



INFRASTRUCTURE

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Stimulating the Triggerring Sector



**THE EXECUTING AGENCY OF REHABILITATION AND RECONSTRUCTION FOR ACEH AND NIAS
(BRR NAD-NIAS)**

April 16, 2005 - April 16, 2009

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With this BRR Book Series, the Indonesian government, its people, and BRR wish to express their deep gratitude for the many kind helping hands extended from all over the world following the December 26, 2004 earthquake and tsunami in Aceh and the March 28, 2005 earthquake in the islands of Nias.

Four years on, the once devastated landscapes are again vibrant with the sporadic rhythm of human life. This achievement is the result of a steadfast commitment of the local, national and international community, combined with the resilience of the people who lost so much.

The dynamics and challenges encountered during the massive undertaking of rebuilding homes, hospitals, schools and other infrastructure, while striving to empower those who survived to reshape their future and redevelop their way of life, provide an important understanding of the disaster-recovery process in Aceh and Nias.

In light of this, within the pages of this book, BRR would like to share those experiences and the lessons learned as a small contribution to return the favor to the world for the invaluable support it contributed to building Aceh and Nias back better and safer; as a history of the humanitarian journey of a united world.

*I am proud,
that we can share the experiences, knowledge, and lessons
with our fellow countries. I do hope that what we have done
can be a standard, a benchmark, for similar efforts
at the national and international levels.*

Speech of President Susilo Bambang Yudhoyono
at the Official Closing Ceremony of BRR at the State Palace, April 17, 2009
about the BRR's trip to the Tsunami Global Lessons Learned Conference
at the United Nations Headquarters in New York, April 24, 2009



A truck carrying an excavator travels along a well-constructed road in Lhoong, Aceh Besar. The Lhoong road is a section of the Banda Aceh-Calang highway which costs around US\$240 million and is funded by USAID, having its first stone laid on August 25, 2005. It is hoped that this road will become a trigger for development of the west coast of Aceh which, in turn, will bring it to catch up with the development of the east coast. Photo: BRR/Arif Ariadi

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Introduction

FOR a period of three days, beginning on December 27, 2004, the Indonesian flag was drawn to half mast, and a nation was in mourning. A national disaster was declared and the world watched in disbelief. An earthquake, followed by a series of tsunamis, struck the western-end of Indonesia, causing an unprecedented loss of life and the obliteration of whole communities. For those who survived, their homes, livelihoods, and prospects for the future were swept out to sea.

The earthquake, one of the largest in recent history measuring 9.1 on the Richter scale, was the result of a convergence between two tectonic plates beneath the ocean floor. Although dormant for over 1,000 years, with the buildup of pressure caused by one plate slowly sliding under the other at an estimated rate of 50 mm per year, on December 26, 2004, these two tectonic plates ruptured along a 1,600 km length of what is known as the Sunda mega-thrust.

The epicenter of this earthquake was located 250 km south-west of the Indonesian province Nanggroe Aceh Darussalam. Its rupture - a slippage of up to 10 meters, resulted in the ocean floor being (permanently) lifted and dropped, pushing the entire water column up and down, and generating a series of powerful waves. Tsunamis swept violently up to 6 km inland over the shorelines of Aceh and surrounding islands, beginning less than half-an-hour after the earthquake. A total of 126,741 lives were lost and, in the wake of the disaster, an additional 93,285 people declared missing. Some 500,000 survivors lost their homes, while as many as 750,000 people lost their livelihoods.

In the private sector, which constituted 78 percent of the destruction wrought by the earthquake and tsunamis, up to 139,195 homes were destroyed or severely damaged, along with 73,869 ha of land with varying degrees of productivity. A total of 13,828

fishing boats vanished, up to 27,593 ha of brackish fish ponds disappeared, and 104,500 small-to-medium businesses ceased to exist. In the public sector, 669 government buildings, 517 health facilities, and hundreds of educational facilities were either destroyed or rendered non-functional. The loss to the environment included 16,775 ha of coastal forests and mangroves, and 29,175 ha of reefs.

The loss and damage of these regions did not end there and, on March 28, 2005, another major earthquake measuring 8.7 on the Richter scale struck the nearby islands of Nias in the Indonesian province of North Sumatera. This second natural disaster resulted in the death of 979 people and the displacement of 47,055 survivors. The proximity of this earthquake, a result also of two tectonic plates rupturing, slipping a length of 350 km, directly beneath the Simeulue and Nias islands, resulted in massive damage to the islands' infrastructure.

The eyes of the world once again watched in disbelief as the devastation of these regions unfolded, and helping hands began arriving from all corners of the globe to assist in the rescue and relief operations. Individuals of every race, religion, culture and political persuasion across each and every continent worldwide, along with governments, the private sector, non-government organizations and other national and international bodies, reacted in an unprecedented show of human concern and compassion.

From the scale of the devastation wrought by both disasters, it was clear that it would not be enough to simply replace the homes, schools, hospitals and other infrastructure. The rehabilitation and reconstruction program would need to embrace the rebuilding of the social structures that once thrived along the shores of Aceh and within the hinterlands of Nias. The trauma of losing friends, family and a means to support those who survived required that the recovery program focused not only on physical, but also non-physical, development, and on rebuilding an economy to a level that would ensure a firm foundation for future (re)development and growth.

On April 16, 2005, the Government of Indonesia, through the issuance of Government Regulation in Lieu of Law No. 2/2005, established the Agency for the Rehabilitation and Reconstruction (*Badan Rehabilitasi dan Rekonstruksi*, BRR) to coordinate and jointly implement a community-driven recovery program for Aceh and Nias. BRR's mandate was to design policies, strategies and action plans, within an atmosphere of transparency and accountability, and to implement them through effective leadership and coordination of the combined domestic and international effort to rebuild Aceh and Nias back better and safer.

The rehabilitation and reconstruction of Aceh and Nias have constituted a challenge not only for the people and Government of Indonesia but for the entire international community. That this challenge was overcome successfully is reflected in the conclusions drawn in evaluations concerning the recovery program. In the final months

of the program, the World Bank among others concluded that the recovery was an *unprecedented success story* and a *model for international partnership* - outcomes which were realized through *effective government leadership*.

The nation's management of the recovery program gained the confidence of donors, both institutions and individuals, and through BRR's anti-corruption policies and processes, the trust of the international community. And without the cooperation of the international community, the post-disaster situation in Aceh and Nias - the unparalleled devastation - could never have been reversed.

In recording this humanitarian achievement, BRR has produced the BRR Book Series containing 15 volumes that detail the processes, challenges, solutions, achievements and lessons learned during the rehabilitation and reconstruction program in Aceh and Nias. It is hoped that these books will function to capture and preserve the experience of the recovery, and to establish guidelines for future disaster-recovery programs across the world.

This book *Stimulating the Triggering Sector* discusses the dynamics of the development area that received significant priority within BRR. Infrastructure was put as a strategic element as its programs were to facilitate access from and to remote areas. Its importance, as the determining factor to growth of the people's social-economic development, made the recovery progress in this sector pushed hard from the start. ■

4-Year Achievement

Rehabilitation and Reconstruction

635,384 people displaced	
127,720 people killed and 93,285 missing	
104,500 small-medium enterprises (SME) destroyed	155,182 laborers trained
	195,726 SMEs received assistance
139,195 houses destroyed	140,304 permanent houses built
73,869 hectares of agricultural lands destroyed	69,979 hectares of agricultural land reclaimed
1,927 teachers killed	39,663 teachers trained
13,828 fishing boats destroyed	7,109 fishing boats built or provided
1,089 religious facilities destroyed	3,781 religious facilities built or repaired
2,618 kilometers of road destroyed	3,696 kilometers of road constructed
3,415 schools destroyed	1,759 schools built
517 health facilities destroyed	1,115 health facilities constructed
669 government buildings destroyed	996 government buildings constructed
119 bridges destroyed	363 bridges constructed
22 ports destroyed	23 ports constructed
8 airports or airstrips destroyed	13 airports or airstrips constructed



Building the Pillars of Life

THE day was scorching hot. The face of Sahrul, a motorized rickshaw driver, shone with happiness despite the sweat running down his body. Sahrul's spirits fired up as his thoughts went to the crowd of passengers at Ulee Lheue Port. Quickly he went back to his motorized rickshaw. The engine roared to life and a cloud of smoke from the exhaust obscured all vision. Sahrul vanished.

The motorized rickshaw flew like the wind along Ulee Lheue Boulevard, crossing the lagoon bridge and pressed forward until it reached the ferry harbor. Sahrul covered the five-kilometer distance in 10 minutes. His calculations were spot-on. Upon arriving, dozens of passengers had just disembarked from the Sabang Ferry and were waiting to be taken to Banda Aceh. These passengers are Sahrul's livelihood. By taking passengers from Ulee Lheue Port to Banda Aceh, he can earn Rp 50,000 a day—enough to provide for his wife and child. "I'm extremely grateful that the streets and bridges have been rebuilt so I can earn a living more easily," said the 34-year-old man from Meuraxa Village.

The Ulee Lheue area has changed. The tsunami rubble previously piled up along the streets is merely a memory now. The unsightly piles were replaced with mangrove seedlings that now stick up out of the fish ponds along Ulee Lheue Boulevard. A smooth four-lane road has replaced the previously narrow, crowded alleys. Two sturdy bridges

*The city of Banda Aceh devastated following the disaster as seen from the air, May 3, 2005.
Photo: BRR/Arif Ariadi*

were constructed in place of the old one on the brink of collapse due to the tsunami. The part of Ulee Lheue originally destroyed by the tsunami has been reclaimed and turned into a spacious port. When night falls, street lamps light up the entire length of the boulevard. Yes, Ulee Lheue has changed.

The recovery of Ulee Lheue was certainly a blessing for Sahrul. Unwilling to pass up its benefits, he switched from being a construction worker to a being motorized rickshaw driver in Ulee Lheue. When the tsunami hit, he had lost everything: not only his belongings, but his entire family. His father, mother, and relatives never resurfaced after being swallowed by the giant waves. Sahrul had to forget his sorrow and start life from scratch.

He is now married to a woman who was also a victim of the tsunami and they have been blessed with a child. As the infrastructure in Ulee Lheue recovered, his life also started to take shape. "There are no more obstacles; driving passengers is a comfortable living. The route to Ulee Lheue Port where I earn my living is now in good condition," he said. The dream of a better life is now within reach.

Sahrul is not alone in his rejoicing, which has spread across the entire disaster area of Aceh and Nias. Apart from the facilities provided in Ulee Lheue, by the end of the Agency for the Rehabilitation and Reconstruction (BRR) of Aceh and Nias' work period in April 2009, infrastructure had been restored throughout the entire disaster area of Aceh and Nias. The western route linking Banda Aceh and Meulaboh, originally destroyed by the tsunami, has now been reconnected. The total length of streets and bridges built reaches 2,600 kilometers. The same applies to other transportation infrastructure, such as seaports, airports, telecommunication facilities, terminals, and clean water facilities.

BRR has now completed its tasks. There is, of course, no such thing as a perfect job; five percent of the total construction has yet to be completed. This is only natural since obstacles arose during the planning and construction stages. The unfinished work will be carried out by other agencies, such as the Ministry of Public Works, the Ministry of Transportation, and the local government.

Rebuilding the infrastructure of the Veranda of Mecca was most certainly not an easy task. Moreover, BRR had only four years to rebuild an infrastructure that had been totally crippled by the earthquakes and tsunamis. The damage was extensive. The areas swept by the gigantic waves included Banda Aceh city, Aceh Besar district, Aceh Jaya district, West Aceh district, Singkil district, and the Nias Islands. The last two areas saw even more destruction after the March 2005 earthquake.

The roads connecting cities on the western coast of Aceh had melted away in the face of the giant waves. In several areas, road segments had eroded right down to their foundations, as if erased off the map. Others now lie under the ocean due to the coastline

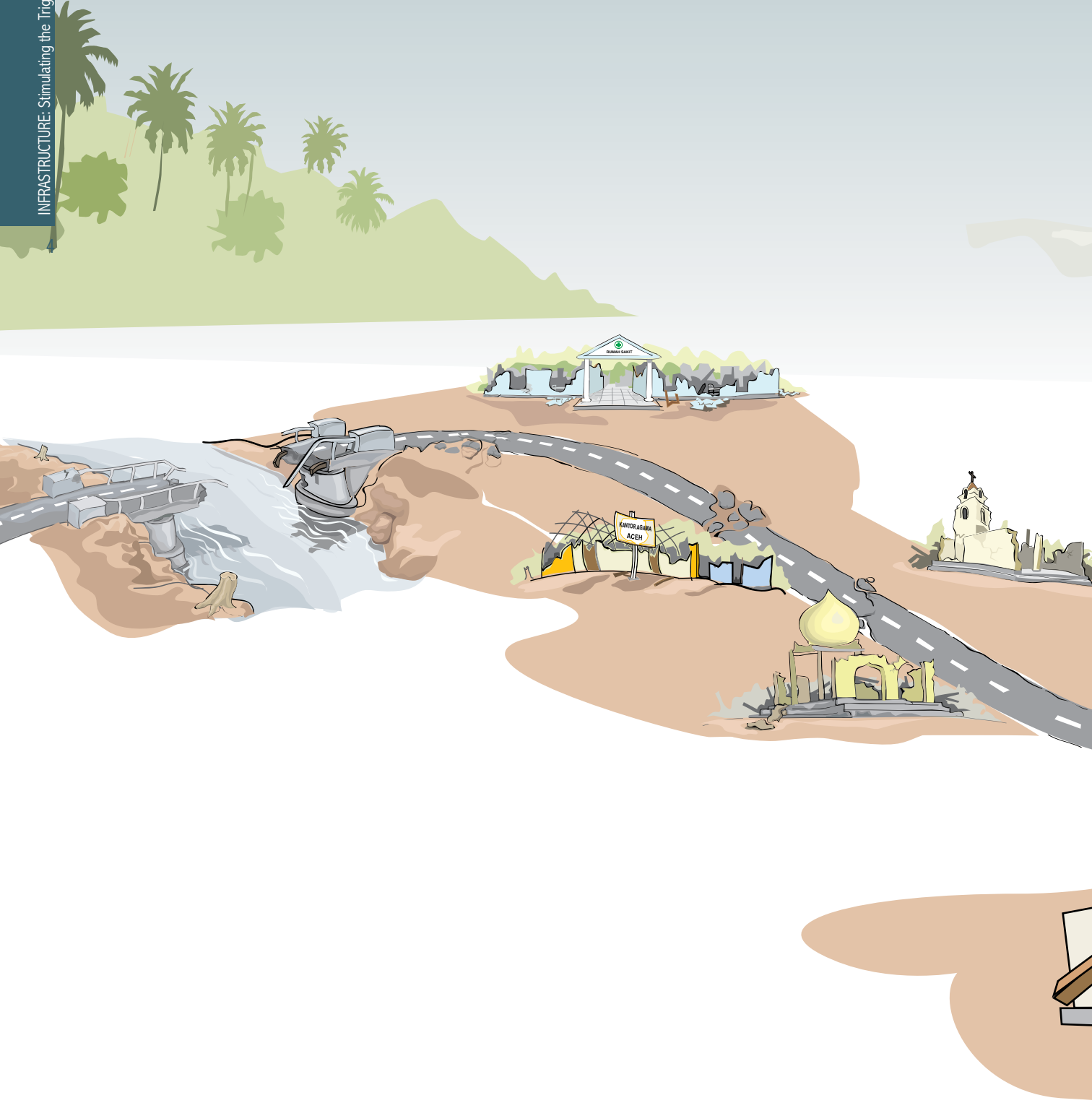


shift 100 meters inland, or to the subsiding of soil levels after the earthquake. The tsunami waves sliced down nearly the entire length of Aceh's western coastlines, which had neither natural coastal protection, such as mangrove forests, nor manmade ones. The beaches did not stand a chance when even the seaports, 24 of them, including those in Meulaboh, Calang, Ulee Lheue, and Singkil, were severely damaged or destroyed by the raging water.

Not to mention the obliteration of the telecommunication network and of electricity and clean water facilities in Banda Aceh, Calang, and Meulaboh. The central telephone station in Meulaboh was razed to the ground, crippling local networks. Most disturbingly, when repairs of the system and network in Meulaboh began, the capacity of the automated central station in Tapaktuan was also affected. There was no choice but to upgrade the telephone center in Tapaktuan. This center linked Meulaboh's telephone lines to the national telephone network.

The clean water facility was also severely damaged. In Banda Aceh, for example, the local public water utility company (*Perusahaan Daerah Air Minum*, PDAM) Tirta Daroy as the main supplier of potable water was incapacitated by the earthquakes. The main problems lay in the distribution pipe network, the water purifier installation, water-intake pipe network, and other supporting facilities. The facility could not supply the whole

The Ulee Lheue port, Banda Aceh, which services the route Banda Aceh to the Weh island, experienced severe damage, August 3, 2005. Photo: BRR/Arif Ariadi



1.000 Km	Coastline - damaged
21 Kab/kota	Water supply facilities- damaged
8 Unit	Airport - damaged
24 Unit	Seaport - damaged
3.440 Km	Electricity supply facilities - damaged
120 Unit	Arterial bridges - damaged
2.495 Km	Main roads - damaged
107.216 Ha	Irrigation networks - damaged
126.146 M2	Rivers - damaged
69.058 M2	Swamps and beaches - damaged
1.052 Unit	Government building - damaged
2.000 Unit	Schools - damaged



city with drinking water. Only 20 percent of the water supply capacity was left. One can imagine how difficult the conditions were at the time. There was a most pressing need for water to help the tsunami victims.

The destruction of various infrastructure facilities made the implementation of rehabilitation and reconstruction much more difficult at the time. Many regions were isolated and lay out of reach. It was very tricky to distribute logistics during the emergency relief period, let alone distribute construction materials.

Starting From Scratch

Outside of the destruction brought about by earthquakes and tsunamis, conditions in the region of Aceh were distressing. Prolonged conflict had caused this region to fall behind others, including in matters of infrastructure development. Before peace was achieved, Aceh was an area of armed conflict posing many dangers and risks for infrastructure development activities. Hence, the majority of development had taken place only around heavily populated urban areas or along main roads.

Farming facilities, such as irrigation systems were left unmaintained, not to mention road and transportation facilities. Similarly, many of the main irrigation dams were not functioning. The farming sector was almost at a standstill. These conditions worsened after the tsunami hit, especially in coastal areas. Because of the tsunami, more than 11,000 hectares of farmland were buried under sand and soil and were no longer productive. In several areas, the development of road infrastructure was also hindered. At a glance, in some areas, strategic infrastructure, such as national and provincial roads, was in good condition. Although several points needed maintenance, a number of road segments, such as the east, west, and central routes had already been coated with hot mix asphalt prior to the tsunami.

However, at the lower district level, the level of development was still low, roads were inadequately built, and maintenance was also limited. Few of the district roads were gravel, with only a few coated with asphalt.

Electricity supply? The same conditions prevailed. Prior to the tsunami, the main electricity supply for Aceh Province was supplied by the northern Sumatera network system via high-voltage transmission along the eastern coasts of Sumatera. Even then, the scope of services was very limited and in general only the eastern coastal area and cities received service.

Additional electricity was supplied from local networks through diesel power units, which often had problems. Electricity supply was very limited as it was dependent on the small generators that the people bought themselves and that only worked at night. The voltage went up and down or was insufficient, thereby frequently causing blackouts.



These conditions grew worse as thieves stole electricity cables and dismantled parts of towers. It was no wonder that several high-voltage towers collapsed. In the end, the development of infrastructure did not extend to remote areas. Farther into the central mountains and western coast, electricity was not available at all.

Like it or not, BRR's rehabilitation and reconstruction of infrastructure had to deal with these pre-tsunami infrastructure conditions. Especially given the build back better mandate in the reconstruction of Aceh, other regions had to be developed on top of developing the tsunami areas. In addition some of these programs were included in the blueprint made by the National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional*, Bappenas).

Not everything could be done. For example the Seumpang-Tutut segment, previously a government program (part of Ladia Galaska Road), was not hit by the tsunami. This section was then built out as an alternative access route to Meulaboh and other western coastal areas. In the end however, the construction of passages cutting through the Leuser Mountains conflicted with environmental concerns.

The extensive destruction of infrastructure clearly hindered aid distribution in the emergency relief phase but luckily a number of seaports and airport facilities could still be used. Despite critical conditions, the flow of aid coming from both within and without the country could still be accommodated.

*A section of road in Lhoong, Aceh Besar, which from time to time is inundated by sea water, October 3, 2006. This situation has been a principle challenge for the construction of infrastructure along the west-coast of Aceh.
Photo: BRR/Arif Ariadi*

Lhokseumawe and Malahayati Seaports, among others, played crucial roles as the entrance gates for logistics, equipment, and personnel for Aceh humanitarian missions. Neither seaport escaped the tsunami, however, they could still operate despite the damage that made conditions there minimal. Through these two seaports, materials, equipment, and personnel were mobilized to Banda Aceh and surrounding areas. Aside from coming by sea, help also arrived from the air. At the time, the Sultan Iskandar Muda Airport (SIM), which escaped the tsunami, became the main supporting facility. During the emergency relief period, SIM Airport automatically turned into an international airport as it had to serve busy foreign air traffic.

SIM Airport also became the base camp for dozens of international helicopters supplying assistance to isolated corners of the disaster area as land and sea routes were cut off. Due to SIM's limited capacity, Maimun Saleh Airport in Sabang was eventually pressed into use as an alternative airport for aircraft bringing in humanitarian aid. At the same time, in the emergency relief period, the construction of a western land passage between Banda Aceh-Meulaboh was also begun. A 235-kilometer emergency road was constructed by the Indonesian National Army. By the time the emergency relief phase was over, the land route was 35 percent completed, including the repair of 17 out of 53 broken bridges along the route.

Meanwhile, to overcome severed communications in the emergency relief phase, cellular phone networks were patched up. Satellite-based communication networks were also set up, especially Very Small Aperture Terminal (VSAT) systems. Tise system was a godsend in recovering emergency communication lines. In addition to being very easy to assemble, it also proved able to penetrate (for both voice and data) into the most remote and most isolated areas, particularly along the western coast of Aceh. Air Putih Foundation further helped initiate internet connections to remote disaster areas. These facilities undoubtedly made things easier for various donors and NGOs, both local and international, to send data and information to their central offices all over the world.

Moving Swiftly to Overcome Challenges

Naturally, these emergency relief processes were inadequate for jumpstarting a rehabilitation and reconstruction process. One problem encountered when BRR started work in April 2005 was the transportation of equipment and construction materials to disaster areas. This did not stop anyone. The agency moved swiftly. Facing such urgency, one of the first decisions BRR made was to construct Meulaboh Seaport immediately. This dock would help mobilize equipment and construction materials to reach the western coastal areas. BRR quickly selected the location for the seaport. It was situated right next to the obliterated Meulaboh Crossing Seaport. The construction of the pier, assisted by the Singapore Red Cross Society, progressed fairly speedily, taking just one year. In April 2006, the dock was ready for use. This was very helpful to the implementation of rehabilitation and reconstruction in the western areas.



In the meantime, the agency continued to press on to restore the lives of a society torn apart by the disaster. It was not an easy job. This mammoth effort could not be accomplished alone by the local government, which was helpless as its administrative infrastructure was also crippled and many personnel were missing or suffering from severe trauma.

On top of that, field conditions following the total destruction by the tsunami posed a massive challenge. The availability of the materials and construction equipment such as cement, asphalt, and heavy machinery was terribly limited. Just as important, the atmosphere had yet to reach a psychologically safe and conducive state, thus slowing down the rehabilitation and reconstruction movement in infrastructure.

Another barrier was the work force to build the infrastructure. This problem presented a whole new challenge. Post-tsunami, most of the labor force available in Aceh was experiencing problems of a social nature. Besides being limited in number, most local workers were still traumatized by the tsunami as many of them had lost their families and belongings. Meanwhile, bringing in labor from outside was difficult as at the lower levels, a certain amount of resistance was evident from the local work force. At the same time, the need for an extensive number of workers in Banda Aceh continued to increase as the private sector simultaneously began to construct houses, shops and other buildings.

*The activities at the Meulaboh port, Aceh Barat, following its official opening, November 7, 2006.
Photo: BRR/Arif Ariadi*



*Heavy equipment for pressing a road built by USAID in Lamno, Aceh Jaya, March 18, 2006.
Photo: BRR/Arif Ariadi*

There were also internal problems. BRR did not yet have a clear organizational structure. As a result, preparing the organizational structure and personnel for the infrastructure department became absolutely crucial, especially the formulation of the BRR Deputy for Infrastructure's organizational structure and personnel—including how to readjust the structure in response to changes in the field. With regard to the latter, the organizational structure of the Deputy for Infrastructure underwent several changes as required from the initial year through to the end of BRR's tenure.

All this took place simultaneously, funding issues included. Anybody would agree that huge amounts of funds are needed in disaster recovery, requiring a special organization to manage them. In the meantime, the funds provided by the Indonesian government were limited. The numerous commitments for funding assistance from international institutions had to be followed up on and collected and funding schemes arranged, including the setting of start dates in keeping with the work programming specified by the government's draft blueprint. Problems arose later because many programs in the blueprint were not aligned with the needs after the disaster, and even overlapped with government agencies other than BRR. Not only that, the blueprint was drawn up without a detailed design plan.

Hence, breakthrough policies were eventually undertaken to speed up the reconstruction process, including how to implement tenders and construction in the field, as well as how to formulate funding and budgeting schemes. The agency went all out to overcome the problems that it encountered in its path. All efforts were, of course, aimed at repairing infrastructure across the entire earthquake and tsunami disaster area to restore the community's social and economic life back to normal. ■



Building a Boat While Treading Water

THAT afternoon, a helicopter flew low circling Meulaboh's coastline. It carried a team of volunteers from the Singapore Red Cross Society (SRCS) accompanied by Djoko Sasono, an officer from the BRR Deputy for Infrastructure, which had been established just a few days earlier. They were carefully observing the city that the tsunami had torn apart. It was April 2005 and they were conducting an air survey to find a suitable location for a new harbor. The old port, besides being small, had been battered beyond use by the tsunami. A new and bigger seaport was crucial to the process of rehabilitating and reconstructing not only Meulaboh but also other parts of Aceh. This seaport would function as a gateway for ships bringing help.

Meulaboh, a city directly in the line of the gigantic waves that hit Aceh's western coast, had been utterly destroyed. Only 80,000 residents were left of the previous 120,000 people. They had lost everything. Not a single building was left standing. It was as if the town had been popped in a blender, then mercilessly pulverized. As a result, tens of thousands of houses, bridges, public buildings, and the entire infrastructure network, including the Meulaboh Seaport and City Crossing, had been wiped out by the tsunami. The city was isolated during the emergency relief phase. Access to Banda Aceh was completely cut off. At that time, what help there was could only be brought in by air or sea.

Even a solid bridge didn't survive the tsunami, Lamno, Aceh Besar, March 18, 2006. Photo: BRR/Arif Ariadi

A new site was finally located by helicopter, not far from the ruins of the old port. A few months later, the harbor had been built and was ready for use. Throughout the rehabilitation and reconstruction period, this seaport functioned not only as the backbone for the distribution of goods and logistics in Meulaboh but also for the entire western coast of Aceh. Such lightning-fast *blitzkrieg* decisions are unusual. Deciding a port's location usually requires in-depth studies and substantial time. But time waits for no man. The newly-hatched BRR did not want to lose momentum. Even though the organizational structure and Deputy for Infrastructure staff had yet to be established, a quick and binding decision was badly needed.

Such fast decision-making took place more than once during the Aceh-Nias infrastructure reconstruction. "Armed" as the rebuilders were with a blueprint for the process, in reality there was no official guidebook anywhere in the world that could serve as a reference for beginning infrastructure restoration in an area hit by such a catastrophic disaster as Aceh. The one thing to do for certain was to close ranks and assemble personnel to start the work, which turned out not to be an easy thing to do.

The BRR staff was already all fully cognizant of this issue. Before BRR was officially established, Bastian Sihombing—who was later appointed as the BRR Deputy for Infrastructure, Environment, and Maintenance—together with Junius Hutabarat (formerly Director General for Spatial Planning at the Ministry of Public Works), met with the Head of the BRR Executing Agency Kuntoro Mangkusubroto at an NGO office in Jakarta. Post-tsunami, Kuntoro and Hutabarat had often participated in discussion forums on disaster management and spatial planning, including one held at the National Development Planning Agency. These discussions established that they shared a common understanding of management and recovery in disaster areas.

Infrastructure and Environment

THE TRANSFORMATION of the Deputy for Infrastructure, Housing and Land Use Coordination into the Deputy for Infrastructure, Environment and Maintenance was not just aimed at removing housing from the Deputy for Infrastructure, but constituted a gesture of appreciation for the environment.

Originally, the environmental responsibilities of the Deputy for Infrastructure only extended to the coordination of environmental impact analysis funded by donors,

which was actually an integral part of the planning process.

This occurred because even though the Deputy for Infrastructure was meant to oversee the environment, in practice, this area was placed under the Deputy for Operations. The reason was practical, considering that environmental issues were not part of the Deputy for Infrastructure tasks alone, but were also part of the Deputy for Health, Education and Women

Empowerment's tasks with regard to the construction of hospitals or school buildings, and the Deputy for Economic and Business Development's tasks vis-a-vis the construction of fishing ports.

Environmental concerns applied to all sectors and therefore were attached to a deputy that could link them all, namely the Deputy for Operations. In 2008, near the end of BRR's tenure, organizations pertaining to the environment were transferred to the Deputy for

They immediately connected during this meeting when discussing post-tsunami rehabilitation and reconstruction plans for Aceh and Nias, including the organizational structure of the soon-to-be-established agency. Kuntoro did not propose an organization based on sectoral approaches as commonly found in the government. He suggested activities that touched not only on construction, but also touched on the social, cultural, religious, economic, health and educational aspects of recovery.

These structural activities were planned and implemented over a 60-day transition period in such a way as to support and complement each other. “Perhaps this is what’s called a holistic approach,” thought Bastian Sihombing, a guest at the meeting. In the beginning, it was hard to envision the proposed organization as it was set up based on task allocations and targets for each sector. Every executing division handled conceptual activities in addition to physical construction, thus requiring each division to comprehend issues of technical administration as well as construction issues.

The infrastructure sector, for example, handled physical construction, but also took care of land and environmental issues. The education sector not only managed education and teaching systems, but also dealt with the construction of school buildings and physical design of laboratories. The duties of the social and religious affairs sector, which was supposed to oversee the restoration of religious activities and social transformation only, were combined to include social and religious infrastructure development.

At the time, Junius Hutabarat seemed to be the only one who understood this structure. His background as former Director General for Spatial Planning equipped him with planning experience in non-physical aspects. But for those normally involved in the construction sector, understanding this approach took time. Indeed, given the

Infrastructure, along with the area of spatial planning.

The word “environment” was attached to the Deputy for Infrastructure to underscore that the reconstruction of infrastructure would always pay heed to environmental requirements. The word “maintenance” after “environment” also had a special meaning. There was an element of warning contained in the word, namely that “we are good at constructing, but not

at maintaining”. By upgrading maintenance capabilities, the infrastructure facilities built would last longer and serve the people for a longer period.

What was the relationship between infrastructure and the environment? Infrastructure falls into the category of a man-made environment. The creation of infrastructure always takes place in an environmental space on or inside the Earth. Therefore, its existence is subject to constant

contact with the environment, and one must ensure that the infrastructure can co-exist with its surroundings. The objective is to reduce the impact on the environment and to maintain the rebuilt infrastructure. Maintenance is carried out by preventing or minimizing environmental damage from infrastructure construction. The better the maintenance, the longer the infrastructure facilities will last and be of service.

tremendous physical damage, the focus was supposed to be on the development of infrastructure and various other facilities. The organization to be formed was generally to emphasize physical recovery over the recovery of non-physical sectors.

The Ministry of Public Works also held the view regarding the establishment of BRR that the proposed organization should focus on construction activities. The organization would consist of construction areas corresponding to sectors and of one non-construction division. Everything would be under the direct leadership of the Head of the BRR Executing Agency Kuntoro. His initial suggestion, although in reality incorporating a sectoral governance approach, was considered unusual, especially by the government bureaucrats involved at the time. Eventually this initial proposal was adopted only in the rehabilitation and reconstruction of the Nias Islands, which was handled by a special multi-sectoral organization.

Working Sprawled on the Floor

To make a long story short, BRR was established by Government Regulation No. 2/2005. Recruitment for volunteers to join BRR then began. Eddy Purwanto, with a doctorate in economics and a master's in public policy under his belt, was selected as Deputy for Infrastructure based on Presidential Decree No. 3/ May 2005. He had previously worked as an assistant deputy at the Ministry of the Economy and had been the fifth person interviewed for the position of deputy candidate. His tasks at the time were to manage rehabilitation and reconstruction activities in housing and infrastructure, and to coordinate land use. Functionally, he was also responsible for formulating technical policies, drafting and executing work plans, monitoring and evaluating, as well as reviewing and reporting.

The Deputy for Infrastructure was then divided into four directorates. The first area covered transportation and telecommunications, which handled the construction of roads, bridges and other transportation issues. Next came the directorates of Housing and Public Facilities, Land Use, and lastly the area of Water and Energy Resources.

Apart from managing housing issues, the Directorate of Housing and Public Facilities also dealt with clean water, sanitation, and management of public facility buildings. Meanwhile, other directorates were tasked to manage their sectors in accordance with their titles. Such was the initial organizational structure of the Deputy for Infrastructure; simple and lean.

The scope of the Deputy for Infrastructure's work covered the entire disaster area in Aceh and Nias. Initially, in 2005, the infrastructure development program focused on just 13 districts in Aceh and two in the Nias Islands. Among these were Banda Aceh city, Aceh Besar, Aceh Jaya, West Aceh (including Meulaboh), Nagan Raya, Pidie, Bireuen, North Aceh, Lhokseumawe, and Singkil district.



At that time, Nias was included in the Deputy for Infrastructure's sphere of work, as it was not yet able to stand on its own that first year. There were not enough personnel to staff the Deputy, let alone enough to staff Nias specifically. It was only in the second year that Nias was established as a separate work region, except for special programs, such as ship procurement and information technology.

The BRR Deputy for Planning and Programming, Junius Hutabarat, and staff discuss the reconstruction of an infrastructure network along the west-coast of Aceh, July 10, 2005. Photo: BRR/Arif Ariadi

Developing in Line with Needs

During the implementation of the rehabilitation and reconstruction, the organization of the Deputy for Infrastructure went through numerous structural changes. On average, these changes took place less than a year apart. These transformations were meant to adjust the organization in line with field conditions so it could be more balanced and productive.

These organizational changes, or reorganizations, had advantages and disadvantages. On the positive side, they were able to fine-tune organizational needs and clarify tasks. On the negative side, these changes disturbed the work process to varying extents.

Project Implementing Units/ Contract Preparation Officers as Partners and Spearheads

THE Project Implementing Units and the Contract Preparation Officers spearheaded the implementation of the rehabilitation and reconstruction process. In the organizational structure, the Project Implementing Units or project group (the Project Implementing Unit head was known to the public as a project leader) were under the directorate of the sector corresponding to the work. There could be several Project Implementing Units in one directorate, such as the Directorate of Roads and Bridges. Meanwhile, Contract Preparation Officers were structurally placed within the Project Implementing Unit, which could include more than one Contract Preparation Officer. These officers were the ones managing the program/construction projects and tender committees.

Their burdens and responsibilities must have been extremely hard, starting from the tender process, contracts, project execution and control and ranging on to maintenance. The success of the Infrastructure Deputy's programs depended heavily on this team's abilities and competence.

Aside from that, coordination and communication between Project Implementing Units/Contract Preparation Officers and directorates were needed to ensure that the supervision and control functions could be conducted well. With good coordination and communication, each obstacle emerging in the execution of programs could immediately be identified and resolved. In this way the rehabilitation and reconstruction process could run smoothly according to the set targets.

Previously, in 2005, BRR had delegated program execution to related ministries or agencies and the local government. At the time, BRR also 'outsourced' the selection of its Project Implementing Unit heads/Contract Preparation Officers.

BRR did not have sufficient experience to evaluate each candidate proposed to head the Project Implementing Units/Contract Preparation Officers or their capacity. Considering that the references came from ministers and governors or regents and mayors, BRR considered the appointed staff thoroughly trustworthy. Later it was realized that trustworthiness alone was insufficient and that experience was an important factor in managing large projects because the formal organization did not function as it should have, particularly the positions of Project Implementing Unit heads from district governments.

One difference in authority between BRR Project Implementing Unit heads and ministries/institutions' Project Implementing Unit heads was the authority to replace the Contract Preparation Officer/treasurer and SPM inspectors. Personnel changes could be carried out after receiving approval from the deputy who was the Project Implementing Unit head's superior. This was intended to reduce administrative tasks at the level of the BRR Head and hasten the replacement process, should the need arise. Despite this authority, Project Implementing Unit heads could not replace people arbitrarily as they required approval from their superiors. The Contract Preparation Officers' loyalty to Project Implementing Unit heads grew, allowing for speedier control of coordination in the lower levels. ■

Many personnel changes were not followed up swiftly by the transfer of tasks and assets from the old officials to the new ones, while, no matter what, the new officials had to set to work immediately according to their new job descriptions.

When this happened at the Project Implementing Unit (*Satuan Kerja*, Satker) level or at the level of Contract Preparation Officers (*Pejabat Pembuat Komitmen*, PPK) attached to tenders, it became difficult to record data and collect project assets. In addition, the Project Implementing Unit Heads and Contract Preparation Officers were very conservative in conducting their tasks. They generally tried to prevent having the mistakes of the previous Project Implementing Unit considered their responsibility even though they were not responsible for the period in which the mistakes occurred.

Strong leadership qualities—namely accountability or courage to take risky decisions—were rarely found among the Project Implementing Unit officials. “They were more afraid of being inspected than of letting their projects get behind schedule. These conditions showed that leadership qualities must also be considered as part of the competence level in human resources recruitment,” Sihombing said.

For example, it was announced suddenly in an open forum and without an official decree that the authority of the Deputy for Planning and Programming, which originally covered program planning, quality control, spatial and environmental procurement, would be reduced to cover just strategic, spatial and environmental planning.

Previously, in July 2005, this office had been the Deputy for Infrastructure, Housing and Land Use. Coordination Later on, as work piled up, this deputy was divided into two, namely the Deputy for Housing and Settlements and the Deputy for Infrastructure, Environment, and Maintenance, in 2006.

The two segments could not be combined as housing was one of BRR’s major tasks and needed extra focus. Meanwhile, infrastructure development was also a major BRR task. Moreover, the scope of the work was not limited to the tsunami areas or to Aceh, but also included the areas impacted by the earthquakes in Nias. On top of that, the Deputy for Infrastructure had shouldered additional program tasks from donors, including MDF, AFD, and JBIC.

Next, to increase work efficiency in the field, branch offices or regional offices were established. In 2006, construction activities grew increasingly more intense. Various program demands flowed in from every district in Aceh. The demands were not only tsunami-based, but had to do with the balance and distribution of development in Aceh. The districts felt that they were affected by the development activities in tsunami areas. Besides from managing the infrastructure at national and provincial level, this deputy began handling infrastructure in the districts. The demands were accommodated by empowering the regional government through local offices.

Regionalization

IN mid-2006, BRR issued a policy to localize organizations and build offices. The control of several district programs was consolidated under the leadership of a regional head.

District offices were built in districts and cities as the regent's or the mayor's coordinating counterpart. Their initial task was to coordinate program planning, particularly in absorbing aspirations within the blueprint corridor. Actual construction only began to take place in early 2007, in line with the Issuance of Spending Authority (*Daftar Isian Pelaksanaan Anggaran*, DIPA) which basically means state budget approval.

Certain aspects of the regionalization program were quite beneficial as it sped up the rehabilitation and reconstruction process. Control of work sectors at the district level, such as the district roads, was turned over to the regional offices. The same applied to the construction of protective sea walls and tide barriers.

The construction of the vehicle testing center and bus terminals was also transferred from the Transportation Directorate to regional offices. Some offices even dared to take on programs to develop airstrips and water treatment plants, despite not having competent staff in those areas.

A tug of war often broke out regarding program allocations between the deputies and regional offices. Unless it was a strategic program, the Head of the BRR Executing Agency had a policy to transfer as many recovery programs as possible to the regional-level offices.

Based on this policy, the program allocations were initially conducted by the sectoral deputies. The regional offices were given the freedom later to choose what programs to implement. The leftover programs would be executed by the BRR Deputies.

The regional offices coordinated with the regents to set up a forum called the Joint Secretariat. This idea was originally introduced in Nias and then extended to Aceh. The Joint Secretariat also functioned to coordinate meetings between regional governments and BRR to determine the annual program.

Unfortunately, the Joint Secretariat often showed up with a long list of programs in hand that did not take funding limitations or priorities into consideration. The proposed programs were not strategic district and city administration programs, but rather small-scale programs that did not fit the rehabilitation and reconstruction blueprint. Several definitive programs eventually failed to be realized due to funding limitations.

A regent called for the dismissal of the Joint Secretariat after the exclusion of several construction programs in Southwest Aceh. Many parties did not understand that the Joint Secretariat functioned not only to collect aspirations and ideas, but as a screening process to prioritize the programs to be submitted to the Deputy for Planning and Financing for approval to be included in the Issuance of Spending Authority.

The other function of the Joint Secretariat was to approve programs funded by the MDF grant, including the commitment for their maintenance. If the Joint Secretariat was dismissed, the MDF programs in that district would have to be cancelled as they required continued looking after, which in this case was handled by the Joint Secretariat.

The transfer of ongoing programs was followed by a corresponding shift of funds to the regional level. Consequently, several deputies had only a small amount of funds under management after funds were transferred to the regional offices. Apart from funds, the numbers of deputy staff also changed due to a lack of expert personnel at the regional level. This caused a reduction in the number of deputy staff as they were not replaced.

Later, there emerged indications of conflicts between local governments and BRR. The conflict between the Meulaboh Regional Office and the West Aceh Regent caused the regional office in question to be closed and its responsibilities to be transferred back to Banda Aceh.

By establishing regional offices, BRR created an organization that could function as its eyes and ears in project control, down to the district level. This localized presence helped tremendously in resolving problems in the field and spearheading the absorption of community aspirations and responses. ■

Opening of the BRR Representative Office III that covers the eastern parts of Aceh, Takengon, Central Aceh, August 24, 2006.

Photo : BRR/Arif Ariadi

**REHABILITASI DAN REKONTRUKSI NAD-
PERWAKILAN 3 (TIMUR LAUT)**

**ULN. TAKENON - BIREUEN
AKENON, ACEH TENGAH**

**MERIAH, GAYO LUES, ACEH TAMIAN
LANGSA, ACEH TIMUR**



Through these regional offices, some tasks were fanned out to the districts. A new deputy department was formed to control these offices, namely the Deputy for Operations headed by Eddy Purwanto, who previously led the Deputy for Infrastructure. Bastian Sihombing took office in his place as the new Deputy for Infrastructure starting June 2006.

For months afterwards, the new deputies worked absent a legal basis. Only in September 2006 were these three new deputies confirmed through Presidential Decree No. 86/M/2006. Details on the Deputy for Infrastructure's tasks were determined two months later.

The newly formed Deputy under Bastian Sihombing had just one Vice Deputy. The vice deputy's main function was to implement internal controls and ensure that all procedures and regulations were carefully followed.

Unfortunately, the vice deputy's efficiency was not optimal as he held a dual position as a director under the Deputy for Infrastructure. This was typical of BRR, where the human resources available were always fewer than the number of vacant positions in the organization.

Dual Positions, Double the Workload

After being spun-off, the Deputy for Infrastructure, Environment and Maintenance had six directorates and one task force. Each directorate had one or more managerial units as needed. The managers, other than verifying the existence and implementation of infrastructure works, also carried out managerial tasks in their work areas and the development targets that had been laid out. Subsequently, these managerial positions were split to handle two sub-sectors each. The Transportation Directorate, for example, now had two sub-sectors, namely sea, land and air transportation; and SAR (Search and Rescue), post and telecommunications.

For the sake of efficiency and competence, this structure was simplified, with the establishment of an assistant manager level followed by senior/junior staff. There were one director, three managers (Air Transport Manager; Land, Sea and SAR Manager; and IT Manager), supported by several assistant managers and staff. As of 2008, there were just seven permanent employees in the directorate, plus two technical assistance staff.

The number of employees was relatively small compared with the burden of managing a budget of no less than Rp. 400 billion each year. For comparison, the NAD Province Transportation Agency managed a much smaller budget, but had over 100 staff/employees.

This lean organizational structure left each staff member with a high workload, resulting in their holding down two positions at the same time and handling a double task list. However, this was considered a matter of course. The staff of the Transportation



Directorate, for example, was often asked to help other sectors by acting on a tender committee or as a resource in the housing or economic sectors, or in the Project Management Unit (PMU) Infrastructure Reconstruction-Enabling Program (IREP) or Infrastructure Reconstruction Finance Facility (IRFF). These tasks, of a certainty, went beyond established job descriptions.

At one point, in the beginning of 2007, the positions of director, manager, and Project Implementing Unit Head were held by one individual. Similarly, more often than not, the position of manager came with no supporting staff. As a result, all jobs ranging from administrative office errands to field work were tackled by one person. It was common to work on holidays or late into the night.

This showed the staff's ability to work hard. Within the emergency context, the Deputy for Infrastructure team regarded the work as a challenge rather than an obstacle. The main tasks had to be carried out despite the additional assignments piling up.

Interestingly, the composition of personnel in this deputy department was quite diverse in terms of professional and cultural backgrounds. The recruitment policy towards filling positions in BRR's organizational formation indeed emphasized ability and professionalism, work integrity, and commitment.

The Deputy for Infrastructure, Bastian Sihombing, accompanying the Head of BRR Executing Agency, Kuntoro Mangkusubroto, visit a field in Tiro, Pidie, February 10, 2006. Photo: BRR/Arif Ariadi

Project Management Unit (PMU)

THE PMU was a body that managed the execution of foreign aid programs, such as the Multi Donor Fund (MDF) grant to fund technical assistance through the Infrastructure Reconstruction Enabling Program (IREP) and fund construction of rehabilitation and reconstruction infrastructure through the Infrastructure Reconstruction Financing Facilities (IRFF). The Deputy for Infrastructure was simultaneously in charge of this unit.

In daily activities, the unit head was assisted by the head of the PMU Secretariat, who was also appointed as the direct supervisor of the Project Implementing Units/Contract Preparation Officers managing the IREP funds.

Normally, a technical department's PMU only functioned as a coordination unit, but in this context, the IREP/IRFF PMU was included within the Deputy for Infrastructure's organizational structure with a directorate-level position.

Five project officers supported the secretariat head. It was they who supervised and controlled the management, supervision and design consultants, as well as the financial management consultants for construction projects financed by the MDF grant.

These five consultant teams consisted of the Infrastructure Program Management consultants, Planning, Design and Construction Supervision (PDCS) consultants for the northern and western regions of Aceh, the PDCS consultant team for Nias, the PDCS consultant team for strategic infrastructure projects at the provincial and national level and the Financial Management consultant team. The activities of these consultants were controlled by the PMU.

It was agreed that a one-door communication system would be used to coordinate and communicate with the MDF, represented in this case by the World Bank as the administrator or trustee of the IREP/IRFF fund. Any communication with the World Bank would be conducted through the PMU.

Coordination with related agencies at the central government level would be carried out in a similar manner, especially when coordinating program implementation and/or technical consultations on items under the authority and responsibility of a ministry or central government department.

PMU coordinated with the Director of Land Affairs and the Director of Environmental Management in the Deputy for Housing with regard to implementation. This was done to settle land acquisition problems and screen the infrastructure program surroundings.

The Infrastructure Development Committee, consisting of all infrastructure-related deputies, was established to direct the infrastructure development program. The committee was led by the Deputy for Operations, with members consisting of the Deputy for Operations, the Deputy for Finance and Planning, the Deputy for Infrastructure, the Deputy for Housing and the Deputy for Institutions.

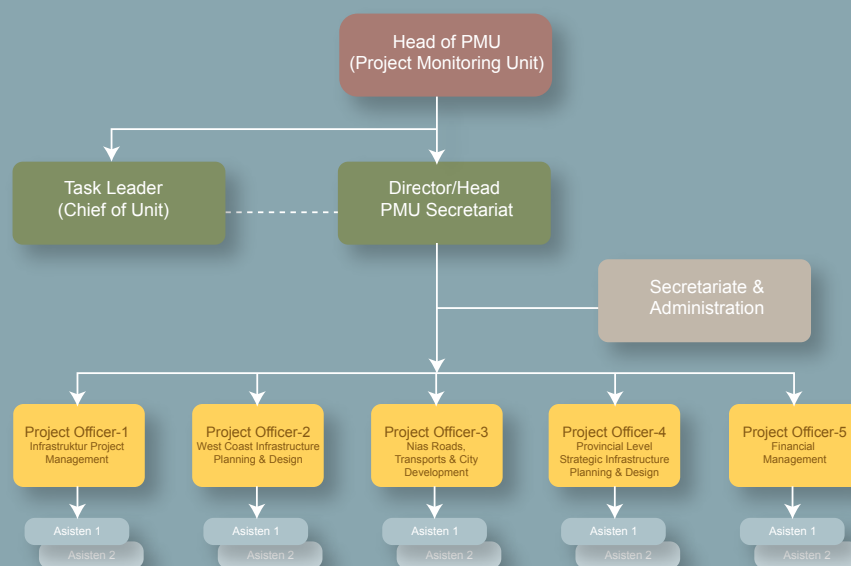
The committee functioned primarily to settle problems connected to donors, master plans or new blueprints. Individually and collectively, it was mainly consulted by the World Bank for advice on the resolution of grant problems, the direction of development, and achievement targets.

In terms of organizational structure, the PMU answered to the Head of the Agency; it was not overseen by the Infrastructure Committee. In terms of implementation, the Infrastructure Committee carried out strategic policies on infrastructure development that were set by the Head of the Agency.

Many other units in BRR deemed the PMU organization to be inefficient and unhelpful. Those working in construction only understood the concepts of programs, funds, tenders, and construction. Comprehension of mission supervision issues, performance evaluation, process evaluations, periodic reports, grant agreement changes, adjustments to the Indonesian Government's regulations and accountability did not much impinge on construction.

For many parties, these issues never existed, never emerged at the surface, and were of little help with construction. For donors however, the availability of such information was crucial, and providing it became one of the PMU's integral tasks. Nor did donors wish to have to contact multiple BRR units, such as individual directorates, Project Implementing Units or Contract Preparation Officers.

It was necessary to comply with the one-door communication policy to avoid confusion and administrative variations. This communications task was entirely outside the main duties and functions

Table 2.1 Project Management Unit Structure

of the technical or sectoral directorates. Therefore, the function of communicating with donors was given to PMU. It was important for the construction community to know that there was a think tank handling the entire loan or grant formation process, which took more thought and skill in foreign language negotiations than simply understanding tenders and construction.

Specifically for activities linked to JBIC and AFD, a PMU unit was also formed that was headed by an official at a director-level, in this case the Vice Deputy for Infrastructure. Its tasks were similar to the IREP/IRFF PMU in facilitating relationships between BRR and donors, as the process was still in the initial stages and loan documentation was being prepared. This stage was the most difficult stage compared with the construction phase. All requirements and processes were discussed and agreed upon here. Once into the implementation phase, it was only a matter of managing the construction.

In a ministry/agency, the responsibility for donor contact lies with the Planning Bureau, Bureau of External Affairs or Program Support. At BRR, these

tasks produced local staff who understood how loans and grants were formulated, and who could later act as a resource for the local government.

Approaching the end of BRR's tenure, the tasks of facilitating the management of the entire grant and foreign loan programs were combined under an integrated PMU. A new PMU, coordinating with the Ministry of Public Works as the succeeding executive agency, was formed to do this. The leadership of the PMU was transferred to the Deputy for Operations, who answered to the Head of the Executing Agency.

The PMU organizational structure and personnel appointed by decree from the Head of the Agency would carry out the same tasks in the Ministry of Public Works following the end of BRR's tenure on April 16, 2009. All of this was based on a Public Works Ministerial Decree. Once the PMU was part of the Ministry of Public Works, the PMU head would answer to the Minister of Public Works. The pattern of this exit strategy was a smooth one without gaps due to turnover and learning processes. This was possible as BRR's PMU personnel were also employees at the Ministry of Public Works. ■

Within the infrastructure program, comprehension of specifications, procedures, and standard operating procedures was a major requirement. Those selected had to be able to understand job specifications and work documents. Consequently, this deputy department inevitably used personnel from outside of Aceh, particularly for technical supervision and management. Meanwhile, in the field, almost all of the personnel were from Aceh. This project became a training ground for the Acehnese local government staff, especially as BRR's work period ended and the reconstruction program had to be handed over. Nevertheless, compared with the BRR socio-cultural program, the number of local workers in this deputy department was considered to be small.

Even at the supervisory and management level, the composition of staff was quite diverse. Although BRR NAD-Nias was a government organization, very few of its personnel were civil servants. Most came from NGOs or the private sector.

The bureaucracy-based civil servant culture obviously differed from the culture of the private sector, which prized efficiency and the achievement of objectives. These discrepancies made it necessary for the staff to keep an open mind and accept differences in opinion. In the end, the combination of the two formed an excellent working structure for solving problems.

To reinforce the work integrity of the staff, the Head of BRR was willing to create a payment system that differed from the government payroll. With this system, BRR employees received better compensation packages and had no need to find side jobs, and were consequently expected to be willing to work hard and fast, with integrity and professionalism.

Another distinctive factor was the presence of many national and international non-organic outside workers (expert staff). They were paid with aid funds or grants (off-budget). Almost every unit in BRR, from the agency's head to the directorate level, was assisted by outside workers.

The problem was, whether the outside staff also understood the main tasks and functions of the government organization it was helping. If not, their presence would be ineffective as the ideas they contributed would be out of line with reconstruction requirements in general and public service needs in particular.

The number of expert staff was therefore limited to specific sectors or to instances where specific skills were not found internally at BRR. Dismissals of organic, as well as expert staff, became common. These dismissals were not always triggered by the end of the contracts but could also happen midway. One of the reasons was competence.

With such composition and recruitment patterns, BRR NAD-Nias' internal policy was susceptible to "leaking" into the hands of ignorant parties. BRR NAD-Nias had no wish to violate the principles of transparency, but outside interference with internal policies would have greatly impacted decisions and public policy-making. Cases of leaked state documents often happened in the field.



Winding Down the Work Period

Entering 2008, the demand for changes or revisions of the organizational structure continued. That year, the improvement of organizational structure and work arrangements was aimed at accelerating rehabilitation and reconstruction towards the end of BRR’s tenure in April 2009. Naturally the challenges and field conditions that existed when the work first began were no longer the same.

This time, the authority of two vice deputy positions was expanded. The first vice deputy now doubled as Head of the PMU Aceh Reconstruction Project, as well as head of foreign loans from Japan through the Japan Bank for International Cooperation (JBIC) and from France through the French Development Agency (*Agence Française de Développement*, AFD). The second vice deputy doubled as the Head of the PMU IREP/IRFF Secretariat.

Apart from that, the Deputy for Infrastructure was supported by several expert staff, the Audit Completion Task Force and the Asset Management and Monitoring Task Force. Meanwhile, the Environment Impact Analysis Task Force, an old task force or unit, was developed and expanded to become the Directorate for Environment and Spatial

Bambang Guritno, a special advisor from the Ministry of Public Works, and the Head of Executing Agency BRR, Kuntoro Mangkusubroto, sign the handing-over of state-owned infrastructure assets, Jakarta, April 8, 2009. Photo: BRR/Arif Ariad

Planning, as the tasks of spatial and environmental planning were transferred from the Deputy for Housing and Operations.

Similarly, as major new drainage projects funded by JBIC and AFD loans came in, the old Directorate of Clean Water, Sanitation, and Public Facilities unit was overhauled and emerged as the Directorate of Sanitation and Drainage. In another improvement stemming from a new regulation from the Head of the BRR Executing Agency, the old title of 'manager' was changed to 'division head'.

Since January 1, 2009, the duties of the Deputy for Infrastructure were concentrated on completing asset handovers, resolving findings, compiling final reports and facilitating the management of grant programs and foreign loan programs. All construction works under the Deputy for Infrastructure were transferred to the Deputy for Operations, whereas construction works extending beyond March 15, 2009 were turned over to the Ministry of Public Works and the Transportation Department of Aceh.

As a consequence, since they no longer handled physical activities and construction works, the seven directorates in the Deputy for Infrastructure were trimmed to four units and the number of staff reduced by some seven-eighths, to about eight people. Meanwhile, in the Infrastructure Project Implementing Unit, the number of infrastructure management consultants funded by the MDF through the IREP Program—including outsourced staff working at the Project Implementing Unit—shrank from an initial 23 people to seven.

After BRR's tenure officially ended on April 16, 2009, the Project Implementing Units retained by the Deputy for Infrastructure were those managing donor facilities and relationships with ministerial departments/institutions. In keeping with the handover process, this unit was placed under the Ministry of Public Works, with the same tasks.

This was a unique occurrence. Never before in a governmental institution had tasks been transferred from a ministry-level organization to a department-level organization. Only during the disaster rehabilitation and reconstruction process in Aceh/Nias did it take place.

In reality, many extraordinary events occurred during the rehabilitation and reconstruction process in Aceh and Nias, particularly within this deputy. The challenges were difficult, forcing BRR to be strong not only because of the reconstruction targets, but also to handle the psychological pressure, the need to avoid mistakes in the public eye, and the need to make quick decisions. The swift dynamic of organizational change stemmed from adjustments to job demands, target changes and shifts in BRR's goals. This occurred not just because the "state responsibilities" shouldered were so important, but also because the urgent needs of disaster recovery called for speed and precision in planning, deciding and acting.



Unlike at a departmental organization, at BRR one had to be able to multi-task, starting from planning to implementing to monitoring. Rapid organizational transformations were required to accommodate the demands of the job, changing targets and shifts in the organization's objectives. These transformations were easily done as, unlike in other ministries and agencies, the head of the agency, according to Presidential Decree No. 34/2005, had full authority to manage the organization without consulting with the Ministry of State Apparatus Empowerment, in order to ensure speedy action.

It felt appropriate for the Head of BRR Executing Agency Kuntoro to compare the entire assignment to building a boat while treading water.

In the end, it was universally realized that given all the dynamics in the field, BRR was a lean and effective organization, particularly when compared with other government agencies. The restoration of infrastructure after the earthquakes and tsunamis in Aceh and Nias was hard proof of their work output and integrity. ■

*The deputy of Infrastructure, Housing and Land, Eddy Purwanto, coordinating with the pilot before beginning an air survey of the affects of the tsunami, Banda Aceh, November 29, 2005.
Photo: BRR/Arif Ariadi*



Blueprint of a Million Hopes

Digesting the Guidebook According to the Needs

ATJEH Spoorweg Maatschappij is the name of the Aceh railway company left behind by the Dutch in the 1950s. The Aceh tram, as the old train was called, linked the province known as the Veranda of Mecca to Medan, North Sumatera, transporting all varieties of crops, spices, and even Aceh's then-renowned pandanus mats. Not many know that at the time, the train, as the main mode of transport, symbolized Aceh's economic prosperity into the late 1970s. Almost nothing remains now. The railroad track between Banda Aceh and Medan lies neglected. For various reasons, including the long-running conflict, the State Railway Company (*Perusahaan Jawatan Kereta Api*, PJKA) could no longer continue operations. The situation peaked in the 1980s, after which the train whistle never blew again.

The above story is no mere historical romance. The plan to rehabilitate and reconstruct the railroad along the Medan-Langsa-Lhokseumawe-Banda Aceh route was clearly mapped on the 2005 master plan or blueprint that the National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional*, Bappenas) made for BRR. The blueprint specified that the 233 km-long railroad must be rehabilitated followed by the procurement of train cars and station facilities. The objective was none other than to

The community living near Samalanga, Bireuen, enjoy the benefits of a village road reconstructed with funds from the state budget, May 22, 2006. Photo: BRR/Arif Ariadi

revive Aceh's economy, reduced to smithereens by the prolonged armed conflict and tsunami. The plan was certainly appropriate. However, it was far from the actual needs' relevance.

After further consideration, the plan to revive the railroads could not be prioritized in the BRR infrastructure recovery program. Moreover, it turned out that this long-term program had already been included as part of the Transportation Ministry's plan.

The blueprint, supposedly providing important guidelines for development, could not be fully executed to the letter by BRR. Moreover, apart from the railway program, the blueprint drawn up by Bappenas with the help of the NAD regional government (in accordance with Government Regulation No. 30, April 15, 2009) listed numerous programs not related to the earthquake and tsunami catastrophe. "Many districts submitted their entire development programs without considering disaster priorities," said Bastian Sihombing, the BRR Deputy for Infrastructure.

Take road construction, for example. Almost all national and provincial roads in Aceh were included in the blueprint for rehabilitation or reconstruction. Consequently, the programs overlapped with the ones devised by the Directorate General of Highways (Ditjen Bina Marga) and the Aceh administration. Some of the areas were nowhere near the areas hit by the tsunami. Nevertheless, the Deputy for Infrastructure tried to remain consistent to the programs in the blueprint, the initial plan for the rehabilitation and reconstruction activities. This was also in line with the directive from Head of BRR Executing Agency Kuntoro Mangkusubroto, who instructed the review of each program in line with its level of urgency and priority. Inevitably, it was found that the programs in the blueprint were out of sync with field conditions. The construction of the railway was one example.

Conversely, several of the most urgent and high-priority programs were excluded from the blueprint. Among these, the construction of escape airstrips in Blangkejeren (Bener Meriah district), Teluk Dalam (South Nias district), and Calang (Aceh Jaya district) could have been conducted by the Mission Aviation Fellowship (MAF) in 2006. As its name implies, the airstrip would be needed in emergency conditions, such as when a tsunami hit, to facilitate evacuation processes, particularly for people living in areas difficult to reach by land or sea. Aside from that, the airstrip would also be needed to enable the delivery of logistics and construction materials. Ideally, the escape airstrip should be constructed to accommodate planes up to the Hercules C-130 class. The other problem was, though termed a "blueprint," not a single one of the programs came with a design plan. In emergency conditions, after an extraordinary disaster, it is impossible to plan, particularly as the process of designing and planning usually takes quite a long time.

Aside from building infrastructure, BRR also developed the institutional capacity to maintain it. Equipping the technical agencies with maintenance tools is expected to extend the lifespan of the infrastructure. BRR therefore considered providing local governments at both provincial and district/city level with maintenance tools. This program was needed but not included in the blueprint.



Eventually, BRR used the concept of a design review to solve the problem. Under this particular concept, in years that followed, each time BRR began construction it only needed to prepare the basic planning concept and tender documents, and calculate the value of the project. The project would then be tendered and it was up to the winner to plan the details of the design. This was an effective method of expediting the reconstruction process.

These various situations and events forced BRR to be more vigilant in formulating strategies and selecting infrastructure programs while dissecting the blueprint—determining what programs to prioritize in the first year and which others required long-term planning and in-depth design.

In determining which infrastructure programs were pressing, besides looking at the blueprint, BRR also took into consideration suggestions from local governments as well as field conditions.

In principle, BRR adopted the build back better principle as the foundation of its construction targets in the Aceh and Nias rehabilitation and reconstruction programs. Implicit in this strategy was, of course, the assumption of robust financial support. The funds

A UN helicopter flies over the airstrip in Calang, October 4, 2006. A number of airstrips were constructed in strategic or isolated areas for evacuations, logistics and for future protection against disasters. Photo: BRR/Arif Ariadi

Table 3.1 Altering the Blueprint to Fit New Program Targets

No.	Program/Activity	Unit	New Target	Achievement	Funding	Remark
I. TRANSPORTATION						
1	Sea Port	Unit	16	13	APBN BRR, MDF, Singapore & Netherlands	3 Unit Still in-progress (MDF)
2	Ferry port	Unit	8	8	APBN BRR, AUSAID	Operational
3	Airport	Unit	9	9	APBN BRR	Operational
4	Airstrip	Unit	3	3	APBN, MAF	Operational
5	Helipad	Unit	1	1	APBN BRR	Operational
6	Rail Road	Unit	-	-	-	-
II. BRIDGE & ROAD						
1	National Road	km	933	831	APBN BRR, MDF	Continued by Ministry of Public Works, MDF, ADB, JBIC
2	Provincial Road	km	782	748	APBN BRR, MDF	Continued by Ministry of Public Works, MDF, ADB, JBIC
3	District Road	km	3.511	1.100	APBN BRR, MDF	Continued by Local Government
III. TERMINAL & TRAFFIC MANAGEMENT						
1	Bus Terminal and Damri Public Bus	Unit	16	16	APBN BRR	Completed
2	Traffic Safety	Unit	325	325	APBN BRR	Completed
3	Vehicle Testing Building	Unit	2	2	APBN BRR	Completed
4	Supporting Bus	Unit	56	56	APBN BRR	Completed
IV. POSTAL & TELEMATICS						
1	SAR Office	Unit	1	1	APBN BRR	Completed
2	Meteorology and Geophysics	Unit	8	8	APBN BRR	Completed
3	Postal and Telematics	Unit	23	23	APBN BRR	Completed
4	BMF UPT Postal	Unit	1	1	APBN BRR	Completed
5	Tsunami Early Warning System	Unit	5	5	BMG	Completed
6	Telematics/IT Facility	District	24	24	APBN BRR	Completed
V. ENERGY & ELECTRICITY						
1	Diesel Power Generator	Package	13	13	APBN BRR	Completed
2	State Electricity Company Office	Package	1	1	APBN BRR	Completed
3	Micro Hydro Power Plant	Unit	8	8	APBN BRR	Completed
4	Solar Power Plant	Unit	4.084	4.084	APBN BRR, NGO	Completed
5	Electricity Line	km	2.123	2.123	APBN BRR	Completed
6	Household Electricity Line	Unit	122.000	116.748	APBN BRR	Continued by State Electricity Company
7	Electricity Distribution Point	Unit	598	598	APBN BRR	Completed
8	Energy and Mineral Resources	Unit	3	3	APBN BRR	Completed
9	Volcano Monitoring	Unit	3	3	APBN BRR	Selesai

No.	Program/Activity	Unit	New Target	Achievement	Funding	Remark
VI. WATER RESOURCE						
1	Irrigation	ha	121.884	121.884	APBN BRR, ADB	Completed
2	Flood Control	m'	98.765	115.078	APBN BRR	Exceeding Target
3	Coastal Protection	m'	72.454	97.058	APBN BRR, MDF	Exceeding Target
VII. PUBLIC BUILDING						
1	Public Building	Unit	9	1	APBN BRR	Completed
2	Government Building	Unit	126	126	APBN BRR	Completed
VIII. INFRASTRUCTURE MAINTENANCE						
1	Heavy Equipment	Unit	170	170	APBN BRR	Completed
2	Bridge, Steel Frame & Bailey	Unit	126	126	APBN BRR	Completed
3	Infrastructure Reconstruction Enabling Program	Package	5	5	APBN BRR, MDF	Continued by Ministry of Public Works

would be used to implement all major policies in infrastructure development according to the vision and mission of the Deputy for Infrastructure, Environment, and Maintenance.

In keeping with the funding scheme, various programs were divided according to strategic and non-strategic status. Non-strategic programs were usually of small scale with a construction period of less than one fiscal year. These programs normally served short-term needs, such as district/city roads, places to unload fish in villages, and bridges or roads in settlements. Non-strategic programs were carried out based on considerations of time, benefits, and costs. BRR handled the project management itself, while execution was entrusted to local stakeholders or those closer to the location of activity, namely the local government.

Meanwhile, strategic programs, which required more construction time and had long-term functional usage, usually took place on a large scale. The level of infrastructure was usually of national scale. Its construction would directly handled by BRR through the Deputy for Infrastructure. Examples of long-term strategic programs were the construction of the Sultan Iskandar Muda Airport and the Malahayati Seaport in Aceh Besar district, as well as a national road to the west of Aceh. Although some programs were taken on by BRR, several strategic programs were entrusted to the regional government. Construction of the airstrip in Blangkejeren, for example, was carried out by the Takengon regional administration despite requiring specialized expertise in its construction. Other programs, such as the construction of drainage in Lhokseumawe, were assigned to the local government as a result of confidence in the abilities of local staff.



Certain strategic programs were also assigned based on whether the construction would be conducted directly by donors and international NGOs. The program financing scheme from the Multi Donor Fund (MDF), for example, entrusted implementation to UNDP. These programs included paddy field rehabilitation, waste management, potable water supply and road rehabilitation. Meanwhile the International Labor Organization was given the responsibility to rehabilitate roads using labor funded by the MDF. Then there were the Japanese and United States governments, which funded and executed road rehabilitation between Calang and Meulaboh and road reconstruction between Banda Aceh and Calang, on their own.

Although BRR's capacity to manage activities funded by the state budget and by on-budget grants (included in the state budget) was considerable, the strategic construction carried out by donors and international NGOs was extremely helpful in meeting BRR's rehabilitation and reconstruction targets. In the MDF programs, BRR was still actively involved by disbursing US\$200 million worth of matching funds, whose supervision was assisted by the World Bank.

The blueprint mapped out two stages, namely rehabilitation and reconstruction. In the rehabilitation stage between April 2005 and December 2006, the programs aimed at restoring and recovering the functions of buildings and infrastructure by targeting repairs of public facilities to an adequate level. Whereas the reconstruction stage between July 2006 and December 2009 covered the process of rebuilding urban areas, villages, and inter-area connections. The target was to rebuild the areas and lives of people directly and indirectly affected by the disaster.

Program Packaging and Tender Policy

PROGRAM packaging was another policy BRR employed in the construction process. Within the same district, similar packages were merged into a single package. The objective was to build up a bigger package so that it could be offered to major contractors on the assumption that they would execute the job better and faster given that they had sufficient capital and the right equipment. The policy mainly applied to construction projects funded by donors. Another advantage of this plan was the simplified tender process. Smaller packages required repeated tenders and more manpower to execute them.

The weakness of this approach was that if the tender failed, execution of all the programs in the same district would be delayed. However, with the tender process being supervised by the Central Procurement Unit, the possibility of failure could be reduced as donor regulations could compensate for certain items in Presidential Decree No. 80. The requirement of a multi-year permit was another item that was somewhat difficult for ministries, institutions, or regional governments to manage. In the Amendment of Presidential Decree No. 80 on Rehabilitation and Reconstruction, the Head of BRR was authorized to determine which packages could be accomplished as a multi-year package. This eased the implementation of construction by reducing the number of tender processes at the beginning of every budget year.

On the other hand, this could generate a moral hazard if the construction that was supposed to be finished in one fiscal year turned into a multi-year project due to obstructions during the execution. But again, this was still beneficial to accelerating the process. Overdue projects whose funding had been used up within the fiscal year would have to be re-tendered, but by changing the one-year construction projects into multi-year projects, the tender processes could be cut back and construction could proceed immediately at the previous year's prices.

A new arterial road from Calang to Meulaboh under construction in Arongan, Aceh Barat, April 8, 2006. Photo: BRR/Arif Ariadi

The Starting Programs

Specific to 2005, the rehabilitation programs prioritized were the restoration of the western passageway between Banda Aceh and Meulaboh, sanitation and clean water facilities, tsunami waste management, and reparation of public facilities and electricity installations. Within the roads and bridges rehabilitation program, in 2005 BRR focused on handling national and provincial roads damaged by the tsunami. On the western coast, apart from the Banda Aceh-Meulaboh route, the road segment between Meulaboh, Tapaktuan and the border of North Sumatera that had started to wear down was also fixed. After international organizations, such as Japan International Cooperation System (JICS), committed to help with the Calang-Meulaboh route and United States Agency for International Development (USAID) prepared to reconstruct the Banda Aceh-Meulaboh section, BRR focused solely on the rehabilitation of the Banda Aceh-Lamno-Calang segment.

The BRR program for the Banda Aceh-Lamno-Calang route became crucial due to the breakdown of the emergency road previously built by the Indonesian National Army (*Tentara Nasional Indonesia*, TNI), resulting in severance of transportation routes and logistical distribution to Calang. During the emergency phase, this road had played a major role in accessing isolated Calang. In Ligan, for example, the old road was submerged undersea after the tsunami and a four-kilometer segment had disappeared. To link Lamno-Calang, the National Army built a 25 km-long new road heading towards the mountains. In addition, BRR also focused on Aceh's central passageway, namely the segment between Geumpang and Tutut. During the emergency phase, this route was handled by the Infrastructure Department of Aceh Province. This road was also very important as an alternative route linking Banda Aceh and Meulaboh should the western passageway be severed again. Other important segments were the provincial road between Kuala Tuha-Lamie on the western coast and the roads around the central mountain area of Isak-Jagong Jeget.

In accordance with the blueprint, BRR prioritized the restoration of national roads in the northern, central, and northeastern passageways. In the following year, 2006, BRR managed to prepare the concept and arrange funding from Japan Bank for International Cooperation (JBIC) for the central passage before handing it over to the Ministry of Public Works for further development. BRR collaborated with related ministries and agencies in creating the rehabilitation program for roads and bridges in order to avoid program overlap. Apart from that, for district/city road rehabilitation, BRR requested that the Public Works Agencies in districts and the Regional Planning and Development Agency determine which roads would be built.

This method was proven very advantageous later on when facing people from various districts who came and protested to BRR, "Why was that road rebuilt and not the one in front of my house?" BRR responded by saying that road construction was not



determined by BRR, but by the local government. Any objections could be addressed to the relevant local government or proposed as part of the following year's program. By 2006, the program was no longer included in the Infrastructure Deputy's scope of work, but belonged to the local government, while residential area roads were assigned to the Deputy for Housing and Settlements.

To restore the people-based economy that had been destroyed as a result of the earthquake and tsunami, transportation and telecommunication sector authorities planned to rehabilitate various damaged seaport facilities. This was followed by a program to reconstruct and build brand new strategic ports that could stimulate the revival of the region's economy in the long run. The bulk of the effort was focused on establishing new ports along the western coast of Aceh, such as at Meulaboh, Calang and Sinabang, as well as increasing the capacity of the existing ones in Malahayati, Lhokseumawe, Kuala Langsa, and Tapaktuan, as well as Gunungsitoli in Nias.

In addition, to support the local government's electronic data communications, BRR programmed construction of information technology and telecommunication networks in all districts. Programs included providing services to the government, the academic community, and the general public.

The runway extension project at the Sultan Iskandar Muda airport, Aceh Besar, designed to enable larger planes like the Boeing 747 to land at the airport, July 23, 2007. Photo: BRR/Arif Ariadi

Basic Principles for Infrastructure Programming Policies in Executing Missions

1. Decide on what infrastructure is pressing. The selection process is to be based on considerations of the national blueprint, local governments' aspirations/suggestions, and conditions in the field. These considerations resulted in the 2005 priority programs, such as the rehabilitation and reconstruction of Banda Aceh's drainage system, the Calang-Lamno road, and public facilities, such as schools, markets, drinking water and city roads. The donors were given freedom and invited to help with the rehabilitation and reconstruction process as they saw fit. Based on this principle, donors carried out rehabilitation and reconstruction work themselves:
 - America/IRD: repairing and constructing reservoirs;
 - Singapore: development of Meulaboh Seaport;
 - The Netherlands: development of Malahayati Seaport;
 - Japan: supplying pipes, from primary pipelines to residential piping, and the rehabilitation of the Calang-Meulaboh road;
 - USAID: Training and restoration of the local water utility company building, as well as building out the Banda Aceh-Calang road;
 - UNICEF: repairing the Siron water treatment plant; and
 - American Red Cross: building a lot of small-scale infrastructure in Aceh Jaya district.
2. Reaffirm the delineation of the authority and responsibilities of BRR and the local governments in programming, as well as in carrying out reconstruction and rehabilitation. Strategic infrastructure rehabilitation and reconstruction packages, which were of national scale and required major financing, would be taken on by BRR. Meanwhile, local rehabilitation and reconstruction packages would be carried out by local governments. This arrangement was mainly pragmatic in nature, and viewed from the angles of available funds and the technology and expertise needed for implementation, as the completion time was quite limited (3.5 years). In reality, however, dilemmas arose from time to time in determining which package to carry out; for example, repairs to the irrigation system or the coastal protection package.
3. Setting up rehabilitation and reconstruction programs was essentially left to the regions/local governments. It was these administrations that were supposed to draft the list of program packages for their own areas. Based on the strategic nature of those packages, BRR would decide which ones would be incorporated into the BRR programs. Depending on regional priorities, the packages not selected by BRR would be implemented using local government funds.
4. The existence of policies with regard to restoring directly-impacted infrastructure or infrastructure whose functions were directly affected. This was linked to facilitating the recovery of the regions swept or affected by the tsunami based on considerations of equality and fairness. Considerations of equality were driven in part by the huge number of people struck by the tsunami in affected regions, whereas an economic current must also be felt across all areas. Although donors and NGOs did not differentiate among the types of infrastructure, they were still given the choice of deciding which programs to tackle, with BRR handling the remainder.
5. Avoiding commercial program packages insofar as possible. For instance, in connection with several aspects of telecommunication rehabilitation and reconstruction, as well as electrical supply, BRR limited itself to fixing the telephone stations in Meulaboh and Tapaktuan and handling residential connections and local grids as this directly impacted the beneficiary public.
6. The local government's willingness to provide input. A common policy of requiring that local governments give input was applied to the implementation process, foremost in relation to land acquisition, for the program packages carried out by BRR. This enabled BRR to focus on physical construction. In reality, however, this issue kept shadowing the project as one of the main causes for the delays in program execution.

The restoration of terminals and land transportation facilities was carried out to strengthen the transportation functions in the western areas and strengthen the integration between the south and western coasts and the east of Aceh. Other important programs included increasing the capacity of the main airports in Banda Aceh and other areas.

The above-mentioned programs aside, the next priority was the rehabilitation of sanitation and clean water facilities. This was crucial as the well-water was tainted with seawater after the tsunami so that the potable water supply depended in practice on the available clean water installations. The trouble was that the facilities of the local public water utility company (*Perusahaan Air Minum Daerah*, PDAM) were severely damaged due to the earthquakes. The restoration of these facilities became a top priority. The provision of water in Aceh was initially entrusted to donors and NGOs as many of them were more inclined to build public facilities linked to humanitarian efforts. This provision of water directly served the public at a relatively low cost.

In principle, water supply facilities for an area can be integrated into housing construction programs. Clean water would be supplied through the construction and rehabilitation of water purification installations in coordination with the local water utility company, especially for big cities and district capitals such as Banda Aceh, Calang, Meulaboh, Sigli, Lhokseumawe, and Sabang. During the emergency relief period, various international organizations helped rehabilitate these facilities. The water treatment plant in Banda Aceh, for example, was built by the Swiss Red Cross. They were also committed to repairing the damage to the water treatment plant in Lambaro, restoring its distribution capacity, which required building a good water intake processing facility. Meanwhile the American Red Cross built clean water networks in the Aceh Jaya and Western Aceh districts, while the UNICEF International Red Cross constructed one in Aceh Besar, and Japan's JICS built another in Banda Aceh. In line with the blueprint, BRR built water treatment plants in several districts, such as Siron, Kemala, Pidie, Sigli, Bireuen, Aceh Jaya, Langsa, Southwest Aceh and Sabang throughout 2005.

An interesting case took place in Sabang, where the facilities were damaged not by the tsunami but by earthquakes. The water from the city's main source, the Aneuk Laot Lake, could no longer be used. The rock layer at the bottom of the lake had cracked from the earthquake, causing the lake to leak. The outflow was quite substantial, triggering concerns that the water level would continue to drop. If water usage was not limited, there was a big possibility that the lake would disappear altogether. Given these conditions, the use of water from Aneuk Laot Lake for Sabang's clean water supply was gradually phased out. The earthquake had, however, also created new water sources around the lake, including the Krueng Pancu spring. In 2005, this spring was tapped as a new source of fresh water for Sabang's drinking water supply. It was an emergency program executed with limited funds. For the long term, a new source of sufficiently good water, the Pria Laot River, was chosen to replace Aneuk Laot Lake.



In keeping with the blueprint, when setting up clean water rehabilitation programs, BRR tried to conduct feasibility studies, particularly for determining the location of the water supply, before constructing any facilities. The fundamental conditions were that the water supply had to be guaranteed during the dry season and that the water was not tainted with saltwater. This could be verified by looking into records of critical water discharge during dry seasons at the location. Should no such record exist, interviews with local people or a special hydrology study would need to be conducted.

“All these things must be done accurately. Otherwise, the facilities that we construct will just become monuments because there will be no water to be treated,” Sihombing said. Such a situation took place while BRR was trying to rehabilitate the clean water facilities for Banda Aceh City and Aceh Besar District. The feasibility study of the Krueng Montala River in Jantho as a water source was carried out by a Dutch NGO with the assistance of a local contractor. The study was completed in March 2007. The results revealed that Krueng Montala’s water discharge was sufficient for an uptake of 600 liters per second and was therefore a fairly safe investment.

Based on this study, the Aceh Governor submitted a proposal to the World Bank and BRR to build a water treatment installation. The program became a hot topic, gaining support from various parties, especially international NGOs. Unfortunately, a second feasibility study discovered several mistakes. It turned out that the first study did not incorporate data from the Aceh Regional Public River Hall (*Balai Besar Sungai Wilayah Aceh*), which showed that the minimum discharge during the dry season was only 500 liters per second, and that regulations allowed only one-third of the volume to be taken out. The program was postponed as a result.

Cases of poorly conducted water potential studies were not exclusive to Krueng Montala. Similar cases occurred with the water supply feasibility studies for the Ie Suum River in Krueng Raya, leading to the cancellation of the program there too.

Meanwhile, the programmed rehabilitation of the region’s drainage facilities was also underway. The program’s target was to safeguard districts and cities from the possibility of floods and inundation as the general elevation of Acehnese cities was nearly equal to sea level, thereby causing water to flow extremely slowly out towards the sea. These conditions worsened during regular tides and full moon tides.

The construction of coastal protection facilities was prioritized in areas with dense populations and high economic activity. Aside from coastal protection, several seawater dams were also built in cities whose beaches had subsided due to the earthquake. The management of larger-scale areas, namely river floodplains covering two or more areas, was placed under the water resources sector, whose activities comprised improvement of the river protection system, coastal protection, and control of inter-area or regional flooding.

In coastal areas that experience large ocean waves, like Johan Pahlawan, Meulaboh, West Aceh, the construction of solid wave barriers is important for community safety, March 6, 2008. Photo: BRR/Arif Ariadi

To prevent floods, several rivers in urban areas were treated based on the level of flood damage. The primary objective was to protect community economic activity. The targeted length of the river to be included in the program was 126,146 km. The program covered reconstruction of river mouths, dams, riverbed dredging, and installation of flood pumps. The drainage system was also repaired, particularly in cities inundated with standing water, cities located on low ground, and cities damaged by the earthquake. A management system flow was created between the household waste disposal and the tertiary and secondary drainage systems, through to primary disposal. The drainage system was also equipped with pumps and temporary reservoirs in case these were needed to resolve inundation and prevent flooding.

In the interests of self-sufficient waste management, the program emphasized that an alternative way of garbage processing must be provided. The previous low capacity waste management system was near maximum utilization. Besides constructing treatment facilities, it was also important to make improvements in the management of waste collection and treatment, especially as the operational unit's capacity was limited due to equipment and work system factors.

Among entities from other sectors, the Directorate of Water Resources and Electricity was the first to work with and evaluate the blueprint. A meeting was held in August 2005 in Medan between the Aceh government, the North Sumatera Provincial Government, the Regional Development Planning Agency (*Badan Perencanaan Pembangunan Daerah*, Bappeda), donors, and the National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional*, Bappenas) to formulate targets for water resources and electricity. The blueprint was carefully studied in the meeting and developed into a mid-term plan. This directorate was the first to formulate plans to revise the blueprint and its targets. Priority programs included the construction of power plants, medium-voltage lines (transformers), low-voltage lines (transmission lines), and distribution lines to settlements.

Among the community, the tsunami victims complained that their houses were built without electricity. "It seems that they did not understand this sector's working process, in that the electricity can be connected only if it is clear who the owner of the house is, or that it is occupied," Sihombing said. The houses built by BRR NAD-Nias or NGOs/donors, wherever they were, would automatically be supplied with electricity. The houses located in areas without power utilities would be given free solar panels. BRR and the state electricity company, PLN, exempted tsunami victims from installation fees. Old customers were absolved from paying installation fees and deposits, while new ones still had to pay an initial deposit.

In a bid to ensure electricity supply, BRR attempted to build a new power plant. The electricity supply in Aceh Province prior to the tsunami was heavily dependent on diesel generators. However, the capacity of these generators was extremely limited as they were old and often broke down. Aside from rehabilitating these generators, micro-hydropower plants were built. These plants comprised the main electricity program for isolated remote areas, as well as a stimulus to the public to protect the floodplain forests. The slogan was: “the portal guarding protected forests”.

The first year was an important stepping stone for BRR’s infrastructure programs in kicking off the following year’s reconstruction process. Within this period, BRR had to be able to carefully take in and listen to the hopes of various stakeholders, not only of the tsunami victims but also of the international community who hoped Aceh and Nias would recover soon. In reality, this blueprint, compiled under emergency conditions, could not be fully used as a guideline. In the end, provisioned with a million hopes, BRR began to set up programs and policies to implement rehabilitation and reconstruction in the land of disaster. ■



Managing Financial Aid

Chasing Trust

ADB Boulevard is the new nickname for the Ulee Lheue area. The infrastructure of this area, the area hit hardest by the tsunami, has indeed been transformed. A four-lane, five-kilometer long road stretches from the Punge Bridge in Meuraxa Sub-district on to Ulee Lheue Island, ending at the gates of the brand-new ferry seaport. No narrow alleys wind through dense settlements as they did prior to the tsunami. The wide roads have road separators and rows of streetlights. The nights are no longer pitch-black. Sidewalks and greenery line both sides of the street. This is the result of BRR's efforts to turn Ulee Lheue into a beach tourism area using Rp. 50 billion in aid from the Asian Development Bank (ADB).

ADB was just one of many organizations aiding the funding of all of BRR's rehabilitation and reconstruction activities. Besides international organizations, numerous government and local private institutions were also involved in these activities.

Aid came in many forms, including grants, loans, sharing, and others. All of these funds came from outside of the state budget, sourcing neither from the state budget nor from matching state funds. In accordance with programming and financing plans, the entire amount would be needed to complete BRR's rehabilitation and reconstruction processes. The funds originated from many sources, and therefore usage of the funds, as well as

*The ferry port for passengers travelling between islands, Ulee Lheue, Banda Aceh, which was reconstructed through assistance from the Australian government, has increased the port's capacity by 50%, now accommodating up to 1,000 passengers per day, November 2, 2008.
Photo: BRR/Arif Ariadi*

accountability for them, had to be planned for in accordance with prevailing regulations and standards. Construction financing, quality control of the end product, and even the deadlines set for projects had to be accounted for.

Admittedly, it was rather complicated. Funds originating from the central government (through the state budget) for example, would be audited at the end of the year by the Supreme Audit Agency (*Badan Pemeriksa Keuangan*, BPK) as an independent auditor. Financing from the state budget had to follow the mechanisms and guiding principles of the Issuance of Spending Authority (DIPA) from the Ministry of Finance, including procedures for accountability. But it was certain that the central government budgetary funds were inadequate to cover BRR's entire rehabilitation and reconstruction program. The offers of aid funds coming from numerous parties would undoubtedly ease the government's funding burden. The problem was that some of the offers were still mere promises and not yet solid commitments. How did BRR then pursue the realization of its budget needs? A certain amount of ingenuity was needed.

The first step was to allow the donors to conduct construction processes on their own, within the outlines of BRR's rehabilitation and reconstruction program. They did everything themselves, starting from procurement, construction, to evaluation and even the audit. BRR functioned merely as a coordinator in selecting and facilitating the programs. This approach was a success. Funds duly came through. For example, the Dutch government constructed the Malahayati Seaport on its own. The United States government built a road between Banda Aceh and Calang. Then the Japanese government extended that road from Calang to Meulaboh, and the Singaporean government set up Meulaboh Seaport. The same strategy was applied to other sectors, such as education, housing, health, and social and cultural affairs. Aside from boosting the realization of aid commitments, this strategy also took a load off BRR's mind with the presence of partners who assisted the construction.

Under a second approach, funds from the donors were included in the Issuance of Spending Authority but the programs were still carried out by donors. In the case that funds were placed under this on-budget mechanism (i.e. if they were counted as part of the central government budget subject to the Issuance of Spending Authority regulation), they would be subject to state budget regulations, but at the same time a budget report would be produced in accordance with the donor's policies. The third approach treated the donor's funds as state budget funds, but with a supervision and control system determined by the donor's procedures. The funds would be combined with those from the state budget committed by the government. This last pattern engaged BRR's management and Project Implementing Unit personnel in the tender process.

The infrastructure rehabilitation and reconstruction processes absorbed grants from the Multi-Donor Fund (MDF) as well as from the ADB. Then there were the loans from the Islamic Development Bank (IDB), the Japanese government (JBIC/JICA), and the



French Development Agency (AFD). The basic requirement for funds disbursement using the on-budget procedure was fundamentally trust. This third approach was employed since donors were often highly concerned that their funds would leak or there would be indications of corruption. Hence, it was imperative to have transparency and accountability starting from the tender process through to construction.

Meanwhile, there was also the off-budget funding system, in which administration and accountability were taken on by the donor itself or an NGO. These funds included grants from the United States government, UN organizations, the Korean government, the Singaporean government, the Dutch government, the Australian government, the Japanese government, and organizations, such as the Red Cross, country donors, private institutions, and other NGOs. Regardless, the central government continued to allocate Rp. 1.6 trillion in 2009 for infrastructure rehabilitation and reconstruction programs currently undertaken by the Aceh Provincial Government and the North Sumatra Provincial Government for Nias. Despite the complexity, it was certain that BRR highly appreciated the financial aid from all contributors. Without them, the rehabilitation and reconstruction of infrastructure would never have taken place.

*The Malahayati shipping port constructed through assistance from the Dutch government, Krueng Raya, Aceh Besar, August 30, 2006.
Photo: BRR/Arif Ariadi*

Stories Shared with Key Partners

Multi Donor Fund (MDF) & World Bank (WB)

MDF gave the World Bank a mandate to act as its partner agency in overseeing the IREP and IRFF infrastructure programs carried out by BRR to speed up the infrastructure reconstruction process. The idea of accelerating the reconstruction of infrastructure was presented by Eddy Purwanto in January 2006 to MDF, which at the time was led by Joseph Leitman.

The program drew support from Christian Delvoie, the World Bank's Infrastructure Director in Washington, who appointed Aniruddha Dasgupta to work on the concepts until they were realized as IRFF and IREP programs. The programs took effect while the MDF Secretariat was under the leadership of Christian Rey.

The sectors funded by IRFF covered water resources, sanitation, coastal security, seaports, roads and bridges. The MDF gave US\$100 million for IRFF's physical construction projects with matching rupiah funds equivalent to US\$191 million, plus US\$42 million for IREP technical consultancy assistance.

The program implementation was carried out under special supervision from the World Bank in Washington under Urban Sector Director Keshav Varma and under the management of the World Bank's Indonesian chapter under Andrew Steer, who was later replaced by Joachim von Amsberg. During the IRFF and IREP program implementation period, the World Bank appointed task team leaders from Washington in the persons of Aniruddha Dasgupta, Dean Cira, and Suhail J.S. Jme'An supported by Banda Aceh Infrastructure Team Coordinator Lixin Gu.

The main reconstruction programs that the MDF aided were roads, sanitation, protective shoreline walls, drainage, and seaports. The World Bank kept a tight grip controlling the reconstruction of infrastructure, starting with preparations for the grant agreement, issuance of no-objection letters, procurement plan approvals, environmental impact analysis, and LARAP. The whole process aimed at achieving targets in accordance with procedures, to ensure excellent outputs and outcome quality.

As BRR's tenure ended on April 16, 2009, the IREP/IRFF programs were handed over to the Ministry of Public Works and the Transportation Ministry as the implementing agencies in continued partnership with the World Bank. In controlling the IREP/IRFF programs, the World Bank team and BRR were equally strong partners with a common understanding that the accomplishment of common goals was more important than the procedures used to implement them.

Asian Development Bank (ADB)

On June 2005, six months after the tsunami and earthquake, ADB founded Earthquake and Tsunami Emergency Support Project (ETESP), a project to channel their aid for the reconstruction and rehabilitation efforts in Aceh and Nias. At its onset, all authority for program approval was under the central offices in Manila. Over time, through collaboration with Pieter Smidt, Head of ADB's Extended Mission in Sumatera, BRR submitted a request to shift the approval process to Banda Aceh. Shifting all delegation of authority to Banda Aceh expedited the implementation of projects.

Particularly in the infrastructure sector, ADB lent a great deal of support on the roads and bridges, improvement of irrigation networks, as well as clean water and sanitation projects. The Technical Assistants who particularly played a pivotal role in supporting the management of infrastructure projects in Banda Aceh were Aminul Huq and Pieter Seyler.

Table 4.1 On- & Off-Budget Infrastructure Project Funding

No.	SECTOR	ON BUDGET FUNDING (Billion)						OFF BUDGET FUNDING (Billion)							
		APBN	MDF (US&RP)	ADB	JBIC/JICA	AFD	IDB	USA	JICS	UNDP/UNICEF	SINGAPORE	DUTCH	AUSAID	KOICA	OTHER
1	Transportation	1,692	406	-	-z	-	-	-	-	35	41	84	78	40	46
2	Telecommunication	84	-	-	-	-	-	-	-	-	-	-	-	-	10
3	Road and bridge	4,372	1,470	358	582	-	41	2,489	282	14	-	-	-	-	13
4	Water resource	1,471	80	270	-	-	-	-	-	-	-	-	-	-	-
5	Energy & electricity	1.017	-	89	-	-	-	-	-	-	-	-	-	-	29
6	Drinking water & sanitation	1.403	228	65	345	466	-	241	277	674	-	-	-	4	500
7	Public building facility	979	-	-	-	-	-	-	32	-	-	-	-	-	-
8	Infrastructure Reconstruction Enabling Programe	-	405	-	-	-	-	-	-	-	-	-	-	-	-
9	Maintenance & other infrastructure	37	-	-	-	-	-	-	-	-	-	-	-	-	387
TOTAL		11.055	20.569	781	927	466	41	2.730	591	723	41	84	78	44	984
		15,839						5,275							
		21,114													

According to the 2005 Master Plan (PP 47/2008), there are 73 activity programs for 2005-2009. As seen in the 2005-2008 progress, most of the targets have been achieved, except some national and provincial road projects. Some of the Aceh provincial and Aceh-Nias district roads, that were proposed by the regional governments but not finished by the end of 2008, will be finished by the regional governments by 2009. As many as 14 seaports have been finished by 2008. Three seaports are under-construction and will be finished by 2009 under the supervision of Ministry of Transportation.

Japan Bank for International Cooperation (JBIC), Japan International Cooperation Agency (JICA), Japan International Cooperation Services (JICS)

JBIC is an official institution of the Japanese government, which aims to promote Japanese import-export and overseas economic activities, and support the development of economic stability in Japan, as well as in developing countries. JBIC itself consists of two major parts, namely the International Finance Operations, which is tasked with providing export credits, and the Overseas Economic Operations, which provides government-to-government (G-to-G) soft loans.

The institution tasked with disbursing grants and technical assistance from the Japanese Government was JICA. In October 2008, JBIC separated out the Government-to-Government soft loan function and merged it into JICA. The fusion aimed at disbursing aid from the Japanese Government to the international world through one organization to ease administrative control and supervision. Export loan facilities remained under JBIC. The Indonesian Government dealt with the new JICA from then on regarding loan issues.

In connection with rehabilitation and reconstruction processes resulting from the tsunami in NAD and Nias, the Japanese government provided loan facilities managed by BRR called the Aceh Rehabilitation Project (IP-545 Loan), under an agreement signed on March 29, 2007. The loans, with an interest rate of 0.75 percent, were valued at 11.593 million yen. This was for a project to mend the drainage and dredge rivers to control floods in Banda Aceh and Meulaboh. The project was expected to be concluded by mid-2010, after which its control would be taken over by the Ministry of Public Works.

Takashi Sakamoto is currently the chief representative of JICA Indonesia. Masahiro Asaeda is the acting representative for the IP-545 loan (Aceh Rehabilitation Project), while the project officer, Sutrisno, is responsible for handling day-to-day affairs.

The Japanese government grant for Aceh's rehabilitation and reconstruction was disbursed through the JICS, a supervisory consultant appointed by the Japanese government to run tenders and control its post-tsunami aid efforts.

In this activity, JICS is directly controlled by the Japanese Embassy in Jakarta. The sectors it managed comprised the rehabilitation of the Calang-Meulaboh road, Banda Aceh flood walls and drainage system, the sanitation system, the road network in Ulee Lheue, escape buildings, and the procurement of 34 sets of bailey bridges. The total value of the assistance exceeded US\$75 million. Within JICS, control of the implementation and tender processes in Banda Aceh was led by Shoji Hasegawa.

French Development Agency (*Agence Française de Développement, AFD*)

AFD was a relatively new player in Indonesia, arriving in September 2005. The first financial assistance AFD offered in Indonesia was a loan facility for a drainage system rehabilitation project in Banda Aceh. BRR was the executing agency. The loan, numbered CID 3004 01, was signed on September 24, 2008, for total financing of 36.8 million euro. The loan will mature on December 31, 2011, carrying an annual interest rate of one percent.

AFD Indonesia was led by Joel Daligault as country director and Patrick Abbas as deputy country director. The project officer overseeing the project's daily operations was Leterrier Morgane. The team was assisted by Herve Breton as the Infrastructure and Urban Development Senior Sector Specialist stationed in Bangkok, Thailand. During the preparation phase, Pin Yathai, as AFD Resident Representative in Jakarta, was most helpful in accelerating the process.

The Rehabilitation of the Drainage System of Banda Aceh project essentially repaired the 150 km-long main drainage system in zones 4, 5, 6, 7, as well as the Darussalam zone, Banda Aceh, preventing annual floods. It was expected that a well-functioning drainage system would improve the health and economy of Banda Aceh. The project covered supervisory consultancy services and drainage construction services, including the construction of buildings and procurement of required equipment.

Australia-Indonesia Partnership for Reconstruction and Development (AIPRD)

The main program assistance centered on education, in the form of the well-known Colombo Plan scholarship program, as well as on economic, infrastructure, humanitarian, and social issues. Just for Aceh, the Australian Government concocted a specific program called the AIPRD valued at one billion Australian dollars over five years. The program's objective was to support Indonesia's reconstruction and rebuilding efforts, both within and without areas affected by the tsunami.

One of its infrastructure programs was the reconstruction of Ulee Lheue Seaport Crossing at a cost of 10.6 million Australian dollars that was completed in 2008. Funding for construction covered port dredging, pier construction, wave breakers, passenger terminals, and access roads. The reconstruction, apart from being supervised by BRR through concept notes, was fully coordinated with the Aceh Provincial Government.

United States Agency for International Development (USAID)

This reconstruction program was designed while William (Bill) M. Frej, who later moved to USAID in Kazakhstan, was the director of USAID in Indonesia. Walter North carried on Frej's responsibilities in directing USAID Indonesia, particularly in Aceh to facilitate the completion of the Banda Aceh-Calang road, which faced land acquisition problems.

BRR collaborated closely with Roy Ventura, Muhammad Khan, and Edi Setianto from USAID in the road reconstruction. The way coordination was interpreted and implemented is interesting to note. Efforts were made to coordinate the planning, designing, and land purchasing stages; thereafter each party carried their tasks out individually in the tender and implementation phases.

Korea International Cooperation Agency (KOICA)

Korea's economic success story is by no means news to the world. Many developing countries hope to follow in its footsteps. As the world's 11th biggest economy, Korea had gradually increased its development assistance funds to meet the expectations of the international community and support the Millennium Development Goals.

KOICA is a governmental organization founded in 1991 under the authority of the Ministry of Trade and Foreign Affairs. Since then, KOICA has played the part of the executing agency for the Korean government regarding the provision of bilateral grants and technical affiliation programs for developing countries. With 28 representative offices in 27 partner countries, KOICA begins by estimating what is needed for the development of the country in question, and actively teams up with other development institutions.

KOICA began activities in Indonesia in October 1991 under the leadership of the resident KOICA representative, a position held at the time by Lee Jong-seon. Its list of programs included technical assistance for various projects, such as providing training sessions by bringing in experts from Korea or sending people to undergo training there. Later, under resident representative Han Choong-sik, KOICA provided assistance for emergency relief, including equipment.

The help it lent to the Aceh reconstruction in the infrastructure sector included a hospital in Abdya, schools in Nagan Raya and Abdya, and the procurement of three cranes for seaports, as well as heavy machinery.

The total value of KOICA's assistance during the emergency relief phase reached US\$1.5 million, while for the rehabilitation and reconstruction process, it disbursed US\$15.7 million.

United Nations Development Programme (UNDP)

UNDP is an international organization under the banner of the United Nations whose focus is on development programs, particularly in developing countries, and on world development in general. UNDP is currently found in 166 countries, working hand in hand with governments. The organization aspires to increase the people's quality of life.

UNDP Indonesia is active in the area of development, with the goal of reducing poverty, increasing the quality of life, reinforcing local and central government capacity, preventing and fighting the spreading of HIV-AIDS, and promoting equality of rights between men and women. In essence, this UN organization fully supports both the medium and long-term program priorities of the development programs established by the Government of Indonesia.

As part of its involvement in the rehabilitation and reconstruction phase in Aceh and Nias following the earthquakes and tsunami, UNDP Indonesia conducted many programs supporting the recovery process. In early 2005, UNDP Indonesia set up a field office in Banda Aceh (UNDP Banda Aceh). Simon Field was named program coordinator for aid programs in Nanggroe Aceh Darussalam and Nias. The programs included technical assistance support of BRR, the Tsunami Recovery Waste Management Program (TRWMP), and Emergency Response and Transitional Recovery (ERTR). ■



The Winding Road toward Upholding Integrity

The Attacks Come from All Directions

THE man rushed into the room and locked the door from the inside. He shouted and threatened, "This project is mine!" Pointing a handgun, he wrested documents from the hands of those in the room. No one said anything. Nobody dared to fight back. The tender documents changed hands in a moment.

This gripping incident did not come from a movie. It took place for real in Banda Aceh. The BRR tender committee had just started a meeting to discuss a project on the procurement of heavy machinery to build a port. The tender was worth billions of rupiah. The man with the gun thought that by taking the other participants' tender documents, they would no longer have materials to prepare offers.

The committee was of course shocked. However, they had to take tactical measures. They reevaluated the tender documents, changing and making technical adjustments in an addendum to the tender documents that the man had seized.

The atmosphere during tender registration for reconstruction projects at the office of BRR Aceh-Nias, Banda Aceh, May 8, 2006. Photo: BRR/Arif Ariadi

According to regulations, the committee could resend documents to all participants, including the company whose documents were seized. The tender was eventually canceled as BRR received an offer from the Korean government to supply the equipment for unloading ports.

Incidents such as this frequently took place as BRR entered the goods and services procurement stage, also known to the public as the tender process, or project bidding. In early 2005, after the reconstruction blueprint had been thoroughly reviewed and subsequent development programs and budget schemes were being developed, BRR entered this next phase of the tender process. This phase was crucial. This process would determine who would execute BRR's infrastructure construction work in the field and thus determine who would be on line for the final output and credibility of the infrastructure development.

The tenders conducted in the infrastructure development sector included contractor and consulting services, as well as heavy vehicle procurement for the infrastructure maintenance program, which would take place after BRR's tenure ended. In accordance with the program, there were dozens of tendered projects involving funds in the trillions of rupiah. The construction was financed by aid from all over the world.

Unfortunately, not everyone understood BRR's tasks and responsibilities in rehabilitating and reconstructing NAD and Nias. Aside from conducting the development properly, BRR was also responsible and had to account for the management of the disaster funds. Those who did not comprehend this seemed to expect that any tender process could be fixed to win billions of rupiah worth of projects.

When BRR started conducting bidding processes in the first year, for example, individuals emerged wanting to be big businessmen but who had inadequate construction experience. They came "asking for work" through various avenues. Some claimed to have a company or borrowed the name of another construction firm, including businessmen from outside of Aceh who teamed up with Acehnese. They tried communicating the message, "How can I win this project?" More than a few used every means at hand, including intimidation or at least provoking the tender committee.

For example, during the tender for a national road on the west coast of Aceh, a nationally active domestic contractor, working together with a local company, enlisted as a participant. Such collaboration between a national company and a local company was a good thing, but unfortunately, their bid was the most expensive. Ironically, even with such prices, they were still adamant that they should win the project.

During the tender process, their intransigence did not waver but rather worsened. A representative from the contractor looked ready to fly into a rage when it appeared he had no chance of winning. The situation became very tense as a result.



Facing such a situation, Bastian Sihombing—the BRR Deputy for Infrastructure—was challenged to resolve and overcome the tension. A mere touch on the shoulder calmed the man down and he could then be reasoned with. “He actually has a soft heart. His face changed as the opportunity to communicate opened up,” Sihombing said.

Such personal approaches sometimes had to be employed in order to deal with various issues of a more social nature. Although the man eventually lost the road project, he was able to work with BRR. At another time, he made an offer to build a bridge in Lhokseumawe. This time, it was a match. However, incidents like the firearm and the necessitated shoulder-pat could not be allowed to continue.

Anticipating such events, BRR drafted tight tender strategies and rules, particularly with regard to the requirements for tender participants. This was in line with the tender regulations proposed by international donors, such as the World Bank, ADB, JBIC, AFD, JICS, and USAID. Firstly, the tender had to be announced to the local, national and international public through English-language newspapers and the United Nations Development Business (UNDB). This was intended to preserve transparency and ensure that contractors and the general public were informed of the tender packages.

A national road in the Nagan Raya region, March 7, 2008. Photo: BRR/ Arif Ariadi



The process of opening tender submissions for infrastructure projects at the BRR Aceh-Nias office, carried-out in a transparent manner, June 14, 2006. Photo: BRR/Arif Ariadi

The technical requirements for tender participants focused on the experience of companies. First, they had to have five years of average annual turnover (AATO) or experience in executing projects equal to the one tendered. Second, they also had to have experience running two projects of the same value and qualifications as the tendered project's value, or at least in the same quantity of each main component.

For certain donors, these values could range one-and-a-half times to twice the tendered work, depending on the complexity of the task being tendered. The qualification requirements were calculated based on productivity, namely that the work specifications, such as experience in dredging, laying asphalt, concrete or layering foundation stones of previous projects, must at least equal the one being tendered. Other prerequisites were administrative. The implementation of international tenders was very rigid. A rejection of a bid bond's validity, for example, could result in disqualification, boosting the second-place winner to a higher spot on the list. Donors prioritized fairness, equal treatment, and experience, without considering allocations or rankings. The clauses of the bid bond had to be strong enough that the committee could unilaterally cash the guarantee in under any circumstances.

This was complicated indeed. But it was an absolute requirement to safeguard BRR's accountability in executing development. BRR's Anti-Corruption Unit was always ready to conduct evaluations of any infrastructure development projects. BRR also set out criteria and requirements for members of Project Implementing Units, Contract Preparation Officers and tender committees. These individuals needed to have proven independence and credibility. BRR employed a strategy of selecting the committee through various sources. Every district was asked to send a representative to become a Project Implementing Unit member who would also work as a committee secretary. BRR itself assigned one more committee member from the Regional Infrastructure (Roads and Bridges) Department and the Transportation Department. Under this system, it was difficult for the committee members to be familiar with one other or to collaborate, therefore preserving integrity.

The system was not yet implemented in the first year of the Deputy for Infrastructure's activities in NAD and Nias. The Deputy was not quite ready yet at the time. In 2005, the tender committee's tasks were given over to regional governments (provinces and districts/cities), the Ministry of Public Works, and the Transportation Department. According to the tender guidelines then in use (Presidential Decree No. 80/2003), tender committees (Project Implementing Units and Contract Preparation Officer) all had to consult on the tender results with the fund manager, BRR. That year, the tender participants were generally purely businessmen. There were no indications of participants borrowing or using other people's companies. However, BRR often found indications of collusion in the consulting process. The signs could be deciphered from similarities and resemblances in writing, techniques, style, and the appearance of documents among participants.

Confronted with such irregularities, BRR sent all documents to the Anti-Corruption Unit (ACU) for review. Many tender packages for road construction were canceled or re-tendered. This occurred several times, hindering the project construction process and creating a dilemma of its own for BRR. "Maintaining accountability in tenders is important, but the consequences are manifold. Construction work targets get neglected," Sihombing said.

As a result, the 2005 budget was not disbursed. This was caused by the slow tender process. Luckily towards the end of the budget year, BRR was granted a policy extension of the budget utilization period to April 2006.

BRR started handling tenders directly in 2006 by, among other things, creating its own Project Implementing Units and procurement committee. There was a proposal initially to integrate the procurement process through a tender service center. However, this idea was not materialized due to the limited availability of BRR personnel and time constraints. The tender processes were handed over in their entirety to the tender committees and

conducted simultaneously in Banda Aceh. The same applied to the announcements of the tender winners. This was done to save time and tender costs. Thereafter bidding processes ran relatively smoothly, particularly in the case of big project packages. These tender participants, who were generally national contractors with plenty of experience, were able to fulfill the exacting requirements of experience for tender participants.

This did not mean however that there were no threats. Tender participants, who would do anything to win tenders, often made persuasive offers, as well as physical threats. BRR had its own tactics to resolve the problem, namely by “moving” the committees out of public reach. The committees’ tasks therefore ran undisrupted, particularly during bid evaluations. Tender registration for a project in Nias, for example, would take place in Banda Aceh or Medan.

BRR’s methods did not end there. To avoid communications between committee members and participants, their phone numbers were temporarily substituted. It sounds exaggerated, but the telephone was a channel through which participants could intimidate the tender committee. Committee members often became afraid or mentally down when receiving threats from callers, for example during calls mentioning the routes that their children took from home to school or their wives to work. BRR’s strategy was overall effective. Tender participants prepared to use any means to win had difficulties in reaching the committee.

But in reality, they continued to persist. Unable to get through to the tender committee, they approached BRR management, from managers, director and deputies. In such a situation, other tactics naturally had to be employed. The participants were told to direct inquiries to a higher position. The managers threw them to the directors. At the top, they would be referred back to the tender committee, which had been “transported” elsewhere.

This of course increased the tension, and even anger, among the participants. But this was a method of buying time, giving the committee enough time to evaluate the offers. Thus at the time of the announcement, after the tender winner was selected, the winning candidate could be contacted right away.

Just such a case occurred during the construction project of the Aceh tsunami museum project in Banda Aceh, which was eventually resolved by “sweetly stretching the time”. The committee was under such heavy pressure that they had to be evacuated to Sabang to evaluate the bids. The pressure that was initially directed at the committee and BRR was then applied to the contractor who was selected as the tender winner, just as construction began.

Those who lost tried to block materials and equipment from coming in. This was done outside the contractor’s working area and was an effective way to attract the attention of



various parties to their demands. The bottom line was, although they could not win the tender, they still wanted to take part in construction activities.

“Negotiations eventually were conducted in a persuasive manner with the goal of getting the construction process going as time was very short, only seven months,” Sihombing said.

The local government, whether governor, vice-governor or mayor, played a role here in convincing the perpetrators that blocking the project was not the right way to get things done and would disadvantage everyone. Negotiations then flowed very easily and the initial demand of 10 percent of the contract value as compensation for losing the tender gradually and slowly declined until it finally reached a very small figure — enough to buy cans of powdered milk as a token of gratitude for not disrupting the process anymore.

The combination of mental combat, hit-and-run discussions, compelling explanations and long persuasion was tiresome and resulted in surrender to existing conditions. This was one technique of buying time that may serve as a lesson for other committees.

The construction of the Aceh Tsunami Museum, Banda Aceh, October 13, 2008. Photo: BRR/Arif Ariadi

Communication became an important key in calming volatile situations. Even though the negotiations had no final resolution, the Aceh Tsunami Museum was eventually completed. Even the losing parties ended up admiring it.

Various obstacles in tender processes also occurred at the district-level Project Implementing Units. Even though standard requirements had been established, most tenders at the district level were canceled by the BRR Anti-Corruption Unit and had to be re-tendered. Some of these cancellations were the result of committee errors in evaluating offers, as well as the committee's limited understanding and interpretation of Presidential Decree No. 80/2003.

In several cases, the cancellations were actually traumatic. This happened when BRR had to hold tenders for heavy machinery to be used in road maintenance. The program to procure heavy vehicles was aimed at strengthening the local government capacity for road maintenance, particularly after BRR's task was complete in Aceh and Nias. The machinery included graders, vibrating rollers, wheel loaders, air compressors, mini AMP, asphalt sprayers, trailers, truck cranes, and small dump trucks. The equipment would then be distributed to the Regional Infrastructure Department and Road Technical Department in districts and cities throughout Aceh and Nias.

This heavy machinery procurement package was won by the number two tender participant, namely a company that offered Japanese brands, such as Mitsubishi, Sakai and TCM, through a tender process in Banda Aceh. Next in rankings due to its smaller project value was a national company collaborating with a local Aceh firm that offered Korean equipment.

The company that lost because its local partner did not have experience in heavy vehicle procurement submitted an objection. They said experience was not important as heavy machinery can be procured simply by ordering it from the factory. It would be up to the factory to meet the contract. According to them, with a down payment, they could call the factory, sign the contract, mobilize the heavy equipment, and then BRR would pay the bill. They also had another strategy, which was using the issue of local preference for regional companies. Another consideration brought up was related to the South Korean brand as that country had donated heavy machinery through the Indonesian Red Cross to help the tsunami recovery in Aceh. In short, they said they should have won the contract.

BRR stood firm. According to regulations, companies had to have had experience as dealers or agents. Faced with the BRR tender committee's unbending insistence on meeting these regulations, objections went all the way to the top. They eventually reached the Head of BRR Executing Agency, who responded with a full explanation. It was then discovered that the Japanese heavy equipment's sole dealer was not registered at the Ministry of Industry, although according to the Mitsubishi representative in Singapore, the company in question was still authorized as the dealer of its heavy equipment.

A tender announcement for infrastructure projects in the media, Banda Aceh. Photo: Oni Imelva

INFO LELANG

PANITIA PENGADAAN BARANG/JASA BRR - PENDIDIKAN KABUPATEN NIAS TAHUN ANGGARAN 2007
 J. Dr. Supomo No. 49 a Telp. (0639) 22799 Fax. (0639) 22798
 Gunungabali - Nias Sumatera Utara



PENGUMUMAN PELELANGAN UMUM
 Nomor : 0030/PAN-U BRR/PN/V/2007

Pendidikan, Kesehatan dan Peran Perempuan Kabupaten Nias melalui PPK Bidang Pendidikan Nias Tahun Anggaran 2007 akan mengadakan Pelelangan Umum dengan Prisa kualifikasi Jasa Pemborong sebagai berikut:

Paket	Lokasi	Kualifikasi	Bidang	Pagu Dana Sub Bidang
1	Non Kecil	Arsitektur Gdg dan Perk		Rp 1.800.000.000
2				Rp 11.715.000.000

PENGUMUMAN PELELANGAN

NOMOR : 01/PAN-PELU/2007

Anjg Nasiriz: Rapada indrese (NIR) akan mengadakan Pelelangan Pengadaan Barang dan Jasa dengan Prisa kualifikasi dan menggunakan cara sebagai berikut:

1. Kemandirian Peserta
2. Kemandirian Finansial
3. Pengawasan yang ketat
4. Pengadaan Barang dan Jasa

16

PELENGKAPAN BARANG/JASA SATKER DAN PENGUMUMAN DAN PERUMAHAN BIDANG ASAM NIASAL & BUKITI NAD

PENGUMUMAN PELABANGAN UMUM



DEPARTEMEN KEUANGAN RI
SEKRETARIAT JENDERAL
SEKRETARIAT PENGADILAN PALIAT

PENGUMUMAN SELEKSI UMUM PRAKUALIFIKASI
 Nomor : Peng-06/PPBU/2007

Pada ini diumumkan kepada para penyedia jasa konsultasi bahwa seleksi Pengadil Paliat akan mengadakan seleksi umum prakualifikasi penyedia jasa konsultasi sebagai berikut:

Pengadaan Jasa Konsultasi Pengembangan Transformasi Sistem Manajemen Sumber Daya Manusia (SCM) - Pengadaan Paket Tahun Anggaran 2007

BADAN REHABILITASI DAN REKONSTRUKSI NAD - NIAS
DEPUTI BIDANG PERUMAHAN DAN PERUMAHAN SATUAN KERJA BRR - KEDEPUAN BIDANG PERUMAHAN DAN PERUMAHAN
 J. Elang Timur No. 40 Blok C/Lieng Batu - Banda Aceh ZDM

PENGUMUMAN PASCA-KUALIFIKASI
 Nomor : 20/PAN-DEPP-PP-BRR/V/2007

Panitia Pengadaan Jasa Kontrakti Satuan Kerja BRR - Badan Rehabilitasi dan Rekonstruksi NAD-Nias akan melaksanakan Pelelangan Umum paket paket pekerjaan sebagai berikut:

NO	NO. PAKET	NAMA PAKET	PAGU ANGGARAN	KUALIFIKASI	LOKASI
1	TMB. AN	Paket Peningkatan dan Perbaikan Lahan Desa Alue Laga	2.900.000.000	Non kecil	Banda Aceh
2	TMB. LG	Paket Peningkatan dan Perbaikan Lahan Desa Alue Laga	11.715.000.000	Non kecil	Banda Aceh

It turned out that this information at the Ministry of Industry and Trade had been turned up by the company that lost the tender. BRR considered this to be normal business competition. However, when these findings were reported to the NAD Local Police on a charge of fraud, it turned into unhealthy competition. All parties were examined by the police: the Infrastructure Deputy, Transportation Director, Head of the Planning and Supervisory Project Implementing Unit, the tender committee and the tender winner.

This was the first tender at BRR that drew an investigation from the legal authorities. The police investigation found no evidence of fraud by the tender winner. Apparently the Ministry of Industry and Trade had not yet gotten around to registering the dealership documents. The registration period for the company's dealership documents had expired at the time of confirmation, and was in the process of being extended.

Although the police investigation discovered no indication of fraud from the winning company, BRR was hesitant to continue and execute the tender results. In fact a heavy equipment tender for an excavator and loader was cancelled after that due to the trauma of such a long and problematic tender process, especially after being probed by the police. Investigative auditors from the Supreme Audit Agency, however, gave input. A clean tender is important, but attaining targets is no less important. If the police discovered no legal problems and there were no indications of price mark-ups, BRR needed to be confident and continue the program. BRR eventually carried on with the program and requested that the company complete the heavy equipment procurement contract. The machinery was procured and distributed to provincial, district and city regional governments, strengthening their road maintenance units.

Such complicated tender cases impacted the performance and efficiency of the reconstruction itself. Retendering, for example, incurred extra costs as BRR had to make more media announcements, draft documents, and in several cases double the honorariums of tender committees. Repeat tenders also cost time, whereas at that point in time many people expected BRR to immediately repair the damage caused by the tsunami instead of spending time on the tender processes. Eventually, BRR triumphed in holding proper tenders, but lost out in terms of progress.

Take 2006, for example. More than four months after the Issuance of Spending Authority had come through, little physical progress had been accomplished. This of course differed from directorate to directorate. Tender processes at the Directorate of Water Resources, for example, could be conducted faster as fewer objections were raised, and therefore its target achievement was higher. In the road and bridges sector, although not too many objections came up, similarities in the bid documents came up repeatedly.

Such conditions posed difficulties for the tender committees. On the other hand, it was hard to convince tender participants that bidding had to be conducted objectively with fair evaluations. Not to mention the numerous protests and objections to the process



and to the tender committee's results. At times the protests and objections had nothing to do with whether the regulations were followed. The whole process was tiring and cut back on the committee's productivity. This made the committee even more careful in conducting its tasks.

The most difficult for the tender committee to deal with were the brokers and agents from "borrowed" companies. These were usually more intransigent than company owners. Directly or through text messages, they intimidated and threatened the use of force. Counterfeit bank guarantee documents, as well as fraudulent license documents, often came up in tenders, drawing BRR into the legal arena and thereby slowing the construction process. Whether tender committee members had the same understanding of things also played a role as debates and voting could result, costing time. Such was the experience of Djamaludin Abubakar, the Director of Water Resources who doubled as head and a member of committee on consultant procurement for a West Coast PDCS study. In the tender process supervised by an expert from Crown Agent (a United Kingdom procurement company), the tender committee members that Abubakar faced differed on how the procedures should be interpreted, both among themselves and also with the Crown Agent expert.

A feeder road in New Town, Banda Aceh, 4.5 kilometres, February 20, 2008. These feeder roads have been equipped with supporting infrastructure including evacuation sign-posts. Photo: BRR/Arif Ariadi

From the beginning, the valuation process of the technical proposals submitted by the consultants participating in the tender was quite difficult and subject to debate. In mid-December 2006, Abubakar had to leave for a meeting in Jakarta. Before he left, the tender, under varied valuations of the participants, had already been collected and consolidated with Abubakar as head of the committee.

However, upon his return to Banda Aceh three days later, the committee members' valuations had drastically changed, which automatically changed the rankings of the participants. "It's impossible that in less than three days the committee members could reevaluate the thick proposals," he said.

Seeing this, Abubakar sent a letter to the Head of BRR Executing Agency, resigning from his post as the head and member of the tender committee. Kuntoro Mangkusubroto was, of course, baffled. Discussions took place regarding finding a replacement committee head. But after knowing the reason behind Abubakar's proposal of resignation, Kuntoro made a stance.

The BRR Head requested that the tender evaluation process be continued with Abubakar remaining as committee head and that committee members' understanding be standardized. In any case the evaluation results had to be accurate, and it had to be possible to account for them using the same technical valuation framework. The Crown Agent consultant's function was to evaluate the consistency of the committee's valuations so as to ensure that the members were using the same evaluation standards, which sometimes resulted in debates with the committee.

After much reflection and learning from tender experiences in the early years, the implementation of tenders ran much more smoothly in 2007 and 2008. The reason was because program/infrastructure project tenders using aid funds from the World Bank or MDF (IREP/IRFF program/project) adopted national competitive bidding (NCB) and international competitive bidding (ICM) system guidelines. Both were applied to the procurement of consultants and construction works.

In recruiting consultants, the World Bank suggested using procurement agents to conduct the tenders. The aim was to select consultants who were free from corruption, collusion and nepotism, and to have a fair tender process using a uniform conceptual framework.

Under this system, BRR merely had to wait and accept the results of the tender process. However, because IREP funds were placed on-budget under the Issuance of Spending Authority scheme, there were state budget regulations that needed to be met. These rules required the tender committee to be appointed by the Project Implementing Units and to have a background in planning, finances, administrative and legal issues with regard to the project in question.



The proposal to use procurement agents also stemmed from a lack of trust in BRR's ability to understand ICB procedures for selecting consultants, although this was actually not a problem. Especially as several BRR staff members from the Ministry of Public Works Ministry were already used to the ICB tender system, which was based solely on quality or a combination of quality and price. Djamaludin Abubakar, for example, was an expert from the National Development Planning Agency's tender agency. Other staff members also existed who had regularly served on ICB committees for the procurement of consultancy services at the Ministry of Public Works.

Under such conditions, a tug-of-war temporarily took place in determining the tender agency. In any case BRR had to be trusted to conduct its own activities, unless the financing channels were re-routed off budget and responsibility for the funds transferred to the World Bank. Eventually the parties agreed to a compromise whereby BRR would still conduct the tender, but under the supervision of international experts. The entire process was supervised, extended to the drafting of the report. The experts assigned to supervise the tenders were hired with assistance from the British government through

Managing the debris from the tsunami initiated by the World Bank, August 28, 2005. Photo: BRR/Bodi CH

the Department for International Development (DFID). DFID appointed Crown Agent, an independent tender institution from the UK, to assist the tender committee for consultants that was funded by IREP.

Its functions, among others, were to compare the evaluation results conducted by BRR tender committees and maintain consistency in the valuations. Other functions included preparing a tender report to explain process and outcomes to international partners. Their tasks included providing arguments for the tender results. BRR benefitted greatly from this program, particularly in testing the tender committee's evaluations results, which differed little from the supervisors'. Unfortunately DFID did not provide this assistance for long and it only applied to IREP consultant tenders.

BRR formed another body called the Central Procurement Unit (CPU) in the first three months of 2007 to conduct construction tenders. This institution was a condition of the IREP and IRFF grant agreement for centralized tenders. Members comprised a consultant or independent engineer, several national expert staff on NCB and international expert staff on ICB.

Unlike consultant tenders, in which the expert staff merely supervised, in the construction tender they comprised members of the tender committee. CPU was tasked to conduct tenders for rehabilitation and reconstruction programs coordinated by PMU IREP-IRFF.

Some program packages were tendered together. In December 2007, as many as 25 program packages were launched simultaneously, covering district roads, clean water facilities and sanitation facilities for a combined value of Rp 300 billion. The tender announcements were made through local and national media, while for ICB they were also placed in English-language media and on the UNDB—an international tender media under the UN.

The tender processes ran very effectively. The World Bank even wrote a memo commending on BRR's output in the May 4-16, 2008 edition of the Aide Memoire IREP and IRFF Supermission Mission. The World Bank noted its satisfaction with BRR's timely and efficient work, as noted by sources in the IPM.

Nevertheless, obstacles still emerged, particularly because of the overall slow administrative process. Numerous approvals, from program approvals to tender documents, tender permits and results, cost a great deal of administrative processing time.

The long process was due to the World Bank's requirements that not only should the tender processes be carried out in sequence, but also that the tender report be sufficiently descriptive and accurate. Only then would approval be forthcoming in the form of a no objection letter (NOL). If something was missing or wrong in the document, the World Bank would not grant approval.

A similar process was also required by other donors such as ADB. However, approvals for all tender procedures were issued by the ADB representative in Banda Aceh, so decisions were made faster.

Nevertheless, the procedures established by the World Bank did help BRR better comprehend the tender procedures of international donors, so that dealing with new donors, such as JBIC (Japan) and AFD (France), became easier. Their tender processes were basically similar to the World Bank's procedures. The difference was that they had a prequalification process and that the list of eligible tender participants was approved very quickly. Other than that, there were no additional or new details in the tender process.

The possibility of falling behind schedule was also caused by institutional and personnel capacity in preparing tender documents, as well as by a drawn-out tender evaluation process due to the pressures mentioned earlier. Tender participants still insisted on winning and the evacuation of committees to "safe" places still took place.

The committee also had to be completely confident regarding the accuracy of its evaluation results. This naturally took time as the committee needed to conduct repeated evaluations and cross check with one another. They were also worried that multiple objections would emerge from the losing participants, particularly if the evaluation results were not founded on solid arguments. These tender processes were a long but necessary path that BRR had to take to safeguard its integrity in executing rehabilitation and reconstruction in the disaster area. The most valuable take away from the first to the last year of the tenders was that BRR succeeded in improving the tender processes greatly. This could be regarded as a significant achievement, considering that BRR's tenure spanned just four years and numerous infrastructure programs needed to be carried out.

Twists and Turns of the Procurement Process

Flexibility of A Requirement in Conducting Tenders

Within the sequence of project management, environmental impact analysis takes place during the planning process. This includes the land acquisition process, whose results are reported in a document called the Land Acquisition and Resettlement Action Plan (LARAP). Next, the plan to mitigate the environmental impact of construction will be reflected in a bill of quantity. These processes were all required by donors before tenders were permitted to take place.

This was indeed ideal. However, it would have taken a very long time to fulfill the entire process and prevented a great deal of reconstruction from being implemented during BRR's tenure. Therefore, BRR chose to be flexible. The environmental impact analysis could be conducted while the tender took place. In this way, time could be saved, particularly between the announcement and contract signing.

Although it initially looked difficult, the World Bank eventually concurred. Environmental impact analysis was not included in the planning process but was required for contract approval.

In planning, there were two paths that could be taken. First, to process the entire project to the end, and only then execute. Or the second option, where planning was part of the execution process. During rehabilitation and reconstruction, the planning phase was conducted as part of the execution phase, resulting in the possibility of deviations.

As long as the deviations fell within acceptable limits (10-20 percent), a request to donors for a no objection letter (NOL) to cover additional costs or volume of work would be approved fairly quickly. However, if the additional funds required surpassed these limits, approval would require a longer process at the central office.

Land Acquisition

In donor-funded programs, land acquisition was one of the conditions for a tendered package. A package would only be suitable for financing after the land was made available.

The land acquisition process must be defined and its procurement plan documented by LARAP. LARAP formed the basis for evaluating the possibility of reaching the land acquisition target.

However, many parties worried that even if the land was secured, the donor might not want to fund the program as there were many other requirements to meet, such as the responsibility for restoration, an agency to execute the work, procurement approaches, and project feasibility.

Both owner and government also had to agree on the price of the land. The assumption was that at such a price, the owners could get land of similar quality elsewhere. In this regard, applying government pressure by using government authority to set prices was strictly forbidden. The World Bank, for example, would not agree to acquiring land for a project for free or without compensation.

Even where the people agreed with giving their land to the government to build public facilities, valuation still needed to be conducted and some sort of compensation paid. Even if the land was given free of charge, the community needed to know the value of the land they handed over to the state. The whole process had to be recorded and documented.

Otherwise, not realizing the indirect benefits of having a road opened in front of their houses, compensation might be demanded later on by the community. For example in Nias, the community consented to turn their land into a road, but the World Bank would still not accept it as the agreement was not documented and the value was not stated in the handover documents. In this case, in the end the government did not widen the road and continued to use a narrow piece of land.

Neither party received maximum benefit as the road built was limited and not wide enough. The government could not provide a decent road for the public while the World Bank saw that the project it funded had not yielded optimum benefits. This was the result of rigidly following the rules.

ADB had even stricter requirements. Land acquisition not only had to proceed at market prices or at an agreed-on price, but economic assistance had to be given to the community for three months if the land was impacted by the project had housed economic activities, such food stalls, fish ponds or garages. The regulations of the Indonesian government did not require such compensation.

ADB also required that the project pay heed to claims on the land, regardless of whether they were valid or not. If there were objections from the community, the project would be temporarily suspended until the matter was resolved.

This issue was masterfully handled by BRR projects. In problem areas, projects would be halted, while elsewhere, in areas which were completely free of obstructions, construction would continue. BRR fully realized that the ADB package completion targets were common goals. In cases in which the project was hampered by land acquisition, ADB shared the same interest in speeding up the process.

These conditions were also utilized to get around ADB's tight requirements. For example, where people had agreed and accepted payment, then it should follow that they understood that the monies could be used to buy land of a similar quality elsewhere.

Another example is when USAID built a road between Calang and Lamno. For USAID, the land used in the project had to be fully acquired. This led to the contractors had ways of taking advantage of the slow land acquisition process. The contractor refused to work until the land was acquired as they could claim payment for idle equipment.

Direct Appointment

A million projects, and so little time. Such were the conditions facing BRR in the rehabilitation and reconstruction implementation process of NAD and Nias. Despite four years on the job, in practice construction took place over three years and two months. The first semester was spent in preparation and the last four months constituted the finishing period. Consequently, there had to be the authority to conduct direct appointment based on the policy and technical aspects.

At the high level policy principles, BRR Head as a ministerial-level officer had the authority to choose direct appointment in certain projects. At the technical and operational level, the procurement committee could appoint a contractor according to the reasonable unit prices mitigated by specific considerations such as emergencies, insufficient time and the limited number of companies possessing specific products, and other considerations in accordance to the regulations.

The direct appointment process was legitimately permitted for planning activities at the beginning of the first year as well for housing construction, including their usage into the second year. Exemptions were also given for housing projects that had been discontinued by donors or NGOs so as to make it easier for BRR to continue such projects by directly appointing new partners.

It was unclear whether such practices were allowed in big construction projects or activities outside the area of housing. In fact however, it makes a lot of sense if a processed tender then results in a direct appointment, especially for specific activities such as the procurement of airport equipment, elevators, telescopes for determining Islamic calendar dates, meteorology, search-and-rescue and vehicle testing equipment.

The reason is that although there many companies who are licensed to market those products, few companies actually produce these products. If tenders are conducted among the factories or producers of the equipment, applying the direct appointment process is very reasonable.

Technical issues such as the evaluating owner estimations naturally fell within the committee's responsibility to source reasonable prices. Comparisons with the most similar packages in the the same year or the previous year yielded a good benchmark. Prices from the nearest provinces could also serve as a reference as long as they resulted from a tender.

What was difficult was the selection of partners, as every party felt capable of undertaking the pro-offered activity regardless of whether they had relevant experience or not. In such a situation, it was difficult to use direct appointments because it would generate protests. In this case, placing repeat orders, particularly when it came to contractors resulting from the tenders, helped greatly.

So long as these conditions were met, this was equivalent to directly appointing contractors who had been previously chosen to carry out the work. In this case, BRR was convinced that a tender would waste time and unreasonably shorten the construction period, whereas if the work was continued by the previous contractor through an addendum process, the available construction period could be fully utilized towards achieving targets.

This policy did not apply to the entire rehabilitation and reconstruction process. The construction of the airport, government buildings and roads on Simeulue Island were done using a repeat order process, using the previous tender price.

Road construction financed by ADB in Ulee Lheue, Lamteah Village, was done by direct appointment with ADB's approval, since the previous contractor was able to finish the work on time and at the required standard of quality. ■



Conquering Problems Achieving Goals

THE Sultan Iskandar Muda (SIM) Airport has a new look. Even from a distance, one can see the tall dome constructed atop the main airport building, as if welcoming visitors through the new gate of the “Veranda of Mecca.” The runway has been extended from 2.5 kilometers to 3 kilometers, so that a jumbo airplane such as a Boeing 747-400 can now land there. The expansion and the enhanced capacity of the apron construction, as well as additional taxiways, make it possible for nine B 737-300 planes to park simultaneously. The airport, constructed with a budget of Rp. 349.1 billion, meets the requirements of an international airport, a qualification it achieved in 2003. Prior to that, despite being an embarkation and disembarkation point for hajj pilgrims, the only jumbo airplanes that could land were those like the Airbus 320.

SIM Airport was just one of the many rehabilitation and reconstruction activities that BRR performed in Aceh. Certainly it was no easy task. Managing infrastructure development projects that are fundamentally a restoration of disaster-stricken areas clearly differs from managing normal conditions. Facing such a massive scale of infrastructure damage, BRR had to formulate strategies and policies to overcome various obstacles, primarily in implementation. Especially given that the project packages that BRR had to undertake numbered in the dozens and were scattered throughout the disaster-stricken areas (see box on development per sector and table on summary of program achievement).

The parking facility for airplanes at the Sultan Iskandar Muda airport, Aceh Besar, March 13, 2009. Photo: BRR/Arif Ariadi

All personnel involved in the rehabilitation and reconstruction activities certainly had to have a high sense of urgency. They learned by doing. From program preparation to implementation on the ground, everything had to be done quickly in a measurable manner. Such speed was necessary so that the surviving tsunami victims could swiftly benefit from the facilities and infrastructure developed. Any tardiness in project execution would mean a loss of momentum in helping the disaster survivors recover from their suffering.

Bold Moves in Meeting the Challenges

Bending the Rules for the Sake of Breakthroughs

Under normal conditions, everything should be done through a procedure as perfect as possible. But under emergency conditions, one may look for ways to break through constraints and problems. This was necessary in the course of development program oversight. Under normal conditions, a project goes through set phases, beginning with planning, and continuing with a feasibility study (FS) and detailed engineering design (DED). Subsequently this is followed by budgeting and land acquisition (LA), procurement, construction, and operations and maintenance (OM).

Meanwhile, in keeping with the conditions on the ground, the suggested phases for the supervision of the reconstruction programs in Aceh were planning-FS-DED-budgeting-monitoring and quality assurance. This process fell under the Deputy for Planning and Programming, while the Deputy for Infrastructure was assigned only to carry out construction. As BRR began to enter into the construction phase, there was a need for a ready master plan, FS, DED, budget and monitoring and quality assurance (QA) system. All this would effectively support the execution of every phase. In building facilities and infrastructure according to the proper order mentioned above, starting from the preparation of the FS document, environmental impact analysis and proper DED, procedural violations began to take place, especially as the preparation process took a lot of time.

When starting its operation in mid-2006, BRR established that where these procedures had to be followed, they were to be completed within a maximum of three months and it was expected that the documentation would be finished by October 2005. This was based on the assumption that the FS document, environmental impact analysis and DED be drawn up first according to the minimum requirements in the interests of speed so that construction could be optimized. For example, the location of Meulaboh Port was selected without a complete FS, environmental impact analysis or DED study. Those processes were all carried out in parallel to construction activities. The same applied to other projects such as clean water, drainage, waste water sanitation, garbage management, emergency roads and emergency docks.



These facilities were all needed immediately to overcome public service problems. As it turned out, these were not missteps. Had procedures been followed, the location and the dimension of the project would not have been too different. This was a helpful breakthrough. Such “unusual practice” later resulted in an “environmental impact analysis cluster approach” that was endorsed by the State Minister for the Environment, because according to the rules, every construction activity must take environment considerations into account. In reality, as these programs were beginning to be carried out, almost none of the required components mentioned above existed, only becoming available in the third quarter of 2005. Meanwhile the pressure on BRR and the challenge to take immediate action to generate infrastructure that could support the development of other sectors were mounting. Another reality that cropped up in 2005 was that the State Budget for rehabilitation and reconstruction could not be legalized until July 2005. In the meantime, it became clear that the reconstruction activities could not depend solely on state funds but must also take advantage of donor offers of assistance.

Then, how to bring donor funds in?

*In place of the bridge which was destroyed by the tsunami, several boats are used to ferry vehicles, Lamno, Aceh Jaya, October 3, 2006.
Photo: BRR/Arif Ariadi*

The first thing that needed to be done was to initiate communication with donors, tell them about BRR's programs and activities and ask whether the donors were interested in supporting rehabilitation and reconstruction activities. Such communication and approaches were carried out by all parties including the Deputy for Infrastructure. This initiative to meet the donors was driven by the need to explain what programs and activities BRR planned to carry out, and to sound out their interest in helping. The Deputy for Infrastructure was first to compile a list of donors along with the amounts of aid they were willing to make available for reconstruction activities in Aceh and Nias. A budget was then established without a very detailed analysis of the distribution of funding needs. It was agreed that 80 percent of the budget would be allocated to physical activities and 20 percent to soft programs.

The programs priorities were directed at areas greatly affected by the tsunami and earthquakes, which were West Aceh and Nias Island as well as North and East Aceh. Subsequently, priority was given to developing heavily-damaged facilities and infrastructure as well as infrastructure that would support the development of other sectors in the next phase. Priority was also given to anything that could immediately support the restoration of the survivors' livelihoods. Lastly, the programs to restore communities affected by the tsunami and earthquake to their previous socio-economic state (education, health, religion and social life) were prioritized. These programming criteria were agreed upon from the beginning, the opposite of requiring a preliminary study at the beginning followed only then by budget disbursement.

Another issue was the dichotomy of approaches to logistical transportation from the very beginning. The first approach was actually quite realistic, in which the supply of logistical materials for reconstruction was projected to go from Medan to Sibolga to Nias, and from Medan along the eastern coast of Aceh to Banda Aceh; or else from Medan by sea to Banda Aceh, and from Medan's Malahayati Port over land to Singkil, Tapaktuan and Meulaboh. This approach used actual conditions as a basis for achieving results. The other approach was patterned on ideal conditions: Aceh in a developed, future state. Here the flow of commodities for the Aceh economy would move from south to north, moving through the eastern, central and western routes, with Banda Aceh functioning as the gateway to the national and international world. Complete infrastructure would be constructed along that route.

The latter took a long-term perspective. But there was no guarantee that the flow of goods would be so, indeed currently it is quite the opposite. Exports move towards Medan before going out to both national and international markets. Eventually, the program decisions were made according to the realistic approach, which took more of a short-term point of view. This is unusual in a feasibility study, which usually takes a long-term perspective. Regardless, most of the decision-making processes in building infrastructure were eventually done quickly. Many of the decision-making phases were skipped over so that bureaucracy did not become an obstacle, including speeding up the



procurement process. In some cases the procurement processes took place even before the issuance of the Issuance of Spending Authority (budget authorization). This method was proven very effective and increased the disbursement of the budget for the year in progress. Rehabilitation and reconstruction activities in disaster-stricken areas indeed need fast-paced development action. Nevertheless, priority should still be given to sound planning to prevent problems down the road.

*The ferry port in Singkil,
December 21, 2009.
Photo: BRR/Arif Ariadi*

The Issue of Revisiting Design

Planning on the basis of accurate data is the key to a successful rehabilitation and reconstruction. In the first year of the rehabilitation of NAD and Nias, the BRR management continued to refer to the blueprint document in coordination with the local governments of NAD and Nias. Unfortunately, the blueprint contained limited technical planning data. This created a situation where, during that first year, BRR construction activities were conducted in parallel with the preparation of design and planning. What planning data was available from regional technical offices was used as much as possible, with adjustments as needed.

In subsequent years, a more detailed design was of course required for the execution process. Such detailed designs were also needed as part of the documents supporting

the project procurement process. But under normal conditions, this step would take a lot of time. To deal with this issue, one of the strategies employed by BRR was the implementation of a design review. This approach made it possible for BRR to prepare minimal procurement documents only, while the design planning process was assigned to the contractor and the supervising consultant. Previously this method had been frequently employed by the Department of Public Works when responding to demands for quick production.

In early 2006 for example, at the same time that the transportation sector conducted comprehensive technical planning, it also created a simple draft plan to meet the requirements for procurement documents. The plan included Bill of Quantity calculations and other procurement items. Only after the procurement process would the winning contractor review the design, or else create a more specific design review by taking detailed measurements on the ground to formulate the project construction's blueprint.

Primarily for road, bridge, power, building and port construction programs, it seems that the lack of a complete design in the first year dragged down construction so that construction in this sector was the last to be finished. By 2009, some of the project construction would have to be continued by other government institutions and by the local administration. Fortunately, the Dutch and NGO donors assisted with planning for the water, irrigation and drainage and coast security sectors, while UNDP greatly assisted with the port construction of Calang, Simeulue, and Gunung Sitoli, using MDF funds.

Problems did arise, for example during the construction of Calang Port. The winning contractor's contract had to be rescinded. As a result, construction of the port was abandoned for a year. The contractor was not capable of carrying out the construction in accordance with the design set out during the procurement process. This design was the result of UNDP planning (backed by an MDF financing scheme), in which the main posts for the port's docks were to use a sheet pile foundation. This foundation consisted of steel sheets driven into the ground, with the inside of the sheets being filled with concrete or other materials. This system is actually an ideal way to cut construction costs while producing a stronger structure. The problem was, sheet pile is not produced in Indonesia and had to be imported from Belgium.

In addition, from a technical angle the construction process was quite difficult. Fluctuating ground pressure would expel the foundations after they had been planted. This construction system became costly due to limited equipment, compounded by the problem of manpower mobilization. Conscious of his impending financial loss, the contractor requested the design to be changed by replacing the foundation with bore piles. The consultants had refused this idea from the beginning, as that change would totally alter the initial design. Additionally, changing designs would raise objections from contractors who had lost in the tender. They might think that with the changed design, they could very well have been able to tackle the project.

Finally the issue was discussed by BRR and was put forth to the World Bank, whose decision was clear. The World Bank continued to request that the contractor to do the work in accordance with specified Terms of Reference (TOR). If the contractor could not do this, his contract would be terminated with penalty. The contractor did say that he would do it but requested an extension until December 2009. This was not possible as the contract stipulated that construction had to be finished by June 2009 (a period of 18 months). Finally, they were asked to continue working until June 2009 with an additional work period of three months, subject however to a penalty period. Under the pretext of agreeing, the contractor put forth a claim for Rp. 150 billion as additional payment. In response, the consultants deemed the contractor as not intending to finish the construction and the contract was therefore terminated.

In such a case, BRR clearly suffered a loss as Calang Port was not completed during BRR's term. BRR did realize at the start that the volume of construction for Calang Port was too large. It should have constructed on a smaller scale following the example of Tapaktuan Port. Calang Port was initially projected to support plans to reconstruct the city of Calang as an "Eco City," for which a grand seaport was envisioned. Nonetheless, the port still had to be built as there was a need for it. Eventually, in the 2009 Department of Transportation State Budget, Rp. 40 billion was budgeted for the construction of the port in accordance with existing standards. In the second and subsequent years, BRR indeed entered into the laborious process of reconstructing Aceh's western passage, central passage and other programs such as ports. In addition, BRR also handled the infrastructure for clean water infrastructure, particularly near the east and west coasts.

Learning from Mistakes

Experience taught that simultaneously carrying out physical development and a planning process using insufficient data often led to problems. As a result, the physical work lagged behind the planned schedule. In some cases, construction costs actually went up as a result of adjusting to field conditions that turned out to be other than planned. The construction of the Geumpang-Tutut national road was just such a case. As the logistical supply route from the east coast towards Meulaboh, this was an important road supporting the economy of Aceh's west coast area. This segment was eventually built in accordance with the programs contained in the blueprint, following an in-depth study on sustainability that was catalyzed by the fact that this environment was sensitive to development activities.

The Geumpang-Tutut route is a passage that cuts diagonally through the Leuser Mountains. The inclination of these mountains is critically unstable, with loose and muddy soil. Such environmental conditions would create landslides on the route and cause the asphalt to crack after construction was completed. Therefore, after completion, the government would have to continuously maintain the road. Once built, maintenance measures would need to be taken including tackling the problem

of landslides and drainage channels. Since the soil was unstable and prone to cracking, costly landslide-prevention technology had to be put in place, starting from the digging of deep foundations, shifting the surface of the land and building revetments along the edges of plunging cliffs. With such devices in use, the government has no choice but to foot high maintenance costs every year. The management program also had to be structured and institutionalized, involving heavy machinery since landslides will continue to occur especially during the rainy season. BRR had set aside funds in the amount of Rp. 20 billion for a road segment that had not yet been attended to; but due to daily rains, the previously completed part was already damaged again.

This was a problem. BRR, which had no maintenance unit and no equipment, was continuously asked to take responsibility for the maintenance and the handling of the landslides in this unstable area. Meanwhile, the Regional Office for Infrastructure and the Construction Office, whose maintenance equipment BRR had provided, further asked BRR to be responsible for the road segment. BRR learned a valuable lesson in constructing this route, which was that the prior environmental analysis stating that Geumpang-Tutut was situated in an area of extreme and unstable inclination was correct. These environmental conditions applied to the entire Leuser mountains area, which in addition is water-sensitive, so that all the routes built on these mountains will incur large and continuous maintenance costs.

This was also evident in the Ladia Galaska road network (previously a government program) built by the Department of Public Works. On Ladia Galaska, which was constructed piecemeal and is now somewhat neglected, grass and trees spring up from beneath the asphalt. Landslides also occur in many places. The same is certain to happen to the road segment built by the Aceh government in the Jantho-Lamno area if the structure of the foundation is not strong enough.

Differences of Perception on Coordination

Outside the construction problems that resulted from poor planning, BRR tried to anticipate problems early, amongst them facing the many stakeholders involved in each rehabilitation and reconstruction activity. Recognizing this issue, good and intensive coordination and communication was consequently needed with all parties involved. At the end of the day, coordination is always the key to success in activities. Coordination is important, especially in programming, planning and design including land acquisition. All inputs and aspirations were always discussed up to the point that construction was about to place.

Several forums were formed to facilitate such coordination. The first one was the forum for concept notes, which are proposals prepared by other institutions, usually NGOs. The concept notes would then be discussed in forum meetings, agreed upon and then mapped out to decide who would do what in accordance with needs on the ground. In



this way overlaps were avoided. The forum was attended by the proposing NGOs, as well as the technical local government offices and BRR. Sometimes, if needed, the regent, mayor and other NGOs with similar interests would also participate.

The next forum had to do with the management portfolio. In this forum, the donors were guided to finance an empty sector, so that rehabilitation and reconstruction activities would be handled in a balanced manner. This was necessary as donors are generally more interested in providing aid for social affairs, health, housing or drinking water, while other sectors like infrastructure are neglected; whereas the need to repair infrastructure was actually very great and required large funding and strong project management.

An equally important forum was the regionalization forum attended by BRR as well as donors. This forum took place at the district level, handling and solving all construction problems in that particular area. BRR believed that forums at the central government level and centralized forums sometimes slowed down decisions on the ground. For that reason, the regionalized forum was important in settling problems and easing the coordination of programming with the district and city governments.

*Especially when it rains, the route from Geumpang to Tutut often becomes slippery and accident prone, Tutut, Bireuen, January 4, 2005.
Photo: IFRC Documentation*

In this forum, donors were also expected to immediately delegate settlement and important decision-making processes to the local level. ADB for example, through this forum, was able to transfer the issuance function of all no objection letters (NOL) to Banda Aceh.

The same applied to several other NGOs, many of whom entrusted problem-solving measures to the executors on the ground. Compare that with the World Bank which had to depend on decisions from Washington, or JBIC, which still needed to wait for Japan, or AFD for France. In short, through the forums mentioned above, all infrastructure coordination was discussed before entering the execution phase. Up to this point, if all parties were on the same page, then good coordination had taken place. Subsequently, execution would be entrusted to the individual parties.

A case in point: BRR collaborated with USAID on a particular project up to the level of planning and design. Once into the procurement and execution phase, each party understood their individual responsibilities. Another example was when BRR formed a Joint Secretariat at the provincial and district levels. It was expected that all programs would be presented and discussed in the forum.

Testing the “Task Concept” Approach

Apart from problems coordinating with external parties, BRR also established a special policy in order to facilitate construction management on the ground, which used a ‘task concept’ approach. This consultant-contractor working system, typically used in the international construction world, had been proposed by Junius Hutabarat, Deputy for Planning and Programming. In this scheme, the authority of the project leader (Project Implementing Unit leader or Contract Preparation Officer) and the responsibility of consultant and contractor were ranged in a vertical line. That meant, the contractor’s direct superior was the consultant, while the consultant’s superior was the contractor. The consultant was directly responsible for all things related to technical aspects on the ground, from the supervision of the construction process supervision to quality, construction progress, and payment certification.

This scheme differed from the work relationship generally seen in construction works at the Department of Public Works, in which a triangular work relationship exists. There the project leader (Project Implementing Unit - Contract Preparation Officer) directly commands the consultant and contractor at the same time. This means, the positions of the contractor and consultant are equal, with the project leader as their superior. The Project Implementing Unit head or Contract Preparation Officer is also fully responsible for the work results of both the consultant and the contractor.

The task concept scheme has its advantages. Technical tasks are entrusted to the consultant, including technical administrative tasks belonging to the Project Implementing Unit personnel. Therefore, the number of personnel can be cut down because usually, in a Project Implementing Unit, there needs to be someone to deal with

administrative tasks. Another advantage is that the consultant becomes responsible for the technical risks on the ground.

Since responsibility for construction has been transferred from the project leader to the supervising consultant, both the engineers and the company stakeholders must possess a thorough understanding of construction as well as good technical abilities. They even need to have an understanding of the law. In the case that a technical problem eventually emerges that causes losses to the state, the contractor and consultant will be held responsible by the law, either civil or criminal.

This work scheme was tested when an implementation problem emerged in one of BRR's programs, a water resource sector program in which a 2,000-meter saltwater embankment was being constructed in the settlement area of Lampulo Krueng Titi Panjang. The execution of this program fell under the Project Implementing Unit for Flood Management and Coastal Security. As a note, besides handling this project, the Contract Preparation Officer (*Pejabat Pembuat Komitmen*, PPK) also had to manage 28 other project packages scattered throughout the entire Banda Aceh and the Aceh Besar district. Only five personnel assisted the PPK in handling all these packages; the work task concept helped him greatly as anything related to technical items and quality would be entrusted to, and logically become the responsibility of, the supervising consultant. The saltwater embankment construction contract worth Rp. 2.3 billion was carried out by a veteran contractor.

Later, after the embankment was finished, there were reports from the public regarding indications of fraud in the project. Based these findings, the Banda Aceh District Attorney opened an investigation. Supported by the technical capacities of Syiah Kuala University and BPKP's technical calculations, the prosecutor wound up accusing the PPK of involvement in criminal corruption as carried out by the contractor to the tune of hundreds million. But according to the task concept approach, all technical management becomes the responsibility of the supervising consultant, and therefore such an accusation should be aimed directly at the supervising consultant. This was especially because the consultant had been appointed as a work director, emphasizing the transfer of technical responsibility to that supervising consultant. The consultant's project tasks included daily supervision, certifying work progress and payments, and giving technical advice to the contractor on volume deficits and technical problems in the field.

The argument was supported by the fact that the PPK had never received any kind of compensation in relation to the construction work under his control. Under the task concept approach, the court finally acquitted the PPK from all lawsuits and requested the government to rehabilitate his name and return him to his previous position. Meanwhile, the supervising consultant received 15 months of prison time and tens million fine. The contractor received 18 months of prison time and had to pay replacement funds in the amount of hundreds million.

The contractor and consultant objected to the judges' decision and appealed to the Aceh High Court. However, the Aceh High Court agreed with the Banda Aceh District Court and further extended the sentencing period for the contractor and consultant to four years. The Banda Aceh District Court's decision, supported by the Aceh High Court's decision, as well as the acquittal of the PPK from all charges, demonstrates how the task concept system has stood the test both from a management and a legal standpoint. This is a good precedent for other technical institutions such as the Department of Public Works and the Department of Transportation.

Certainly, this does not relieve the government of responsibility for controlling activities. But when that responsibility is delegated to another party (a consultant) then the delegation must be clear, using an institutionally-endorsed system. Abuse of authority by the responsible party should not be blamed on the task-giver (in this case, the government).

Besides applying the task concept approach mentioned above, during the execution phase BRR also conducted checks on the ground outside of the supervision conducted by the supervising consultant. These checks constituted quality assurance, and were conducted by the Center of Construction Quality Control (*Pusat Pengendalian Mutu Konstruksi*, PPMK) unit. Reports from the supervising consultant on the ground were verified by PPMK at random times without prior notice.

Such activities benefited the controlling units as they gave the BRR management input on whether a particular construction met requirements or not. Through this activity, it was possible to find the aggregate thickness of a road's layers and asphalt, the strength of concrete poured and dimensions of any buildings that were not up to standards. This process also ensured that the supervision was truly conducted as planned.

Another institution involved in controlling the projects was the Center of Regional Program and Projects Control (*Pusat Pengendalian Program dan Proyek Wilayah*, P4W). This institution supervised regional projects. Meanwhile, projects under the Deputy for Infrastructure sector were supervised by the Center of Sectoral Project Controlling and Implementing (*Pusat Pengendalian dan Pelaksanaan Proyek Sektoral*, P4S). They supervised the progress in its entirety, from the program determination process before the Issuance of Spending Authority was released through to procurement and all the way to the execution phase. From the results of this unit's supervision, it was possible to see progress of a particular work and the consolidated progress per unit as well as for the entire BRR.

This unit worked by verifying the progress of activities. It was possible to monitor whether the work was underway, was progressing slowly or had come to a stop. Equipped with a detailed monitoring system such as this, BRR management should have been able to evaluate the progress of each area and each deputy office. Unfortunately, problems sometimes arose because the supervision results from this institution were



often not updated. This was due to the enormous scope of the work area. Other problems involved frequent internal conflicts or arguments that took place because of different parties' different convictions in responding to the findings of P4W or P4S. In the course of executing projects, BRR also had to take into consideration the fact that following a big disaster, prices for both goods and services rise. Faced with such realities on the ground, BRR frequently had to build temporary, additional infrastructure.

This happened because often times as an infrastructure project was about to begin, supporting infrastructure did not yet exist. For instance, when constructing a building facility, a water embankment had to be erected first so that the project location would not be flooded. An emergency road even had to be built as a transportation route for the materials because no access existed. Naturally all this required additional funds. BRR had received substantial funding at the time, but these funds were still far from sufficient to meet total needs. Especially given that not too many donors were interested in aiding the infrastructure sector, the reason being that this sector required big amount of budget and was perceived as did not directly address the needs of people affected by the tsunami.

In the end, it must be stressed that rebuilding a disaster-stricken land is not easy; especially when everything is conducted in an emergency manner, without official guidelines from anywhere on earth that could be used as a reference for carrying out

*Constructing a beach barrier
between Alue Naga and Lampulo,
Banda Aceh, November 17, 2005.
Photo: BRR/Arif Ariadi*



construction in an area affected by massive disaster. With all the problems in the field addressed, through the rehabilitation and reconstruction, the Aceh-Nias infrastructure had succeeded to reach a better state than its previous condition.

Good Results Coming from Brains and Muscles

Ports and Telecommunication

Financed by the Dutch Government, a new dock was built at Malahayati Port. The new dock is 140 meters in length, and is able to dock ships with a capacity of 10,000 DWT. In 2008, the capacity of the port was expanded by the addition of a new, 140-meter-long dock, so the entire dock is now 380 meters long. This was primarily done in order to facilitate passenger ships.

Parallel to the development of Malahayati Port, BRR, using MDF funding, also conducted the rehabilitation of Lhokseumawe Port comprising dock rehabilitation, coastal dike construction and dredging. A new 70-meter-long dock was also built at Langsa Port to support the port's function as an agro-industrial port. In Calang, there are plans to build a new port, with a 100-meter-long dock constructed of steel sheet pile.

But, as the contractor failed to complete its construction, the completion of the port construction was left to the Department of Transportation. Meanwhile, Sinabang Port was relocated from its old site to a newer area with fewer restrictions. The establishment of this port far from the city provided freedom to build the new port with bigger capacity warehouses than in the old port. At Tapaktuan Port and Gunungsitoli Port, all onsite construction was resized so that bigger ships could dock there.

In addition to building port facilities, BRR provided inter-island transportation facilities in the form of three ferries with the capacity of 750 to 1000 GT to serve the Sibolga-Nias, Labuhan Haji-Simeulue and Banda Aceh-Sabang routes. This was primarily to support the movement of logistics which simultaneously functioned as public transportation. Additionally, the ports were equipped with loading and unloading equipment to ensure better and faster port services. The equipment, which was distributed to the Malahayati and Gunung Sitoli Ports, was donated by the Dutch and Korean governments. Funds were allocated from the State Budget to provide smaller-scale equipment such as forklifts for every port in Aceh and Nias.

In the air transportation sector, BRR conducted reconstruction among others at the Sultan Iskandar Muda Airport and the airports at Sabang, Takengon, Meulaboh, Sinabang, Tapaktuan and Nagan Raya. The reconstruction consisted of extending runway length and re-layering the runway as well as the construction of flight safety facilities. For airports on the west coast, the general aim of the reconstruction was to make it possible for logistical planes such as Hercules to land there in the event of disasters. Angkasa Pura

A section of the highway between Banda Aceh - Calang at Lhoong, Aceh Besar, February 20, 2009. This highway was constructed by USAID on a new right of way which, in some cases, needed to cut through hills. Photo: BRR/Arif Ariadi

(the airport government authorities) also participated in building new terminals at Sultan Iskandar Muda Airport, while BRR built new terminals at Simeulue, Sabang, Takengon, Meulaboh, and Gunung Sitoli.

BRR further conducted a program to provide buses to be operated by the Damri Corporation, with the idea that these buses could operate to serve areas whose land transportation systems were still in ruins (such as on the NAD west coast) and to connect the towns furthest away (Singkil and Kutacane) with Banda Aceh.

These buses were expected to accelerate the economic growth and transportation of those areas. In line with this purpose, several public transportation terminals were built in Abdiyah, Bireun and Banda Aceh. It is also expected that with these terminals, the city land transportation system could be better planned and organized in order to improve the safety and comfort of citizens using public transportation.

Given that seas around NAD Province are a high-traffic area situated on an international sea route, the country whose territory those waters fall under has an obligation to vouchsafe the safety and security there. With that purpose in mind, BRR NAD-Nias provided search and rescue (SAR) equipment in the form of a 40-meter-long rescue boat and a sea rider to give help specifically when an accident occurs at sea.

In the telecommunication sector, repairs to the communication network were paramount. Repairs to the automatic telephone center network in Meulaboh and Tapaktuan restored the functionality of the damaged telephone network. Obstacles cropped up during the asset handover process to PT Telkom as the latter is now an internationally listed public company which must get shareholder permission.

As of the end of the 2008 fiscal year, targets for the transportation and telecommunication sectors comprise completion of the rehabilitation and reconstruction of transportation and telecommunication facilities, and of infrastructure, consisting of 15 seaports, 8 ferry ports, 9 airports, 16 Damri bus terminals and pools, 6 SAR equipment offices, 22 post offices and telecommunication-multimedia-informatics facilities in 23 districts and cities in NAD and Nias.

Roads and Bridges

BRR coordinated with relevant technical agencies from the beginning of the rehabilitation and reconstruction process, primarily in the disaster-stricken regions. Such coordination helped determine which programs which were expected to come from the governments of the disaster-stricken regions, as it was assumed that these governments were familiar with their regions and knew which programs were the most urgent. Also, in the beginning, BRR had limited resources and very little understanding of the area. The truth was, BRR was trying to determine a starting point and method for beginning its work.

The first rehabilitation program allocated was conducted on the stretch of road between Lamno-Calang, Meulaboh-Subulussalam, Geumpang-Tutut and Jantho-Keumala. To this the construction of the district roads was added, distributed among 13 governments of districts/cities in Aceh and two districts in Nias. The main priorities for rehabilitation were disaster-stricken districts and districts indirectly affected such as by logistics routes or displaced people's camps.

The most serious necessity at that moment was to take the Lamno-Calang section of the road in hand. At various points and locations, this road was gone or damaged and deeply mired in mud. It was not unusual for heavy vehicles carrying logistics, food or construction materials to be held up for days on the muddy road. The vital Lamno-Calang road section was the only major transportation route between Banda Aceh and Calang along the west coast aside from the diagonal passageway (Banda Aceh-Pidie-Kemala-Tutut).

These rehabilitation efforts for Lamno-Calang were initially programmed into the State Budget but then taken out due to an expected World Bank grant. But the grant was subsequently canceled because it had to go through MDF mechanisms, which required not only a long approval process, but also that the funds go through a non-government implementing agency. Eventually, the program was brought back into the State Budget mechanism.

These road-handling reversals ate up considerable time, three months. BRR provided Rp. 33 billion in funding to finance work conducted by the National Road Rehabilitation and Reconstruction Task Force, working under the Department of Public Works.

In the meantime, the Department of Public Works provided Rp. 1.8 billion for work on this road segment through the NAD National Road Maintenance Task Force. The results facilitated the movement of logistics and rehabilitation programs by donors and NGOs. Although crossings by raft and damaged bridge floors were still in evidence, the time needed to traverse the road was significantly reduced, from four days to 10 hours.

The following year, where national roads were concerned, BRR concentrated on the road along the west coast (Meulaboh-Tapaktuan-Batas Sumatera Utara), the diagonal route (Pidie-Keumala-Gempang-Tutut-Meulaboh) and northern part of the eastern passageway (Banda Aceh- Bireuen). These routes were the most difficult due to heavily damaged road surface conditions, the extremely steep topographic incline and unstable geology, especially on the diagonal route.

Given that the BRR organization did not contain a maintenance Project Implementing Unit, it was overly ambitious to enter these areas, especially the diagonal route. The remainder comprised the reconstruction of provincial roads which were mainly scattered along the west coast (Kuala Tuha-Lamie and Subussalam—Singkil) and central mountains (Isaq-Jagong-Jeget and the road to Malahayati Port), circling around the islands of Simeulue and Nias.

Lower-hierarchy roads such as district or city roads were eventually bundled as part of district/cities handling, including the handling of road environments in both Aceh and Nias. District/city road sections in 2005 and 2006 were handled by the Deputy for Infrastructure, while in 2007 and 2008 execution was given over to regional organizations.

The construction for the western routes of Banda Aceh-Calang and Calang-Meulaboh was financed by USAID and the Japanese government. The main Banda Aceh-Calang road program was the construction of a new 145-kilometer-long road to replace the badly damaged old road that was mostly gone. The construction is estimated to be completed in early 2010, after BRR's work term is over.

Oversight will be continued by the Department of Public Works. The execution of the Calang-Meulaboh segment will take the form of rehabilitating the old road but without expanding it. The completion of this section will greatly help facilitate reconstruction activities on the west coast. The project was entirely funded by the Japanese government through JICS.

It was discovered during the construction process that most of the works in the roads and bridges sector could not be completed on time as scheduled. It was also discovered that several supervising consultants working on the project were of inadequate competence. An evaluation was therefore conducted to find the cause of all these problems.

The findings were unexpected. These problems were mainly caused by various factors in the field, for instance miscalculations in the Cost Budget Plan (*Rancangan Anggaran Biaya*, RAB), the contractor's lack of preparation in carrying out the work, lack of work equipment and challenges stemming from local communities.

It turned out that the contractors working for BRR were not just working on the BRR projects. They were also doing work of similar nature for the district or provincial Offices of Public Works, or for NGOs. The beginning and end of their work periods on those other projects were similar.

The contractors had limited capacity to tackle work packages. But driven by business interests, they participated in every package tender and won what they could.

As result, not all the work could be completed on time since there was no increase in the work equipment owned. Equipment from one work package would instead be moved to another package to complete that package, then moved again to another package, and so on.

The situation faced by the supervising consultant personnel was no different. It was believed that this situation was caused by the large number of work packages during the rehabilitation/reconstruction of NAD and Nias. It was very difficult to always get adequate numbers of quality people at the same time to supervise the work.

Building Facilities and Infrastructure

Activities in this sector generally comprised construction of local government office buildings and public buildings. The majority of the buildings constructed were local government buildings, mainly in the districts of Aceh Jaya, Banda Aceh, Meulaboh, Nagan Raya, Bireuen, Pidie and Simeulue. Meanwhile, old buildings used by the Aceh provincial government, the Indonesian National Military (*Tentara Nasional Indonesia*, TNI), the police and the district attorney which were damaged or in need of rehabilitation were replaced.

For government buildings, the priority was to build the Regent's office and Office of Technical Operations in Aceh Jaya, the Office of Technical Operations and the official residences of the Mayor and Vice Mayor of Banda Aceh, as well as 10 district attorney office buildings. Meanwhile at the provincial level, construction was carried out on the Banda Aceh Attorney General's office, the police chief's office, the archival building, the finance office building, the provincial-level Office of Technical Operations and National Military buildings including their facilities. As a whole the program was aimed at restoring the administrative, financial and legal functions of government and public service.

The construction of public buildings included the construction of escape buildings in the cities of Banda Aceh, Sigli, Lhokseumawe, Meulaboh and Calang. For Banda Aceh, the project was financed by the Japanese government through JICS, with the rest being taken from the State Budget and implemented by BRR. In Banda Aceh and Pidie, a museum was built to record the tsunami disaster in the forms of photos, electronic data and artifacts to capture the experience of the tsunami.

Another important activity when it came to constructing buildings was providing technical assistance to all parties in BRR who had building programs. The types of buildings evaluated included hospitals, government offices, houses of worship and public buildings.

The main activities were the evaluation of structural strength for approval from the building technical office both at the province level and the district/city level, the feasibility of the building, problem solving and the registration of buildings.

Besides fulfilling building feasibility requirements, these activities functioned as coordination points between BRR and the regional government, primarily so that the building handover process would not be hindered as a result of the design or construction process, or by the buildings' functionality. In this activity, the local government was involved in actively conducting evaluations.

Clean Water, Drainage and Garbage

The development of the clean water sector included development of a piping system (transmission and distribution), water treatment installations, intakes, reservoirs and other supporting buildings. BRR built installations in Aceh Besar, Sabang, Sigli, Bireuen, Aceh

A Model Area with Village and City Infrastructure Settlement

AT the time that results began to show in housing construction, at the end of 2005, many were concerned that the BRR's approach to reconstruction would turn the Meuraxa area around Ulee Lheue into a slum area. Indeed, the construction of NGOs-aided housing in Meuraxa that had already begun used an approach that involved building over the locations of old houses, giving a disorganized impression.

Parallel to this, BRR had carried out preparations for the planning of villages and hamlets using a community approach. Discussions were held between the NGOs and BRR on how to build a good settlement. Initiatives from local residents had emerged from the very beginning of their own initiative, especially in the Deah Gelumpang village, Meuraxa sub-district, which was led by the village chief, Keuchick John. In fact the map for this village was the first to be referred to as a 'village plan.'

The planning was generated through a community agreement process with regard to their village's final plan. In the agreement process, suggestions also came up regarding the restructuring of the village infrastructure that would have effected land consolidation. But most of these villages did not agree with consolidating their land since it would result in their lands being taken away to make room for public infrastructure.

It was then decided that infrastructure would be built within the land area available and homes would be built atop the old plots. Subsequently, village planning activities continued to progress aggressively. The preparation process was funded by many parties, such as UNDP, AUSAID, USAID and BRR along with other NGOs. The planning began around Meuraxa and spread to other villages in

almost every region directly affected by the tsunami along the west coast.

Some villages were willing to accommodate a land consolidation, while others rejected it. Consolidating the land resulted in infrastructure improvements, and also created tidy housing arrangements similar to that of a real estate. The preparation process for village planning that included land consolidation progressed more slowly since it took time for an agreement to be reached. But eventually an agreement was reached and a full land consolidation was conducted in Lambung village.

Facing concerns that Meuraxa was turning into a slum, BRR, through its Deputy for Infrastructure, created a program for village restoration using village planning as the basis for village-level infrastructure development that was integrated with city infrastructure.

This program required a technical design tender and the preparation of document. This was done for the entire Meuraxa sub-district by a consultant, Sogreah, and a local consultant for technical assistance funded by the French government. The design of the infrastructure, focused mainly on roads, was successful, adhering to technical rules and complete with drainage and road surface inclines.

In the initial phase, construction was begun in two villages, Lambung and Gampong Baro. These two villages became examples of two completely opposite patterns, a village with land consolidation and a village following pre-existing layouts. The construction comprised road improvement, drainage and piping for clean water.

Lambung implemented village planning with land consolidation, so its roads were



formed in a neat grid. The Baro village followed the pre-existing layout so its roads followed the old road patterns, sometimes broad and sometimes narrow. In Lambung, houses built by the Deputy for Housing were funded by MDF Rekompak using a public participation approach. Besides the houses, two road packages were also built with funding from MDF Rekompak outside of the State Budget.

In Baro village, MDF Rekompak, NGOs and BRR built houses on the old housing plots without any spatial plan. The housing plots were also elevated in the two villages to prevent water-logging on low land. The result? Lambung became a real estate-style village, while Baro village had well-functioning but haphazard infrastructure.

Drawing on these two villages, the Deputy for Infrastructure subsequently developed the infrastructure of the area around Meuraxa sub-district to cover 16

villages plus one village outside Meuraxa, Jelingke, using funding from BRR but copying the designs of the previous villages.

As the Deputy for Infrastructure was carrying out the construction of the Lambung and Baro villages, the Deputy for Housing was embarking the same program. Out of hundreds of village plans available for Aceh, those which required further handling were selected for follow-up involving the preparation of a detailed engineering design (DED) and the construction process.

The domain of infrastructure development for areas was then returned to the Deputy for Housing and Regional Affairs, after examples of the preparation and the execution of infrastructure in the Meuraxa Pilot Project Area were made available. Since then, the Deputy for Infrastructure has handled strategic infrastructure only.

Local skilled labour plays pivotal role in many development projects during the recovery period, Banda Aceh, June 14, 2005. Photo : BRR/Arif Ariadi





Back in Deah Geulumpang village, where the village planning originated, the suggested land consolidation was rejected, but in Lambung Village, next to Deah Gelumpang, the idea of land consolidation was accepted and applied. Landowners with bigger plots of land were ready to sacrifice more of their land compared with landowners of smaller plots of land.

The Deah Geulumpang villagers then realized that the process of land consolidation improved the village and made it more structured, but it was too late because the construction had already been completed. The average price of the consolidated land plots started to go up, the fruit of collaboration and agreement.

Integrated with an ongoing ADB-funded grant program for roads, a JICS grant-funded program for roads and an Australian grant-funded port program, this village improvement program transformed Meuraxa and Ulee Lheue into the crowning achievement of Banda Aceh. The point on the Ulee Lheue bridge in front of the Ulee Mosque is a particular gem. The combination of the two made Ulee Lheue Crossing the jewel in the crown. This area was well-arranged for public activities with a lagoon park, culinary center and tourist site.

BRR was determined to transform the image of housing areas initially feared to turn into slum areas, and in changing face of the Acehnese villages through the reconstruction of village infrastructure to improve them from their previous condition. The 'build back better' concept was realized.

Many parties imagined that 'build back better' would result in a big city full of modern buildings. What was meant by 'build back better' was to rebuild

the villages to a better state than their previous condition, with additional village facilities of an escape building and escape road, as well as the social and general facilities necessary for villages, and most importantly, to change the development paradigm and the local residents' views on how to live healthily and safely, especially in anticipating a similar disaster in the future.

In the 2005 blueprint and / or Government Regulation No. 47/2008, there were 73 activity programs for the 2005-2009 program. Looking at achievements for 2005-2008, most of the activity programs had been accomplished, save for a few national and province-level road projects, as well as IREP technical assistance (TA) that, being a multi-year project, would continue until 2009.

The governments of NAD and North Sumatera suggested that the volume of roads in NAD province and Nias district be increased. Projects not completed by the end of 2008 would be completed by the local government in 2009. Fourteen main ports were completed at the end of 2008. And three ports presently in progress will be completed in 2009 under the oversight of the Department of Transportation. ■

Jaya, Langsa, Aceh Barat Daya, Tapaktuan, and Singkil. Donors or NGO-built installations included one built by the Swiss Red Cross in Lambaro, Banda Aceh, a drinking water system built by the American Red Cross in Aceh Jaya and West Aceh, the drinking water system built by UNICEF through IRD in Aceh Besar as well as one in Banda Aceh built by the Japanese government through JICS.

Observing complications in the management of clean water in Aceh, in 2006 Eddy Poerwanto suggested the regionalization of water supply. Three regions had the potential to form integrated local public water utility companies (*Perusahaan Daerah Air Minum*, PDAM): Banda Aceh with Aceh Besar; Langsa, Lhokseumawe and Aceh Timur; and West Aceh (Meulaboh) with Nagan Raya.

Of these three regions, the one that could immediately be executed was the regionalization of PDAM in Banda Aceh with Aceh Besar. This World Bank-funded study was expanded to include the garbage sector, especially for the city of Banda Aceh, which was situated next to Aceh Besar. The issue of garbage in Banda Aceh had become a problem starting from the management of the cleaning process all the way to extremely limited disposal locations.

The garbage disposal area in Kampung Jawa was rehabilitated by UNDP and its capacity was expanded by BRR through MDF funding. The capacity of this location was only sufficient for disposal over the next two years and a new, bigger location needed to be found and constructed, after which the Kampung Jawa location would be shut down.

GTZ and UNDP were the main institutions who had considerable experience in the garbage sector. One of their recommendations was that there is a need for a new final waste disposal site for Banda Aceh, to be located outside the city of Banda Aceh. The most suitable location for was in Aceh Besar, near the Sultan Iskandar Muda Airport (Blangbintang).

BRR also built a waste treatment plant in Lhokseumawe and Langsa. Especially in big cities, such installations had started to create problems due to shallow groundwater levels in the face of a large volume of waste. That would impact the healthiness of environment, especially for groundwater users. For the city of Banda Aceh, the construction of the waste treatment plant in Kampung Jawa, which is located on the seashore, was done by JICS.

Additionally, near the old location, a new waste treatment plant was built with funds from UNICEF. On a smaller scale, BRR also built communal bathrooms in West Aceh, Aceh Jaya, East Aceh, South Aceh, Simeuleu, Aceh Singkil, Aceh Besar and Nias Island. The purpose was to improve the health of the environment and to create a culture of cleanliness among villagers.

The city drainage program was concentrated primarily on the cities of Banda Aceh, Lhokseumawe and Meulaboh. Under a systemized plan produced by Dutch DHV consultants, funded by a grant also from the Dutch Government, Banda Aceh was divided

into seven zones. The construction that could be completed during BRR's term comprised the Zone II and Zone III drainage of Banda Aceh city, which was funded by the Japanese government and MDF. The two projects were able to overcome water logging in the city and reduce the risk of floods following heavy rainfall.

The drainage in Lhokseumawe city is under construction at the present time. Its completion will be continued by the Department of Public Works. The construction of this waste water disposal system incorporates a periodically used reservoir and pump system. Meanwhile the Meulaboh city drainage will be integrated with the Banda Aceh city drainage, the construction of which will take place after BRR's term. Funding for these programs will be obtained through a loan from the governments of Japan and France.

As of December 2008, a 82,714-meter-long drainpipe has been built by BRR NAD-Nias and almost 517,753-meters worth of drainage built by NGOs, consisting of primary, secondary, tertiary/quaternary drainpipes including support buildings/equipment (water gates, crossing buildings, water pumps, etc).

Electricity and Energy

Rehabilitation and reconstruction of the electricity sector began downstream (residential grids), moving up to low voltage networks, medium voltage networks, and finally to diesel-powered power generators. The important part was the availability of the residential grid, which was built by BRR and donors/NGOs.

Every house built by the Deputy for Housing or donor/NGOs was equipped with an electrical connection. Then the Deputy for Infrastructure added a meter and connected it to the State Electricity Company (*Perusahaan Listrik Negara*, PLN) grid. As of the end of 2008, nearly 122,000 residential connections had been completed, covering both newly-built houses as well as rehabilitation of connections damaged by the tsunami.

In installing connections, BRR and PLN exempted tsunami survivors from fees for residential connections. Ex-customers were relieved from installation fees and customer deposit fees, while new customers were exempted from paying for the installation but still had to pay a customer deposit fee. Electrical connections for houses that were built by BRR NAD-Nias or NGOs/donors were handled automatically regardless of locations. Stemming from a lack of comprehension as to electricity installation procedures, there were many complaints that many of the houses were built without electricity.

The electricity would be turned on once it was clear who the home owners were or after the house was inhabited, in order to guarantee the installation contract along with payment of the monthly bill. If a finished house lacked electricity, it was most likely because the house was not yet inhabited.

Large-scale electricity networks actually fall under PLN's job description. But since PLN did not have a special program to install higher-voltage residential neighborhood networks, BRR therefore handled the development of these grids as well. These conditions posed a dilemma as the finished houses, equipped with grid connections inside, still had no electricity as there was no network grid yet. Additionally, there was the issue of the inadequate power supply for Aceh and isolated regions, so BRR had to also provide 12 diesel power generators units with a total capacity of over 10 megawatts, particularly in Meulaboh, Sabang, Aceh Island, Calang and Nias.

Aceh's electricity needs are very high. The main supply at this time is provided by the diesel power generator in Aceh as well as the State Electricity Company (PLN) of North Sumatera Province. BRR did not go into big electric generator projects, but was involved in pushing for the development of Peusangan Dam by PLN with funding from JBIC, as well as geothermal studies and exploration in Seulawah by a German donor.

There were many plans for electricity development in Aceh, one of them being to make use of the generator in Lhokseumawe owned by PT Pupuk Iskandar Muda (PIM), if a supply of gas could be made available for the generator. Subsequently, Media Group, a private company, also built a coal-powered generator following the discovery of brown coal deposits around Nagan Raya. The Aceh government was rather more involved in these two projects.

Electricity for houses located in areas off the PLN electricity grid, such as those in isolated areas, will be freely supplied from solar-powered generators with a capacity of 50 watt per unit. As many as 4,127 units of these generators have been installed throughout Aceh.

In regions where waterfalls are found, micro-hydro generators (PLTMH) were developed, primarily in the mountainous areas around Takengon, Nagan Raya and Gayo Lues. Six of these units were built by BRR and two by IBEKA Foundation for a total of 850 KW. Besides supplying electricity, this also meant to help preserve the forests. The public was urged to join forest preservation efforts so that the water supply would always be guaranteed and they could in turn get a continuous supply of electricity.

The limited supply of fuel in Simeulue meant that the prices of solar and gasoline had soared, tripling in price. The fuel business in Simeulue was fraught with supply permit issues, transportation permit issues and stockpiling issue. To solve this matter, BRR in cooperation with state fuel company Pertamina built a fuel depot so that supply could be matched with demand and prices could be pushed down.

For this program, a mechanism was used whereby part of the depot's infrastructure construction was financed as a continuation of the development that Pertamina had already carried out. The fuel issue in Simeulue was finally resolved and the fuel business there returned to normal for the Sumatera Island region.

Water Resources and Coastal Safety Sector

The construction of river flood controls was connected to the building of the drainage system. Drainage networks along with flood control systems as were built for the cities of Banda Aceh, Sigli, Lhokseumawe, Calang, Singkil, and Meulaboh.

Planned building activities included flood plain protection, dredging and the construction of drainage channels. Particularly for the cities of Lhokseumawe, Banda Aceh and Meulaboh, these construction packages were funded by grants and loans. One activity that was completed was the rehabilitation of the Krueng Aceh River, which was funded by the Japanese government through JICS. This river is one of the macro-drainage zones in Banda Aceh. The activity was executed parallel to that of the drainage construction funded by MDF through NGO MuslimAID.

Subsequently the Japanese government funded one zone in Banda Aceh through a soft loan from JBIC, as well as of the drainage zones in the city of Meulaboh. The French government provided a soft loan through AFD to finance macro and micro-drainage construction in five zones in Banda Aceh.

Generally, coastal safety measures take the form of protective installations against waves. The activity was mainly programmed for densely-populated big cities such as Banda Aceh, Lhokseumawe, Meulaboh, Calang, and Singkil. In Banda Aceh, for instance, a wave-resisting dike has been built along the beach of Ulee Lheue from stacked natural stones. A high-tide dike has also been built for areas that experience water-logging during high tide such as Banda Aceh and Meulaboh.

These were primarily positioned so as to separate public settlement from water-prone areas such as fish farms, water-storage places and areas of low elevation. In Meuraxa sub-district for example, across from the crossover port along the lagoon, a high-tide dike was built so that the settlement would be free of flooding caused by rising water.

ADB through its ETESP program was the most intensely involved donor in the rehabilitation and reconstruction of irrigation. The activity took place on the basis of public participation. Contracts were directly carried out by the community who were the users of the irrigation system. The most important factor in ensuring the success of this partnership was the availability of mentors as facilitators.

BRR conducted construction itself to repair the irrigation system. This construction took the form of the irrigation system repairs to serve 124,590 hectares of rice fields almost all of which were situated along the coast, from East Aceh district to South Aceh, except for repairs in Southeast Aceh and Simeulue Island.



Spatial Planning

One of the important tasks in this sector was to prepare the regional spatial plans (*Rencana Tata Ruang Wilayah*, RTRW) for the province, districts and cities, as mandated by the Presidential Decree No. 30/2005. Even though this fell within the responsibility of the local government, BRR helped with the process of composing the RTRW. By the end of 2007, progress had been achieved with as many as 300 spatial plans made ready at various levels from the provincial level to the village level.

But on the eve of a process to approach a *qanun* (regional regulation or bylaw), the government issued Law No. 26/2007 regarding spatial planning. Differing from the previous presidential regulation, the planning timeframe was changed from 15 years to 20 years and had to be adjusted to the Long Term Development Plan's timeframe. These conditions made it necessary to adjust all the RTRW that BRR had already composed (for the province/districts/cities). In 2008, BRR in cooperation with the local government made adjustments to the RTRW as mandated by Law No. 26/2007, in order for the RTRW that BRR had composed to be usable in the making of the *qanun*.

*A road and bridge crossing the Alas river in Kutacane, Southeast Aceh, December 22, 2008.
Photo: BRR/Arif Ariadi*

In terms of hierarchy, RTRW are composed beginning from province-level RTRW, then the district/city RTRW, sub-district RTRW, and then the village RTRW. But if these normal procedures were followed, as of 2011 BRR would have only completed the spatial planning part without having the chance to carry out any physical development. Furthermore, significant time would be needed for to prepare the RTRW, given the badly damaged condition of the region following the tsunami and lack of adequate regional data both before and after tsunami; if the spatial planning was completed first, there would not be enough time to carry out the rehabilitation and reconstruction process.

When it came to practical implementation, provincial, district and city RTRW were not very reliable guidelines for construction in the field. On the contrary, the village and sub-district RTRW were more useful. Around 60 to 70 per cent of spatial planning could be used as guidelines for the execution of physical development. Synchronization between the various levels of spatial planning was needed to prevent planning overlap. A frequent public criticism had to do with why BRR still built settlements at the high-tide mark when it had been recommended that the area up to two kilometers from the coastline should not used for settlement.

It was difficult to realize this recommendation because: (i) the Presidential Decree contained two different opinions with no detailed explanation, on one hand establishing the high water mark as a marker while on the other hand not mentioning that spatial planning should reference the high tide line, (ii) relocating coastal area settlers to safe areas away from the coast would require significant funds to free the coastal area lands and purchase new land as replacement. BRR did not have funds for those two types of expenses and (iii) the settlers living in coastal areas generally work as fishermen, so relocating them to an area far from the coast would have made it difficult for them to sustain their daily economic activities and their social lives which were solidly established on the coast.

Environment

The reconstruction of infrastructure followed environmental procedures very closely. These procedures are regulated in Government Regulation No. 27/1999 regarding Environmental Impact Analysis (PP-27/1999) and a Regulation from the Environmental Minister related to Environmental Impact Analysis which comprises guidelines for Environmental Impact Analysis studies, the composition of RKL and RPL, the determination of environmental quality standards, guidelines for environmental damage evaluation, and other items to be regulated.

Based on Government Regulation No. 27/1999 regarding Environmental Impact Analysis, a reconstruction process that alters the environment and exploits natural resources is obligated to submit an Environmental Impact Analysis document. This obligation was established in order to anticipate significant impacts on the environment. If the impact falls into the 'insignificant' category, then efforts need to be made to manage

and monitor the environment through the preparation of RKL and RPL, which had equal importance with the other construction planning documents.

The main environmental activity in infrastructure was the preparation of Environmental Impact Analysis documents for packages, especially the big ones such as construction of ports, airports, construction of roads and big drainage. This document was accompanied by a land acquisition document called the Land Acquisition and Relocation Action Plan (LARAP). As part of the planning-phase documents, then two documents had to be readied before the job could be tendered.

Actually, these two important documents had the potential to slow down the process of reconstruction because their preparation took a long time and required approval from the Regional Environmental Impact Management Agency and donors. For reconstructions funded by the State Budget, though the environmental impact analysis was important, BRR took steps to continue reconstruction but with the environmental impact analysis conducted simultaneously with the reconstruction process and applied through the mechanism of design review.

For projects lagging behind, or for already completed reconstruction projects, environmental procedures were performed by preparing environmental management and monitoring documents for one area or cluster. This procedure was an exemption granted by the State Ministry for the Environment for infrastructure that had already built, for all the impacts needed to be monitored through collated environmental baseline studies (physical, biological, social, economical, cultural) and an estimate made of the accumulated burden of negative impacts, for instance what water pollution, air and noise pollution, potential conflict with animals, forest damage, and other reconstruction impacts there were in an area.

Generally, the recommendations issued were similar to that of an Environmental Impact Analysis document, addressing the mitigation of environmental impacts or environmental preservation. Negative impacts are handled by all related sectors within a region in an integrated manner. Such integrated handling of negative impacts has the potential to reduce the time expended as well as the cost that must be borne by each sector.

For works funded by donors, environmental procedures could not be eliminated or skipped over. All infrastructures constructed had to be accompanied by Environmental Impact Analysis documents or RKL/RPL, while for works needing land, a LARAP had to be prepared beforehand. The World Bank and ADB were sticklers regarding these procedures, which were part of the project approval or no objection letter (NOL) process.

These two donors did provide flexibility in allowing the tenders to be performed prior to the environmental impact analysis approval, but the environmental impact analysis had to be done before the contract could be signed. The LARAP approval process was almost identical, except that ADB, besides stipulating that the value of the land replacement had to be acceptable to the residents, also stipulated that the residents'

living costs had to be covered as compensation for the impact if the land owners had carried out economic activities such as food stalls, fish ponds or agriculture. This was a very unusual procedure which the government budget system could not accommodate.

Consequently the reconstruction the process in the Ulee Lheue area progressed slowly as construction could only take place if the LARAP contained funding to cover the disturbed landowners' economic activities on the land being acquired. However, experiences with other donors such as JBIC and AFD differed, in that there was quite a lengthy preparation process making it possible to draw up the RKL/RPL and LARAP documents before the tender process took place.

For rehabilitation activities, the Ministry of the Environment recommended where the environmental impact would be small or acceptable, it would be sufficient to have an SOP available. The Minister recommended that signs and markers be provided and infrastructure for water storage and waste storage pools be added. This was particularly important for base camps since the waste produced by construction or construction workers was considerable.

The largest environmental impact analysis studies were the ones conducted for the construction of the Banda Aceh-Calang road, infrastructure projects funded by MDF such as the drainage of Lhokseumawe, the ports of Calang, Malahayati, Lhokseumawe and Langsa, and the ADB-funded construction of the road around Ulee Lheue. ■

Table 6.1. The Summary of Program Achievements.

No.	Program/Activities	Unit	Target as Presidential Regulation 47/2008	Achievement	% Achievement
1	Sea Port	Unit	16	15	94%
2	Ferry Port	Unit	8	8	100%
3	Airport	Unit	9	9	100%
4	Airstrip	Unit	3	3	100%
5	Helipad	Unit	1	1	100%
6	Nationa Road	Km	933	694.80	74%
7	Provincial Road	Km	782	584.32	74%
8	District Road of Aceh and Nias	Km	3.511	2,417.25	69%
9	Bus Terminal and Damri Public Bus	Unit	16	15	94%
10	Supporting Bus	Unit	56	68	121%
11	Meteorology and Geophysics	Unit	8	9	113%
12	Post Office	Unit	23	22	96%
13	EWS-Early Warning System	Package	1	1	100%
14	Diesel Power Generator	Package	13	12	92%
15	State Electricity Company Office	Package	1	1	100%
16	Peusangan Water Power Plant	Unit	84	84	100%
17	Micro Hydro Power Plant	Unit	8	8	100%
18	Solar Power Plant	Unit	4,084	4,127	101%
19	Transmission Line	Km	930	935	101%
20	Distribution Line	Km	1.271	1.392	109%
21	Household Electricity Line	Unit	122,000	122,000	100%
22	Electricity Distribution Point	Unit	597	669	112%
23	Central Electricity Plant	Unit	1	1	100%
24	Gas Station	Unit	1	1	100%
25	Irrigation	ha	121,884	124,590	102%
26	Flood Control	m'	98,765	152,902	155%
27	Coastal Protection	m'	72,454	108,694	150%
28	Water	Lt/s	1,430	2,843	199%
29	Waste Management	Unit	6	6	100%
30	Waste Dump Area	Unit	7	13	186%
31	Drainage	m'	200,000	600,467	300%
32	Disaster Mitigation Center	Unit	1	1	100%
33	Escape Building	Unit	5	8	160%
34	Tsunami Museum	Unit	1	1	100%

In the 2005 blueprint and / or Government Regulation No. 47/2008, there were 73 activity programs for the 2005-2009 program. Looking at achievements for 2005-2008, most of the activity programs had been accomplished, save for a few national and province-level road projects, as well as IREP technical assistance (TA) that, being a multi-year project, would continue until 2009.

The governments of NAD and North Sumatera suggested that the volume of roads in NAD province and Nias district be increased. Projects not completed by the end of 2008 would be completed by the local government in 2009. Thirteen main ports were completed at the end of 2008. And three ports presently in progress will be completed in 2009 under the oversight of the Department of Transportation.



Lessons Learned and Interesting Cases

Disaster Management Yields a New Culture

IN the history of this country, no agency has ever carried out work the likes of that shouldered by BRR. This government-formed agency had the extraordinary task of leading the rehabilitation and reconstruction process for a NAD and Nias that had been totally destroyed by the earthquake and sweeping tsunami waves.

With such a heavy task to bear, the agency had to initiate good collaborative working relationships with bureaucrats, the private sector and NGOs. Internally, the agency also had to manage its team so that it could work solidly and manage what funds there were, enabling all works to be carried out in accordance with the established blueprint—although this blueprint could not be used as a full reference point, as every disaster area differed in character according to the impact of the disaster.

However, one item is universal: any management program must begin with the understanding that disasters are unplanned, and that man must prepare himself in case a disaster hits. That became BRR's philosophy in carrying out its tasks. BRR not only constructed buildings, roads and bridges, BRR attempted to ensure that the outputs of the rehabilitation and reconstruction process gave rise to a new culture. The development model used by BRR could provide guidance for local government construction.

*Since the completion of the construction of a bridge by ADB in the village Tongkol, Ulee Lheue, Banda Aceh, the community no longer experience congestion on the roads, July 13, 2008.
Photo: BRR/Arif Ariadi*

Local government staff and local contractors could learn from BRR's activities by diving in and actively participating in the rehabilitation and reconstruction process, whereas local governments could improve their capacity for regional development.

Now that the rehabilitation and reconstruction process is over, the government has a responsibility to implement a structured and institutionalized maintenance program. The great increase in infrastructure yielded a big jump in assets for local governments, at the same time creating a burden of maintenance. Without proper maintenance, it is likely that the lifespan of these assets will be short, giving rise to new problems.

The community itself must be helped to understand and trained in the use of the assets that have been constructed. It is sufficient to use simple methods, such as not throwing garbage in gutters and avoiding the improper use of roadsides.

For other assets such as electrical and clean water connections, the community must also be made aware of their need to pay set electrical, water and even garbage fees. This is obviously something new for them as previously, they did not have these types of facilities, which were constructed during the reconstruction. Society must reverse its way of thinking: Facilities are not free. This can change the culture and ways of thinking for the better.

*Working on a clean-water pipe line near Kahju, Aceh Besar, October 24, 2008.
Photo: BRR/Arif Ariadi*



The provision of public facilities is the responsibility of the government, but to ensure the continuation of these facilities, funds must be expended for operations, maintenance and development. On the other hand, the government should provide optimal public service. This new attitude must be cultivated from generation to generation until it becomes a habit and eventually forms a new culture.

Affirmative Action on Behalf of Local Businessmen

Members of the national legislature from Aceh's electoral regions paid great attention to the participation of Aceh businessmen in rehabilitation and reconstruction activities. The Acehese businessmen were still in a greatly weakened state as they had not yet recovered from losing their assets, human resources, financial capability and administrative documents. In a practical sense they could not do much when BRR began working in May 2005.

But what is meant by Acehese businessmen? First of course, Acehese who were domiciled and were active in Aceh. Then Acehese who were domiciled outside of Aceh and then came to Aceh to do business. There were those who wished to start doing business by borrowing a company whether from inside Aceh or outside of it. Lastly, any Acehese who functioned as an intermediary or agent supporting businessmen from either outside or inside Aceh itself.

In the first year, as the rehabilitation program began, the Issuance of Spending Authority approved in July 2005 for the infrastructure sector was still small, around Rp. 1.24 billion. At that time as well, BRR was not yet at full capacity, and design and tender documents were not yet available. Nor was information on real field conditions available yet.

As the tenders started, BRR was asked to conduct affirmative action in favor of Acehese businessmen. The fact was, as the tenders progressed, not many outside businessmen dared to enter Aceh in the first year. Nearly all construction activity was undertaken by local Acehese businessmen, including State-Owned Enterprises (SOE) present in Aceh. In the second year, small-scale businessmen began to emerge who tried to enter the big business of rehabilitation and reconstruction. But they did not own companies that were appropriate, and they then borrowed big companies from outside of Aceh to participate in tenders.

From the evaluation results of the Acehese businessmen over the first three years, in terms of the number of packages, around 80 to 88 percent fell into the hands of local businessmen as defined above. In the second year, this amount ranged from 70 to 74 percent of the total value of the first two years. The remaining construction activity was conducted by outside businessmen, who had no connection to Aceh either in terms of origin or an emotional connection.

It was probable that the majority of Acehnese businessmen were indeed already capable of competing with outside businessmen. Fair competition in fact opens up more opportunities for local businessmen due to considerations of location, grasp of the area, and grasp of resources.

In any case, with or without affirmative action, the majority of construction activity would have fallen to Acehnese businessman under the above definitions. With the results of the first three years, and the increasing strength of Acehnese businessmen in reconstruction activities, issues regarding local participation, including issues of local workers, no longer posed a problem.

Consistency with Contract Regulations

In the second half of reconstruction activity, the large number of contractors involved in construction generated problems. Many times when tenders were held, the bid bond documents were found to be invalid, either during the tender process, or during the construction phase.

The next problem were those contractors who were not capable of finishing activities on time as scheduled in the contract, or had quality problems, resigned or failed to carry out their contracts. In the first phase, 58 contractors entered the blacklist. In the second phase, 46 contractors were placed on the blacklist. At the end, 24 additional companies were added for a total of 129 companies. As many as 18 of these contractors were involved in infrastructure activities.

BRR was a stickler for applying standards of quality, collateral and timeliness. As a result, it was not unusual that a contractor's collateral had to be liquidated or a big portion of the collateral's value had to be replaced. This was true due to contractor's failure to finish its tasks, whether the firm was a State-Owned Enterprise or a purely private party. This was consistent with the clauses of the contracts, and could pose an effective punishment, or as a valuable lesson for other contractors.

Prioritizing Gender Programs

Besides safeguarding the clean water source of Pria Laot River, one of the focuses of rehabilitation and reconstruction activities in Sabang city was the provision of domestic facilities for local women, in the form of a building where they could do their washing. This program paid attention to the women in Sabang city. In BRR's view, women were the social group most directly impacted by the tsunami and earthquake.

Initially, the BRR program only covered the construction of a water treatment plant (WTP) on the edge of the Pria Laot River, starting at its source and continuing almost to the end of the river. However, it appeared that the location of the water supply for the



plant, especially at the source, was used by local residents, particularly women, to bathe and launder clothing. They took advantage of the clarity and freshness of the Pria Laot River there because the river water downstream was somewhat brackish as a result of seawater.

To maintain the stability of the rate of water supply at 40 liters/second along with its cleanliness, washing activities ought to have been moved further downstream or at any rate be done at a place after the point of water intake. If not, in the long run this could create problems in the form of water supply disturbances and a drop in the water quality. If a laundry/washing area were not built, the local residents would move their activities from the plant intake towards the source of the river, creating a problem for the Pria Laot plant. These washing activities could pollute the water supply that the water treatment plant processed.

Meanwhile the pre-formed habits of the women, which could not just be easily set aside, continued. In the end, middle ground was found by making a special, permanent washing area from cement, which was placed on the edge of the river close to the location of the Pria Laot water supply plant. This washing area, equipped with water taps, was simple in design in accordance with the women's daily washing habits.

A development project for the construction of a terminal type B in Takengon, Central Aceh. This construction process experienced some delays. The photo was taken on December 23, 2008. Photo: BRR/Arif Ariadi

It turned out that this laundry/washing place was able to solve the problem at what turned out to be a very low cost, thus safeguarding the Pria Laot water plant supply, while the community was able to continue their washing activities at the river in a better location and with sufficient water supply.

Such were the fruits of collaboration in which both parties understood the goal of development; local residents benefited as their needs were fulfilled and appreciation was simultaneously shown for the women.

The Jantho-Keumala Route Cuts Through a Forest Preserve

The Jantho Kemala route is the middle segment of the central passageway across Banda Aceh that runs from Seulimun, Jantho, Keumala, and Geumpang to Takengon. The construction of the Jantho Kemala route was meant to shorten the distance between Banda Aceh and Takengon. This segment counted as a national road, and part of this segment had previously been handled by the Department of Public Works through the Office of Public Works in Aceh. Because it crossed a protected forest of pine, which was considered to be a rare species, in 1992 the Ministry of Forestry stopped the work until an environmental impact analysis study was prepared.

With the completion of the environmental impact analysis study in 1993, construction continued. The results of that construction activity could be seen from the marks of road construction on the ground. In 1998, the construction work again ground to a halt with the shooting of an employee of Pembangunan Perumahan Ltd. during the conflict period.

BRR's aim was to build as planned and fulfill the needs of the community and so that Jantho would not just become a destination point but also a transit point, which would buoy the city's economy. In addition, this road activity was already present in the blueprint. Unfortunately this decision to add this program was made without the knowledge the Ministry of Forestry, which had once commanded a halt to the work there.

Just as construction began, in January 2006, the Natural Resource Conservation Center (*Balai Konservasi Sumber Daya Alam*, BKSDA), along with the forestry police, called a stop to this work. The Natural Resource Conservation Center reported all levels of BRR to the police, starting from the Director of Transport, the Head of the Construction Project Implementing Units, and the Head of the Supervisory Project Implementing Units, to consultants and contractors, on the assumption that they had violated the law.

The Natural Resource Conservation Center believed that BRR had violated the law by entering a protected forest area and carrying out construction.

When BRR was informed that it had entered a protected forest area, BRR unilaterally pulled out of all of its construction activities there and moved on to another segment. This goodwill gesture, however, was taken as an admission of guilt. Eventually the court decided that the BRR staff was in the wrong.

This Jantho Kemala road project case yielded a valuable lesson. First, suggestions for programs, even those with a humanitarian aim, must go through set procedures and information must be fully disclosed. Before a suggestion is accepted, a careful background evaluation must be carried out and conditions must be fulfilled.

Rehabilitation and Reconstruction of the Lamno-Calang Road

The Lamno-Calang road was a passageway that had been destroyed by the tsunami. Its mud-mired condition could bog down vehicles for three to four days. To support rehabilitation and reconstruction activities, the road needed to be repaired. In this way, logistical support for both construction as well as community needs could be fulfilled.

Only rehabilitation programs were assigned to this segment, in the form of raising the road, macadamizing, and the building of channels. No asphaltting took place because this route was to be replaced by a new route funded by USAID.

Given that conditions were urgent and that Ramadan and Lebaran (fasting and holiday periods) were approaching, planning for volume needs was done quickly. A contractor was directly appointed to carry it out. All these processes went forward under the authority of the Office of Regional Facilities because the Department of Public Works was in charge of funding and of appointing the Project Implementing Units.

Weekly maintenance was necessary for the output of this road rehabilitation, due to the wear-and-tear of water and vehicles. Similarly, the bridge floors had to be replaced monthly because of damage from heavy vehicles. A year after the construction took place, a technical audit was carried out and it was found that there were certain thicknesses, which were not in accordance with conditions at the time that construction was finished.

Besides the thickness, the difference in unit prices between initial calculations and realities in the field was also raised. Initially it had been calculated that the material had to be sent over a long distance along existing transportation routes. Then the contractor, because of time concerns, built a new road for vehicles and a temporary bridge along the river.

The investigation by the BRR Anti-Corruption Unit resulted in findings that required the state losses to be given back. These different evaluations took place at two different times with the road being in two very different states or conditions. Upon seeing the initial

condition of the heavily damaged road, the psychological evaluation differed greatly from that of the evaluation done a year later at the time that the macadamized road was audited.

Convincing the investigators that the contractors' suggested unit prices was something that could not be re-evaluated was quite difficult. This attempt at cost measurement was similar to attempting an evaluation of material and labor unit prices at the time of the tsunami, when materials and everything else became expensive, and then auditing the results at a time when the social situation was re-approaching normal.

No mark up or fraud had taken place. The different times, situations and psychological states of the work and area evaluated had painted the executors into a corner. This subsequently posed the lesson that recovery actions must be done very carefully, otherwise it can result in legal charges and accusations of creating state losses.

The Emergence of the Water Supply Meeting Group

After the tsunami, many parties, donors as well as NGOs, came to assist the recovery process. During that period, the need for drinking water and shelter was extremely vital. Problematic aspects included the location of services, technical difficulties, the provision of drinking water and shelter, management, and difficulties of implementation and permissions. All parties faced multiple problems without knowing who to contact about them.

At UNICEF's initiative in February 2005, meetings were held to discuss and share all these problems and find an answer to the issues of drinking water and housing areas, and to communicate to the government the problems to which a solution needed to be found. UNICEF made two meetings routine, one termed the 'water supply meeting group' and the other the 'housing meeting group.'

These meetings comprised a coordination forum where problems could be solved, and tasks and service regions divided up. Because dependence on the government was very high, the head of the forum was appointed from the local government, in this case the Head of the Office for Housing and Settlement and the UNICEF secretary. Following its May 2005 entrance into Aceh, BRR was also involved in leading these meeting groups.

Problem-solving, from the initial phase to December 2005, generally revolved around supply problems to the evacuation barracks and the distribution of drinking water. Starting January 2006, discussions moved towards the large scale provision of drinking water and how to provide drinking water for the long run.

NGOs, grant consultants and BRR collaborated to provide all the designs needed. Such coordination included handling issues of permissions, funding, land acquisition and concept notes for larger funding proposals to the donors.



A considerable number of problems were solved through this forum. One of them was the problem of drinking water distribution, through the development of clean water pipes funded by JICS working together with the Swedish government. Thereafter, assistance from Kuwait Red Cross was used to distill clean ready-to-drink water from seawater and distribute it, beginning in April 2005. This installation greatly helped supply clean water to the evacuation barracks.

After conditions normalized, in March 2006, the operations of this fresh water plant was transferred to the local government. BRR supported to fund it until July 2007. This was an example of a grant, which at the moment of crisis was extremely useful and even could and should be utilized further afterward.

*A sign insisting on the settlement of reclaimed community land on the side of the road at Teunom, Aceh Jaya, March 6, 2008.
Photo: BRR/Arif Ariadi*

The Wearing Process of Land Acquisition

Land acquisition posed a big problem in the reconstruction process of Aceh. This was the responsibility of the Aceh government and district/city government. There were two land acquisition cases which were particularly large and difficult, namely the Ulee Lheue road network funded by an ADB grant and the Banda Aceh-Calang road funded by a USAID grant.

ADB wanted the land acquisition not only to compensate the landowners for the land but also to provide three months of their minimum living costs if economic activities had taken place on those plots. In addition, the prices used had to be market prices and the buildings valued without taking depreciation into account despite the buildings' considerable age.

The problem was, Indonesian land acquisition regulations did not recognize this procedure. Another problem also emerged when landowners could not be found as many had died as a result of the tsunami. The land acquisition process was subsequently carried out by placing compensation funds with the Baitul Mal (Islamic Treasury Institution) of Banda Aceh. If the owner or family of the owner appeared, the Baitul Mal would process the compensation.

Donor approval of the land acquisition process was based on the Land Acquisition and Resettlement Action Plan (LARAP) document. Its contents covered land acquisition plans, the land value, and included compensation costs for the economic activities of the affected landowners. The donors would not agree to continue with the tender process or construction until the LARAP document was clear on the acquisition of land.

With regard to the land acquisition of the Banda Aceh-Calang road, the initial process of acquisition was the fastest that ever took place, starting from negotiations to payment. The problem was that the amount of land acquired was very large, nearly 150 kilometers, and the committee members greatly lacked capacity.

In contrast with general land acquisition processes, payment was made directly into the accounts of the landowners. The problems that emerged were generally classic ones: multiple ownership, arguments between landowners with blood-ties, prices which fell short of expectations despite having been approved by the mass community, and the areal measurement's inaccuracy.

The result was that the usage of many plots which had already been acquired and handed over to the contractors turned out to be obstructed in the field. Construction activities were forced to a halt and slowed as a whole. Claims stemming from inactive equipment inflated construction costs, whereas construction funds as a whole did not increase. Construction management costs and supervisory consultant costs were similarly impacted, increasing as time dragged on. To overcome this, construction targets were sacrificed by reducing the target length.

The construction of a road near the city of Meulaboh, which had not been included anyway in the construction contract due to limited funds and land acquisition issues that were feared might end similarly to Aceh Besar and Aceh Jaya, had to be postponed for this reason.

Up to the end of BRR's work period, the local government was unable to finish the acquisition of land. The Aceh government then had to take over the funding and handle

the acquisition process itself. Actually all parties were cognizant that with the greatest loss caused by the slowness of the construction process was to the people and government of Aceh themselves. The development targets which they should actually have undertaken themselves were borne by donor parties but could not be finished on time because of land acquisition facilitation problems.

Used Containers for the Harbor

This idea was suggested by John Brady, a retired colonel and BRR logistics expert, at the beginning of the rehabilitation. Taking the transportation problems stemming from the destroyed land transportation networks such as roads, a solution was sought. This was to build as many ports as possible along the West Coast of Aceh.

The use of air transport at that time was not recommended because of its extremely high cost. The use of harbor piers not recommended either because after reaching the harbor the next difficulty would be the transport of materials to the construction area.

A solution was found using old containers as a pier. These containers were placed at the location at sufficient depth, then filled with sand to weigh them down and on top of them, concrete was poured for a thickness of 20 centimeters. The advantage of using containers was that the construction process progressed more swiftly at a lower cost, and they could be used for at least two years.

This type of pier was placed around Calang along the western coast and the island of Aceh. This system solved the logistical problems of the moment as landing craft tanks (LCT) could anchor there and immediately deliver close to the construction area.

A Program Drawing on Local Resources to Create Roadwork Employment

The road network was the sector most affected by the tsunami, thus necessitating enormous repairs throughout NAD and Nias. Meanwhile, many district-level roads were also in extremely poor condition. This was due to the fact that road maintenance at the district and sub-district levels had been lacking in extreme over the previous decade.

BRR could not handle all the road damage at the district level. Meanwhile, to rehabilitate the whole road network at the local level, large numbers of engineers, competent technicians and contractors were needed.

As these became available, the opportunity to build a road network emerged, along with the opportunity to develop local community capacities and further involve the local community. Of course, the local resource approach of this program directly created employment opportunities for the local community.



UNDP/ILO's approach to local community needs proved that this economic and technical approach could work quite well. A public works project was subsequently planned at the district level using small-scale contractors. This was planned in order for the investment in road repairs to generate optimal work opportunities.

Initially, project implementation was focused on the districts of Pidie, Bireuen, Nias and South Nias. Thereafter three districts joined this program, namely the districts of Aceh Jaya, West Aceh and Nagan Raya, for the irrigation program as requested by BRR.

The goal was none other than to empower district government and small-scale local contractors to work on local resource-based road projects. UNDP/ILO also then provided techniques, standards, systems and strategies, as well as directly involving the local community, particularly when it came to village road projects.

In the beginning, an agreement was made with the government of Pidie district. Thereafter the same memorandum was drawn up with other districts such as Bireuen. This agreement covered the provision of a training unit by the Ministry of Settlement and Regional Infrastructure (*Pemukiman dan Prasarana Wilayah*, Kimpraswil), and a scheme by the district government to fund the project for a length of 10 kilometers. The government also committed to fund the maintenance of road projects that were constructed through this program and was willing to allocate funds for training unit activities conducted by Kimpraswil.

This program was then carried out in two phases. The first phase started in March 2006 and ended in September 2008 with extremely satisfactory achievement. In that first phase, the construction of 97.39 kilometers of road network was completed involving 38 local technicians and 77 supervisors of contractors who were trained using the abovementioned local resource approach. This phase also successfully involved 71 managers who were trained using the same approach. In fact, among the 71 managers, one woman was also involved.

Meanwhile, at the local government (district) level, 67 technicians and supervisors attended ILO training. They had all been involved in the tender process. They also attended training for management contracts and the supervision of construction.

Subsequently they had additional, more specific training in the area of laboratory equipment, the planning of integrated villages, and emulsion-based techniques of layering roads. In this first phase, on average more than three bids were put forth by local contractors throughout a total of 85 tenders in five districts. Over the total rehabilitation activities and maintenance works, 218,636 total working days were achieved, averaging 73.1 percent male and 26.9 percent female participation.

The execution of this first phase was followed by evaluation, among others of the still limited participation of women, particularly in the training activities for Kimpraswil technical staff and contractors. Funding allocations for the maintenance of district and

*Construction of a highway
in the region of Lhokkruet,
Aceh Jaya, March 18, 2006.
Photo: BRR/Arif Ariadi*

village roads was also still low. Besides that, a good general plan for a road network had not been provided at the district level, which resulted in it being difficult for the district government to allocate funds for rehabilitation and the efficient maintenance of roads. There was also insufficient planning for the continuation of training activities after the end of the project.

Meanwhile, UNDP/ILO also realized that road maintenance was an important factor in safeguarding their investment. Sadly, there was no simple solution to this problem, although in actuality the technical challenge of executing such maintenance was relatively easy.

To handle this, during the February-March and October 2008 period, a review of village road maintenance was held. This review primarily focused on budget issues, road conditions, construction designs and standards of roads built by Kecamatan Development Program (KDP) and Kimpraswil in the area of the Bireuen, Aceh Besar and Pidie districts.

An example of the recommendations for Kimpraswil was to add routine maintenance to the planning and implementation for district and village roads. Kimpraswil was also expected to request an increased budget from the district legislature to cover such maintenance.

Meanwhile in KDP's case, because funds were not allocated for maintenance, it was hoped that the community would build a road requiring minimum maintenance. It was also best that the community was equipped with the technical abilities to maintain the road, the knowledge of how to fund it, and the capability to manage it.

Execution of phase II began in December 2008 until December 2009 (to be continued by the Department of Public Works or the MDF). Its programs focused more on the training activities held by Kimpraswil in two districts in the Province of NAD. This training was also geared more towards women's groups, particularly with regard to routine maintenance work and construction skills.

Thereafter the NAD Provincial Kimpraswil in the two districts focused on allocating a budget for the rehabilitation and maintenance of roads, still through a local resource approach. Phase II also focused more on how to collaborate with KDP within this system of community resource-based programs, especially for village roads and the rehabilitation of hanging bridges in Nias.

The program approval process for phase II used up more time than was estimated. Initially the approval process for these MDF and Indonesian government programs had been issued in July 2008, followed by an 18-month execution process. Unfortunately, the program that the ILO was going to work on was only approved in October 2008, while the end date of the program did not change. The work fell behind primarily because of the budget scheduling process and the time needed to compose the activities. A budget of US\$5.38 million was approved by the Indonesian government. With these additional



funds, the total funds stood at US\$11.8 million. As of the end of BRR's work period, 15.27 kilometers of road network that had been tendered in the second phase had not yet been completed.

*Surveying a road in the region of Arongan, West Aceh, March 6, 2006.
Photo: BRR/Arif Ariadi*

Leaders Getting Personally Involved

The acquisition of land for harbors, airports, roads, terminals and for other public infrastructure was often problematic despite involving relatively little land. As a result, projects could be delayed and even cancelled. NAD Governor Irwandi Yusuf and the Vice Mayor of Banda Aceh were examples of public officials who were greatly concerned about this issue and often lent a hand to help resolve the matter.

Cases where the Governor personally involved himself to help the community understand occurred among others in the case of land acquisition for the SIM Airport and land acquisition in Gampong Leupeung (for the Banda Aceh—Meulaboh road), as well as in the case of land acquisition compensation for Ulee Lheue.

Besides land problems, the governor also frequently helped to deal with the illegal taxation of contractors in the field. The governor was a veterinarian who had once worked



The activities at the Center for Program Control and Regional Projects (P4W) at the office of BRR Aceh-Nias, Banda Aceh, December 16, 2008.
 Photo: BRR/Arif Ariadi

at Fauna Flora International (FFI). Consequently it made sense that he was very concerned about environmental issues, such as human conflict, with animals and illegal logging.

In the area of disaster risk reduction, the Governor and Vice Governor of NAD presented the proposals themselves to get funding support from the MDF. On top of providing funds for land acquisition and co-funding for activities connected with raising community awareness regarding disaster preparation, this presentation was proof of the NAD government's commitment towards the implementation of disaster reduction policies.

The Mayor and Vice Mayor of Banda Aceh also actively participated in events regarding the implementation of disaster risk reduction policies funded by BRR NAD-Nias State Funds as well as by donors. These activities included the spatial restructuring of the area, sanitation mapping and training to avoid tsunami disasters.

These were examples of local government support from the governor, vice mayor, and district heads, in the form of problem-solving assistance associated with rehabilitation and reconstruction programs. All parties realized that this was not BRR's task alone but also the regional leaders'. Such methods of direct intervention quickly solved problems and also showed support for BRR.

Communication and Delegation Expediting the Reconstruction Process

Many parties believed that the people in BRR had above average abilities. Many also believed the BRR staff would be able to finish the implementation of programs whether they were conducted by BRR alone or those done in coordination with donors and NGOs.

There was actually nothing new about the system that was being used. Everything had already been set out in government regulations; construction management references; and ministerial/institutional technical documents, such as the Presidential Decree No. 80; as well as State Funds Regulations; tender documents and specifications; and construction implementation guidelines.

All of this was due simply due to communicative decision-making. It was as simple as that; allowing all parties at BRR to move quickly. BRR's decision-making process was very quick. Deputy meetings typically became a place for debate, but were also a place for decision-making. Debates took place to check for regulatory compliance and to measure the risk of a decision. Many decisions were made orally, then documented in a letter of decision.

Often Head of BRR Executing Agency, Kuntoro Mangkusubroto, made room for subordinates to give their opinions or disagree with his decisions instead of making them passively accept whatever he said. Kuntoro was not offended when he was contradicted, but used debate as a tool to test a decision.

Communication between leaders, whether bottom-up or top-down, flowed unimpeded. The deputies could communicate with the heads of agencies at any time, as could subordinates with the deputies.

Another method was to give full authority to subordinates to determine themselves how a problem should be handled, based on the belief that the subordinates would make the right decisions and that there was nothing wrong with delegating authority so that the subordinates would have the courage to make decisions. They were not weighed down by political issues. The interests of the community were placed above all.

Subsequently, external factors also supported speeding up the reconstruction. The ease of approval from the national legislature (DPR), supportive regulations on funding from the Department of Finance, the authorization for multi-year permissions given to heads of agencies, the permission to carry over budget funds to another year, the establishment of a trust-fund for activities which had not yet been disbursed, the delegation to a lower level of permission to revise the budget funds (Issuance of Spending Authority), as well as skilful communication with ministerial departments/institutions and local government in solving problems, were all important factors in expediting the reconstruction.



The Construction Supervision Team as Management's Right Hand

As BRR's targets for speeding up the construction process continued to be raised, BRR management created a new unit, the Center of Regional Program and Project Control (*Pusat Pengendalian Program dan Proyek Wilayah, P4W*) for activities controlled by the region, and Center for Sectoral Program and Project Control (*Pusat Pengendalian Program dan Proyek Sektoral, P4S*) for activities controlled by the Deputies.

As explained previously, these units, which initially supervised the construction progress, were then entrusted to hasten the process starting from program approval, Issuance of Spending Authority approval, and the execution of construction. The authority of this unit was very great, and as a result tasks which were previously overseen by the Deputy for Finance and Planning as well as the control of projects under sectoral deputies unwittingly shifted to the control of the P4W/P4S team.

This team had the ability to present the progress at each level starting from the progress of each package, followed by the consolidated progress of each sector whether regional or sectoral, up to a consolidated one-page report on the progress of the entire BRR.

Such supervision was greatly beneficial for the needs of the BRR management, as they could know in just a few pages of information how much progress had been achieved over a set time, and thus take steps to expedite it. This was termed 'dashboard' monitoring.

The ability of BRR to integrate it with information on the payment of Payment Order Letters (SPM) at the Special Office for State Services and Treasury (*Kantor Pelayanan dan Perbendaharaan Negara Khusus, KPPN-Khusus*, which had been formed to service reconstruction process payments), and then to present it in on real-time television, kept everyone constantly aware of what progress had been achieved.

P4W/P4S was given freedom to directly explain the reasons for each party's delays and what ought to be done, as well as dispute the explanations of other parties. P4W/P4S was brought to meetings where they openly explained the progress of all deputy and regional offices, and at the same time opened up the floor to debate.

It was very rare in a management meeting of government institutions that the members of the management were free to debate. From such open debate, emerged solutions and technical steps to be taken. The process of quick-decision making through the process of debate provided certainty for BRR to take steps and act.

Interestingly, these fierce debates during meetings did not spill out of the meeting room into personal conflicts. Everyone realized that P4W/P4S's directness in bringing up the sectoral and regional slowness was aimed at achieving BRR's targets. If this model was socialized across all ministries/government institutions, it is very possible that the

The Head of BRR Executing Agency, Kuntoro Mangkusubroto, the deputy of operations, Eddy Purwanto, and the deputy of infrastructure, Bastian Sihombing, visit a road project in Lhokkruet, Aceh Besar, June 12, 2008. Photo: BRR/Arif Ariadi

bureaucratic atmosphere would change from a slow and procedure-based one to an atmosphere of simplicity and directness, yielding results that could be shortly enjoyed by the community at large.

How did P4W/P4S process the data for the 'dashboard'? In fact its system was not too different from that generally used by government institutions, starting from detailed fundamental data which is then consolidated up to the highest level; pages and pages of data merging into one page and finally just one figure.

A large labor force was needed to be sure, drawing on deputy and regional office resources. At the beginning the system was not integrated system but by the end, BRR's services were systematized and integrated. A process that through hard work, conflict, difficulties, and complications, produced a system that could stand as an example to local government. The governments of Aceh and of Papua were very interested in this model and wanted to adopt it.

Quality Assurance Units Facilitating Technical Control

The plan to implement quality assurance was present from the beginning of BRR's existence. The implementation policy of this 2005 program was turned over to ministerial departments/institutions and the local government, raising the question, what as to what mechanisms BRR used as controls.

In answer, a 'no objection letter' (NOL) mechanism was used at each step. But this NOL mechanism then became a boomerang for BRR itself as there were many NOL requests, for approval of tender results, payment approvals, and handover approvals. Such a mechanism could have turned BRR into an audit agency concentrating on handling mainly administrative matters.

The second question was whether BRR was capable of issuing a NOL quickly in accordance with the correct procedures. The answer to this was that BRR would become a bottleneck for the construction process.

With these considerations in mind, in the end BRR released the entire payment process to the Project Implementing Unit heads and the Contract Preparation Officers without a NOL mechanism. BRR instead used a quality assurance (QA) mechanism, carrying out random periodic checks. The QA team re-checked the veracity of the evaluation process carried out by supervisory consultants (quality control, QC).

The first QA team was funded by a grant from the Australian government. Cardno-Acil Pty Australia was chosen to provide technical assistance for procurement and quality assurance management (PQAM), introducing a new system to state institutions. Quality assurance is a common mechanism in the industrial world, for instance in factories, but is atypical of government institutions.

BRR began this system with the aim of verifying that Project Implementing Units, Contract Preparation Officers, and the supervisory consultants had acted correctly. Unfortunately the PQAM consultants could not match the speed of the construction, so BRR did not always receive data on the most recent progress. There was always a two-week to one-month lag in the project data sent to BRR.

To strengthen *the* PQAM, additional help was recruited through a self-managed mechanism from universities, including ITB and Unsyiah, so as to speed up the flow of project information to BRR. In this way the QA team findings could provide guidelines for technical action towards Project Implementing Units and Contract Preparation Officers. It was felt that this mechanism was of great help and so the infrastructure team always tried to strengthen the presence of quality assurance. The infrastructure team's emphasis on quality was demonstrated by its providing the quality assurance team with transportation facilities and complete laboratory equipment in its building, located at the Office of Regional Facilities.

The QA team was then made independent of the infrastructure team, and eventually moved under the Deputy for Operations so that the QA process could be carried out for all sectors in BRR which thus far had a tendency to carry out physical audits only, but now began to audit all non-physical activities as well. The organization was duly transformed into the Center of Construction Quality Control (*Pusat Pengendalian Mutu Konstruksi*, PPMK).

To create or strengthen QA units in government institutions is a very important program which helps government management. For institutions which already possess a laboratory, this can help the institution to carry out a periodic and structured QA program by simply adding some employees and covering the cost of field visits. Creating similar institutions outside of the technical offices would improve the government's ability to conduct quality control or even to become a sparring partner for technical agencies, which in turn raises the accountability and integrity of the team. ■

Glossary of Abbreviation

Abbreviation	Indonesian	English
AATO	Rata-rata Jumlah Siklus Tahunan	Average Annual Turn Over
ADB	Bank Pembangunan Asia	Asian Development Bank
AFD	Aliansi Pembangunan Perancis	Aliance France Development (Agence Française de Développement)
AIPRD	Kemitraan Australia-Indonesia untuk Rekonstruksi dan Pembangunan	Australia-Indonesia Partnership for Reconstruction and Development
APBA	Anggaran Pendapatan dan Belanja Aceh/Kabupaten	Aceh Provincial Annual Budget
APBN	Anggaran Pendapatan dan Belanja Negara	Government of Indonesia's National Annual Budget
ATPM	Agen Tunggal Pemegang Merek	Brand holding sole agent
bandara	Bandar udara	Airport
Bappeda	Badan Perencanaan Pembangunan Daerah	Regional Development Planning Agency
Bappenas	Badan Perencanaan Pembangunan Nasional	National Development Planning Agency
BKSDA	Balai Konservasi Sumber Daya Alam	Natural Resources Conservation Center
BPK	Badan Pemeriksa Keuangan	Supreme Audit Agency
BPKP	Badan Pengawasan Keuangan dan Pembangunan	Financial and Development Supervisory Agency
BRR	Badan Rehabilitasi dan Rekonstruksi Wilayah dan Kehidupan Masyarakat Provinsi Nanggroe Aceh Darussalam dan Kepulauan Nias Provinsi Sumatera Utara	Agency for the Rehabilitation and Reconstruction of the Regions and Community of Nanggroe Aceh Darussalam and the Nias Island of the Province of North Sumatra
BUMN	Badan Usaha Milik Negara	National Government-owned State Enterprise
CPU	Unit Pengadaan Barang/Jasa Pusat	Central Procurement Unit
Damri	Djawatan Angkutan Motor Republik Indonesia	Indonesian Motor Vehicle Company
DAS	Daerah Aliran Sungai	River Flow Area
DED	Rancangan Teknis Rinci	Detail Engineering Design
DfID	Department for International Development	Departemen Pembangunan Internasional

Abbreviation	Indonesian	English
DHV	Perusahaan Belanda untuk konsultan dan	International consultancy and engineering group that provides services ad sustainable solutions for various sectors
DIPA	Daftar Isian Pelaksanaan Anggaran	Issuance of Spending Authority
Ditjen	Direktorat Jenderal	Directorate General
ESDM	Energi Sumber Daya Mineral	Energy and Mineral Resource
ETESP	Proyek Sektor Bantuan Darurat Gempa Bumi dan Tsunami yang dibiayai oleh Bank Pembangunan Asia (ADB)	Earthquake and Tsunami Emergency Sector Project funded by Asian Development Bank (ADB)
FAO	Organisasi Pangan Dunia	Food and Agriculture Organisation
FFI	Flora dan Fauna Indonesia	Flora and Fauna Indonesia
FS	Studi Kelayakan	Feasibilities Study
GTZ	Gessellschaft for Technische Zusammenarbeit (Badan Kerjasama Jerman)	Gessellschaft for Technische Zusammenarbeit (German Cooperation Agency)
ICB	Pelelangan Kompetitif Internasional	International Competitive Bidding
IDB	Bank Pembangunan Islam	Islamic Development Bank
ILO	Organisasi Buruh Internasional	International Labour Organization
IOM	Organisasi Internasional untuk Migrasi Penduduk	Internal Organization for Migration
IPA	Instalasi Pengolahan Air	Water Treatment Plant (WTP)
IPLT	Instalasi Pengolah Limbah Tinja	Septage Treatment Plant
IPM	Indeks Pembangunan Manusia	Human Development Index
IRD	International Relief and Development; Nama sebuah LSM	International Relief and Development
IRFF	Sarana Pendanaan Rekonstruksi Prasarana	Infrastructure Reconstruction Financing Facilitiy
IREP	Program Pemampuan Rekonstruksi Prasarana	Infrastructure Reconstruction Enabling Program
JBIC	Bank Jepang untuk Kerjasama Internasional	Japan Bank for International Cooperation
JICA	Badan Kerjasama Internasional Jepang	Japan International Cooperation Agency
JICS	Badan Jepang mengenai Sistem Kerjasama Internasional	Japan International Cooperation System
JTM	jaringan tegangan menengah	medium voltage line
JTR	jaringan tegangan rendah	low voltage line

Abbreviation	Indonesian	English
Kabapel	Kepala Badan Pelaksana	Head of Executing Agency
Kasatker	Kepala Satuan Kerja	Head of Project Implementing Unit
KDP	Proyek Pengembangan Kecamatan	Kecamatan Development Project
Keppres	Keputusan Presiden	Presidential Decree
KKN	Korupsi, Kolusi, dan Nepotisme	Corruption, Collusion, and Nepotism
KOICA	Badan Kerjasama Internasional Korea	Korea International Cooperation Agency
KPPN-K	Kantor Pelayanan dan Perbendaharaan Negara-Khusus	Special Office for State Services and Treasury
Ladia Galaska	Lautan Hindia, Gayo, Alas, dan Selat Malaka	Indian Ocean, Gayo, Alas, and Malacca Strait
LARAP	Rencana Aksi untuk Pembebasan Lahan dan Relokasi Permukiman	Land Acquisition And Resettlement Action Plan
LCT	Kendaraan Tank Pendaratan	Landing Craft Tank
LLAJ	Lalu Lintas Angkutan Jalan	Railroad Traffic
LSM	Lembaga Swadaya Masyarakat	Non-government Organisation (NGO)
MAF	Mission Aviation Fellowship; Nama sebuah LSM	Mission Aviation Fellowship
MCK	(Fasilitas) Mandi, Cuci, Kakus	Shower, Wash, and Toilet Facilities
MDF	Dana Multi-Donor	Multi-Donor Fund
KLH	Kementerian Lingkungan Hidup	Ministry of Environment
Mw	Megawatt	Megawatt
NAD	Provinsi Nanggroe Aceh Darussalam	Nanggroe Aceh Darussalam Province
NCB	Pelelangan Kompetitif Nasional	National Competitive Bidding
NOL	Surat Pernyataan Tidak Berkeberatan	No Objection Letter
P4S	Pusat Pengendalian dan Pelaksanaan Proyek Sektoral	Center of Sectoral Project Controlling and Implementing
P4W	Pusat Pengendalian Program dan Proyek Wilayah	Center of Regional Program and Project Controlling
PBB	Perserikatan Bangsa-Bangsa	United Nations (UN)
PDAM	Perusahaan Daerah Air Minum	Regional Potable Water Company
PDCS	Supervisi Konstruksi Desain Perencanaan	Planning Design Construction Supervision
Pemda	Pemerintah Daerah	Regional Government
PIM	Pupuk Iskandar Muda	Iskandar Muda Fertilizer
PJKA	Perusahaan Jawatan Kereta Api	State Train Company
PLN	Perusahaan Listrik Negara	State Electricity Company
PLTD	Pusat Listrik Tenaga Diesel	Diesel-Powered Plant Center

Abbreviation	Indonesian	English
PLTMH	Pembangkit Listrik Tenaga Mikro Hidro	Micro Hydro-powered Electrical Generator
PLTS	Pembangkit Listrik Tenaga Surya	Solar-powered Electrical Generator
PMU	Unit Manajemen Proyek	Project Management Unit
PNS	Pegawai Negeri Sipil	Civil Servant
Postel	Post dan Telekomunikasi	Post and Telecommunication
PP	Peraturan Pemerintah	Government Regulation
PPK	Pejabat Pembuat Komitmen	Contract Preparation Officer
PPMK	Pusat Pengendalian Mutu Konstruksi (dalam BRR)	Center of Construction Quality Control (within BRR)
PQAM	Nama konsultan di bidang Pengelolaan Pengadaan Jasa dan Penjaminan Mutu	Procurement and Quality Assurance Management
PU	Pekerjaan Umum	Public Works
QA	Jaminan Mutu	Quality Assurance
QC	Pengendalian Mutu	Quality Control
RAB	Rencana Anggaran dan Belanja	Bill of Quantity
ReKompak	Rehabilitasi dan Rekonstruksi Pemukiman Berbasis Komunitas	Community-based Rehabilitation and Reconstruction of Settlements
RKL/RPL	Rencana Pengelolaan Lingkungan	Environment Management Plan
RPL	Rencana Pemantauan Lingkungan	Environmental Monitoring Plan
RM	Rupiah Murni	Pure national budget, excluding foreign loan/grant
Rp	Rupiah	Rupiah (Indonesian currency)
RTRW	Rencana Tata Ruang Wilayah	The Standardized Nomenclature of Spatial Plans in Indonesia
SAK	Satuan Antikorupsi	Anti-corruption Unit
SAR	Mencari dan Menyelamatkan	Search and Resque
Satker	Satuan Kerja	Project Implementing Unit
SDA	Sumber Daya Air	Water Resources
SDM	Sumber Daya Manusia	Human Resources
Sekber	Sekretariat Bersama	Joint Secretariat
SIM	Sultan Iskandar Muda	Sultan Iskandar Muda
SOP	Prosedur Operasi Standar	Standard Operating Procedure
SPM	Sistem Pengendalian Manajemen	Management Control System
SRCC	Palang Merah Singapura	Singapore Red Cross Society
IT	informasi dan Teknologi	Information and Technology
TNI	Tentara Nasional Indonesia	Indonesian National Army

Abbreviation	Indonesian	English
TPA	Tempat Pembuangan Akhir	Final Disposal Area
UNDB	Pengembangan Usaha Perserikatan Bangsa-Bangsa	United Nation Development Business
UNDP	Program Pembangunan Perserikatan Bangsa-Bangsa	United Nations Development Programme
UNEP	Program Lingkungan Perserikatan Bangsa-Bangsa	United Nations Environmental Program
UNHCR	Komisi Tinggi Perserikatan Bangsa-Bangsa untuk Urusan Pengungsi	United Nations High Commission for Refugees
UNICEF	Dana Perserikatan Bangsa-Bangsa untuk urusan Anak-anak	United Nations Children's Fund
UNIFEM	Dana Perserikatan Bangsa-Bangsa untuk Perempuan	United Nations Development Fund for Women
US\$	Dollar Amerika Serikat	American Dollars
USAID	Badan Amerika Serikat untuk Pembangunan Internasional	United States Agency for International Development
VSAT	Stasiun penerima sinyal dari satelit dengan antena penerima berbentuk piringan dengan diameter kurang dari tiga meter	Very Small Aperture Terminal
WB	Bank Dunia	World Bank
WFP	Badan Pangan Dunia	World Food Programme
WTP	Wajar Tanpa Pengecualian	Unqualified Opinion on Financial Report