in fishing techniques. However, such activities were seldom conducted due to security conditions in Aceh from 1999 – 2004, which were not conducive to such activities.

The condition of natural resources before the tsunami was much better than after. For example, the mangrove ecosystem was in fair condition and covered a large area before the tsunami, but was completely destroyed after. All (100%) of the mangrove forests were lost, swept away by the tsunami, as can be seen in Figure 3.1. According to respondents from the community, small fish, shrimp, crabs, scallops, and oysters were easily obtained when there was a mangrove forest (before the tsunami), but are very difficult to obtain now. This is because mangrove forests function as a nursery, feeding, and spawning ground for various aquatic species such as fish, shrimp, and oysters (Dahuri et al., 2001).

Several studies have shown that there is a positive relationship between mangrove ecosystems and fishing resources. Mangrove ecosystems contribute up to 27.21% of the pelagic fish production in Aceh Province (Indra, 2007). Efrizal (2005) states that mangrove ecosystems contribute 44.18% of demersal fish production in Bengkalis district, Riau. Paw and Chua (1989), state that there is a positive connection between the size of mangrove areas and catches of penaeidae shrimp in the Philippines. Martusubroto and Nammin (1977) found a positive connection between annual catches of shrimp and the size of mangrove areas throughout Indonesia. Furthermore, this connection has a linear quality, equal to $y = 0.06 + 0.15x$, where $y$ is the result of shrimp captured (ton/year) and $x$ is the area of mangrove forests (ha). Sudarmono (2005) found that around 30% of sea fishing production depends on the existence of mangrove forests, because mangrove forests are a breeding place for sea species, including several kinds of fish.

Figure 3.1. (a) and (b) Mangrove conditions before the tsunami in Desa Lambada Lhok (Photo: Indra, 8 October 2004, location north side of TPI), (c) Mangrove conditions post-tsunami (Photo of the same place, 7 December 2005), (d) Current conditions (Photo of the same place, 17 December 2010).
After the Tsunami (2005 – 2009)

According to survey results, several kinds of livelihood aid have been given to the areas studied (Lambada Lhok and Lamnga Villages), based on the type of fishery, as follows.

1. Capture fishery

Capture fishery has been the focus in Lambada Lhok Village, because more than 90 percent of the population of the village is capture fishermen. The kinds of aid provided in Lambada Lhok Village have included cash-for-work, boats, boat engines, fishing equipment, cold storage, and an ice factory, among others. A detailed list is shown Table 3.1 and examples of aid boats can be seen in Figure 3.2.

Table 3.1 List of NGOs and Type of Livelihood Aid in Desa Lambada Lhok during the Aceh Rehabilitation and Reconstruction Period

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<th>Type of Aid</th>
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<tbody>
<tr>
<td>1. Cash for work (clearing the village)</td>
<td>Mercy Corps, Elsaka</td>
</tr>
<tr>
<td>2. Staple foods</td>
<td>Indonesian Red Cross (PMI), WFP/Word Vision, Islamic Relief</td>
</tr>
<tr>
<td>3. Boats/boat engines</td>
<td>SOS Children Village, Islamic Relief, Secour Populare Francais (SPF), Auscare, Mensos, JICA, and ADB</td>
</tr>
<tr>
<td>4. Business capital</td>
<td>Secour Populare Francais (SPF)</td>
</tr>
<tr>
<td>5. Small ice factory</td>
<td>Secour Populare Francais (SPF)</td>
</tr>
<tr>
<td>6. Cold storage</td>
<td>JICS (Japan)</td>
</tr>
<tr>
<td>7. Livelihood (form not identified)</td>
<td>Auscare, ILO</td>
</tr>
<tr>
<td>8. Fisherman empowerment</td>
<td>Pugar</td>
</tr>
<tr>
<td>9. Community empowerment</td>
<td>AIPRD</td>
</tr>
</tbody>
</table>

Source: Village Head and Community Leaders of Lambada Lhok

From Table 3.1 it can be seen that much aid was given to Lambada Lhok Village, Baitussalam sub-district, Aceh Besar district. However, not all of this aid achieved its intended effect on the community, particularly for the fishermen of the village. Besides the physical aid discussed above, the other form of aid given to Lambada Lhok Village was trainings, as can be seen in Table 3.2.

Table 3.2 Types of Community Trainings Offered in Desa Lambada Lhok

<table>
<thead>
<tr>
<th>Theme of Training</th>
<th>Organizer</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Business capital</td>
<td>ILO</td>
<td>30 people</td>
</tr>
<tr>
<td>2. Home industry</td>
<td>BRR</td>
<td>12 people</td>
</tr>
<tr>
<td>3. Farming</td>
<td>AUSTCARE</td>
<td>20 people</td>
</tr>
<tr>
<td>4. Village empowerment cadre</td>
<td>AIPRD</td>
<td>30 people</td>
</tr>
<tr>
<td>5. Rural Health Center cadre</td>
<td>CW5</td>
<td>5 people</td>
</tr>
<tr>
<td>6. Sanitation</td>
<td>CARE</td>
<td>3 people</td>
</tr>
</tbody>
</table>

Source: Village Head and Community Leaders of Lambada Lhok
2. Aquaculture

For the study of aquaculture, the location chosen was Desa Lamnga, Mesjid Raya sub-district, Aceh Besar district, because in this village most of the population earns its living from aquaculture (ponds). Several kinds of aid were given to the community during rehabilitation and reconstruction, as follows:

- Pond rehabilitation by the Serasih Foundation and ADB
- Agro-input aid by ADB, Serasih Foundation, Forsikal, DKP Aceh Besar (oyster culture), and others.
- Management aid by FAO and DKP Aceh Besar
- Boarding/guard houses at the ponds by ADB
- Coastal and mangrove plants by Yayasan Lebah (Netherlands), Wetland by , Department of Forestry, Government of Indonesia

![Figure 3.3 (a) A pond in Desa Lamnga under rehabilitation (Photo: 6 December 2005), (b) and (c) Dissemination of soft crab cultivation by the Serasih Foundation in cooperation with BBAP Ujung Batee (Photo location: pond before Lamnga Bridge, 6 December 2005), (d) Current conditions, no more crab cultivation (Photo location same as (b), 19 December 2010).](image)

In general, it must be acknowledged that the forms of aid given above, both to capture and culture fisheries, had a positive effect and offered socioeconomic benefits to the fishermen. For example, the provision of aid boats and fishing equipment left otherwise impoverished fishermen in possession of new boats and equipment. Thereafter, they returned to fish in the sea as they had before the tsunami. Also, through the pond-rehabilitation aid program, most of the ponds in the research area were repaired so that the fish farmers could return to cultivating shrimp and fish as they had previously. However, at present, around 44.4 hectares of ponds in the research area (Lamnga Village) remain to be rehabilitated. This is allegedly because the ponds are located too close to the coast, and government regulations forbid the development and rehabilitation of ponds too close to the water or in tidal areas.
In addition, program executors found it difficult to rehabilitate ponds close to the beach for technical reasons, as it was difficult to move heavy equipment and form dikes from the sandy soil, which collapses easily in rain or tidal waves.

There are indications that not all of the rehabilitation programs above were as efficient or effective in practice as they had been expected to be by donors and program executors. Several types of aid did not have a significant effect or benefit for the fisherman and fish farmers in recovering their livelihoods and incomes. This was due to the facts that: (1) several of the aid boats were made from fiber, which is not appropriate for local sea conditions, (2) aid boats and fishing equipment did not meet standard specifications for the local fishermen, primarily in the very low quality of wood used for the boats, which quickly broke or began leaking, (3) often material aid and equipment which have complementary benefits (like boats and fishing equipment) were not given together in one package, but separately by different programs and donors at different times, (4) often the number of aid packages distributed was smaller than the number of people requiring the aid, and to prevent conflicts within the community, the packages were divided again (into equal parts), and given to all beneficiaries in smaller amounts. As a result, the benefits to be reaped from the aid decreased. Moreover, in several cases, the aid items were not used for productive efforts, but rather misused for daily needs (consumptive).

Upon further examination, the problems above can be attributed to all parties including donors, program executors, and program recipients (fishermen). This can be explained as follows:

- Donors and program executors were often inexact in their assessment and mapping of the natural capacity of the area and the socio-cultural characteristics of the communities that were receiving aid
- There was an impression in the community that project implementers (LSM/NGOs) were unprofessional and prioritized targets rather than attending to the quality of work, such that many field activities were conducted in a perfunctory and ineffective manner
- Personnel assigned to the project locations often had a low capacity and were not honest, and this often resulted in inexact measurements or individual/group profit-seeking
- Some of the benefit recipients (the community) were also dishonest and covetous, and prioritizing their individual needs, justified any measures to obtain more and better aid
- The formation of a communal mindset of asking and receiving ultimately made the community less willing to work and strive for results

Upon further examination, the reason of the above mentioned problems were donors, program executors, and program recipients (fishermen). This can be explained as follows:

- Often donors and program executors were inexact in their assessment and mapping of the natural capacity of the area and the sociocultural characteristics of the communities that were receiving aid
- There was an impression in the community that project implementers (LSM/NGOs) were unprofessional and prioritized targets rather than attending to the quality of work, so that many field activities were conducted in a perfunctory and not useful manner
- Oftentimes personnel placed at the project locations had a low capacity and were not honest, so that inexact measurements or individual/group profit-seeking often resulted
- Some of the benefit recipients (the community) were also dishonest, covetous, and prioritized their individual needs, justifying any measures to obtain more and better aid
- The formation of a communal mindset of asking and receiving ultimately made the community less willing to work and strive for results

Further examination of the varieties of aid given by institutions and NGOs (as given in Table 3.1) reveals that several aid programs contributed to the development of the donor institution's image and
promoted community cooperation. These institutions formed a good impression and their aid had a positive effect on the community.

To help understand the relationship between the community and institutions that worked in the villages, a Venn diagram shows the relationship between these institutions (Figure 3.4). This image shows the community's perception of various parties who worked on their behalf.

![Figure 3.4 Venn diagram of Community Perception of Institutions Working in Desa Lambada Lhok (Source: Profile Desa Lambada Lhok, 2006)](image_url)

Based on Figure 3.4 the institutions/officials can be formed into four groups, according to the community's perception:

1. **Closest with the community**

   The institutions and individuals that worked most closely with the community appear in circle 1 (one) in the Venn diagram. These are the kepala desa (village head or keuchik), Sekdes, mosque imam, youth leaders, street heads, and the NGO SOS Children’s Village (Austria). This closeness sprung from the development of communication, transparency, and good interactions with the community. The result of intensive interviews revealed that the effectiveness of SOS Children’s Village in this program was due to the fact that the employees and officers were humble, not arrogant, materialistic, or "glamorous" as were most officials and personnel from other NGOs. The first time SOS representatives came to Lambada Lhok Village, it was with the utmost politeness and on motorbike, while other NGOs used double-cabin vehicles. There was also another unidentified NGO that gave aid by digging wells and distributing medication but it was motivated by a religious mission. This became known to the community and the NGO was asked to leave the village. Throughout the aid process, this NGO was strongly disliked by the community of Lambada Lhok Village.

2. **Close with the community**

   Those that were close with the community appear in circle 2 (two) in the diagram above. These were the Australia Indonesia Partnership for Reconstruction and Development (AIPRD), Secour Populare Francais (SPF), and the World Food Programme (WFP).
3. Far from the community

Those that were distanced from the community appear in circle 3 (three) above. These were Child Fund, the National Health Department, Polsek, Koramil, Camat, UNICEF, Oxfam, and Rolls Royce.

4. Very far from the community

Those deemed to be very far distanced from the needs of the community are in circle 4 (four) of the Venn diagram. These were PPK/Village Facilitators, BPM, and the National Social Welfare Department. The majority of the community members were not acquainted with their PPK/village facilitators, because there was no deliberation before their election.

Current status

Under the current conditions, aid no longer exists as it did during the rehab-reconstruction period. Currently capital aid is given from funds from PNPM Mandiri-KP, 2009-2010, both for culture and capture fisheries. PNPM funds are distributed in the name of a group, and in the form of cash. The amount of money received by fishermen from this program is Rp 1,500,000 per person. These funds are usually used by the fishermen or fish farmers to help cover their operating costs, such as shrimp fry and feed costs, but there are also those who use the funds to build or repair Watergates on the ponds, fix fishing equipment, or add to their capital from trading (selling) fish.

The above analysis suggests that livelihood aid had some positive effects on the fishermen (both capture and culture) in the research area, although these effects were not maximized. The aid raised the income levels of the fisherman compared to the 1-2 years immediately after the tsunami, but income has still not returned to its pre-tsunami levels. Before the tsunami, the fishermen's income was Rp 1,000,000-2,000,000 per month, while after the tsunami (current conditions) it has decreased to ≤ Rp 1,000,000 per month. Conversely, daily needs after the tsunami is greater than before because of the increased costs of basic supplies.

Several problems in the research area have impeded the development of the capture and culture fishery sectors since the tsunami, as follows:

- Shrimp viruses are still the greatest obstacle for fish farmers.
- There is a lack of business capital. Aid capital given during the rehab-reconstruction phase has already been exhausted because of harvest failures, while the capital given by PNPM Mandiri, TA 2009-2010 is insufficient.
- The price of feed is unattainable for fish farmers. If given feed in accordance with recommendations, then it uses up production fees and marginal costs are greater than marginal revenue. As a result, profits decrease and can be lost.
- As a result of the tsunami, the river (delta) in Lambada Lhok became shallower. This means that large boats cannot enter TPI Lambada, and even small boats cannot enter and exit at will, but are instead forced at times to wait for the tide. This has reduced the number of trips because time is wasted waiting for the tides.
- The loss of mangrove forests has caused a drastic reduction in the population of small fish, crabs, scallops, and oysters.
- A reduction in the kemeukup of women (wives and female children) of fishermen (Figure 3.5) has occurred because the river, the ordinary location for collecting shrimp, scallops, and oysters, has become swallowed by the sea. It is estimated that as a result of the tsunami, around 300 m of the beach in Lambada Lhok Village has become ocean. Thus, fishermen’s household income has decreased because the wives no longer contribute.
- The quality of human resources is low as compared with the quality required by capture and culture fisheries.
Lessons Learned

Evidence shows that the tsunami destroyed all ponds in Desa Lamnga. However, the majority of these ponds have already been rebuilt or repaired by various parties. The reparation efforts focused on physical reconstruction rather than fixing coastal ecosystem conditions. Consequently, some of the ponds that were repaired have not yet become as productive as they were before the tsunami. Apparently ecosystem restoration is no less important than physical restoration. This conclusion is consistent with Fauzi’s “Back to the Future” concept (2004), that there are three main restoration items needed (“back”) to create healthy fisheries for the future (“to the future”).

- Ecosystem restoration should not only repair physical ponds, but also coastal ecosystems, including an updated database (predicting stock sdi, boats, etc.).
- Local and vertical (top-down) restoration institutions repair communications between stakeholders, restore property rights, and protect food security.
- Economic restoration refers to economic justice, or economic ethics in the perception of fishing resources, not only as merely an engine of growth but also from non-market aspects.

A method must be implemented so that fish farmers are encouraged to do vegetative (in addition to physical) reconstruction of destroyed ponds. Methods that can be used include a campaign for “environmentally-friendly ponds/sylvo-fishery” and facilitating the application of sylvo-fishery models (planting trees in and around ponds, as shown in Figure 3.6) by offering incentives (such as business capital).

The Aceh government hopes to promote the importance of developing sylvo-fishery ponds to individuals and businesses. If possible, it is intended to establish the adoption of the sylvo-fishery model a
provincial-level policy. This will cause a huge increase in results and benefits from mangrove forests, both in economic and environmental terms (including their role in mitigation and adaptation to global climate change).

The development of intensive ponds by opening remaining mangrove forests must be forbidden as this is opposed to the aims of sylvo-fishery. To guarantee protection of the ecosystem and ensure long-term results from coastal rehabilitation efforts made with a sylvo-fishery approach, it is best to formulate a village regulation regarding ecosystem management. This regulation should be drafted with the involvement of the community and the agreement of residents and village government.

Sylvo-fishery models on a wide scale and long term will create a green belt that will function to protect national and individual assets (homes and aquaculture land) from natural disasters. Because of this, it should be promoted by a clear government regulation.

Giving aid to groups has yields little to no results. This is because of groups that are formed not out of need, but only to receive aid. There is no force holding the members together. There is no group management, plan, organization, accountability, or control. As a result, there is no feeling of ownership of the group assets by individuals, such that the groups easily disband.

In the experience of Lambada Lhok Village, when aid was given to groups in the form of boats and fishing equipment, the aid was often sold to one member for cash (tulak peng). When one group (usually of 3 people) was given one thep-thep boat (measurements 2GT-5GT) by an NGO or government, after it was received by the donating party, the newly received boat was handed over to one member of the group, while the other two received payment (tulak peng) from the first in an agreed amount. This money was quickly consumed by daily needs. The same happened with fishing equipment and large boats (>30 GT) given to groups of 10-12 people. What ultimately happened was that while groups received the aid, the primary concern of the individuals in those groups was not livelihood development.

For this reason, it can be concluded that the group approach to distributing aid was not effective. A notion emerged in the community that one of the reasons for the low results of the rehabilitation and reconstruction efforts was that aid boats and fishing equipment were given to non-fishermen (like becak (tricycle) drivers), or in other words, that the aid was not appropriately targeted. This is not entirely true, because even the aid boats given to fisherman yielded no results or benefits for them. On the other hand, aid given to those who were not fishermen but who had an entrepreneurial spirit and good management could sometimes yield positive results. This is evident in the community of Lambada Village. One event that needs to be noted is that the fishermen mentioned above come from several levels, beginning with the labor fishermen (ABK), cleaning crews (Aneuk Itek), handlers, captains, bench men, and others who earn a livelihood from the fishery sector. In addition to these, there are true fishermen (staple) and side fishermen (not staple workers). If boats and fishing equipment were given to laborers, aneuk itek and side fishermen, or to those who were not true fishermen, then nearly one hundred percent of the aid would be useless and would not yield positive results for their recipients. This is because:

• Management of boats requires operational management skills, which are not possessed by all fishermen, including laborers and aneuk itek. As a result, the boats would end up being sold to others (possibly to bench men) such that those involved could again become laborers on the boat.
• If boats and fishing equipment were given to non-fishermen (rather than real fishermen) then the boats and fishing equipment might be sold or used in the short term, but they were not cared for over the long term, such that minor damage was neglected and left unrepaired. There are two reasons for why this might happen: first, those owners might have had too little understanding of boats, engines, and fishing equipment to perform repairs, and second, that they might not have thought it important to spend money repairing their boat since fishing was not their true profession. As a result, the boats were neglected and ultimately destroyed.
• If the boats were given to people who were neither fishermen nor newly-minted fishermen, then there was a large possibility that the boats would be sold. Boats were sold in the way described above, either as a single unit or in separate pieces, for parts.

Another problem with giving aid to groups is that the benefits are limited to one group and its members, at most 3 – 12 people (depending on the size of the group). Citizens who were not involved in a group did not receive any benefits except those given in the form of public facilities, such as TPI, or in relation to environmental rehabilitation, like the planting of mangroves. This is different from the agricultural sector, in which aid given in the form of fertilizer or seeds could be divided to benefit all of the farmers, even if the amount provided was small.

In the experience of Lambada Lhok Village, aid given to individuals, such as was done by village leaders, had better results relative to group aid. This relates to the level of personal responsibility involved with receiving aid. On average, aid given to individuals up to this point is still in good condition and still productive, while most of the aid given to groups has already changed hands (was sold) or has been destroyed by neglect.

Another lesson is that the cash grants given by one NGO to be used for business capital by Lambada cooperatives has not had the intended results. The problems were that (1) there was no one who wanted to organize the cooperative, and (2) the highest-level decisions of the cooperatives depended on a meeting of the members. This regulation can often "boomerang" on the part of the cooperative. Limitations of science, knowledge, and capacity of the group members, who are only poor fishermen, cause the intentions and goals of the member meetings to become biased, and this did not yield positive effects for the fishing cooperative. Thus, most of the leadership was ineffective unless the members of the cooperative themselves had enough knowledge and vision.

The above results can teach a valuable lesson: that the provision of aid to groups needs to be re-evaluated. Almost all of the aid given to the fishing community, both during and after rehabilitation and reconstruction, was given to groups. However, experience proves that the group approach is no better than the individual approach. Problems with the formation, qualities, and management of fishing groups resulted in aid that was not suited to the needs of the fishermen.

Cross-Disciplinary Issues

Cross-disciplinary issues that were identified in this research are as follows:

1. Education

Several institutions and NGOs provided aid in the education sector in the research area: Lembaga Panglima Laot (YPMAN), UNICEF, SOS Children’s Village – Austria, German Red Cross, and Mercy Corps.

Lembaga Panglima Laot, or Yayasan Pangkai Meruno Aneuk Nelayan (YPMAN) gave scholarships to around 20 children of fishermen, from 2002 up to the present. The size of the scholarships given varied, depending on the children’s level of education. The amount was Rp 60,000/month for elementary school, Rp 80,000/month for junior high school, Rp 100,000/month for high school, and Rp 150,000/month for PT. These scholarships were given in the form of direct payments to each student’s bill once every six months. This form of aid was felt to be highly beneficial by the students’ parents and guardians, especially for those who were already orphaned or had become so as a result of the tsunami.

Several months after the tsunami, UNICEF gave aid in the form of school bags and writing implements to all of the children affected by tsunami in the research area. In addition to UNICEF, SOS Children’s Village – Austria also helped to build a kindergarten and elementary school in Lambada. The construction of these facilities was felt to be highly beneficial by the community. Now, poor children of fishermen have returned to attend school as they were able to before the tsunami, but the number of students is drastically lower.SOS Children’s Village also gave a one-year scholarship of Rp 500,000 to two students.
Several other NGOs aided in the field of education, like LSM Ayat, which gave scholarships to seven children in the amount of Rp 200,000/month for one year, SPF, which gave scholarships to 10 children in the amount of Rp 600,000/month for one year, and Childfund, which gave toys, books, and playground equipment for TPA.

Now the problem is that a two-story elementary school has been built, but the number of students is still low because the majority of school-aged children were killed in the tsunami. Generally, most of the children in the village are now pre-school aged (born after the tsunami). The same is true of the kindergarten, which also lacks students.

2. Health

The fishing communities received aid in the form of public health centers (Puskesmas), medical instruments, and medicine, and the aid of doctors sent by Rolls Royce as well as free medicine from expert doctors sent by Mercy Corps. Additionally, Islamic Relief gave aid in the form of medicine, sanitation, and waste removal and PMI (Indonesian Red Cross) gave medicine, medical implements, mosquito nets, and tents. UNICEF gave aid with sanitation and clean water pipes. These donations were very helpful for the community, both during the emergency recovery period and during reconstruction and rehabilitation.

3. Gender

Aid given specifically to women included livelihood aid in chicken farming, trading, and processing the harvest of fisheries (making ikan kayuso called keumamah). SPF gave business capital by way of savings and loan cooperatives to around 100 women, in the amount of Rp 1,000,000 per person. The same was done by BRR. Additionally, aid was given in the form of trainings, like those organized by IDLO to increase the capacity of women regarding gender and inheritance rights.

In general, the culture of patriarchy in the village is still very strong. The culture places men in the position of authority, and this is still apparent in the daily life of the community. Women are confined to the domestic sphere, managing the home, and if they enter into the public sphere their role is limited. In the village, there is an unwritten agreement dividing the places that can be accessed based on gender. Coffee shops, as community gathering spaces, are the domain of men. Women do not appear to spend time sitting and having discussions in coffee shops; they only enter coffee shops momentarily if they must. All employees of the coffee shops are men, and men can usually be found sitting in the coffee shops at any hour, early morning to late at night.

3.1.2. Case Study 2: Profile of Microfinance Institutions in Teumareum, Aceh Jaya

Overview

Before the tsunami, government programs for community economic empowerment often gave assistance by way of cooperatives. However, after the tsunami, microfinance institutions (Lembaga Keuangan Mikro or LKM) serving nearly the same function as the cooperatives became better known and grew significantly throughout Aceh. In fiscal year 2005, the Rehabilitation and Reconstruction Agency (BRR) was formed and allocated funds to 73 LKM in the amount of Rp 77 billion. In 2006, BRR formed 63 LKM, providing funds in the amount of Rp 29.93 billion. In addition, BRR distributed capital to 10 non-regulars LKM, implementing a gender-based "cash program “in the barracks, with Rp 6.9 billion in funding (Laporan Bapel BRR, April 2007). During rehabilitation and reconstruction (rehab-recon), BRR formed 146 LKM with funds of Rp 113.83 billion.

The rapid growth of LKM in post-tsunami Aceh triggered the acceleration of economic growth and recovery. However, it must be asked did the growth of the LKM and the amount of aid distributed significantly affect growth and equality in local economies? The BRR Supervisory Board’s report (June
2007) shows that there were several challenges with regard to the development of 43 LKM monitored during reconstruction, namely: (1) around 30% of the LKM that were to distribute their capital did not fulfill set criteria; (2) LKMs did not distribute capital in accordance with technical directives; (3) 23.81% of the LKMs were deemed to perform well, with transparency, accountability, and credibility while 38.09% performed fairly and 61.90% performed poorly; and (4) around 60% of the names on the list of benefit recipients did not receive the aid that had been designated for them, as some of the LKMs took the initiative to replace the names chosen with different names. Given these issues, another question emerges: How have these LKM continued to operate in their communities, from the rehab-reconstruction period to the present? To address this question, research was conducted to investigate the current conditions of the LKM.

This study aims to (1) identify the characteristics of the LKM and community members involved with and active in the LKM in the research area; (2) identify the effects of aid during the rehab-reconstruction period on the growth and development of LKM in the research area; (3) identify the conditions of those LKM that benefitted from assistance during the rehab-reconstruction period with respect to profits, assets, productivity, and the needs and expectations of members and management; and (4) identify factors influencing failure or success in LKM growth and development in the area being studied. It is hoped that the results of this study can provide information and alternatives for solving problems and uncover “lessons learned” for speeding up the economic recovery of Aceh and other areas affected by disaster.

Research for this case study was conducted in Teumareum village, Jaya sub-district, and Aceh Jaya district. One of the reasons this location was chosen was the presence of women’s LKMs in the village. In addition, the LKMs studied existed under conditions where access to further capital and institutional strength were still limited, as they are far from centers of governance. However, the women’s LKMs still managed to survive under these conditions. Data collection was done through field visits and interviews with a number of people involved in LKMs in Teumareum. Several respondents were “key informants,” namely the village head (keuchik), village secretary, community leaders, heads of the LKMs, and members of the LKMs (Zulkifli, Abdullah, Pw Aidarus, Nasir, Ibrahim, Jumiah, Ummi, and Ti Absah). The information that was obtained was cross-checked with various other sources of information for validation and to draw conclusions. The data from interviews was analyzed qualitatively and shown to portray the conditions and continuity of LKMs along with their effect on the community economy.

Description of Location

Teumareum, Jaya, Aceh Jaya is located 83 kilometers southwest of the capital of Aceh province and has a population of 1,334 (approximately 300 households), more than 50% of whom are women (721). The village has an area of 332 hectares, with 68 hectares of residential area, 80 hectares of plantations, 109 hectares of paddies, 24 hectares of ponds, and 51 hectares used for other purposes. Teumareum village has the largest area in Jaya sub-district. Most of the residents have an SLTP education, and only a small number have finished higher education.

Around 100 households were completely destroyed in the tsunami and their family members killed. There is no concrete data regarding the number of people who died. Teumareum was the area most heavily affected in Aceh Jaya sub-district. After the tsunami, the community underwent dynamic changes, as was indicated by rapid replacements of the keuchik (village head). These changes imply that the leadership in the village did not thoroughly understand the positions and conditions of LKMs in their formation and development. The LKMs mentioned were institutions that were formed to distribute business capital to communities that did not have adequate access to banking institutions.

Conditions of LKMs before the Tsunami and Now

Interviews with respondents gave the impression that before the tsunami there were no LKMs or cooperatives in Teumareum. There were groups of rice farmers, formed in the hopes of receiving
assistance from the government (National Department of Agriculture). However, these groups were not very functional, as they were not established out of local initiative but were encouraged by outside parties with the lure of aid from the government.

After the tsunami, several donor institutions/NGOs came to Teumareum to help the community repair and improve facilities and the economy, which had been destroyed by the tsunami. According to the results of interviews with members of the community, the aid they received included food, cash from "cash-for-work" programs, housing assistance, and business capital distributed to LKMs. Initially, the LKMs were initiated by outside parties (Oxfam and BRR), but they received the full support of the community. The LKMs, after their formation, were dynamic institutions during rehabilitation and reconstruction and received support from NGOs. Thus, they were felt to be highly beneficial in stimulating the local economy. However, when the assistance ended (after two years), the LKMs gradually weakened because of weak management, which finally had a negative effect on their ability to develop and remain in business.

Currently, there are no longer any LKMs active in Teumareum, including the women's LKMs which were quite dynamic during rehab-recon. According to a number of respondents, although these LKM were not formed fully as an initiative of the local community post-tsunami, they received the full support of the community and were encouraged in their efforts to rebuild family economies in Teumareum. Several factors were identified that caused the LKM to go out of business: (1) the provision of capital was not accompanied by capacity building for managers and adequate life-skills training for the community, and LKM leaders did not have the ability to continue their efforts unassisted, (2) the LKM mechanisms and systems that had been introduced were not in line with the conditions and needs of the community, and (3) economic empowerment programs were not well-integrated from beginning (production) to end (market), so most of the products produced were not guaranteed to be sold (see Box 3.1).

**Box 3.1. Conditions of Three Women's LKMs in Teumareum, Jaya, Aceh Jaya**

| Savings and Loan Group: This LKM consisted of 5 work groups, and assistance came from one international NGO (Oxfam). This group did not survive because borrowers did not repay their loans, so there was no more money to distribute to other borrowers. |
| Cake-Making Group: This group was comprised of six sub-groups, and received aid from NGOs (CHF International and THD Netherlands). Each group made cakes to be sold in cafes and restaurants, but sales were ultimately low and the groups disbanded. |
| Sewing Machine Group: Four sewing machines were donated by the government, along with fabric. The sewing machines are still in storage and have never been used. |

Based on the survey responses, there were two business groups in Teumareum before the tsunami (composed of male members). During rehab-recon there were ten groups (seven formed of men and three of women). Currently, most of those groups have ceased to function and only two groups remain (with male membership).

### Unique/Interesting Experiences and Lessons Learned

Several experiences from Teumareum can serve as lessons in policy-making and management of LKM in the future. First, not all of the LKMs in Teumareum had legal status or kept legal records, so there was no legal or formal basis for the institutions. Instead, the LKM were reported in the context of conducting related economic programs. After further inquiry, records of their existence could not be found in the relevant offices or institutions. Their lack of any legal-formal status caused the LKMs problems when it came to obtaining further funding or assistance, as one of the donor agencies' criteria was that local institutions have clear legal status in order to receive aid directly. The lesson from this is that donors/NGOs should help local institutions in arranging for the legal-formal status of LKMs, including technical support and capacity building for management.

Second, the participation of the community in making decisions was limited by the local elite, and the lack of involvement of the lower classes weakened cooperation and caused internal conflicts in the
LKM managers were chosen by agreement in village meetings and were usually those most active in those meetings. People chosen for membership in the LKM were chosen based on a search by the village head (keuchik) for individuals capable of performing the specified duties of each LKM. The lesson here is that the selection of LKM members was done by a small part of the community through a process that was not transparent, raising suspicions that those selected were chosen based on their personal relationship with the keuchik. As a result, the participation and cooperation of the community in developing LKMs weakened. However, some informants said that this perception was false, as the village management (keuchik and staff) chose LKM members based on set criteria and strove to balance their participation in the meetings and businesses. For example, members of the cake-making group were required to have previous cake-making experience, and likewise with the sewing machine group. Selecting LKM members must be done transparently and involve every layer of the community, rather than being done by a group of elite leaders, in order to prevent internal conflicts in the LKM.

Third, weak coordination caused the aid that was distributed to miss its target, in both the amount needed and timing of distribution. For the LKMs that were to make cake and sew, the members chosen were those who had previously made and sold cake and those who were tailors or seamstresses. However, particularly for the savings and loan LKM, criteria for choosing members were difficult to measure, because the process of choosing members was not done by village management. NGOs directly contacted the people who were chosen. According to the study informants, NGO workers came to the village and spoke with the village management about the economic empowerment program that was to be implemented, and then communicated directly with those who were active in the savings and loan groups. Usually, the involvement of a person who desired to become a member of the group was also measured by how actively they participated in meetings about the aid to be given. The characteristics of the LKMs and their membership are shown in Table 3.3.

<table>
<thead>
<tr>
<th>NO.</th>
<th>TYPE OF LKM</th>
<th>CHARACTER OF LKM</th>
<th>CHARACTER OF COMMUNITY MEMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Savings and Loan Group</td>
<td>This LKM focused on savings and loans.</td>
<td>Those involved had a direct relationship with the group that had already been formed and conformed to criteria that had been agreed upon between the group and donors, along with a repayment mechanism that had been set from the beginning.</td>
</tr>
<tr>
<td>2.</td>
<td>Cake-Making Group</td>
<td>This LKM was comprised of people who joined each on her own initiative.</td>
<td>Those involved were basically members of the local community who were then facilitated and held responsible by a cooperative mechanism, in which all members shared the same desires and goals.</td>
</tr>
<tr>
<td>3.</td>
<td>Sewing Machine Group</td>
<td>This LKM was to conduct various sewing-related activities.</td>
<td>The characteristics of the members are not known in detail because the group did not work. According to informants, the materials donated were not even used.</td>
</tr>
</tbody>
</table>

Table 3.3 shows the different characteristics of the members in these three LKMs. It was hoped that the three LKMs could improve their family and community economies. However, the LKMs did not have the ability to manage challenges and fulfill their expectations, and ultimately went out of business

**How Lessons Learned Contribute to Recovery**

Based on the testimony of several key informants, the original formation of the LKM occurred out of a process of agreement and cooperation, without the approval of any legal body. Because of this, further stages in conducting LKM activities were also based on agreement and cooperation, but with the domination of the village elite. This phenomenon meant that the failure or success of the LKM was influenced by mutual agreement, which translated into multiple related factors.

Based on this phenomenon, there were two different sides to the LKM experience in recovery: the internal side involving cooperation aimed in the beginning at developing the economy, and the external...
side of assistance and support of outside parties. The final results of these two sides were mutually agreed-upon. This concept of adopting a "two sided (internal and external)" approach to forming agreements can be viewed as an important contribution to the recovery process.

To measure how much the two sides contributed to the recovery, the process can be viewed in two phases: the initial phase and the continuation phase. In the initial phase, or growth phase, the savings and loan group and the cake-making group made very good progress. The sewing machine group did not function even in the beginning, because of the weakness of the human resources involved and their management skills, as well as the lack of ability to market products. For the two LKM that progressed well, their activities continued and their productivity continuously increased. This had positive economic effects for active members of the LKM as well as the general population.

However, in the continuation phase, a crucial period, the commitment to cooperate loosened. Productivity also declined, influenced by weakened buying power. In the case of the savings and loan LKM, borrowers began breaking their commitments to return the money they had borrowed. The cake-making LKM could no longer sustain productivity because of the small market for their product.

As described above, several factors led to the failure of LKMs in Teumareum, including the weakness in commitment, productivity, buying power, and markets. These four factors ultimately caused the dysfunction of the LKMs. However, these factors were not the only ones at play; they tied in with a number of other factors (see Table 3.4).

**Conditions Causing the Current Status of LKMs**

Three general conditions were identified as causes for the failure of the LKMs, related to the expectations and needs of LKM members and management, and continuity: (1) an approach that did not balance material aid (capital) and non-material aid (capacity-building), (2) less than optimal support and assistance, and (3) a lack of consideration of the local potential for economic empowerment. These three conditions are clarified below.

- An approach that did not balance physical aid (capital) and non-physical aid (capacity-building): Thus far, primarily after the tsunami, there was an impression in the community that all of the LKMs were formed with an emphasis on short-term results, particularly in the distribution of business capital. The LKM members may have had the desire to develop the LKMs, but they were often trapped by the will and interest of elite groups and individuals, obscuring the mutual commitment to develop the LKM over the long term and positively influence the local economy. The LKMs were less equipped with capacity-building resources (non-material aid) but were given business capital (material aid). Because the community did not have the capacity to manage that aid, however, their efforts often "boomeranged" and did not have optimal benefits. Ultimately, the effort resulted in conflicts of interest between management and members, the discontinuation of the LKM, and the failure of the LKMs to achieve their original goals.

- Less than optimal support and assistance: Capital is needed to stimulate the economy, but the capacity of the community is an important factor in its success or failure. There must be a transfer of knowledge regarding the ability to influence the local economy and manage LKMs. The experiences of the area studied show that the provision of capital without the knowledge and capacity to manage that capital increases the likelihood of failure and discontinuation.

- Lack of consideration of the local potential for economic empowerment: Besides a commitment, capacity and knowledge is needed for businesses that are integrated with and in accordance with local potential. Local communities must gain sufficient knowledge and understanding of the concepts, goals, and expectations involved in the development of LKMs, and must have some knowledge related to how the LKMs will have to operate in order to remain in business. However, because too little support and assistance was given, and there was a lack of consideration given to the abilities of the local players involved, the LKMs were unable to survive.
The conditions of the LKMs and the assistance they provided during the rehabilitation and reconstruction phase can be measured by the indicators of profit, assets, productivity, workforce, and development of capital. These indicators point to the likelihood of the continued existence of the institutions (Table 3.4).

Table 3.4. Measurement of LKM Conditions

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Savings and Loan</th>
<th>Cake-Making</th>
<th>Sewing Machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>Not known for certain</td>
<td>Not known for certain</td>
<td>-</td>
</tr>
<tr>
<td>Assets</td>
<td>Not known for certain</td>
<td>Not known for certain</td>
<td>4 machines and one bolt of fabric</td>
</tr>
<tr>
<td>Productivity</td>
<td>Not known for certain</td>
<td>One person made 100 pieces of cake</td>
<td>-</td>
</tr>
<tr>
<td>Workforce</td>
<td>Each group began with 5-7 people and reached a membership of 12-13 people</td>
<td>Each group began with 3-4 people and reached a membership of 6-7 people</td>
<td>An estimated 16 people were to work in rotation, but because nothing happened as the project never got underway.</td>
</tr>
<tr>
<td>Capital</td>
<td>Not known for certain</td>
<td>Original capital per person was Rp 60,000; in the end was Rp 85,000 per person.</td>
<td>-</td>
</tr>
</tbody>
</table>

Important Factors Contributing to Success or Failure

An important fact that must be restated is that the LKMs in Teumareum were active during rehabilitation and reconstruction, but currently have become inactive. Because of this, the factors that contributed to success of the LKMs while they were still active and their subsequent failure have been studied and are presented here. These factors are as follows: (a) mutual commitment of the community, NGOs, and the government; (b) coordination between NGOs and the government; (c) matching programs with local needs and resources; (d) capacity transfer; and (e) strength of LKM management

1. Mutual commitment of the community, NGOs, and the government

In the beginning, the formation of the LKMs was accompanied by a high level of commitment and cooperation from the people, both management and members. This was facilitated by a desire to improve the situation and fulfill daily needs. However, this commitment and cooperation weakened after the flow of assistance and capital from the NGOs ended. This was caused by the individual interests of certain groups, who took a practical and short-term approach which focused on using the aid provided to benefit groups of management elite. This weakened participation of the members presented a challenge for the management of the LKMs and the continuation of their efforts to strengthen the community economy. Another factor that influenced the success and failure of the LKMs was the commitment of donors/NGOs. Some respondents indicated that the commitment of the NGOs was sufficient, but that their provision of capital to the LKMs was not suited to their needs and was inappropriately timed. Respondents also said that the government’s commitment to assist the LKMs was weak (particularly in the provision of sewing machines and fabric). This is evidenced by the fact that the machines and fabric were put directly into storage upon receipt and have never been used.

2. Coordination between NGOs and government

Government policies to strengthen the position of the LKMs after reconstruction were not coordinated with the NGO programs during rehabilitation and reconstruction. This shows that there was little coordination between the NGOs and government in establishing the LKMs. As a result, after the NGO aid dried up, the government took a “hands-off” approach to continuing the development of the LKMs. Had there been further government assistance, the LKMs may have had more success. However, lacking better coordination, the handover went poorly and those LKMs that had been established failed to achieve their goals.
3. Matching programs with local needs and resources

Actual needs and local resources did not receive enough attention from the NGOs that assisted the LKMs and worked for community economic empowerment. According to respondents, the NGOs already had a program format in place for the situation, but this program did not take into account the limited human resources available. These limitations caused weaknesses in management at the LKM level. The people who were chosen to manage the LKMs should have been strengthened first, through education and training (including capacity building) so that they could guide programs and activities in the desired direction.

The LKMs also did not have adequate access to banking institutions; either through NGOs or the government. In addition, the government did not approach the LKMs with offers of capital from financial institutions. The government program itself was insufficiently researched, and existing LKMs should have been strengthened with the involvement of other community members, rather than starting new but similar programs.

4. Capacity transfer

There were problems with networking, as the LKM management did not have sufficient networks and lacked the ability to contact someone when the need arose. When a problem appeared in the field, they had difficulty solving it because they had to depend on their own problem-solving skills.

5. Strength of LKM management

Problems emerged in management, including knowledge regarding processes for strengthening the commitment of those involved. Generally speaking, the two functional LKMs did not have reliable management. Management was provided at the donor level, but did not extend down to operational-level management of the LKMs themselves.

Cross-Sector Issues

Based on the explanations above and the additional information gleaned from informants, it is possible to map the relationships between the conditions above and a number of cross-sectoral issues, as follows.

1. “Multiplier effect” of the existence of LKM on the growth of other businesses. Initially, in the process of formation and development, the LKMs answered the economic needs of the community (particularly LKM members). This also influenced other economic efforts. For example, the cake-making LKM did not only profit its own members. In fact, the flow of income also benefitted other people, including those who sold ingredients and the finished cakes.

2. Flow of profits and community relations. Although it did not have a significant impact, the division of profits as described above reflects the relationship between LKM members and their community. Any activity done by the LKM existed within a larger environment that affected and was affected by the fulfillment of its expectations. The flow of effects is proof of community relations.

3. Community health and hygiene. The results of the LKMs needed to address quality issues regarding health, primarily hygiene and nutrition content, which influence the health of the community. The LKM members understood the importance of this.

4. Mental health of victims. LKM activities had a positive effect on the psychosocial conditions of tsunami and conflict victims. The area had many victims of not only the tsunami, but also of the previous long-running conflict.

5. Education and knowledge. Development of the LKMs required the acquisition of new knowledge. The knowledge gained from experiences with the LKMs has important meaning for those who were involved in their development in Teumareum.

6. Gender issues. The three LKMs in Teumareum were not related to activities that can only be done by women. Activities for which the LKMs were formed (savings and loan, cake-making, and
sewing) can also be performed by men. However, there was a general impression in Teumareum that these LKM activities were specifically for women. This was a result of the fact that the program was planned by people outside the community, and did not take into account the community’s perception of the work.

### 3.1.3. Case Study 3: Home Industry, Small and Medium-Sized Businesses: A Case Study of Traditional Cake-Making, Weaving, and Brick-Making in Mireuk Taman, Darussalam Sub-District, Aceh Besar District

#### General Description

Village is located in Darussalam sub-district, Aceh Besar district. It is comprised of four neighborhoods: Pandee, Blahdah, Datok, and Punteut. Before the tsunami, Mireuk Taman had a population of 906, 456 men and 450 women. After the tsunami, the population rose again because many people moved to the area, primarily to work in the brick industry. However, in 2009 the population was still lower than previously, with 603 residents in 291 households: 58 households in Pandee, 72 in Blahdah, 93 in Datok, and 68 in Punteut. Most of the residents work as farmers or industrial laborers.

The industries in Mireuk Taman are home and small industries. The subjects of this particular case study were home industries involving traditional cake making, which employs two people in a family, and Acehnese songket weaving, which employs 2-5 people. The small businesses examined were brick-making factories, employing 6-14 workers. These businesses are classified as "labor-intensive" and their operations focus mainly on human labor.

The number of small businesses in the area studied was different before the tsunami, during the rehabilitation and reconstruction (rehab-recon) phase, and after completion of reconstruction (Table 3.5).

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Industry</th>
<th>Before Tsunami</th>
<th>During Rehab-Recon (April 2005-April 2009)</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brick</td>
<td>16</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Weaving</td>
<td>15</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Traditional Cake</td>
<td>1</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

The size of the change in the number of industries during rehabilitation and reconstruction was caused by two primary factors. These were the business capital provided by the government and NGOs and a relatively high market demand for the products at the time.

#### Recovery Status

**Before the Tsunami**

Most industries in the area studied did not receive any assistance before the tsunami. Startup capital came either from individual savings or loans from financial institutions. The only industry that received aid was the Acehnese songket weaving industry, which received village funds (ADG) and loans from the Aceh Besar district government through Bank BPR Ingin Jaya in the amount of Rp 4 million. However, this loan was only given to one weaver, whose primary job was weaving.

The condition of these businesses before the tsunami was relatively good. The traditional cake-making business was run by a family, and brought in an average of Rp 25,000 per day. The brick businesses employed an average of eight workers. The weaving businesses were run by a group of weavers with 15 members. The leader of the group, Ms. Jasmani, had her work exhibited both nationally and internationally by the Aceh branch of the National Crafts Council.
Rehabilitation and Reconstruction

The condition of these industries during rehabilitation and reconstruction changed drastically compared to before the tsunami. Differences can be seen in every field of production.

Home Cake-Making Industry

In 2008, this industry received Rp 3.6 million in funds from the Department of Social Welfare. This aid was given in two phases and was distributed through the village office. These funds were very helpful for the purchase of equipment, and additional funds were used to buy ingredients for cakes.

The number of sales and orders of cakes rose in the rehabilitation and reconstruction period compared to before the tsunami. In addition, the market broadened to include areas outside the village. Income from this industry rose to Rp 50,000 per day.

Acehnese Songket Weaving Industry

The weavers received funds from the Department of Social Welfare, Disperindag, and ILO. In addition, materials and equipment were given by IFC. Afterward, training was provided by the National Crafts Council – Aceh. The details of the assistance above are as follows. Aid from Disperindag was given to cooperatives in 2008, in the amount of Rp 100 million which was used to buy additional equipment and fix broken equipment, buy chairs, cabinets, tables, and computers, and to construct a building to house the business. For six months before and six months after the money was given, the weaving group was supervised. IFC provided materials like beneng, and established cooperation with the weavers (respondents in this survey) by marketing the woven fabric in Bali and Denmark. IFC provided material to be woven into sheets, table cloths, and other products. These products were embroidered by the weavers and then sold. However, this cooperation only lasted for six months.

During rehabilitation and reconstruction, products were not only sold domestically, but also to foreign buyers. Orders were also received for wedding decorations and official uniforms for government officials.

Brick-Making Industry

The brick-making industry received funding from Austcare. The amount of money received varied greatly, depending on the scale of the business and level of destruction caused by the earthquake and tsunami. Usually these funds were used to fix and buy equipment for making and transporting bricks. Assistance was also received in the form of trainings on cooperatives and bookkeeping, as well as trainings for using bricks as an alternative to wood.

After Rehabilitation and Reconstruction

After reconstruction, industries in the area stopped receiving aid. Many of the businesses declined in terms of both demand and production. The cause of this decline was reduced market demand.

Lessons Learned

In general, there was an increase in the number of employees and sales during rehabilitation and reconstruction. This particularly affected the weaving and brick-making industries, as many new workers appeared and funding was provided by both the government and NGOs. However, by identifying the conditions of those small and medium-sized businesses that benefitted from reconstruction, several factors can be found that caused failure or growth in these industries.

- The provision of capital that was not appropriately targeted, stimulating the emergence of new businesses to the point of market saturation
- The provision of aid without assistance and training, allowing production targets to be reached, but causing sales to be hindered by market limitations
The problems associated with aid distribution, based on the responses of businesspeople, can be seen in Table 3.6

Table 3.6 Weaknesses in Aid giving, based on the responses of businesspeople

<table>
<thead>
<tr>
<th>Description</th>
<th>Home Cake-Making Industry</th>
<th>Acehnese Songket Weaving Industry</th>
<th>Brick Industry</th>
</tr>
</thead>
</table>
| 1. Problems associated with aid distribution for industrial development | Only monetary aid was given, but there should have been training in product packaging, as packaging influences customers’ choices. The amount of aid provided was not enough. Large equipment, such as in Tanjung (where kapok instruments were given), was provided, allowing bakers to use up to 50 eggs at once. If a 10-egg mixer is used, the person mixing will be very busy. Assistance was needed to build a special workplace, like a jambo, so that cooking would not have to take place inside the house. | Not included in exhibitions at the local, national, or international levels. The participants in training were not those with the strongest motivation to continue in the business, so the trainings did not further the development of all group members. | a. Not targeted  
b. No assistance with planning, although the amount of aid was relatively large |
| 2. Factors affecting the success of the aid provided for industrial development | Further assistance needed. Aid should be given all at once, rather than in stages. If it is given a little at a time, businesses cannot buy expensive equipment. If respondents could have bought larger-scale equipment, a large numbers of cakes could have been produced, not only to fulfill the orders of individual customers, but also to supply local cafes. | a. Providing equipment, materials, and training, as well as including weavers in exhibitions as a means of promotion. According to respondents, rather than holding trainings outside the area to which only two weavers can be taken, it would be better to have one designated place in Aceh and recruit people who truly intend to continue the weaving industry in Aceh. Leaders are needed that understand weaving so there is support for the re-development of the craft. The former geuchik was a strong supporter of weaving and a weaving building (Balee But Jaroe Siti Maryam) was built in Mireuk Taman. However, under the new geuchik the building was abandoned and is now used as a landfill. The respondents had to fight hard to recover, as a new loom and materials were very expensive. According to respondents, the trainings that were given sent weavers to other areas, so the results were not ideal and there was no continuous training. In the experience of respondents who participated in 13-day handloom trainings given by the National Crafts Council, they were told that they would later master the looms and become teacher-trainers for other weavers, but there was no | a. Needed assistance and control |
## 3.2. Housing

### 3.2.1. Case Study 1: Community Participation in Rebuilding Homes (Case Study in Blang Oi Village, Meuraxa Sub-District)

**General Description of Blang Oi Village, Meuraxa Sub-District**

Blang Oi is a village in Meuraxa sub-district, a sub-district of the city of Banda Aceh located at 532'30" N and 95016'20" W, with an area of 776 hectares. It is comprised of 16 villages. Meuraxa sub-district borders the Strait of Malacca (near Pulau Weh and Pulau Aceh) to the north, the Kuta Raja sub-district of Banda Aceh to the east, the Jaya Baru and Baiturrahman sub-districts of Banda Aceh to the south, and Peukan Bada sub-district of Aceh Besar district to the west.

Blang Oi village has an area of 85 ha, which accounts for 10.95% of the area of Meuraxa sub-district (Source: BPS, 2005). Blang Oi borders the villages of Deah Baro and Alue Deah Tengoh to the north, Punge Ujong and Gampong Baro villages to the south, Punge Ujong village to the east, and Lambung and Cot Lamkuweh villages to the west. Desa Blang Oi has four neighborhoods (dusun): Bangau, Belibis, Merpati and Balam. The following is a map of Meuraxa sub-district, showing the location of Blang Oi village.

<table>
<thead>
<tr>
<th>Description</th>
<th>Home Cake-Making Industry</th>
<th>Acehnese Songket Weaving Industry</th>
<th>Brick Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Business people’s suggestions for future assistance in developing small and medium-sized businesses (type, distribution systems, and continuity)</td>
<td>Further assistance is needed. Aid should be given all at once, rather than in stages. If it is given a little at a time, businesses cannot buy expensive equipment. If respondents could have bought larger-scale equipment, a large numbers of cakes could have been produced, not only to fulfill the orders of individual customers, but also to supply local cafes. Aid should be accompanied by trainings in bookkeeping and packaging, and inclusion in exhibitions as a platform for product promotion.</td>
<td>The most-needed form of aid for the weavers is marketing. In addition, there is a need for training regarding the use of the Internet, so that websites can be used for marketing. Fashion designer Thomas Sigar once ordered woven cloth from the respondents, but there have been no further orders. If the government wants to develop the weaving industry, the best way is to train people who want to work as weavers and give adequate monetary aid to buy equipment that is up to standards.</td>
<td>Funds and trainings based on the needs of entrepreneurs, and mentoring. Forming groups of brick-makers and acknowledgment by the village government.[Meaning in this context is unclear.]. Continuous training is needed that is in accordance with the needs of businesspeople. Funding should be given to experienced businesspeople. A strong legal cooperative and supervisory organization are needed for both aid and sales. Aid should only be given to entrepreneurs with experience, so that new businesses do not disturb the balance between production and demand, which drives down the market price of bricks.</td>
</tr>
</tbody>
</table>
Recovery Status

Living Conditions in Blang Oi Before, Immediately After, and After the Tsunami

In 2004, Blang Oi had a population of 3,984 people under 874 heads of household (kepala keluarga or KK). The conditions before the tsunami indicate that Blang Oi was doing well. Every resident lived in a home with measurements ranging from 36 m² to > 45 m². The livelihoods of the population varied, from public servants to private employees in various fields. The conditions of the structures and infrastructure in the village were good: access roads were paved, drainage systems were organized, clean water was provided by PDAM, well water was not salty, electricity and telephone connections from Telkom were available, and there was a sewage system in every home.

The earthquake and tsunami that occurred on 26 December 2004 destroyed Blang Oi along with the rest of Meuraxa sub-district. Since Meuraxa sub-district is close to the ocean, all of its villages sustained heavy damage, including Blang Oi. All of the homes, structures, and infrastructure were completely destroyed, and many members of the community perished. Thus, the community sustained not only the loss of possessions and homes, but also family members, substantially decreasing the population.
The population after the disaster was drastically lower than its pre-tsunami level, consisting of 943 people with 693 heads of household (Source: Sea Defense Consultant, 2007). Nearly 95% of the homes were completely destroyed, with 5% heavily damaged, and 100% of the public facilities and infrastructure sustained heavy damage. Aid was needed from various sources to help the residents in rebuilding their homes, facilities, and village infrastructure.

This is corroborated by correspondents in the community, who stated that nearly all of their homes sustained heavy damage and were no longer inhabitable. The residents rebuilt their homes with aid from donors. The community’s source of information regarding aid available was the Pak Keuchik (the village head) and other community members. This shows that Pak Keuchik played an important role in aiding the village residents by making them aware of information regarding aid available for reconstruction. In addition, the sharing of information between community members was also important because they were all victims of the disaster. The aid received by the community of Blang Oi came not in the form of aid houses, but in the form of funds that allowed the residents to rebuild their own homes. This process was supervised by the homeowners, donors, and village officials.

When programs give aid in the form of funds, local people are involved in managing the funds themselves. Based on the results of a field study, aid providers involved the community from the initial stages of data collection up until the point where they had rebuilt their own homes. The community members were involved in data collection regarding houses destroyed by the tsunami in their village because they were acquainted with the occupants of the homes. The community members also ascertained for themselves the locations on which their houses should be built. The fund providers allowed the community to choose their own home designs and materials, and supervised the house that would be built on their own. Homes were built in accordance with the funds available. Although the funds were managed by the community members, there was a sense of accountability within the community for every rupiah used. This in itself was a form of supervision on the part of donors.

Aid systems involving community participation sometimes encounter obstacles. An interview with one official at the keuchik’s office revealed that it was sometimes impossible for the community and donors to reach an agreement on issues, such that a third party was needed to bridge the divide between the two parties. This third party was usually an elder village official known to be trustworthy. Thus, every misunderstanding was resolved.

Involving the community in building homes resulted in better reconstruction and a community that is satisfied with their homes because every step and rupiah taken was managed by the villagers themselves. This is evident in the current conditions of their homes, and the fact that the residents contributed to their own private funds to the pool of donated funds to make homes that they can be proud of.

Learning from the Recovery Process

The process of rebuilding homes for tsunami victims often did not involve the communities themselves. Aid givers often gave aid directly in the form of homes. Sometimes these homes were not appropriate
for habitation, having been built arbitrarily by contractors. Remarks from correspondents in the area studied and literature about the rehabilitation and reconstruction of homes in Aceh indicate that the community desired to be involved in rebuilding their homes. In the area studied, the homes that were built with the involvement of the community members were satisfying to their owners, ensuring that the residents felt a true sense of ownership over their homes. This is because the homes were built according to their desires, using the aid funds available. Their satisfaction with their houses shows that process of building homes with community involvement in Blang Oi was well-conceived and implemented. In addition, community members themselves solved problems that occurred in the process of rebuilding. Thus it can be said that the building was done by the people, for the people.

**Cross-Sector Issues**

1. **POVERTY**

Programs to rebuild houses with community involvement can directly help reduce poverty. Those who earn their living as construction workers can put their skills to use building houses in their community, and the money they earn can feed their families or can be added to funds to build their own homes. Rebuilding a village is not just about rebuilding homes, but also about rebuilding infrastructure and government-regulated facilities. Involving the community means that the community serves as a connection between the government and individual citizens. Indirectly, payments community members receive can feed their families.

2. **HEALTH**

Houses built by community themselves take into account the health of the residents. Although the houses are small, the community members still made houses that are healthy for their families.

3. **LIVING ENVIRONMENT**

The issues of the living environment were taken into account by the community and village administration. Community members had to think about how the environment contributes to their lives, and their involvement in every building decision ensures that they can help protect the environment in which they live.

4. **GENDER**

The results of our correspondence and interviews indicated that there were no obstacles to women's participation in home reconstruction. Women were involved not only in rebuilding their own homes, but also in joining community teams that helped to solve problems between the community and donors.

**3.2.2. Case Study 2: Uninhabited Aid Houses (Case Study in Desa Kajhu, Aceh Besar District)**

**Profile of Desa Kajhu**

Kajhu village is one of thirteen villages in Baitussalam sub-district. According to local history, Kajhu was established in 1819. However, at that time it was not named Kajhu. Rather, it was two neighborhoods (dusun) called Monsinget and Lambateung, governed by an *ulebalang*, the title of regents during the Dutch colonization.

Kajhu proper was formed in 1920, beginning with the building of Magfirah mosque, which is still standing today. This mosque, in addition to being a place of worship, was also a community gathering place for socializing and deliberating village issues. At the time, the people came up with the idea of merging Monsinget and Lambateung to form a new village. They named this new village "Kajhu," which in the Acehnese language means "already hot" or "boiling." This village was still controlled by an *ulebalang*, under the control of the Netherlands which was still occupying Indonesia. Most of the village's population worked as fishermen, salt farmers, aquaculturists, and farmers. The area of the
village and its population continued to grow until Kajhu was divided into several neighborhoods. Lemseunong and Kampung Meurah were subject to Lambateung and Lampeurada was subject to Monsinget until Indonesia gained its independence.

In 1987, the population of Kajhu increased as the result of the addition of a housing complex called Perumahan Kajhu Indah, built for public servants. However, this addition did not noticeably increase Kajhu’s density. Population density came in the 1990s, when many residents moved in as more housing was built. This period was marked by the construction of two more housing complexes, Mutiara Cemerlang and Polyasa.

Because of the steadily rising population, many businesses were attracted to Kajhu. Within a relatively short time, by 1998, Kajhu had become a center of economic growth and assisted the district government of Kuala Giegieng before the center of Baitussalam sub-district government was moved to Lambada Lhok.

On 26 December 2004, the people of Kajhu were victims of the tsunami, with nearly all of the structures and infrastructure of the village destroyed. This is evident from the status of homes, basic infrastructure including roads, bridges, water service, moorings, drainage, and other services. Infrastructure for public services, like health centers, village halls, communal places of worship, and the village head’s office, were no longer visible.

Kajhu covers an area of 600 ha or 6 km², and Hada pre-disaster population of 2,410 households and 8,564 citizens, including 4,305 men, 2,309 women, and 1,950 children. These numbers plummeted to approximately one quarter of their former levels after the disaster. Now the remaining households number only 1,508, with only 2,376 people, 804 women and 1,380 men. Before the tsunami, there were 13,634 homes in Kajhu. They were all destroyed.

The disaster resulted in the deaths of more women and children than men. Nearly all of the families in the village suffered a loss. The entire remaining population now lives in barracks on the edge of the former village. These barracks accommodate the residents of eight of the former ten neighborhoods of Kajhu. Eighteen barracks were completely filled, and another eight barracks were added in a separate location in the neighborhood of Lamseunong. Barrack conditions are of concern because they were built carelessly, but the residents had no other choice because no houses had yet been built for them.

The tsunami also destroyed the governance infrastructure both at the village level and in Baitussalam sub-district. As of now, this infrastructure has yet to be rebuilt. Before the tsunami, the center of Baitussalam sub-district government was in Lambada Lhok, but now the government operates from Kajhu.

**Area, Government, and Population**

Kajhu is one of 13 villages in Baitussalam sub-district in Aceh Besar district. Both before and after the tsunami, Kajhu was the largest village (in terms of area) in Baitussalam sub-district. The village's area was ± 600 ha or 6 km², but after the tsunami the area decreased by ± 3 ha. The land used for residences was ±87 ha, and for other purposes ±169 ha. The decrease in land area was caused by the immersion of land under seawater, primarily along the coast in the neighborhoods of Monsinget, Kajhu Indah, and Mutiara Cemerlang.

Administrative borders of Kajhu village:

- South: Gigieng River and the ocean
- North: Blang Krueng
- East: Cadek and Baet villages
- West: Cot Paya village
Before and after the tsunami, Kajhu village had ten neighborhoods (dusun):

1. Dusun Pola Komala
2. Dusun Lambeuteung
3. Dusun Lamsenong
4. Dusun Lamprada
5. Dusun Monisnget
6. Dusun Meuriam Patah
7. Dusun Mutiara Cemerlang
8. Dusun Kampung Meurah
9. Dusun Keude Arun
10. Dusun Kajhu Indah/Kompleks Kajhu

The surface elevation of Kajhu village is level with the coast for a distance of 5 km inland. This level surface contributed to the various livelihoods of the citizens of Kajhu. The ocean held important meaning for the citizens, even before the tsunami. Most of Kajhu's residents depended on the sea for their livelihood, as they were fishermen, salt makers, aquaculturists (fish farmers), or oyster and crab collectors. The areas slightly away from the coast were developed for agriculture, brick-making, and trading. This position was special because life on sea and land were so different. The land in Kajhu was sandy in the areas near the sea and clay in the areas inland. The interior areas were developed for farming and supported by an irrigation system carrying sea water from the mangrove trees. Thus the farming operations continued to progress year after year.

The climactic conditions were generally hot with a fairly high level of annual rainfall. These conditions were ideal for livelihoods related to the sea and land.

However, after the tsunami on 26 December 2004, all of these well-ordered and functioning systems were destroyed. There were no more fish ponds, salt fields, or agriculture. Everything was flattened to the ground by the sea water. Farmland was polluted by sea water and covered with sand that had been swept over it by the sea. In addition, the climate changed. Temperatures rose because there were no more plants to temper the heat and speed of sea winds. Rainfall increased.

**Village Governance System:**

Kajhu is an autonomous community unit under the leadership of a village head or Geuchik. In the performance of his duties, the village head is aided by a village secretary, three department heads (of village government, welfare, and a general department) and ten neighborhood heads.

The Geuchik has the duty and responsibility of managing the entire village government. The Geuchik must also be in direct contact with the people to understand the problems faced by citizens, and must not rely solely on reports from his neighborhood heads.

The village secretary has the duty of taking notes on every government activity, both outside and inside the village. The secretary also manages letters received and sent to make the job of the village head easier, as he must be aware of complaints and important papers.

The tsunami, in addition to destroying the infrastructure, also impacted government officials. Many of them were killed or lost. In order to smooth the provision of post-tsunami public services to the residents of Kajhu, services were provided by new village officials.

**Population**

Before the tsunami, Kajhu had a high population density. At that time there were ±15,863 people and 5,615 households. After the tsunami, the remaining population was only 2,872 people, consisting of 830 men, 495 women, and 215 children in 1,508 households. This means that 79.3% of the total population of Kajhu was killed or lost in the tsunami.
This means that most of the remaining households are incomplete, and most of the families only have one or two remaining members. The tsunami took more women and children as victims than men.

**Population Situation and Livelihoods**

In describing the size of its population, it must be noted that Kajhu had the densest population of the villages in Baitussalam sub-district. This density was caused by the extensive development of housing and residential complexes in Kajhu. There were three neighborhoods that contained BTN housing in types 21 – 36, namely Kajhu Indah, Mutiara Cemerlang, and Pola Yata. These housing complexes caused a permanent increase in the village’s population.

Most of the people who had moved into these complexes were public servants and private officers’. Most had young families and needed permanent housing that could be paid for on credit. Conversely, the original population had continuously dwindled due to the economic recession and the fact that many of the original property owners sold their land to developers or other businesses. Much of the population migrated to other areas, primarily to Malaysia, or married people from outside of Kajhu and left their place of birth. This contributed to the permanent migration of the original population.

Before the tsunami, the population distribution and residential density was ten houses per square kilometer, 50 people per hectare of farmland, and 10 people per fishpond.

**Ownership of Land and Homes**

Most of the land in Kajhu was owned by the community members, either through individual ownership or by custom. Before the tsunami, 70% of the landowners in Kajhu had been given official deeds of ownership. These deeds were issued because of ownership of land on which homes were located, most of which had been built by developers. Most of this land was owned by people who had moved to Kajhu or by places of business. Most of the traditional land ownership occurred in the neighborhoods of Monsinget, Lamperada, Lambateung, and Lamsenong, accounting for approximately 20% of the total land. The remaining 10% of the land in Kajhu had the status of cultivation rights (*Hak Guna Usaha* or HGU).

Before the tsunami, much of the land had changed hands, from the original owners to the new residents. This was because land was needed for homes and security, such that many residents from outside the area bought and lived on land in Kajhu. The original residents sold their land for economic reasons.

After the tsunami, many land owners had died or been lost. Thus, the land ownership status was unclear. This often caused conflicts regarding land inheritance. Many people stated that a relative had died and that they had the right of ownership over the victim’s land.

Before the tsunami, most of the houses in Monsinget, Lamsenon, Lambateun, and Kampung Meurah were semi-permanent, while most of the permanent houses were in Meuriam Patah, Kajhu Indah, Mutiara Cemerlang, Lamperada, Keude Aron, and Polyasa. The tsunami did not leave even one home fit for habitation. Most of the houses were owned by their inhabitants.
### Conditions before the Tsunami and Now

<table>
<thead>
<tr>
<th>NEIGHBORHOOD</th>
<th>PRE-Tsunami Conditions</th>
<th>Current Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Keude Aron</strong></td>
<td><strong>Economic</strong></td>
<td>An economic center with stores, cafes, and other businesses. This is due to the strategic location of Keudee Aron, which is located along the main road to tourist destinations and Malahayati harbor, and encircled by complexes of middle- to upper-class residents who do their daily shopping in Keude Aron. In addition, many residents work in brick-making (entrepreneurs and laborers), civil service, farming, and furniture building and construction.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td>Problem-solving prioritizes the family approach. Relationship patterns are driven by kinship. Social and mutual aid activities are performed together by the young, old, and children. The role of women is mostly in domestic affairs. Men take more public roles.</td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td></td>
<td>The community of Keude Aron holds strongly to the rule of customs set by elders and community leaders. Citizens who violate these rules receive traditional sanctions. Deliberation is of great importance in problem-solving. All decisions affecting citizens must be made by consensus.</td>
</tr>
<tr>
<td><strong>Religious</strong></td>
<td></td>
<td>The meunasah is a place of worship and for community deliberation. Citizens are very active in religious activities, like religious lectures. Religious activities are held routinely every Monday and Thursday. The entire population is Muslim.</td>
</tr>
<tr>
<td><strong>Kp. Meurah</strong></td>
<td><strong>Economic</strong></td>
<td>Kp. Meurah is one of the neighborhoods still inhabited by its original population, the majority of who are farmers (agriculture or livestock), traders, and transportation workers. However, most of these jobs are done by young people. They sell the results of their labor in the market. The neighborhood is also a center of production of well-rings and other building materials like sand, gravel, and fills. There are also many coffee shops and grocers.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td>Social relationships are strong. Citizens are always active in social activities in the neighborhood. If a crisis befalls one resident; other residents come to their aid.</td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td></td>
<td>Residents hold fast to tradition. These customs affect marriage, solving disputes, and inheritance. Group deliberation is required for decision-making. Even new residents must comply with these traditions.</td>
</tr>
<tr>
<td>NEIGHBORHOOD</td>
<td>PRE-TSUNAMI CONDITIONS</td>
<td>CURRENT CONDITIONS</td>
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<tr>
<td><strong>Religious</strong></td>
<td>All regulations and provisions should be based on religious law (Islam). 100% of the population is Muslim. This affects the regulation of daily and community life. Citizens are highly respectful of and active in religious activities.</td>
<td>Because their neighborhood has been destroyed, residents hold fewer religious activities. Influential citizens and leaders are missing or dead, and there is no longer anyone to initiate religious activities. Citizens still attend religious activities (lectures) held in the <em>meunasah</em>.</td>
</tr>
<tr>
<td><strong>Meuriam Patah</strong></td>
<td>In the village are stores that sell items for daily needs and several coffee shops, along with a large wooden panglong (lumber mill). Citizens work as laborers, traders, salt farmers, and civil servants. Businesses are well-patronized because the neighborhood is located along the main road to Ujoeng Batee (a tourist destination) and Malahayati harbor.</td>
<td>Pre-tsunami economic activities are completely destroyed because all places of business have been ruined. Citizens are seeking aid and using tsunami debris to rebuild shops. Several businesses have begun to reappear, beginning with cafes and grocery stores to satisfy daily needs, although few goods are sold. There is a desire to rebuild activities.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>Kinship systems are very strong. Most of the population is young and active in social activities for the progress and welfare of citizens, like mutual aid.</td>
<td>The feeling of communality has decreased because citizens are focused on material needs and have forgotten the pre-tsunami social system. Mutual aid activities have been replaced by &quot;cash-for-work.&quot;</td>
</tr>
<tr>
<td><strong>Cultural and Religious</strong></td>
<td>All residents are Muslim. Most are &quot;broken cannons&quot; – migrants from outside the village, and customary laws have not become set. However, they still maintain an ethical society. Citizens, especially women, attend routine religious activities, like lectures.</td>
<td>There are no more group activities like those that were previously held in the village. This is because most of the religious leaders died or went missing in the tsunami.</td>
</tr>
<tr>
<td><strong>Monsinget</strong></td>
<td>The residents of this village on the edge of the sea mostly earn their living from the sea as salt farmers, fishermen, fish farmers, and oyster collectors. The results of their labors are sold in the market for money to pay for daily needs. This village is fairly poor, as its economy relies on the sea and incomes are uncertain. This poverty affects the general level of education, which is low for both older and younger generations. The inability of parents to pay for children's schooling means that many school-aged children must earn their own way from a young age without any ability to manage their own income.</td>
<td>The economy has not changed much, as only the structures where business activities took place have been destroyed, and some of the residents still conduct their usual activities, like collecting oysters. However, other activities, like fishing, require equipment such as boats and nets/seines. The skills and will of the community to return to fishing are still strong. The same is true of salt and fish farmers, who only require capital to return to their jobs.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>The kinship system is very strong, and social activities are thriving. PKK activities are also well-conducted, and there is money for social purposes like deaths of the elderly. The elderly also earn a living, but social attitudes remain. Some of the young people also collect money for social activities.</td>
<td>The former societal feeling has decreased and continues to decline as people concentrate on material needs, although aid from NGOs has already fulfilled their daily needs. This attitude is more prevalent among the young people and children, as most of those who survived the tsunami were younger. The few older people who survived are quiet and cannot do anything about the situation, because they are dependent upon the young people.</td>
</tr>
<tr>
<td>NEIGHBORHOOD</td>
<td>PRE-Tsunami Conditions</td>
<td>Current Conditions</td>
</tr>
<tr>
<td>---------------</td>
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<td>---------------------</td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td>The neighborhood has a children’s dance group (Likee Aceh), and association between genders is regulated. Women do not go out of the house in the evenings unless there is a religious gathering. Customary law prevails in the neighborhood.</td>
<td>A culture of individual freedom has emerged, although sometimes this attitude harms others. A materialistic culture has developed. Mutual aid has been replaced with &quot;cash-for-work.&quot;</td>
</tr>
<tr>
<td><strong>Religious</strong></td>
<td>All of the residents are Muslim. They are very active in religious activities like wirid yasin (Koran recital). Most religious activities are attended by older people, while the young people hold activities outside the home.</td>
<td>Most religious leaders were died or went missing, which has influenced religious activities because there is no longer anyone who can hold these activities or serve as religious role models.</td>
</tr>
<tr>
<td><strong>Lambateung</strong></td>
<td>The majority of the population depends on the brick production industry. Both men and women work as laborers in brick factories. There are eight brick factories in Lamseunong, and every factory employs at least 20 people.</td>
<td>The economy has already begun to rebound, and businesses like brick factories, coffee shops, and chicken farms have been reestablished. However, all of the citizens lost their livelihoods in the tsunami, and they have had to depend on aid to rebuild their businesses. Not all of the residents worked in brick factories, and there are also those who were traders in the market or farmers. Aid houses have been built by Oxfam.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>Because of its interior location, the feeling of social responsibility and kinship is strong. Residents conduct all activities cooperatively. There is no gap between the rich and poor. Residents are originally from Kajhu.</td>
<td>Social problems appeared related to the priority assigned to various groups in the distribution of aid houses and capital. Those living in tents received higher priority than those in barracks in Blang Bintang. There is disagreement among the community and village officials over whether it is more important to receive homes or capital.</td>
</tr>
<tr>
<td><strong>Lamseunong</strong></td>
<td>Most of the population works in brick production. Both men and women work as laborers in brick factories. There are 17 brick factories in Lamseunong. Every brick factory employs at least 20 people.</td>
<td>The economy has already begun to recover with aid from German Agro and Oxfam. However, not all of the citizens have received aid, and some had their identities stolen by those who received aid in their name. They can only watch the aid fall into the wrong hands and are not jealous or angry, but only regretful. They think that it is better that some people receive aid than none at all.</td>
</tr>
<tr>
<td><strong>Cultural and Religious</strong></td>
<td>The entire population is Muslim. They are very observant in performing religious practices. They are also actively observed every Islamic holiday. They use mosques/meunasah as places to make decisions regarding the welfare of the neighborhood. Citizens are also married in mosques/meunasah because this is deemed to bring grace and happiness.</td>
<td>Good habits have begun to erode because there is no longer a trusted leader to unite the community. Residents are focused on material things to be gained from their activities. There are no longer leaders for religious activities because they died or went missing in the tsunami.</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>The kinship system is strong, and usually nuclear families are prioritized in matters of social importance, so that a gap has appeared in community life. What does the prioritization of nuclear families have to do with a &quot;gap&quot; in community life?</td>
<td>The residents are highly tolerant of assistance received and do not want scandals or disturbances. However, there are those who pursue their own welfare at the expense of others.</td>
</tr>
</tbody>
</table>
### NEIGHBORHOOD

#### Kajhu Indah

**Economic**

This complex is 400 m from the main road. The majority (90%) of citizens in Kajhu Indah are civil servants, while others are private employees, entrepreneurs, or students. The complex is densely populated. The economic condition of this community is much better than that of other neighborhoods. Many small kiosks are located in the neighborhood, making it easy for residents to do their shopping, and some of these are places where young people gather.

**Social**

The kinship system is strong. The number of residents is ± 208 households. The sense of community in the complex is strong, and citizens always visit the homes of those experiencing misfortune. However, not all of the residents are active in engaging in mutual aid. Some only clean their own house or even drink coffee while others do it for them. They believe that their house is already clean, so there is no need to clean it again. However, those who clean are not discouraged; rather, they carry on, saying it is the “problem with living in a complex.” Youth engage in these activities of their own

After the tsunami, many citizens lost their homes and places of businesses, as they were flattened to the ground. All that remained were floors and debris. As most are civil servants, they did not feel the effects of this too badly as they still had income and many received assistance from their workplaces.

Because many residents were safe, they were divided into two groups, those in barracks and those not in barracks. Those in barracks feel a strong social connection, and if one person is in trouble others come to their aid. They also help residents from outside the barracks, although there is not much communication with those outside about new possibilities for assistance which are thought to be only for them. Thus, there are difficulties or problems faced by residents in the barracks which others are not concerned about.

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#### Lamperada

**Economic**

The majority of residents work as salt farmers, aquaculturists, or traders. Civil servants and workers in brick factories are in the minority. Many stores are located along the main road, which means that the neighborhood is crowded in the afternoons. Every home has a large fruit tree that yields a large number of mangoes, kuini (a different mango variety), and batang asam (tamarind tree), which are sold in the market. However, they bear fruit only once in the rainy season.

Just after the tsunami, economic activities were paralyzed because the infrastructure was completely destroyed. However, five months after the tsunami, the citizens have rebuilt their businesses from the tsunami debris. The economy has begun to recover because the residents wanted to rise again and did not want to continue depending on aid from NGOs. However, a minority of citizens still hopes to receive NGO aid; they have begun to rely on such aid and are reluctant to put in effort.

**Social**

The kinship system is strong and people are active in social activities like mutual aid. Youth are always encouraged to take part in activities. If a crisis befalls one resident, others visit to help.

Just after the tsunami, residents distrusted aid workers out of suspicion. Social attitudes have suffered because of “cash-for-work” programs, when need replaced their feeling of communality as those who helped their neighbors did not receive assistance. Currently, some social attitudes have begun to appear again among citizens who are no longer concerned with material needs but wish to change their community.

**Cultural and Religious**

The neighborhood obeys rules from their forbears and influential leaders. They are active in religious activities and follow religious rules. Religious activities are routine, including yasinan every Friday night and recitations every Monday and Thursday evening. A group of dalaelkhairat (Islamic chants) always fills out the religious activities.

The residents’ habit of coming together to take part in religious activities has eroded. Religious activities are not apparent because there is no longer a leader to raise residents’ spirits or to observe major holidays, like meugang (Acehnese meat eating fiesta) and the birth of Prophet Muhammad.

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### CURRENT CONDITIONS

Community habits in holding religious activities have begun to decrease or disappear, and are usually conducted by individual residents in the form of praying or gathering to solve a problem. Problem solving is now done by groups of involved citizens, rather than through a process whereby the broader community is invited. These decisions can adversely affect others and benefit only the groups involved.

Because the residents wanted to rise again and did not want to continue depending on aid from NGOs. However, a minority of citizens still hopes to receive NGO aid; they have begun to rely on such aid and are reluctant to put in effort.

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### SECTOR-SPECIFIC RECOVERY AND CASE STUDY
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<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td><strong>Cultural and Religious</strong></td>
<td>The entire population is Muslim. They are obedient in carrying out their religious activities. They are also active in celebrating Islamic holidays. They sacrifice animals (cows or goats) during Thanksgiving, and it is also considered a good time to strengthen kinship. The community habitually solves problems in the mosque/meunasah. Because of this, the community uses the mosque/meunasah as a place for consensus-based decision-making regarding residents’ welfare. Weddings also take place in the mosque/meunasah because it is thought to bring grace and happiness.</td>
<td>Religious activities are no longer held due to the lack of religious leaders to motivate the community and the destruction of religious facilities. All the religious leaders died or went missing in the tsunami. A new activity that has been started is a group prayer for those who were lost, held every 26 December. Group decision-making is done in the barracks as it was done before the tsunami.</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>This neighborhood is located 600 m from the main road. The majority of the population is public servants, private employees, entrepreneurs, and students. Many kiosks and coffee shops are located in the area, and serve as gathering places for the young and old alike, although mostly for men. Although the houses are small, residents can build onto their houses. There are also good exercise facilities, including basketball and volleyball courts.</td>
<td>After the tsunami, many homes were lost. The residents who are mostly civil servants or private employees were not as badly affected as some, and they did not feel as many economic effects as they still received an income and had savings. In addition, many received assistance from their workplaces.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>The kinship system is strong. Residents always hold communal activities involving both the young and old. However, interactions tend to be divided by age, with older people usually interacting with other older people, youth with youth, and children with children. Conflicts often arise, but they are quickly resolved. Residents do not mingle with those from other neighborhoods, concentrating on developing a good complex environment, but this does not mean they ignore the residents of other neighborhoods.</td>
<td>The residents of the barracks feel a strong social connection, and if one encounters difficulties the others step in to help. Some of the population does not live in the barracks, and they seldom interact or socialize with those in the barracks. Those in the barracks always aid those outside in obtaining assistance. In addition, they mingle even less with other citizens from Kajhu.</td>
</tr>
<tr>
<td><strong>Cultural and Religious</strong></td>
<td>The habits of the community do not forbid associations among youth, so this neighborhood is deemed to be relatively free. The majority of the residents are Muslim, but there are two non-Muslim households. However, the residents value their existence. Religious activities are mostly attended by older people, and there are many such activities including recitations attended every Thursday evening by all residents.</td>
<td>Religious activities are no longer held due to the lack of religious leaders to motivate the community and the destruction of religious facilities. All the religious leaders died or went missing in the tsunami. To solve problems in the community, decisions are always based on consensus so as not to cause further problems.</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>Polaya is the neighborhood with the largest population and widest variety of professions, including civil servants, private employees, entrepreneurs (traders, coffee shop owners, furniture makers, etc.), and students. Many kiosks and cafes are located in the neighborhood, where older people and young children gather. Polaya has homes with RSSS measurements, but economic growth and development have included progress in the number of stores selling daily items. The neighborhood is 1 km from the main road.</td>
<td>After the tsunami many residents lost their homes and businesses, which were flattened to the ground, leaving only floors and debris. Most of the residents are civil servants or private employees.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>The kinship system is very strong. All activities are done cooperatively and the</td>
<td>Residents in the barracks have tight social connections, and if one is afflicted then</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>Polaya is the neighborhood with the largest population and widest variety of professions, including civil servants, private employees, entrepreneurs (traders, coffee shop owners, furniture makers, etc.), and students. Many kiosks and cafes are located in the neighborhood, where older people and young children gather. Polaya has homes with RSSS measurements, but economic growth and development have included progress in the number of stores selling daily items. The neighborhood is 1 km from the main road.</td>
<td>After the tsunami many residents lost their homes and businesses, which were flattened to the ground, leaving only floors and debris. Most of the residents are civil servants or private employees.</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>The kinship system is very strong. All activities are done cooperatively and the</td>
<td>Residents in the barracks have tight social connections, and if one is afflicted then</td>
</tr>
</tbody>
</table>

**Note:**
- RSSS: Rapid Social Support System
- Kajhu: Another neighborhood located nearby
- Meunasah: A religious institution
- Polaya: A neighborhood in Banda Aceh
- Cemerlang: Another neighborhood in Banda Aceh
- E: Economic
- C: Cultural
- R: Religious
community prioritizes the common citizen. However, the villagers are less able to socialize with those from other neighborhoods because they are viewed as outsiders by those who have lived longer in Kajhu, making it easier for them to associate with members of their own complex.

### Cultural and Religious

The culture, or the habits in the neighborhood, is not too rigid, and whoever wants to may hold any activity they please as long as they respect regulations and norms of the neighborhood and surrounding neighborhoods. The majority of the residents are Muslim and there are frequent religious activities, although the most active in these activities are older people and a small portion of the youth. The complex is viewed as being lax on social laws.

<table>
<thead>
<tr>
<th>NEIGHBORHOOD</th>
<th>PRE-Tsunami Conditions</th>
<th>CURRENT CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community prioritizes the common citizen. However, the villagers are less able to socialize with those from other neighborhoods because they are viewed as outsiders by those who have lived longer in Kajhu, making it easier for them to associate with members of their own complex.</td>
<td>Others come to their aid. Residents socialize less with those from outside the neighborhood, choosing instead to associate with their friends. Residents do not blame each other, and problems are solved internally.</td>
<td>Religious activities are no longer held due to the lack of religious leaders to motivate the community and the destruction of religious facilities. All the religious leaders died or went missing in the tsunami.</td>
</tr>
</tbody>
</table>
Field Results Regarding Uninhabited Houses

1. The houses are not of the expected quality
   - Hollow wood
   - Material not to standard specifications
   - Room partitions made from plywood and asbestos
   - Bathrooms lack toilets
   - There are toilets but no septic tanks
   - The quality of houses in other villages is higher
   - The floor of the house is lower than the ground outside
2. Inadequate infrastructure for residence
   - There is no running water or pipes are broken, while ground water is salty
   - Electricity network is broken or nonexistent
   - No sewer system
   - Flooding occurs during rain or high water
3. Relocation far from original location
   - Residents will lose their livelihoods if they move to a new location
   - They will lose their emotional connections in the new environment
4. Daily activities of the residents have been moved
   - Schools have moved to the relocation areas
   - New homes are far from markets and workplaces
5. Marriage with a resident from another village outside of Kajhu
6. Residents feel psychological trauma from the tsunami if they live near the coast
7. There are not enough rooms to satisfy all of their needs, like bedrooms, kitchens, and bathrooms
8. Houses owned by heirs
   - Still underage and living with other families
   - Own a house in another place so the aid house is unoccupied

Lesson Learned

1. The process of building aid houses was conducted in accordance with the Rehabilitation and Reconstruction Concepts of BRR NAD-Nias (Figure 3.10) and was supervised, primarily during the phase when data was being collected on aid recipients (verification) and houses were being built by contractors. The problem of individuals who received double the amount of aid by using a false identity did not occur again. The idea that the village officials helped people get aid based on their own personal interest caused conflict within the community.
2. The design of aid houses used standard housing specifications and material of good quality that was strong and would not damage the health of occupants.

![Policy Design Diagram]

Figure 3.11 Design Policy

3. The provision of basic infrastructure for residences (running water, drainage, sanitation, roads, and electricity) was also accounted for. The destruction caused by the earthquake and tsunami resulted in the interruption of infrastructure services and in some residential locations, the infrastructure is still in need of repair. In Kajhu, most people complain about the availability of clean water and streets, which are still lacking.

4. Organizations that gave aid in the form of houses came from various backgrounds. Some had little experience in building aid houses, such that many obstacles, both technical and non-technical, were encountered during the construction process.

5. The community believes that the provision of aid houses in the form of construction materials and wages for labor would be better than the direct provision of aid houses that was attempted by many institutions. The houses provided did not at all meet the standards for inhabitable houses.

Field Documentation
Cross-Sectoral Issues

1. Economy
   One of the background reasons for giving aid houses to tsunami victims who had lost their homes was to help them rebuild their family economies. It was hoped that by having a place for families to shelter and rest, victims could focus on finding work. Several shops were built along the Banda Aceh – Krueng Raya road, showing that the local economy is moving in a positive direction.

2. Health
   There are health facilities to serve the population in Kajhu, in the form of a public health center, although the facilities and health workers are insufficient. In several aid houses can be found a lack of sanitation facilities and insufficient drainage, along with ground water that is not fit for consumption (PDAM water is not yet connected in the houses). This may be one reason that the aid houses are unoccupied.

3. Education
   The population of Kajhu has long demonstrated an awareness of the importance of education. Education facilities from kindergarten to SLTA level are available, and many students have received scholarships to aid children from families affected by the tsunami.

4. Environment
   Kajhu is located very close to the coast, so it was one of the areas in which coastal rehabilitation programs were carried out, including replanting of mangrove forests to provide a habitat for various life forms and protect the coast from abrasion.

5. Gender
   It was thought that there would be differences in treatment of families receiving aid houses depending on whether the head of household was a woman or a man, but after conducting interviews this problem was not found in the field. Several facts mentioned by the interviewees indicate that some people received two or more houses, while others received houses but were not tsunami or conflict victims. From these occurrences, it can be seen that careful attention is needed in the verification phase before designating recipients of aid housing.

3.2.3. Case Study 3: Community Satisfaction Level Regarding Aid Houses: A Case Study of the Indonesia-China Friendship Village

General Description

This study was conducted in the Indonesia-China Friendship Village, also known as "Jackie Chan Town," located on the hill of Desa Neuheun in Mesjid Raya sub-district, Aceh Besar, about 17 kilometers from Banda Aceh. The government of China built 606 Type 42 houses on 22.4 hectares of land. The residents of the village lost their homes in the tsunami on 26 December 2004, and come from various professional and ethnic backgrounds, including fishermen, becak (motorbike pedicab) drivers, traders, employees, and entrepreneurs. Some are ethnically Acehnese, while some are mixed Acehnese-Javanese, Chinese, and other ethnicities.

The construction of these residences for tsunami victims resulted out of an agreement between the Indonesian and Chinese governments; reached when Indonesian President Susilo Bambang Yudhoyono (SBY) visited China on 28 July 2005. The agreement was furthered by donations from the Chinese community and the cooperation of the Aceh Besar government in selecting a location. Construction was funded by the China Charity Federation and the Red Cross Society of China, and was carried out by a Chinese contracting firm, Synohydro Corporation China, which was made official on 19 July 2007. The reconstruction effort cost USD 7 million (around Rp 65 billion), and was China’s largest grant project to date. The village is located at an elevation of 300 meters and is 1.5 km from the coast. This means that the village is safe from future tsunamis and has a beautiful view over the surrounding area.
The Indonesia-China Friendship Village also contains religious buildings, including a large and beautiful mosque, a kindergarten, elementary school, polyclinic, meeting hall, small market, and exercise facilities including a basketball court and soccer field. The residents initially had some difficulty in terms of access to water because of the elevation, but the BRR Aceh Nias (Rehabilitation and Reconstruction Agency Aceh-Nias) built wells in the area. Electricity is available 24 hours per day.

A. Characteristics of Respondents

The demographic details of the respondents who received aid houses in the Indonesia-China Friendship Village are displayed in the Table 3.7, 78 respondents were surveyed.

<table>
<thead>
<tr>
<th>Table 3.7 Characteristics of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic</strong></td>
</tr>
<tr>
<td><strong>Sex:</strong></td>
</tr>
<tr>
<td>a. Male</td>
</tr>
<tr>
<td>b. Female</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
</tr>
<tr>
<td>a. 21 - 30</td>
</tr>
<tr>
<td>b. 31 - 40</td>
</tr>
<tr>
<td>c. 41 - 50</td>
</tr>
<tr>
<td>d. &gt; 50</td>
</tr>
<tr>
<td><strong>Education Level:</strong></td>
</tr>
<tr>
<td>a. Elementary</td>
</tr>
<tr>
<td>b. Junior High School</td>
</tr>
<tr>
<td>c. Senior High School</td>
</tr>
<tr>
<td>d. University</td>
</tr>
<tr>
<td>e. Other</td>
</tr>
<tr>
<td><strong>Marital Status:</strong></td>
</tr>
<tr>
<td>a. Married</td>
</tr>
<tr>
<td>b. Unmarried</td>
</tr>
<tr>
<td><strong>Number of Family Members</strong></td>
</tr>
<tr>
<td>a. 1 - 2 People</td>
</tr>
<tr>
<td>b. 3 - 4 People</td>
</tr>
<tr>
<td>c. 5 - 6 People</td>
</tr>
<tr>
<td>d. &gt; 6 People</td>
</tr>
<tr>
<td><strong>Monthly Income:</strong></td>
</tr>
<tr>
<td>a. less than Rp. 500,000</td>
</tr>
<tr>
<td>b. Rp.500,000 - Rp.1,000,000</td>
</tr>
<tr>
<td>c. Rp.1,000,000 - Rp.1,500,000</td>
</tr>
<tr>
<td>d. Rp.1,500,000 - Rp.2,000,000</td>
</tr>
<tr>
<td>e. more than Rp.2,000,000</td>
</tr>
<tr>
<td><strong>Occupation:</strong></td>
</tr>
<tr>
<td>a. Public Servant</td>
</tr>
<tr>
<td>b. Private Employee</td>
</tr>
<tr>
<td>c. Entrepreneur</td>
</tr>
<tr>
<td>d. Other</td>
</tr>
<tr>
<td><strong>Period of Occupation of House</strong></td>
</tr>
<tr>
<td>a. 5 - 6 Years</td>
</tr>
<tr>
<td>b. 4 - 5 Years</td>
</tr>
<tr>
<td>c. 3 - 4 Years</td>
</tr>
<tr>
<td>d. 2 - 3 Years</td>
</tr>
<tr>
<td>e. &lt; 2 Years</td>
</tr>
</tbody>
</table>
The majority of respondents were between 31 and 40 years of age, had a high school education, and were married. Most lived in households of 3-4 people and had occupied their home for 3-4 years. Most had a monthly income between Rp 500,000 and Rp 1,000,000 and owned their own business.

### B. Level of Satisfaction with Residences

The survey results show that most residents were satisfied with the quality of the design and size of lots both in their former houses and in the Indonesia-China Friendship Village, with a mean satisfaction level of $\geq 2.33$. Variables related to design quality and lot size can be seen in Table 3.8, and satisfaction levels are shown in Figure 3.12 and Figure 3.13.

![Figure 3.12 Level of satisfaction with aid houses](image1)
![Figure 3.13 Level of satisfaction with former houses](image2)

#### Table 3.8 Variables Affecting Satisfaction Level Regarding Building Design and Lot Size

<table>
<thead>
<tr>
<th>Code</th>
<th>Building Design and Lot Size Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>House Measurements</td>
</tr>
<tr>
<td>A2</td>
<td>Room Measurements</td>
</tr>
<tr>
<td>A3</td>
<td>Number of Rooms</td>
</tr>
<tr>
<td>A4</td>
<td>House Appearance (front, back, and sides)</td>
</tr>
<tr>
<td>A5</td>
<td>Light and Air Circulation</td>
</tr>
<tr>
<td>A6</td>
<td>Lot Size</td>
</tr>
</tbody>
</table>

The respondents' level of satisfaction with the physical qualities of the houses in the Indonesia-China Friendship Village listed below as B1 through B5 falls within the category of "satisfied," while their satisfaction with variable B6 (roof condition) is categorized as "less satisfied" because many of the roofs have already started to leak. Their level of satisfaction with their former houses was "satisfied" for all six variables. The variables used to assess the physical quality of the buildings are shown in Table 3.9, while the results of the survey are shown in Figure 3.14 and Figure 3.15.

#### Table 3.9 Variables Affecting Satisfaction with the Physical Quality of Houses

<table>
<thead>
<tr>
<th>Code</th>
<th>Physical Quality Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Condition of doors and windows (open and close easily)</td>
</tr>
<tr>
<td>B2</td>
<td>Quality &amp; condition of flooring</td>
</tr>
<tr>
<td>B3</td>
<td>Quality &amp; condition of walls, including evenness and cracking</td>
</tr>
<tr>
<td>B4</td>
<td>Quality &amp; condition of paint on walls</td>
</tr>
<tr>
<td>B5</td>
<td>Quality &amp; condition of ceiling</td>
</tr>
<tr>
<td>B6</td>
<td>Condition of roof regarding leakage</td>
</tr>
</tbody>
</table>
The level of satisfaction with the location of the houses was generally "satisfied" with regard to the variables of distance from a health center (C5), place of worship (C3), safety from flooding (C9), and noise level (C10). Respondents were "less satisfied" with the variables of distance from main roads (C1), ease of access to public transportation (C2), distance from workplaces, (C3) and distance from educational facilities (C4), and were "unsatisfied" with the distance from a market. The reason for their dissatisfaction is that there is no public transportation to the development, and the location itself is uphill from the main road and other facilities. The only educational facilities in the village itself are a kindergarten and elementary school, while other schools are outside of the village. Market facilities have been provided in the Indonesia-China Friendship Village, but the market is not operational, for reasons that are not clear. Thus, residents must leave the village to find the closest market for their daily shopping.

If compared to the respondents’ satisfaction level with their previous homes, there is clearly a large difference. The respondents were "satisfied" with their previous homes with regard to variables C1 through C9, and only regarding variable C10 (noise) were they "less satisfied." The variables regarding location can be seen in Table 3.10, and satisfaction levels are depicted in Figure 3.16 and Figure 3.17.

Table 3.10 Variables Affecting Satisfaction Level Regarding Location

<table>
<thead>
<tr>
<th>Code</th>
<th>Location Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Distance from main road to the housing complex</td>
</tr>
<tr>
<td>C2</td>
<td>Ease of access to public transportation</td>
</tr>
<tr>
<td>C3</td>
<td>Distance from workplace</td>
</tr>
<tr>
<td>C4</td>
<td>Distance from educational facilities (schools)</td>
</tr>
<tr>
<td>C5</td>
<td>Distance from health facilities (Puskesmas/RS)</td>
</tr>
<tr>
<td>C6</td>
<td>Distance from places of worship</td>
</tr>
<tr>
<td>C7</td>
<td>Distance from law enforcement (Polsek/Polres)</td>
</tr>
<tr>
<td>C8</td>
<td>Distance from market</td>
</tr>
<tr>
<td>C9</td>
<td>Safety from flooding</td>
</tr>
<tr>
<td>C10</td>
<td>Noise level</td>
</tr>
</tbody>
</table>

The level of satisfaction with the facilities available was "satisfied" with regard to clean water (D1), electricity (D2), roads (D5), drainage system (D6), and street lighting (D10), as wells were provided for...
clean water, and roads, drainage ditches, and streetlights were also provided. Regarding the telephone networks (D3), green spaces (D7), fire stations (D8), and exercise facilities (D9), respondents were "less satisfied." Based on the information obtained, the telephone networks in the area are insufficient, and cellular phones receive only a weak signal. Also, the location is arid, not green, there are no fire stations, and exercise facilities are insufficient, with only a basketball court provided at the elementary school. Respondents were "unsatisfied" with trash disposal facilities (D4) as these facilities are unavailable in spite of being sorely needed. Trash disposal is the responsibility of individual homeowners, who burn it themselves or dispose of it in the closest available space.

The respondents were more satisfied with the facilities available at their former houses than with the facilities available in the Indonesia-China Friendship Village. With regard to their former homes, respondents were "satisfied" with six variables (D2, D3, D5, D6, and D10), and "less satisfied" with four variables (D1, D4, D8, and D9). There were no facilities with which they were "unsatisfied." With regard to the aid houses, respondents were "satisfied" with five variables (D1, D2, D5, D6, and D10), "less satisfied" with four (D3, D7, D8, and D9), and "unsatisfied" with one (D4). The variables affecting satisfaction with facilities can be seen in Table 3.11, and the satisfaction levels are shown in Figure 3.18 and Figure 3.19.

### Table 3.11: Variables Affecting Satisfaction Level Regarding Facilities

<table>
<thead>
<tr>
<th>Code</th>
<th>Facility Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>Clean water from PDAM or wells</td>
</tr>
<tr>
<td>D2</td>
<td>Electricity from PLN</td>
</tr>
<tr>
<td>D3</td>
<td>Telephone network</td>
</tr>
<tr>
<td>D4</td>
<td>Trash disposal system</td>
</tr>
<tr>
<td>D5</td>
<td>Roads</td>
</tr>
<tr>
<td>D6</td>
<td>Drainage system</td>
</tr>
<tr>
<td>D7</td>
<td>Environmental greening (parks/trees)</td>
</tr>
<tr>
<td>D8</td>
<td>Fire station</td>
</tr>
<tr>
<td>D9</td>
<td>Exercise facilities</td>
</tr>
<tr>
<td>D10</td>
<td>Street lighting</td>
</tr>
</tbody>
</table>

![Figure 3.18 Level of Satisfaction with Aid Houses](image1)

![Figure 3.19 Level of satisfaction with former houses](image2)

The satisfaction level of respondents regarding participation in the design process was found to be "less satisfied," and regarding participation in the execution "unsatisfied." Aid recipients were not involved in either the building design or construction process. In their former houses, on the other hand, some of the respondents were involved in planning, while others were not because their houses had been owned by their parents or had been built previously. The construction of the houses was entrusted to tradesmen or other parties, resulting in a satisfaction level of "less satisfied." Variables regarding participation levels are shown in Table 3.12, and satisfaction levels appear in Figure 3.20, and Figure 3.21.
Table 3.12 Variables Affecting Satisfaction with Participation

<table>
<thead>
<tr>
<th>Code</th>
<th>Participation Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Involvement in planning houses</td>
</tr>
<tr>
<td>E2</td>
<td>Involvement in building houses</td>
</tr>
</tbody>
</table>

Cross-Sectoral Issues

1. Economic
   - Several professions held by residents of the complex necessitate travel to remote workplaces, resulting in high transportation costs. A lack of educational facilities and the fact that the market is not operational add to the economic difficulties of residents, who must send their children to school far from home and pay more for transportation. Likewise, the lack of a local market means that housewives must shop in the city, where prices are higher. The population of the area is sufficient to support shops or a market catering to basic household needs, which would keep income in the community and reduce the costs of transportation.

2. Health
   - The health facilities and personnel in the area are inadequate. However, the environment and homes are conducive to health, as there is little air pollution and houses are well-ventilated so that air can circulate.

3. Education
   - A kindergarten and elementary school were built, but only the kindergarten is operational. However, there is little demand for the kindergarten's services. The aid recipients tend to send their children to schools in other locations because they are of higher quality.

4. Living environment
   - The amount of land available could be used by residents to plant trees, which would improve the overall environment of the complex.

5. Gender
   - Aid was not limited based on gender, although it was only provided to the heads of households, who are typically men. However, some women also received assistance.

Lessons Learned

1. The choice of location for the Indonesia-China Friendship Village for victims of the tsunami, on Desa Neuheun hill in Mesjid Raya sub-district, Aceh Besar, is highly strategic in terms of tsunami safety, as the complex is approximately 300 meters above sea level and 1.5 kilometers from the coast. It also has a beautiful view. However, it is somewhat inconvenient for residents who earn a living as fishermen or becak drivers, as fishermen must use public transportation to reach the places where their boats are docked and becak drivers depend on the city for work.

2. Although facilities were provided, including a kindergarten, elementary school, polyclinic, market, and meeting hall, not all of these facilities have been put to use by the Aceh Besar district government. However, these services are sorely needed by residents. One of the non-
functioning facilities is the elementary school, and there is apparently no reason that the education department has not yet opened this school. According the residents, all of the facilities are complete and the department only needs to send teachers. The only functioning school is the kindergarten. Residents with elementary-school-aged children must send them to schools in other locations.

3. The health facilities are also not being used to their maximum potential, because health officials are not present at every moment. If these facilities were functioning optimally, the residents would not need to travel to the city for treatment. In addition to the high cost of treatment, the need to take public transportation adds to their difficulties. Finding treatment at night is even more difficult, as not all of the residents own their own vehicle.

4. A market has been built, but is not in use. This makes it difficult for residents to satisfy their daily needs. To buy staple foods, residents must go to the city as there is no shop in the village and travelling salesmen seldom visit. Where there are shops or salespeople, their product selection is incomplete.

5. The residents of the Indonesia-China Friendship Village do not have access to modes of public transportation that provide regular service to the complex. This difficulty is added to by the fact that the complex is located on a hill.

6. Clean water is not available at all times, but is available to each house in turn. The availability of wells has not satisfied the expectations of residents.

7. Waste disposal facilities must be provided.

There is no law enforcement, which should also be provided. Although there are various shortcomings of the village, the residents are thankful for the assistance they received from the Chinese government. In addition to large lots and houses, the quality of the buildings is quite high and the panorama is beautiful. The wide yards can be used for orchards, planting flowers, or growing gardens in which to relax. The extra space can also be used for building additions to the houses although there are various shortcomings of the village, the residents are thankful for the assistance they received from the Chinese government. In addition to large lots and house dimensions, the quality of the buildings is quite high and the panorama is beautiful. The wide yards can be used for orchards, planting flowers as a hobby, or growing gardens in which to relax. The extra space can also be used for building additions to the houses.
The gate at the entrance of the Indonesia-China Friendship Village

A view of the settlement

Unused market facilities

Public mosque

School Buildings (Kindergarten)
3.3. Infrastructure

3.3.1. Case Study 1: Revitalization of Clean Water Services by PDAM Tirta Mountala, Siron Branch, Aceh Besar

Water is one of the most vital natural resources for all living creatures. The human body is comprised of 65% water. Ground water is one alternative to fulfill the need for water, but it is limited in both quality and quantity. In addition, excessive and unbalanced use of ground water can have side effects, causing sinkholes or drawing in ocean water. The availability of clean water is crucial to daily activities in a dynamic city. To fill an urban population’s need for clean water, direct water sources like surface and rainwater cannot be relied upon, because these sources are often polluted, both directly and indirectly, by the population’s own activities.

Population growth results in an increase in water needs. Uses of water in urban areas include, among others, drinking water (residential), industrial usage, and business usage (trading/shops). PDAM (Perusahaan Daerah Air Minum, or the Regional Drinking Water Service) is required to provide clean water that is fit for consumption by residents. Management of clean water services for community needs in Aceh Besar is handled by PDAM Tirta Mountala.

Clean water services were disrupted by the Aceh tsunami in 2004. After this event, repairs and further development were needed. This study focuses on PDAM Tirta Mountala’s revitalization of clean water supplies in Aceh Besar, including structural improvement measures, and the need to increase the quality and quantity of clean water. It aims to provide a better understanding of the progress that has been made in the supply of clean water and the development of water service structures, from before the tsunami (before December 2004), through the rehab-reconstruction phase (2005-2009), to the present (2010). A map of the area studied is shown in Figure 3.22.

![Figure 3.22 The area where clean water is supplied by PDAM Tirta Mountala, Aceh Besar.](image-url)
PDAM Tirta Mountala Aceh Besar has a central office in Jantho, established in 1993 under the name of BPAM Aceh Besar District. PDAM Tirta Mountala Aceh Besar has three branches:

1. Jantho Branch (Intake Kr. Mountala and IPA Kr. Buga) servicing Jantho and Seulimeum, Kuta Cot Glie, and Indrapuri sub-districts.
2. Darul Imarah Branch (IPA Mata le and Bronkap Gle Taron) servicing Darul Imarah, Darul Kamal, Lhoknga, and Peukan Bada sub-districts.
3. Siron Branch (Intake Luthu and IPA Siron I and Siron II) servicing Montasik, Suka Makmur, Blang Bintang, Barona Jaya, Kuta Baro, Darussalam, Baitussalam and Mesjid Raya sub-districts.

This report will focus on the Siron branch of PDAM Tirta Mountala. This branch was chosen because much of the water it handles is for coastal areas and new residences for tsunami victims.

Clean Water Infrastructure in Aceh Besar

PDAM Tirta Mountala Aceh Besar’s clean water processing system has six sources Jantho (City), Seulimeum, Luthu, Siron, Mata le, and Gle Taron. Clean water processing installations (IPA) at PDAM Tirta Mountala Aceh Besar currently have an installed production capacity of 225l/sec and an actual production capacity of 195 l/sec from these six sources. Before the tsunami, the installed capacity was around 123.5 l/sec and operational capacity (real production capacity) of 98.5 l/sec.

Before the tsunami, PDAM Tirta Mountala Aceh Besar serviced 6,067 connections (active connections) out of the entire population of Aceh Besar district with a water loss (NRW) of around 49%. At present, PDAM Tirta Mountala Aceh Besar services around 11,016 subscribers including public taps (data year 2009), distributed across 16 of Aceh Besar’s 23 sub-districts, with a water loss (NRW) of around 37%.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Unit</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Population</td>
<td>People</td>
<td>296,541</td>
</tr>
<tr>
<td>2</td>
<td>Sub-Districts</td>
<td>Sub-Districts</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>Villages</td>
<td>Villages</td>
<td>566</td>
</tr>
<tr>
<td>4</td>
<td>Serviced Villages</td>
<td>Villages</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>Number of Connections (SR)</td>
<td>Connections</td>
<td>11,935</td>
</tr>
<tr>
<td></td>
<td>- Active</td>
<td>Connections</td>
<td>10,836</td>
</tr>
<tr>
<td></td>
<td>- Inactive</td>
<td>Connections</td>
<td>1,099</td>
</tr>
<tr>
<td>6</td>
<td>Broken Water Meters</td>
<td>Water meters</td>
<td>500</td>
</tr>
<tr>
<td>7</td>
<td>SR Without Water Meters</td>
<td>SRs</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>HU Installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Active</td>
<td>HU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Inactive</td>
<td>HU</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3.23 Number of water connections before the tsunami (2004) and after recovery (2009)

Figure 3.24 Percentage of water loss before the tsunami (2004) and after recovery (2009)
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Unit</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Assumed Consumption</td>
<td>l/person</td>
<td>120</td>
</tr>
<tr>
<td>10.</td>
<td>Assumed Level of Service</td>
<td>l/person</td>
<td>59,675</td>
</tr>
<tr>
<td>11.</td>
<td>Percentage of Population Serviced</td>
<td>%</td>
<td>25.10</td>
</tr>
<tr>
<td>12.</td>
<td>Base Water Fee</td>
<td>Rp/m³</td>
<td>975</td>
</tr>
</tbody>
</table>

### B. Technical Data

1. Water Sources: Krueng Aceh, Krueng Mountala, Mata Air
2. Processing System: Complete IPA
3. Water Movement System:
   - Raw Water System
   - Distribution System
4. Intake Type: Bron capturing and Wells
5. Installed IPA Capacity: l/sec 120
6. Beneficial Capacity: l/sec 80
7. Operating Hours: Hours/day 24
8. Water Produced: m³/mo 442,619
9. Water Distributed: m³/mo 340,476
10. Water Sold: m³/mo 234,347
11. Water Loss: % 31.17
12. Diameter of Raw Water Pipes: mm 250
13. Diameter of Drinking Water Distribution Pipes: mm 75, 100, 150, 200, 300
14. Chemical Usage:
   - Alum: kg/mo 6,083 – 6,500
   - Chlorine: kg/mo 360 – 500
15. Chloride: PPM 122 – 355
16. Iron: PPM 0.04 – 0.28
17. Raw Water Pump Draw: l/sec 20,40,20,20,40,10
18. Distribution Pump Draw: l/sec (3 x 20) + (2 x 50)
19. Power Generator: KVA 135, 125, 50
20. PLN Power Installed: KVA (2 x 106) + 10
21. Turbidity:
   - Raw Water: NTU 0.25 - 105
   - Drinking Water: NTU 0.25 – 5.0
22. Tank Cars: Units 23
23. Number of Employees: People 54

### PDAM Tirta Mountala Siron Branch Infrastructure

PDAM Tirta Mountala Siron Branch, which formerly serviced four sub-districts, currently services seven sub-districts: Ingin Jaya, Darussalam, Baitussalam, Darul Imarah, Kuta Baru, Kruen Barona Jaya, and Sukamakmur.

### Service Conditions of PDAM Tirta Mountala Siron Branch

#### Villages serviced

Figure 3.25 shows that before the tsunami, eight of 53 villages (14%) were serviced. During rehab-reconstruction (2005-2009), this number remained the same, while at present (2010) 37 of 87 villages (43%) are being serviced. Thus, the number of villages being serviced has increased.

#### Number of Connections (SR)

The number of residential connections (SR – sambungan rumah) before the tsunami (before December 2004) and during rehab-reconstruction (2005-2009) was 450. Currently (2010), the number of residential connections is 5,861, which is 13 times the previous number (Figure 3.26).

The number of active residential connections before the tsunami and during rehab-reconstruction (2005-2009) was 431 (96%). In 2010, the number of active connections was 5,852 units (99.8%).
**Broken Water Meters**

The current number of broken water meters is 775. Better equipment maintenance and an increase in the number of residential connections is needed.

**Pipe Network**

The pipe network before the tsunami and during rehab-reconstruction (2005-2009) covered a distance of 19 km, while currently (2010) it has a length of 45 km. A total of 17 km of pipes were destroyed in the tsunami (Figure 3.27).

**Basic Charges for PDAM Water**

The base PDAM water charge before the tsunami and during rehab-reconstruction (2005-2009) was Rp 300. It is currently (2010) Rp 1,275.

**Consumer Payments for PDAM**

The level of consumer payments was 65% before the tsunami (before December 2004), 35% during rehab-reconstruction (2005-2009), and is 75% today (2010) (Figure 3.28).

**Conditions of PDAM Technical Data: Tirta Mountala Siron Branch**

PDAM Tirta Mountala Siron Branch water sources come from complete clean water processing installation (IPA). Water is moved using a pump system both before and after processing

- IPA Capacity
The installed IPA capacity and beneficial capacity before the tsunami (before December 2004) and during rehab-reconstruction (2005-2009) was 5 l/sec. Currently (2010), the installed IPA capacity is 100 l/sec and the beneficial capacity is 85 l/sec. The installed IPA capacity has been developed and is currently 20 times its previous capacity, as can be seen in Figure 3.29 below.

- **Water Produced, Distributed, and Sold**

The rapid IPA capacity development is related to an increase in the amount of water produced, an eleven fold increase over the previous amount.

- **Water Loss**

Water loss was 9.8% before the tsunami (before December 2004), 15.3% during rehab-reconstruction (2005-2009), and is 3.7% is currently (2010). The current water loss is relatively small compared to earlier because the distribution network is better than it was before.
Use of Chemicals

The increase in water production influences the additional usage of chemicals as shown in the table below. For example, use of alum is currently 7,500 kg/month while it was previously only 1,000 kg/month. Use of chlorine is currently 450 kg/month while it was previously only 30 kg/month.

![Chemical usage chart]

Figure 3.32 Chemical usage

### Table 3.14 Technical and Service Conditions of PDAM Tirta Mountala Siron Branch

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Unit</th>
<th>DATA</th>
<th>SB</th>
<th>SR</th>
<th>SK</th>
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<td>A.</td>
<td>Services</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Population</td>
<td>People</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Number of Sub-Districts</td>
<td>Sub-districts</td>
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<td>4</td>
<td>7</td>
<td></td>
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<td>3.</td>
<td>Number of Villages</td>
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<td>58</td>
<td>58</td>
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<td>4.</td>
<td>Villages Serviced</td>
<td>Villages</td>
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<td>8</td>
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<td>5.</td>
<td>Number of Connections</td>
<td>Connections</td>
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<td>450</td>
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<tr>
<td></td>
<td>Active</td>
<td>Connections</td>
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<td>431</td>
<td>5852</td>
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<td>Inactive</td>
<td>Connections</td>
<td>19</td>
<td>19</td>
<td>9</td>
<td></td>
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<tr>
<td>6.</td>
<td>Broken Water Meters</td>
<td>Water meters</td>
<td>-</td>
<td>-</td>
<td>785</td>
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<tr>
<td>7.</td>
<td>Installed Pipes</td>
<td>km</td>
<td>19</td>
<td>19</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Broken Pipes</td>
<td>km</td>
<td>-</td>
<td>17</td>
<td>-</td>
<td></td>
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<tr>
<td>9.</td>
<td>Base PDAM Water Charge</td>
<td>Rp/m³</td>
<td>300</td>
<td>300</td>
<td>1275</td>
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<td>10.</td>
<td>Water Meter Readings</td>
<td>Times/mo</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Consumer Payments</td>
<td>%</td>
<td>65</td>
<td>35</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>Technical Data</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1.</td>
<td>Water Source</td>
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<td>Krueng Aceh</td>
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<td></td>
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<td>2.</td>
<td>Processing System</td>
<td>IPA Complete</td>
<td>IPA Complete</td>
<td>IPA Complete</td>
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<td></td>
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<tr>
<td>3.</td>
<td>Flow System</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Intake Type</td>
<td></td>
<td>Well</td>
<td>Well</td>
<td>Broncaptering</td>
<td></td>
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<tr>
<td>5.</td>
<td>Installed IPA Capacity</td>
<td>l/sec</td>
<td>5</td>
<td>5</td>
<td>100</td>
<td></td>
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<td>6.</td>
<td>Actual IPA Capacity</td>
<td>l/sec</td>
<td>5</td>
<td>5</td>
<td>85</td>
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<td>7.</td>
<td>Operating Hours</td>
<td>Hours/day</td>
<td>24</td>
<td>24</td>
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<tr>
<td>8.</td>
<td>Water Produced</td>
<td>m³/mo</td>
<td>17000</td>
<td>16000</td>
<td>195000</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Water Distributed</td>
<td>m³/mo</td>
<td>16350</td>
<td>15650</td>
<td>179950</td>
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<tr>
<td>10.</td>
<td>Water Sold</td>
<td>m³/mo</td>
<td>14750</td>
<td>13250</td>
<td>173250</td>
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<tr>
<td>11.</td>
<td>Water loss</td>
<td>%</td>
<td>9.8</td>
<td>15.3</td>
<td>3.7</td>
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<tr>
<td>12.</td>
<td>Diameter Raw Water Pipes</td>
<td>mm</td>
<td>150</td>
<td>150</td>
<td>300</td>
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</tr>
<tr>
<td>13.</td>
<td>Diameter Drinking Water Dist. Pipes</td>
<td>mm</td>
<td>150</td>
<td>150</td>
<td>350</td>
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</tr>
<tr>
<td>14.</td>
<td>Chemical Usage</td>
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<td></td>
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</tr>
<tr>
<td>15.</td>
<td>Alum</td>
<td>kg/mo</td>
<td>1000</td>
<td>1000</td>
<td>7500</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Chlorine</td>
<td>kg/mo</td>
<td>30</td>
<td>30</td>
<td>450</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Chloride</td>
<td>PPM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Iron</td>
<td>PPM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Raw Water Pump Draw</td>
<td>l/sec</td>
<td>5</td>
<td>5</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Future Development Plans for PDAM Installations

Based on a 2006 study by ESP, in the Aceh Besar Infrastructure Outline Concept Plan it was recommended that the PDAM Tirta Mountala Aceh Besar clean water system explore the possibility of bringing clean water using gravity from Krueng Mountale, by way of Jantho city to Seulimum, Indrapuri, Banda Aceh, and surrounding residential districts.

To service domestic needs in Seulimum, there are plans to create a transmission route approximately 11 km long along the road from Jantho to the Banda Aceh–Sigli Road toward Seulimum. From Jantho intersection in Seulimum toward Banda Aceh, there are three possible public routes: along the Banda Aceh–Sigli road, following the Krueng Aceh irrigation canal, or along the old train track (no longer in use) with a total distance of 32 km.

The system from Jantho can be interconnected (with adequate pressure) in the area of Lambaro:

1. Connection with the PDAM Tirta Daroy Banda Aceh network in WTP Lambaro (adding around 2 km of pipes).
2. Connection with the PDAM Aceh Besar network in WTP Siron 2 (adding around 2 km of pipes).
3. PDAM Siron Branch plans to add residential connections in areas with the highest potential.
4. Installation of an IPA/Water Processing plant at the PDAM Siron Branch, increasing the WTP to 150 liters/second.

Customers’ Impression of PDAM Services

The results of a survey of 151 heads of household (kepala keluarga – KK) that use PDAM water in Kecamatan Ingin Jaya, Darussalam, Baitussalam, Darul Imarah, Kuta Baru, Kruen Barona Jaya, and Sukamakmur shows that 11 respondents (7.2%) were PDAM customers before the tsunami, 139 (92.1%) have become consumers since rehab-reconstruction, and only one (.7%) received a new PDAM connection in 2010.

These survey results show that there was an increase in new PDAM consumers during rehab-reconstruction (2005 to 2009) as compared to the number of consumers before the tsunami. While 7.2% of current customers were customers before the tsunami, the remaining 92.15% were added later, as can be seen in the following graphic.

![Figure 3.33 Number of PDAM consumer respondents](image-url)
Water Flow

In the survey regarding PDAM water availability before the tsunami, 18.18% of respondents said that water was available every day, 81.82% said that water sometimes did not flow, and 0% said that water was never available. Regarding PDAM water flow during rehab-reconstruction, 19.42% of respondents said that water flowed every day, 79.14% said that water was sometimes unavailable, and 1.44% said that water was never available. Regarding the current situation, 19.21% said that water was available every day, 79.47% said that water sometimes did not flow, and 1.32% said that water was never available.

Times of Water Flow

When asked about the time that PDAM water most often flowed before the tsunami, 54.55% of respondents replied that water was available day and night, 18.18% replied that water only flowed at night, and 27.27% replied that water flow times varied. Regarding the rehab-reconstruction period, 14.39% of respondents said that water was available both day and night, 66.91% that water was only available at night, and 18.71% that water flow was uncertain. Regarding current conditions, 17.22% of respondents said that water flows both day and night, 62.91% that water only flows at night, and 19.87% that water flow varies.

Hours of Flow

When asked about the number of hours that water can be expected to flow, 36.36% of respondents said that before the tsunami water could be expected to flow 24 hours/day, 54.55% that water flowed <18 hours/day, and 9.09% that water flowed <12 hours/day. During rehab-reconstruction, 12.95% of respondents said that water flowed 24 hours/day, 84.89% that water flowed <18 hours/day, and 2.16% that water flowed <12 hours/day. Currently, 14.57% of respondents said that water is available 24
hours/day, 82.78% that water is available <18 hours/day, and 2.65% that water is available <12 hours/day.

Figure 3.36 Hours of flow before, during and after recovery

**Water Volume/Draw, Water Pressure, and Water Quality**

When asked about the volume/draw before the tsunami, during rehab-reconstruction, and currently, almost all of the survey respondents said that the volume was sufficient, as can be seen in the table below. When asked about the volume/draw before the tsunami, during rehab-reconstruction, and currently, almost all of the survey respondents said that the volume was sufficient, as can be seen in the table below.

Figure 3.37 Water volume/draw before, during and after recovery

**Water Pressure**

When asked about water pressure before the tsunami, during rehab-reconstruction, and currently, nearly all of the survey respondents said that water pressure was sufficient, as can be seen in the table below.

Figure 3.38 Water pressure before, during and after recovery
Water Quality

When asked about water quality before the tsunami, during rehab-reconstruction, and currently, almost all survey participants reported that the PDAM water quality is good, as can be seen in the table below.

![Water quality before, during and after recovery](image)

Water Payment

Concerning payment before the tsunami, during rehab-reconstruction, and currently, almost all respondents said that they pay their PDAM bill on time or every month, and only a few respondents said that they do not pay on time, or once every 2 to 4 months. Rate of on-time customer payments before the tsunami (before December 2004) was 65%, during reconstruction (2005-2009) 35%, and is now 75%. It can be seen from this that most of the customers view paying their bill on time as their responsibility, as they have already received the services in question.

![Water payments before, during and after recovery](image)

Price of PDAM Water

When asked about the price of PDAM water before the tsunami, during rehab-reconstruction, and currently, almost respondents reported that the price was sufficient or appropriate, and only a few respondents said that the price was too high, as can be seen in the table below.

![Price of PDAM water before, during and after recovery](image)
The base price of water before the tsunami and during reconstruction (2005-2009) was Rp 300 and is now (2010) Rp 1275. It can be seen that the current price is 300% of what it was before the tsunami. A glance at customer willingness and timeliness in paying shows that this increase has not caused customers to postpone or fail to make their payments. However, the customers’ own levels of responsibility have the highest influence on whether or not they pay.

Lessons That Can Be Taken from PDAM Tirta Mountala Siron Branch Water Service Revitalization

Currently, PDAM Aceh Besar’s Siron branch draws its water supply from only one source, Krueng Aceh River. In the long term this is risky because farther upriver the river flows through farmland (primarily rice paddies) and is thus vulnerable to pollution from pesticides used by farmers. In addition, in several locations the river is crossed by bridges on the Banda Aceh-Medan highway. Many different kinds of vehicles use these bridges, including tanker trucks carrying oil. This creates the potential for pollution from automobile accidents if an oil truck plunges into the river. Because of this, an additional water source is needed, possibly from lakes, reservoirs, springs, or waterfalls elsewhere in Aceh Besar.

PDAM Aceh Besar’s Siron branch uses a pump to send water to residential areas because there is no pressure difference between residences and the IPA. The location of the IPA and residential areas are at similar elevations. If raw water was taken from hills or a higher elevation, then the water distribution system could use a gravitation system, which would decrease production fees.

Increasing IPA capacity and length of pipes from the original 19 kilometers contributed to an increase in service, primarily in the number of residential connections, which is now 13 times higher than it was before the tsunami. This increase has necessitated an increase in number and capacity of employees. If human resources cannot handle the needs of the system, services will be of a lower quality than the facilities themselves.

Most of the PDAM pipes before the tsunami were PVC or steel, and there were many leaks. During rehabilitation and reconstruction, the pipes given by donors were HDPE. If the addition of new pipes was not accompanied by replacement of old leaky pipes, PDAM would experience a high loss of water and the service quality would be inferior to that in which all pipes were replaced. According to many customers, this could be why PDAM water is not available 24 hours a day, 7 days a week. However, from survey data it appears that water loss after the tsunami has declined to less than 50% of its pre-tsunami rate, from 9.8% to 3.7%.

Regarding customers’ willingness to pay new and higher prices, this has encouraged PDAM to improve service quality, including water pressure, hours water is available, and water quality. It appears that customers are willing to pay more as long as PDAM water fulfills their quality expectations.

Efforts to expand services in addition to those that have already been expanded, including water delivery to homes that are not covered by the pipe network, can also be done by PDAM with providing public taps. In this case, PDAM must consider payment methods for water taken from the public tap. Before installing these taps, PDAM must discuss with village leaders and citizens who will use the public tap. Expanding services to the poor should also be a target of PDAM.

3.3.2. Case Study 2: Reconstruction of Ulee Lheue Port

Ulee Lheue port is located at 5°34’1"N and 95°17’42"W, in Meuraxa sub-district, approximately two kilometers from the center of Banda Aceh city (Figure 3.42). The construction of Ulee Lheue port began with a feasibility study and detailed planning in 1998. Funding for port construction came from APBN and APBN Banda Aceh. Construction began in 2000, and operations commenced in 2003. Construction involved all port buildings and facilities and new piers were added to restore the previous port.
Before December 2004, Ulee Lheue port (a Type B port) was the main ferry terminal in Banda Aceh and was the main local transportation axis, serving 600 ferry passengers per day. The port also handles the transport of 15 tons of goods every day via ferry and provides a large-goods service (500 tons) to Sabang, Pulau Aceh, regions along Aceh’s west coast, and Simeulue. Before the tsunami, the harbor was protected by a breakwater along the north and south sides. The terminal proper was comprised of three floors made of concrete and also held the offices of the local harbormaster and other offices.

The facilities that had been built in 2003 (images appended) were as follows:

1. Port capacity : 1500 GRT
2. Harbor : 210 x 350 m² (depth -4.50 m)
3. Breakwater : 1,180 m
4. Revetment : 1,100 m
5. MB ferry pier : 1 unit (16 m)
6. Fast boat pontoon pier : 1 unit (65 m)
7. Passenger jetty : 1 unit (68 m)
8. Dolphin : 3 unit
9. Land gangway : 275 m
10. Parking lot : 3.200 m²
11. Reservoir and water tower : 1 unit (12 m²)
12. Terminal building : 3 floors (land area 910 m²)
Ulee Lheue port was completely destroyed as a result of the tsunami on 26 December 2004. In general, all port facilities were completely destroyed as a result of the earthquake and tsunami. This included heavy damage to the terminal building, access roads, breakwater and revertment, and MB ferry pier. The fast boat pontoon pier was carried away by the tsunami, and other supporting facilities sustained heavy damage. In addition, the harbor became shallower as a result of sedimentation and debris.

In June 2005, in recognition of urgent requests for aid in port rehabilitation, the Australian government (AusAID) through the Australia-Indonesia Partnership for Reconstruction and Development (AIPRD), gave AUD 2.6 million to UNDP to implement phase 1 in the rebuilding of the port. In October 2005, when the harbor had been cleared, AusAID gave another AUD 8 million to pay for phase 2, the recovery of all port facilities.

Work done in rehabilitation and reconstruction from 2005 to 2008 consisted of:

1. Cleaning and dredging the harbor
2. Building a breakwater and revertment
3. Rehabilitation of the MB ferry pier
4. Planning and building a terminal building and complementary facilities
5. Building a fast boat pontoon pier
6. Building parking facilities
7. Building a wall around the port

The Ulee Lheue port returned to operation less than one year after experiencing total destruction. After Ulee Lheue port resumed operations less than one year after experiencing total destruction. After great improvements to the breakwater (it was extended to 1.4 kilometers) and the construction of a retaining embankment and interim ferry terminal (2005-2006), the volume of services to Sabang increased from 7 to 10 times per week, handling more than 8,000 passengers and 500 vehicles on average every month. The level of daily crossings has increased more than 50% since 2005.

In 2007 and 2008, UNDP continued developing the harbor and restoring supporting facilities, primarily by building a breakwater, improving service ways and canals in the area around the harbor, and building a new pier in the form of a 75-meter jetty for the fast boats servicing the Ulee Lheue – Sabang crossing. The new fixed pier replaces the moveable pier that had been built previously and which was totally destroyed in the earthquake and tsunami.

Ulee Lheue port facilities that had been built by UNDP by 2009 (description attached) included:

- Total port area: 150,000 m²
- Port capacity: 1500 GRT
- Harbor: 210 x 350 m² (depth -5.10 m)
- Terminal building: 1 floor (910 m²)
- Passenger jetty: length 68 m; width 11.8 m
- Fast boat docking jetty: length 75 m; width 15.1 m
- MP ferry dock: length 16 m; width 7.1 m
- Land gangway: 275 m
- Breakwater: 1,670 m
- Mooring dolphin: 3 units
- Breasting dolphin: 3 units
- Moveable bridge: 1 unit
- Marine beacon: 1 unit
- Land beacon: 4 units
- Ticket inspection post: 25 m²
- Clean water tower and installation: 1 unit
- Roads and parking lot: 8,274 m²
• Drainage system, garden, and greenway

Ulee Lheue Port is currently owned by the Banda Aceh city government and managed by the Banda Aceh City Department of Transportation. The port capacity falls under the requirements of a Type B port. Facilities at the port include:

**Land-based facilities**

1. Terminal building and offices for management and harbor services, including prayer room, immigration office, health office, quarantine room, and customs.
2. Vehicle weigh station
3. Passenger gangway for boarding/leaving ships
4. Flammable material storage bunker
5. Clean water, electricity, and telecommunications
6. Access by road and/or train
7. Fire prevention facilities
8. Parking area for vehicles to be loaded onto the boat
9. Parking for passengers

**Mainland facilities**

1. Area for offices supporting port facilities (UPTD)
2. Solid and liquid waste collection facilities
3. Business space (shops/cafes)
4. Port development area
5. Other public facilities (park and greenway)

**Water facilities**

1. Shipping and port entrance channels
2. Pier and jetty, along with docking facilities
3. Harbor for navigation and docking
4. Breakwater and revertment
5. Port supervisor/guide tower
6. Signal flares and dolphin

**Aquatic facilities**

1. Sufficient area for long-term development
2. Aquatic area for ship maintenance facilities
3. Ship trial area (sailing trials)
4. Aquatic area for emergency needs
5. Aquatic area for the needs of government/security ships

A December 2010 survey of passengers and dock workers regarding port management and services found that such management and services are sufficient to meet current needs. In general, the facilities provided are considered to be adequate and management and maintenance are being performed well, but services provided to passengers by workers and staffs still need to be improved.

Several conclusions can be drawn from the results of the above survey:

• All (100%) of the respondents use the port to get to Sabang, while only a small portion also go to Pulau Aceh (less than 5%).
• The port facilities that are deemed to function well are the parking lot, port managers, immigration and customs, passenger waiting room and ticketing, arrival and departure terminal, prayer room, and canteen.
The port facilities that are not functioning properly are the information office, quarantine room, health facilities, and vehicles weigh station.

The service workers that were rated to be sufficient are those involved in the management of the port entrance/exit, staffing and general management of the port, immigration, customs, and quarantine, vehicle parking, and handling passengers and vehicles boarding and leaving the ferry.

The service workers that were reported to be unsatisfactory and needing improvement are those involved in health services (doctors and nurses), ticketing (both fast and slow boats), information for passengers, and the vehicle weigh station and cleaning staff.

Recommendations for improving the port’s management and services include:

1. Improve the structure and infrastructure, and most importantly, improve passenger safety, ensuring that vehicles are properly weighed against ship capacity.
2. Provide passenger ticketing services in more than one location, especially during high-traffic periods, by using an online system or opening a ticket booking counter.
3. Improve the care and maintenance of all port facilities, ensuring that related activities are conducted routinely and systematically, with particular attention paid to those facilities related to passenger services.
4. Provide an information center or office regarding the port and tourism destinations in Aceh (especially in Banda Aceh and Sabang), to provide clear and easily-accessible information to domestic and foreign visitors.
5. Improve health services.
6. Improve and widen the parking lot for motorcycles intending to board the ferry.
7. Improve port cleanliness and comfort.

The number of passengers using Ulee Lheue port to access Sabang and Pulau Aceh averages 14,600 people per month. The average rate of 2- and 4-wheeled vehicles that make the crossing is 4,385 per month. The annual number of trips made through Ulee Lheue port from 2006-2010 is shown in Figure 3.44.

![Figure 3.44 Annual number of passengers and vehicles traveling through Ulee Lheue port (Source: UPTD Pelabuhan Ulee Lheue, 2011)](image-url)

For the years 2009 and 2010, the number of passengers to Sabang and Pulau Aceh on each boat are shown in Figure 3.45 and Figure 3.46.
A detailed breakdown of passenger numbers each month, on each of the four boats, is provided in the appendix.

### 3.3.3. Case Study 3: Reconstruction of Schools in Meuraxa Sub-District, Banda Aceh

Banda Aceh is the capital of Aceh province and the capital of Banda Aceh municipal. According to the 2000 census, the population was just over 220,000. Banda Aceh has an area of approximately 64 km² and is comprised of nine sub-districts, including Meuraxa sub-district. It borders directly on the ocean on its north side, and experienced the highest rate of destruction in the earthquake and tsunami on 26 December 2004.

Most of the residents of Meuraxa are civil servants, traders, and fishermen. A small portion is construction workers, mechanics, or freelance laborers. More than three quarters of the population was killed in the tsunami. Before the tsunami (in 2004), the population was 38,814. In 2005, it was only 7,583.

In addition to residences, many government buildings, schools, places of worship, hospitals, and shops were destroyed by the tsunami. Other elements of the infrastructure were also damaged, including roads, bridges, and water pipes, and these also needed to be rebuilt.

To fulfill the need for places of education after the tsunami, the government and various NGOs built emergency schools. Schools in neighboring sub-districts were also used, and students studied there in the afternoons. In the efforts to rebuild Aceh that were coordinated by the BRR (Rehabilitation and Reconstruction Agency), schools were rebuilt on their former sites but under better conditions.

To obtain data about the conditions of schools in Meuraxa, a questionnaire survey was conducted. Of the respondents that returned the questionnaires, 66% were men and 70% had a bachelor’s degree (S-1). Most of the respondents were civil servants who worked in schools in Meuraxa sub-district (82%), while 9% were schoolchildren, 3% National Education Department staff, and 6% other local residents. Because
of the high number of tsunami victims, most of those who were asked for their input were new residents of the sub-district. The results of the survey are reported below.

School Data in Meuraxa Sub-District

In addition to several private universities, Meuraxa sub-district had nine elementary schools (SD), four junior high schools (SMP), and three high schools (SMU) distributed throughout the villages. Most of the schools were public (see table below).

### A. Elementary Schools (SD)

<table>
<thead>
<tr>
<th>No.</th>
<th>School Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SD Negeri 02</td>
<td>SD Negeri 10&lt;br&gt;SD Negeri 11</td>
</tr>
<tr>
<td>2</td>
<td>SD Negeri 49</td>
<td>SD Negeri 49</td>
</tr>
<tr>
<td>3</td>
<td>SD Negeri 13</td>
<td>SD Negeri 7&lt;br&gt;SD Negeri 8</td>
</tr>
<tr>
<td>4</td>
<td>SD Negeri 23</td>
<td>SD Negeri 23</td>
</tr>
<tr>
<td>5</td>
<td>SD Negeri 38</td>
<td>SD Negeri 38</td>
</tr>
<tr>
<td>6</td>
<td>SD Negeri 21</td>
<td>SD Negeri 21</td>
</tr>
<tr>
<td>7</td>
<td>SD Negeri 48</td>
<td>SD Negeri 48</td>
</tr>
</tbody>
</table>

The tables above shows that the number of elementary schools decreased from nine to seven, as several of the schools were combined. An interview with a National Education Department representative in Banda Aceh revealed that the reason for combining these schools (such that SDN 10 and SDN 11 became SDN 02, while SDN 7 and SDN 8 became SDN 13) was that the population in Meuraxa had decreased to such a degree that there were not enough students. However, the decrease in students did not have as much of an impact on the junior high and high schools because students for these schools also came from neighboring sub-districts. Particularly in the case of SMPN1 and SMU1, which are among the most highly-regarded school in Aceh, students would come from across the city and from other districts to enroll.

### School Infrastructure

Except for during reconstruction, the ownership status of the lands and schools did not change often. The lack of change in land ownership status shows that the government was managing its assets sufficiently.
Most of the land used for schools (75%) has been owned by the regional government since before the 2004 earthquake and tsunami. This shows that more of the schools were public than private, and also that the government assets were well managed after the 2004 earthquake and tsunami. There was an increase in the role of private parties (foundations) owning buildings during the rehabilitation and reconstruction period, as construction was carried out simultaneously throughout the area, giving NGOs opportunities to help all those in need.

**Implementation/Provision of Schooling**

Currently, schools have returned to pre-tsunami conditions, and are used in the morning. However, during rehabilitation and reconstruction, a number of schools held class in the afternoons because there were not enough classrooms. See Figure 3.49 below.

Post-tsunami, the physical condition of schools was greatly improved. Before the tsunami, there were still schools built out of wood (20%), but now all of the school buildings in the sub-district are permanent, made from reinforced concrete. The same is true of their furnishings. Because they received aid from various parties, the furniture in the schools is now all in good condition.
In general, before the 2004 earthquake and tsunami, classrooms were in fair condition but had some light damage. After the disaster, the schools that were rebuilt were in far better condition. This shows that the rehabilitation and reconstruction process raised the quality of classrooms in every school. The same was true of the teachers’ offices and the principals’ offices. See Figure 3.51.-Figure 3.53

Figure 3.50 Structure of school buildings

Figure 3.51 Condition of classrooms

Figure 3.52 Condition of teachers’ offices

Figure 3.53 Conditions of principals’ offices
Other facilities

During rehabilitation and reconstruction, practicums could not be held in the schools because the laboratories and equipment had been destroyed, but practicums have now returned to normal as a result of the restoration of pre-tsunami laboratory conditions. Figure 3.54 below shows that, although they were heavily damaged in the tsunami, the laboratory facilities in the junior high and high schools have now all returned to normal. The same condition is happened in the other facilities (Figure 3.54-Figure 3.58), including sports fields, libraries, and prayer rooms. However, as there are still some obstacles to be overcome in the operation and maintenance of libraries, those have not yet been 100% restored. Currently, the number of books in the libraries is only 80% of the pre-tsunami number.

Figure 3.54– Conditions of laboratories

Figure 3.55 – Conditions of sports fields

Figure 3.56 Conditions of libraries
A. Satisfaction with Buildings and Facilities

In addition to their satisfaction with efforts to rebuild schools, replace furniture, and restore other rooms and facilities to better condition than they were in before the tsunami, the respondents expressed appreciation for and satisfaction with the rehabilitation and reconstruction efforts made with regard to the quality of school buildings and other facilities. In general, respondents said that the current facilities are more than 25% better than their pre-tsunami counterparts (Figure 3.59 and Figure 3.60). Of course, this will also be affected by the availability of funds to maintain the facilities in good condition as long as possible.
In general, respondents expressed satisfaction with the results of the rehabilitation and reconstruction process both in regard to the quality of buildings and the school structures and infrastructure. This shows that the reconstruction of the educational structures and infrastructure in Meuraxa sub-district, which involved domestic and international agencies, was successful.

B. Involvement

From the results of the questionnaire, it appears that respondents understand the roles of the related parties in conducting various activities related to the teaching and learning process in schools. This can be seen in Figure 3.61 and Figure 3.63 below. It is interesting that respondents mentioned that schools received more assistance now than they did before the tsunami. Currently, aid is decreasing, and is only 3% of the amount given during rehabilitation and reconstruction.

The regional government’s role in education is in the improvement of curricula, raising the quality of human resources, and funding, including the BOS fund.
It is also important to note that the role of the community in terms of its involvement in the schools has experienced little change, remaining at around 95%. The community is involved in guarding the safety of the school environment and aiding in funding school activities, although the amount of money involved is relatively small.

Based on the information obtained, in general the respondents hoped that the regional government would play a larger role. Their greatest expectation was that there would be a scholarship program for students that could lighten the load of educating schoolchildren.

3.4. Governance

3.4.1. Case Study 1: Post-Tsunami Strengthening of Village Government: A Case Study in Lambada Lhok

General Description of the Location

Village (gampong) governments are the lowest unit in the governmental structure of Aceh. In Paragraph 2 of Federal Regulation (UU) Number 11, Year 2006, regarding the Governance of Aceh (UUPA), it is stated that:

1. The Region (Daerah) of Aceh is divided into districts/cities (kabupaten/kota)
2. Districts and cities are divided into sub-districts (kecamatan)
3. Sub-districts are divided into residencies (mukim), and
4. Residencies are divided into villages (kelurahan and gampong).

A glance at the stipulations above clarifies that the existence of these village governments, a governmental structure that is specific to Aceh, has received national acknowledgment. This is because the establishment of village governments has been clearly stated in a federal law formed by Indonesian Council of Representatives (DPRRI) and the President. This law recognizes the validity of not only village governments but also residency governments, both of which are Aceh-specific governmental structures that only appear in Aceh.

This case study was conducted in Lambada Lhok, Baitussalam Sub-District, Aceh Besar District, Aceh Province. Within the area of Baitussalam Sub-District are located 13 villages. One of them is Gampong Lambada Lhok.
The total population of Lambada Lhok before the tsunami was around 2200 people. After the tsunami, the remaining population was only 661, or about 30%.

Lambada Lhok is approximately 53 km from the capital of Aceh Besar District (Jantho) and approximately 15 km from the center of the capital of Aceh Province (Banda Aceh). The village occupies an area of 150 hectares along the coastline, so after the 24 December 2005 earthquake and tsunami, the residency was completely destroyed and nearly no structures remained.

The numbers of the 661 residents of Gampong Lambada Lhok, in further detail, can be found in the table below.

<table>
<thead>
<tr>
<th>No</th>
<th>Name of Neighborhood</th>
<th>Number of Households</th>
<th>Number of People</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bintara Gigieng</td>
<td>116</td>
<td>229</td>
<td>168</td>
<td>61</td>
</tr>
<tr>
<td>2</td>
<td>Blang Panyang</td>
<td>47</td>
<td>129</td>
<td>94</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Nahkoda Jambi</td>
<td>52</td>
<td>86</td>
<td>64</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Blang Galang</td>
<td>112</td>
<td>217</td>
<td>148</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>354</td>
<td>661</td>
<td>474</td>
<td>187</td>
</tr>
</tbody>
</table>

Source: Gampong Lambada Lhok.

Tracing again through the governmental structure in UU No. 11, 2006, it is seen that villages are on a lower structural level than residencies. As a governmental institution, the residency government is composed of imeum mukim as its executive head, tuha lajan as the people’s representative council, and imeum chik as Islamic religious leader, who formerly functioned as legal determiner (penutuoh hukoem) of the judicial body.

The residency is a federation, under which are several villages. Village governments are led by the keuchik as head of the executive branch, a tuha peut (legislative branch) and imeum meunasah (religious leader in the village). The keuchik is aided by a village secretary, treasurer, and several neighborhood leaders (ulee juroeng). The governmental structure described above has long been a tradition in Acehnese society, and has been preserved until the present day. However, during the New Order regime and rigid unification policies based on UU No. 5, 1979 regarding village (desa) governance, the existence of gampong governments were homogenized as they were across Indonesia, becoming desa governments. However, the structure and essence of a gampong government is quite different from that of a desa government.

**Recovery Status**

A Description of the Condition of Village Government before the Tsunami

According to respondents, Gampong Lambada Lhok before the tsunami had great power within Baitussalam Sub-District. The strategic position of Lambada Lhok can be seen from the number of government offices in the area. These offices and agencies include a public health center (Puskesmas), Polsek, Koramil, schools, and sources of income.

Its position is strategic in another way, in that there is a fish auction center (TPI) located nearby, which functions as a place to moor fishing boats and also as a fish market. The location of the TPI brings economic impacts, bringing income to the district and people of Lambada.
Before the tsunami, Lambada had offices related to public services, such as the Village Government Office. At that time, village government was conducted normally. However the conflict also influenced public services from the village government in Lambada.

From the beginning of the Military Emergency, the process of arranging resident identity cards (kartu tanda penduduk, or KTP) was conducted at the sub-district level. This had the implication of reducing the role of the village government, except for giving letters of introduction to those requiring identity cards. Meanwhile, other activities were still conducted by the village.

**Post-Tsunami Condition of Village Government**

**Emergency Government**

The occurrence of the earthquake and tsunami on 26 December 2004 had a significant influence on village governance in Lambada. Most of the government leaders passed away in the tsunami. However, the lack of government did not last long. Within less than two months, public services from the village government had already begun again. This process was conducted with limited services, although efforts were beginning to solve administrative problems.

The existence of this governance soon after the tsunami maintained the village government in the location studied, not excluding the quick action of the Section Head and Executor of Cabat Baitussalam (Teuku Iskandar) and the Regent of Aceh Besar (Rusli Muhammad) at the time, who verbally appointed one of the community leaders still living to serve as interim *keuchik*.

From the time of his selection as interim *keuchik*, Bapak Chairul Amri was active in coordinating and mobilizing all remaining potential in Lambada Lhok to preserve lives and gradually maintain daily existence. Village governance continued as an emergency measure with an “ala kadar” administration.

Compared to the destruction that befell the area of Lambada Lhok, the process of re-establishing services was very quick. This was also influenced by various parties who convinced the community not to dissolve in the existing atmosphere. They had to bear up under their new living conditions.

Along with the turning of the wheels of government, the process of daily life quickly returned, fishermen returned to the sea, and the position of the market and TPI were arranged. Compared to surrounding areas, Lambada Lhok was the first area to deal with this problem.
Cash for Work Program

One thing that also influenced speed of the recovery process in Gampong Lambada Lhok was a “cash for work” program introduced by foreign aid organizations for tsunami victims.

“Cash for work” was a program directed at tsunami victims, both men and women, encouraging them to clean their village and reefs/land from all of the objects left by the tsunami. The tsunami victims, in a form of mutual aid, were coordinated by the village head (keuchik) to work from morning to afternoon to clean up the village. On principle, citizens of the village worked primarily for their own benefit. Lunch and a daily wage were given to the workers.

Workers were picked up from their relocation locations by truck and taken to the village to clean. These trucks, in addition to functioning as vehicles to transport workers (tsunami refugees) to the village, were also used to clear tsunami debris and take it to the disposal site. Meanwhile, for lunch, rice was prepared by women from the village, cooked at the relocation site, and delivered to workers in the village.

After each day’s work, done by almost all remaining citizens of the village, the same afternoon the organizers of the cash for work activity, aided by foreign donors, paid the daily wages. Thus, wages was paid directly on the same day as the work. Due to this, the program was named “cash for work,” said Chairul, who at that time served as interim keuchik and also head coordinator of the Gampong Lambada Lhok cash for work program. The amount of the daily wage was Rp 40,000 for the keuchik-cum-coordinator, Rp 37,500 for group leaders, and Rp 35,000 for workers.

Cash for work is deemed to have been highly beneficial for tsunami victims because, besides receiving a daily wage, the most important part of their work was keeping busy and happy, consoling them and reducing their grief.

The cash-for-work program was monitored in the first months after the tsunami by foreign donors who bore the costs and received appreciation. The concern of the world community extended through various forms of aid was the main reason for the speed of Aceh’s recovery post-tsunami.

In the early days after the tsunami, the village government also began efforts to return various aspects of community life. Within limits, this was highly influenced by the speed with which the village government returned to normal. Supposedly, the government’s condition resulted in building cooperation with several institutions to build houses and various other facilities. The result of the cooperation between the Lambada Lhok village government and several community self-help institutions was that Gampong Lambada Lhok regulated the structures of village housing, equal land-use plans for the village, and a plan for village infrastructure.

Current Condition of Village Government

The profile of the Lambada Lhok village government has currently (2010) returned to normal, as it was before the tsunami. All leaders who perished in the tsunami have been replaced by new representatives.

Table 3.16 Village Leadership Structure

<table>
<thead>
<tr>
<th>Title</th>
<th>Before Tsunami</th>
<th>After Tsunami</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keuchik</td>
<td>Burhanuddin Ar</td>
<td>Chairul Amri, S Ag</td>
</tr>
<tr>
<td>Sekdes</td>
<td>M Yunus Abu</td>
<td>Asari M</td>
</tr>
<tr>
<td>Kaur pemerintahan</td>
<td>Tarmizi Hamid</td>
<td>Miftahuddin cut A</td>
</tr>
<tr>
<td>Kaur Pembangunan</td>
<td>Amir Yurizal</td>
<td>Fadli Yusuf</td>
</tr>
<tr>
<td>Kaur Kesra</td>
<td>Hasan Basri</td>
<td>Taufiq AH</td>
</tr>
<tr>
<td>Kaur keuangan</td>
<td>Munawar Lbr</td>
<td>Twk Wahidin</td>
</tr>
<tr>
<td>Kaur Umum</td>
<td>Husaini Ibrahim</td>
<td></td>
</tr>
<tr>
<td>Imam mesjid</td>
<td>Twk Hasbi</td>
<td>M Nizar, S Fil I</td>
</tr>
<tr>
<td>Imam Meunasah</td>
<td>Tgk Suleiman</td>
<td>Tgk Bukhari</td>
</tr>
<tr>
<td>Title</td>
<td>Before Tsunami</td>
<td>After Tsunami</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Ketua Pembangunan Mesjid</td>
<td>Ir Zulkifli A Karim</td>
<td>Maizaini ZA</td>
</tr>
<tr>
<td>Ketia UED-SP</td>
<td>Said Alwi, S Sos</td>
<td>Miftahuddin M Si</td>
</tr>
<tr>
<td>Fasilitator desa</td>
<td>Verawati and fitry syukri</td>
<td>Nurrhayati and Fadli yusuf</td>
</tr>
<tr>
<td>(Program PPK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kadus Galang</td>
<td>Armia Sulaiman</td>
<td>Asari M</td>
</tr>
<tr>
<td>Kadus Bintara Gigieng</td>
<td>Sulaiman ZZ</td>
<td>Sanusi ZZ</td>
</tr>
<tr>
<td>Kadus Blang Panyang</td>
<td>A. A Hamid Budiman</td>
<td>Abdul Kadir YS</td>
</tr>
<tr>
<td>Kadus Nahkoda Jambi</td>
<td>Mahzaini</td>
<td>Mahzaini ZA</td>
</tr>
</tbody>
</table>

Now, every head of family in Gampong Lambada Lhok owns a permanent house given with the aid of donors. Almost all of the houses given by non-governmental organizations (NGOs) have the same measurements, type 36. Additionally, the layouts of the houses are quite similar. Only the colors differ from one NGO donor to another.

The speed of completing rebuilding in this village was due to the amount of attention from NGOs, both international and national. The ease of access to the village, given its location near the capital city of Aceh province, is another factor that facilitated rehabilitation and reconstruction efforts. In addition, the enthusiasm of village leaders supported by Lambada Lhok’s spirit of mutual aid were a factor that eased organization of all rehabilitation and reconstruction efforts of public facilities – including residents’ homes – in Lambada Lhok.

According to information received from the research location, besides SDM, they did not meet with any meaningful barriers during the rehab-reconstruction process caused by the community. Obstacles occurred only occasionally, such as difficulty with supplies of cement, metal, and other materials needed for conducting the project.

At this point, almost all public facilities needed by the community and village government of Lambada Lhok have been rebuilt. Funding sources and management were almost entirely handled by donors. Aid was given directly by foreign governments, international NGOs, private businesses, and national NGOs. The community and village government only had to accept development projects that had already been planned by other agencies. In practice, the village residents were barely involved in executing various projects in the village.

Almost all of the workers on reconstruction projects in Gampong Lambada Lhok were brought in from other places. In general, there were many Javanese from North Sumatra. In this event, the role of the community and government of Gampong Lambada Lhok was to give moral support and protection to the workers.
Table 3.17 Public Facilities after Tsunami

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Number</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mosque</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Volleyball Court</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Soccer Field</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Deep Well</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Ice Factory</td>
<td>1 Unit</td>
<td>Good</td>
</tr>
<tr>
<td>Public Bathroom</td>
<td>8 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Village Meeting Hall</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Fisherman’s Hall</td>
<td>1 Unit</td>
<td>Good</td>
</tr>
<tr>
<td>Village Head Office</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Fish Auction Hall (TPI)</td>
<td>1 unit</td>
<td>Good</td>
</tr>
<tr>
<td>Public Health Center</td>
<td>1 Unit</td>
<td>Good</td>
</tr>
<tr>
<td>Koramil Office</td>
<td>1 Unit</td>
<td>Good</td>
</tr>
<tr>
<td>PKK Office</td>
<td>1 Unit</td>
<td>Good</td>
</tr>
<tr>
<td>School and Preschool</td>
<td>1 Unit</td>
<td>Good</td>
</tr>
</tbody>
</table>

Lessons Learned

Recovery Process

- Village government recovery program

The tsunami resulted in many members of the village government becoming victims. With the large number of victims described previously, the recovery process was an important part of returning to pre-tsunami conditions, as mentioned earlier in this report.

Regarding this facet, it may be said that the government still functions in Lambada Lhok. People who took the initiative to rebuild the village emphasized activities of data collection and return of village residents.

This process took its toll, although if measured retrospectively it seems to have been a simple process. However, if measured in the atmosphere at the time, the conditions made it difficult to conduct government activities normally.

According to informants, besides a limited workforce, those remaining divided their focus to search for family members who were lost in the tsunami.

1. Emergency governance in the village

The meaning of emergency government used here is in regard to the execution of duties within an emergency context. In regards to this facet, village government delegates, on their own initiative or as instructed by the village heads, conducts various duties, involving:

- Surveying the population. This duty is difficult under conditions where the people expected to conduct this duty have also been afflicted and must search for their family members. The project of surveying residents faced severe challenges in ascertaining the number of residents of Lambada Lhok who were safe and the number who were victims. After this, data collection also included searching for remaining people to reunite them with their family and community. However, the final stages of this project have not yet been completed.

- Livelihood function. In this regard, people were brought together and organized to clean their own homes and village. The problem was that besides cleaning their homes and village, they also had to try to find a living. In anticipation of this, an initiative came from certain institutions to pay for the process of cleaning individual homes and the village, approximately Rp 35,000 per day (for group leaders Rp 37,500 and village coordinator Rp 40,000 per day). The institutions that participated in the cash-for-work program were UNDP and USAID.
• Bringing residents home to their houses. In this phase, residents were organized to return to their homes. An obstacle was encountered in that the residents were still experiencing trauma. Those who were safe from the tsunami found it difficult to return to the village, although finally (some because they had no other option), they also returned to the village.

• Building homes and offices. The process of returning to the village and rebuilding homes met with constraints regarding capital. In this event, emergency government executives built relationships with various outside parties to obtain housing aid for the residents. From 450 heads of households, during the emergency period alone 200 aid houses were built by the NGO SOS. In the same period of time, KADIN also built 250 housing units for tsunami victims in Gampong Lambada Lhok.

2. Cash for work

If we look into the original idea, it was intended that the helpless population who were saved from the tsunami could obtain their own results. They did not do any work except for clearing their own homes and village of tsunami debris. Thus, the work done was not for other people but for themselves. Although they were working for themselves, they needed funds to support their lives in the meantime. Institutions like UNDP and USAID facilitated giving cash for work to those who cleaned their homes and village.

This program is currently being criticized because of its excesses and influence on future development, which has resulted in a trend that all work must be compensated. However, it can also be contended that at the time after the tsunami, people found it difficult to produce results so the initiative to pay anyone who worked to clean their homes and villages cannot be blamed. We must consider the atmosphere at that time, rather than the current environment.

3. Factors that influenced the speed of the village government recovery program

There was one extraordinary element in the experience of Lambada Lhok, which was the speed in which they assembled existing human resources to rebuild the village. With these human resources (albeit still minimal) they could quickly identify problems and prioritize solutions. Anticipating future needs, from the beginning they made a village plan to map existing problems in their village. From this mapping, steps could be taken to address these needs.

This problem-solving process made Gampong Lambada Lhok one of the quickest to be cleaned up. At the time other villages hit by the tsunami were still in disarray, unlike Lambada Lhok where solutions were already mapped and planned.

Awareness of the importance of human resources, Lambada Lhok also opened itself to activities that did not bring material benefits but were highly beneficial on the immaterial side. Various trainings conducted for the population of Lambada Lhok, were well-targeted and thoroughly executed.

Several trainings were held at the time, as follows:

• Training on land transfers and women’s rights, involving 45 people, and conducted by IDLO;
• Cadre Empowerment, held by AIPRD and attended by 30 people;
• Sanitation, given by CARE and joined by 30 people;
• Business Capital, attended by 12 people, held by BRR NAD-Nias;
• Home industry, conducted by PBB ILO Agency and involving 30 people;
• Farming, presented by AUSTRACARE and joined by 20 people;
• Posyandu Cadre, held by CWS and attended by 30 people.
4. Constraints faced at the time of recovery

The main constraint faced at the time of recovery was lack of human resources. This constraint was fully understood by those who were in charge of the emergency government. It was difficult to ask the citizens of Gampong Lambada Lhok to work to their fullest potential in the village because they were experiencing trauma and most of their mental energy was devoted to searching for missing family members.

Other obstacles were financing, facilities, and networking. Financing was an important constraint because at the beginning many institutions were doing recovery work but there was no consistent coordination. This caused several facilities to fail because there was no financing or aid. In addition, weak facilities caused obstacles to other activities. Networking was also weak, so that it was not known what should be delivered to where if something was needed quickly.

Unique Experiences in the Recovery Process

The most important, interesting, and unique experience in the recovery of Lambada Lhok was the awareness of government managers immediately following the tsunami of the need to unite existing human resources. The village government and community were also openly accepting of workers from other areas and ethnicities. This did not happen so easily before the tsunami.

With this strength, they prepared another plan to develop the village. To add to the number and quality of human resources, village government managers also strove to attract many institutions to strengthen the human resource capacity as is described above. Awareness as is described above was not possessed in such quantities by other areas. Most of the other areas mostly emphasized the need for material aid. Therefore, they experienced challenges in optimizing the ensuing recovery process.

Cross-Sectoral Issues

The experience in Lambada Lhok is not only limited to the events mentioned above. Several issues from other sectors were connected, as follows:

- Poverty

It must be noted that there was some awareness of economic empowerment, and this had an eventual impact on poverty reduction efforts.

The building of a fish auction Hall (Tempat Pelelangan Ikan – TPI) which also functions as a fish market for citizens of the surrounding area appears to have affected the community economy in Gampong Lambada Lhok.

Moreover, the TPI/fish market is along the side of the maid road, which is passed by many people. The location of the market, besides bringing customers to the traders, also makes it easy for other village citizens to buy fresh fish newly brought from the sea.

- Health

Strengthening the capacity of human resources regarding posyandu and other health systems is evidence that the issue of health was considered important in the recovery process of Lambada Lhok.

- Environment
If we follow the process of mapping Lambada Lhok, it becomes clear that there was a mature plan connected to management of the environment. Regarding this are several related issues, for example planning greenways, preparing trash management, and improving the quality of clean water sources.

- **Gender**

It may be said that, compared to other sectors, the issue of gender is ordinarily low-priority. In planning especially, the involvement of women was minimal. This must be viewed as part of the whole, taking into account that at the time, the conditions were influenced by the burden of trauma, so that there was not much concern for the well-being of women. This is different from the current conditions, in which attention to gender issues has begun to increase.

### 3.4.2. Case Study 2: Participatory Land Mapping and Certification to Clarify Land Ownership in Tsunami Impacted Areas (A Case Study in Kecamatan Baitussalam Kabupaten Aceh Besar)

#### Background

The tsunami that occurred in Aceh on 26 December 2004 brought to the surface various problems in Aceh. One of these was the problem of land rights. To handle legal matters, including land-rights issues, the central government issued several regulations, among them (1) Presidential Regulation No. 30, 2005 regarding the Master Plan for Rehabilitation and Reconstruction of Surroundings and Community Life in Nanggroe Aceh Darussalam and Nias Island, North Sumatra and (2) Replacement Government Regulation (PERPU) No. 2, 2007, regarding the Handling of Legal Matters Post-Earthquake and Tsunami in the Framework of Rehabilitation and Reconstruction of Surroundings and Community Life in Nanggroe Aceh Darussalam and Nias Island, North Sumatra.

In the execution of Paragraph 7 of PERPU No.2, the government enacted policies to conduct mapping and certification of land with the active involvement of landowners and the community. This program is called the Reconstruction of Aceh Land Administration System (RALAS). The execution of this program was fairly effective, as indicated by the fact that many plots of land in areas hit by the tsunami have been certified, as in Baitussalam sub-district in Aceh Besar.

#### Activity Goals

The goal of this study is to understand and clarify (1) the execution of RALAS in Baitussalam sub-district; (2) the benefits and uses of the RALAS project for landowners and communities; (3) factors that supported the results of RALAS; (4) challenges and constraints of RALAS; and (5) cross-sector issues (poverty, health, living environment, and gender) connected to the execution of RALAS.

#### General Picture of Baitussalam Sub-District

Baitussalam is one sub-district in Aceh Besar district, Aceh province, Indonesia. This sub-district contains 2 (two) residencies, Klieng and Silang Cadek. Klieng residency has nine villages: Cot Paya, Klieng Cot Aron, Klieng Meuria, Labuy, Lam Asan, Lambada Lhok, Lampineung, Lam Ujong, and Miruk Lamreudep. Meanwhile, Silang Cadek residency has four villages: Baet, Blang Krueng, Cadek, and Kajhu.

Baitussalam sub-district has an area of 36 square kilometers or 3,652 hectares. It is approximately 57 kilometers from the district capital and approximately 11 kilometers from the provincial capital.

This sub-district is one of several such sub-districts in Aceh province that were badly affected by the tsunami at the end of 2004. This is understandable as it is located along the coast of the Indian Ocean. The tsunami inundated every plot of land in Baitussalam sub-district. As a result, many plots lost their borders, both as a result of the tsunami itself as well as the post-tsunami land-clearing activities.
Recovery Status

A Picture of Land Administration Before and After the Tsunami in Baitussalam Sub-District

Exact quantitative data regarding the number of plots of land in Baitussalam before the tsunami is not available. According to an informant at the area BPN office and an official in the Baitussalam sub-district office, less than 20% of all plots in Baitussalam had been registered and certified. Meanwhile, the remaining 80% was neither registered nor certified. The relatively low figure of 20% shows that adjudication programs – with the exception of PRONA (Program Operasi Nasional Agraria – National Agrarian Operations Program) – had not yet reached the community. In addition, the government’s inability to provide public services at the time must also be understood to be a result of the armed conflict that had long afflicted Aceh.

The earthquake and subsequent tsunami at the end of 2004 devastated many areas of Aceh Province and Nias Island, including the area of study. The tsunami had disastrous effects on the system of management, control, and possession of land in Aceh. No less than 7,000 hectares of land were made infertile as a result of residual sludge, mud, salt, and erosion (UNIMS and BRR: 2005: II-5). All the border markings and signs (including natural borders, such as trees and paths) also vanished or were destroyed. Around 300,000 plots of land were directly affected, 170,000 in city areas and 130,000 in villages. At least 15,000 plots remain submerged under sea water (Fitzpatrick, in Hukum Agraria dan Masyarakat di Indonesia, 2010: 249-251).

Based on the results of both literature and field studies, the land problems caused by the earthquake and tsunami can be categorized into four types, as follows:

1. Loss of deeds (certificates and other forms of evidence).

A large number of those affected by the tsunami lost their deeds to the land, including certificates and other forms of proof that had previously been used as evidence of land ownership. The loss of deeds also caused the loss or blurring of physical and judicial data regarding the land. Loss of deeds implied the loss of legal protection and guarantee of ownership.

2. Loss of border signs on plots of land.

The tsunami destroyed or caused the loss of markers along land borders. The loss of these markers meant that it was no longer known for certain where the borders between plots of land belonged. Most of these markers were washed away by the water. However, in more than a few cases, some land border signs were still visible just after the tsunami, but were subsequently lost in the process of clearing debris.
3. Loss or death of the subject of rights (landowners).

Many landowners passed away in the tsunami, leaving their land behind. The death of those holding the rights to the land created further problems in protecting civil rights. It was not easy to provide proof for each legal heir in the abnormal post-tsunami conditions. A lack of evidence could mean the loss of ownership rights even for true heirs. The death of a landowner and inability to find an heir also brought up problems for which a solution was needed.

4. Ruined land.

The tsunami ended up ruining land in particular areas, mostly within several hundred meters of the sea (the land was destroyed because it was submerged under sea water and the object of rights was lost). Land that was destroyed included land that had contained community plantations and fishponds. Quantitative data was not found, either at the regional or district BPN offices or at the Baitussalam sub-district office regarding the number of plots ruined.

**Post-Recovery Land Administration in the Area of Study**

Most of the plots of land hit by the tsunami in Baitussalam sub-district are classified as lands hak milik adat (right of ownership by tradition), according to BPN terminology. Land owned by adat is not certified, although land with this status is still recorded in other varieties of land registers. The recording pattern is often overlooked in "modern adat."

In Aceh, land information usually is recorded when land is bought or sold, when a bequest or inheritance is made, or when property is divided as the result of a divorce. Such transactions are usually based on previous knowledge and sporadic acknowledgement of land ownership and control in the form of a letter acknowledging enduring physical control and ownership according to tradition of the relevant piece of land. These acts are usually prepared and executed by the village leader or camat, and signed by witnesses representing the sides involved.

To rearrange land administration in areas affected by the tsunami, the government issued Presidential Regulation No. 30, 2005 regarding its Master Plan for Rehabilitation and Reconstruction of Surroundings and Community Life in Nanggroe Aceh Darussalam and Nias Island, North Sumatra. In Book I, the central government declared that reconstruction of land rights was the most important stage of rehabilitation. Appendix 9 (Detailed Plan/Book in the Field of Law) of this regulation clearly states that the most urgent and pressing legal issue with regard to land was the handling of civil rights regarding that land, which must be recovered, guaranteed, and protected. It states that land rehabilitation and reconstruction must be realized quickly, with attention to culture, religion, traditions, and local conditions.

To carry out that mandate, the central government formed the Rehabilitation and Reconstruction Agency (BRR). The Land Directorate of the BRR appears not to have conducted administrative functions regarding land, although it coordinated with BPN and the Reconstruction of Aceh Land Administration System (RALAS). BRR published important regulations and directives pertaining to three key areas: (1) the reestablishment of land and residency, (2) the handling of renters and those occupying land without legal foundation, and (3) certification of land owned by marriage.

The mechanism that was adopted to restore the legal certainty of land control and ownership in Aceh post-tsunami, including in Baitussalam sub-district, was the Reconstruction of Aceh Land Administration System, known as RALAS. The focus of RALAS was on recording land ownership and civil control and mapping land borders. At the same time, this program received funds from the BPN community and infrastructure development and reconstruction program. The certification of land rights came primarily from this program. Activities funded by this program covered surveying and mapping, adjudication and registration of land rights, and printing of land certificates in accordance with the priorities of specific areas: (i) priority 1 – areas identified for the construction of public service buildings; (ii) priority 2 – all other areas struck by the disaster; and (iii) areas directly bordering those struck by the disaster. RALAS
was planned by a team formed by the World Bank. Execution was entrusted to BPN, which received aid from several national staff members representing the World Bank.

RALAS was only implemented for a three-year period from 2005 until 2008. The number of plots in Aceh Besar which were intended to be dealt with through RALAS was 51,500. Details regarding the intended and actual number of plots certified through RALAS can be seen in the following table.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target (Plots)</th>
<th>Realization (Plots)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005/2006</td>
<td>21,500</td>
<td>7,225</td>
<td>33.61</td>
</tr>
<tr>
<td>2006/2007</td>
<td>20,000</td>
<td>14,722</td>
<td>73.61</td>
</tr>
<tr>
<td>2007/2008</td>
<td>10,000</td>
<td>5,405</td>
<td>54.05</td>
</tr>
</tbody>
</table>

Source: Tabulation of secondary data from BPN area office, Aceh, 2010

The table above shows that not all plots of land in Aceh Besar affected by the tsunami had their rights restored with the issuance of a certificate.

Among the 13 villages in Baitussalam sub-district, only seven were covered by RALAS, namely Desa Baet, Blang Krueng, Cadek, Kajhu, Klieng Cot Aron, Labuy, and Lam Asan. The identification of villages to be involved in RALAS was conducted by the RALAS team itself, based on the results produced by a field verification team formed by the World Bank.

**Lessons Learned from Recovery Activities**

**RALAS**

1. Execution of RALAS

RALAS was different from most land certification programs in Indonesia. It did not necessarily involve BPN officers in adjudication matters. As established in BPN Executive Decision No. 114-II/2005 on Land Registration Directives for Post-Tsunami regions, the RALAS took a "bottom-up" approach.

The RALAS directive states that BPN is a government institution that possesses authority regarding registration, including the surveying of land borders. It is further avowed that the settlement of land borders and control/ownership issues must be conducted based on the agreement of the community. In this event, the role of BPN is to give legal confirmation to settled borderlines and decisions regarding land control/ownership, with the provision that these still must be validated against other government documents.

The community-based land certification of RALAS was somewhat different from the certification procedure established in Government Regulation (PP) No.24/1997 regarding land registration. In PP No.24/1997 there are no regulations about the role and function of community-based agreements pertaining to the control and possession of land and the settlement of borders. Paragraph 19 clause (1) of this government regulation only states that clarification must be given by a witness, that clarification under oath can be used as legal evidence of land ownership, and that the demarcation of land borders must be determined – to the extent possible – on the basis of agreement between the deed holder and his/her immediate neighbors.

With community-based adjudication under RALAS, every person declared to hold land ownership rights signed a statement of control/ownership of that land, where the statement had already been agreed upon by neighbors and the village head (Appendix I, BPN RALAS Manual). In the event that the deed holder had passed away, the RALAS guide specified that the Village Head and Imeum Gampong (Imeum Meunasah – religious leader) would identify an heir. The Village Head and Imeum Meunasah also had the authority to designate a guardian for underage heirs. Regarding inheritance and guardians, shari’a courts could ratify the decisions of the Village Head and Imeum Meunasah.
If a statement was already completed and signed, BPN would have an accredited surveyor measure and survey the identified plots. These surveyors were BPN officials from outside the province. After taking measurements, BPN prepared a basic map of registrants based on community-identified land borders and holders of deeds to the land. This map was publicly displayed in the village for 30 days. During this time, a third party could bring up complaints for input and consideration in village meetings or meetings of the BPN team that handled community complaints at the provincial level. At the end of this time period or in the event that a complaint was settled, BPN would publish land rights certificates within 90 days of the date when measurement activities commenced.

Compared to other land certification programs, the RALAS is quite innovative. The registration of land under RALAS was a response to the need to expedite efforts to guarantee land rights in the larger framework of rebuilding the area after the disaster. This program also meets, at least in part, appeals to involve the adat community in formalizing land rights (Fitzpatrick in Hukum Agraria Dan Masyarakat Di Indonesia, 2010: 260-266).

2. Benefits of RALAS

A number of factors involved in the community-based land-mapping activity can be identified as contributing to the success of reconstruction efforts in Aceh, including the following:

- Community-based adjudication provides a legal basis for the construction of houses, while avoiding inaction and sidestepping the "top-down" approach. In practice, the first documents to result from community-based adjudication, that is, documents that clarify ownership and control of land and that have already been verified by authorities; provide a legal basis sufficient to begin construction on almost all types of buildings or homes.
- At a minimum, land disputes that resulted from RALAS were ultimately resolved through agreements between deed holders and their immediately-bordering neighbors.

3. "Active Community Involvement" Expedites RALAS

The implementation of community-based land mapping in Baitussalam sub-district would not have been effective without the support of the communities involved. Within six months after the tsunami, survivors were working with RALAS and NGO workers to conduct community-based land-mapping. In Baitussalam sub-district, the main sources of support for this approach were the camat, village heads, and local residents who had survived the tsunami. Imeum Meunasah took part in the RALAS program by providing help with the identification of heirs and guardians.

4. Legal and Institutional Barriers to the Execution of RALAS

- Lack of effective coordination between central BPN and land offices in Aceh. When RALAS was being implemented (2005-2008), the land offices in Aceh were partially paralyzed. Many SDM had been lost or perished, offices had been destroyed, and land administration was not being conducted. The implementation of RALAS and its land certification program depended on the involvement of officials from outside the area. However, in reality, outside SDMs could not work at full capacity because of a lack of transportation facilities, computers, and measurement and mapping equipment. As non-Acehnese civil servants, they needed the aid of facilitators from the local population to help establish cooperation with local communities. In addition, the RALAS budget did not include funds to pay for facilitators.

- RALAS program "lacks legal power". Members of the RALAS team appear to have been paid per plot of land handled. Thus, there was a tendency to append the note "owner unknown," most often when the team faced complex circumstances when determining who controlled and owned the plot of land in question. The early data from RALAS includes a fairly large number of plots with the status "owner unknown." The system of compensating the RALAS team, which was based on the number of plots of land handled, also turns out to have created an incentive to "re-do" community-based demarcation and adjudication processes that had already been done. BPN stated that community-based adjudication did not have the force of law, while BPN
itself had already published regulations concerning RALAS guidelines. This was due to the fact that the presidential plan to support RALAS was not validated by the president. The end result was that BPN subsequently filed proposals to conduct measurement and mapping along with adjudication in all disaster areas, regardless of whether the area had already undergone community-based adjudication. BPN only used community-based adjudication as a source of reference material in its considerations of whether to issue land-rights certificates.

**Good Practices**

Local leaders at the village level were the most important actors in ending post-tsunami land disputes in Baitussalam sub-district. The village head was the key actor in decision making. In conducting his job, he was aided by village elders and the Imeum Meunasah.

**Cross-Sectoral Issues**

**Poverty**

The community-based land certification program did not necessarily alleviate poverty. The proposition that certificates would empower the poor (tsunami victims became poor because of having lost all of their worldly possessions) because the formalization of ownership would give them access to capital was unfounded. Based on interviews with respondents, it appears that none of them had intended to use a certificate issued through RALAS as collateral for obtaining a bank loan. The certificate only was important to them in that it served as legal proof of their ownership of their land. This makes sense since a large portion of the land had already been built upon, and the owners were again occupying their property.

**Health**

The issue of health is not directly tied to the RALAS program, which involved community-based adjudication. Because of this, connections between health issues and RALAS were not studied.

**Living environment**

The issue of the living environment also is not directly connected to RALAS. Because of this, connections between the living environment and RALAS were not studied.

**Gender**

The RALAS guidebook states that land that is the mutual property of a husband and wife, and that the certificate of land rights should indicate the land as being under their mutual possession, in both names rather than only the husband’s name. This stipulation was more about granting permission than issuing a requirement.

The partial data compiled by the community-based mapping team and register of land rights shows that less than 5% of the plots are registered in the names of both husband and wife. Most of these plots are registered in the name of the husband alone. Only about 20-25% is registered under a woman’s name.

### 3.4.3. Case Study 3: Coordination between Governmental and Non-Governmental Organizations in Post-Tsunami Coastal Recovery: A Case Study in Baitussalam Sub-District, Aceh Besar

**Description of Location**

Baitussalam sub-district is a sub-district of Aceh Besar district, located on the coast with an area of 36.52 km². The sub-district capital is Lambada Lhok. Baitussalam is 57 km from Jantho (the Aceh Besar district...
Baitussalam sub-district was formed in 1999 and governance began in 2000. It is comprised of two residencies (kemukiman), Klieng and Silang Cadek. Klieng consists of nine villages (gampong): Labuy, Klieng Meuria, Lam Ujong, Mireuk Lamreudeup, Cot Paya, Lambada Lhok, Klieng Cot Aron, Lam Asan Klieng, and Lampineung. Silang Cadek residency consists of four villages: Cadek, Blang Krueng, Kajhu, and Baet.

The area and number of neighborhoods (dusun) in each village are shown in the table below.

<table>
<thead>
<tr>
<th>Village Name</th>
<th>Area</th>
<th>Number of Dusun</th>
<th>Name of Dusun</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gampong Labuy</td>
<td>120 ha</td>
<td>3 Dusun</td>
<td>Dusun Lacang, Dusun Bak Kupula, Dusun Panglima Dalam</td>
</tr>
<tr>
<td>2 Gampong Klieng Meuria</td>
<td>50 ha</td>
<td>4 Dusun</td>
<td>Dusun Rumbia, Dusun Bahagia, Dusun Sejahtera, Dusun Teungku Mane</td>
</tr>
<tr>
<td>3 Gampong Lam Ujong</td>
<td>940 ha</td>
<td>4 Dusun</td>
<td>Dusun Ujong Blang, Dusun Teungoh, Dusun Ulee Jalan, Dusun Lamgapang</td>
</tr>
<tr>
<td>4 Gampong Mireuk Lamreudeup</td>
<td>350 ha</td>
<td>4 Dusun</td>
<td>Dusun Tgk. Ie Pase, Dusun T Panglima Abu, Dusun T Keulayu, Dusun Kamai Gunu</td>
</tr>
<tr>
<td>5 Gampong Cot Paya</td>
<td>25 ha</td>
<td>5 Dusun</td>
<td>Dusun Blang Mala, Dusun T Meuriah, Dusun Siyung-yung, Dusun T Idrus, Dusun Lamseunong</td>
</tr>
<tr>
<td>6 Gampong Lambada Lhok</td>
<td>120 ha</td>
<td>4 Dusun</td>
<td>Dusun Marhaban, Dusun Kuala, Dusun Pelita, Dusun Tgk Dilapang</td>
</tr>
<tr>
<td>7 Gampong Klieng Cot Aron</td>
<td>53,4 ha</td>
<td>5 Dusun</td>
<td>Dusun Teungku M Alibasyah, Dusun Teungku Dja, Dusun Bahagia, Dusun Aman, Dusun Polayasa</td>
</tr>
<tr>
<td>8 Gampong Lam Asan Klieng</td>
<td>31 ha</td>
<td>3 Dusun</td>
<td>Dusun Lampoh Raya, Dusun Meunasah Dusun Tuha, Dusun Cot Cawan</td>
</tr>
<tr>
<td>9 Gampong Cadek</td>
<td>300 ha</td>
<td>5 Dusun</td>
<td>Dusun Geucik Gam, Dusun Guru Nyak Cut, Dusun Lam Kuta, Dusun Meriam Patah, Dusun Cadek Permai</td>
</tr>
<tr>
<td>10 Gampong Lampineung</td>
<td>42 ha</td>
<td>3 Dusun</td>
<td>Dusun Asat, Dusun Tengah, Dusun Bawah</td>
</tr>
<tr>
<td>11 Gampong Blang Krueng</td>
<td>174 ha</td>
<td>5 Dusun</td>
<td>Dusun Ujong Timpeun, Dusun Meunasah Trieng, Dusun Meunasah Bayi, Dusun Lam Kuta, Dusun Cot Sibati</td>
</tr>
<tr>
<td>12 Gampong Kajhu</td>
<td>600 ha</td>
<td>10 Dusun</td>
<td>Dusun Pola Komala, Dusun Lambeuteung, Dusun Lamseunong, Dusun Lamprada, Dusun Monsinget, Dusun Meuriam Patah, Dusun Mutiara Cemerlang, Dusun Kampung Arun, Dusun Kampung Meureh, Dusun Kajhu Indah</td>
</tr>
<tr>
<td>13 Gampong Baet</td>
<td>368 ha</td>
<td>5 Dusun</td>
<td>Dusun Krueng Cut, Dusun Payung, Dusun Teungku Cantik, Dusun Teungku Syik, Dusun Ujong Blang</td>
</tr>
</tbody>
</table>

Source: Summarized from Baitussalam village planning data, from various sources including an interview with Bapak Drs. T. Iskandar, M.Si, (Baitussalam Camat) on 10 November 2010.

The earthquake and tsunami that struck Aceh Provence and Nias Island on 26 December 2004 affected all aspects of life in the community. Coastal areas were the hardest hit.
Baitussalam sub-district is one of several sub-districts in Aceh Besar that lie along the coast (its northern edge borders the Strait of Malacca), and nearly the entire sub-district was destroyed by the tsunami. Many victims lost their lives or possessions, and the governance structure was also affected at the district, residency, and village level. This made it difficult for the government to continue operations, and for the first month after the disaster the Baitussalam government was paralyzed.

In the second month after the tsunami, data was collected from tsunami survivors, who were asked to return to their villages, with the goal of coordinating and expediting the process of distributing assistance to victims from the government and NGOs. The Aceh Besar government also held a coordination meeting with the camat (sub-district heads) of areas affected by the tsunami. One decision that resulted from the meeting was the appointment of new geuchik (village heads) and supporting staff for villages whose government officials had died in the tsunami.

This was a fairly quick response, which enabled the government to resume operations under emergency conditions and handle the needs of tsunami victims. At this stage, coordination between government organizations at the district, sub-district, residency, and village levels became more directed. This sped data collection, so that the regulation and planning of Baitussalam’s reconstruction could begin.

Recovery Status

To review the recovery status in Baitussalam, it is easiest to review the conditions both before and after the tsunami, as well as the recovery process and final developments. These stages can be described as follows.

Baitussalam Before and After the Tsunami

The earthquake and tsunami of 26 December 2004 caused exceptional destruction in Baitussalam. In addition to its human toll (death or permanent disability), the disaster affected all aspects of life, including the local infrastructure, homes, and possessions. The table below outlines the destruction of houses, public facilities, infrastructure, and utilities in Baitussalam.

Table 3.20 the destruction of houses, public facilities, infrastructure, and utilities in Baitussalam

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DESTRUCTION</th>
<th>HOUSES</th>
<th>PUBLIC FACILITIES</th>
<th>INFRASTRUCTURE AND UTILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>H</td>
<td>RB</td>
<td>R</td>
</tr>
<tr>
<td>GAMPONG LABUY</td>
<td></td>
<td>98</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>GAMPONG KIANG MEURIA</td>
<td></td>
<td>85</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>GAMPONG LAM UJONG</td>
<td></td>
<td>90</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>GAMPONG MIREUK LAMREUDEUP</td>
<td></td>
<td></td>
<td>15</td>
<td>85</td>
</tr>
<tr>
<td>GAMPONG COT PAYA</td>
<td></td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

nearly 127,000 people, to which must be added 93,285 who were reported missing. Regarding infrastructure, one-quarter of the bridges in the province (a total of 150 km, longer than the Cipularang toll road from Jakarta to Bandung) were made impassable. The total length of roads damaged was 2,618 km, while the number of houses destroyed was 140,000 (in Aceh and Nias). As many as 3,415 schools and more than 200 hospitals and public health centers were left unusable. [Angka-angka yang diperoleh kemudian membuktikan betapa dahsyatnya bencana itu. Sebelum tsunami, tercatat penduduk Aceh sekitar 4.297.485. Berdasarkan sensus 2005, warga Aceh adalah 4.031.589 orang, atau berkurang sekitar 265.896. Sedangkan jumlah korban total, termasuk yang bukan warga Aceh, mendekati angka 127.000 orang, ditambah 93,285 yang dinyatakan hilang. Adapun prasarana, seperempat jumlah jembatan di provinsi ini, atau total 150 kilometer (lebih panjang daripada jalan darat Jakarta-Bandung lewat jalan tol Cipularang) rusak berat tidak bias dilewati. Panjang jalan total yang mengalami kerusakan ringan hingga berat mencapai 2.618 km. rumah yang rusak mendekati angka 140.000 rumah (di Aceh dan Nias). Sementara itu, 3.415 gedung sekolah serta lebih dari 200 puskesmas dan rumah sakit tak mungkin digunakan.]

4 According to Bapak Drs. T. Iskandar, M.Si (Current Baitussalam Camat), at the time he was serving as Head of Government Affairs at the Baitussalam Camat Office and took over the role of camat without official notice, as the sitting camat was on Hajj.

5 Interview with Bapak Drs. T. Iskandar, M.Si (Baitussalam Camat), 10 November 2010

6 Interview with Bapak Drs. T. Iskandar, M.Si (Baitussalam Camat), 10 November 2010
The above data shows that the damage to houses was lowest in Lam Asan Klieng, at 70.3%, damage to public facilities was lowest in Blang Kreung, at 40%, and damage to infrastructure and utilities (roads, drainage, sanitation, clean water, waste, electricity, and telephone) was higher than 70% in almost all of the villages. The overall extent of the destruction was exceptionally severe. Some villages directly on the coast lost some of their land area, as some land became permanently submerged under seawater.

The losses of life in each village in Baitussalam are tabulated in the table on the following.

### Table 3.21 Loss of life in Villages of Baitussalam

<table>
<thead>
<tr>
<th>NO</th>
<th>VILLAGE NAME</th>
<th>POPULATION BEFORE DISASTER</th>
<th>POPULATION AFTER DISASTER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PEOPLE</td>
<td>HOUSE-HOLDS</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>1</td>
<td>Gampong Labuy</td>
<td>1.139</td>
<td>416</td>
</tr>
<tr>
<td>2</td>
<td>Gampong Klieng Meuria</td>
<td>560</td>
<td>148</td>
</tr>
<tr>
<td>3</td>
<td>Gampong Lam Ujong</td>
<td>550</td>
<td>Ni</td>
</tr>
<tr>
<td>4</td>
<td>Gampong Mireuk Lamreudeup</td>
<td>1.060</td>
<td>262</td>
</tr>
<tr>
<td>5</td>
<td>Gampong Cot Paya</td>
<td>1.300</td>
<td>198</td>
</tr>
<tr>
<td>6</td>
<td>Gampong Lambada Lhok</td>
<td>2.200</td>
<td>444</td>
</tr>
<tr>
<td>7</td>
<td>Gampong Klieng Cot Aron</td>
<td>1.200</td>
<td>Ni</td>
</tr>
<tr>
<td>8</td>
<td>Gampong Lam Asan Klieng</td>
<td>409</td>
<td>87</td>
</tr>
<tr>
<td>9</td>
<td>Gampong Cadek</td>
<td>2.800</td>
<td>540</td>
</tr>
<tr>
<td>10</td>
<td>Gampong Lampineung</td>
<td>891</td>
<td>225</td>
</tr>
<tr>
<td>11</td>
<td>Gampong Blang Krueng</td>
<td>1.367</td>
<td>321</td>
</tr>
<tr>
<td>12</td>
<td>Gampong Kajhu</td>
<td>8.564</td>
<td>2.410</td>
</tr>
<tr>
<td>13</td>
<td>Gampong Baet</td>
<td>2.777</td>
<td>680</td>
</tr>
</tbody>
</table>

Source: Summarized from various sources, including interview with Bapak Drs. T. Iskandar, M.Si (Baitussalam Camat), 10 November 2010.

The above data shows that there were many victims in Baitussalam. Most of the people evacuated to the homes of family member or relocated to mosques, meunasah, and public facilities in areas not hit by the tsunami. Afterward, barracks were built to accommodate survivors and to coordinate the distribution of aid in the form of food, clothing, and medicine.

Coordination under emergency conditions facilitated aid efforts in the communities affected. Simple coordination efforts were made where multiple parties, in addition to the government, gave aid and reported this assistance to the government.

**Baitussalam during Rehabilitation and Reconstruction**

The rehabilitation and reconstruction efforts in Baitussalam were coordinated by the Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi – BRR). All activities were done with the

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1 BRR was an institution formed by the Indonesian government, under Government Regulation in Lieu of Legislation of the Republic of Indonesia No. 2/2005, regarding the Rehabilitation and Reconstruction Agency for Nanggroe Aceh Darussalam and
agreement of the regent of Aceh Besar, and Memoranda of Understanding between NGOs and the Aceh Besar government were signed by the regent. However, before an MoU was prepared, the district government coordinated with the sub-district and village governments regarding the timing of relevant reconstruction activities. Many of these activities involved members of the community.

The implementation of rehabilitation and reconstruction by NGOs was also carried out through the coordination and cooperation of government agencies. For example, Logico and Mercy Corps worked together, with Mercy Corps providing material support and computers to the office of the geuchik while Logico held trainings on the use of the computers so that they could be used to their maximum potential. This was an example of successful cooperation, where each side took a role in accordance with the demands of the situation.

NGOs also built houses for those who were left homeless by the tsunami. Islamic Relief built houses in Kajhu Indah, Care built houses in Cadek and Kreasi in Lam Ujong. Mercy Corps built a clean water network to be managed by a village agency (Badan Usaha Milik Gampong – BUMG), the profits of which were used to cover operating fees while any surplus was used to present lectures and other social activities. This was developed into a pilot project by the Aceh Besar district government.

All of the above projects were implemented through cooperation and coordination between government organizations (BRR, Aceh Besar district government, Baitussalam sub-district government, and village governments) and the other parties involved (NGOs, international organizations, and representatives of foreign countries). The projects fostered a spirit of togetherness and cooperation, and promoted community support for rehabilitation and reconstruction efforts.

**Baitussalam Today**

Five years after the earthquake and tsunami, Baitussalam has gradually grown and changed, and is moving in a new direction. All aspects of life have been well-arranged and regulated. After completing rehabilitation and reconstruction, each village is to develop a “Village Plan.” The reconstruction effort prompted the Aceh Besar district government to desire...
the organization and planning of villages, and it planned that by 2011 all villages in Aceh Besar will have a “Village Plan.”

There has also been meaningful change in the education sector. Baitussalam now has eight elementary schools, hosting 47 classes with 809 students and 80 teachers. There is one junior high school, with four classes, 139 students, and 29 teachers, and one senior high school, with 12 classes, 344 students, and 48 teachers.

The health sector has also been developed, and Baitussalam now has one public health center, four assistant public health centers, four village health posts, and 16 Posyandu. There is one general practitioners along with 37 nurses and midwives, two pharmacists, two nutritionists, and six public health workers.

Now that the rehabilitation and reconstruction phase is complete, Baitussalam has one fish auction center (Tempat Pendaratan Ikan – TPI), one pier, and two fishermen’s halls. The fishing yield has improved, but not significantly. Based on data from BPS Aceh Besar, in 2009, aquaculture produced 33.8 tons of fish from 120 hectares of ponds. In the same year, the amount of fish caught by fishermen was 1361.7 tons.

Regarding the roads in Baitussalam, 18 km of roads are in good condition, 7.5 km in fair condition, 5.5 km in poor condition, and 1.3 km in very poor condition. Most of the roads in the sub-district were in good condition at the end of the rehabilitation and reconstruction phase. Most housing complexes have good roads and drainage systems.

The above is a short overview of the conditions in Baitussalam sub-district at the end of the rehabilitation and reconstruction phase, although it is not a complete description. Some health related problems remain. In 2009, for example, nine people contracted dengue fever, nine had tuberculosis, and 290 had severe diarrhea, based on data from BPS. This is a sector that requires the attention of the local government.

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14 Interview with Bapak Drs. Zulkifli R, MSI (Head of BAPPEDA Aceh Besar), 9 Desember 2010.
19 BPS Kabupaten Aceh Besar, Ibid, Hal 107
Lessons Learned

The rehabilitation and reconstruction activities carried out by the government and outside parties, including donor countries, international agencies, and private institutions, required effective coordination. The model of coordination used for the Aceh reconstruction effort can provide valuable lessons for the handling of other disasters. Further lessons from the process are described below.

A Unique Experience

The coordination between the government and NGOs in the regional recovery process was successful in rehabilitating and reconstructing the area and communities of Aceh Province and Nias Island. This case study of Baitussalam sub-district, Aceh Besar district shows that coordination between the central, provincial, district, sub-district, and village governments along with non-governmental organizations can serve as a model of ideal coordination for the handling of natural disasters.

The coordination channels used by the government in its rehabilitation and reconstruction efforts are laid out in its project concept notes (PCN). The PCN channels used by the Rehabilitation and Reconstruction Agency (BRR) in coordinating rehabilitation and reconstruction activities between donor countries, international agencies, and private institutions (non-governmental organizations) were as follows.20

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20 Paragraph 16 Perpu 2/2005 lays out several duties of BRR NAD-Nias. Those related to coordination are as follows. 1) Paragraph 16 letter e reads, carrying out rehabilitation and reconstruction activities within a framework of cooperation with other parties. [melaksanakan kegiatan Rehabilitasi dan Rekonstruksi dalam rangka kerja sama dengan pihak lain] 2) Paragraph 16 letter g reads, organizing and coordinating rehabilitation and reconstruction efforts by the central and regional governments and related parties. [mengorganisasikan dan mengkoordinasikan pelaksanaan Rehabilitasi dan Rekonstruksi yang dilakukan oleh Pemerintah Pusat, Pemerintah Daerah, dan pihak lain yang terkait] It also gives authority to BRR NAD-Nias over several aspects of the process. 1) Paragraph 17 letter c mentions “establishing cooperation with other parties to conduct rehabilitation and reconstruction activities that are not funded by APBN” [menjalin kerjasama dengan pihak lain untuk melaksanakan kegiatan Rehabilitasi dan Rekonstruksi yang tidak dibiayai APBN] 2) Paragraph 17 letter d mentions “coordinating and cooperating while supervising foreign agencies in carrying out rehabilitation and reconstruction activities funded by foreign donors.” [mengkoordinasikan dan bekerja sama serta mengawasi pihak luar negeri (asing) dalam melakukan kegiatan Rehabilitasi dan Rekonstruksi yang dibiayai langsung oleh pihak luar negeri (asing)] 3) Paragraph 17 letter e mentions “obtaining information and technical support in executing these duties from the central and regional government, as well as other related parties.” [mendapat informasi dan dukungan teknis dalam pelaksanaan tugasnya dari Pemerintah Pusat, Pemerintah Daerah dan pihak lain yang terkait] Thus, the duties and authority of BRR NAD-Nias were linked, based on Perpu 2/2005.
The PCN is a table of procedures that functioned as a research tool for aid project proposals in Aceh and Nias. The mechanism for ascertaining the appropriateness of these programs was the PCN approval workshop. Investigation of project proposals via the PCN workshop helped prevent the overlap in activities in any particular region, area, or sector.

**Influential Conditions**

To carry out these activities well, they had to be well-planned, executed, and controlled. This required directed and systematic coordination. In addition, accurate data was needed, and the preparation of accurate data was of crucial importance. For optimal data collection, one method used was the RAN database, which was a data system that was periodically updated by all parties involved in the aid process.

Alignment between the PCN and its mechanisms, the workshops, and the RAN database, smoothed the rehabilitation and reconstruction process in Aceh and Nias. It reduced the amount of time needed for approving projects and activities, which under normal conditions would take much longer, to 3-4 weeks or less. In addition, the integration of this mechanism reduced the possibility of overlapping activities.

The coordination efforts received commitments from the central government (represented by BRR) and the provincial and district governments, as well as the support of other related parties including donor countries, international agencies, and private institutions, all of which participated in the PCN approval workshops and added to the RAN database while performing rehabilitation and reconstruction activities. These commitments greatly aided the government in the rehabilitation and reconstruction process.

**Cross-Sectoral Issues**

**Poverty**

In general, the life of the people in Baitussalam is not much different from other coastal communities. From time to time, those who earn a living as fishermen cannot work because of the weather or other natural conditions. In addition, they seldom have savings to use when they cannot work.

Another problem related to the measurement of poverty in Baitussalam is the size of the houses. The aid houses built during rehabilitation and reconstruction are all of the same type and measurements. This causes difficulties in assessing the level of poverty in Baitussalam and further problems when aid is distributed in the form of food (rice) through government programs (raskin programs). Based on government criteria (from the Indonesian Social Welfare Ministry) one measurement of poverty or wealth is the possession of a house with sealed walls or a ceramic floor. This is a problem for the people of Baitussalam, as all of the aid houses have ceramic flooring and sealed concrete walls, so that the residents of Baitussalam are not eligible for raskin assistance.

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22 Ibid. PCN approval workshops were regular meetings held in Banda Aceh to coordinate, consolidate, and approve programs and activities to be carried out within the borders of Aceh and Nias.
23 Op. cit., p.28
24 Loc., cit. p. 24
25 Ibid. The results of the PCN approval workshops were entered into the RAN database and periodically updated.
26 Ibid.
27 Interview with Baitussalam Camat, 10 November 2010.
Education

In the rehabilitation and reconstruction process, many schools were built, including elementary, junior high, and high schools. After the tsunami, a preschool was also built in Baitussalam. In addition, informal schooling was provided in villages, including lectures and taklim panels. Much skills training were provided by NGOs.

The Aceh Besar district government is developing its education system based on the motto "quality and equitable education." This concept is being applied in all the sub-districts, including Baitussalam, along with efforts to develop the existing structures and to ensure the availability of adequately skilled teachers.28

Health

Baitussalam has been cleaned up since the tsunami, but conditions are not yet stable in terms of public health. In 2009, nine residents contracted dengue fever, nine had tuberculosis, and 290 suffered from severe diarrhea.29 Currently, Baitussalam has one public health center, four assistant public health centers, four village health posts, and 16 Posyandu. In terms of human resources, there is one general practitioner, 37 nurses and midwives, two pharmacists, two nutritionists, and six public health workers.30

To develop its health sector, the Aceh Besar government has come up with the motto "quality and equitable health care." Developing the public health infrastructure will involve the development of existing and new facilities, as well as taking measures to ensure the availability of adequate support staff, including doctors, nurses, midwives, and other health workers.31

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28 Interview with Bapak Drs. Zulkifli R, MSI (Head of BAPPEDA Aceh Besar), 9 December 2010.
29 BPS Kabupaten Aceh Besar, Ibid, p. 107
31 Interview with Bapak Drs. Zulkifli R, MSI (Head of BAPPEDA Aceh Besar), 9 Desember 2010.
Environmental Conditions

The environment in Baitussalam suffered heavy damage, except for areas untouched by the tsunami. During rehabilitation and reconstruction, environmental repairs were conducted, including the planting of mangroves in coastal areas. To restore the environment, a relatively long period of time is needed. There is also the possibility that other environmental problems will appear after rehabilitation and reconstruction.

Gender

During the rehabilitation and reconstruction process, men and women had the same position. Within the community, women shared responsibilities for supporting the family. Even before the tsunami, many women contributed to daily needs of the household through such activities as collecting oysters.

Key Messages

The results of field research involving three case studies for each of four recovery sectors conducted at various locations indicate that post-2004 tsunami recovery in Aceh provide lessons learned that include both success stories and failures as well as challenging circumstances. Overall, the recovery of Aceh post-2004 tsunami has been satisfactory, lessons learned of which could benefit disaster prone areas around the world, noting the specific conditions of their geography, socio-economic, and environmental conditions. While, proper planning, monitoring, technical specifications, and execution of the project is important in ensuring the achievement of its objectives and outcomes, it is the involvement of the community members at the very early stage that often defines the successful implementation of the project.

The cross sectoral issues that came about during the implementation of various thematic sectors covering areas of environment, health, education, poverty, gender, etc. give another important angle and feedback for better planning and management recovery program in any future disaster events.
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