

Urban Development Series

Rebuilding Lives and Homes in Aceh and Nias, Indonesia

Asian Development Bank



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Rebuilding Lives and Homes in Aceh and Nias, Indonesia

Edited by Florian Steinberg and Pieter Smidt

Asian Development Bank

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Abbreviations

ANSSP	-	Aceh-Nias Settlements Support Programme
ADB	-	Asian Development Bank
ASAAP	-	Aceh Sanitation Assessment and Assistance
		Programme
BAPEDALDA	-	Bureau for Local Environmental Impact Management
		(Badan Pengendalian Dampak Lingkungan Daerah)
BAPPENAS	-	National Development Planning Agency
		(Badan Perencanaan Pembangunan Nasional)
BPN	-	National Land Agency (Badan Pertanahan Nasional)
BRRD	-	Housing Reconstruction and Rehabilitation Body
		(Badan Rehabilitasi dan Rekonstruksi Desa)
BRR	-	Aceh–Nias Rehabilitation and Reconstruction Agency
		(Badan Rehabilitasi dan Rekonstruksi)
CAP	-	community action plan
CNT	-	community negotiation team
Cordaid	-	Catholic Organisation for Relief and Development Aid
CSC	-	construction support center
EARP	-	environmental assessment review procedure
EMS	-	Extended Mission in Sumatra
ERTR	-	Emergency Response and Transitional Recovery
ESG	-	environmental safeguards
ETESP	-	Earthquake and Tsunami Emergency Support Project
GAA	-	German Agro Action
		(Deutsche Welthungerhilfe [DWHH])
GAP	-	gender action plan
GDRP	-	gross domestic regional product
GTZ	-	German Agency for Technical Cooperation
		(Gesellschaft für Technische Zusammenarbeit)
HELP	-	Health, Education and Literacy Programme
IEE	-	initial environmental examination
IOM	-	International Organization for Migration
IPSA	-	initial poverty and social assessment
IMB	-	building permit (Ijin Mendirikan Bangunan)
JFPR	-	Japan Fund for Poverty Reduction
KfW	-	German Development Bank
		(Kreditanstalt für Wiederaufbau)

vi Abbreviations

KSMP	-	self-help housing group
		(Kelompok Swadaya Masyarakat Perumahan)
KTP	-	resident registration card (kartu tanduk penduduk)
LARAP	-	Land Acquisition and Resettlement Action Plan
LARPFPG	-	Land Acquisition and Resettlement Policy Framework
		and Procedural Guidelines
MDTF	-	Multi-Donor Trust Fund
MOU	-	memorandum of understanding
MPW	-	Ministry of Public Works
NGO	-	nongovernment organization
NSSP	-	Nias Settlements Support Programme
PAM	_	Drinking Water Company (Perusahan Air Minum)
PDAM	_	the local government water supply company
		(Perusahan Daerah Air Minum)
PIC	_	project implementation consultant
PLN	_	National Electricity Company
		(Perusahan Listerik Negara)
PPRG	_	village housing development committees
		(panitia pembangunan rumah gampong)
REA	_	rapid environmental assessment
S3P	_	Simeulue Settlements Support Programme
SIDA	_	Swedish International Development Agency
SPAR	_	subproject appraisal report
SPPR	_	subproject preparation report
RALAS	_	Reconstruction of Aceh Land Administration System
UNDP	_	United Nations Development Programme
UN-HABITAT	_	United Nations Human Settlements Programme
UNHCR	_	United Nations High Commissioner for Refugees
UNHIC	_	United Nations Humanitarian Information Centre
PPRG	_	Village Committees for House Construction
		(Panitia Pembangunan Rumah Gampong)

Preface

or many years, the Asian Development Bank (ADB) has supported its developing member countries through emergency and post-disaster assistance. The Indian Ocean earthquake and tsunami of December 2004 and the subsequent earthquake on Nias in Indonesia in March 2005 triggered a major flow of assistance. As this calamity occurred on a scale never before experienced, it triggered massive commitments from donors all over the world. ADB's assistance to Indonesia through the Earthquake and Tsunami Emergency Support Project (ETESP) was one of the largest allocations of grant funding ADB has ever provided. A multisectoral project, the ETESP included five groupings of initiatives: (i) livelihood restoration (agriculture, fisheries, and micro- and small-scale enterprise); (ii) social services (health and education, including development of skills); (iii) community infrastructure (rural water supply and sanitation, housing, and irrigation); (iv) physical infrastructure (roads and bridges, electrical power, and spatial planning and environmental management); and (v) fiduciary governance.

This book focuses on housing, one of the most visible of the subsectors targeted by the ETESP. It was likewise the subsector to which the greatest amount of ETESP funding was allocated. As *Rebuilding Lives and Homes in Aceh and Nias, Indonesia* demonstrates, implementation of the ETESP's housing program was a dynamic learning experience. Moreover, it demonstrated that ADB can respond to the requirements of its developing member countries in a highly flexible manner—more flexible, in fact, than many other donor organizations, including nongovernment organizations.

The lessons drawn from implementation of the ETESP housing program will be of great value in the event that ADB again engages in post-disaster reconstruction and rehabilitation.¹ The most practical and general of these lessons may be summarized as follows: (i) keep investment options open,

¹ Jha, Abhas K., J. Duyne Barenstein, P. M. Phelps, D. Pittet, and S. Sena, eds. 2010. *Safer Homes, Stronger Communities: A Handbook for Reconstructing after Natural Disasters.* Washington, DC: The World Bank. www.housingreconstruction.org

Clarke, Mathew, I. Fanany, and S. Kenny, eds. 2010. *Post-Disaster Reconstruction: Lessons from Aceh.* London and Washington: EARTHSCAN.

UN-HABITAT. 2009. Post-Tsunami Aceh-Nias Settlement and Housing Recovery. UN-HABITAT Jakarta.

(ii) respond to needs not addressed by other donors, and (iii) recognize that post-disaster assistance projects in response to a disaster of extreme magnitude may require a longer duration than mainstream development projects.

While ADB's Urban Community of Practice will benefit greatly from this publication, from a broader perspective, it is our sincere wish that this publication will encourage further concrete thought and discussion regarding the formulation and implementation of post-disaster reconstruction and rehabilitation initiatives.

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Rebuilding Lives and Homes in Aceh and Nias: A Retrospective

by Florian Steinberg

Earthquakes and tsunami

n 26 December 2004, an earthquake measuring 9.2 on the Richter scale shook the Indian Ocean. As the epicenter of this quake lay just off Sumatra's northwest coast, it produced a major undersea movement along the island's western fault line (Figure 1). This resulted in a tsunami with waves in some cases reaching as high as 20 meters. As one would expect, the devastation from this event was greatest in the coastal areas nearest the epicenter, which in this case included Sumatra's northernmost province of Aceh and the islands of Simeulue and Nias in Indonesia, and the west coast of southern Thailand. So powerful was the tsunami that it eventually reached India's Andaman islands, Sri Lanka's Tamil Nadu coast, the Maldives, and although with substantially less vigor, some parts of the African coast off Somalia.

In the end, the event took about 220,000 lives, injured and traumatized tens of thousands of people, and destroyed a vast number of homes. The most severe damage occurred along Aceh's western coast, and in particular, the coastal cities of Banda Aceh and Meulaboh. The death toll in these two cities alone reached a minimum of 120,000 and 25,000 persons respectively, a high proportion of these being women and children. Then on 28 March 2005, a second earthquake occurred, devastating Nias island afresh. This caused yet more loss of life, and damage to, or complete destruction of residential property. Initial damage and loss assessment estimates indicated that about 127,000 houses were completely destroyed, and that 152,000 housing units were damaged to the extent of losing an average of 50% of their monetary value.¹

¹ BAPPENAS and The International Donor Community, eds. 2005. *Indonesia: Notes on Reconstruction – The December 26, 2004 Natural Disaster.* Jakarta; BAPPENAS. 2005. *Blue Print for the Reconstruction of Aceh and Nias.* Jakarta.

Figure 1: Earthquake epicenter, Sumatra and offshore islands: Location of subduction zone



Source: www.caltech.edu/today/story-display?sotry%5fid=6186.

Much of the damage to Aceh was concentrated in the coastal zones of Aceh Barat, Aceh Besar, Aceh Jaya, Banda Aceh, and the city of Meulaboh. However, the loss from the tsunami in these areas far exceeded that resulting from its physical impact. Before the tsunami, a decades-long civil conflict had raged in these areas. While this impeded delivery of services, before the disaster, the housing settlements there still managed to function as communities. In addition to literally ripping these communities apart, the tsunami caused significant loss of landownership records and planning documents.

Following the disaster, the Aceh-Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]) estimated that 93,000 new housing units would need to be built, and that home repairs for 47,000 units for which the physical damage to the unit from the tsunami was less than 50% would be required (Images 1–4). The damage to the area's residential infrastructure (water, sanitation, road, and electricity services) and social facilities was also so great that substantial overall investment would be required for the affected urban areas, villages, and settlements to become habitable again. An estimated \$7 billion would be required for the overall reconstruction and rehabilitation effort, the housing sector accounting for more of this amount than any other. For this sector alone, the estimated required investment exceeded \$1 billion. Essentially, the area's primary infrastructure (roads, seaports, energy), industrial facilities, agriculture, fishing and aquaculture, and livelihood facilities would all have to be rebuilt.

Banda Aceh destroyed by tsumani

Image 1: Residential areas in

Source: Florian Steinberg.

Image 2: Residential areas in Banda Aceh destroyed by tsumani



Source: Florian Steinberg.

Image 3: Residential destruction, Banda Aceh



Source: Florian Steinberg.

Image 4: Housing stock qualifying for repair, Banda Aceh



Source: Florian Steinberg.

Targets and scope of the ETESP ADB supported housing program

On 7 April 2005, the Board of Directors of the Asian Development Bank (ADB) approved the Earthquake and Tsunami Emergency Support Project (ETESP), providing a \$290 million grant from the Asian Tsunami Fund to meet Indonesia's disaster management, rehabilitation, and reconstruction requirements. The ETESP was designed as a multisector project to be implemented from 2005 to 2008, and consisted of five major groupings: (i) livelihood restoration, (ii) provision of social services, (iii) community infrastructure, (iv) physical infrastructure, and (v) fiduciary governance. The community infrastructure grouping included a housing sector component (the housing program) to which \$72.5 million of the \$300 million grant was allocated for implementation support. The design of the housing program reflected the policy of the Government of Indonesia (the Government) granting a 36-square meter core housing unit to all families affected by the earthquake and tsunami, irrespective of their previous housing status.² The grant agreement between ADB and the Government of Indonesia was signed on 29 April 2005.

ADB's housing reconstruction and rehabilitation efforts complemented those of the World Bank (via the Multi-Donor Trust Fund [MDTF]), the German Development Bank or Kreditanstalt für Wiederaufbau (KfW), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Human Settlements Programme (UN-HABITAT), the International Organization for Migration (IOM), and numerous nongovernment organizations (NGOs), with NGOs providing nearly 50% of overall housing assistance—a unique feature of this wide-ranging initiative.

ADB's housing program: Objectives and scope

The overall objective of ADB's housing program was to provide housing for those made homeless by the earthquakes and tsunami, thus enabling affected persons to reestablish their lives in the area in which they had lived before the disaster. The housing program also included the secondary objectives of (i) providing security of land tenure to residents as a means of facilitating economic recovery, and (ii) providing persons affected by the disaster with a healthy and sanitary living environment.

The housing program was to facilitate community participation and to finance(i) community — based housing (both rehabilitation and reconstruction),

² BAPPENAS and the International Donor Community, eds. 2005. *Indonesia: Notes on Reconstruction—The December 26, 2004 Natural Disaster.* Jakarta.

(ii) establishment of construction support centers that would provide materials and skilled labor where appropriate, (iii) provision of a microcredit facility for expansion of housing units, and (iv) support for neighborhood infrastructure such as on-site water and sanitation works. "Neighborhood infrastructure" included provision for off-site water and sanitation infrastructure, paths, streets, and basic drainage, all of which were deemed to form an integral part of housing program subprojects in the aggregate, though the exact components of each subproject varied as appropriate.

ADB support through the housing program was to embody the following principles:

- the approach adopted would be a people-centered, community-based, participative rehabilitation and reconstruction program that defined central roles for civil society and NGOs;³
- (ii) housing rehabilitation and reconstruction would be a lead intervention for the reconstruction of lives, and would be integrated with other sector strategies; for example, housing was to be linked with employment and human resource development, as well as economic and business development; and
- (iii) coordination between and within ministries and the various levels of government.

Finally, under the housing program, approximately 14,000 completely destroyed housing units were to be reconstructed, and approximately 10,000 partially damaged housing units were to be rehabilitated, with priority being given to urban and peri-urban areas. As per the April 2005 government unit rate, the estimated unit price for reconstruction was Rp28.8 million plus Rp5 million for environmental infrastructure. For rehabilitation, the estimated unit price was Rp10 million plus Rp5 million for environmental infrastructure.

Emergency measures. The task of meeting emergency requirements was the most complex in Aceh and Nias, as these areas were completely devastated by the tsunami. Governments of a number of countries, the United Nations, and numerous NGOs mobilized emergency assistance (food, water, sanitation, and emergency shelter) and provided medical and forensic services on a massive scale, as initial estimates of internally displaced persons reached as high as 550,000. Thanks to these efforts, which were initially coordinated by the Indonesian army, no major post-disaster epidemics occurred, as was initially feared.

³ BAPPENAS and The International Donor Community, eds. 2005. *Indonesia: Notes on Reconstruction—The December 26, 2004 Natural Disaster.* Jakarta.

Image 5: Temporary tent

accommodation

Source: Florian Steinberg.



Source: Florian Steinberg.

Initially, it appeared that the emergency phase of addressing the disaster would conclude within a few months, and that local administrations would begin the second phase (rehabilitation of facilities) within 3–6 months. This timeline proved to be overly optimistic. Most disaster victims remained dependent on basic survival aid and temporary accommodation (Images 5–6) for an extended period, which delayed reconstitution of their communities. Ultimately, most organizations involved in the reconstruction effort needed additional time to adjust the scale of their operations to that of the task at hand.

Evolution of a rehabilitation and reconstruction strategy with emphasis on community-based development. The disaster response initiative in the habitat sector was initially coordinated by the National Development Planning Agency (Badan Perencanaan Pembangunan Nasional [BAPPENAS]) in cooperation with the Ministry of Public Works (MPW). However, following its establishment in April 2005, BRR became responsible for strategy formulation. At the core of the reconstruction strategy was the principle that the people of Aceh and Nias must be contributors rather than bystanders in the rehabilitation and reconstruction of their communities. Housing reconstruction and rehabilitation was seen as central to the reconstruction of communities, with reconstruction and rehabilitation efforts integrated with development initiatives in other sectors. This is an important point, since it shifted the emphasis from simple reconstruction to economic and social recovery. A consortium of donors agreed that projects "...must contribute to socially and politically acceptable, economically affordable, technically sound, and institutionally manageable settlement formation and community development based on the following:

- (i) Basic yet technically sound settlement development plans must be prepared with the active involvement of the communities concerned before housing construction at scale begins.
- (ii) Intended beneficiaries must be engaged in the planning, implementation, and evaluation of housing and settlement development projects.
- (iii) In the selection of building materials and construction techniques and in the provision of infrastructure and services, environmental, social, and economic sustainability criteria must be explicitly considered and geohazards must be addressed.
- (iv) Existing functioning structures and institutions must be used and strengthened. The creation of new or parallel institutions or delivery mechanisms must be avoided wherever possible.
- (v) In the very constrained working environment, donor identity is subordinate to finding and supporting the most effective ways of assisting the tsunami survivors."⁴

Reconstitution of land tenure and legal status assumed a critical role in these endeavors. Early efforts in this regard focused on improvised village maps, which were initially produced with the help of surviving villagers. Gradually, the focus of reconstitution of land tenure and legal status shifted to reconstitution of land title certificates at the National Land Agency (Badan Pertanahan Nasional [BPN]), since most of the records housed there had been damaged or destroyed. Ultimately, the Reconstruction of the Aceh Land Administration System (RALAS) project, which assisted reconstituting land tenure and legal status in the devastated areas.⁵

In January 2005, the Government (through BAPPENAS and MPW) issued the overall policy directive that all households negatively impacted by the earthquake and tsunami would be entitled to reconstruction or

⁴ Asian Development Bank (ADB), the German aid agency Gesellschaft für Technische Zusammenarbeit (GTZ), the German Development Bank (Kreditanstalt für Wiederaufbau [KfW]), United Nations Development Programme (UNDP), United Nations Human Settlement Programme (UN-HABITAT), the World Bank, and World Vision. 2005. Open Invitation to Commit to Five Principles of Sustainable Development in Externally Supported Housing Projects in the Rehabilitation and Reconstruction of Earthquake- and Tsunami-Affected Areas in Aceh and North Sumatra. Jakarta.

⁵ The Reconstruction of the Aceh Land Administration System (RALAS) project closed in June 2009. Provisional land titles in the form of title applications of entitled beneficiaries provided interim assurance of secure tenure until proper titles were issued. It is noteworthy that the surviving villagers embraced provisional mapping of their properties as one of the first initiatives in rebuilding their communities.

rehabilitation assistance. Under this directive, all eligible households would receive a 36-square meter house at no cost, or alternatively, assistance for reconstructing homes partly destroyed. Former renters also became eligible for assistance, but no details were initially provided as to whether specific support projects for them, such as provision of apartment housing on government-owned land, would be given.

Several donor agencies such as the IOM, the MPW, and domestic as well as overseas contractors urged the adoption of prefabricated housing solutions. The agencies supported the use of prefabricated housing for two reasons: (i) to overcome capacity shortfalls in the domestic construction industry, and (ii) to avoid reliance on uncertified domestic timber sources, which were by default assumed to be supplied by illegal logging. However, the prefabricated housing solution received little support from BRR initially, mainly because labor-intensive, community-based reconstruction was assumed to maximize employment opportunities for tsunami victims, as well as to extend maximum economic opportunity to local construction operators. However, over time, BRR changed its stance, mainly because of the poor quality of reconstructed housing. There was thus a resurgence of the notion that prefabrication would solve quality issues, and would as well result in a housing stock more impervious to future earthquakes.

The debate about the need for temporary housing versus the drive for early construction of permanent housing was seemingly won by agencies willing to spend money on (often relatively costly) temporary accommodation in barracks and individual semipermanent housing. While several aid agencies invested considerable resources in these types of temporary accommodation, an estimated 300,000 persons had no alternative but to move in with relatives or into rented accommodation. Much debate centered on the question as to whether these temporary or semipermanent structures—many of them not located on the land of tsunami victims—were necessary in light of the slow progress of reconstruction, or were instead a wasteful use of resources. The latter view argues that these resources could have been used for more permanent or incrementally upgradable housing solutions. However, the need to get people out of tents, which decayed rapidly in the scorching sun and tropical rain, favored provision of temporary housing.

While initial guidelines on participatory village mapping were available by mid-2005,⁶ BRR took until 2006 to issue its housing policies, which

⁶ BRR. 2005. Guidelines on Participative Land Mapping, Book 1-A. Banda Aceh, 28 June; BRR. 2005. Manual on Community Agreement on Land Boundaries, Ownership and Land Parcel Codification in Maps, Book 1-B, Banda Aceh, 2 July; BRR. 2005. Guidelines for Village Restructuring and Reconstruction, Book 2, Banda Aceh, 5 July; BRR. 2005. Guidelines on Housing Repair and Construction, Book 3, Banda Aceh, 28 June; BRR. 2006. Pedoman Perencaan Desa (Village Planning Guidebook), Banda Aceh.

Image 7: Semipermanent prefabricated housing provided by IOM

Image 8: Semipermanent housing provided by Red Cross, with absent walls due to late arrival of certified wood from overseas



Source: Florian Steinberg.



Source: Florian Steinberg.

appeared in the form of regulations for house rehabilitation, new house construction, and resettlement assistance.⁷ These regulations were realistic in light of more than 18 months' experience in the massive rehabilitation and reconstruction effort. However, critical issues remain unanswered, such as (i) whether landless former renters were to be provided land, (ii) how land for resettlement of communities moving from uninhabitable coastal areas was to be acquired, (iii) the exact procedures for determining the level of house repair assistance to be provided, and (iv) how repair works were to be carried out at the practical level. Sectoral policies appear to have undergone continual review, with BRR guidelines being rephrased in response to the emergence of ever more complicated site-specific situations.

Actors in the rehabilitation and reconstruction process. The initial response to the tsunami came in the form of rescue operations, food aid, and medical and forensic services coordinated by the Government and the Indonesian army, with some support from Australian, Singapore, and US military units. However, numerous NGOs and bilateral and multilateral agencies such as the Australian Aid Agency (AusAID), Oxfam, the Red Cross, UNHCR, the US Agency for International Development (USAID) and others quickly joined the initiative. Unfortunately, the disaster response capability of the Aceh provincial and local governments had been severely weakened by loss of thousands of staff, as well as a large part of their physical facilities.

⁷ Regulations 18–20 of BRR, 2006.

These agencies thus initially lacked the resources to lead the rehabilitation and reconstruction process, and were for a time heavily dependent on outside assistance, both from national and overseas sources. Because of constraints faced by central government ministries in mobilizing rapidly in Aceh, national and international NGOs became important actors in providing emergency aid early on in the rehabilitation and reconstruction effort.

At the peak of the response to the disaster in 2005, more than 200 aid agencies—mainly NGOs—were registered with the authorities and documented by the United Nations Humanitarian Information Centre (UNHIC). Multilateral agencies such as ADB and the World Bank became operational by May 2005 through the MDTF, the latter being coordinated by the World Bank.

In April 2005, BRR was established as a high-powered oversight agency. By the end of 2005, a cabinet decision empowered BRR to become an implementing agency—a kind of "super ministry," completely taking over all rehabilitation and reconstruction activities from all the line ministries that had been active in Aceh and Nias.⁸ However, due to the scale of the task at hand and the complexity of the operational workings of the rehabilitation and reconstruction effort—for example, some 200 NGOs were contributing to housing construction in the field at the time—and the increasingly overlapping operations of dozens of external aid agencies, BRR could no longer oversee the overall initiative by itself.

Due to this overload of responsibilities borne by BRR, during the first year of the initiative, lack of coordination among the various bilateral and multilateral agencies and NGOs occurred. To prevent loss of momentum in the overall initiative, BRR in many instances gave a relatively free hand to all donor agencies. This stance changed gradually over time, being most prominent during the first year of the initiative. The benefits of maintaining the overall initiative's momentum notwithstanding, such a context eventually led to a turf war among donor agencies in the field during the early phase of the rehabilitation and reconstruction effort. This outcome neither strengthened the initiative overall or facilitated community participation.

Many NGOs expanded their initial emergency aid commitment to the wider and longer-term goal of reconstruction. In many cases, this occurred as a result of an unprecedented flow of grant funds from the public or their home-country governments. While NGOs are ideal partners in the emergency response context, the tasks of reconstruction of housing and construction of habitatrelated infrastructure were taxing for many of them, since these activities fall outside their traditional areas of expertise. For the most part, the NGOs felt

⁸ This stipulated a substantial expansion of BRR, which during 2006–2008 grew to a team of more than 500 permanent staff, as well as numerous short-term and part-time consultants.

obliged to engage in these activities for two reasons: (i) housing was the most pressing and obvious basic need in the disaster response initiative, and (ii) funds that could be used for this purpose had unexpectedly become available.

While some NGOs adapted to these tasks, several were initially unable to produce housing of solid and permanent construction that was both earthquake resistant and adequately equipped with water, sanitation, and road infrastructure. This caused some of these NGO-produced units to remain empty, or for beneficiaries to demand improvement of the structures concerned before accepting them. In other cases, cessation of flows of funds led to abandonment of half-completed housing or the need to destroy poorly constructed units.

ADB and the World Bank were the two multilateral development banks most active in the disaster response initiative, and each faced a different set of problems at the onset of their involvement. The projects to be funded by both agencies were initially to be implemented "on-budget." In other words, the government's budget and other processes were to be followed. The same is true of government-led project implementation units, and public-sector procurement procedures for the contracting of civil works, goods, and services.

When initiating the Earthquake and Tsunami Emergency Support Project (ETESP), ADB faced substantial delays as a result of its "on-budget" requirement. Months of precious time were spent sorting out procurement arrangements. As a result, the first construction contract did not begin until late 2006. However, in the case of ETESP's housing component, an alternative means of concluding arrangements for contractor-built housing projects was adopted during the first quarter of 2006. This involved use of an "off-budget" modality implemented with the help of an experienced sector agency (UN-HABITAT) and four NGOs: the Catholic Organisation for Relief and Development Aid (Cordaid), Deutsche Welthungerhilfe (German Agro Action [GAA]), the Health, Education, and Literacy Programme (HELP), and Muslim Aid. The key feature of this modality was that ADB engaged NGOs as implementing agencies on behalf of BRR.

In contrast, the World Bank used funding from the MDTF to upscale two of its already existing community-based programs: the Urban Poverty Project (UPP) and the rural Kecamatan Development Project (KDP). This involved providing housing assistance via cash-transfers to groups of individual beneficiary households organized to receive these transfers. The community groups then contracted labor, purchased construction materials, and supervised the civil works themselves. Under the UPP, project activities were implemented in collaboration with the provincial department of the Ministry of Public Works. In the case of the KDP, this was done with the participation of the Ministry of Interior. Despite its initial intention not to get involved in construction works, BRR also assumed the role of implementing agency in 2006 by contracting local contractors to perform housing reconstruction works. It was for this purpose that the government authorized BRR to use the direct selection method of contracting in 2006. This allowed BRR to directly select a firm from a group of contractors that had previously been prequalified. While this action highlighted government confidence in BRR, flaws in construction quality, weakness in supervision, and a low level of community involvement tainted many of the first BRR-funded projects.

Obstacles. The degree of progress actually achieved under the overall rehabilitation and reconstruction effort was constrained by a number of obstacles. Each obstacle is discussed below.

1. Land tenure and ownership. Confirmation of the beneficiary status of community members was complicated by the fact that reconstitution of land tenure and titles occurred much more slowly than expected. Additional complications arose from the emergence of land disputes within communities, from the sudden appearance of previously absent family members who presented ownership claims, and from the fact that many villagers previously held only customary tenure rather than formal land titles.

2. Unbuildable land. About 12,000 families were unable to rebuild on their land because it had become permanently inundated by the sea. This occurred either as a consequence of land subsidence or the tilting of Nias island resulting from the earthquake of March 2006. While in some cases villagers worked out land-sharing and readjustment measures among themselves as a solidarity measure, this was not a common occurrence. In some cases, resettlement to a new area was the only viable option. However, resettlement requires availability of land on which to build. Resettlement thus occurred in only a few cases, as little vacant land was available, and the Government was hesitant to free up land for resettlement.

3. Selection of beneficiaries. Most agencies verified the entitlement of beneficiaries on the basis of community mapping. However, the process of verification was neither smooth nor free of conflict. Absentee relatives appeared unexpectedly, making additional or counter claims on land, and measures to resolve such conflicting claims were few. Due to the Government's policy of providing one housing unit to each entitled household, some claimants from the same household represented themselves as coming from different households. This led to cases in which multiple housing allotments were granted to one and the same household, each allotment being issued under the name of one of that household's individual members. Complications in the process of beneficiary identification raised questions as to the degree of donor effort (and the level of resources) to be invested

in beneficiary identification procedures. Such questions particularly related to the level of cost and length of time deemed justifiable for establishing a workable yet transparent beneficiary identification procedure.

4. Environmental problems at some sites. Due to continued flooding or increased risk of flooding, many sites became unfit for human habitation. As a result, special drainage or flood protection works were necessary to make them usable again. Similarly, the fact that mass graves are located in the vicinity of many highly populated areas of Banda Aceh and Meulaboh made it practically impossible to use ground water for drinking purposes. These concerns, as well as the need to prepare for disaster, should be taken up in the context of village spatial planning, which remains to be done for some of the reconstruction sites.

5. Cost escalation. As would be expected, the increased level of construction activity and the need to import many common construction materials (wood, cement, and steel), as well as an increase in energy prices led to an unprecedented increase in the cost of construction materials. This increase averaged 200%–250% from early 2005 to 2007. The impact of these price increases was that after the supposed initial overcommitment in funding for housing in early 2005, available funding for housing fell short of actual requirements. Shortages of qualified construction labor was met by importing labor from other locations also contributed to increases in costs. In early 2005, the Government issued cost ceilings relating to the construction and repair of housing units as well as habitat-related infrastructure. However, few NGOs felt obliged to follow the government's rather low cost ceilings of \$3,000 for new housing units and \$500 for habitat-related infrastructure. In early 2006, BRR doubled the official cost ceilings, and in 2007, costs began to level out at nearly \$7,000 per new dwelling unit.

6. Construction materials. Wood-frame construction has traditionally dominated the areas impacted by the tsunami. This is so both because of its relatively high degree of imperviousness to earthquakes and its ease of construction, which allows abundant use of the area's large stock of low-skilled labor. However, brick-and-mortar construction is the preferred option for families aspiring to live in a "modern" house. Following the tsunami, there was an immediate upsurge in wood-frame house construction. This led to a large influx of wood of questionable origin, most of it thought to be the product of unlicensed and therefore illegal logging. The donor community's response to this concern was to import massive quantities of environmentally certified timber from Canada and New Zealand. However, upon arrival in Aceh province, these consignments faced unprecedented bottlenecks by customs authorities, as well as robbery by roadside pirates in northern Sumatra. This caused the donor community to resort to construction of landing pontoons, and to import wood for construction purposes under the

direct supervision of BRR, an initiative that met with some success. This situation also generated much debate about the desirability of using metallic or aluminum construction materials. Brick construction was for the most part ruled out because the fuel used for producing the high temperatures necessary for brick-making would have either been wood or costly petrol.⁹

7. Construction specifications. An improved building code for seismicresistant house construction was issued in May 2005. However, few donor agencies complied with it—some seemed to be unaware of its issuance. Because no system for issuing building permits existed, the post-disaster house construction industry remained for the most part a free-for-all. This resulted in poor construction quality and low levels of earthquake resistance in the housing units constructed under the auspices of many projects.

Members of beneficiary communities sometimes expressed concern about the poor quality of construction, and on occasion refused to take possession of the homes offered them. This caused BRR to become concerned about the quality and safety of the outputs of this largely decentralized reconstruction program, and more importantly, the possibility of liability in the event these houses fared poorly during future seismic events.¹⁰ In cases in which engineering skills were absent, the decisions of community members with few construction skills are cited as the excuse for the low quality of housing units or unsafe construction. In an effort to address this problem, BRR began sending field inspectors to all construction sites in mid-2006. This significantly raised both construction standards and levels of beneficiary satisfaction in Aceh and Nias.¹¹

8. Insufficient budgetary allocations for residential habitat-related infrastructure. Many NGOs, and in some cases bilateral donor agencies providing reconstruction support, did not consider adequately the need for basic habitat-related infrastructure, such as water and drainage connections. Further, in some cases in which house connections to infrastructure were included in construction plans, primary or secondary infrastructure systems either had not yet been constructed, or if constructed, were not yet properly working. Understandably, beneficiaries facing this situation were hesitant to

⁹ Architects for Humanity. 2006. *Design Like You Give a Damn.* Available at: www. architectureforhumanity.org

¹⁰ As with all of Sumatra and Indonesia, Aceh and Nias are at risk of frequent seismic events. There is no reason to assume that such events could not happen again at any time.

¹¹ UN-HABITAT and Syiah Kuala University reported no direct correlation between construction quality and beneficiary satisfaction. Beneficiaries generally remained undecided as to their satisfaction levels since they found it difficult to gauge how their livelihoods and the schooling of their children would be affected by reconstruction efforts. Sources: UN-HABITAT. 2006. Aceh-Nias Housing & Settlements Reconstruction Newsletter. No. 6, 18 May. Available at: unhabitat-indonesia.org, and UN-HABITAT. 2007. Anchoring Homes— UN-HABITAT's People's Process in Aceh and Nias after the Tsunami. Nairobi.

take possession of their homes until basic services were provided. Beneficiary annoyance was likewise increased by some NGOs delivering water by means of tanker trucks while simultaneously planning completion and reconnection of basic infrastructure or retrofit programs for completed housing units. Finally, many donor-funded projects closed with infrastructure works remaining unfinished, these becoming the unfortunate inheritance of public authorities which by default were obliged to assume responsibility for their completion.

9. Absence of livelihood reconstitution. One unfortunate result of a lack of integrated development planning in the reconstruction effort left many communities without adequate livelihood support programs. This issue became critical once beneficiaries moved back into their reconstructed or rehabilitated habitats and food aid came to an end. The few livelihood support programs that did exist (e.g., those of ADB and Mercy Corps) were insufficient to serve all of the beneficiary communities. Thus, other than housing and habitat-related infrastructure, livelihood reconstitution remains a critical issue in the rebuilding of the communities affected by the disaster.

10. Provisions for renters. Because the reconstruction projects of most donor agencies were primarily oriented toward owner-occupants, those living in rented accommodation before the disaster were largely uncovered by the reconstruction effort. In Aceh alone, an estimated 8,000 families considered integral to the communities in which they lived faced this situation. Proposals under certain projects such as the ADB-financed Lamdingin project in Banda Aceh did exist to give long-term use rights on privately owned or community land to ex-renters and to award housing to all such households. But such arrangements were the exception rather than the rule. Most projects excluded former renters, who besides being tsunami victims themselves, had few options but to rent again in an already tight housing market. While the possibility of local governments taking on a provider role for this target group by developing housing estates on municipal land has been discussed, in the end, only ADB's ETESP provided renters with a pathway through which they could achieve home ownership.

11. Uncertainties concerning the home rehabilitation component. Only a few donor initiatives (ADB, MDTF, UN-HABITAT) addressed the repair and rehabilitation of partially destroyed housing. Initially, the possibility of performing house-to-house damage assessments and determining eligibility for subsidies at the individual household level was discussed. Subsequently, it was suggested that such subsidies should be dispensed as flat cash payments, and that a roving quality control team be formed to assist home owners with quality control issues. In the end, indecision prevailed for a protracted period causing housing rehabilitation, initially thought to be an area for advanced donor involvement, to remain little more than a stepchild of the housing program.

12. Housing without village planning? As the first few thousand housing units were completed, BRR and other local authorities came to realize the necessity of appropriate spatial planning. As a result, spatial planning became a task taken up by some agencies. Where implemented, it led to better overall results from the reconstruction effort. Since spatial planning was not a compulsory component of reconstruction, many communities did not benefit from it. Such communities will in the end require ex-post planning at some point, in tandem with an infrastructure retrofitting program if the objective of "building back better" is to be achieved.¹² Ex-post village planning will also need to include disaster planning and management facilities (e.g., warning systems) if the re-built communities are to provide a habitat safer than that which existed before the tsunami.

13. Community-based development in a difficult context. One of the distinguishing features of reconstruction in Aceh and Nias is the manner in which beneficiary communities came together in determining requirements and priorities, and in deciding who was to lead the recovery effort. This was a greater achievement than one might think, since the disaster destroyed not only homes, infrastructure, and community structures, but also killed countless religious and community leaders, social workers, teachers, and representatives of civil society. In the disaster's aftermath, many communities were split apart, with some members living in tents, while others lived in host communities or barracks. Such a situation naturally erodes community cohesiveness.

Governance. Fortunately, Aceh has a rich tradition of associations. These range from faith-related and community-based organizations (e.g., savings clubs, village development associations, and funeral societies) to semi-local government structures, of which elected representatives form the base. The strong sense of community that this tradition promotes was a great source of strength in the response of beneficiary communities to the disaster. It likewise made the task of identifying the community leaders and social structures that relief agencies could work with in the immediate aftermath of the tsunami easy. In situations in which community leaders had been killed by the tsunami, replacements quickly emerged.

Immediately following the tsunami, many government units were in a state of disarray. However, community leaders helped with informationgathering, reuniting separated families, and spreading information about

¹² The program for settlement support funded jointly by the GTZ and the KfW is expected to provide longer-term retrofitting and upgrading support to villages. This initiative will focus on filling remaining gaps in the availability of services, infrastructure, and disaster prevention. GTZ. 2006. Manual on Community Action Planning (CAP) to Support Implementation of Community-Driven Development for Reconstruction in Aceh and Nias, Banda Aceh: Support for Local Governance and Sustainable Reconstruction (SLGSR) Project.

the assistance available, as well as coherently communicating the most immediate of community needs to the numerous, newly arrived relief organizations. Community participation, coupled with quick emergency response, ensured that within a short period nearly all tsunami victims had emergency shelter and food, and that outbreaks of post-disaster diseases were quickly brought under control.¹³

Rebuilding lives. In the aftermath of the tsunami, the disaster victims were understandably engrossed in the trauma of their personal loss for a protracted period. Thus, despite their importance to the reconstruction effort, community planning meetings at which decisions regarding the provision of public goods temporarily received a lower priority than addressing personal grief. This, together with addressing immediate livelihood concerns, made rational group decision making regarding medium- and long-term issues difficult. Further, many of these communities had been fractured by widespread death of members and dispersed in the hurried effort to provide all victims with emergency shelter. In such situations, it would be unrealistic to expect optimal results from the community-based approach to development typically advocated by donors. Leadership struggles between old and new village elites added further complications to the above context. Throughout the donor community, it guickly became obvious that the post-disaster conditions prevailing in Aceh and Nias were far from ideal for community-based processes to produce optimal results. Nevertheless, regardless of the difficult conditions faced by beneficiary communities, their members contributed their utmost and made the best effort possible to reap the full benefits of the assistance provided. In NGO circles, claims that "People know best," that "People should stay where they stay now," that "Governments need to learn to listen to people," that "governments can learn, and they can listen," that rehabilitation must be "reconstruction plus"-that it cannot be just "reconstruction of what got destroyed," and lastly that "a disaster can be also be an opportunity";¹⁴ positively ring true in the context of the post-disaster experience in Aceh and Nias. In sum, it could thus be said that while significant success was achieved in applying the community-based development approach to the housing sector in the Aceh-Nias reconstruction and rehabilitation case, this success was not achieved easily, nor did it come without addressing multitudinous challenges.

¹³ BRR and international partners. 2005. *Aceh and Nias One Year After the Tsunami—The Recovery Effort and Way Forward*. Banda Aceh (December, pp. 45–49).

¹⁴ Kirtee Shah in Asian Coalition for Housing Rights. 2006. *Community-driven tsunami rehabilitation*. Bangkok. (p.15). However, in the context of post-disaster Aceh and Nias, Mr. Shah's statement that "people should rebuild their houses, not the government, not the contractors, not the aid agencies" seems overly ambitious.

"Building back better." Political pressures for accelerating rehabilitation and reconstruction in the housing sector led to compromises in the rehabilitation and reconstruction agenda that favored more rapid delivery over other priorities such as community-based development and environmental safeguards. Further, not all agencies were convinced that the community-based approach would be successful in the Aceh–Nias case, nor did all donor agencies possess the requisite skill set for successfully applying it.

In retrospect, it is probably fair to say that many of the communities that were rebuilt benefited from an improvement in physical quality of their habitat, provision of services, and security of land tenure. However, some of the infrastructure works in the areas reconstructed remain incomplete. Thus, an integrated retrofitting program will be necessary to ensure that all habitat development requirements are fulfilled. As a result, it will take longer than originally envisaged to make the beneficiaries themselves the primary agents of development.

When implementation of reconstruction works accelerated in 2006, concern for more quality of finished products, for more integration of housing with residential infrastructure, and for additional livelihood support grew, since it is not only habitat that matters, but reconstruction of lives and communities. The experience of Aceh and Nias has provided an important testing ground for the massive application of community-driven development, which is meant to be the cornerstone of a sustainable development effort led by beneficiaries themselves. At completion of the Earthquake and Tsunami Emergency Support Project (ETESP) in early 2010, ADB has been reviewing its own efforts in terms of relevance, effectiveness, efficiency, and sustainability. Lessons from the Aceh and Nias experience will influence future assistance, not only in Indonesia but elsewhere.

Development of housing and infrastructure is certainly not the ultimate goal of donor efforts in building communities. This is apparent from the experience in Aceh and Nias, since early on in the reconstruction process, community members articulated their desire for job opportunities and livelihood support as a means of attaining a sustainable future.

The structure of the book

This publication was motivated by work on a completion report relating to the housing component of the ETESP produced during an ADB field mission in 2009. The book is divided into three parts: an Introduction, Voices from the Field, and Conclusions. The present introduction is followed by a chapter on "Planning the Housing Program." In this chapter, Alistair Blunt and

Johan Silas recount the challenges faced in the initial stages of preparing reconstruction and rehabilitation plans for devastated pilot communities. While there was a strong emphasis on community-based development, identifying beneficiaries and ascertaining the original tenure status of land turned out to be extremely complicated and conflict-ridden tasks. The urgency in providing reconstruction assistance at the earliest possible date contrasted starkly with the lengthy and demanding documentation requirements of ADB and BRR. "Implementing On-Budget and Off-Budget Subprojects" by Esa Paaso and Saputra Liadi summarizes the difficulties faced in on-budget and off-budget operations, the challenges posed by increases in construction costs, and the challenging task of construction guality control and incorporating earthquake resistance parameters into reconstruction plans. Without transparent and unencumbered rights to land, implementation of ETESP subprojects would not have been possible. The chapter on "Land Adjudication, Titling, and Acquisition" by Herman Soesangobeng describes the difficulties faced in on-site reblocking and plot adjustments, land donations for community facilities, and acquisition of sites. In "Environmental Safeguards," Ashley Bansgrove demonstrates how environmental monitoring can contribute to improved habitat environments. The perspective of "Off-Budget Implementation by UN-HABITAT" by Bruno Dercon, Srinivasa Popuri, and Binod Shrestha is of particular interest, as it describes work in a demanding bureaucratic environment that served remote communities under multiple logistical challenges. Heracles Lang's "Rehabilitation and Reconstruction in Heritage Villages of Southern Nias" is an extraordinary success story of revitalization of heritage architecture in an environment in which commercial contractors would have failed. The key to success was community contracting that put cash donations into the hands of beneficiaries who organized all stages of repair and reconstruction. "Reconstruction of a Fishing Village: Keude Panteraja" by Klaus-Dieter Peters presents an NGO's reflections of reconstruction work in a difficult setting. The final account from the field is "Complaint Handling and Conflict Management" by Jose Tiburcio Nicolas and Herman Soesangobeng. Handling complaints and resolving conflicts were idiosyncratic and culturebased in both Aceh and Nias. Respect for the folkways of local culture permitted many individual cases of conflict to be settled without resorting to formal legal process. In "Conclusions and Looking Ahead," Florian Steinberg, Emiel Wegelin, and Pieter Smidt summarize the outputs and achievements of the ETESP housing program and discuss the program's impacts. Lastly, this chapter suggests how future assistance in postdisaster situations might proceed, and recounts the lessons that can be drawn from the ETESP.

Planning the Earthquake and Tsunami Emergency Support Program (ETESP) Housing Program

by Alistair Blunt and Johan Silas

Initial challenges

Under the Earthquake and Tsunami Emergency Support Project (ETESP) of ADB, a \$290 million grant from the Asian Tsunami Fund was given to meet Indonesia's disaster management, rehabilitation, and reconstruction requirements. As the damage caused by the tsunami and earthquake was widespread, this multisector project included five groupings of initiatives: (i) livelihood restoration, (ii) provision of social services, (iii) community infrastructure, (iv) physical infrastructure, and (v) fiduciary governance.

Of these five, the community infrastructure grouping included a housing sector component. This component is generally referred to as the Housing Rehabilitation and Reconstruction Program (or more commonly, "the housing program"). The housing program provided funding for replacing housing units completely destroyed by the disaster and for rehabilitating units deemed reparable. Housing was the ETESP's most critical component during the initial phase of project implementation, since without permanent shelter it is nearly impossible to rebuild the livelihoods of beneficiaries. So great was the importance attached to rebuilding housing that it accounted for a larger share of the funds provided than any other ETESP component.

Approval of the ETESP by ADB's Board of Directors on 7 April 2005 and the signing of the grant agreement by ADB and the Government of Indonesia (the Government) on 29 April of the same year enabled the fielding of consultants tasked with housing program start-up activities. These activities focused on six pilot projects to be completed during the housing program's first phase of implementation. The communities benefiting from these pilot projects were those located in Kota Banda Aceh, Kabupaten Aceh Besar, Kota Meulaboh

(Kabupaten Aceh Barat), and Calang. These six pilot projects were put out to tender as soon as funds became available. This was done to provide tangible evidence of the aid ADB provided in as short a time as possible. This was an important feature of the six pilot projects since the ETESP was the first post-disaster emergency reconstruction program undertaken by ADB on such a scale.

Initial consultant activities included setting up beneficiary identification systems, identifying investment priorities, and obtaining approval of plans and the overall strategy for carrying out construction of the housing units for the beneficiaries. These start-up activities entailed far more work than one might imagine. For example, the beneficiary identification system had to include a means of ensuring against duplicate or fraudulent claims, given the Government's overall policy directive of January 2005 that all eligible households would receive a 36-square meter (m²) house at no cost, or alternatively, assistance for reconstructing homes partly destroyed. Further, given that the initiative was to reflect the maximum of community-based development, the overall strategy for construction required beneficiary communities themselves to be involved in the construction process. Moreover, this process was to take place simultaneously in six separate communities, and was to be completed in less than 2 months in a working environment in which physical facilities were scarce and communication facilities suboptimal at best.

Finally, the post-disaster context was dominated by personal grief due to the loss of thousands of lives and homes, as well as destruction of the livelihoods of the survivors. This notwithstanding, the housing program was to be implemented in compliance with the accepted principles of development. In particular, the housing program was to be (i) a peoplecentered, community-based, participative, rehabilitation and reconstruction program [that] define[d] central roles for civil society and nongovernmental organizations; further, (ii) the lead intervention for reconstruction of lives was to be integrated with the development strategies of other sectors.¹ Housing reconstruction was thus to be linked with employment, human resource development, economic development, and expansion of business-related activities. Likewise, the entire process was to involve the beneficiaries, and to result in development of the built environment in a way consistent with the maximum of "building back better."² Similarly, it was to comply with all government directives pertaining to project identification and approval, as well as construction standards.

¹ BAPPENAS and the International Donor Community, eds. 2005. *Indonesia: Notes on Reconstruction—The December 26, 2004 Natural Disaster.* Jakarta.

² Clinton, William Jefferson. 2005. Six Months After. New York Times. 22 June. Former President Clinton was the United Nations special envoy for tsunami reconstruction.

Image 1: Traveling along Aceh's west coast on UN helicopters

Image 2: Initial working arrangements being discussed with the provincial branch of the Ministry of Public Works





Source: Johan Silas.

Source: Johan Silas.

Image 3: The only building remaining after the disaster in Gampong Pande. It was often used for meetings. Image 4: Working with community leaders



Source: Johan Silas.



Source: Johan Silas.

Guidelines. The consultants were charged with preparing guidelines that used simple, clear language, but that incorporated a multitude of features. These included at the minimum: (i) community participation, (ii) community action planning, (iii) identifying construction sites, (iv) consolidating tracts of land through land pooling and readjustment procedures, (v) land titling, (vi) choosing designs for the housing units, (vii) choosing the construction technology to be employed, (viii) establishing and operating building materials support centers, and (ix) obtaining building permits. The guidelines prepared were to (i) facilitate the entire process, (ii) construct the housing units and related works, (iii) arrange for neighborhood infrastructure, and (iv) address post-construction operation and maintenance.

Logistics. The consultants faced two immediate problems: (i) reaching beneficiaries and community leaders in areas cut off from outside communication by the disaster, and (ii) developing a fully participatory project within the time frame specified. The accessibility problem was to some degree solved by the UN, which provided helicopter transport to Meulauboh and Calang, both cut off from Banda Aceh proper due to destruction of numerous bridges along the coastal road. However, such visits were few and of limited duration. In the end, the consultants had no choice but to rely heavily on community leaders to ensure that planning for reconstruction would be participatory. This meant that in such cases there would be no external verification of beneficiary identification, a process that the consultants would later recognize as an extremely time- and labor-intensive one.

Conflicting expectations. Ultimately, the consultants were required to satisfy three separate entities, each with differing-and sometimes conflicting-sets of expectations. These included (i) the beneficiaries themselves, (ii) the Government, and (iii) ADB. Specifically, the consultants were to develop rules and standards acceptable to both the Government and ADB for providing housing assistance to bona fide victims of the disaster, while simultaneously formulating projects that could be implemented as rapidly as possible following release of ADB-provided funds. As the consultants came to understand, these rules and standards would have to comply with government guidelines. However, the government guidelines were formulated over a prolonged period and frequently modified during preparation. In retrospect, these modifications were to be expected, given the multitude of unforeseen issues that arose during the first 18 months of the reconstruction initiative. Ultimately, it was March 2006-nearly 15 months after the earthquake and tsunami-that draft guidelines for identifying beneficiaries and determining the amount and type of assistance to which each was entitled were released. By that time, ADB had already approved the first projects, and construction contracts were under preparation.

At least some of this delay resulted from the fact that like ADB and the consultants, the Government was facing an unprecedented situation that required a great deal of flexibility and adaptability. Initially, the Government assigned the tasks of strategy formulation and administration of the reconstruction effort jointly to the National Development Planning Agency (Badan Perencanaan Pembangunan Nasional [BAPPENAS]) and the Ministry of Public Works (MPW). However, following establishment of the Aceh-Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]) in April 2005, strategy formulation and administration became BRR's responsibilities. BRR was thus ultimately made responsible for issuing the guidelines referred to above.
Image 5: Community members describe how the disaster destroyed their settlements, and how lack of escape routes raised substantially the death toll



Source: Alistair Blunt.

Image 6: A hand-drawn map showing the location of privately owned tracts and the proposed location for housing reconstruction in Kreung Sabee



Source: Alistair Blunt.

Image 7: Transitional shelter provided by International Red Cross/Red Crescent provided hope for many. However, delays in the arrival of construction timber caused disappointment.

Image 8: Consultants meeting with community members



Source: Alistair Blunt.



Source: Alistair Blunt.

Major challenges during the first phase of implementation

Selection of pilot areas. The first task was to establish procedures for identifying the pilot beneficiary communities and assessing their rehabilitation and reconstruction requirements. During this period, MPW was initially responsible for identifying the beneficiary communities for the ETESP-funded reconstruction subprojects, with overall assistance efforts coordinated by BAPPENAS. However, in April 2005, BRR was assigned this responsibility following its establishment as a super agency with powers to coordinate all sectors and departments working in northern Aceh and Nias Island.

Donor competition. The fact that all ETESP-funded reconstruction projects were governed by the agreement signed by the Government of Indonesia and ADB meant that all expenditures were subject to approval by the Government. While this initially meant approval from BAPPENAS, following BRR's establishment, BRR became the approving authority, with approvals by ADB likewise being required. This caused slower implementation of the ETESP-funded projects on average, compared to those funded directly by nongovernment organizations (NGOs).

As numerous NGOs had established an early presence in the areas affected by the disaster by providing emergency shelter, potable water, food, and medical supplies, beneficiaries pressured them to speed up the process of providing permanent shelter. In some cases, beneficiary communities would hold talks with multiple donors, and accept assistance from the agency able to provide permanent shelter in the shortest possible time. This led to considerable frustration on the part of staff administering reconstruction projects for which multiple approvals were required. Occasionally, after considerable time and effort, some organizations learned that their beneficiaries had managed to be accommodated elsewhere.

Government institutional arrangements. BRR experienced considerable difficulties during its first few months of operation. First, due to the destruction of many of northern Aceh's physical structures, the agency was forced to operate in overcrowded quarters. Second, as a newly established agency, it initially lacked a database adequate to support the operations with which it had been tasked. Third, while the numerous NGOs contributing to the reconstruction effort collected a considerable amount of data valuable to BRR, they were hesitant to share it. Many of them were suspicious of the Government and felt their independence of action threatened by the requirement that they comply with government directives. As a result, it took about a year for appropriate procedures to be put into place, and for the NGOs concerned to begin working closely with BRR.³ The result was considerable time lost in identifying the donor agencies or organizations responsible for reconstruction in particular areas.

³ This was undoubtedly helped by establishment of the Aceh Shelter Work Group, which was initiated by the United Nations Commission on Human Security (UNCHS).

During this same period, BRR was forced to become not only an executing agency responsible for coordinating and managing the reconstruction work, but also to function as an implementing agency. This initially led to competition between BRR and the donor agencies in constructing housing units. As a result, some of the housing units were constructed without regard to the rules that BRR itself was attempting to formulate and impose on the overall reconstruction initiative. The work undertaken thus lacked supervision and adherence to standards for guiding construction. The end result was construction that was substandard, particularly with regard to the risks posed by future earthquakes. Moreover, the location of much of this construction was often finalized without reference to considerations relating to planning or legal ownership. In the end, many beneficiaries received more than one 36 m² house, simply because they owned land that was available for construction and the contractor was under pressure to meet time-bound numerical targets.

Beneficiary identification: A major challenge related to the identification of beneficiaries. The tsunami decimated a large part of Aceh's population and dispersed survivors geographically. Worse yet, it destroyed legal documents and records, particularly at the subcommunity (*dusun*) level and killed many community leaders. This made it difficult to identify the households impacted by the disaster. Initially, the consultants had no choice but to rely on lists drawn up by (often self-proclaimed) community leaders. While many of these did excellent work—especially considering the circumstances under which they were force to operate—no means of verifying claims was possible. The amount of time and resources available were inadequate to perform this task thoroughly. Thus it was not until the full team of project preparation consultants was fielded that this work could be accomplished.⁴

Methodological issues

Initial feasibility studies: Developing appropriate technical tools. During their initial work, the consultants prepared subproject appraisal reports (SPARs) for three sites selected according to the criteria provided by ADB. These included Gampong Pande, Lamdingin, and Blang Kreung, each of which is briefly described below These sites were chosen from those initially proposed by BAPPENAS and MPW's Directorate General for Human Settlements in Jakarta, which included sites in Kota Banda Aceh,

⁴ The initial work of the project preparation consultants was undertaken in April, May, and June of 2005. However, the contract for the full team of consultants was not approved and signed until October 2005. The full team was thus not mobilized until November 2005.

Kabupaten Aceh Besar, Kota Meulaboh (located in Kabupaten Aceh Barat), and Calang.

Gampong Pande is located north of the central business district of Kota Banda Aceh, its pre-tsunami population of 1,139 being reduced to 251 by the disaster. Nearly all of its housing stock was destroyed. *Lamdingin* is located in Kuta Alam regency, Banda Aceh, on the east side of Kreung Aceh, and consists of five sub-communities. The community impacted by the tsunami is located in an area measuring approximately 1.5 kilometers from north to south. Its southern border abuts the district in which Banda Aceh's main government offices are located, its northern periphery lying half a kilometer from the sea. Lamdingin reported a pre-tsunami population of 668 households in which 4,326 people lived. This was reduced to 2,145 by the disaster. *Blang Kreung* was the largest of the beneficiary communities identified. Though the tsunami left 91,157 persons living in tents and 6,328 in barracks, the subproject proposed covered only a small proportion of this population.

The initial SPARs relating to Gampong Pande, Lamdingin, and Kreung Aceh were judged to lack sufficient specific detail for approval.⁵ In particular, details relating to beneficiary identification, availability of land and the status of ownership, plans for adjusting the plots to accommodate basic infrastructure and access, and agreement of the landowners concerned were missing. A Land Acquisition and Resettlement Action Plan (LARAP) would also need to be prepared to fulfill ADB's requirement that a LARAP be prepared for any initiative requiring relocation of residents.

While the requirement that such details be provided before proceeding with subproject implementation makes sense from a procedural point of view, it assumes that land claims can be quickly and easily verified. Given the logistical problems reaching Blang Kreung, verification of this type was impossible to obtain in the amount of time available. As a result, the initial subproject contracts proposed were based on the needs identified by the local community instead of the greater degree of verification provided in later subprojects.

Concern regarding the initial level of engineering design detail led to the SPARs being improved, and ultimately accepted both by the Aceh provincial government and ADB. This notwithstanding, there did not yet exist a clearly specified tendering procedure acceptable to both ADB and the Government

⁵ Because of the emergency nature of the ETESP, ADB's subproject approval criteria were being formulated during the period in which the consultants were preparing the subproject appraisal reports. These criteria became more rigorous during formulation as reporting requirements satisfying social, gender, and environmental safeguards were established and clarified.

of Indonesia. Further, BRR was not yet established. As a result, the tenders were never opened and the work was not undertaken. Due to these and other implementation delays, the Blang Kreung beneficiaries withdrew from ADB assistance, and accepted that of an NGO promising more timely implementation.

The most important lesson drawn from this experience was that a twostage subproject preparation process was the most efficient. Subproject feasibility was first determined using data provided by beneficiary community leadership, with beneficiary identification and detailed planning undertaken during the second stage. This approach was later formalized. SPARs were first prepared, which contained sufficient detail to allow release of ETESP funding for detailed subproject preparation and listing in BRR's database. Subproject preparation reports (SPPRs) were then prepared as the second stage of subproject preparation. The SPPRs contained a much greater degree of detail, particularly with regard to information relating to the beneficiary community concerned.

This approach was adopted for the second batch of projects that formed the bulk of the work of the main project preparation consultant contract. While construction of 10,500 housing units and repair grants for 5,000 units were initially proposed under this contract, rising costs, technical complexities, problems associated with provision of infrastructure, and involvement by an increasing number of government agencies and NGOs resulted in this figure being reduced to 3,570 housing units and 952 repair grants.

Issues in subproject appraisal and preparation

Identifying beneficiaries. Identifying and verifying the rights of beneficiaries to the various types of assistance provided turned out to be a protracted and complex process. The claimants varied widely with regard to their personal post-disaster situations. In some cases, households remained intact and complete. In cases in which the head of household had been killed by the tsunami, the households were headed by widows. For purposes of identifying beneficiaries, orphans over the age of 18 were considered adults, whereas orphans that were still minors were deemed to have legitimate claims to housing assistance or some other form of financial compensation. Ultimately, those who had previously lived in rented accommodation had a right to housing assistance or other financial compensation according to the same criteria as owners of households as described above.

Beneficiary identification was made all the more difficult by survivors being scattered across clusters of temporary housing in a variety of locales.

Box 1: The case of Lamdingin

Lamdingin exemplifies the difficulties the consultants faced in identifying beneficiaries. The data for this community reported 4,326 residents comprising 668 households prior to the tsunami, while the post-disaster population was only 2,191. Nevertheless, there were 675 claimant households. This disparity suggests either that the pre-tsunami data underestimated Lamdingin's population, or that at least one person survived from each household. The probability of underestimation of households is great, as the pre-tsunami data were derived from family identity cards (*kartu keluarga*). As a large number of Lamdingin residents had connections to Gerakan Aceh Merdeka (or GAM, the insurgent Free Aceh Movement), they may have deliberately failed to register with the authorities issuing family identity cards.^a That said, it is unlikely that this completely accounts for the disparity referred to above.

Verifying that a particular beneficiary had a legitimate claim to housing assistance often required extensive field work. Because the nature of postdisaster work is that it be carried out speedily, in all probability housing assistance was provided to persons who were not bona fide beneficiaries. Balancing the need for providing assistance in a speedy manner with the need to ensure that claimants were legitimate remained a dilemma for the consultants during the entire beneficiary identification process. This dilemma was resolved to a certain extent when BRR's regulations for new construction were issued, as these required that all beneficiaries be verified by victim community organizations (community organizations established by disaster victims).^b

- ^a During project implementation, the question of rights of insurgents whose primary home was in a village destroyed in the tsunami was raised. A precondition for a household to qualify was that all claimants had to have been a resident at the time of the tsunami. However, many insurgents lived in guerilla camps on the date of the tsunami. It was later agreed by BRR that such victims would be entitled to assistance.
- ^b Article 7 of BRR Regulation 19 /PER/BP-BRR/III/2006 New house construction assistance for the victims of earthquake and tsunami in Nanggroe Aceh Darussalam province and Nias island, North Sumatra Province.

Source: Project preparation consultants.

Some were housed at the site on which their homes sat before the tsunami, while others lived in temporary accommodation some distance from their home villages. Others lived with relatives whose houses had survived the disaster intact. Others chose to live at a location distant from their villages, either for fear that another tsunami might occur or because they were too traumatized to return to their homes. Still other victims lived in temporary shelters such as barracks built on land in a devastated village some distance from their home villages. Thus in many cases, families living at a particular devastated site had no claim in the immediate area and were thus ineligible for assistance under the subproject concerned. In many cases, claimants appeared long after the process of beneficiary identification had begun, some of these being genuine claimants, while others opportunistically pursued claims. The consultants therefore prepared lists of beneficiaries that were posted at mosques and other public places along with a request that local residents check the veracity of the claims of the beneficiaries listed in the notices.

Renters. The tsunami obviously impacted people living in rented accommodation with the same destructive force as home owners. This gave rise to the question as to whether or not to rebuild rental accommodation on the same plot on which it was located before the tsunami. If so, to whom would the rebuilt structure belong? If former renters were given land outright, would this compensation not exceed that provided to former home owners? While the same question applied to squatters, so few plots were formally registered and so many land titles had been lost that it was even difficult to distinguish between squatters and bona fide landowners.

ADB's position was that all households and surviving members of households would be entitled to housing assistance. However, 18 months after the tsunami, BRR was still wrestling with the issue of who would be entitled to housing assistance and what form that assistance would take.

Over the first 18 months of project implementation, various proposals were made for assisting renters. One of these was that the same assistance extended to landowners would be made available to owners of rental housing units, provided that they guaranteed that they would provide quarters to renters for a specified period at no charge, or at the level of rent charged before the tsunami. It was later proposed that a grant of approximately 50% of that extended to home owners be given to former renters for the purchase of land on which a house could be constructed. The same proposal was to apply to squatters.

Landownership verification. A related problem was that of verifying landownership in cases in which the land titles had been destroyed. This was a more difficult task since only about 30% of all land had been legally registered before the tsunami. Fulfilling the requirement that beneficiaries be landowners before the tsunami to qualify for a 36 m² house thus became a complex task. A further complication was that no maps of the proposed reconstruction sites were initially available. Villagers were thus asked to construct their own maps indicating the approximate location of their plots and the houses of owners.

Introduction of the World Bank's Reconstruction of Aceh Land Administration System (RALAS) helped alleviate this problem by allowing

Figure 1: Lamdingin following the tsunami





Figure 2: A proposed village plan with ecological features

Source: Project preparation consultants.

Source: Project preparation consultants.

informal and traditional ownership to be recognized, and to hold the potential for eventual full legal recognition. RALAS procedures required claimants to mark out their plots, to measure them diagonally, and to mark all perimeters. These data were then recorded in drawings. However, for the drawings to be legally recognized, the owners of neighboring plots had to concur with all measurements that impacted the dimensions of their own plots. If the neighbors concurred with the measurements, they signed the drawing on the side that their own adjacent plot occupied. The plots were then surveyed and mapped.

Land availability. All parties to the project agreed that without land, a household would not be entitled to a free housing unit. Further, the land had to be habitable and rights to it able to be established by the claimant. In the case of villages completely lost by permanent inundation of the sea, alternate sites would either be provided by BRR or otherwise made available.⁶ Initially, ADB was unwilling to use project funds for purchasing land, but this was later reversed, since some households had lost both their houses and

⁶ The earthquake resulted in much of the coastal land subsiding by as much as 2 meters.

their land.⁷ Complicating the issue was the fact that many households were reluctant to return to the place they had previously lived.

A further complication was that BAPPENAS had initially proposed that all housing construction be located 600 meters or more inland, since land located below this suffered the greatest destruction. However, most disaster victims previously lived on land nearer to the sea than this. Further, most survivors and their heirs were determined to retain their land rights. As a result, BAPPENAS' proposal was ignored, though it was agreed that all housing and infrastructure would be built above the highest spring-tide level recorded by the community before the tsunami. It was further agreed that all communities would have a clear escape route to a safe location, this being either high ground or a public building built to a standard that could withstand earthquakes measuring 7.5 on the Richter scale without significant structural damage, as well as any tsunami that might follow.⁸

House construction models. The consultants provided four modes of construction from which beneficiaries could choose. These took account of three factors: (i) the desire to express personal identity, (ii) suitability to existing conditions, and (iii) the unique cultural traits of the residents.

The four modes of construction were as follows:

- Local contractors would build houses that when completed would be ready for occupancy. The house models provided were suited to local conditions and bore the unique religious or sociocultural characteristics of the residents of the geographic area concerned.
- Contractor-built houses to be further developed by the residents themselves with some support by a project implementation consultant facilitator.
- Construction support centers were to provide support and materials, equipment, and manpower, and be staffed using community labor. This proposal proved unpractical except in Nias.

⁷ In December 2005, ADB issued a draft Land Acquisition and Resettlement Review and Implementation for Housing Guidelines. These were drafted to clarify the Land Acquisition and Resettlement Policy Framework and Procedural Guidelines (LARPFPG) agreed with BAPPENAS in March 2005. ADB's guidelines clarified the procedures.

⁸ It was proposed that housing be built to a standard that would prevent the same intensity of earthquake from causing the structure to collapse, even if the structure were deemed unsafe following the earthquake. Public buildings were to be designed to a standard that would allow them to withstand the earthquake and remain safe.



Source: BAPPENAS.

Figure 4: Banda Aceh draft spatial master plan, 2005, depicting a buffer zone and a city park that was to separate the seafront from the city proper



Source: Banda Aceh City.

• Hybrid: A combination of the above models with the initial construction done by a contractor and the dwelling completed by the owner.

In Nias, the community contract method was used. This allowed beneficiaries full control of the construction process, with external support providing materials locally unavailable to villagers.

For beneficiaries who lived as separate households within a single compound but in houses built on a single lot, two or more houses could be combined to form either row houses or semi-detached houses. Other combinations were also permitted so long as (i) the cost did not exceed the total housing grant to which they were entitled, and (ii) all construction standards were met. The basic generic model is described below.

Housing units on small plots. In Aceh society, women frequently own houses jointly with their husbands, though the land belongs to the woman's family, since landownership in much of the society passes through the female line.⁹ In such cases, loss of a house meant loss of a widow's security as a landowner. As landownership or access to land was a precondition to constructing rebuilt housing units, special effort such as community sanctioning was undertaken to ensure that female beneficiaries were able to benefit. However, in some cases, this was not easily achieved.

For example, a woman in Gampong Pande lost both her husband and her house, and encountered problems when she tried to assert her right to have a house built on the plot where she and her husband had previously lived. In particular, her late husband's brothers objected to her being allowed this right. After some negotiation, her husband's family gave her a small parcel of land on which to live. However, the plot provided was of insufficient size to construct the model house proposed under the subproject. This problem was resolved by the consultants who designed a modified, two-storey version of the model house for her. The result was a house that provided the same amount of living space as a generic model home, but that was suited to the size of her plot. In other cases, semi-detached housing units were constructed, since the plot provided was too narrow to accommodate two houses with adequate space between.

Problems encountered in "building back better." Another problem encountered was that of satisfying community action plan requirements for land transfer. Most beneficiaries wanted to return to their own plots. However, many of these lacked appropriate access and emergency escape routes. This was apparent when the tsunami struck. Valuable time was lost

⁹ This runs counter to the predominant practice in most Islamic societies in which inheritance favors the male line.

Image 9: Traditional Aceh house in Blang Krueng



This structure saved 200 lives when the tsunami struck but was later demolished to make way for a modern village meeting hall.

When designing a house, two opposing views must be taken into account. On the one hand, the traditional house should be the basis for the design, to make maximum use of local materials. On the other hand, the house should meet contemporary requirements and make use of modern construction materials when doing so is more efficient than using local materials.

Source: Johan Silas.



Image 10: Generic design for ETESP-financed homes

The generic design for ETESP-financed homes incorporates many of the features of traditional houses in that it uses a footing foundation with a strong upper frame and beams. This allows the house to bear the lateral force incurred when earthquakes strike. A computer model was used to test the strength of the generic structure to ensure that it met the requirement for earthquakes in Indonesia's Zone 4.

Source: Project preparation consultants.

when many people attempted to flee their homes simultaneously through a maze of narrow pathways. The result was loss of a disproportionate number of lives. One key improvement in "building back better" was thus adequate access and egress, at the minimum a simple a 2-meter-wide right-of-way.

However, constructing such a right-of-way, as well as basic community facilities, required that space be made available for both. Ideally, plots would have already been identified and legally recorded, and the rights to them established. Even if this had been the case, the individual plots would then have to have been surveyed to establish the exact portion of each plot each owner was being asked to give up to provide these facilities. In the absence of clear titles and surveys, lengthy negotiations were required to obtain written agreements from those giving up a portion of their plots.

Both ADB and the Government of Indonesia had agreed that owners could give up a maximum of 10% of their land without compensation being paid, provided that they agreed. If they did not, ETESP funds would be used to provide compensation, and LARAP procedures would be followed. An understanding that such procedures would result in further project implementation delays provided an incentive for the households concerned to agree.

Development of land use and infrastructure improvement plans was integral to formulating the community action plan (CAP). In particular, negotiating the voluntary handover of land for infrastructure required conflict resolution skills among the consultants. Essentially, the process reconciled two conflicting goals: building back quickly and building back better.¹⁰

Communal facilities. The housing program's budget for infrastructure and communal facilities was limited. It was thus agreed that BRR would be responsible for constructing all primary infrastructure and most of the secondary infrastructure, while the ETESP would be responsible for constructing local reticulation networks, local roads and associated drainage, as well as local electricity connections. Sanitation was considered part of the cost of house construction, while eco-gardens and local wastewater treatment systems were considered to be local infrastructure, and therefore BRR's responsibility. Problems with this arrangement arose because construction of local infrastructure facilities required an average educational level exceeding that of most beneficiary communities, and the ETESP lacked a training component. The result was that more traditional types of local infrastructure were constructed, which in many cases proved to be not environmentally sustainable.¹¹

¹⁰ "Building back better" was a principle stated in BRR's reconstruction guidelines as follows: "House and settlement development must be integrated, done quickly, and built to an appropriate standard of good quality." The "appropriate standard" was defined in the same regulation as follows: "the technical standard for the planning and construction construction of new housing and settlements that is stipulated by the Executing Agency, which must be used as guidelines to develop new houses by all stakeholders or empowerment partners" (BRR 24 April 2006).¹⁰ In later regulations issued on 6 June 2006, the technical standards referred to were more specific: "Settlement is a residential environment including basic facilities and infrastructure and open green space needed for the continuity of community life. Basic infrastructure includes electricity, streets, drainage, sanitation, clean water supply and waste dumping."¹⁰ (BRR regulation 19 /PER/BP-BRR/III/2006: New house construction assistance for the victims of earthquake and tsunami in Nanggroe Aceh Darussalam province and Nias Island, North Sumatra Province.)

¹¹ The original plan of the drainage in Gampong Pande connected the soakaways (leach fields) to two ecological water treatment ponds. However, when the work was completed, the soakaways were connected directly to main drainage systems. The proposal had been that once this water had been biologically treated by the ecological ponds, it could be returned safely to fish ponds (*tambak*). The sites of the ecological ponds were also planned to provide locations for compost gardens. The compost produced could thus be sold or used by the residents as fertilizer.

Problems arose in cases in which infrastructure construction (e.g., the road network) was not adequately supervised. While the houses were designed and built 30 centimeters (cm) above the highest spring-tide levels recorded in the area and 60 cm above the level of the road, some roads were built higher than the plans required. This prevented runoff from the plots on which the houses were built from draining properly via the road network.

Other requirements included provision of communal meeting places, basketball courts, and administrative offices. However, locating vacant, unclaimed land for construction of these facilities was a major problem, since landowners were reluctant to give up land for these purposes. This was resolved by requesting plots of land to be provided for 20 years. This justified ETESP investment in these facilities while not requiring the outright purchase of land.

Importance of flexibility in community planning. Implementation of ADB requirements by the project preparation consultants often strained relations with the community, as beneficiaries perceived such requirements as being unnecessarily bureaucratic and time-consuming. Responding to the needs of the beneficiaries was the best way to ameliorate this situation.

For example, in many cases, tent accommodation remained the only shelter available a year following the disaster—an unsatisfactory long-term living situation. In response, the consultants made every effort to have the beneficiary communities included in the International Red Cross and Red Crescent pilot scheme, under which 20 m² houses built from easily assembled aluminium frames were to be provided.¹² Similarly, beneficiaries frequently requested the construction of prayer houses. The consultants responded by proposing that meeting halls be built aligned toward Mecca to allow these buildings to serve both as meeting halls and prayer houses. Likewise, community planning meetings at which the consultants' proposals were presented were held in public spaces such as mosques. This facilitated acceptance of the community action plan via signatures of the village head and village elders.

Such actions helped develop trust on the part of beneficiaries, as they were undertaken in addition to regular consultation meetings at which plans were shared and opportunities provided for beneficiary comment and input.

Gender issues. ADB requirements included the mainstreaming of gender issues in the planning of redeveloped communities. For this purpose, a

¹² While the first aluminium frames were delivered to Gampong Pande in November 2005, timber for the sidings and floors was not delivered until March 2006. This notwithstanding, the consultants' efforts were greatly appreciated. These frames were in many cases used to build extensions to the 36-square meter units provided under the ETESP.

gender specialist was hired in March 2006. The gender specialist undertook gender analysis, as well as assessment of training and capacity-building needs so that these could be included in the SPARs. Monitoring of compliance with ADB's gender requirements was likewise carried out over the entire implementation period. The gender specialist identified the NGOs to be involved in project-related activities, and prepared budgets for training that were to be included in the SPARs.

Similarly, the gender specialist made a number of recommendations for improving the position of women in the planning process, and for ensuring that plans took account of the needs of women (see chapter on Land Adjudication, Titling and Acquisition). This resulted in a series of alterations to the design of the housing units suggested by beneficiaries during interviews. In particular, the design of cooking, washing, and toilet facilities was substantially improved by this input.

Environmental assessment. Initial environmental examinations (IEEs) were required in the preparation of community action plans, which in turn formed an integral part of the SPPR. While IEEs were less demanding than full environmental impact assessments, IEEs duplicated much of the content of SPARs and the initial poverty and social assessments (IPSAs).

Moving from planning to procurement. To speed up the implementation of the housing program, procurement was allowed to begin upon approval of the SPAR. While this was a welcome development, it did not fit well with the two-stage process adopted under the ETESP. Under the two-stage process, a preliminary feasibility study would first be performed. This would then be followed by a detailed feasibility study, which included detailed engineering drawings with specifications, quantities, and prices. Since procurement could only be undertaken when the detailed engineering designs were available, early procurement led to problems faced by beneficiary communities assisted by NGOs, such as houses subject to flooding and substandard construction quality.

Other issues

Housing standards. Under the guidelines, a basic 36 m² unit was to be provided to all beneficiaries who at the time of the tsunami or earthquake had (i) formed a household, (ii) owned the house in which they lived, and (iii) possessed rights to use the land on which their house was built. Since numerous records were destroyed by the disaster, it was difficult to verify whether two or more generations who had shared a single house before the tsunami in fact comprised separate households. Some NGOs expressed the view that larger units should be provided to extended families living together,

Box 2: Promoting equality for vulnerable groups

Gender action plans. Gender action plans (GAPs) were formulated for all settlements rebuilt with ETESP support. These incorporated the following gender-related information: (i) baseline data and gender-specific beneficiary data, (ii) modes of female participation in community consultations and decision making regarding rehabilitation and reconstruction, (iii) the manner in which the design and zoning requirements of housing and settlements would take account of the privacy and protection requirements of women, (iv) the degree of female participation in paid construction works, and (v) gender-specific variables relating to the operation and maintenance of basic residential infrastructure.

ADB's *Gender Checklist* and its *Policy on Gender and Development* were used as guidelines in preparing the GAPs, which had a positive impact on the formulation and implementation of the housing subprojects. This was particularly true in the areas of (i) beneficiary selection, (ii) gender-sensitive house design and site development, (iii) female participation in community contracting, and (iv) operation and maintenance of community facilities.

Beneficiary selection. All ETESP subprojects applied the equity principle in beneficiary selection, giving priority to households headed by females, orphans, and elderly and disabled persons. In the case of orphans, boys and girls had equal opportunity in receiving housing grants. In cases in which there were several surviving orphans belonging to one household, the housing grant was provided to all of them jointly, according to the principle of one entitlement per household. Households with more than five members and with adult children formed a special case, since the standard 36-square meter house was not large enough to accommodate the entire family. While in such cases, a larger unit was recommended to permit additional privacy, application of the equal-benefits policy disallowed provision of additional benefits, leaving only the option of expanding the grant-provided housing units with the family's own resources. Uniform allocation of housing grants of 36-square meter houses was not able to accommodate households headed by males with several wives, as allowed under Islamic customary law.

The beneficiary selection process ensured that persons with reading and writing disabilities were assisted by village heads. Beneficiary registration included photographic records to (i) reduce verification errors, (ii) ensure against possible double registration in other project locations, and (iii) facilitate validation of beneficiary data.

Gender-sensitive house design. Community participation was essential in formulating the housing program. Women were especially encouraged to let their views regarding house design be known, as well as their views relating to the planning of reconstruction of their villages. Likewise, the participation of women was integrated into monitoring and evaluation of house construction. At this stage, community participation was institutionalized through formation of Village Committees for House Construction (Panitia Pembangunan Rumah Gampong [PPRG]).

Box 2: continued

The design of the grant-provided housing units was based on the following: (i) minimum provision for nuclear families of survivors, (ii) earthquake resistance, and (iii) flexibility for further improvement by the owners. This implied that houses were to be structurally strong and safe, ready to be occupied without major contributions by beneficiaries, and lastly to reflect the cultural needs and customs of the beneficiaries. Facilities important for sustainability of the housing program included water and sanitation, privacy, house access for disabled persons, and kitchen areas.

The housing program made a special effort to incorporate suggestions made by households headed by females, and modified the generic housing design to reflect these.^a From the perspective of women, the small size of the units resulted in an insufficient number of bedrooms in the case of some households. The design of the kitchens as open-air facilities located at the back of the houses was likewise questioned. Further, many beneficiaries felt that additional ventilation was needed both in living and sleeping areas, as well as in the bathroom. This prompted various simple suggestions for minor adjustments that would allow enclosing the kitchens, and provide better ventilation. However, these modifications were left to individual beneficiaries.

^a Quoted from R. Kausar and F. Wedahuditama. 2007. *Emphasizing Women's Role in Aceh's Housing Program.* SEAGEN digital newsletter. Manila: ADB.

Source: SEAGEN digital newsletter.

while others felt that larger housing units of more than 40 m² should be provided. Questions were also asked whether the 36 m² should include toilet facilities. In some designs, the cooking areas were located inside, while in others it was placed under an extended roof outside the main structure.

The justification for the proposal to provide additional space to larger families was a concern that households with 3–8 members should have a minimum space per person of 9 m².¹³ However, it was likewise recognized that providing housing of differing quality would lead to friction among beneficiaries and possible beneficiary rejection of some of the units. One solution proposed was that of constructing two units together for two households, thereby providing an equivalent of a 72 m² unit for families who had previously shared one compound.

¹³ This standard was proposed by a representative from the Catholic Organisation for Relief and Development Aid. The minimum space per person standard recently proposed by the UN for reconstruction of refugee camps in Palestine ranges from 9–20 m² for multi-person households (*Preliminary Master Plan and Guidelines for Reconstruction of NBC: UNRWA June 2008*). This standard is well below those applied throughout Europe (see *Housing Space Standards: HATC for Greater London Authority, 2006*).

Housing repairs. Problems quickly arose with the plan to include repairs under the housing program. First, the extent of repairs required, and hence their cost, varied considerably. It was agreed that a repair grant in an amount of up to 50% of the housing grant for a 36 m² house would be made available to those whose houses were deemed uninhabitable, and up to an amount equal to 25% of the housing grant for a 36 m² house to those whose houses were deemed still habitable, but which had suffered damage, the degree of damage being assessed by a work assessment team appointed by the executing agency.¹⁴ However, evaluating individual houses is a laborintensive task requiring specialist skills. As a result, 18 months after the tsunami and 15 months after the earthquake that damaged Nias Island, no work had yet begun on repairs. This resulted in discontent since many of the survivors whose houses were not completely destroyed had already undertaken necessary repairs and expected compensation, as statements had earlier been made that all households whose homes had been severely damaged would receive assistance. This notwithstanding, BRR took the decision that even though they had receipts for the work completed, such households would not receive any retroactive compensation.

Rehabilitation of Nias heritage villages. Further problems were also encountered in Nias, especially with the requirement that traditional houses were to be repaired. There were many houses of this type, each of which required special treatment, since they were examples of indigenous architecture found only in this part of Indonesia. The solution reached was that of permitting up to the maximum grant available for repair to be provided to each of the beneficiary households living in such houses.¹⁵

Lessons learned

1. Adjusting procedures to the post-disaster context. Both ADB and the Government of Indonesia experienced problems in adjusting procedures to fit the emergency nature of the reconstruction effort. This was particularly true of the transition from fulfilling the immediate needs of the survivors to reconstruction. ADB was not to fund development in unsuitable areas such as areas subject to flooding, and not to fund substandard redevelopment. Environmental issues such as ensuring that only renewable sources of timber were used also had to be taken into account. Further, ADB guidelines

¹⁴ 19 /PER/BP-BRR/III/2006: House rehabilitation assistance for the victims of the earthquake and tsunami in Nanggroe Aceh, Darussalam Province and Nias Island, North Sumatra Province, June 2006.

¹⁵ See the chapter on Rehabilitation and Reconstruction of Heritage Villages in Southern Nias by Heracles Lang.

recommended a participatory approach to planning for reconstruction, the use of labor-intensive construction techniques, and that the rights of land claimants be protected. Satisfying all of the above conditions translated into a complex system of approvals, social safeguards, environmental assessments, and evaluation of the design of the structures to be provided. This was not aided by the lengthy procedures required for contracting consultants and finalizing construction contracts. As a result, the first construction contracts were not completed until 15 months after the tsunami struck, and the first houses were not handed over to beneficiaries until 6 months later. Two sub-lessons can be drawn from this:

- (i) Avoid duplication. Stand-alone documentation relating to social and environmental issues is unnecessary and should be addressed as part of SPARs and SPPRs, with an environmental mitigation plan being included in the SPPR if necessary. Failing that, initial environmental assessments should be reviewed to avoid possible overlap, particularly since social safeguards are also included in the initial environmental examinations.
- (ii) Avoid duplicating approval procedures. The necessity of subprojects being approved by both ADB and the Government of Indonesia was largely avoided by both parties agreeing to harmonized environmental safeguards. While this welcome development resulted in preparation of one less report, the IEEs needed to be approved by both bodies. Formation of joint working teams might have avoided this.

2. Evolving rules and guidelines lead to confusion and dissatisfaction. The wide variation in beneficiary requirements for livelihood reconstruction

Image 11: Traditional houses in South Nias



Source: Johan Silas.

Image 12: ADB consultants working with local communities in Nias to develop nontraditional homes



Source: Johan Silas.

Image 13: Model for nontraditional houses on narrow plots

Image 14: Nontraditional houses exhibit similarities with traditional houses





Source: Project preparation consultants.

Source: Project preparation consultants.

contributed to ever-changing rules and guidelines. The regulations governing beneficiary identification as well as the amount and type of assistance were not issued until June 2006, and even then were subject to refinement. These delays led to much criticism of the project by survivors (Sullivan 2005).¹⁶

3. Planners cannot work without an adequate database. An adequate database regarding the requirements in each area and the responses from the government, the donor community, and NGOs is a necessity if duplication of effort is to be avoided. This was particularly important as funds allocated to each housing subproject were standardized, and thus failed to take into account individual site requirements. Further, the funds provided were often inadequate for the provision of basic infrastructure and other requirements such as landfill and planting to improve the environment or to protect sites from flooding. With better data and coordination, the complete site requirements could have been assessed and support provided accordingly.

4. Lives must be reconstructed, not just houses. The ETESP included a number of subprograms aimed at reconstructing lives rather than just houses.

¹⁶ Tim Sullivan: 2005. Aceh: One Year After the Tsunami, 2005. December. www.iol.co.za/ index.php?set_id=1&click_id=2985&art_id=qw1135575361171B232

Examples include social services (education and health), infrastructure (water and sanitation), and livelihood recovery (support to small-scale enterprise and micro-business). However, these complementarities were not realized except in the case of the water and sanitation component. This resulted from the ETESP project being divided into 12 sectors, each with its own management and implementation unit, and each sector is pursuing its own priorities. A greater degree of complementarity among the various subprograms could have led to a greater overall impact.

5. Disaggregating larger subprojects speeds implementation. Initially, the SPAR was the sole appraisal document required. It was later recognized that a preliminary appraisal process was necessary. This ensured that the proposed site was suitable, and that the scale of reconstruction was appropriate before the more labor-intensive detailed planning process was undertaken. However, introduction of the two-stage process did not always accelerate the approval process, as formulation of the SPPR was always subject to delays, especially in finalizing the CAP. In many cases, this problem could have been alleviated by disaggregating larger subprojects into units, each being allowed to proceed to the construction phase without having to have the entire subproject approved. Where this was practiced under the ETESP, it resulted in facilitating the use of limited local competitive bidding, since the packages approved were small enough to qualify for this type of tendering.

6. Addressing environmental issues and providing appropriate training improves results. The majority of reconstruction sites were located on ground that was barely above sea level. As a result, landfill requirements were inadequately reflected in the cost estimates. While the housing designs ensured that the buildings were placed 60 cm above the highest spring-tide level recorded, the remainder of the plot could still remain under water much of the year. Access to the houses from the roads or footpaths provided was not included in the original design. Further, the low-lying land made the construction of septic tanks difficult, as the chambers had to be sealed and users trained. Provision for such training would have been helpful in cases in which relatively sophisticated systems are proposed for purposes of compliance with environmental standards.

7. Adjusting the layout of plots improves results. Once the beneficiaries were identified and the ownership of plots verified, adjustments could have been made to the proposed layout of the reconstruction works. This would have improved the physical environment for all beneficiaries. It likewise would have eased tensions that resulted from some beneficiaries having to give up a portion of their plots so that appropriate infrastructure could be provided, while others incurred no such loss. Adjusting the proposed layout would have allowed the loss of land for the provision of communal facilities

to be shared more equitably, and basic infrastructure to be provided at a lower cost. Providing infrastructure at a lower cost is particularly relevant for communities comprising survivors whose original plots were quite spread out, or survivors whose original plots were located in areas requiring considerable additional engineering work, including drainage and landfill works.

8. Reassigning planning and subproject preparation roles facilitates implementation. Preparation of the village plan (block plan) requires a verified list of beneficiaries. In the original contracts, the project implementation consultant did not have the capacity to prepare the village plans; conversely, the consultants did not have the capacity to prepare a verified beneficiary list. Consequently, the project implementation consultant was not able to take ownership of subprojects. This dilemma suggested a need to redefine roles as follows: the project implementation consultant should do the detailed engineering designs, contract out work, inspect, and assume guality control functions for the construction. The project preparation consultants should perform all community development and planning. Since verification of the list of beneficiaries required much more consultant input than originally thought, this arrangement would require a longer contract period for the project preparation consultants. Under the ETESP, supplementary local staff (community facilitators) from Aceh helped with this task. This arrangement resulted in the additional benefit of providing employment for many welleducated younger members of the community.

9. Successful community contracting requires certain conditions to be fulfilled. The experience under the ETESP was that community contracting was only possible with the full understanding and support of the community. Its application is thus only recommended when the following conditions are met. First, the community must live on site, or within a distance that allows easy access to the site. Second, supervision by qualified professionals such as architects or structural engineers is required. Third, community members must collectively possess some construction skills. Rarely are all these conditions fulfilled at a particular site. That said, the likelihood of these three conditions being fulfilled would most likely be increased if a three-stage reconstruction process were employed instead of moving directly from the first (i.e., emergency aid) stage to reconstruction. Such a three-stage process would imply providing temporary housing to all qualifying beneficiaries at the project site during a second transitional stage during which plot layouts and plans for community facilities including infrastructure would be completed in a fully participatory manner. This arrangement would make any necessary land readjustment easier, in that the amount of land required to be given up for construction of community facilities would be shared equally among all beneficiaries, rather than only some beneficiaries being required to give up a portion of their land while others were not. A second (i.e., transitional) stage would also allow time for construction skills to be acquired, for false claims to be identified and addressed, and for the consultants concerned to build an even greater degree of collective community trust and acceptance of the requirements of reconstruction as implemented under community contracting.

10. The process of beneficiary identification can easily be improved. It is suggested that once beneficiaries are identified, each should agree to participate via a signed, written agreement. Each should also be photographed or appear in person to provide his or her *kartu tanduk penduduk* (KTP, or resident registration card) and *kartu kepala keluarga* (*KK*, or head of household registration card). Copies of the KK should be posted in public places to allow the community as a whole to verify the rights of particular claimants.

11. Approval of structure plans. In the case of larger areas impacted by disasters, preparation of spatial structure plans should be completed as part of the site identification work for the SPAR. This would facilitate (i) assessing the suitability of a site for redevelopment, and (ii) identifying alternate sites in cases in which relocation is advised. The structure plan should be approved by the town planning office (*dinas tata ruang*) of the district (*kabupaten*) or city (*kota*) concerned.

12. Community involvement in planning helps avoid difficulties during implementation. The experience gained in the initial ETESP pilot areas demonstrated that community involvement in planning helps avoid difficulties during implementation. In particular, plot boundaries must be clearly marked to ensure that contractors do not build houses on the wrong plots.

13. Gaining the trust of community members facilitates successful implementation. Successful implementation requires gaining the full trust of community members and their leaders. Three keys to achieving this are as follows: (i) make frequent contact with beneficiaries and their community leaders; (ii) speak with beneficiaries and their leaders as equals; and (iii) maintain some degree of flexibility in reaching the housing solution each beneficiary desires (e.g., location of houses on plots). The experience gained in the initial ETESP pilot areas demonstrates that this approach results in houses that are most satisfactory to beneficiaries.

14. Establishing and enforcing quality standards are key in achieving sustainability. The requirement that the procurement teams (*satkers*) approve reconstruction contracts resulted in delays. Inadequate on-site supervision also resulted in substandard works in some cases (e.g., poor finishing work such as plastering or painting). Similarly, during the maintenance period, the contractors failed to maintain or repair the houses as required. Finally, some

of the construction timber used was not treated; it thus quickly rotted or was devoured by termites.¹⁷

15. Incorporating adaptability into generic house designs improves beneficiary satisfaction. The generic housing unit used was designed to withstand earthquakes in Indonesia's Zone IV. As a result, funding for finishing touches was limited. The design deliberately provided many options for modification or adaptation according to individual requirements and preferences, thus encouraging beneficiaries to personalize their homes. As a result, no two houses turned out precisely the same.

¹⁷ For additional details, see the chapter on Implementing On-Budget and Off-Budget Projects by Esa Paaso and Saputra Liadi.

Implementing On-Budget and Off-Budget Subprojects

by Esa Paaso and Saputra Liadi

Introduction

A provided under the Earthquake and Tsunami Emergency Support Project (ETESP) of ADB was allocated to the housing rehabilitation and reconstruction program (commonly referred to as "the housing program"). This reflects the scale of the reconstruction requirements in the housing sector resulting from the tsunami and earthquake of December 2004. This reconstruction effort was unprecedented for both the Government of Indonesia (the Government) and ADB. By the end of 2009, the housing program had constructed 6,001 new homes, rehabilitated 1,109 houses, and provided on-site basic infrastructure to these residences (Figure 1). This was achieved through implementation of two basic types of subprojects: on-budget and off-budget subprojects.

The on-budget subprojects were implemented by procurement teams (*satuan kerja* or *satkers*). As these are government task forces responsible for procurement in specific geographic regions, they have access to government (Daftar Isian Pelaksanaan Anggaran [DIPA]) budgetary resources within the limit of their annual budgetary allocations. The *satkers,* through which all of the on-budget subprojects referred to in this chapter were implemented, reported to the government's Aceh-Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]). As these subprojects were funded under the ETESP, a combination of ADB-provided and government counterpart funds were used to finance the reconstruction activities these subprojects supported.

The off-budget subprojects, on the other hand, were financed via direct disbursement of funds by ADB, with subproject implementation being carried out by the United Nations Human Settlements Programme (UN-HABITAT), a



Figure 1: Subproject locations

Source: Oversight consultant.

number of nongovernment organizations (NGOs), and beginning in 2009, the International Organization of Migration (IOM).

Figure 2 below depicts the relationship between ADB, BRR, UN-HABITAT, IOM, the NGOs, the project preparation consultants, the oversight consultants, and the project implementation consultants, the latter three groups of consultants being engaged under the ETESP.

BRR. The overall disaster response initiative in the housing sector was initially coordinated by the National Development Planning Agency (Badan Perencanaan Pembangunan Nasional [BAPPENAS]) in cooperation with the Ministry of Public Works (MPW), the latter being the original implementing



Figure 2: Organizational structure of on-budget and off-budget subprojects

ADB = Asian Development Bank, BRR = Aceh-Nias Rehabilitation and Reconstruction Agency, IOM = International Organization of Migration, NGO = nongovernment organization, OC = oversight consultant, PIC = project implementation consultant, PPC = project preparation consultant. agency for the ETESP housing program. However, following BRR's establishment on 16 April 2005, strategy formulation was handed over to it. BRR thus became responsible for overall coordination of the rehabilitation and reconstruction effort in Aceh and Nias, having replaced BAPPENAS in this capacity. The responsibilities that BRR inherited from BAPPENAS included formulating detailed implementation guidelines for the overall reconstruction initiative.

During 2006, BRR's responsibilities were expanded to include taking the lead role in all rehabilitation and reconstruction works in the geographic areas affected by the disaster. As procurement was part of these responsibilities, BRR became the government counterpart agency for the ETESP housing program, and thus its implementing agency, having taken over from MPW. Since the *satkers*, which were supervised by BRR's Deputy of Housing, were responsible for procurement in specific geographic areas, they became ETESP project implementation units.¹ As such, the *satkers* were tasked with procuring civil works contracts and supervising these contracts.

BRR embraced its new procurement and implementation roles, despite its administrative capacity at the middle management and staff levels not being completely commensurate with the responsibilities thrust upon it. These challenges were magnified by the fact that the agency's new role put it into a somewhat delicate position. BRR had in fact become an implementer of projects. To a certain degree, this put it in competition with NGOs and donor agencies implementing similar projects of their own, but for which BRR functioned as the oversight agency. This at times compromised BRR's impartiality in its oversight capacity.

ADB. In May 2005, ADB established its Extended Mission in Sumatra (EMS), with offices in Medan and Banda Aceh, which became operational in July 2005. An ETESP project management office was established at the EMS Banda Aceh office. Project management office staff included a social and environmental safeguards team as well as a housing advisor. The EMS approved feasibility studies and detailed engineering plans, managed consultant contracts, and facilitated communication between ADB's management working from its headquarters in Manila, and field operations in Sumatra.

Project preparation consultants. In 2005, a team of ETESP project preparation consultants was fielded, their primary responsibility being to initiate preparatory works. The team began two pilot projects in Banda Aceh (specifically in Gampong Pande and Lamdingin). Over 2005–2006,

¹ BRR's *satkers* (procurement teams) assumed procurement responsibilities in February 2006.

the team's duties included preparing subproject appraisal reports (SPARs, which were initial subproject feasibility studies) and subproject preparation reports (SPPRs, which were subproject feasibility studies of sufficient detail to include house construction designs and detailed village plans). Both the SPARs and SPPRs were prepared with the full participation of the beneficiaries concerned.² The project preparation consultants were phased out in September 2006 with the fielding of the oversight consultants and the project implementation consultants, the responsibilities of both are described below.

Oversight consultants. This consultant team was to lead the ETESP housing program and supervise the project implementation consultants. Its tasks included verifying compliance with BRR guidelines, planning of project implementation activities, overseeing the budget, identifying subproject locations, and coordinating with BRR. The oversight consultants were thus responsible for verifying village and block plans, for providing detailed design of houses, and construction permits.

A significant amount of interaction occurred between the oversight consultants and the project implementation consultants during the design and construction phases of work under the housing program, this being true all the way up to the point at which the houses were handed over to beneficiaries. For off-budget subprojects, the oversight consultants approved the construction designs and were directly responsible for quality assurance. In addition, they undertook monitoring missions during which they were supported by both a national and an international consultant. Beginning in 2006, a national housing specialist worked with the oversight consultants on Nias island in support of the rehabilitation work on traditional houses there.³

Project implementation consultants. Two project implementation consultant teams comprising architects, engineers, computer-aided design specialists, and social and technical facilitators began work in early 2006.⁴ Initially, both the project preparation consultants and oversight consultants provided a great deal of assistance to the project implementation consultant teams. This was necessary, for example, because preparation of subprojects turned out to be an exceedingly demanding task. This was particularly true of preparation of the SPARs, the SPPRs, the procurement documents,

² Chapter 2 describes the accomplishments of the project preparation consultants in detail.

³ Chapter 8 provides a detailed description of the rehabilitation and reconstruction of heritage villages in South Nias.

⁴ Initially there were two teams of project implementation consultants, the intention being a geographic division of works. The PIC-9 team was responsible for Banda Aceh, Aceh Besar, and Sabang, while the PIC-10 team was responsible for Aceh Barat and Nias. In July 2008, the two were merged into one team referred to as PIC-45.

and environmental and social documentation such as initial environmental examinations (IEEs) and initial poverty and social assessments (IPSAs). The demanding nature of these tasks led to numerous staff changes over the project implementation consultants' 3-year contract period.

Off-budget partners

To accelerate delivery of houses to beneficiaries, in March 2006, ADB and BRR jointly decided to engage the assistance of development partners in constructing beneficiary housing under subprojects implemented through off-budget partners. These partners included the UN-HABITAT and four NGOs as follows: the Catholic Organisation for Relief and Development Aid (Cordaid), Deutsche Welthungerhilfe (German Agro Action [GAA]), the Health, Education, and Literacy Programme (HELP), and Muslim Aid. Engaged directly by ADB, these agencies implemented subprojects in several districts in Aceh province including Aceh Utara, Bireuen, Lhokseumawe, and Pidie, as well as on Simeuleu and Nias islands. The IOM was later engaged by ADB in 2009 to improve infrastructure works in Aceh Utara and Aceh Besar.

Engaging these off-budget partners provided the subproject sites they served—as well as the beneficiaries that lived at them—with a project management structure, while the ETESP funded the works undertaken. During subproject preparation, it became apparent that despite their eagerness, some of the off-budget partners tended to overstate their capacities vis-àvis ETESP subproject preparation requirements (e.g., SPARs, SPPRs, IEEs, IPSAs, social safeguards, and procurement documents and procedures). This led some of these agencies to view their ETESP contractual agreements as being overly ADB-centric or inflexible.

Further, the NGO staff turnover rate was substantial. This led to delays and placed an additional burden on the oversight consultants, as they were responsible for training and orientation of off-budget-partner staff. Moreover, some of the NGOs initially relied on young, inexperienced expatriate staff, an arrangement that did not always lead to optimal quality of outputs. In sum, subproject outcomes were generally the most successful in cases in which experienced local staff were widely used, though an optimal mix of expatriate and national staff would have improved subproject outcomes even further. Finally, some NGOs faced difficulties in interacting with local politics and the idiosyncrasies of local culture.

In cases in which community contracting was employed as the subproject implementation modality (i.e., on Nias island), both the NGOs and UN-HABITAT were well suited to their responsibilities. In some of these cases, experienced local foremen were used, and the NGOs were able to retain or rehire companies or craftsmen with considerable experience, which positively impacted the quality of construction. While generally, the off-budget partners were able to choose quality contractors, problems arose in cases in which NGOs were pressured by communities or their leaders (e.g., who were also members of Gerakan Aceh Merdeka (GAM, the Aceh insurgent separatist movement) to hire inexperienced local labor. The NGOs also faced difficulties in finding affordable and experienced community facilitators because many donor organizations were simultaneously recruiting such staff.

Construction cost increases

Over 2005–2006, the price of construction materials increased rapidly. By March 2006, the estimated unit cost of a standard donor-provided 36-square meter (m²) house had risen to Rp55 million (\$5,500), while that of an average rehabilitation package had reached Rp20 million. As ADB anticipated further price increases, in March 2006 the number of new housing units to be financed under the ETESP housing program was reduced from 14,000 to 8,000 units, and the number of housing units to be rehabilitated or repaired from 10,000 to 2,000 units.

BRR's approval of the level of construction costs to be financed under the ETESP for both on-budget and off-budget partners was based on its recommended cost ceiling for 36 m² houses. Issuing this approval effectively standardized the level of assistance received by beneficiary households, and thus prevented competition among donors, some of which were attempting to place claims on more favorable reconstruction sites. While in 2005, some NGOs began building houses with floor space in the range of 42 m²–65 m², BRR was only able to put an end to this in 2007 by requiring all donors to adhere to the BRR standard of 36 m² housing units.

Exceptions to the BRR-imposed construction cost ceilings were granted on a case-by-case basis. BRR tended to be particularly lenient when requests for exemptions originated in remote areas such as Meulaboh, or the islands of Nias and Simeulue. This was so because these areas were served by a limited number of contractors and material suppliers, the chances of engaging quality contractors or negotiating competitive prices in these locales thus being slim.

Table 1 summarizes the actual ETESP on-budget house construction cost increases that occurred during 2005–2008, as well as the major causes of these increases. The housing cost estimates appearing in ADB's initial

Table 1: ETESP construction cost of a standard on-budget-provided 36-square meter house in Aceh by construction batch (Rp million)

Construc-	Contract	Unit Cost	. %	Factor driving price increase	
tion Batch	Awarded	(Rp millions)	increase	External	Internal
ADB appraisal estimate: cost of a 36- square meter rudimentary house	April 2005 estimate	28.8			
SPAR estimate by project preparation consultants	Early 2006 estimate	60.0		Fuel price increase by 100% on 1 Oct 2005	Modification of ETESP house design to accommodate earthquake resistance requirements
Batch 1	Apr 2006	59.9			
Batch 2	Jul 2006	59.8	(0.2)		
Batch 3	Sep 2006	59.8	0		
Batch 4	Apr 2007	67.0	11.9	Fuel price increase by 13% on 1 June 2006. Heavy demand for construction materials and labor.	Design modifications to sanitation facilities: material for roof trusses changed from timber to light metal.
Batch 5	Apr 2008	76.7	14.4	Fuel price increase by 6% on 1 November 2007. Heavy demand for construction materials and labor.	Design improved to add space for kitchen
Batch 6	Aug 2008	89.6	16.8	Fuel price increase by 28% on 24 May 2008. Price of reinforcing steel increased by 56%; price of cement increased by approximately 20%.	

() = negative figure, ETESP = Earthquake and Tsunami Emergency Support Project, SPAR = subproject appraisal report.

Source: Oversight consultants.

ETESP documents were based on those published in 2005 by BAPPENAS, the government agency responsible for the overall reconstruction effort at that time. In response to these price increases, BRR raised the average cost of an on-budget concrete-and-brick house to Rp52 million–Rp58 million in 2006.

In remote locations, the price increases facing ADB's off-budget partners were even more pronounced than those reported in Table 2. While using community contracting as the modality for implementing subprojects would have dampened these price increases to some degree, data from subprojects on Nias island show that the 2009 cost ceiling of Rp60 million for new construction delivered via on-budget community contracting was inadequate to construct a standard 36 m² house, a more realistic ceiling being Rp90 million. In the case of Nias island, the degree of price escalation reflected the difficulty of access to construction sites, as well as the remoteness of Nias itself. The highest level of construction cost for a standard donor-provided 36 m² house was reached in 2009 when the steel-frame houses completed that year by GAA on Simeulue island cost in excess of Rp120 million.⁵

On-budget projects: From planning to procurement

Initially, preparation of on-budget subprojects (i.e., completion of SPARs and SPRRs) required about 7 months (May to November 2006) for 2,000 houses. Preparation of SPARs and the spatial village plans alone required about 4 months (May through August 2006). The major challenges faced in preparing the SPARs and spatial village plans were those associated with data collection (topography, soil condition, plot boundaries, environmental data concerning water and drainage, beneficiary selection, and entitlement verification). Preparation of SPPRs required an additional 5 months (July through November 2006).

In August 2006, the project preparation consultants handed over their responsibilities to the project implementation consultants. Following this, the project implementation consultants prepared the SPPRs and village plans. One of the most time-intensive tasks in completing the SPPRs was final verification of the list of beneficiaries, these lists being based on

⁵ Depreciation of the Indonesian rupiah from Rp9,000 to Rp11,000 per US dollar during 2008–2009 to some extent dampened the price escalation as expressed in dollar terms. Deutsche Welthungerhilfe (German Agro Action [GAA]) reported that in total, it subsidized its contract package by about \$542,000 due to increases in personnel costs. Other off-budget partners reported providing in-kind contributions to counterbalance construction cost increases.

those previously provided by BRR. However, despite finalization of the list of beneficiaries, no data or records were available via which the final list of beneficiaries could be cross-referenced to ensure accuracy. The fact that BRR guidelines on the eligibility of beneficiaries were provided only later further complicated the task of beneficiary verification.

Moreover, preparation of block plans required accurate plot boundaries, and house designs needed to be adjusted to allow for construction of required infrastructure or communal facilities. On occasion, reblocking was also necessary to allow access to plots formerly lacking it. While the project preparation consultants had prepared the block plans and infrastructure plans, these usually needed to be verified by the project implementation consultants, and occasionally revised to accommodate conditions in the field. Drafting IEEs further increased the project implementation consultants' workload.

The oversight consultants assisted the project implementation consultants in preparing new subprojects and in reviewing the degree of earthquake resistance afforded by the construction designs. The community development specialist and land specialist serving on the oversight consultant team became actively involved in training project implementation consultant facilitators and in verifying landownership data. This effectively extended the role of the oversight consultant team to that of implementation. This was particularly true with regard to verification of beneficiaries, land titling, complaint handling, and the handing-over of completed housing units.

Once subproject tender documents were prepared by the project implementation consultants with support from the oversight consultants, these were passed to BRR for review and approval. The BRR procurement team *(satker)* concerned then prepared a list of pre-selected contractors and arranged calls for tender in accordance with government guidelines. Before bids were submitted, the contractors were invited to pre-bid meetings during which contractors could ask questions about the construction works. The bids were then submitted.

The sealed bids submitted by the contractors were opened in the presence of the procurement specialist and oversight consultant as observers, and the bid results evaluated. In cases in which costs exceeded guideline levels or bids failed to fulfil formal requirements (e.g., bank guarantees were required together with the bids but were not always submitted), the subprojects were re-tendered. After signing the contracts, successful contractors were given 7–10 days in which to mobilize labor and materials. Typically, construction began with a site meeting at which the responsibilities of all parties were highlighted.

In South Nias, BRR used community contracting to implement reconstruction and rehabilitation subprojects. In such cases, BRR followed ADB's guidelines for community contracting. Four pilot subprojects employed this mode of implementation. In all, 476 houses in South Nias were slated for reconstruction, and 556 houses were to be repaired under the four pilot subprojects. In addition, infrastructure works were prepared by means of community action plans (CAPs). The infrastructure works included under these subprojects mainly comprised rehabilitation of plazas, and construction of village halls, communal bathing facilities, and water supply networks.

Using community contracts as the implementation modality for the four pilot subprojects in South Nias presented the project implementation consultants with significant challenges. The most important of these was the fact that the beneficiary communities lacked capacity for dealing with the administrative aspects of contract management, this being further exacerbated by the limited administrative capacity of the Nias BRR procurement team. Moreover, the remoteness of Nias from Banda Aceh limited the ability of the oversight consultants to oversee and support the Nias pilot subprojects. Interaction of the above factors significantly delayed subproject completion in the four pilot villages on Nias.

In 2008, an additional seven subprojects in South Nias were slated for inclusion under the ETESP. In all, 196 beneficiary households were identified at the onset of implementation of the seven subprojects. The oversight consultants supported implementation of these subprojects by assigning a senior architect and a heritage rehabilitation specialist to assist the project implementation consultant team. In early 2009, rehabilitation of this second batch of traditional houses was successfully completed along with the associated infrastructure works. All houses passed inspection and were handed over to the beneficiaries.

The off-budget modality

In March 2006, ADB and the Government of Indonesia agreed to offbudget partners implementing housing subprojects in addition to on-budget implementation in order to accelerate delivery of houses to beneficiaries and to ease BRR's implementation burden. For this purpose, ADB concluded direct contracts with its off-budget partners, which were selected by ADB in consultation with BRR. The selection criteria included the following: (i) previous experience with construction projects, (ii) the quality of housing previously constructed, (iii) construction cost estimates for the houses to



Image 1: Rehabilitation in Hilinawalo Mazingo, a traditional village in southern Nias

The timber columns and beams damaged by the earthquake have all been replaced. Note that reconstruction of the roof used traditional roofing materials, as these provide sufficient thermal isolation to maintain a pleasant temperature inside the house regardless of the temperature outside. The shape of these houses is reminiscent of a ship, since in traditional Nias society, one's house symbolically represents the vessel that carries one through the journey of human life. The diagonal structure of these houses evolved over a number of centuries in response to a need for resistance to damage from earthquakes.

Source: Esa Paaso.

be built, (iv) the number of beneficiaries identified, (v) the total area of land available for construction, and (vi) the geographic location of the proposed subprojects. The off-budget partners were those whose names appear in Table 2.

The off-budget subproject implementation modality was a mutually advantageous arrangement. All of the partners had already completed preparation work at specific sites, but were unable to proceed with construction works for lack of funds; ADB, on the other hand, had housing program funds available that could be dispatched immediately. Once the contracts with the off-budget partners had been concluded, the oversight consultants assumed responsibility for monitoring and oversight of the entire off-budget portion of the housing program.
Implementation of the off-budget subprojects was similar to that of the on-budget subprojects in that it employed both the community contract mode of implementation as well as engaged commercial contractors. The contracts with the off-budget partners were implemented during 2006–2009 (Table 2).

Construction under the off-budget implementation modality was ultimately delayed by an average of approximately 1 year. The major reason for this comprised problems relating to meeting ADB's comprehensive project preparation requirements (i.e., SPARs, SPPRs, IEEs, community action plans, and village plans). Consequently, UN-HABITAT was able to begin construction of housing units on Nias island in February 2007, Muslim Aid and Cordaid in May–June 2007, with the remainder of off-budget construction works beginning by the end of 2007.

The contracts between ADB and its off-budget partners were implemented as "turn-key" contracts requiring adherence to ETESP standards and guidelines, as well as ADB's safeguard policies, the agreed environmental assessment and review procedures, and the agreed land

Off- Budget Partners	Total Value of Works (\$)	Location of Works	Number of New Units Constructed	Number of Houses Rehabilitated	Construction Modality
CordAid	4,558,350	Aceh Utara	377	-	Local contractors
German Agro Action	6,133,248	Simeulue/Pidie	502	66	Local contractors and community contracts
Help	5,778,502	Nias	449	209	Community contracts
Muslim Aid	5,752,421	Pidie, Aceh Utara, and Lhokseumawe	686	-	Local contractors
un- Habitat	4,705,882	Nias	486	-	Community contracts
un- Habitat	6,447,750	Simeulue	459	-	Community contracts

Table 2: Summary of achievements of ETESP off-budget partners

CordAid = Catholic Organisation for Relief and Development Aid, ETESP = Earthquake and Tsunami Emergency Support Project, HELP = Health, Education and Literacy Programme, UN-HABITAT = United Nations Human Settlements Programme.

Source: Oversight consultants.

acquisition and resettlement policy framework and procedural guidelines.⁶ Procurement of goods and services under all off-budget subprojects was carried out in accordance with ADB's *Guidelines on Procurement*.

Monitoring of contract implementation was performed by the oversight consultants. This began with approval of the design and construction documents and included

- verification of quality and quantity of work performed,
- verification of invoices prepared by contractors and suppliers,
- approval of invoices for payment, and
- approval of payments to the bank account of the contractor.

The records and reports pertaining to monitoring of the off-budget subprojects were submitted to ADB and BRR for verification and auditing as required, just as with on-budget subprojects. Construction sites were jointly inspected by BRR inspectors and the oversight consultants and the progress of off-budget subproject implementation reviewed. This proved to be an effective means of ensuring construction quality. Ultimately, the off-budget implementation exercise under the ETESP demonstrated that NGOs and specialized agencies such as the UN-HABITAT can successfully implement projects with a total value of more than \$5 million. This represents a welcome innovation in ADB procurement procedures. Community contracting was also demonstrated to be a viable alternative to commercial contracting, especially in cases in which owners construct their own houses and adequate support and supervisory arrangements are in place.

Coming to terms with construction quality and earthquake resistance

The standard housing unit designed by the project preparation consultants was subject to laboratory tests at the Surabaya Institute of Technology in 2005. The results of these tests demonstrated that the standard housing unit

⁶ All subprojects were prepared in accordance with the following: (i) BRR reconstruction guidelines, (ii) ADB's social and environmental safeguards, and (iii) application of the formats for subproject appraisal reports and subproject preparation reports as prescribed under the ETESP. When necessary, ETESP housing consultants assisted off-budget partners in finalizing subproject appraisal reports and subproject preparation reports. ADB's Extended Mission in Sumatra jointly reviewed these quality standards with BRR prior to approving subprojects.

could withstand earthquakes of a minimum intensity of 7.0 on the Richter scale without incurring damage, given no major errors in construction and the use of construction materials that met agreed specifications.

The floor area of the standard housing unit was 36 m², the load-bearing structure of the unit consisting of steel-reinforced concrete foundations, columns, and beams. The inner walls between the columns and beams were of burnt brick, with both sides of the wall being finished with plaster. The roof was made of zinc-coated corrugated sheets or factory-painted profiled steel sheets, and was supported by timber or light-steel trusses. All timber used in constructing the walls, ceilings, doors, and windows was painted. The floor was made of concrete, with the tiling or surfacing of the floor being the responsibility of the beneficiary household concerned. Several variations on the floor plan existed. The dimensions of the most highly recommended variation was that of a 6-meter square, as this configuration balances all seismic forces, thus minimizing damage to the structure in the event of an earthquake.

As the water table was often only about 1.5 meters below the surface, waste-water treatment systems had to be built above this level. In Eastern Aceh and on Nias island where the water table is more than 0.5 to 1 meters below ground level, traditional septic tanks with leach fields (soak-away pits) could be used for treating kitchen waste water and the water discharged from toilets. All houses were supplied with electricity and running water—with water being supplied through piped systems, from shallow wells, or via rainwater catchment systems. All houses had road access sufficient to support transport by car or motorbike.

New types of houses were developed under the housing program (Image 2). Examples include HELP's timber houses on Nias island where people traditionally prefer timber houses, and steel-frame houses on Simeulue island. To ensure earthquake resistance, the standard house used steel reinforced concrete columns and beams, as well as separate lintel and ring beams in conjunction with brick or concrete block infill. Diagonal steel bands were used both in GAA's steel profile houses and HELP's timber houses.

While the ETESP housing program demonstrated that both contractorbuilt housing and housing built under community contract can achieve quality results, this outcome was only possible because of the quality of management by the oversight consultants and project implementation consultants. This ensured quality performance by contractors and community self-builders alike. In general, owner-controlled, supervised construction tended to be of higher quality, and community contracts allowed little room for corruption.

Image 2: Types of ETESP-financed housing units

General on-budget and off-budget subprojects

House designs were generally similar in on-budget and off-budget subprojects in that they were generally 36-square-meter concrete-brick core house comprising a living room, two bedrooms, and a kitchen and bathroom. The load-bearing structure of the house consisted of steel-reinforced concrete columns and beams. The infill walls between columns and beams were made of burnt bricks or hollow blocks plastered on both sides. The roofs were made of factory-painted, profiled steel plates. All walls, ceilings, and timber were painted. The floors were made of concrete. In places in which beneficiaries had land plots of limited size, a variety of coupled houses or twostorey house designs were used.

Off-budget Nias subprojects implemented by HELP

These houses likewise had a floor area of 36 square meters. The load-bearing structure of the house consisted of timber columns and beams, while the walls were made of timber. The foundation and lower part of the house was made of brick and steel-reinforced concrete. The roof was made of factory-painted profiled steel plates. All walls, ceilings, doors, and windows were painted a light brown color to protect the timber used to construct the house. Floors were made of concrete.

Off-budget Nias subprojects implemented by HELP: Housing for remote areas

A light wooden structure stood on columns made of steel-reinforced concrete that sat atop stones. The foundation structure was fixed to the timbers using steel bands and nails. The main timber connections were secured with metal bracings, and the load-bearing structures were strengthened with steel-band diagonals to ensure resistance to damage by earthquakes.

Off-budget Simeuleu subprojects implemented by GAA

These houses had a floor area of 36 square meters. The load-bearing structure of the house consisted of an H-profile for columns and beams, which were set on steel-reinforced concrete footings that sat atop a foundation. The lower part of the wall was made of concrete. The walls with lightweight steel U-profiles were covered with magnesium boards outside, with plywood covering on the inside. The roofs were made of corrugated steel, supported by light-weight steel trusses.



Generic ETESP-financed house



Generic Nias house built by HELP



Generic Nias house built by HELP in remote areas



Generic Simeuleu house built by GAA

Image 2: continued

On-budget Nias nontraditional house

This house had a floor area of 36 square meters. The load-bearing structure of the house consisted of steel reinforced concrete columns and beams. The infill walls between columns were made of concrete blocks, plastered on both sides. The roofs, made of factory painted steel plates had a South Nias traditional-looking style with a fold. All walls, ceilings, and timber were painted. The floors were made of concrete. Several variations of this type of house existed.

On-budget rehabilitation of South Nias traditional house

Traditional houses in the seven South Nias subproject villages were rehabilitated under the housing program.

While some of these traditional houses were located in modernized villages, rehabilitation works preserved as many traditional elements of South Nias house design as possible. This was done to take advantage of the beneficial earthquake-resistant aspects of traditional South Nias house construction, and to preserve the architectural traditions of this unique area.

As South Nias houses are traditionally made of timber, the load-bearing structure of the rehabilitated traditional homes consisted of timber columns, diagonals, and beams. The tradition of these houses sitting on stilts was likewise retained as this allowed the structure to efficiently absorb physical shocks incurred during earthquakes. Where available at low cost, traditional roofing materials were used as these provide excellent thermal insulation.

Nias traditional house with steadying timber diagonals



Source: Esa Paaso.



Generic on-budget Nias nontraditional house



A South Nias traditional house

Source: Viaro, A. M. and A. Ziegler. 2006. Traditional Architecture of Nias Island, Penerbit Yayasan Pusaka Nias, Gunung Sitoli, 2006, Figure 53.

Image 3: Special solutions: HELP's diagonal steel bracing of roofs and walls on Nias



In some of the houses built by HELP, the loadbearing structures comprised timber columns and beams, while the walls were made of timber cladding. Diagonal steel bands placed under the wall cladding and roof sheets braced the structure against physical shocks incurred during earthquakes. The foundation and lower part of most of the houses was made of plastered brick with steel-reinforced concrete columns. The roofs were made of factory-painted profiled steel sheets, while the floors were made of concrete. All walls, ceilings, and timber surfaces were treated to protect against damage by termites. The timber used in constructing these houses was quite vulnerable to termite attacks, and inexpensive protection against this was difficult to find. An overhead water tank located at the back of the house supplied the kitchen and toilet with running water. As these houses were built in the most remote of locations lacking access by automobile, construction required much longer than originally envisaged.

Source: Esa Paaso.

Field supervision

The oversight consultants developed a checklist to be used for on-site supervision of construction, which was likewise used for training project implementation consultant staff as site inspectors and social facilitators. This checklist focused on the most critical elements of construction: house design, safety, adherence to design specifications, and earthquake resistance.

A total of 3,042 new houses located on the west coast of Sumatra and on Sabang and Nias islands were constructed using the on-budget subproject implementation modality. Similarly, the on-budget modality was used to construct 1,959 houses in the city of Banda Aceh and 499 houses in Meulaboh, the latter being located about 150 kilometers south of Banda Aceh. The offices of the oversight consultants and project implementation consultants were located in Banda Aceh near BRR's offices and Banda Aceh airport. While initially, the project implementation consultants supervised construction of works at Meulaboh from their Banda Aceh office, they later set up satellite offices in Meulaboh and on Nias island. As the various sites were located at some distance from one another, travel to and from

Image 4: Site inspection by project implementation consultants



Visual inspection of a foundation under construction during a site visit to Gampong Pande by the project implementation consultants in May 2006. The steel-reinforced foundation beams sit on concretecolumn footings. Initially, the dimensions of the steel bars used for reinforcing the concrete tended to be smaller than those specified, as were the overlapping joints of the steel bars. The temporary house provided to a beneficiary by the International Red Cross that appears in this photograph was used by the contractor as a site office once the beneficiary had vacated it.

Source: Esa Paaso.

subproject locations consumed a great deal of time. While Meulaboh could initially only be reached by air due to destruction of the road by the tsunami and earthquake, even after the road was rebuilt, 7–8 hours of surface travel was required to reach this remote location. As a result, during the peak of reconstruction activities in 2007 and 2008, unskilled contractors were inevitably recruited under both on-budget and off-budget subprojects.

At the onset of implementation of the housing program, demand-driven shortages of quality construction materials led to price increases. As a result, many contractors resorted to using poor-quality bricks and timber, and as well attempted to use steel reinforcing bars of dimensions falling short of agreed standards. The use of light steel profiles for roof trusses was introduced to ease difficulties in procuring certified timber, which was also an indirect way of minimizing illegal logging.⁷

As representatives of the implementing agency, the *satkers* had direct legal authority over the administration and supervision of contracts. However,

⁷ The chapter on environmental safeguards provides a detailed discussion of environmental issues relating to the housing program.

Box 1: On-budget pilot projects in Gampong Pande and Lamdingin

Implementation of the pilot projects was a valuable exercise in that it gave clear indications of the difficulties to be faced during implementation of the overall housing program. The quality of construction works was often substandard to the point of requiring constant review and instructions for improvement by Aceh-Nias Rehabilitation and Reconstruction Agency's (Baden Rehabilitasi dan Rekonstruksi [BRR]) procurement teams (satkers), the project implementation consultants, and the oversight consultants. For the most part, contractors were unable to implement subprojects according to the agreed work schedule. Typically, when 70% or more of the time allocated for completion of works had expired, only about 40% of the works would have been completed. The reasons cited most often for failing to meet targets were difficulties in locating skilled labor and delivery of materials of unacceptable quality by suppliers. Tender documents were likewise far from faultless in most instances. Despite attending several briefings, contractors and subcontractors were unable to read specifications or tender documents, since they customarily relied solely on drawings. These difficulties were compounded by the fact that BRR's procurement teams lacked sufficient manpower to properly oversee on-site works.

Source: Oversight consultants.

Image 5: Poor quality bricks in Gampong Pande that the contractor was asked to replace



Source: Esa Paaso, October 2006.

Image 6: Timber of unacceptable quality delivered to Gampong Pande



Source: Esa Paaso.

despite assistance provided by the project implementation consultants, they were not always able to properly supervise construction. This was particularly true at the initial stage of implementation during which the responsibilities of the *satkers* were limited to contract administration. Despite later deployment of additional *satker* inspectors, the project implementation consultants were gradually drawn into a more active supervisory role as a means of ensuring construction quality. As would be expected, the effectiveness of supervision by the project implementation consultants was limited by the fact that they lacked the authority to instruct contractors.

All BRR inspectors had been trained in the proper use of inspection forms. Similarly, all contractors had been given specific instructions regarding the appropriate structural details of installation of foundations. Nevertheless, the project implementation consultants provided BRR's *satkers* with several ETESP-funded community facilitators with the technical background to work as quality control inspectors, and other members of the project implementation and oversight consultant teams at times performed inspection and supervision activities. Such backstopping was necessary because technically correct junctions between columns and beams are critical factors in the ability of structures to withstand earthquakes.

Monitoring of construction works by the village housing development committees (*panitia pembangunan rumah gampong* [PPRGs]) was similarly necessary when community contracting was employed as the subproject implementation modality. The oversight consultants thus facilitated training of the PPRGs in basic construction monitoring, validation of completed works, land adjudication, and complaint handling. Initially, the oversight consultants noted that PPRG participation in monitoring was active and beneficial. However, as paid employment opportunities grew in tandem with reconstruction activities, many PPRG members increasingly gave priority to employment as opposed to voluntary work as inspectors.

Final verification and approval of construction works, and the issuing of handover certificates to beneficiaries were often contentious processes, with the oversight consultants pursuing a more conservative approach than the project implementation consultants and PPRGs, who wanted to allow occupancy before completion of construction.

In some cases, the project implementation consultant inspectors and facilitators may have lacked appropriate experience in interacting with contractors. For their part, the contractors considered construction quality of secondary importance, since they were used to working on government contracts that customarily required adherence to relatively low standards. The fact that BRR's *satkers* did not always follow the advice of the project implementation and oversight consultants regarding construction quality

further complicated the task of quality assurance. As a result, in several cases, medium-sized subprojects comprising construction of 40–50 houses required only 3–4 months to reach a completion rate of 90%, yet an additional 5–6 months was consumed in completing the remaining 10% of works and correcting defects. Similarly, in some cases, completion rates of 98% were accepted as final to avoid further delay in handing over housing units to beneficiaries.

Box 2: Remedial sanitation works

During reconstruction there was intense political pressure on all parties to move tsunami victims from tents into permanent housing with all possible speed. This led to tight construction timetables under which completion of housing units was given the utmost priority. Consequently, off-site infrastructure works were completed later. This arrangement resulted in multiple changes to requirements for infrastructure being made by Aceh–Nias Rehabilitation and Reconstruction Agency and its partners such as the Asian Development Bank (ADB). As would be expected, the environmental consequences of postponing infrastructure works such as wastewater treatment systems were highlighted during preparation of subproject preparation reports. More importantly, the need for remedial improvement to sanitation facilities was discussed over the entire life of the Earthquake and Tsunami Emergency Support Project (ETESP) housing program. Consequently, new and affordable sanitation systems were developed and tested each year during implementation of the housing program.

As a result of extended discussion of the concerns described above, in 2008, BRR and ADB became aware that the pilot project reconstruction sites at Gampong Pande and Lamdingin fell short of meeting minimum environmental requirements. In particular, many of the numerous shallow wells at these sites were located adjacent to leaking septic tanks, thus raising the likelihood of contamination of drinking water. This danger was further exacerbated by Aceh city's relatively high water table, the inevitable result of its location between the mountains and the sea.

In response to these concerns, in late 2008, ADB with BRR's endorsement contracted the United Nations Human Settlements Programme (UN-HABITAT) to evaluate wastewater treatment conditions in areas in which ETESP-funded housing had been constructed adjacent to housing units funded by other donors. The outcome of this evaluation ultimately led to implementation of the Aceh Sanitation Assessment and Assistance Programme (ASAAP) in 2009, which recommended sanitation improvements impacting approximately 1,000 households. Subsequently, several areas in Aceh Besar were improved by the installation of water-tight septic tanks. Similar improvements were undertaken in off-budget subproject areas. These concerns likewise led to the German Agro Action's (GAA) developing water-tight, monolithic, steel-reinforced concrete septic tanks in Keude Panteraja and Pidie, and similar improvements subsequently being undertaken by UN-HABITAT on Simeulue island.

Source: Oversight consultants.

Image 7: Watertight monolithic septic tanks



Ready-made concrete septic tanks surrounded by steel moulds are prepared for installation at a subproject site. Several improvements were developed specifically for this subproject, including two-layer, easily-dismantled steel moulds, scaffolding for lifting the 1.5-ton concrete tanks, and special vibrators for thin concrete walls. The UN-HABITAT team produced roughly 1,200 septic tanks of the type shown.

Source: Esa Paaso.

Image 8: Wetland wastewater treatment systems



Dirty water coming directly from the washroom enters this wetland wastewater treatment system. Stone-and-gravel fill is used to aerate the soil, thus allowing growth of water treatment bacteria. The top layer is made of black soil placed on top of palm leaves, which encourages the growth of water-consuming plants. An outlet pipe drains the system into an adjacent leach field (soak away pit). About 600 of these units were built as improvements over the former wastewater treatment system, which comprised a twochamber tank made of fiberglass protected by a brick-and-concrete box.

Source: Esa Paaso.

Issues relating to the phasing-out of BRR

At the end of November 2008, the government announced BRR's closure, as well as the fact that BRR would have no budget in 2009. Yet, as of mid-December 2008, no official decision had been reached as to how ongoing works that would continue into 2009 were to proceed. This affected several subprojects, such as the housing and infrastructure works at Labuy, Aceh Besar, as well as several housing initiatives in Meulaboh. By the end of December 2008, the BRR *satkers* had paid out 100% of their outstanding contracts, as the assignments of BRR's inspectors, *satkers*, and PPK (Pejabat Pembuat Komitmen) were to end on 31 December 2008.

While a completion task force (*satgas penuntasan*) was established to carry out all remaining works, the size of its staff was limited relative to the significant amount of works it was to supervise. Further, its authority to force contractors to finish works already under contract was limited, since 100% of all construction contracts had already been paid, making it difficult to convince the contractors to repair defects found during the handover. It was thus only in March 2009 that the handover could be completed.

The phasing-out of the completion task force as of the end of March 2009 and BRR's demobilization on 16 April of the same year negatively impacted the final stages of implementation of the ETESP housing program. In Labuy, Aceh Besar, there was little choice but to allow beneficiaries to move into their units before the official handover to prevent squatters from surrounding villages from occupying the units. This could have been avoided had the specific responsibilities of all parties been delineated before BRR's demobilization. The same is true of establishment of BRR's successor bodies (i.e., Badan Kelanjutan Rekonstruksi Aceh ([BKRA], and Badan Kelanjutan Rekonstruksi Nias [BKRN]) and the liquidation team, as in this case, lack of delineation of responsibilities led to significant confusion regarding the roles of all parties.

Lessons learned

Conflicting roles. BRR's designation as an implementing agency led it to compete with the donors, which were likewise constructing housing units, thus weakening BRR's impartiality as an oversight agency. Not only could this have been avoided had BRR's role as an implementing agency been assigned to the (local) Ministry of Public Works, doing so would have made BRR a more effective coordination and oversight agency. Such a scenario would have paved the way for a smooth transition of ownership from the implementing agency to the beneficiaries, since if the Ministry of Public Works were the implementing agency, no formal transfer of ownership would have been necessary. Further, this would have ensured future maintenance of infrastructure works by the local government. On the other hand, the ministry was not well attuned to implement post-disaster emergency programs and would have led to a more protracted implementation of the on-budget housing program.

Priority issues. The political pressure on all parties to accelerate construction of permanent housing units delayed parallel development of necessary

infrastructure, such as roads, drains, wastewater treatment, and water supply systems. While like BRR, most donors simply accepted this outcome as a natural consequence of the situation at hand, others, including ADB, attempted to ensure that all housing projects included necessary infrastructure works. In the former case, some infrastructure investments were simply lost, as these systems became non-functional or required replacement due to erosion, pollution, or the negative impacts of other exogenous factors.

Consulting services arrangements. Separating the oversight and project implementation consultants into two discrete teams was appropriate in that this avoided conflicts of interest. However, in the case of the project implementation consultants, it would have been more appropriate to form a single team serving the housing program during its first 2 years of implementation (as was subsequently done), rather than splitting the team into two subgroups at the outset. Finally, the outcome of the housing program would have been improved had all housing program subprojects been formulated by the project preparation consultants, thus allowing the project implementation consultants to focus on implementation. In particular, this would also have ensured the transfer of housing program-related knowledge and experience between consultant teams, and would have avoided any time gaps between the demobilization of the project preparation consultants.

Flexibility of implementation approach. The on-budget community contracting subproject implementation mode first used at four villages on Nias island faced numerous logistical challenges. These included difficult access to reconstruction sites, unfamiliarity with the construction technology to be used (e.g., use of lightweight steel roofing), and lack of community capacity in handling the administrative details of contract management. While more intensive community facilitation and guidance would have ameliorated some of these problems, the pressure to deliver outputs within tight time frames and the constrained resources of the *satkers* unduly stretched project implementation. Employing the well-adapted approach that was subsequently adopted in the seven Nias villages at an earlier stage would have improved the overall outcome of the subprojects employing the community contract subproject implementation modality.

Concluding remarks. Implementation of the ETESP housing program was a challenging, tedious, and highly labor-intensive task requiring numerous operational compromises and remedial actions. That said, these are the earmarks of post-disaster reconstruction and rehabilitation initiatives. The challenging and continually shifting post-disaster context under which the consultants worked required significant flexibility. In the end, the consultant teams played a critical role in removing the numerous bottlenecks that emerged during the ETESP housing program's 4-year implementation period.

Land Adjudication, Titling, and Acquisition

by Herman Soesangobeng

Land adjudication

The 2004 tsunami completely destroyed a number of cities and villages along the Aceh coast. The loss of lives and property was staggering, with many people losing even the land on which their houses once stood. Image 1 shows the extent of the devastation in a typical coastal neighborhood in Banda Aceh. As can be seen from the photo, the destruction was so complete as to make it difficult to distinguish plot features and thence the boundaries of the plots of land owned by disaster victims. As a result, land adjudication was seen by both the Government of Indonesia and the donor agencies responding to the disaster as the first step in reconstruction and rehabilitation, once the immediate post-disaster needs of the tsunami victims had been addressed.



Image 1: Devastation caused by the tsunami at Gampong Pande, Banda Aceh

Source: Florian Steinberg.

Land adjudication is essentially a process via which the property rights of landowners are enshrined in law by providing them with legal title to their lands. Since the tsunami and earthquake had destroyed numerous land titles and related records, these had to be somehow either recovered or reconstructed. In the case of the 2004 tsunami, land adjudication was greatly complicated by the fact that numerous landowners had customarily relied on traditional land use rights (*hak pakai*) to validate their claims, and thus had never obtained legal title to their plots.

Post-disaster land adjudication was initiated by the survivors themselves, who began reconstructing village plot maps by means of hand-drawn sketches based on their recollections of pre-tsunami conditions. These improvised maps, which were initially used to determine the location and boundaries of plots (Image 2), naturally fed into the process of beneficiary identification once systematic planning for reconstruction of particular communities began.

In 2005, the World Bank–supported Reconstruction of Aceh Land Administration System (RALAS) initiative was launched, which began by scanning thousands of partly damaged land documents and maps rescued by the Banda Aceh office of the National Land Agency (Badan Pertanahan Nasional [BPN]) (Images 3 and 4). BPN worked closely with local land offices, as well as with the Aceh–Nias Rehabilitation and Reconstruction Agency (Badan Rekonstruksi dan Rehabilitasi [BRR]); and BRR established a Directorate of Mapping and Land Administration for the purpose of coordinating mapping, land acquisition for resettlement, and revitalizing the land administration system.

A primary concern at the onset of implementation of the housing program funded under the Earthquake and Tsunami Emergency Support Project (ETESP) of the Asian Development Bank (ADB) was that of ensuring the legal rights of tsunami victims to their lands. Every attempt was thus made to reconstruct communities and neighborhoods as precisely as possible with regard to the landowners' property rights (Image 5). Issuing land titles was thus one of the primary goals of the housing program.

Adjudication committees working in individual villages performed the operational aspects of land adjudication by means of field surveys that collected physical data for incorporation into cadastral maps. Following completion of the field surveys, beneficiaries received "survey letters" as proof that the survey had included their plots.

In addition to physical data, the field surveys also collected any juridical evidence of land claims the title holders possessed, these data then being attached to the cadastral maps as well. Typically, juridical data included Image 2: Improvised community maps, Banda Aceh, February 2005

Mr. All

Source: Florian Steinberg.

Image 3: Damaged land title records, National Land Agency, Banda Aceh, February 2005



Source: Florian Steinberg.

Image 4: Few base maps survived the disaster intact. National Land Agency, Banda Aceh, February 2005

Image 5: Tsunami victims announced claims to their land and property publicly, February 2005



Source: Florian Steinberg.



Source: Florian Steinberg.

the following information relating to the title holder(s): (i) name (typically the names of husbands, wives, and their siblings, regardless of gender); (ii) address; (iii) citizenship; (iv) the means by which the plot of land in question was obtained or occupied; and (v) the legal status of the plot of land in question. Both the physical and juridical data were then printed on the land certificates.

Landowners were given copies of their land certificates, the original copies being bound together as a "land book" stored at the local land offices. Plot boundaries and details of ownership were carefully researched to ensure against multiple certificates being issued for the same plot. For plots that had never been registered, land adjudication became the basis for future registration. Ultimately, the ETESP housing program provided land titles to all beneficiaries in Aceh. In Nias, land registration was delayed by BPN, which slated the program for implementation over 2010–2011. Appendix 1 summarizes the results of the land titling process carried out under ETESP's housing program, as well as the progress achieved in issuing building permits.

The extent of the damage and loss of life caused by the tsunami and earthquake of 2004 was on such a scale that neither the local land offices nor BPN's office in Banda Aceh was equipped to perform the land titling activities described below. As a result, members of adjudication committees were mobilized from other local land offices throughout Indonesia to assist in this task.

Land titling

Whereas the goal of land adjudication was to ensure the rights of landowners to their plots, the ultimate objective of land titling was the reconstruction (or repair) of housing units located on these plots. Under ADB's ETESP housing program, eligible beneficiaries were identified by the project preparation consultants as "ADB beneficiaries." These "ADB beneficiaries" were then divided into two categories, (i) beneficiaries who owned land and houses before the tsunami, and (ii) renters or non-owners, who occupied their plots of land in the absence of formal legal tenure.

The goal of the housing program varied according to the category of beneficiary. For landowners, the goal was reconstruction of the owners' (or their heirs') housing units on the sites to which they held tenure. Similarly, beneficiaries who wished to resettle elsewhere for reasons of safety or for purposes of overcoming personal trauma caused by the disaster were entitled to the same benefit, but with the reconstruction of housing units taking place on land located somewhat distant from their home villages. Beneficiaries whose houses were partly damaged and could be repaired were eligible for rehabilitation support, whereas non-owners became eligible for relocation at new resettlement sites. Both categories of beneficiaries were to receive title to the land on which their housing units were reconstructed or repaired.

Granting ownership status to former owners, renters, and squatters alike was one of the housing program's major achievements, since this was instrumental in securing the future livelihood of beneficiaries for generations to come, as houses could be used as collateral for bank loans for financing livelihood activities.

On-site re-blocking and plot adjustments

Despite concerns that post-disaster reconstruction would trigger large-scale land readjustment, in the end, on-site re-blocking and plot adjustments were implemented only to a limited extent. Comparison of the village plan for Gampong Pande, Banda Aceh (Figure 1) and the new resettlement site at Mireuk Lamreudeup, Aceh Besar corroborate this. Gampong Pande's reconstruction maintained the original plot configurations, but required some on-site re-blocking and plot adjustments.

During preparation of the plan for reconstructing particular communities, the ETESP consultants sought the consent of the community for road widening, provision of access to all plots, and the location of community facilities. This planning process was fully participatory, with beneficiaries being allowed to discuss the implications of all of these improvements. This was an important part of planning for reconstruction, since incorporating such improvements would require some landowners to surrender small portions of their plots.

Both the means by which such transfers of land were to be effected and the compensation to be paid were included in the resettlement component of the community action plans incorporated into the subproject appraisal reports (SPARs) for reconstruction of particular neighborhoods. The purchase price for the lands to be surrendered was agreed, with payment of compensation being made through the on-budget subproject contractors. In all cases, the housing program compensated landowners for surrendering privately owned land for improvement of works rather than requesting that such lands be donated. One reason for this is that in Aceh, land is customarily only donated for the construction of Islamic institutions (mosques and schools), for which land trusts (*waqaf*) have been established.



Figure 1: Settlement plan for Gampong Pande, Banda Aceh

Source: Project preparation consultants.

To minimize costs to persons receiving compensation, these land purchases were settled informally rather than through the local government land deed office. The ETESP consultants prepared purchase forms, attached an Rp6,000 duty stamp, and concluded the transaction in the presence of at least two witnesses. The purchases were acknowledged by the village heads (*keuchik*) concerned, and endorsed by the local subdistrict officers (*camat*), who are officially acknowledged as land deed officials in lieu of professional land deed officials. As this means of purchasing land was acceptable to local land offices, these transactions were recorded in their official registers. No such transactions were necessary in the case of greenfield development relocation sites such as Miereuk Lamreudeup, Aceh Besar, as these required no plot adjustments.

Site reconstruction plans were explained to all beneficiaries, who were informed that they were to receive a housing grant and a land title as part of the reconstruction process. Typically, collective titles were used to register husbands and wives as owners together with their siblings, regardless of gender. These joint titles were then registered with BPN to discourage the sale and subsequent abandonment of plots. The house ownership certificates prepared by the ETESP oversight consultants were used to verify the ownership of particular housing units.

Certificates

The ETESP housing program issued three different types of certificates to beneficiaries: land titles, house ownership certificates, and collective building permits. The distinction between land titles and house ownership certificates is important for two reasons. First, land titles could eventually allow property owned by beneficiaries to be used as collateral for bank loans for financing home improvement or livelihood ventures. Second, Indonesia's bank regulations require that collateral for home improvement loans include a property title in addition to a building permit.

House ownership certificates were an ETESP innovation used to verify the property rights of home owners over particular housing units. This was necessary due to the Indonesian land law doctrine known as "horizontal separation," which states that a built structure is not automatically owned by the person who owns the plot of land on which the structure stands.

One drawback of the horizontal separation doctrine is that it allows conflicts to arise under which absent family members suddenly appear claiming legal ownership of both a particular plot of land and the house built on it. Similarly, claims might also arise in the case of divorce or death of a registered beneficiary, with family members of the decedent claiming ownership of the property in question. In fact, such conflicts arose during implementation of the ETESP's housing program. House ownership certificates were thus used to verify legal ownership of particular housing units, thus circumventing the possibility of such conflicts. For the same reason, a unified procedure was used to issue house ownership certificates and collective building permits.

In cases involving death of a registered beneficiary, the horizontal separation doctrine fortunately provides that the surviving spouse is entitled to ownership of both the plot of land in question as well as the housing structure standing on it. This principle was upheld in the villages of Ulee Rubek Timur and Matang Panyang in Suenodeun, Aceh Utara, as well as on Simeulue Island. In such cases, house ownership certificates strengthened the home owner's standing against claims by third parties. Example of house ownership certificate appears in Appendix 2.¹

Land for community facilities

As mentioned above, in some cases, reconstruction of some communities required transfers of small plots of land from private landowners to allow construction of community facilities (village halls or offices, schools, sporting facilities, markets, green areas, road widening, provision of access to plots lacking proper drainage canals, and dams). In such cases, an agreement between ADB and BRR allowed both transfers of land for these purposes and payment of compensation to be concluded by the contractors engaged under on-budget ETESP subprojects.² Compensation was paid directly to the landowner receiving the compensation to sign a receipt verifying that payment had been received. Adjustments to official land deeds were subsequently performed by the local land offices or subdistrict officers (*camat*), who acted as land deed officials.

Private land acquisition

In some cases, beneficiaries purchased the land on which their individual houses were to be constructed. This was usually done either to make land available for future expansion of individual houses, or to replace land that

¹ To guard against issuance of fraudulent or counterfeit land certificates, the government maintains a strict prohibition against reproducing these documents. The authors are thus unable to provide specimen copies of land certificates in the appendixes to this chapter.

² Chapter 3 provides a detailed explanation of the difference between on-budget and offbudget subprojects.

had become submerged or swampy in the wake of the earthquake and tsunami.³

In Aceh Besar and Meulaboh, some ETESP beneficiaries collectively purchased relocation sites (Alpen II and Pucuk Krueng, Leupung, respectively). In such cases, BRR paid 50% of the cost of the land. The simplicity of BRR's land transfer procedures greatly facilitated such land acquisition in that they were far cheaper and more streamlined than the usual procedures followed in land acquisition, which were required to be routed through district or city administrations.

While BRR procedures only applied to tracts of land comprising 3 hectares or less, they did not require investigation of the legal status or market value of the tract of land in question by the local land office. Similarly, BRR accepted prices negotiated between buyers and sellers at face value, whereas district or city administrations based land prices on officially declared tax values, with the prices resulting from the officially declared tax value method often falling short of market levels.

Under BRR's procedure for land purchases, signatures of both the buyer and the seller on the purchase contract and payment of the purchase price were all that was necessary for legally transferring a plot of land to a buyer. In contrast, purchases of tracts of land comprising more than 3 hectares were routed through district or city administrations, thus requiring the transfer to be routed through the local land office. In short, in the latter case, title to the tract of land in question was first transferred to the district or city administration, and then subsequently transferred to the buyer. Under this procedure, the district or city administration paid compensation (*ganti rugi*) for any existing buildings or crops, and then made a cash payment to the seller (or his or her representative) at the price agreed between the buyer and the seller.

One drawback of this arrangement is that the representative of the seller receiving payment for the land does not necessarily represent the best interests of the seller, in that often only a fraction of the purchase price would be transmitted to the seller, with the remainder of the proceeds of the sale accruing to the representative. As might be imagined, the possibilities for fraud generated by this arrangement give rise to a significant number of complaints, conflicts, claims, and counterclaims.

³ The earthquake that gave rise to the tsunami caused much of the coastal land affected by it to subside by as much as 2 meters, thus causing plots of land formerly suitable for construction to become swampy or completely submerged.

Under the usual land transfer procedure referred to directly above, local governments can transfer land from one person to another through three different arrangements: (i) restricted ownership, (ii) leasehold, and (iii) right to use. Under the restricted ownership arrangement, the plot of land in question is registered under the name of the buyer, subject to the condition that it may not be sold for a period of 10 (in some cases, 15) years. Under the leasehold arrangement, the sale is not registered as a change in land title, but is instead recorded in the local government's administrative logbook. Under the right to use arrangement, the local land office registers the land, granting to the user a land use title.

In light of the complications inherent in the usual land transfer arrangements, it is easy to see the benefits of the land transfer process used by BRR under which tracts of land were transferred directly to beneficiaries. Thus, under BRR's land transfer procedure, beneficiaries immediately receive all rights associated with full ownership, without any restrictions whatsoever being placed on the new owners. In addition, BRR even shouldered payment of all fees associated with registration of the joint title arranged under the ETESP housing program.

In contrast, the Basic Agrarian Law of 1960 requires that obtaining land – even for community facilities – must be done through land relinquishment (*pembebasan tanah*), and payment of compensation (*ganti rugi*). Under the ETESP housing program, the local governments agreed that full ownership of land would be awarded to the beneficiaries under joint titles. This practice allowed beneficiaries to receive landownership certificates, as well as building permits.

Gender aspects

Under the ETESP housing program, most land titles and house ownership certificates were issued under joint titles. Thus, in cases in which the beneficiaries were married, the names of both spouses and their siblings appeared on the land titles and house ownership certificates. Similarly, undivided inherited land was registered under the names of all brothers and sisters. However, in the case of single women or widows, both the land title and the house ownership certificate were registered solely under the name of the single woman or widow in question. These practices recognize gender equality in accordance with Article 9 of the Basic Agrarian Law of 1960. All indications are that the house ownership certificates issued under the ETESP housing program helped protect widows from claims by members of the widow's former husband's family.

Table 1:	Comparison	of	BRR's	land	transfer	arrar	ngements	with	those	of	city
			and dis	strict	adminis	tratic	ons				

No.	Items	BRR	Local government (district, city)
1.	Choice of sites	 a. Directorate of Land Mapping and Administration (DLMA) b. Decree of head of BRR for use of land and type of title 	 a. Executive: District head (<i>bupati</i>) and/or mayor b. Approved by treasury c. Endorsed by the House d. Decree by <i>bupati</i> and/or mayor for use of land and type of title
2.	Total area of plot	< 3 hectares	> 3 hectares
3.	Investigation of legal status of land	by DLMA	by Committee 9
4.	Transfer carried out through	Land purchase	Land acquisition, relinquishment, expropriation
5.	Legal documentation for transfer	Land deed by land deed official	Decree issued by bupati and/or mayor
6.	Determination of value of land	Based on purchase agreement between landowner and BRR	Based on negotiation of tax value of land
7.	Type of payment	Purchase price	Compensation
8.	Mode of payment	Direct cash transfer to seller using bank as intermediary	Direct cash transfer to seller or occupant
9.	Type of title	Right of ownership	Restricted ownership, leasehold, and right to use
10.	Title registration	 Land title certificate issued by local land office or BPN Joint land title 	 Leasehold: Recorded by district or city administration Right to use, ownership: Land title certificate issued by local land office or BPN

BRR = Aceh-Nias Reconstruction and Rehabilitation Agency. Source: Oversight consultants.

Lessons learned

Land adjudication, titling, and acquisition are important issues in that they touch the basic needs of human beings. Similarly, these three features of land tenure are enmeshed in complex laws, legal systems, and social and cultural norms. Thus, in acquiring plots of land for beneficiaries, it is important that all legal rules and regulations be followed in order to avoid subsequent complaints, conflicts, claims, and counterclaims. The strategy pursued under the ETESP housing program was that of protecting the interests of beneficiaries by providing them with security of land tenure, the benefits of which extend far beyond the mere provision of shelter. Ultimately, the security of land tenure achieved under the ETESP housing program provided beneficiaries with an opportunity for improving their livelihoods over the long term.

Three key documents allowed the ETESP housing program to provide beneficiaries with security of land tenure. These are land titles, house ownership certificates, and building permits. An ETESP innovation, the house ownership certificate provided security of tenure to beneficiaries while honoring the doctrine of horizontal separation that derives from traditional *adat* land legislation.⁴ Recognized by Indonesia's Supreme Court as a principle of law, the horizontal separation doctrine became an important part of legal precedent (*yurisprudensi*¹⁵) and was incorporated as the "right over structures" in the Basic Agrarian Law of 1960.⁶

The above notwithstanding, no act or ordinance has thus far been enacted that allows a house ownership certificate to be used as collateral for a bank loan. Thus, while a house ownership certificate can be used as evidence before a court in resolving land tenure disputes, it has not yet fully become a legal document. That said, the effort under the ETESP in Aceh and Nias to introduce house ownership certificates as legal documents must be seen as an innovative breakthrough that will ultimately enrich security of land tenure in Indonesia. Once the law recognizes house ownership certificates as titles to property, beneficiaries will be able to mortgage these certificates, thus aiding future consolidation of communities.

⁴ The doctrine of horizontal separation contrasts sharply with the attachment principle in English Common Law and the corresponding doctrine in the Dutch Romano Civil Code. The implication of horizontal separation is that just because a property is attached to land does not necessarily mean that the attachment is owned by the landowner. The implication of the attachment principle, on the other hand, is that unless agreed differently, a property attached to a plot of land is by law automatically owned by the landowner. The horizontal separation doctrine is institutionalized as the "right over structures" (*hak huna bangunan*) in Article 35 of the Basic Agrarian Law of 1960.

⁵ "*Yurisprudensi*" differs from "*jurisprudence*." A "*yurisprudensi*" is a Supreme Court decision commonly quoted by state and high court judges to support other decisions. "Jurisprudence," on the other hand, is the science of law itself.

⁶ See Article 35, Basic Agrarian Law, 1960.

APPENDIX 1

Summary of Land Adjudication, Building Permits, and Land Titling under On-Budget and Off-Budget ETESP Subprojects

			Landowner Progress				
	IMB/						
	Landowner	IMB	Cadastral	Legitimate	Land		
Village	New House	Progress	Мар	Owner	Book	Certificate	Notes
I. Sabang	108	108 (100%)	108 (100%)	108 (100%)	108 (100%)	108 (100%)	
1. BI Tunong	36	36	35	35	35	35	Land certificates
2. Cot Ba'u	50 22	50 22	50 22	50	50	50 22	and IMB, done.
5. OJ SEKUNDO				22	22		idem
II. Aceh Besar	1,016	970 (100%)	1,016 (100%)	1,016 (100%)	1,016 (100%)	1,016 (100%)	IMB for 970 houses
1. Baet	443	443	443	443	443	443	Land certificate and IMB done.
2. Ruyung	46	0	46	46	46	46	Land certificates done, IMB dropped by beneficiaries.
3. MMesjid-Lpng	86	86	86	86	86	86	Land certificates and IMB done.
4. Pulot-Leupung	65	65	65	65	65	65	Idem
5. Lamsenia	44	44	44	44	44	44	Idem
6. M. Lamredep1	285	285	285	285	285	285	Idem
7. M. Lamredep2	47	47	47	47	47	47	Idem
III. Banda Aceh	1,025	806 (100%)	1,025 (100%)	1,025 (100%)	1,026 (100%)	1,025 (100%)	IMB for 806 houses
1. Lamdingin	517	517	517	517	517	517	Land certificate and IMB done.
2. G Pande	153	153	153	153	153	153	idem
3. Merduati	219	0	219	219	219	219	Land certificate done, IMB dropped by village elders.
4. Keudah	136	136	136	136	136	136	Land certificate and IMB done.
N. Meulaboh (Aceh Barat)	499	499 (100%)	499 (100%)	499 (100%)	499 (100%)	499 (100%)	
1. Pasi Mesjid	194	194	194	194	194	194	Certificates and IMB done.
2. Alp Perumnas	240	240	240	240	240	240	idem
3. Alpen 2	65	65	65	65	65	65	idem

continued on next page

Appendix 1: continued

			Landowner Progress				
Village	IMB/ Landowner New House	IMB Progress	Cadastral Map	Legitimate Owner	Land Book	Certificate	Notes
V. South of Nias	1,032	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	Land adjudication in 2010 and IMB will be provided afterwards
1. Bawogosali	315	0	0	0	0	0	Adjudication team will start in 2010 by BPN.
2. Bawoganowo	170	0	0	0	0	0	idem
3. Hilimonregraya	349	0	0	0	0	0	idem
4. Hilinamoniha	198	0	0	0	0	0	idem
VI. Traditional Village in Nias	196	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	Land adjudicated in 2010, and IMB will be provided afterwards
1. Hilisimaetano	48	0	0	0	0	0	Land will be adjudicated in 2010.
2. Onohondro	28	0	0	0	0	0	idem
3. Lahusa Fau	21	0	0	0	0	0	idem
4. Hilizoroilawa	12	0	0	0	0	0	idem
5. Botohili Tanö	29	0	0	0	0	0	idem
6. Hilinawalo Mazino	26	0	0	0	0	0	idem
7. Hilinamoza'na	32	0	0	0	0	0	idem
Total	3,876 (100%)	2,383 (66%)	2,648 (68%)	2,648 (68%)	2,648 (68%)	2,648 (68%)	IMB only for 3,611 houses
OFF-BUDGET							
1. UN-HABITAT– Nias	486	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	Land adjudication will start in 2010, IMB will follow.
UN-HABITAT– Simeulue	459	350 (76%)	459 (100%)	459 (100%)	459 (100%)	459 (100%)	Land certificates done and had been handed over, IMB being prepared.
2. HELP-Nias	665	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	Land adjudication will start in 2010, IMB will follow.
3. GAA- Simeulue	310	220 (100%)	220 (71%)	220 (71%)	220 (71%)	220 (71%)	220 parcels had been registered and the certificates had been handed over, 90 parcels in 2 villages will be adjudicated in 2010 by BPN Project.

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Village	IMB/ Landowner New House	IMB Progress	Cadastral Map	Legitimate Owner	Land Book	Certificate	Notes	
GAA-Pidie	258	0 (0%)	258 (100%)	258 (100%)	258 (100%)	258 (100%)	Land certificates done, IMB dropped for high tax.	
4. Cordaid	377	0 (0%)	377 (100%)	377 (100%)	377 (100%)	377 (100%)	Land certificates done, IMB being processed	
5. Muslim Aid	686	75 (11%)	686 (100%)	686 (100%)	686 (100%)	686 (100%)	 a. Land certificates and IMB for Seunuddon done b. Land certificates done, IMB dropped for high tax, 571 houses c. IMB in Lhokseumawe, dropped for high tax, 40 houses (b+c = 611 houses dropped for their IMB) 	
Total off-budget	3,241	645 (32%)	1,998 (62%)	1,998 (62%)	1,998 (62%)	1,998 (62%)	IMB only from 1,995 houses	
Subtotal on + off budget	7,117	3,028 (54%)	4,646 (65%)	4,646 (65%)	4,646 (65%)	4,646 (65%)	IMB only from 5,606 houses	

Appendix 1: continued

BPN = Badan Pertanahan Nasional (National Land Agency), CordAid = Catholic Organisation for Relief and Development Aid, GAA = German Agro Action, HELP = Health, Education and Literacy Programme, IMB = Ijin Mendirikan Bangunan (building permit), UN-HABITAT = United Nations Human Settlements Programme.

Notes: 1. Latest update, 27 August 2009.

- 2. The 0% rating for land titling and building permits (*jjin mendirikan bangunan [IMB]*) in Nias is due to BPN's decision to implement land registration over the period 2010–2011.
- 3. The low percentage of building permits (IMB) in the off-budget subproject areas of mainland Aceh is due to the fact that building permits are considered a major source of income. Thus, beginning in 2008, some district and city administrations refused to provide building permits free of charge, even for tsunami victims.

Source: Oversight consultants.

APPENDIX 2

Specimen House Ownership Certificate



Source: Oversight consultants.

Environmental Safeguards

by Ashley Bansgrove

Environmental assessment

The Earthquake and Tsunami Emergency Support Project (ETESP) of the Asian Development Bank (ADB) is classified as a "category B project," which means that it is a project "with potentially significant environmental impacts." As a result, in 2005, an initial environmental examination (IEE) was undertaken to assess the environmental impacts of each project component.¹ The results of the IEE indicated that the project was expected to have a significant positive impact on the environment. In particular, the ETESP was to include rehabilitating damaged coastal zones, reviving agricultural productivity, and reducing health risks by rehabilitating damaged water supply and sanitation facilities. The IEE results also indicated that ETESP interventions would not significantly impact the environment in an adverse way, and that any potential negative impacts were expected to be localized, short-term, and controllable through mitigation measures and environmental monitoring.

However, given the emergency nature of the ETESP, most subprojects funded under it had not been developed in detail when project implementation began. As a result, the IEEs that were to be conducted separately for each ETESP subproject was not undertaken at the same time as the IEE for the overall project.

To guide environmental assessment of each of the subprojects during their preparation, an environmental assessment review procedure (EARP) was agreed between ADB and the Government of Indonesia.² The EARP required that an additional environmental assessment be prepared for each ETESP subproject prior to its implementation. The only exceptions to this rule were subprojects with "nonphysical" interventions, such as those that

¹ ADB. 2005. Report and Recommendation of the President to the Board of Directors on Proposed Grants to the Republic of Indonesia for the Earthquake and Tsunami Emergency Support Project and Contribution to the Multidonor Trust Fund. Appendix 5. Manila.

² Attachment 1 to Schedule 5 of the ETESP Grant Agreement.

were to reestablish human resource capacities, or fiduciary and governance frameworks. The EARP also required that the ETESP be in full compliance with relevant government environmental assessment legislation and processes.³

The housing program funded under the ETESP comprised both on-budget and off-budget subprojects.⁴ Funding for on-budget subprojects was channeled through the government, with works being implemented by the Aceh-Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]). Off-budget projects were implemented by direct contracts between ADB and various international nongovernment organizations (NGOs) and the United Nations Human Settlements Programme (UN-HABITAT).

For most ETESP components, a two-stage subproject preparation and review process was used.⁵ This approach was thus used by the housing program for all of the subprojects, regardless of whether these were implemented as on-budget or off-budget subprojects. Subproject appraisal reports (SPARs) were first prepared. These documents contained sufficient detail to allow release of ETESP funding for detailed subproject preparation and listing in BRR's database. As the second stage of subproject preparation, subproject preparation reports (SPPRs) were prepared. SPPRs contained a much greater degree of detail than the earlier SPARs, particularly with regard to information relating to the beneficiary community targeted by the subproject concerned.

During preparation of the SPAR, sector-specific rapid environmental assessments (REAs) were completed. On the basis of these REAs, each subproject was assigned an ADB environmental category. As most subprojects were expected to positively impact the environment, most were

³ Aceh-Nias AMDAL Decree No. 308 (2005) defined the government's streamlined tsunami reconstruction-related environmental assessment requirements as managed in Aceh and Nias by the respective provincial environmental agencies (BAPEDALDA-NAD; BAPEDALDA-SUMUT).

⁴ For a complete discussion of ETESP on-budget and off-budget subprojects, see page 48.

⁵ The ETESP subproject preparation and review process was formally adopted in February 2007. It consisted of two stages: the subproject appraisal report (SPAR) stage and the subproject preparation report (SPPR) stage. For purposes of environmental assessment, at the SPAR stage, subprojects were screened for potential environmental impacts via a rapid environmental assessment (REA). Each subproject was then assigned an ADB environmental Category (A, B, C, or FI). All projects including physical works were designated category B at a minimum, thus requiring an IEE, unless the REA indicated a category A designation, which would require a full environmental impact assessment (EIA). If the technical, financial, and safeguards reviews of the SPAR were positive, preparation moved into the more intensive SPPR stage, which included preparation of the required environmental assessment, typically an IEE. At both stages, SPAR and SPPR reports were reviewed carefully from technical, financial, social, and environmental perspectives, additional analysis frequently being required to address deficiencies prior to the subproject in question being approved.

classified as category B subprojects, requiring preparation of an IEE when the more detailed subproject preparation report (SPPR) was prepared. IEEs were thus prepared for each subproject under the ETESP's housing program (Table 1). The ETESP project implementation consultant prepared the IEEs for the on-budget subprojects, while partner NGOs and UN-HABITAT prepared them for off-budget subprojects.

All IEEs were reviewed by ETESP environmental safeguard advisors, and often required revisions before they were recommended for ADB approval. The IEEs generally indicated that with appropriate mitigation measures, the housing program subprojects were not expected to result in significant longterm negative impacts. Nonetheless, the environmental safeguard advisors' reviews typically provided additional recommendations for strengthening or reinforcing the environmental aspects of subproject implementation and other recommendations as well. Typically, these recommendations included (i) minimizing the use of wood as a construction material; (ii) only using certified timber that had been appropriately dried and treated against insects and mould; (iii) providing appropriate on- and off-site infrastructure (water, sanitation, electricity, solid waste collection and disposal, and adequate access roads); (iv) providing sanitation systems of proper design and quality for high-water-table areas, these systems being installed properly and located no less than 10 meters from wells; (v) ensuring adequate drainage, especially in areas that had experienced subsidence; (vi) providing fill as required in and around the house foundation footprints to avoid having areas of stagnant water that could harbor insects or pathogens; and (vii) implementing "cleaning and greening" measures such as clearing tsunami debris and planting trees.^{6,7}

Review and approval by the relevant government environmental authorities was also required of all IEEs before starting civil works. These agencies are as follows: Badan Pengendalian Dampak Lingkungan Daerah Nangroe Aceh

⁶ As described in the "BRR Timber Guidelines," *Timber Administration: Information and Guidelines for Reconstruction and Rehabilitation NAD-Nias*, released by BRR in March 2007. Based on Ministry of Forestry Regulations No. P.55/Menhut-II/2006 and No. P.63/ Menhut-II/2006 (for state forests), and Regulations No. P.51/Menhut-II/2006 and No. P.62/ Menhut-II/2006 (for private forests), all of which became effective 1 January 2007. The BRR guidelines explained the rules for procuring processed wood products and logs originating from both state and private forests. Included in these guidelines was a list of Indonesian companies recommended by the Ministry of Forestry, and a smaller list of Indonesian companies that hold international forest stewardship certificates.

In February 2007, BRR released Guidelines for the Selection and Implementation of Sustainable Sanitation Systems for the Reconstruction in Aceh and Nias (2007). Thereafter, all housing program subprojects were recommended to be in compliance with these guidelines, unless special circumstances warranted an exemption.

Table 1: Status of Environmental Safeguard Approvals of Housing ProgramSubprojects as of May 2009

	Stage 1: SPAR	and REA	Stage 2: SPPR and IEE		
Implementation Modality/			Date IEEs	Date IEEs	
Province/District/Sub-	Date SPAR/REA ESG	Environmental	ADB	BAPEDALDA	
project	Approved	Category	Approved	Approved ^{a,b}	
On-Budget					
Nanggroe Aceh Darussa	lam				
Kota Banda Aceh					
Gampong Pande	20-Sep-06	В	20-Feb-06	7-Apr-06	
Lamdingin		В	27-Mar-06	7-Apr-06	
Keudah-Merduati		В	7-Oct-06	9-Oct-06	
Aceh Besar					
Baet	24-Jun-06	В	20-Sep-06	28-Aug-06	
Ruyung		В	11-Aug-06	28-Aug-06	
Meunasah Mesjid		В	11-Aug-06	28-Aug-06	
Lamsenia, and Desa		В	11-Aug-06	28-Aug-06	
Pulot, Kecamatan			5	5	
Leupung					
Labuy		В	21-Jan-08	5-Feb-08	
Aceh Barat					
Pasi Mesjid, Meulaboh	21-Sep-06	В	12-Oct-06	9-Oct-06	
Alue Penjaring 1		В	12-Oct-06	9-Oct-06	
and Alue Penjaring 2					
Pasi Mesjid	Not applicable	В	24-Oct-08	Supplementary IEE	
Emergency Flood			Supplemen-	submitted Jan-09,	
Protection and Urban			tary IEE	no formal approval	
Drainage System				required	
Kota Sabang					
Cot Bau Village,	16-Aug-06	В	12-Oct-06	9-Oct-06	
Sukajaya					
Subdistrict					
Blang Tunong Village,		В	12-Oct-06	9-Oct-06	
Sukajaya					
Subdistrict					
Ujong Sekundo		В	12-Oct-06	9-Oct-06	
Village, Sukakarya					
Subdistrict					
Provinsi Sumatra Utara					
Nias Selatan					
Bowoganowo and	13-Sep-06	В	28-Sep-06	29-Mar-07	
Hilinamoniha					
Bawogosali		В	28-Sep-06	29-Mar-07	
Hilimondrege Raya		В	28-Sep-06	29-Mar-07	
Off-Budget					
Nanggroe Aceh Darussa	lam				
Muslim AID					
Aceh Utara					
Seunudon	13-Oct-06	В	11-Nov-06	8-Nov-06	
Pidie					
Pante Ara	13-Oct-06	В	11-Nov-06	8-Nov-06	
Ulim		В	11-Nov-06	8-Nov-06	
Treng Gadeng		В	11-Nov-06	8-Nov-06	

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	Stage 1: SPAR	and REA	Stage 2: SPPR and IEE			
Implementation Modality/			Date IEEs	Date IEEs		
Province/District/Sub-	Date SPAR/REA ESG	Environmental	ADB	BAPEDALDA		
project	Approved	Category	Approved	Approved ^{a,b}		
Bireuen						
Peusangan Selatan	13-Oct-06	В	08-Nov-06	11-Nov-06		
Lhokseumawe						
Blang Mangat	13-Oct-06	В	08-Nov-06	11-Nov-06		
UN-HABITAT						
Simeulue	29-May-07	В	21-Aug-07	10-Aug-07		
CordAid			, i i i i i i i i i i i i i i i i i i i	, i i i i i i i i i i i i i i i i i i i		
Aceh Utara						
Seuneuddon	25-Nov-06	В	22-Dec-06	15-Mar-07		
GAA						
Pidie						
Keude Panteraia	18-Jan-07	В	14-Mar-07	1-Feb-07		
Simeulue						
Simeulue	18-Jan-07	В	11-Jun-07	2-Jan-07		
Provinsi Sumatra Utara		_				
HELP						
Nias Selatan						
Hilidohona and	18-Oct-06	В	4-Jul-07	18-Jul-07		
Uluidanoduo		_				
UN-HABITAT						
Nias						
Sawo and	19-Sep-06	В	9-Dec-06	13-Dec-06		
Hiliduruwa						
Villages (Batch 1						
Silima Banua		В	9-Dec-06	13-Dec-06		
Village (Batch 2)						
Banuagea Village		В	9-Dec-06	13-Dec-06		
(Batch 3						
SUHA						
Aceh Jaya, Aceh						
Barat, Aceh Besar,						
Banda Aceh,						
Aceh Besar, Sabang						
Seismically	Not applicable as	В	12-Dec-08	12-Dec-08		
upgrading of	prepared under JFPR					
housing						

Table 1: continued

ADB = Asian Development Bank, BAPEDALDA = Badan Pengendalian Dampak Lingkungan Daerah (Bureau for Local Environmental Impact Management), CordAid = Catholic Organisation for Relief and Development Aid, ESG = Environmental Safeguards, GAA = German Agro Action, HELP = Health, Education and Literacy Programme, IEE = initial environmental examination, JFPR = Japan Fund for Poverty Reduction, REA = rapid environmental assessment, SPAR = subproject appraisal report, SPPR = subproject performance report, SUHA = Seismically Upgraded Housing in Nanggroe Aceh Darussalam and North Sumatera (JFPR 9074-INO), UN-HABITAT = United Nations Human Settlements Programme.

Notes: a. IEEs were at times submitted to the BAPEDALDAs for Aceh and North Sumatra after submission to ADB. This most often occurred because of the need to translate the said IEE into Bahasa Indonesia. In addition, IEEs were discussed with the relevant BAPEDALDAs prior to formal submission, and as a result, editing of these documents may have been required.

b. This refers to the date of the official approval communication from the relevant BAPEDALDA. However, as per article V of the Implementing Agreement between Asian Development Bank (ADB) and Badan Pengendalian Dampak Lingkungan Daerah (BAPEDALDA (Bureau for Local Environment Impact Management) Nanggroe Aceh Darussalam, Indonesia Number: 660.46/36.1/2006 (and a similar agreement with the BAPEDALDA for North Sumatra), if no comments were received within 14 working days of submission of the IEE, the IEE was de facto deemed approved by the relevant BAPEDALDA.

Darussalam (BAPEDALDA NAD)⁸ for subprojects in Aceh (NAD) Province, and Badan Pengendalian Dampak Lingkungan Daerah Sumatra Utara (BAPEDALDA SUMUT) for subprojects in North Sumatra (SUMUT) Province. A harmonized review process was jointly developed by ADB and the relevant provincial environmental authorities (BAPEDALDAs) to minimize duplicate reporting processes and reduce delays in approvals.⁹ In many cases, the process for obtaining either comments or approval from ADB and the relevant BAPEDALDAs took less than 2 weeks from receipt of the IEE.

Environmental monitoring

The ETESP environmental safeguards process did not end with approval of subproject IEEs. During implementation of the housing program, environmental monitoring and reporting was undertaken to ensure that subproject mitigation measures were properly implemented and that negative environmental impacts were absent.¹⁰ The primary responsibility for subproject monitoring, including non-environmental aspects of subproject implementation, such as construction quality, belonged to the implementing agency. However, given the limited environmental technical know-how and human resource constraints of the implementing agencies, this role was assumed by the project implementation consultants. Further, this monitoring was supported by independent site inspections by the provincial environmental authorities, and by inspections by ETESP environmental safeguards advisors.

Environmental monitoring by the project implementation consultant teams was particularly intensive during 2007, as this was the peak period

⁸ NAD Qanun No. 5, dated 5 October 2007, officially renamed Badan Pengendalian Dampak Lingkungan Daerah Nangroe Aceh Darussalam (BAPEDALDA-NAD or "Local Environmental Agency") to Badan Pengendalian Dampak Lingkungan Hidup (BAPEDALDA-NAD or "Environmental Management Agency"). However, the term "BAPEDALDA" is still widely used in Aceh by government, donor agencies, and NGOs. For this reason, the term BAPEDALDA is used in this report to refer to the provincial environmental authorities.

⁹ A comparative analysis of the environmental assessment requirements of ADB and the government indicated that the requirements of a category B IEE fully meets or exceeds the requirements of the corresponding government agency. Based on this finding, agreements were signed by ADB and the BAPEDALDAs of Aceh and North Sumatra provinces for joint review of category B subprojects. This allowed a subproject IEE report submitted simultaneously to both ADB and the relevant BAPEDALDA to form the basis of the environmental review process. Duplicate reporting processes were thus avoided and the time for obtaining approvals shortened.

¹⁰ In Aceh and Nias, this typically consists of environmental compliance inspections. Inspections may also involve or be supported by ambient air, water, and noise monitoring. However, monitoring of the latter three variables was constrained by lack of portable monitoring equipment, qualified environmental laboratories, and qualified personnel.



Image 1: Environmental inspection,

Source: Project implementation consultants.

Image 2: Environmental inspection, Nias



Source: Ashley Bansgrove.

for construction of housing units. Similarly, numerous improvements in house and building design were made during this period. Several project implementation consultant engineers performed the environmental inspections. Bi-weekly inspection reports summarizing these inspections were presented at the weekly housing program coordination meetings. Monitoring reports were verified with spot field checks by the housing program's oversight consultant before, during, and after implementation of the housing program. NGOs and UN-HABITAT conducted their own in-house monitoring programs.

In addition, environmental compliance site inspections were undertaken by the BAPEDALDAs for Aceh and North Sumatra through the ETESPfinanced National Environmental Assessment Advisor.¹¹ Finally, the ETESP international and domestic environmental safeguard advisors also undertook periodic inspections as time allowed. Several times per year, the environmental safeguard advisors attended housing program coordination meetings and presented the results of their inspections. Environmental safeguard recommendations were forwarded to construction sites by project implementation consultant and oversight consultant field inspectors. The oversight consultant inspectors verified implementation of the recommendations made during the environmental inspections. Off-budget subprojects were continually subject to spot inspections to ensure implementation of environmental mitigation or improvement measures.

¹¹ In September 2006, ADB and the BAPEDALDA for Aceh signed an agreement. A long-term national environmental assessment advisor was provided to assist the BAPEDALDA for Aceh and, to a lesser extent, that for North Sumatra with environmental assessment and monitoring. Although funded by the ETESP, this advisor worked independently of ADB, was considered a BAPEDALDA staff member, and reported to the BAPEDALDA. This advisor was mobilized on 13 November 2006 and demobilized on 6 April 2009.
Environmental impacts and actions taken

Several environmental issues emerged during implementation of the housing program. First, the increased demand for building materials due to destruction by the tsunami led to significant expansion of both legal and illegal logging activities, and ultimately, a moratorium on logging in Aceh.¹² All ETESP subprojects were required to use certified timber and be in full compliance with BRR's *Timber Guidelines*. This notwithstanding, forged timber certificates were reported to be relatively common in Aceh. Overall, the goal of using ecologically sustainable construction materials was largely unrealized, both under the ETESP housing program and in the overall reconstruction effort in Aceh and Nias.

A second issue was that from its inception, the ETESP housing program struggled to provide adequate on-site household sanitation systems that met national standards and BRR's *Sustainable Sanitation Guidelines*. The problems encountered in meeting this goal included the following: (i) lack of sanitation awareness among beneficiaries; (ii) small household plot sizes, which limited sanitation options; (iii) limited technical know-how, both on the part of the implementation consultants and the contractors; and (iv) low construction quality standards.

On numerous occasions during 2007 and 2008, both the oversight consultants and the environmental safeguard advisors raised concerns about the quality of the on-site sanitation systems. Thus, in 2009, ETESP funds were used to contract UN-HABITAT to implement a \$2 million project under which on-budget sanitation systems would be surveyed and repairs or upgrades undertaken as required. Of the more than 2,000 houses surveyed, 97 would require major repairs if BRR Guidelines were to be met.¹³ While such survey results are likely typical for most house reconstruction projects in Aceh, ADB was one of the few donors to address these deficiencies via a dedicated program.

The third environmental issue to emerge during implementation of the housing program was the lack of a comprehensive post-tsunami urban settlement spatial planning and rezoning process. This resulted in many

¹² In 2007, the Food and Agriculture Organisation of the United Nations (FAO) and ADB estimated that reconstruction in Aceh and Nias would require the following amounts of building materials: 1 million tons of cement; 3.6 million cubic meters (m³) of sand; 1.1 billion fired clay bricks; 508,000 m³ of concrete blocks; 87,000 m³ of plywood; 370,000 m³ of sawn timber; and 945,000 m³ of fuel wood for brick kiln firing.

¹³ Of the 2,182 houses surveyed, 5%–9% had missing septic tanks. In 55% of the houses with septic tanks, these were in need of major repair. Further, 76% of houses had no wetlands and thus lack secondary treatment; they thus do not comply with BRR guidelines. In 82% of the houses with wetlands, the latter require major repairs. Overall, 97% of houses had sanitation systems in need of major repair.

Image 3: Beneficiary complaining about a poor quality septic system, Banda Aceh



Source: Ashley Bansgrove.

Image 4: Leaking septic system, Banda Aceh



Source: UN-HABITAT/V. Wijaya.

Image 5: Broken septic pipes directly discharging waste in open drains, Banda Aceh





Source: UN-HABITAT/V. Wijaya.



Source: USAID.

housing settlements being reestablished on their original locations, which in many cases were flood-prone prior to the earthquake and tsunami. In many of these areas, the earthquake had caused the land to subside by as much as 1 meter, thus disrupting drainage systems. This placed the reconstructed settlements at an even higher risk of flooding due to heavy rain, high tides, or storm surges. Further, the resulting poor drainage resulted in extensive areas in which stagnant water collects, thus increasing the incidence of water-related disease. Ultimately, a significant amount of remedial work relating to repair or improvement of Aceh's drainage infrastructure in urban and rural settlements alike remains undone. While beyond the scope of the ETESP, attention from the government and donor community is required if this issue is to be appropriately addressed.

Image 7: ADB-funded septic system undergoing rehabilitation in Baet, Aceh Besar to comply with national sanitation standards Image 8: Community planting of a subsurface flow treatment wetland at a rehabilitated ADB-funded septic system in Baet, Aceh Besar



Source: UN-HABITAT/V. Wijaya.



Source: UN-HABITAT/V. Wijaya.

Image 9: Many settlements were rebuilt in areas with high water tables, the latter exacerbated by earthquake-related subsidence. Unidentified site, Aceh Besar Image 10: High water tables, Banda Aceh



Source: Ashley Bansgrove.



Source: Ashley Bansgrove.

Reconstruction undertaken in Aceh and Nias demonstrated that procurement of environmentally sustainable building materials is a major challenge in large-scale disaster reconstruction initiatives. Similarly, the work with sanitation systems undertaken by the ETESP housing program highlights the fact that improving hygiene takes time. Further, introducing innovations in sanitation may not achieve the results desired if the benefits of such innovations are not properly communicated to beneficiaries. In this regard, numerous cultural traditions and habits must be respected if initial resistance to adopting such innovations is to be overcome. Finally, largescale disasters provide an opportunity for conducting reconstruction spatial planning and risk analysis as a means of ensuring that communities are reestablished in appropriate locations with a lower risk of natural disasters. The path of least resistance on the part of surviving beneficiaries, government agencies, and emergency organizations is to proceed with reconstruction on an ad hoc basis, which can inadvertently place reestablished communities at considerable risk from natural hazards such as flooding.

Image 11: Part of a photo log from a typical monthly environmental monitoring report



The intersection between the national road and access to the project location in Lamsenia was provided without appropriate drainage. The road surface is made of granular material unsuitable for heavy traffic.



The center of the access road is not sufficiently wide as it does not permit two vehicles to pass at the same time



Housing, in the final stage of construction, before installation of its sanitation system



Excavation for sanitation facilities occurs adjacent to residential buildings due to the small size of plots

continued on next page

Image 11: continued



Road, drainage, and water supply infrastructure under completion



Some of the timber being used appear to originate from dubious sources. The contractor was unable to produce certification of its legal origin.



PRIA CONTRACTOR

A nearby river acts as the source of water for Lamsenia village

Sanitation facilities built by a nongovernment organization are not functioning due to lack of water supply



Sanitation facilities lacking water supply



Workers use the barracks of ex-disaster victims as accommodation during construction

Source: Monthly Environmental Monitoring Report by the project implementation consultant. Lamsenia LS-01, August 2007.

ADB–UN-HABITAT Cooperation in Aceh and Nias

by Bruno Dercon, Srinivasa Popuri, and Binod Shrestha

n response to the earthquake and tsunami of 2004, the United Nations Human Settlements Programme (UN-HABITAT) extended support to 4,500 families in 32 villages and assisted in rebuilding their settlements. From April 2005 to January 2009, the Aceh Nias Settlements Support Programme (ANSSP) channelled \$25.3 million in reconstruction assistance to 23 communities. The ANSSP was part of a United Nations Development Programme (UNDP) umbrella initiative referred to as the Aceh Emergency Response and Transitional Recovery Programme. Funds for this initiative were sourced from a number of donor agencies. The ANSSP operated in Banda Aceh, Aceh Besar, Pidie, Simeulue, Nias, and South Nias.

Additional funding was provided under the housing component of the Earthquake and Tsunami Emergency Support Project (ETESP) of the ADB. These funds, which were provided in coordination with BRR as ETESP subprojects, allowed UN-HABITAT to expand its assistance in Nias and Simeulue under the Nias Settlements Support Programme and the Simeulue Settlements Support Programme, both of which are discussed in detail in this chapter. By late 2006, ADB and UN-HABITAT had signed their first agreement providing ETESP subproject funding for reconstruction in Nias. In 2007 and 2008, two more agreements for Simeulue were initiated. This increment of ADB funding provided under ETESP subprojects made UN-HABITAT the largest implementation partner in the rebuilding of permanent housing in both Nias and Simeulue.¹

In early 2009, yet further funding was agreed with ADB and BRR for assisting housing reconstruction in the districts of Banda Aceh, Aceh Besar, and Aceh Barat. The primary objective of this funding was to retrofit substandard household sanitation systems built by BRR-appointed contractors in the early

¹ UN-HABITAT. 2009. Post-Tsunami Aceh-Nias Settlement and Housing Recovery Review. Jakarta.

phase of the ETESP housing program. Implementation of this subproject, which is referred to as the Aceh Sanitation Assessment and Assistance Programme (ASAAP), is likewise discussed in detail in this chapter. In the end, cooperation between ADB and UN-HABITAT channelled reconstruction funding totalling \$13,147,385 to Aceh and Nias, an amount equal to approximately one-sixth of all funding provided under ETESP's housing program.

Settlement support programs in Nias and Simeulue

Completed in 2009, the Nias Settlements Support Programme (NSSP) resulted in the reconstruction of 486 houses in four villages: Banuagea, Hiliduruwa, Sawo, and Silimabanua. In Simeulue, housing reconstruction support was split into two projects. This was done to accommodate ADB's policy that no ETESP subproject should exceed \$5 million in total funding.

These two Simeulue housing reconstruction projects comprised the Simeulue Settlements Support Programme (S3P), which targeted the villages Batu Batu, Busung, Sua Sua, and Situbuk, and the Simeulue Settlements Support Programme-Kahad (S3P-K), which focused solely on Kahad village. Together these two initiatives funded reconstruction of 459 households in

District	Nias			
Subdistrict	Sawo and	Tuher		
Village	Hiliduruwa	Banuagea	Silima Banua	Total
Units planned	104	252	130	486
Units constructed	104	252	130	486

Table 1: Accomplishments in Nias

Source: United Nations Human Settlements Programme (UN-HABITAT).

Table 2: Accomplishments in Simeulue

District	Simeulue					
Project	S3P			S3P-K		
Village	Sua Sua	Batu Batu	Situbuk	Busung	Kahad	Total
Units planned	131	111	53	52	112	459
Units constructed	131	111	53	52	112	459

S3P = Simeulue Settlements Support Programme, S3P-K= Simeulue Settlements Support Programme-Kahad.

Source: United Nations Human Settlements Programme (UN-HABITAT).

five villages. For purposes of reader convenience, throughout the remainder of this chapter, these two Simeulue housing support programs will together be referred to as S3P.

Final handover of new houses built under the NSSP and S3P ETESP subprojects was completed during April–September 2009.

The Nias NSSP and Simeulue S3P initiatives reconstructed houses that had been completely destroyed or substantially damaged by the earthquake and tsunami. Provision of essential community services was included under these two initiatives as well. Further, both initiatives were implemented under UN-HABITAT's community-driven approach, which comprises more than simply replacing housing units or constructing infrastructure. Instead, it mobilizes disaster victims in a way that allows them to rebuild their own lives and communities. Thus, throughout implementation, survivors were encouraged to work together to both rebuild physical assets and strengthen social capital.

Aceh Sanitation Assessment and Assistance Programme (ASAAP)

In early 2009, housing reconstruction was for the most part coming to a close in Aceh and Nias. However, there remained issues concerning poor construction quality and substandard water and sanitation systems. As a result, ADB, BRR, and UN-HABITAT jointly agreed to implement a pilot project for improving sanitation quality by retrofitting sanitation systems on house plots in selected neighborhoods and villages. The ASAAP targeted 2,500 households in communities in Banda Aceh, Aceh Besar, and Aceh Barat with houses that had been rebuilt in the early stages of the ETESP housing program by BRR-appointed contractors.

Substandard water and sanitation systems provided under housing reconstruction initiatives were in fact not a problem, occurring only in the houses rebuilt by BRR-appointed contractors under ETESP's housing program. Instead, problems with sanitation provisions had plagued most of the reconstruction areas from the outset. This was so for a number of reasons. First, while installing appropriate sanitation and drainage systems was an essential component of post-tsunami housing reconstruction, BRR guidelines for sustainable sanitation were issued late, and even then, rarely followed. Second, there existed topographical disadvantages that transcended reconstruction quality issues in areas affected by the tsunami. For the most part, these were areas located on flat coastal land between the mountains and the sea, the drainage from the mountains resulting in high water tables. The small average size of the plots of the beneficiaries aggravated this locational disadvantage.

Third, before the earthquake and tsunami, there had existed construction quality issues far broader than those impacting just the reconstruction areas and initiatives. Local construction skills are often of low quality, which results in substandard construction. The quality of residential sanitation facilities even in upscale, formally managed housing neighborhoods in Indonesia is thus often quite poor. Septic tanks often leak, and grey waste water is typically discharged into open drains without prior treatment. As a result, local expertise in implementing sanitation systems in the reconstruction areas was often limited. In short, the majority of reconstruction areas were all plagued by the disadvantages referred to above.

Under the ASAAP initiative, the sanitation systems in 2,500 households in three districts were first assessed to determine whether those provided had complied with national and international standards, including BRR's Sustainable Sanitation Guidelines. Non-compliance implied certainty that groundwater contamination would occur, ultimately leading to health risks and long-term environmental degradation.

This assessment produced a detailed database used to formulate a remedial plan that listed the improvements required in order of priority. After approval by ADB, BRR, and the relevant local government agencies, the ASAAP initiative began retrofitting sanitation systems and a total of 650 systems have been retrofitted through a combination of communitybased and in-house prefabrication construction techniques. ASAAPimplemented community education programs and public awareness campaigns are likewise being used to ensure that the benefits from retrofitting are maximized. The ASAAP initiative is being conducted in cooperation with the Aceh Province Department of Roads and Human Settlements, and was scheduled to end in December 2009.

UN-HABITAT's post-disaster role

UN-HABITAT supported housing reconstruction in cooperation with BRR and local institutions, assisting BRR with policy advice, field monitoring, and information management. Parallel to this, Aceh-wide monitoring of reconstruction of permanent housing was implemented in cooperation with Syiah Kuala University (Unsyiah). In the Meuraxa subdistrict of Banda Aceh, UN-HABITAT facilitated completion of a new subdistrict spatial plan as part of UN joint programming in Aceh. In South Nias, UN-HABITAT supported planning at the subdistrict level. In addition, UN-HABITAT's Aceh-Nias Settlements Support Programme team published a wide range of guidelines, manuals, booklets, and newsletters relating to the reconstruction process.

The people's process

The cornerstone of UN-HABITAT's strategy in areas affected by the tsunami was sustainable relief and reconstruction, which leveraged the agency's investments in the emergency and recovery phases into long-term development of human settlements. Participating during the earliest stages of disaster response, UN-HABITAT facilitated coordination of humanitarian organizations targeting reconstruction of settlements and livelihoods. This allowed the agency to link its emergency and recovery interventions with long-term reconstruction and development strategies. As it is part of the UN system, UN-HABITAT's disaster response initiatives in Aceh and Nias were implemented in a manner that respects human rights as these relate to displacement and land tenure.

UN-HABITAT's recovery processes put beneficiaries at the center of decision making, ensuring that reconstruction is but one part of the overall recovery process. Commonly referred to as "the people's process," this approach recognizes that in post-disaster contexts, it is imperative to rebuild social capital in addition to ensuring provision of physical infrastructure. Physical reconstruction contributes to social recovery by enabling disaster victims to take collective decisions in all aspects of reconstruction. A people-centered approach complements this by fostering local innovation in addressing local problems, regardless of whether this relates to land disputes, determining village priorities, sharing common resources, such as water and forests, or producing or procuring building materials. The end result is a cohesive community fully engaged in shaping its own future.

ADB–UN-HABITAT housing reconstruction program

UN-HABITAT's community-owned settlements support programs in Aceh and Nias

UN-HABITAT was one of many organizations engaged in post-tsunami reconstruction of permanent housing.² In January and February 2005,

² UN-HABITAT. 2009. Post-Tsunami Aceh-Nias Settlement and Housing Recovery. Banda Aceh: UN-HABITAT Aceh Nias Settlements Support Programme in collaboration with the Government of Indonesia, BRR NAD–Nias, the Provincial Government of Aceh, and the United Nations Development Programme (UNDP).

it participated in assessments and formulation of government policy. UN-HABITAT strongly supported the efforts of government decision makers in ensuring that community-based participation was a basic tenet of reconstruction policy, as it was with ADB. It also supported the Kecamatan Development Program and the Urban Poverty Program as conduits for implementing reconstruction of permanent housing. A memorandum of understanding (MOU) was jointly signed by UN-HABITAT and the Government of Indonesia in March 2005 pledging cooperation with the Government's community-based reconstruction program referred to as *Re-Kompak*.

UN-HABITAT subsequently agreed with UNDP that UN-HABITAT would become the Emergency Response and Transitional Recovery (ERTR) partner for permanent housing reconstruction through the Aceh–Nias Settlements Support Programme, with UNDP agreeing to UN-HABITAT's communitydriven approach.

The end result was that UN-HABITAT developed a community-driven program with an approach quite similar to that of the government-run *Re-Kompak* initiative, with the exception that it implemented its initiatives directly rather than through government agencies. In this regard, UN-HABITAT's means of implementation was the same as that of other humanitarian agencies and nongovernment organizations (NGOs). Direct implementation was thus maintained when ADB, with the agreement of BRR, requested that UN-HABITAT implement permanent housing reconstruction funded as ETESP subprojects under the off-budget modality. UN-HABITAT's implementation arrangements under ADB's ETESP subprojects were thus the same as the other off-budget ETESP subprojects that were implemented by four NGOs on behalf of ADB.³

The roles of the communities, UN-HABITAT, and ADB

As the implementing agency for off-budget subprojects funded under ADB's ETESP, UN-HABITAT was responsible for subproject preparation, design and engineering of works, construction management, and material procurement, all of which were undertaken in accordance with both UN regulations and ADB procurement guidelines. ADB provided funding to UN-HABITAT and monitored subproject implementation through its own project management office and oversight consultant team.

Selection of subproject beneficiary communities benefited from the knowledge of both ADB and UN-HABITAT teams, as well as consultation with

³ The four NGOs were the Catholic Organisation for Relief and Development Aid (Cordaid), Deutsche Welthungerhilfe (German Agro Action [GAA]), the Health, Education, and Literacy Programme (HELP), and Muslim Aid.

both BRR and relevant local government authorities, the latter two agencies endorsing the final selection. Following beneficiary community identification, UN-HABITAT met with community leaders and discussed the principles guiding the assistance to be provided. An MOU was subsequently signed with each beneficiary community setting out the roles and responsibilities of all parties. Village meetings were then convened during which identification of beneficiary households was discussed, as well as the issues to be addressed during reconstruction. Finally, a community procurement committee was set up to manage procurement of all construction materials and services.

Subsequently, UN-HABITAT signed community implementation agreements (in ADB parlance, "community contracts") with small clusters of beneficiaries referred to as "primary groups." Under these agreements, UN-HABITAT provided funding via installments deposited into the bank account of each primary group. For its part, each primary group was to manage construction of the houses being rebuilt for the beneficiaries it comprised. All construction was to follow an agreed design, and was to take place in compliance with the current building code. In ADB parlance, each primary group implemented a community contract.

Arrangements were then made for opening bank accounts for each primary group at commercial banks, all activity on these accounts requiring three signatories. Financial transfers to each primary group account were made online from Banda Aceh. All primary groups were encouraged to settle all payments through the commercial banking system. In part, this was done to facilitate reconciling financial transactions during preparation of periodic expenditure reports, and in closing accounts when construction activities ceased.

Coordination

Coordination in community-driven programs begins with social mobilization, and results in ownership of coordination functions by the community itself. At the outset, UN-HABITAT's field staff identified both the village *imam* and informal leaders. This facilitated formal as well as informal consultations with each beneficiary community.

Social rift in post-conflict settings complicates community mobilization. In Nias, social rift is common because of the clan-based village social structure. In Simeulue, community consultation was smoother than that in Nias because village-level social structures are not clan-based. In comparison with mainland Aceh, Simeulue was also less affected by the decades-long social conflict. Governance is severely dysfunctional at higher levels in Simeulue. But at the community level, poverty is for the most part shared, which facilitates community consultation. As a result, problems in Simeulue tended to be resolved through community meetings rather than through other means.

Village leaders in Simeulue thus play a critical role in community coordination, as does the *camat* (head of subdistrict). Typically, the *camat* coordinates with the formal administration of the relevant district in resolving broad, institutional issues. For example, when one community threatened to stage a demonstration to protest delays in the construction of houses, meetings with the *camat* and village religious leaders defused the frustration caused by these delays.

In Nias, on the other hand, village leaders and *camats* rarely intervene in conflict resolution, since clan leaders customarily oversee village decision making. That said decision making by clan leaders can be volatile. In Nias, leadership is often reaffirmed by mediating conflicts among clans. Clan conflicts can thus be as frequent as it is useful in reaffirming leadership roles.⁴

To facilitate its community-driven programs, UN-HABITAT set up field offices in each district. Community facilitators with two disparate backgrounds were then hired: social development facilitators and civil engineers. An initial orientation followed by regular training acquainted these staff members with the people's process.

Teams comprising one engineer and one social facilitator were then set up, each team reporting to the district management. Engineering and social specialists working from the district or Banda Aceh office assisted these teams as necessary. During planning, office specialists outnumbered field facilitators. During construction, additional field facilitators were hired.

Representatives from both BRR and the United Nations Office of the Recovery Coordinator (UNORC) facilitated coordination between stakeholders and implementing organizations. Since BRR had set up a special subsidiary office in Nias run by a high-ranking official, BRR and UNORC chaired weekly interagency coordination meetings. In contrast, high level agency coordination in Simeulue tended to be more ad hoc.

⁴ SAINS Institute–UN-HABITAT. 2006. Identification of Social Rift and Cohesion in a Post-Disaster Community, Case Study in Kecamatan Teluk Dalam, Kabupaten Nias Selatan. Banda Aceh.

The operational environment

In 2005, UN-HABITAT set up an office in Banda Aceh to support its teams that were working in a total of six districts. At the peak of operations, the office employed 250 staff members. Most staff were Indonesian, and of these, many were from Aceh and Nias as during the first year of operations, numerous staff members were selected from families severely affected by the disaster. Accounting was performed off-line by UN-HABITAT staff in Banda Aceh until satellite links were established with the UN Secretariat in New York and its supporting office in Nairobi. Indonesian commercial banks provided the banking services required by the office. While a local program manager was appointed with authority to hire staff and manage community contracting locally in support of the people's process, he reported to UN-HABITAT's Regional Office for Asia and the Pacific in Fukuoka, Japan.

Cooperation with other agencies produced numerous benefits, both tangible and intangible. The UN-HABITAT/UNDP-funded housing program in Nias and Simeulue provided significant assistance, including staff time, office equipment (computers, printers, tables, and office utilities), project vehicles, training materials, tools, and guidelines. Other UN agencies provided construction materials, tools, and public hygiene campaign materials used under the ADB-funded housing program in Simeulue. UN-HABITAT also frequently exchanged expertise and technical information with NGOs.

Operations in Aceh were difficult, even in districts on the mainland. During 2006–2008, recruiting capable staff in the wake of the tsunami was a challenging task, since numerous agencies were simultaneously recruiting from the same limited labor pool. Given the scale of reconstruction, qualified staff were often unavailable, and difficult transport conditions made each field visit an arduous experience. For most staff, long periods of separation from home and family compounded the stress of working under difficult conditions.

Construction costs increased dramatically during reconstruction. Although anticipated during project formulation, it was difficult to foresee the degree to which this would impact operations. Prices of some local construction materials increased by as much as 400% during reconstruction, the most rapid price increases occurring during 2006–2007 at the peak of reconstruction when numerous donor agencies were active. The foreign exchange value of the rupiah fluctuated frequently, making forecasting changes in project finances a challenging task. Budgets often had to be modified as a result.

New challenges emerged when construction began in Nias and Simeulue. Monsoon rains often disrupted construction, since Nias and Simeulue experience more rainy days than adjacent areas on the mainland. In addition, the remoteness and low population density of both Nias and Simeulue make the supply chain erratic and logistics difficult. Shipping monopolies and market-sharing arrangements compounded these problems, as both translated into infrequent sailings and high unit costs. Further, materials delivered from mainland suppliers often failed to meet contracted specifications. This led to yet further delays since consignments of construction materials often had to be rejected. In short, procuring materials to specification was both time-consuming and difficult. As a result, construction schedules were often disrupted.

Lack of skilled workers in Nias and Simeulue also negatively impacted construction progress. Ultimately, UN-HABITAT hired numerous workers from the mainland, which led to still more delays and cost increases not factored into project time frames and budgets during formulation. Moreover, construction staff often departed prior to completion of the works to which they were assigned. This caused yet further delays and cost increases as it necessitated hiring replacement staff.

Finally, the difficulties of operating in a complex post-disaster, postconflict social context were often underestimated, which led to numerous delays in many of the reconstruction programs. Achieving results in remote and difficult areas in a post-disaster context always translates into timeintensive project management. This is particularly true when communitybased consultations are an important input into implementation success, and the major project output is the rebuilding of beneficiary livelihoods.

An often overlooked factor in the rebuilding of beneficiary communities was the legacy of recent conflict and war. The collapse of civil service functions in the wake of the tsunami compounded the ineffectiveness of local government resulting from the 30-year conflict in Aceh, creating a deep lack of trust between government and those governed. As a result, the influx of funding from reconstruction activities posed continual challenges in addressing corruption. These were compounded by Aceh's post-conflict environment in which suspicion, fear, and intimidation were universal. In such a context, the incentive to not report corruption can be overpowering. Though not obvious to outsiders, many project implementation problems ultimately had their roots in the recently concluded 30-year conflict.

Feasibility studies

As per ADB and BRR procedures, a subproject appraisal report (SPAR) was prepared during formulation of both the Nias Settlements Support Programme (NSSP) and the Simeulue Settlements Support Programme

(S3P), these documents ultimately being approved by ADB. The SPARs included the following information: (i) location, (ii) type of activities, (iii) social and environmental issues including those impacting land tenure, (iv) the extent of civil works, and (v) budget.

Rapid environmental assessments (REAs) were completed by an environmental specialist and submitted as part of the SPARs for both the NSSP and S3P projects. An initial poverty and social assessment (IPSA) was likewise conducted, which particularly focused on the following issues: (i) involuntary resettlement; (ii) planning for the special requirements of indigenous peoples; (iii) poverty reduction; (iv) community participation; and (v) gender issues in development, gender analysis being an integral part of all IPSAs.

Information was gathered through conventional surveys and secondary data collection. However, since UN-HABITAT project teams were already in place due to ongoing UNDP programs in both Nias and Simeulue, workshops and meetings in each village with community stakeholders were also organized. This also allowed community-level information gathering and mobilization of community members to begin in parallel with the NSSP and S3P initiatives. Moreover, it allowed UN-HABITAT to immediately negotiate a village agreement with each of the communities upon approval of the SPARs by ADB.

The village agreement, which was in fact an MOU, outlined the responsibilities of both the beneficiary community and UN-HABITAT with regard to planning, beneficiary identification, and organization of construction, which was to be accomplished through primary groups of beneficiaries. It likewise included the rule that both men and women had the right to participate at village meetings. Transparency issues, compliance with regulations, and respect for the input of weaker members of the community were likewise highlighted. Village-level decision making was critical in the subsequent preparatory stage, but even more so during construction. This was particularly necessary to ensure that reference prices of materials were clarified, and that complaints and conflicts were appropriately addressed. Conflicts potentially impacting implementation success included those arising between beneficiaries themselves, and also those arising between the community and UN-HABITAT. Special village implementation committees were also set up to oversee the construction of community amenities.

Detailed planning and design

Upon the approval of the SPARs, subproject preparation reports (SPPRs) were prepared for both the NSSP and S3P subprojects in accordance with ETESP

procedures. SPPRs included detailed technical designs for the subproject in question, as well as social and environmental considerations at a detailed level. SPPRs also include a community action plan addressing issues pertaining to land, as well as an initial environmental examination (IEE).

The subproject target areas in Nias and Simeulue did not pose the same land recovery problems as in the case of many Aceh coastal communities on the mainland. In Nias and Simeulue, little land was lost due to submergence in the wake of the earthquake. As a result, few settlements had been entirely washed away as they had been on the mainland. As a result, plot boundaries had not been erased as they were in mainland Aceh. In the Nias and Simeulue beneficiary communities, implementation was made easier by the fact that disaster victims were either living in temporary or transitional accommodation in or near their home villages, or else in makeshift or shoddily repaired structures located on their own plots.

As a result of these advantages, village mapping and planning could be accomplished as part of preparation of the community action plan, albeit with a special focus on hazard identification, disaster risk reduction, and identification of drinking water resources via a special study for this purpose. One major output of the water resource study was a plan for providing drinking water to the village. Various sources of potable water were considered, including rain water collection in Nias to distribution of potable water through a gravity-fed system in several villages on Simeulue, the systems for which were to be built by UN-HABITAT or its partners.

Included in village mapping was specification of the level of the floor of reconstructed houses. This information was included to ensure against flooding, as the rebuilt houses were vulnerable to flooding as a result of high-tide levels, heavy monsoon rain, and in some cases, flat coastal terrain. Resettlement to adjacent or distant areas was not considered a viable option, except in cases in which beneficiaries had access to land in locales unaffected by the disaster.

Another planning issue requiring discussion at community meetings was the design of the houses. A standard design was produced, following BRR guidelines and the official building code. The standard design and engineering details were then reviewed and adjusted in light of advice offered by the ETESP oversight consultants. The basic design had remained unchanged since it was agreed in 2005. It comprised a detached house with a floor area of 36 square meters (as decreed by the government master plan), including two bedrooms, a bathroom, and minimal provisions for cooking.

Since these structures had to meet stringent seismic resistance standards and cost constraints, design options were for the most part limited to a floor area of 6 meters by 6 meters. As it turns out, these dimensions were the most cost-effective with regard to the minimum number and size of reinforced columns and beams required for seismic resistance. Variations were limited to a small porch or veranda area and the location of the bathroom. The cooking area was usually part of the family space inside the house, with some additional space for cooking at the rear of the structure.

None of the choices offered for cooking and bathing space was completely satisfactory. Typically, upon completion of the houses, beneficiaries would reuse the timber from their make-shift temporary homes to build a kitchen annex in order to provide more privacy and a greater degree of protection to women whose chores were performed in the early morning and evening. The bathroom often proved to be a novelty. Open defecation was common before the tsunami, and areas used for bathing comprised little more than secluded open spaces. The obligatory provision of an annex building of 1.5 square meters provided with a squat toilet was thus greeted by some as an improvement, and by others as a curious waste of resources.

Beneficiary eligibility, community-based land mapping, and group formation

Selection of beneficiary households began during preparation of the SPAR for each subproject. The process was initiated by BRR and relevant local government agencies, which provided a list of potential beneficiaries. UN-HABITAT then finalized this list by verifying the validity of the claim of each beneficiary household against BRR eligibility criteria. The verification process was both public and participatory.

BRR criteria required that each beneficiary household be (i) living in a village affected by the disaster or at an adjacent resettlement site, or (ii) occupying a house destroyed or severely damaged by the earthquake or tsunami at the time of the disaster. Proof of ownership of the land on which the reconstructed house was to be built was also required. This could be formal or traditional ownership, or freehold or traditional long-term lease from the clan or community in question.

Each beneficiary family was required to request assistance individually, and to produce documentation in support of its request. These requests were then audited by UN-HABITAT, issues relating to them being discussed at village meetings. Vulnerable households, such as those headed by widows or aged persons and those living in temporary shelter or who had moved in with relatives following the disaster, were given priority. Other households able to verify their eligibility publicly were then accommodated. Including the final list of beneficiaries in the SPPR for each subproject ensured that funds would be available to provide each eligible beneficiary family with a housing grant, and that disparities in the allocation of housing grants among beneficiaries would be avoided.

As the ownership of much of the rural land in Nias and Simeulue is customary in nature, many beneficiaries had never held formal land titles issued by the National Land Agency (Badan Pertanahan Nasional [BPN]). Verification of beneficiary claims thus often required mapping of plots and compilation of documents supporting ownership claims. Examples of documents in support of ownership included identity cards (KTP), neighborhood-level household registration cards (*kartu keluarga*), and any other evidence of ownership of the plot in question, whether formal or informal. Submission of these documents completed the landownership audit process used to verify ownership of the land on which reconstructed houses were to be built.

Landownership audits and mapping had broader importance in the eligibility verification process, as these satisfied the community adjudication land management process officially sanctioned by BPN under the World Bank-supported Reconstruction of the Aceh Land Administration System (RALAS) initiative. In Simeulue, the ownership documents referred to above were handed over to the RALAS team. This ultimately allowed BPN to issue formal land titles based on the documentation provided. An ETESP land expert assisted preparation of the documents for BPN in the case of the Simeulue beneficiary communities. In Nias, however, the RALAS land certification program had not yet been implemented. While the land audit documents were thus handed over to the Nias local governments, as of this writing, there has been no follow-up or issuance of formal land titles.

The beneficiary verification process described above was incorporated into preparation of the community action plan for each beneficiary community. This greatly aided mobilization of groups of beneficiaries responsible for implementation of reconstruction works. UN-HABITAT's people's process typically mobilizes people with similar needs into primary groups. A community implementation agreement (or "community contract") was then signed with each primary group. Under the community implementation agreement, funds were provided to each primary group collectively. Each primary group then organized implementation of the works required to produce the outputs specified in the agreement. For the Aceh and Nias subprojects, primary groups typically comprised 5–13 beneficiaries.

Organizing beneficiaries into groups was the primary means of planning, implementing, and monitoring housing reconstruction in each beneficiary

community. Each primary group had a bank account at Bank Rakyat Indonesia (BRI), and was represented by a chairperson and a treasurer, both being bank account signatories. Most primary groups also had a secretary, who was also an account signatory. Together with the chairperson, treasurer, and secretary, the other members of the primary group made joint decisions regarding house design; building materials; labor (self-help, casual labor, or formal contractor); financial management; and monitoring of progress. The three representatives were also responsible for day-to-day implementation of works, hiring and paying labor, procuring materials, the overall management of construction works, and accounting of funds.

Community contracting, community procurement, and construction

For the Nias (NSSP) and Simeulue (S3P) projects, primary groups typically comprised five households, as opposed to 10 households under the earlier UNDP-funded program. Limiting primary groups to five households was necessary to satisfy ADB procurement procedures that specify a ceiling of \$30,000 per community contract. On Nias, the total cost of five houses remained under this ceiling, which allowed primary groups of five beneficiary households. By the time construction works began under the S3P project on Simeulue, the cost of five houses had escalated considerably. Nevertheless, though implementation occurred over 2 calendar years, ADB's specified cost limitation was not exceeded. Thus, the size of the primary groups on Simeulue remained unchanged.

Funds were dispatched in installments to each primary group's bank account upon signing their community contracts, which allowed procurement of materials and labor to begin almost immediately. Primary groups were encouraged to ask for quotations, to make price comparisons at various shops, and to update their accounts regularly. In cases in which female heads of households participated, their role in reconstruction was clearly delineated. Throughout implementation, UN-HABITAT facilitators assisted primary groups in making procurement decisions. In cases in which bulk procurement was efficient, formal tenders were announced and bidding was conducted by representatives of either the primary group or village representatives.

The UN-HABITAT facilitators provided technical assistance and documented implementation progress, as they had the right to monitor the bank accounts of the primary groups. Agreement was reached as to the stage of construction at which subsequent installments of funds were to be requested. If a particular primary group failed to either show progress in implementation or maintain the quality of construction specified in the contract they had signed, subsequent installments were withheld by UN-HABITAT until corrective measures were taken.

While a ceiling of \$30,000 per community contract seems a logical precaution and reflects a concern for transparency and risk management, in the case of the NSSP and S3P subprojects, this limit turned out to be particularly small, which made community contracting difficult. UN-HABITAT's threshold was typically \$70,000 per primary group, which allowed 10 families to form a primary group under the UNDP/UN-HABITAT-funded ANSSP program. There is much to recommend in the ANSSP approach, since the managerial capacity of a group of 10 families is typically greater than that of a group of five families, and the likelihood of literate persons being included in a group of 10 families is greater than in a group of five. Further, peer pressure regarding financial accountability is more intense in a larger primary group than in a smaller one, as in the smaller case, the probability of member households being related to one another by blood or marriage is often quite high.

As to the optimum size of a primary group, UN-HABITAT's international experience is that groups of 25–40 people tend to be the most efficient. Nevertheless, in a post-disaster environment, social capital is never generated easily. Because of the social, economic, and physical insecurity facing individual families in such a context, group collaboration receives lower priority than family allegiances. That said, with regard to facilitating decision making, in Nias and Simeulue, the optimum size of a primary group varied from village to village. In some cases, groups of five were the most effective, whereas in others, groups of 10 were optimal. In still other cases, decision making was most efficiently carried out at the village level. Finally, in numerous cases, intervention by UN-HABITAT facilitators was necessary to ensure progress in decision making.

Throughout implementation, UN-HABITAT field staff provided technical support and construction supervision, and ensured construction quality. Field engineers, who were supported by engineers located at the Simeulue and Banda Aceh offices, provided advice when necessary. Such support was required, for example, when materials shipped to Simeulue failed to meet agreed specifications and when construction works failed to be implemented according to both the design specified and appropriate engineering standards. Similarly, the advice and support of UN-HABITAT field staff was necessary when several community members decided not to use skilled laborers in the hope of saving funds. Such decisions often resulted in delays due to the continual need for corrective measures. One of the primary goals of the UN-HABITAT facilitators and engineers was thus to mitigate delays by providing continual technical support and monitoring of works.



Box 1: Facilitation in action

In Banuagea Village, Nias, the administrators of six primary groups failed to pay for the materials purchased from suppliers, even though construction had already been completed. A UN-HABITAT facilitator intervened, requesting the leaders concerned to settle the groups' debts using funds from their respective bank accounts.

Word quickly spread among primary group members that additional money was owed. Being unaware that the group leaders had not withdrawn funds for this purpose from their bank accounts, they concluded that the facilitator was attempting extortion. This misunderstanding soon escalated into a public complaint against the facilitator.

In response, a senior UN-HABITAT staff member facilitated a meeting at which the misunderstanding was addressed. The facilitator presented the documents pertaining to the groups' accounts, which showed both the outstanding liabilities to the suppliers and receipts for belated payment. Once the facilitator explained the meaning of the documents presented, which included the contracts with the supplier and corresponding payment statements, the misunderstanding was resolved.

Source: UN-HABITAT.

Workers hired by the primary groups were provided basic training, particularly with regard to guidelines for earthquake-resistant construction. This training consisted of initial workshops conducted at the beneficiary villages, as well as continual on-site training throughout the period of construction.

Community Infrastructure

In addition to reconstructing housing, the NSSP and S3P subprojects provided beneficiary households with basic infrastructure, such as taps for piped water and septic tanks. Quality control was difficult during implementation due to limited local know-how, but with training and monitoring by UN-HABITAT, ETESP's oversight consultants and the advisors attached to the Project Management Office of ADB's Extended Mission in Sumatera, this infrastructure was successfully completed. In Nias, rainwater harvesting systems were installed, whereas in Simeulue, a gravity-fed water supply system was built.

The United Nations Children's Fund (UNICEF) supported implementation of the main water distribution pipes for the five villages in Simeulue as part of UN interagency cooperation. With ADB funding, the project added reticulation lanes within hamlets and individual house connections for 459 homes. These works were carried out in coordination with local authorities, and when possible, with Perusahan Daerah Air Minum (PDAM), the local government water supply company.

Monitoring and verification

ADB's oversight consultant team was continually involved in approving proposals, designs, and engineering details, both before and during construction. Ultimately, one of the team's most important duties was ensuring that the handover of houses to beneficiaries was carried out appropriately, since this signified that the primary groups had fulfilled their contracts and that UN-HABITAT was absolved of any further responsibility for reconstruction. An important part of the handover was thus verification that all agreed works had been successfully completed.

ADB procedures require that an executing agency (EA) be assigned by the borrower of an ADB loan to implement the project to which that loan relates. The EA can, in turn, appoint an implementing agency (IA) to undertake certain implementation responsibilities on behalf of the EA. The IA normally appoints contractors to undertake construction as per design requirements and relevant standards.

In the case of the Nias NSSP and Simeulue S3P subprojects, UN-HABITAT became the IA in that it implemented these two subprojects on behalf of the EA, which was BRR. This arrangement was specified in a legal agreement between ADB and UN-HABITAT. These two subprojects introduced an additional complication in that each primary group was both the contractor appointed to undertake construction works, and also the subproject beneficiary. Moreover, each primary group did not receive a loan, but instead received a grant to be used to fund construction of houses for its individual members. The NSSP and S3P subprojects were thus unique for the above reasons.

Further, at the end of the construction period, no assets were handed over to the executing agency. Instead, people often began living in their houses before construction was complete. This meant that the usual maintenance period, during which the contractor is held liable for deficiencies that slowly emerge, was virtually impossible to delineate.

Similarly, as construction came to a close, beneficiaries typically changed their minds about the nonstructural house design they preferred, since their priorities tended to change the longer they lived in their houses. For example, embellishing their front verandas was typically assigned a higher priority than finishing the areas at the rear. Similarly, in some cases, they wanted to economize on finishing materials to reserve funds for putting up an inexpensive kitchen extension made of debris or timber previously used for temporary shelter. As a result, even before the beneficiaries' houses were finished, alterations had already begun, which meant that the actual use of funds deviated from the agreed bill of quantities.

Initially, the oversight consultant team attempted a blanket verification of construction completion performed via a random sampling of houses. However, following the first handover ceremony in Nias, it became apparent that the quality of finishing works varied widely. As a result, the oversight consultant team withdrew its temporary handover based on blanket verification. In the end, a two-stage house-by-house verification procedure was formulated, which involved both the beneficiary concerned and village representatives. This procedure resulted in either an agreed checklist for works yet to be undertaken, or else a statement signed by the beneficiary refusing further finishing works.

This two-stage verification procedure was as challenging as it was time consuming. Beneficiaries were often not home during the day. Some refused essential repairs, while others would cooperate only if additional works were undertaken. Because many beneficiaries had already occupied their houses, signs of wear and tear were beginning to emerge, making it difficult to delineate responsibilities for necessary works. At times, verification created tensions within primary groups. This was particularly true when a beneficiary disagreed with the decisions taken by the primary group's management team. The most common problem was that the expectations of the beneficiaries and the oversight consultant diverged, placing UN-HABITAT facilitators in the middle of uncomfortable debates.⁵ Serious misunderstandings often occurred since beneficiaries were building houses they had never built before, and workers were performing earthquake-resistant construction for the first time. Similarly, metal roof structures and sheet covers had never been used on a large scale in small houses in remote villages in Nias and Simeulue. Most importantly, beneficiaries were handling an amount of money they had never dealt with before.

Under the ETESP housing program, funds remaining in primary group bank accounts following handover were not distributed in cash, but were instead used to purchase finishing materials such as paint. In contrast, the earlier UNDP-funded projects had allowed beneficiaries to find ways to economize, for example, by contributing their own labor, since excess funds could be distributed as cash.

Community education and outreach

Community education was undertaken at various stages of implementation. Initially, training workshops on accountable leadership and participatory and inclusive decision making were conducted. Subsequent workshops explained the principles underlying the procurement process and earthquakeresistant construction techniques. Special workshops for training laborers were likewise convened.

Outreach was especially important in promoting proper hygiene and sanitation. Pre-disaster sanitation amenities were generally of low standard. Toilet and septic tanks were often absent in rural communities, and in cases in which they had been built, they were of poor quality. Septic tanks typically leaked, continually contaminating both ground water and water from wells. This made E. coli infections commonplace, particularly among the young, the elderly, and persons in ill health.

In response, UN-HABITAT field staff organized populist-oriented community education activities that stressed the importance of proper hygiene and sanitation. These included movie nights, community discussions, workshops, a family-fun walk event, and visits to a demonstration sanitation

⁵ Common questions included:"Why should back walls be painted?" "Why should the finishing works for a house provided under grant be the works specified in the UN-HABITAT bill of quantities?" "Why can a toilet not be used for storage?" "Why can a water well not be located inside a house?"



Box 2: Verification: "This is our house"

In November 2007, UN-HABITAT organized a handover ceremony for houses located in Nias villages. This was done in response to beneficiary requests to immediately occupy houses that were not quite finished. During verification, it was noticed that the roofs of many houses had no fascia-board in the rear. From the beneficiaries' point of view, installing such a nice wooden plank at the rear of the house was a waste of money, as they intended to expand their backside roofs immediately following the handover to enlarge their habitable space. Nevertheless, the oversight consultant team could not be swayed, since the fascia-board was stated in the bill of quantities. Since this was ETESP-funded and the oversight consultant was to sign off that the funds had been used as per the agreement, leaving the fascia-board uninstalled would subsequently cause problems for the oversight consultant. A number of house owners in Banuagea Village resolutely refused installation of the fascia-board. In one beneficiary's words: "This is my house, sir. I built it and I don't want you to change it." When UN-HABITATmobilized carpenters arrived to install the fascia-board as stipulated by the oversight consultant, one of the painters was almost beaten by the house owner who refused to allow the change. Another cause of disagreement concerned the bathroom. Although UN-HABITAT provided materials for a complete bathroom with water taps and other fixtures, some beneficiaries failed to install them because they did not plan on using the bathroom at all, preferring instead to continue bathing in the nearby river. Other beneficiaries immediately made use of the bathroom as a chicken pen. In the end, issues such as these were resolved by introducing an optional statement to be signed by beneficiaries during verification that allowed opting-out of any repair works requested to be performed by the oversight consultant team.

system. Such events allowed participants, many of whom were housewives, to test water quality at wells, drinking stations, and other sources of water frequently used by the community.

Complaint handling

Throughout reconstruction, BRR ensured an open environment that allowed beneficiaries to air complaints and make demands. As a result, complaints were frequent in subprojects implemented by UN-HABITAT. In serious cases, such as those involving government agencies or potential media exposure, UN-HABITAT set up small task forces that performed fact-finding, formulated remedies as appropriate, and when necessary, made statements to the press.

Such cases notwithstanding, most disagreements were resolved either immediately with the parties concerned or else at community meetings. Early on, UN-HABITAT's community-based process established an environment of communication and collaboration between field staff and beneficiaries. This allowed facilitators to resolve most misunderstandings at the village level. Further, both facilitators and district office staff communicated the results of any mediation efforts to the beneficiary community at large, which in most cases prevented escalation of conflicts. Two principles guided UN-HABITAT's complaint handling process: (i) problems were addressed locally, and (ii) resolutions and decisions were communicated to the wider beneficiary community. The diagram in Figure 1 illustrates UN-HABITAT's complaint handling process.

Based on its experience in Nias, the UN-HABITAT team disseminated a number of documents to each beneficiary community prior to beginning activities under the S3P subproject in Simeulue. These included a statement of the rights and obligations of the beneficiaries and UN-HABITAT. Also included was a document listing the materials purchased by the village procurement committee, together with a complaint form. However, beneficiaries usually preferred to raise their concerns directly with facilitators or attend meetings at the field office rather than complete the complaint forms provided.

Figure 1: Complaint handling

3. Community → Facilitator →Project Manager → Main Office → decision/solution →information → Community

^{1.} Community \rightarrow Facilitator \rightarrow decision/solution \rightarrow information \rightarrow Community

Community → Facilitator → Project Manager → decision/solution → information
→ Community

Figure 2: Flyer with complaint form disseminated to the beneficiary community in Simeulue

DAFTAR DAN JUMLAH MATERIAL KONSTRUKSI RUMAH

PROGRAM S3P

NO	MATERIAL	JUMLAH	UNIT	CATATAN
1	Batako	1100	/ ncs	
2	Bata	200	/ pcs	
3	Batu Krawang	31.00	/ pcs	
4	Batu Gunung	14.00	/ m3	
5	Besi Ø 12 mm x 10 m	116	/ bar	
6	Besi Ø 8 mm x 10 m	74.00	/ bar	
7	Cat Dinding Eksterior	60	/ ka	
8	Cat Menie	4.00	/ kg	
9	Cat Minyak	10.00	/ kg	
10	Clean Out Bak Air	1.00	/ pcs	
11	Daun Pintu Fiber (70 x 200) cm	1.00	/ sht	
12	Daun Pintu (80 x 200) cm	4.00	/ sht	
13	Elbow Pipa 1/2" dan 2"	2.00	/ pcs/each	
14	Elbow Pipa 3"	1.00	/ pcs	
15	Engsel Pintu 4"	5.00	/ pair	
16	F shock Pipe 1/2"	1.00	/ pcs	
17	Floor Drain	1.00	/ pcs	
18	Instalasi Listrik Lengkap	1.00	/ set	
19	Jendela Nako (55x15x0.3) cm, 8 tingkap	4.00	/ unit	
20	Jendela Nako (55x15x0.3) cm, 10 tingkap	2.00	/ unit	
21	Jendela Bouven (55x28x0.3) cm	2.00	/ unit	
22	Kawat Ikat Beton	20.00	/ kg	
23	Kayu 2,5/5 x 500	80.00	/ bar/KPR	
24	Kayu 5/5 X 400	72.00	/ bar/KPR	
25	Kertas Ampias	10.00	/ pcs	
20		1.00	/ pcs	
21	Kuasi Bintu	2.00	/ pcs	
20	Kloset Jongkok Warna	5.00	/ pcs	
29	Krop Air 1/2"	1.00	/ Set	
30	Kuson Dintu 4.5/12 om	1.00	/pcs	
32	Kusen lendela / 5/12 cm	20.00	/m'	
33	Kerikil Beton	24.00	/m3	
34	Lem Pina	2.00	/ ncs	
35	Oli Bekas	2.00	/ pc5	
36	Paku	4.00	/ ka	
37	Paku Tembok	60.00	/ ncs	
38	Bingkai baja 4/4 x 400	22.00	/ bar	
39	Multiplex 7.5 mm	48.00	/ sht/KPR	
40	Pipa PVC Ø 1/2".2".3" @ 6 m	1 5/1/1 5	/ bar	
41	Pasir Pasang/ pasir beton	18	/ m3	
42	Pasir Urug	5 70	/ m3	
43	Atap Lengkap + Plafound (ceilling)	1.00	/ set	
44	Selotip Pipa	1.00	/ pcs	
45	Semen Tipe I 50 Kg	110	/ zak	
46	Tanah Timbun****		/ m3	
47	T - shock 3"	3.00	/ pcs	
48	Thinner (kaleng)	2.00	/ kg	
49	Tripleks 3 mm	12.00	/ sht	
50	Septic Tank + Leach Field (1 set)	1.00	/ set	
51	Anti Rayap	1.00	/ unit	
52	Kanopi	1.00	/ unit	

Untuk perincian lebih lanjut, silahkan melihat Rancangan Anggaran Biaya (RAB) dan desain rumah Pembangunan rumah termasuk biaya upah kerja tukang Termasuk di upah cat **

Swadaya masyarakat

Figure 2: continued



PENERIMA BANTUAN RUMAH SIMEULUE SETTLEMENTS SUPPORT PROGRAMME (S3P)

KARTU MATERIAL KONSTRUKSI RUMAH PENERIMA BANTUAN RUMAH S3P ADB - UN-HABITAT FORMULIR SARAN, KRITIK & KELUHAN

Kartu ini tersedia untuk setiap penerima bantuan rumah S3P ADB - UN-HABITAT

PENERIMA BANTUAN RUMAH S3P ADB - UN-HABITAT

Program Pembangunan rumah S3P ADB-UN-HABITAT bersama masyarakat Simeulue membangun sebanyak 459 rumah di lima desa di Simeulue; Batu-Batu, Sua-Sua, Situbuk, Busung dan Kahad.

Penerima bantuan rumah S3P ADB-UN-HABITA akan menerima :

Rumah 36M2, dilengkapi fasilit as sanitasi dasar seperti kamar mandi, WC dan Septic Tank.
Rumah t ahan gemp a dengan mengacu p ada st andar Building Code Pemerint ah RI
Sambungan air ke rumah (Program penyediaan air bersih bekerjasam a dengan THW dan UNICEF)

Penerima bantuan rumah S3P ADB-UN-HABITAT :

- Ikut terlibat dan bert anggungjawab penuh dalam proses pembangunan rumah.
- Ikut mengawasi perkembangan proses pembangunan rumah hingga selesai
- Mencatat dan mengawasi keluar masuk material dan pekerjaan tukang.
- Bekerjasama dengan baik dengan UN-HABITAT dan ADB.

UN-HABITAT KANTOR SIMEULUE, JI Baru Sukakarya no 56 Sinabang Simeulue, Telp: 0650 21464

UN-HABITAT BANDA ACEH JI T.M Pahlawan no 3A, Kp Ateuk, Banda Aceh, Telp: 0651 7412525

continued on next page

Figure 2: continued

** Jika formulir tidak cukup, silahkan menggunakan kertas lain dengan tetap menyertakan informasi diri

FORMULIR SARAN, KRITIK & KELUHAN		
Nama	:	
Alamat & Desa	:	
KPR	:	
No telp yang bisa dihubungi	:	
Nama Fasilitator Pendamping	:	
Saran/Kritik/Keluhan	:	
Untuk saran, kritik dan keluhan, silahkan dialamatkan ke UN-HABITAT SIMEULUE, JI Baru Sukakarya no 56 Sinabang Simeulue, Telp: 0650 21464 atau UN-HABITAT BANDA ACEH JI T.M Pahlawan no 3A, Kp Ateuk, Banda Aceh, Telp: 0651 7412525		
Atau dapat menghubungi : Cut Metozein, 0813 60569585 , Adi Mulyono, 0813 76137862 Fachrul Rizky, 0811 3407600 , Yeka Kusumajaya, 0813 76143534		

** Jika formulir tidak cukup, silahkan menggunakan kertas lain dengan tetap menyertakan informasi diri

FORMULIR SARAN, KRITIK & KELUHAN		
Nama	÷	
Alamat & Desa	· · · · · · · · · · · · · · · · · · ·	
KPR	:	
No telp yang bisa dihubungi	:	
Nama Fasilitator Pendamping	· · · · · · · · · · · · · · · · · · ·	
Saran/Kritik/Keluhan	:	
Unt UN-HABITAT SIMEULUI UN-HABITAT BANDA AC Cut M Eachrui	uk saran, kritik dan keluhan, silahkan dialamatkan ke E, JI Baru Sukakarya no 56 Sinabang Simeulue, Telp: 0650 21464 atau EH JI T.M Pahlawan no 3A, Kp Ateuk, Banda Aceh, Telp: 0651 7412525 Atau dapat menghubungi : etozein, 0813 60569585 , Adi Mulyono, 0813 76137862 Pizky 0813 2407600. Vaka Kurumajaya, 0813 76137862	

Image 1: Construction works on Simeulue





Source: UN-HABITAT.





Source: UN-HABITAT.

Image 1E: Columns are erected



Source: UN-HABITAT.



Source: UN-HABITAT.

Image 1B: Engineering supervision



Source: UN-HABITAT.

Image 1D: Construction of columns in progress

Image 1F: Brick work

Image 2: Completed houses with water and sanitation amenities



Source: UN-HABITAT.

Image 2C: A completed house in Nias



Source: UN-HABITAT.

Image 2E: A water well



Source: UN-HABITAT.

Image 2B: Completed houses in Simeulue



Source: UN-HABITAT.

Image 2D: A septic tank



Image 2F: Hygiene demonstration in Banda Aceh



Source: UN-HABITAT.

Completion and handover

Taken together, the NSSP and S3P subprojects constructed 486 houses in Nias by November 2007, and an additional 459 houses in Simeulue by April 2009. Once verification was complete, temporary and final handover statements were signed. With this, liability for maintaining and repairing the reconstructed houses was transferred from UN-HABITAT to the beneficiaries. A closing ceremony during which keys were symbolically handed over was organized. This allowed this important shift in responsibilities to take place in front of the entire beneficiary community as well as local government representatives.



Image 3: Handover ceremony in Simeulue, April 2009

Source: UN-HABITAT.

Conclusion

Housing reconstruction in Aceh and Nias under the ETESP was a broadranging initiative made possible, among other things, by ADB's long-term relationship with government agencies of Indonesia at all levels. UN-HABITAT contributed to the success of this initiative through its understanding of issues relating to housing and settlements in poor communities, and in particular, understanding of those issues in post-disaster and post-conflict settings.

UN-HABITAT is not a relief organization. It is the UN agency mandated to address long-term shelter and human settlement issues. It thus focuses on long-term recovery and reconstruction rather than immediate humanitarian relief. In Aceh and Nias, it was not only the communities and their settlements that needed rebuilding, but the livelihoods of the beneficiaries themselves. In this regard, long-term success required local institutions to become effective organizations if the problems associated with reconstruction were to be addressed swiftly. This required instituting credible participatory processes at the community and local government levels.

UN-HABITAT demonstrated that beneficiaries housing under reconstruction initiatives can contribute more than simple input into design and planning decisions. Under the ETESP subprojects described in this chapter, beneficiaries became responsible for procuring materials and labor, managing construction, and administering funds. In addition to increasing beneficiary satisfaction, such a level of community participation improved both accountability and transparency. Thus, at the conclusion of reconstruction, the beneficiaries had a sense of having rebuilt their own homes rather than simply having received a housing unit. While some beneficiaries in other communities received much more costly houses from a wide range of organizations, their levels of satisfaction were often not commensurate with those achieved under the initiatives described in this chapter.

Cooperation between ADB and UN-HABITAT under these reconstruction initiatives marked the first time that the two agencies cooperated closely in a fully operational sense.⁶ This has been a valuable experience for UN-HABITAT, if for no other reason than the feedback it has received. From UN-HABITAT's perspective, ADB has proven itself an organization with profound development expertise. The ETESP was an important initiative in that it correctly perceived the importance of the environmental dimension of rebuilding settlements, particularly with its emphasis on providing adequate water and sanitation infrastructure.

Much of this success was due to the management structure under the ETESP, which was sufficiently decentralized to respond to the realization that retrofitting of water and sanitation infrastructure was an essential part of completing the housing units provided to the beneficiaries. The Aceh Sanitation Assessment and Assistance Programme was, in this respect, an encouraging pilot initiative that merits replication by provincial authorities. The ETESP also played a pivotal role in demonstrating to government partners that on-budget implementation processes do not necessarily deliver results superior to those delivered via off-budget processes or by

⁶ Other forms of cooperation between ADB and UN-HABITAT are more common. UNDP and UN-HABITAT worked together with ADB in organizing workshops and training programs in Viet Nam under the Urban Management Programme (UMP-Asia). Similarly, ADB and UN-HABITAT are cooperating under UN-HABITAT's Water for Asian Cities Programme and ADB's Water for All initiative. This cooperation includes knowledge sharing, exploration of synergies, and complementary activities.

civil society partners. The ETESP similarly provided valuable experience concerning the merits and limits of harmonization, which should be noted in future assistance initiatives by donor agencies and government partners alike.

The above notwithstanding, working with ADB was at times challenging for UN-HABITAT. Despite its experience in community contracting under rural irrigation initiatives, ADB had no oversight procedures in place for working with development partners in the housing sector. A conventional building management approach thus prevailed. Contracts for the delivery of housing units were signed, which meant that oversight consultants had to gauge the degree to which the items delivered fulfilled specifications and bills of quantities. Because this was a new context for ADB, a considerable amount of time passed before an acceptable, formal relationship was established, and with it, an efficient flow of documents.

ADB's conventional approach was also reflected in hiring consultants during the preparatory phase of the initiative as well as the resident engineers that provided oversight during implementation, project monitoring, and contract management. In the community-based processes that UN-HABITAT is so often engaged in, boundaries between preparation and implementation, and between monitoring and management simply do not exist. From UN-HABITAT's perspective, development is possible only when communities are allowed to undertake multiple cycles of small, incremental development actions. This allows millions of dollars' worth of investments to be absorbed over time in an accountable manner, thus providing a degree of learning and ownership on the part of community members that is difficult to achieve via other modes of project management.

The housing reconstruction initiatives in Aceh and Nias implemented through cooperation between ADB and UN-HABITAT marked the first time that UN-HABITAT was both a development partner and an implementing agency. The 2004 earthquake and tsunami and the subsequent March 2005 Nias earthquake forced international organizations to reassess their operational policies and to refocus emergency assistance in a way that would it allow it to be implemented through multilateral partnerships rather than through the simple donor coordination of aid funding. The cooperation between ADB and UN-HABITAT described in this chapter demonstrates that two development agencies of significant size can achieve common goals and be jointly supportive in implementing initiatives driven by national concerns. Further, ADB and UN-HABITAT have demonstrated that such cooperation can produce development impacts on a scale greater than those equal to the sum of parallel initiatives implemented separately.

Reconstruction of a Fishing Village: Keude Panteraja, Aceh

by Klaus-Dieter Peters

Scope of ADB–Deutsche Welthungerhilfe cooperation

n 26 December 2004, a tsunami that generated waves 5 meters high destroyed the coastal village of Keude Panteraja, Aceh Province. The devastation was so great that by the time the flooding had subsided, Keude Panteraja had simply ceased to exist. The event claimed the lives of 87 people, many of them women and children. A total of 321 houses were completely destroyed and 99 were seriously damaged, leaving nearly 2,000 people homeless.

Before the disaster, Keude Panteraja had enjoyed a favorable, strategic location beside a small river, near to both the Sumatra highway and the ocean. Since its safe harbor was suitable for larger fishing boats, the village had attracted migrants from other areas in Aceh. Consequently, Keude Panteraja's population was diverse, comprising a few wealthy traders, ship owners, and entrepreneurs, and many poor fishermen and unskilled laborers. Jealousy and social conflict were common in Keude Panteraja, as is often the case in communities with sharply unequal income distribution.

Curiously, despite the sharp decrease in population caused by the tsunami, the number of beneficiary households applying for housing reconstruction grants substantially exceeded the pre-disaster number of households, as the data in Table 1 illustrate.

In response to the devastation caused by the tsunami, the Aceh Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]) undertook a post-disaster assessment. Both a local nongovernment organization (NGO), Lembaga Pembangunan Terpadu Pedesaan (LPTP), and community representatives assisted in the assessment.
	Before the Tsunami	6 Months After the Tsunami
Total Population	1,833	1,746
Male	921	930
Female	912	816
Households	396	422

Table 1: Demographic changes at Keude Panteraja

Source: Deutsche Welthungerhilfe.

Of the 420 houses destroyed or damaged by the disaster, BRR allocated 300 units to Deutsche Welthungerhilfe (DWHH) for reconstruction. DWHH verified these figures by applying BRR's eligibility criteria to each case, and concluded that only 263 households fulfilled BRR criteria for receiving a new home. In the end, this number fell to 251 units, as 12 registered beneficiaries eventually moved to other villages.

DWHH was one of the first donor agencies responding to the disaster in Aceh. Thus, it had already reconstructed 65 houses in Keude Panteraja before beginning cooperation with the Asian Development Bank (ADB) under ADB's Earthquake and Tsunami Emergency Support Project (ETESP). Under the cooperation agreement signed with ADB, 251 houses were to be reconstructed, and 62 houses later rehabilitated. Provision of water and sanitation infrastructure for each housing unit was included under this initiative. Rehabilitation works relating to reconstruction, such as repair of village roads, electrification, and drinking water supply were to be the responsibility of BRR and various government line departments. BRR's contribution included reconstruction of 15 houses, a mosque, an elementary school, a market, a village meeting hall, and a dike for protecting the village against high waves.

Challenges during preparation of the village action plan

The solid relationship with the villagers that DWHH had established during the first phase of reconstruction was heavily stressed by the significant time that elapsed before the start-up of ADB-DWHH reconstruction activities. Villagers could simply not understand the reason for time-consuming preparation and approval of documents such as the subproject appraisal report (SPAR), the subproject preparation report (SPPR), and the initial environmental examination (IEE), all of which were undertaken to meet ADB requirements. At routine village meetings, DWHH staff and their local NGO counterparts were often confronted by a crowd of angry beneficiaries demanding that reconstruction of their homes begin immediately.



Image 1: Reconstruction at Keude Panteraja

A further challenge faced during preparation of the village action plan was documenting the ownership of land during the early stage of ADB-DWHH reconstruction activities. Mapping of plots was conducted by the villagers with the assistance of a local NGO (Pengenbangan Aktivitas Sosial dan Ekonomi di Aceh [Paska]), the plot boundaries on these maps serving as claims to ownership. As a means of claiming title to land, it quickly became evident that none of the beneficiaries held legal title to the plots they claimed. Land readjudication, a process that would eventually lead to issuance of formal land titles, was to be implemented by the National Land Agency (Badan Pertanahan Nasional [BPN]) with support of the World Bank–funded Reconstruction of Aceh Land Administration System (RALAS). However, the time frame for the World Bank initiative did not allow formal land titles to be issued before housing reconstruction starts at Keude Panteraja.

Fortunately, the Australian Agency for International Development (AusAID) had prepared a cadastral map of the area. A substitute land readjudication process was thus improvised using witnesses—usually neighbors—who approved the maps that had been prepared by the villagers with Paska's help. These substitute cadastral maps were endorsed by the village head, and ultimately accepted by BRR as official documents. BPN subsequently verified the maps and issued legal land title to all beneficiaries on the strength of these documents.

An unexpected challenge emerged after the district government granted land to 49 landless beneficiaries who the government had made eligible for new housing units. However, it subsequently came to light that this same land had been promised to landless beneficiaries being assisted by Save the Children, an international NGO. Frustrated by these complications, 32 families took things into their own hands and bought land from their relatives located at the edge of the village. However, this left 17 of the 49 beneficiary households who had been promised land by the district government without a plot on which a house could be constructed. On DWHH's request, Save the Children kindly agreed to accommodate the remaining 17 landless households who were unable to buy land of their own.

Challenges such as those described above tried the beneficiaries' patience. Urged into action by frustrated villagers, Muslim Aid had meanwhile reconstructed 43 housing units that it financed from its own funds. As a result of these changes, the number of houses to be reconstructed by DWHH decreased from 251 to 191 units.

Emphasis on community-based development

DWHH's ultimate aim was to use a community-based approach for planning and executing construction works at Keude Panteraja. Thus, the purpose of the first meeting convened with the heads and elders of the community in November 2006 was to develop a community action plan based on the standard house design of 36 square meters, and to request the community to indicate its preferences regarding house design and location. The community leaders responded by appointing a village implementation committee (Badan Rekonstruksi dan Rehabilitasi Desa [BRRD]), which was to represent the interests of the villagers.

In February 2007, a meeting of the entire community was convened at Keude Panteraja's *meunasah* (community meeting hall). This meeting was well attended, with more than 200 villagers, as well as representatives from DWHH, NGOs, BRR, and officials from the district government participating. DWHH briefed the audience on the ETESP subproject, particularly with regard to how it might be implemented. The meeting confirmed its preference for a participative approach emphasizing community action in implementing the construction works to be carried out under the subproject.

A second community meeting was held toward the end of March 2007, this time with ADB representatives attending. As the *meunasah* was under repair and thus could not be used, the meeting took place at the office of the district government. Much to DWHH's chagrin, this meeting took place without participation by representatives of Keude Panteraja's female population. The reason given for this was that the district government office was overcrowded and there was thus no room left to accommodate women at the meeting. Upon the meeting's approval of the house design, it was agreed that construction would begin on 15 May 2007. As might be expected of a house design approved without the input of women, adjustments to the design had to be made some 8 weeks later to accommodate objections by the village's female population that the living room was too small. The obvious lesson to be drawn from this experience is that all users of a structure should have input into its design if costly and time-consuming modifications to it are to be avoided.

DWHH staff prepared all of the planning documents necessary for reconstruction and then presented these to the community for approval. At the onset of implementation, it became obvious that a purely participative approach to construction was simply not feasible due to lack of skilled construction labor and expertise in a village almost entirely dependent on fishing for its livelihood. Procurement, quality control, and inventorying large stocks of quantities of construction materials were tasks simply beyond the collective organizational capacity of the villagers. In the end, it was imperative to develop a flexible, unconventional approach that included a mix of bottom-up and top-down activities. This approach was accepted by the community, it being ultimately enshrined in a legal agreement signed by both DWHH and Keude Panteraja's Community Cluster Work Team.

The above notwithstanding, a participatory approach greatly helped in drafting the village block plan that was to ultimately form part of the community action plan (CAP). The major reason for the effectiveness of the participatory approach in this case was that planning construction activities in Keude Panteraja's limited geographic area required numerous compromises that would only work if the entire community agreed to them.

Keude Panteraja's physical space was cramped, narrow, overpopulated, and crowded. This left no space for septic tank leach fields or wet lands necessary for properly treating wastewater, or for providing individual toilets to all households to allow residents to avoid using the unpopular public toilets. As might be expected in such a context, the villagers' plots were extremely small. This forced the beneficiaries to accept several compromises in the design of the housing units to be constructed. Great effort was required in drawing up block plans that would grant straight road access to each house, and would include emergency roads for rapid evacuation of villagers in the event of a future tsunami or similar disaster. Ultimately, the village block plan was approved by both BRRD and the village head on behalf of the community.

"Building back better," with the participation of villagers

As a result of Keude Panteraja's limited, densely populated physical space, the storage capacity of DWHH's warehouse was limited. Consequently, reconstruction was carried out in three phases, with 66 units being constructed during the first phase, 66 in the second, and 59 during the third. All houses were built to BRR standards of earthquake resistance and quality of construction.

Construction works were implemented by village action groups, each responsible for constructing 2–3 houses. A skilled laborer headed each action group and supervised all work performed. Each house owner appointed a skilled craftsman, or in cases in which house owners were unable to do so, by DWHH if the house owner requested this. The head

of each action group engaged one skilled craftsman and 2–4 laborers for each housing unit. House owners were invited to participate if they were qualified to do so; if not, they were allowed to contribute their time as unskilled laborers.

Technical advice and supervision of works was performed on a daily basis by three technicians from a local NGO who were permanently stationed at the village and operated under DWHH's supervision. Procurement of construction materials and stock-keeping was the responsibility of DWHH, which was responsible for ensuring that adequate supplies of construction materials were on hand. Responsibility for final approval of construction quality rested with the ETESP oversight consultants.

Upon signing their respective community contracts, the leaders and craftsmen comprising the community action groups were briefed at a 1-day seminar at which both their duties and the participatory approach to implementation of works was explained. BRR's technical guidelines, DWHH's technical specifications and drawings, and the purpose and function of bills of quantities were discussed at these briefings, with each participant being provided with copies of all relevant documents. During the seminar, it was reiterated that all craftsmen would be required to follow the technical design standards presented.

Craftsmen were entitled to take possession of construction materials included in the relevant bill of quantity by presenting vouchers that were approved and signed by NGO or DWHH technicians at DWHH's warehouse. The DWHH storekeeper, who maintained records of all materials received for constructing each house, was not allowed to give out materials in addition to those stated in the bill of quantities for each housing unit. Labor was paid by DWHH engineers according to the progress achieved. If action groups were habitually or permanently absent from their work sites, DWHH and BRRD could cancel their contracts without written notice, and assign their tasks to other action groups in consultation with BRRD. If deemed necessary, DWHH could use its own staff to complete construction works.

Construction was implemented in five steps: (i) foundations and concrete work; (ii) walls, windows and door frames; (iii) roofing and ceilings; (iv) painting and electrical installation; and (v) sanitation works, which were carried out by specialists at a later stage. The basic design of the houses left ample room to accommodate beneficiary preferences, for instance furnishing floors with ceramic tiles or constructing a separate kitchen at the rear of the building. These extra works were carried out and paid for by the beneficiaries themselves.

Image 2: Constructing and rehabilitating beneficiary houses





Villagers complaining about having to donate land for roads used for emergency evacuation



Source: DWHH.

Construction of secondary drainage



Source: DWHH.



Source: DWHH.

Separate septic tanks were used for treating black and grey wastewater





Flood gate installed between the primary drain and the river



Source: DWHH.

Transparency in the procurement of materials

Because DWHH's procurement rules are stricter than those specified under the ETESP, DWHH was obliged to tender each purchase that totaled or exceeded €5,000. While limited local competitive bidding was thus carried out in each of these cases, the total time for bidding and evaluation was reduced to 10 days. Post-tender qualification was permitted for local contractors, and members of the community were allowed to participate in tenders for sand and gravel. The DWHH tender committee always invited both bidders and BRRD to attend the openings of tenders. Successful bidders were obliged to deposit samples of the goods to be procured at the village warehouse. Any consignment of materials failing to meet quality standards was rejected by DWHH. Payment for goods was normally done immediately upon acceptance of each consignment, with 2 weeks following delivery being the maximum amount of time allowed for payment.

Complaint handling

Most complaints occurred because of a lack of understanding or information. That said, in some cases, the person lodging the complaint refused to understand because he or she had a vested interest in doing so, although this typically resulted from prodding by parties whose interests did not coincide with those of the community. To minimize the number of complaints it addressed, DWHH disseminated information frequently through BRRD. It also called attention to important issues publicly at the *meunasah*, providing villagers an opportunity to object to the decisions made, or to request changes. Complaints regarding the quantity or quality of construction materials were normally settled by the head of DWHH's warehouse. Most complaints having to do with construction were resolved at the relevant construction site by Paska technicians or a DWHH engineer. Complaints that could not be settled at the site itself were referred to BRRD for disposition, to the village head, DWHH project management, or to BRR's district office.

Over time, it became apparent that neither the village head nor BRRD always acted in the best interests of beneficiaries. This was particularly true in cases involving the most vulnerable members of the village who were often not properly supported by village institutions. As a consequence, DWHH encouraged all beneficiaries to lodge complaints personally at the DWHH office if they felt their case was not being properly addressed.

Innovative sanitation solutions

Completion of 191 new houses made the crowded village tidier in appearance, which in turn made plot boundaries more readily discernible. As a result, it became apparent that septic tanks of 1-meter width could be installed on each plot, thus rendering construction of public toilets unnecessary. In response to this realization, DWHH designed a compact septic tank capable of treating both black and grey waste water. Toilets were connected to the black water tank, which was fitted with a sediment trap, the overflow from which was connected to the grey water tank. Grey water was discharged to the grey water tank directly from the kitchen and bathroom after passing through a grease trap. As DWHH designed and fabricated these septic tanks locally, they proved to be inexpensive, which helped to reduce overall unit costs.

Unfortunately, Keude Panteraja's limited space and extremely high water table did not permit installation of wetlands or leach fields for final treatment of waste. In such a case, the easiest and least expensive solution would have been a vacuum drainage system that connected the septic tanks to a treatment facility. This notwithstanding, Keude Panteraja lacked the expertise for maintaining such a system to the required technical standard. As a result, a system of this type was not feasible.

Following consultation with various experts, it was determined that the best solution would be to construct a comprehensive system of primary and secondary drains. While Keude Panteraja's topography is relatively flat, surprisingly, it slopes slightly downward as one travels from the sea to the hills. Because a minimum 3% downward slope is required to ensure a proper flow of waste water, a comprehensive drainage system was designed that depended on accurate leveling of the land. Precise measurements were therefore taken, and the works completed according to design to allow proper treatment of the sewage generated by the village.

The septic tanks serving each house were connected to secondary drains via pipework. These secondary drains were in turn connected to the primary system, the floor of which was filled with sand and gravel. The primary network thus functioned as a leach drainage system that ultimately emptied into the nearby river. The calculated degree of contamination to be released into the river was acceptable, varying from 1:80.000% to 1:120.000%, depending on the water level in the river. Altogether 4,800 meters of secondary drains and 581 meters of primary drains were constructed by the villagers under the supervision of Paska and DWHH engineers. Amazingly, the villagers cooperated by releasing land from their already tiny plots to allow construction of the drainage system.

Rehabilitation of damaged houses

As per their own assessment, BRRD and the head of the village had listed 72 houses for repair or rehabilitation. Upon publication of the applicants' names at the *meunasah*, 10 of the claimants apparently had already received new houses at Keude Panteraja or at another village. As a result, the number of houses to be repaired was reduced to 62. Paska and DWHH staff inspected each house designated for rehabilitation and prepared a detailed damage report that included estimated repair costs. The difference in the degree of damage among houses was astounding. It ranged from a minimum of Rp5 million up to Rp75 million—the latter figure relating to a house that in the end had to be completely reconstructed. Expenses for the installation of toilets and septic tanks were calculated separately. The estimates of the number of hours of labor required as well as the materials necessary for rehabilitation were included in a document to be signed by the beneficiaries.

Many beneficiaries disagreed with the survey results, demanding the same amount of material and money for labor as was received by their neighbors, differences in the amount of damage incurred notwithstanding. A second survey of damaged units was subsequently carried out, the results of the latter being reported in a revised document. Ultimately, DWHH management had to visit each household personally, since at this point local staff were afraid to enter the village. After lengthy consultations and generous calculation of the number of work hours and amounts of materials required, the villagers' demands were met in all cases.

Image 3: Keude Panteraja after reconstruction

Image 4: Another view of Keude Panteraja after reconstruction



Source: DWHH.



Source: DWHH.

Image 5: A completed house

Image 6: Keude Panteraja's next generation



Source: DWHH.

Source: DWHH.

An improved future

Following resolution of all bureaucratic, financial, social, and technical problems in consultation with the beneficiaries, Keude Panteraja is a much more beautiful village today than before. Hopefully, its beauty will be appreciated and sustained, thus allowing it to provide a healthy environment for generations to come.

Rehabilitation and Reconstruction in South Nias Heritage Villages

by Heracles Lang

Background

In the province of North Sumatra, and less than half the per capita GDP of Indonesia as a whole. Nias' relatively low per capita income level is reflected in virtually all of the other human development indicators appearing in Figure 1, including those relating to health, educational level, and housing conditions.

Although the earthquake of 26 December 2004 caused major devastation throughout the archipelago, Nias was devastated afresh when a second earthquake struck on 28 March 2005. Measuring 8.7 on the Richter scale, this second earthquake caused the death of 966 persons and injured another 11,579, most of whom were living in the urbanized area of Gunungsitoli. In the end, the disaster destroyed 16,161 houses and damaged another 61,193, leaving 70,000 people homeless. Of these, 5,094 had to be accommodated in tents, there being no alternative shelter available for them.¹

On Nias island, self-help construction is most often used to build houses. Most homes are thus owner-built, though hired labor is sometimes used. Since house construction is usually financed from savings, homes are typically built in an incremental fashion, with many of them being constructed

¹ BRR Nias. 2009. Laporan Akhir BRR NAD-Nias Perwakilan Nias 2005–2008. Jakarta. Unpublished report.



Figure 1: Human Development Indicators for Nias Island, North Sumatra, and Indonesia

	Nias	Nias Selatan	North Sumatra	Indonesia
GRDP per capita (2005)	5.1 million	4.9 million	11.1 million	12.6 million
Poverty (2004)	31.6%	32.2%	14.9%	16.7%
Human Development Index (2005)	66.1	63.9	72.0	69.6
Children aged < 5 with poor nutrition (2005)	51.8	45.8	28.7	28.2
Adult literacy rate (2005)	85.8	62.5	95.6	91.7
Access to clean water (2005)	15%	8%	52%	56%
Households with electricity	32%	25%	80%	69%

Sources: United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA) 2005; and Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi Nias [BRR Nias]) 2007.

on communal land.² In Gunungsitoli and Telukdalam—the only true urban areas on Nias island—most homes are of brick-and-concrete construction, with tin roofs. The nearer houses are located to urban areas, the more often modern building materials are used, a relationship that reflects the higher income levels and more modern lifestyles of urban areas.

Modern construction techniques notwithstanding, most of these brick-and-concrete structures collapsed in the earthquake of March 2005, revealing a nearly universal lack of knowledge of modern concrete-based construction techniques and seismic-resistant building technology in Nias' coastal communities. Interestingly, the incidence of collapse of privately owned and public buildings was virtually the same in the wake of the March 2005 earthquake. This demonstrates that the lack of knowledge concerning seismic-resistant construction technology is widespread across both the public and private sectors. It is thus equally common among construction contractors, government officials, and landowners who build their own homes.

In rural areas, most houses are made of wood or half-brick walls with wood comprising most of the construction materials. Roofs are typically covered with dried *sago* leaves. In traditional villages, modern-type construction is for the most part found only at the rear of the house, where it is used in building kitchen extensions, pig barns, or other add-on structures. This is mainly due to the limited access to skilled labor and modern building materials that is typical of most remote villages. Scarcity of skilled labor and modern building materials similarly explain the fact that despite the large number of springs and rivers on the island that are fed by Nias' equatorial levels of rainfall, access to clean water and sanitation facilities in most remote villages is limited.

Nias traditional houses are of three types.³ First are the oval houses that are built in the north of the island, which are typically constructed as single detached homes (Image 1). Today, only two communal settlements of oval houses remain in Tumori, a village preserved for tourism purposes since it is only a 20-minute drive from Gunungsitoli.⁴ Second are the rectangular single detached houses built in the central part of the island (Image 2). Usually built as solitary structures, these homes combine northern and southern architectural traditions, their distinguishing feature being elaborate

² Reitmeijer, F. 1995. Urban Housing Production in an Institutional Development Perspective. Research School CNWS. P.J.M. Nas (ed.). Leiden: CNWS publications.

³ Gruber, Petra and Ulrike Herbig. 2005. Settlements and Housing on Nias Island Adaptation and Development. Vienna: Vienna University of Technology, Department of Building Construction HB2 and the Institute for Comparative Research in Architecture.

⁴ Individual houses similar to this type are spread over the north and central part of the islands of the entire archipelago.

Image 1: Homes in Gunungsitoli City and a traditional oval house in Nias district



Source: Heracles Lang.



Image 2: A rectangular house in Central Nias, and row houses in South Nias

Source: Heracles Lang.

ornamentation. The third type of house found on Nias island is the most impressive in that it is usually constructed as a set of long rectangular houses built in straight rows (Image 2). While the houses are not attached, they are connected by doors that served as escape routes during earlier times when clan wars were common. Facing a rectangular village plaza (*ewali*) where most outdoor gatherings take place, this third type of traditional Nias house is built on hilltops with stairs on one or both ends leading down to the plaza below. In the center of the village is the chief's house, a set of carved, megalithic stones, and a 2-meter-high jumping stone. In large settlements such as Bawomataluo, huge megalithic carved stones, an assembly hall, and a public rain water collection point mark the center of the village.⁵

⁵ For a complete discussion of Nias houses, see Viaro, A.M. and A. Ziegler. 1994. *Traditional Architecture of Nias Island*. Geneva: Institut Universitaire d'Etudes du Developpement; Dawson, B. and J. Gillow. 1994. *Traditional Architecture of Indonesia*. London: Thames and Hudson, Ltd.; and Waterson, R. 1990. *The Living House: An Anthropology of Architecture in South-East Asia*. Oxford/New York: Oxford University Press.

As with all other traditional houses in Indonesia, those in South Nias comprise three parts: the roof, the body or habitable portion of the house, and the substructure—which is unique in traditional Nias architecture. The substructure consists of vertical and cross-sectional bracing timbers that support both the body and the roof. The roof is supported by at least four wooden columns that run continuously from the ground up to it. Other substructure columns support the floor and body, protecting both from lateral movement during earthquakes. These support columns in turn stand on large stones laid directly on to the ground, thus providing the structure with flexibility that prevents the columns from breaking during seismic shifts. This distinguishing base structure of these traditional South Nias houses is unique in Indonesian architecture.

This architectural technique for isolating structures from the damaging impacts of lateral movement during earthquakes has been used in Ononiha tribal settlements for hundreds of years. One of the oldest structures still standing (Image 3) is the Omo Nifolasara, a house in Hilinawalo Mazino village decorated with lasara (heads of protective monsters similar to those of Chinese dragons) that dates back to 1715.⁶ The fact that this house still stands today is testament to the effectiveness of this base isolation structure in protecting buildings from destruction during Nias' frequent earthquakes.



Image 3: Omo Nifolasara in Hilinawalo Mazino, South Nias

Source: Heracles Lang.

⁶ The grand house of the chief of Hilinawalo Mazino village is one of four grand houses decorated with wooden *lasara*. Hilinawalo Mazingo is one of nine traditional villages that received assistance under ADB's ETESP.

Imperviousness to earthquakes notwithstanding, many of these structures had been attacked by termites and gradually weakened by Nias' high levels of humidity to a greater degree than anyone thought, making them vulnerable to damage during the earthquakes of 2004 and 2005. Although none of these structures collapsed completely, more than 300 traditional houses were left in need of repair.

An unconventional approach to reconstruction in a complex environment

Following the devastating earthquakes of 2004 and 2005, the Nias district office of the Aceh-Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]) undertook an assessment of the damage caused by these large-scale seismic events. This assessment was performed jointly with experts engaged under the Earthquake and Tsunami Emergency Support Project (ETESP) of ADB, as well as representatives of the communities impacted by the earthquakes. The result of the assessment was that 196 houses were in need of substantial repair.

However, to be eligible for financial support under the ETESP, beneficiary communities were required to meet certain criteria, the most basic of which was that the housing units in question had to have been damaged by the earthquakes or a resulting tsunami. The unique situation of these villages and their extraordinary architecture triggered lengthy debates as to the reason for their destruction, this being a fundamental issue in determining their eligibility for financial assistance.

Eligibility aside, numerous other issues had to be resolved if the ETESP was to include a subproject funding reconstruction of housing units in Nias. The first of these was that reconstruction using wood as the primary building material would cause extensive logging and thus accelerate degradation of the environment. Second, the remoteness of these villages was expected to cause substantial delays in reconstruction due to difficulties in delivering construction materials.⁷ The third issue related to cost constraints. Questions regarding the feasibility of reconstructing traditional houses remained, given

⁷ In February 2006, eight villages were proposed for reconstruction by BRR's Nias housing team, four of these being inaccessible by vehicle. ADB and BRR jointly reached a compromise agreement to implement reconstruction in two remote traditional villages, as well as the two nontraditional villages of Bawogosali and Hilimondregeraya, all four villages being located in Telukdalam subdistrict (*kecamatan*). While at the time, Telukdalam was the most populated, and geographically the largest subdistrict, in late 2008 it was subdivided into five subdistricts.

that the per-unit cost of rehabilitation might be more than double that of constructing a simple brick-and-concrete replacement structure.

In October 2007, BRR issued a regulation encouraging provision of cash grants to beneficiaries for rehabilitating and reconstructing traditional houses.⁸ Following this, seven traditional villages were shortlisted by BRR for rehabilitation and reconstruction. These villages received ETESP rehabilitation grants, the size of the grant depending on the degree of destruction. Rp18 million was to be provided for rehabilitation of slightly damaged houses, while heavily damaged houses were to receive a grant of Rp30 million. An additional Rp10 million was provided for financing repairs or upgrading of infrastructure, such as piped water systems, village plazas (*ewali*), drainage facilities, access roads, and stairs leading from the traditional houses down to village plazas. The regulation also stated that a maximum of Rp90 million was to be made available if full reconstruction of a traditional house was required.

This regulation formed the basis for reconstructing 55 traditional houses using a combination of recyclable timber from existing structures and replacement wooden construction materials. In 2006, the villages of Bawogosali and Hilimondregeraya were among the first to be approved for rehabilitation in the four reconstruction villages (*desa rekonstruksi*). In 2008, another 196 traditional houses were approved for rehabilitation in seven additional villages (*desa tradisional*). In the end, community contracting was used to implement all of these works, including all infrastructure components. This was in full compliance with BRR's Nias reconstruction policy of using community contracting as the preferred means of rehabilitating and reconstructing housing units. Figure 2 shows the location of each of the traditional villages receiving rehabilitation and reconstruction support under the ETESP housing program.⁹

⁸ BRR regulation 43/PER/BP-BRR/X/2007, 3 October 2007.

⁹ In several subvillages (*dusun*) of Bawogosali and Hilimondregeraya, brick-and-concrete structures were built in addition to rehabilitating traditional houses. This was done in cases in which rehabilitation was technically infeasible or reconstruction prohibitively expensive.





Source: Project implementation consultants.

Nontraditional house designs

At least six house designs were prepared for housing reconstruction in South Nias, these being applied to both traditional and nontraditional sub-villages (Figure 3).¹⁰ Surveys were then conducted to determine the design most appropriate to each beneficiary's plot. All six designs were variations on the government standard 36-square-meter housing unit built within required seismic resistance parameters and cost constraints. Each preserves the major elements of Nias traditional houses such as steep roofs with flap-like openings. They thus blend harmoniously into traditional villages.

¹⁰ See page 48 for an explanation of the difference between on-budget and off-budget subproject implementation under the ETESP.

Figure 3: Six nontraditional Nias house designs used in implementing the Earthquake and Tsunami Emergency Support Project



Source: Project preparation consultants.

Further, these designs could accommodate individual beneficiary preferences. These individual preferences mainly included the choice of building materials, the color of the exterior, the style of roof opening, and the option to exclude roof openings completely (Image 4).

Image 4: Modified nontraditional houses in Hilimondregeraya and Bawogosali





Bawogosali

Source: Florian Steinberg.

Source: Florian Steinberg.



Source: Florian Steinberg.

Village plans

Village plans were developed for the "reconstruction villages" of Bawogosali and Hilimondregeraya, Bawoganowo, and Hilinamoniha. These village plans include the design of infrastructure works, such as access roads, community halls, sports facilities (volleyball and badminton courts, and soccer fields), community toilets and bathing facilities, water supply and drainage systems, biodegradable-waste composting facilities, and on-site sanitation systems (Image 5). However these ambitious village plans were subject to a strict cost constraint of Rp10 million per eligible household. Thus, the features included in the plans represented a menu of choices from which beneficiary communities selected those to which they assigned the highest priority. The ETESP project implementation consultants convened numerous meetings at which each beneficiary community used a participatory process to allocate funds earmarked for infrastructure. All of these works were ultimately implemented by the beneficiaries themselves.

BawogosaliSevere Heracles Lang:HilmondregerapyFore: Heracles Lang:Serie: Heracles Lang

Image 5: Village plans for Bawogosali, Hilimondregeraya, and Hilizoorilawa

continued on next page

Image 5: continued



Implementing community contracting

In 2006, the beneficiary communities under the Nias and South Nias ETESP subprojects were identified and those selected were certified by the respective heads of villages. The final lists of beneficiaries were then reported to the heads of the respective subdistricts (*camat*), and to BRR-Nias. These lists then formed the basis for preparing community contracts for each self-help housing group (Kelompok Swadaya Masyarakat Perumahan [KSMP]) responsible for reconstructing or rehabilitating the housing units for the beneficiaries that each KSMP comprised. Each KSMP was then awarded a contract for funding reconstruction or rehabilitation of five housing units.

The amount of funding provided depended on the type of unit to be reconstructed or repaired, the degree of damage, and the type of infrastructure facilities to be installed. Nontraditional housing units were each awarded Rp60 million, while budgets for rehabilitating traditional houses fell within the range of Rp18 million–Rp30 million. The per-KSMP budget for infrastructure works varied between Rp60 million and Rp260 million. New construction replaced houses that had been completely destroyed, as well as those that had become inhabitable. According to the national minimum housing standard, the funding provided for reconstruction of nontraditional houses reflected the design of the government standard 36-square-meter housing unit though in some cases this was increased to allow for construction of additional bathrooms.

The innovative element in the use of community contracting in Nias was BRR's use of the on-budget implementation mode. Contracts were signed both by the relevant community representatives and BRR's project manager. That said, because of a continual decline in BRR project management resources beginning in 2007, BRR's project manager was assisted by the ETESP project implementation consultants. In 2008, additional funds were provided to BRR for project management under the ETESP.¹¹

Under the variant of community contracting used in Nias, each beneficiary community effectively became an implementing agency responsible for the delivery of outputs specified in the contract it had signed. Similarly, BRR's project manager became an administrator of budgetary resources. BRR's main role was thus that of managing funds, including payments made to the accounts of the beneficiary communities. That said, ETESP consultants reviewed the quality of construction works before authorizing payments. With technical endorsement from the ETESP consultants in hand, BRR's project manager recommended payment to the government treasurer. Payments were then made through the government treasurer's regional office in Gunungsitoli. Upon completion of construction works, BRR's project manager formally handed over the reconstructed or repaired housing units, any unused funds being returned to the government treasurer. Unfortunately, the method of community contracting described above led to an unprecedented number of complications as the total number of contracts expanded.

Table 1 summarizes the progress achieved in reconstructing and rehabilitating both traditional and nontraditional housing units under the ETESP housing program. The figures for KSMP represent the 216 contract packages, of which 175 contracts were for home repairs and reconstruction, and 41 were for infrastructure works.

ETESP's project implementation consultants provided a significant amount of assistance to both BRR and the beneficiary communities, with services to the beneficiary communities comprising a wide range of activities from quality control to mediation. Implementation delays caused by dissent within community groups often led to the need for intervention by the project implementation consultants. In cases that could not be resolved at community meetings, the project implementation consultants or technicians requested mediation by BRR project management.

The project implementation consultants likewise provided significant input into the administration of community contracts, with much of the underlying paperwork being handled by ETESP's project implementation office in Telukdalam, which was located adjacent to the BRR South Nias district office. While convenient for both the project implementation consultants and BRR, this location was distant from the traditional villages,

¹¹ While BRR formally closed on 16 April 2009, BRR's Nias Regional Office ceased operations much earlier on 31 December 2008. As a result, BRR's role was significantly reduced in 2009.

						AD	B-ETESP Grant		
			Struc	ture	Traditio	pnal	Nontradi	litional	
ġ	Names of Villages	Population (2005)	Traditional	Non- traditional	Reconstruction	Rehabilitation	Reconstruction	Rehabilitation	Number of KSMP
∢	Traditional villages	30,479	301	3282	0	196	0	0	36
-	Hilisimaetano	13,126	64	1594	0	48	0	0	7
N	Lahusa Fau	1,575	48	177	0	21	0	0	5
e	Onohonro	1,290	27	112	0	28	0	0	5
4	Botohilitano	4,571	32	773	0	29	0	0	5
2	Hilinamozaua	6,693	63	255	0	32	0	0	9
G	Hilinawalo Mazino	1,867	24	184	0	26	0	0	5
2	Hilizoorilawa	1,357	13	187	0	12	0	0	က
ш	Reconstruction villages	7,869	176	928	55	22	431	556	180
ω	Bawogosali	1,632	84	232	14	0	222	89	68
0	Hilimondregeraya	2,750	92	318	41	22	58	250	37
10	Bawoganowo	1,108	0	150	0	0	80	06	37
Ξ	Hilinamoniha	2,379	0	228	0	0	71	127	38
	Total	38,348	477	4210	55	218	431	556	216

ADB = Asian Development Bank, ETESP = Earthquake and Tsunami Emergency Support Project, KSMP = Kelompok Swadaya Masyarakat Perumahan. Source: Project implementation consultants. a factor which no doubt affected the pace of implementation in numerous ways. Consultations with the project implementation consultants required community members to travel a considerable distance from their villages, many of which were located high in the hills. While community members did not have to travel to Telukdalam, the distance between the beneficiary villages and Telukdalam nevertheless slowed implementation progress. Similarly, travel by project implementation consultant community facilitators was partly limited by the financial bottlenecks caused by cash flow problems faced by the project implementation consultants. Finally, South Nias and Telukdalam are 120 kilometers from Gunungsitoli—the latter being the location where all payment requests for disbursement of project funds had to be submitted to the government treasurer.

Working with community contracts

In addition to the community contracts for the two "reconstruction villages" of Bawoganowo and Hilinamoniha, 141 community contracts were spread across the other nine villages. Apart from the travel required, contract administration was not overly difficult or complicated for the beneficiary communities since BRR and the project implementation consultants looked after most of the details regarding it. While all community groups were given copies of their contracts, copies were not furnished to all members. As a result, some members claimed that they had never seen their contracts, a situation that in some cases gave rise to complaints about lack of transparency. In isolated cases, such complaints escalated into accusations of profiteering, corruption, or beneficiaries being manipulated into buying certain products.

Following approval of the South Nias subproject appraisal report, the ETESP project preparation consultants prepared village plans while the detailed technical designs were prepared by the project implementation consultants. The project implementation consultants then introduced these to the individual beneficiary communities with the help of community facilitators. Together with the project implementation consultants, the members of the beneficiary communities then physically mapped the beneficiary claims. Depending on weather conditions and the availability of the relevant members of the beneficiary community concerned, these activities required 2–4 weeks to be completed, in a participatory manner. On occasion, spontaneous community meetings were held outside houses or at night at the community hall, depending on the availability of the villagers themselves (Image 6). Absence for purposes of performing livelihood activities or attending social events such as celebrations sometimes

Image 6: Community meetings in front of rehabilitated traditional houses in Botohilitano (left) and in a community hall in Hilinamozaua village (right)



Source: Project implementation consultants.

slowed implementation of works. Thus, implementation was punctuated by numerous unforeseen and unplanned developments.

Consultations regarding detailed engineering designs usually required only a day, although beneficiary communities were generally given an entire week to study the designs presented. In most cases, copies were prominently displayed on bulletin boards in public places, such as the office of the village head, churches, or community halls. Training in bookkeeping principles provided advance assistance with financial reporting. Nevertheless, financial reporting turned out to be a difficult task, in that it often took much longer than expected for financial reports to be submitted. Assistance in this regard by project implementation consultant and community facilitators was always in high demand. Though less critical due to a tradition of construction craftsmanship, training in construction management and techniques was also provided to ensure that members of the beneficiary communities both understood the principles of modern earthquake-resistant construction and implemented them (Image 7).

Before construction, the project implementation consultant and community facilitators verified the dimensions of each plot and measured the size of land available for construction to ensure consistency between plans and the space available for construction. Surprisingly, many beneficiaries supplemented their ETESP grants with their own funds and built rather large houses, their supplementary funds in some cases exceeding the size of the grant provided. In some cases, ambitions exceeded available resources, resulting in unfinished structures that ultimately had to be completed following expiration of the ETESP. Some beneficiaries surprised the ETESP consultants by constructing houses on alternate plots that were larger or safer than those that were planned. Inheritance issues in some cases led to changes of significant scale, some of these never being fully explained to the consultants or community facilitators.

All construction works were implemented by the beneficiary community groups themselves, either through self-help or with the assistance of hired labor. However, in some cases, the BRR project manager and project implementation consultants assisted in order to accelerate completion. This was particularly true as the April 2009 termination date of BRR's mandate approached. As for the nontraditional construction works, about 85% of these were carried out with the assistance of hired labor, either sourced locally or from outside the village. In contrast, about 85% of rehabilitation and reconstruction works on the traditional houses was implemented by the beneficiaries themselves with minimal help from neighbors or relatives.



Image 7: Rehabilitation of South Nias traditional houses

Note: The construction terminology appearing above is explained in Project Implementation Consultants. 2009. Manual of Rehabilitation of Traditional Nias Houses (in Indonesian language).

Source: Project implementation consultants.

Quality control

In the end, the quality of construction depended not only on the quality of the building materials and construction techniques used but also on construction supervision and management, and the availability of financial resources. Thus, the credit for the high level of construction quality achieved in Nias was largely due to the work performed by the community leaders, the project implementation consultants, oversight consultants, and to some extent, BRR project management. However, failures in the restoration of traditional houses are still evident. The use of light steel roof on some of the traditional houses has somewhat increase indoor's heat during daytime. Luckily, with 270 rainy days in a year, the villagers tolerate this heat increase as they do not need to replace the roof every second year. Should there be more funds available in these households, adding a ceiling could make indoor temperature more comfortable. For spacious and aesthetical reasons, the ceiling could be constructed following the slope of the roof, not horizontally as in the nontraditional houses.

Facilitation by BRR

The experience in Nias was extraordinary in that BRR, a government agency, led the community contracting process in a way that made possible the rehabilitation and reconstruction works ultimately achieved. While BRR had had prior experience in working with local contractors, in earlier cases the results achieved failed to produce a significant level of beneficiary satisfaction. It is thus remarkable that as a government agency, BRR learned that housing—a private good—required special treatment.

In addition to heavily encouraging participation by beneficiaries, the community contracting project implementation mode encouraged the beneficiaries to invest a substantial amount of their savings in house construction.¹² Further, the level of beneficiary satisfaction achieved far exceeded that which would have been possible under any contractor-built housing program. In this sense, the South Nias experience reconfirms the expectations of donor agencies regarding community involvement in the housing sector.¹³

¹² Lang, Heracles. 2008. Community Housing in Post-Disaster Area on Nias Islands, Indonesia: Responding to Community Needs. Christchurch: Resilient Organisations. www.resorgs.org .nz/irec2008/Papers/Lang.pdf

¹³ Turner, J. F. 1976. Housing by People: Towards Autonomy in Building Environments. London: Marion Boyars; Turner, J. F. and R. Fichter. 1972. Freedom to Build: Dweller Control of the Housing Process. New York: Macmillan.

In this case, the community contract process showed that beneficiaries depended on BRR's performance, and on the supervision of the ETESP project implementation consultants. For both BRR and the project implementation consultants, it was an uphill struggle to implement the program as expected by the beneficiaries, given the limited number of facilitators and resources available. Facilitators were required to look after several villages simultaneously. Success in this was only achieved due to the fact that within each village or sub-village, two or three local cadres assisted in the supervision of construction works and resolved problems that emerged among the beneficiaries, the community leaders, and the local Committees for Construction Acceleration of Housing and Infrastructure Settlements (Komite Percepatan Pembangunan Perumahan dan Prasarana Desa [KP4D]).¹⁴ The limited amount of training or preparation provided these local cadres and facilitators regarding project implementation affected the pace of progress achieved under the Nias subprojects. As might be expected, conflicts arose between community groups and the government treasurer on issues relating to payment. For the most part, these were either due to a misunderstanding of one type or another, or due to leadership problems (Box 1).

Box 1: Traditional Nias architecture in transition

In the wake of the earthquake on 28 March 2005, aid channelled through a wide range of donor agencies poured in to Nias to help rebuild both houses and infrastructure destroyed by the disaster. However, no funds were provided to restore the traditional houses of either northern Nias, which are built in oval form, or their central counterparts, which are constructed as rectangles. As a result, the Asian Development Bank (AD B) provided financial assistance for the reconstruction of two traditional villages in South Nias district: Bawogosali and Hilimondregeraya.

After viewing the results of the rehabilitation efforts in these villages, Badan Rehabilitasi dan Rekonstruksi (BRR) NAD-Nias, the central government agency implementing the reconstruction and rehabilitation of Aceh and Nias, requested additional support for rehabilitating traditional South Nias houses in nine villages. This included the famous Bawomataluo village. Defining what comprised a traditional South Nias house presented decision makers with a challenge. In particular, can traditional houses that have gone through a transition process, such as those in Bali, Java, or Nias itself still be considered traditional houses?

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¹⁴ The tasks of the local KP4D were to (i) discuss and decide on priorities regarding basic infrastructure facilities, (ii) legalize the establishment of self-help housing groups (KSMP), (iii) manage infrastructure budgets, and (iv) supervise the construction of housing and infrastructure.

Box 1: continued

Few people in Nias are aware of locations where traditional northern Nias houses still exist. At present, they are found only in Tumori village. However, even there, the number of these houses is continually decreasing. This results from the fact that for many people living in North Nias district, traditional houses are no longer architectually relevant. This is so for a variety of reasons, the major one being high maintenance costs. During post-disaster reconstruction, both BRR and local and international aid agencies were initially mainly interested in building new houses in the modern, urban style. However, this tendency of the younger generation, BRR, and local and international aid agencies to reject traditional architectural solutions ignored the fact that cultural traditions are in a constant state of flux, continually adapting to modern exigencies.

In attempting to understand how traditions, customs, and even traditional architecture continually adapt to contemporary requirements, it is instructive to consider an incident that recently took place in Teluk Dalam, the capital of South Nias District.

The incident involved a consultant from an aid agency who was assaulted by the head of the village during implementation of that agency's housing reconstruction and rehabilitation initiative. The consultant was accused of having made mistakes that led to faulty construction which in the end, turned out not to be the fault of the consultant. The disposition of this case was as follows.

A police report was filed concerning the misdemeanor committed by the head of the village. During the reporting of the incident to the police, it was suggested that the issue be addressed through traditional (*adat*) legal procedures. Everyone involved in the case agreed. An *adat* judicial process was thus convened in the village assembly hall. In some ways, it resembled a modern court trial, in that the defendant was represented by a senior villager. The process was led by village elders including the most prominent *adat* leader, who proceeded with the charges levied against the defendant. The head of the subdistrict who attended the trial was asked to provide his views on the matter. The person representing the plaintiff was also allowed to comment on the case. The process was then concluded by a villager who represented the office of the head of the village, since the village head himself was the defendant.

To ensure timely conclusion of the process — which traditionally takes between 3 to 7 days — it was suggested that the head of the village pay a fine of 30 grams of gold as ruled under customary law. The suggestion was accepted and the entire process was concluded within 3 hours. In addition to apologizing to the plaintiff, the fine paid by the head of the village was later shared with the people involved in the case as customary law requires. This included the officials from the village and subdistrict administrations, and the military and police officers attending the proceedings. While traditional dress was not required during the process, it ended with a traditional meal. The dispute was formally settled by slaughtering a pig, the

Box 1: continued

meat of which was distributed to everyone in attendance. A formal report was later made, with a copy submitted to the police to formally notify them that all charges had been dropped.

The above anecdote illustrates three aspects of *adat* law. First, only the basic tenets of *adat* law, such as non-negotiable fines, are important in preserving traditions. Second, traditional customs such as *adat* judicial procedures can be significantly shortened. Third, customary judicial procedures can successfully stand-in for modern-day legal proceedings that involve the head of the subdistrict, and subdistrict military and police commanders. Fourth, in this case, *adat* law was reinterpreted to accommodate contemporary needs and trends: the plaintiff did not object to sharing the compensation due him with others.

The three aspects of *adat* law referred to above illustrate several points. First, *adat* is not something that is obsolete or retrospective. It can adapt to contemporary and future issues. Second, *adat* is open to new ideas, the incorporation of which is acceptable so long as these ideas are incorporated by the very people who practice the custom.

The three aspects of *adat* law referred to above also apply to traditional house construction In that like *adat* legal procedures, traditional house design has adapted itself to modern requirements via a process of transition, the difference between one village and another being the pace and scale at which this transition occurs.

Three aspects of this transition in traditional house design are important here. First, throughout the transition, the basic principles of traditional design, such as overall shape, the traditional floor plan, and the use of wood as the major construction material are retained. Second, the transition allows the use of modern building materials such as galvanized sheet metal or aluminum sheets molded to look like tiles, even though these appear in colors different than that of the traditional *rumbia*-leaf roof. Third, changes regarding the function and shape of long houses built on stilts have been made to accommodate the fact that owners want to make use of the space underneath the house for various purposes. In some cases, these have led to elimination of the diagonal beams that bear the lateral force produced by earthquakes.

Restoration of traditional South Nias houses required input from several experts from the village concerned as well as nearby areas. While resistance to damage caused by earthquakes was the main criteria guiding rehabilitation, it was recommended that the overall design resemble that of traditional houses to the extent possible, while still accommodating new requirements, such as the ability to store items underneath one's home.

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Box 1: continued

About 700 of 2,000 damaged or destroyed traditional Nias houses were rehabilitated or reconstructed through the Earthquake and Tsunami Emergency Support Project's financial support. The owners of some of these houses have opted for a nontraditional "fusion" design that provides no extra space underneath. However, before ADB-funded intervention, this new style had already been adopted by the owners of many traditional houses in the area.

Source: Silas, J. 2008. Reconciling Technology to Disaster Mitigation. Proceeding from a Symposium and Workshop of International Technology and Knowledge Flows for Post-Disaster Reconstruction. Institut Teknologi Sepuluh, Surabaya.

Difficulties in working with beneficiary communities

At times, conflicts over property emerge in Nias, even among neighbors and relatives. In one case involving an infrastructure subproject in Bawogosali, a land dispute between heirs hampered implementation of village water supply works to the extent that these were not completed during the ETESP implementation period.

Under community contracting, KSMP heads and their treasurers were responsible for construction management. However, in some cases involving disbursement of funds, KSMP heads gave priority to themselves or close relatives over other beneficiaries. This explains the unbalanced and slow progress of construction in some villages in which only construction of the house of the KSMP head had progressed well, while that of others lagged behind.

Community groups typically submitted their financial reports to the BRR project manager. In many cases, they found it difficult to prepare these reports, which were a precondition for disbursement of funds. To accelerate disbursement of funds and the construction progress, the project implementation consultants often took over the KSMP's reporting responsibilities. This sometimes triggered tensions between the project implementation consultants and the beneficiaries concerning the use of funds.

During the final months of ETESP implementation, all management efforts were focused on accelerating construction. To support this, some of the materials for community infrastructure were purchased locally, such as stone slabs for the *ewali*, crushed stones, gravel, wood, and bricks. This increased the perception of project ownership, and resulted in better construction quality. Further, the possibility of additional earnings from supplying these items increased the willingness of villagers to contribute spare time to construction activities. This arrangement also resulted in some of the unemployed finding temporary employment, and with it, an opportunity to learn simple construction skills. However, supplies were not always delivered in a timely manner, and the quality of building materials, such as gravel from nearby rivers could not be ensured. This sometimes resulted in delayed completion. In cases of substandard quality, the project implementation consultants intervened, ordering materials from other suppliers. In some cases, such interventions created tensions between some of the community groups and the project implementation consultants, at times requiring mediation by BRR.¹⁵

At the onset of implementation, the beneficiary communities were informed that each group could deal with the suppliers of their choice. However, during implementation, the project implementation consultants intervened by contracting with a single supplier for all community groups. This intervention was deemed necessary to stop waste and provide beneficiary groups with a cheaper unit price via bulk procurement contracts.¹⁶

Infrastructure

Infrastructure has always been problematic in Nias, especially in its remote villages. Bawogosali and Hilimondregeraya were the first remote villages to receive assistance under the ETESP. Although an access road had been built in the early 1990s, the road to Bawogosali was badly damaged before the March 2005 earthquake, while roads to Hilimondregeraya were nonexistent. In Onohondro, one of the most remote traditional villages to receive housing assistance, road building had just begun when the village was assessed for ETESP grant eligibility (Image 8).

While the distance from Telukdalam to Hilimondregeraya is less than 10 kilometers, the road becomes a virtual swamp during rain, making travel difficult.¹⁷ In 2005, a four-wheel-drive vehicle was required to reach Bawogosali, a journey requiring more than an hour on a bumpy, earthen road.

¹⁵ BRR's acting as mediator was beneficial in the case of the off-budget housing project implemented by the Health, Education, and Literacy Programme (HELP) in Lahusa, South Nias.

¹⁶ This caused one beneficiary to retort that the ETESP consultants were *Asal Datang Beda* (*ADB*), meaning that whenever they arrived, they announced a new or different decision or regulation.

¹⁷ The work of the PIC was severely affected by the poor road to Hilimondregeraya. While BRR was urged to allocate funds for a new road, in 2008, the agency had barely managed to build nine culverts and bridges, leaving construction of the road pending. Funding from the district government will be necessary if this road were to be finished.

Image 8: The road to Onohondro during construction (left). Men carrying an elderly sick woman to a community clinic on a dirt road from Hilimondregeraya (right).





Source: Heracles Lang.

Source: Isak S.M. Siregar.

Upon reaching Bawogosali, one enters a well-ordered plaza (*ewali*), which residents use for most outdoor activities. Along both sides of the *ewali*, a drainage system discharges rainwater to nearby rivers. Despite 250 days or more of rainfall each year, water supply is problematic in Nias' traditional villages. Normally, water is carried up from rivers, a task typically performed by women and children (Image 9). Since the distance from hilltop villages to adjacent rivers is considerable, rain harvesting would seem a better alternative.

Although the communities themselves were involved in the planning of public infrastructure, (roads, drainage systems, *ewali*, piped water supply, and village halls), some of these components failed to materialize due to land disputes. When public utility infrastructure lines needed to cross private property, some owners refused to contribute land for this purpose, despite the fact that this affected everyone in the village.

Considering the financial requirements of infrastructure investments, such as access roads and bridges, the budget of Rp10 million per eligible household provided under the ETESP was insufficient to cover more than immediate infrastructure requirements. While conditions today are substantially improved over previous years, many village infrastructure requirements remain unfulfilled. It thus remains to be seen whether these communities will be able to resolve these issues by themselves, or with the assistance of the South Nias district government.

Before the 2005 earthquake, essential infrastructure such as *ewali*, access roads and concrete pathways, village halls, churches, and communal baths were maintained by the villagers themselves. Funding for operation and maintenance of these facilities remains an issue, since public-sector funding

Image 9: Hilinawalo Mazino village: Women descending 89 steep steps to the Wawa River for bathing and washing (left). Hilimondregeraya: A woman walks up a dirt road with goods for sale at her small shop (right).





Source: Heracles Lang.

Source: Heracles Lang.

for operation and maintenance in remote villages does not exist. Fortunately, most of it is relatively easy and inexpensive to maintain, the most expensive component of village infrastructure being water pipes and the roofs of village halls. In a few cases, external provision of funding triggered tension between community leaders, village committees, and the residents themselves. These conflicts were for the most part addressed through traditional (*adat*) conflict resolution processes.

Lessons learned

The earthquakes of December 2004 and March 2005 changed Nias' remote traditional villages in a short period of time by opening them up to development. Undoubtedly, the technical expertise and reconstruction support provided by aid agencies in the wake of the earthquakes was both beneficial and appreciated (Image 10). Rehabilitation of housing increased the level of community participation in these traditional villages. It has likewise beneficially impacted local leadership and management capacity.

The rehabilitation and reconstruction effort in Nias was not achieved without difficulty, at least some of which resulted from the time frames and delivery deadlines within which the Nias subprojects were required to be implemented. Other issues such as heavy rainfall introduced additional complications. Administratively, BRR's on-budget fund disbursement procedures—from the project manager signing community contracts to the government treasurer who released funds—often resulted in delays.


Source: Johan Silas.



Source: Project implementation consultants.

Implementing community contracts in the villages of Bawogosali and Hilimondregeraya encouraged maximum participation while introducing innovations in building technology. Beneficiaries had the option of using their cash grants to either renovate or reconstruct their homes. Remarkably, 30% of residents increased the ETESP investment in housing by providing a matching contribution of 50% to 100% of the grant funds provided. Should there be more contribution from the households, more technical solutions to more comfortable housing unit, i.e., cooler indoor in traditional houses with tin or light steel roof, could be achieved by constructing indoor ceiling.

Image 10: Ceremonies of appreciation in Bawogosali and Onohondro, South Nias

Although not all infrastructure subcomponents materialized, housing rehabilitation in Nias was highly successful in that it addressed the challenges of reconstruction and rehabilitation in a culturally sensitive context. The South Nias experience is an example of cultural adaptation in a highly complex social setting, which is a context in which few organizations would dare to work. In retrospect, the ETESP housing program would have benefited from additional preparation with the beneficiary communities. As it turned out, while technical and civil works were completed relatively quickly, preparation of agreements with the beneficiary communities took much longer than expected. In some villages, disagreements between stakeholders remain, for example, those involving rights-of-way for water supply infrastructure or finalization of repair works for village plazas that remained unresolved during subproject implementation.

While ADB's support in Nias attempted to fuse cultural preservation with disaster relief, it ended up successfully implementing community contracting on a large scale within a post-disaster context.¹⁸

¹⁸ Rush, J. 2009. A New Blueprint: Fusing Cultural Preservation with Disaster Relief. In *Impact Stories—Indonesia*. Manila: ADB.

Complaint Handling and Conflict Management¹

by Jose Tiburcio Nicolas and Herman Soesangobeng

Complaint handling and conflict resolution in Aceh

ne function of the oversight consultants engaged under the Earthquake and Tsunami Emergency Support Project (ETESP) of ADB was that of facilitating the empowerment of the communitybased committees for village house construction (Panitia Pembangunan Rumah Gampong [PPRG]). This function included complaint handling and conflict resolution. Initially, the oversight consultants expected that such cases would be referred to the Procurement Task Force of the Aceh-Nias Rehabilitation and Reconstruction Agency (Badan Rehabilitasi dan Rekonstruksi [BRR]). However, in practice, both the PPRG and the BRR procurement team (satker) had great confidence in the role and capacity of the oversight consultants. Over time, as the beneficiaries' confidence in the oversight consultants grew, conflicts emerging in both on-budget and off-budget subprojects were brought to their attention. Similarly, some of the nongovernment organizations (NGOs) implementing ETESP housing subprojects specifically asked the oversight consultants for assistance, particularly in cases involving land law.

For purposes of clarity, it is useful to distinguish between the terms "complaint," "conflict," "handling," and "management." A complaint, or grievance, is a beneficiary's expression of disagreement with any aspect of the assistance provided. A conflict is a more intense form of disagreement that can be manifested in critical comments, squabbles, arguments, acts of vandalism, fights among beneficiaries, fights between beneficiaries and laborers, or between beneficiaries and contractors. Such incidents may

¹ For a more complete discussion of complaint handling, see: ADB. 2009. *Complaint Handling in the Rehabilitation of Aceh and Nias—Experiences of the Asian Development Bank and other Organizations.* Manila. Chapters 5–10 particularly address the ETESP housing component.

require some form of conflict resolution through social, administrative, or legal action. The process of resolving conflicts or complaints is referred to as conflict (or complaint) handling or resolution. Thus, conflict management implies recording, administering, and attending to complaints, grievances, or conflicts that have emerged in the course of subproject implementation.

In Aceh, the ETESP housing program implemented two types of subprojects: on-budget subprojects, which were implemented by contractors engaged by BRR, and off-budget subprojects, implemented by the United Nations Human Settlements Programme (UN-HABITAT), or NGO partners.² The procedures for handling complaints and conflicts differed between these two types of subprojects. These differences are explained in detail below.

Two modes of handling complaints and conflicts

In Aceh, there were considerable differences in complaint handling and conflict management procedures under on-budget and off-budget subprojects. However, both viewed empowering beneficiaries and promoting community participation as the ultimate goals of conflict resolution. The chief differences between the procedures used were administrative in nature. Under on-budget subprojects, complaint handling and conflict management were centralized in that such cases were referred to the oversight consultants' Complaint Handling Unit. Under off-budget subprojects, each organization developed its own procedures. The on-budget procedures for complaint handling and conflict resolution are depicted in Figure 1, which shows conflicts in most cases being settled by BRR. Only in extreme cases would these become court cases.

All complaints and conflicts fell into one of four main classifications: social, construction, land-legal, or management. Similarly, resolution of all complaints and conflicts was achieved through one of three approaches: social, administrative, and legal. Seven administrative levels were used in resolving complaints and conflicts, the rule being that each conflict or complaint should be resolved at the lowest level possible. These seven levels included (i) the community, (ii) the ETESP consultants, (iii) customary (*adat*) legal procedures, or (v) referring the matter to BRR. Complaints or conflicts of a private or criminal nature were referred to (vi) legal institutions such as administrative tribunals or Islamic courts, or (vii) the state court.

² The four NGOs that implemented off-budget housing reconstruction subprojects under ADB's ETESP were the Catholic Organisation for Relief and Development Aid (Cordaid), Deutsche Welthungerhilfe (DWHH) (in English, German Agro Action [GAA]), the Health, Education, and Literacy Programme (HELP), and Muslim Aid.



Figure 1: Complaint-handling procedure for on-budget ETESP subprojects

adat = customary law, BPN = Badan Pertanahan Nasional (National Land Agency), BRR = Badan Rekonstruksi dan Rehabilitasi [Aceh-Nias] (Aceh-Nias Reconstruction and Rehabilitation Agency), CHU = complaint handling unit, CF = community facilitators, OC = oversight consultants, Perdata = civil registry, PIC = project implementation consultants, PPC = project preparation consultants, RALAS = Reconstruction of Aceh Land Administration System, PU = Pekerjaan Umum (Public Works [Ministry]), PAM = Perusahan Air Minum (Drinking Water Company), Telekom = telecommunication company, PLN = Perusahan Listerik Negara (National Electricity Company).

Source: Oversight consultants.

Resolving conflicts through extrajudicial means such as *adat* processes was always preferred to referring cases to BRR or legal institutions (as depicted in the third level from the bottom of the flow chart in Figure 1). Thus, such processes were the means of resolving complaints and conflicts used most often. This traditional form of conflict resolution uses ritual ceremonies (*peusejuek*) to bring disagreements to mutually acceptable conclusions. The goal of the informal *adat* approach is to reach agreement through dialogue between parties concerned. The Islamic *Syariah* court was mainly used for endorsement of papers, statements of inheritance, or guardianship for orphans. Documents processed by the *Syariah* court were typically brought to the attention of BRR for further extrajudicial disposition.

Since complaints or disputes are a more mild form of conflicts, most of these complaints were resolved locally. Involvement of government officials was deliberately avoided to the extent possible, since this required processing conflicts through formal legal channels, which risked relatively high monetary cost, procedures of uncertain duration, and unpredictable outcomes. These concerns were borne out in cases in Aceh Barat, Aceh Besar, Sabang, and Nias, which ultimately seemed irresolvable due to the complicated, bureaucratic procedures set in motion by local government involvement. In short, transferring cases requiring conflict resolution from informal processes to formal legal procedures typically implied additional rather than fewer—problems for all parties concerned. The handling of the cases described at the end of this chapter illustrates this.

One of the NGO partners that implemented off-budget subprojects under the ETESP was Deutsche Welthungerhilfe (German Agro Action [GAA]), an organization with significant experience in handling conflicts. However, GAA's conflict handling was limited to addressing complaints or conflicts relating to technical or policy issues in house reconstruction. GAA's procedure thus involved (i) interaction between beneficiaries, (ii) interaction between technicians and beneficiaries, or (iii) interaction between beneficiaries and the project team leader in the case of conflicts relating to policy. Complaints were typically referred to the village-level Housing Reconstruction and Rehabilitation Body (Badan Rehabilitasi dan Rekonstruksi Desa [BRRD]). Since BRRD also kept the local BRR office informed of events relating to resolution of conflicts, BRR in turn furnished the details of each case to BRR's main office in Banda Aceh. The village-level BRRD thus evolved into a primary focal point for complaint handling.³

The other off-budget partners — which included the Catholic Organisation for Relief and Development Aid (Cordaid); Health, Education, and Literacy Programme (HELP); Muslim Aid; and UN-HABITAT — developed procedures for handling complaints and conflicts that were similar to those of GAA as they focused on the technical side of house construction, thus avoiding the need for addressing legal conflicts. However, Cordaid, HELP, and Muslim Aid also used customary *adat* procedures or religious institutions in resolving complaints and conflicts, which likewise allowed them to resolve these without recourse to formal, legal institutions.

Numerous conflicts related to the legal status of women as it pertained to ownership of land and houses. As these cases proved difficult to resolve for the NGO partners, in several cases, they referred these to the oversight consultants for resolution.

³ The chief limitation of this approach was that it did not permit resolution of nontechnical conflicts.



Figure 2: Complaint handling in DWHH subprojects

ADB = Asian Development Bank, BRR = Badan Rekonstruksi dan Rehabilitasi (Aceh-Nias Reconstruction and Rehabilitation Agency), DWHH = Deutsche Welthungerhilfe, ETESP = Earthquake and Tsunami Emergency Support Project.

Source: Herman Soesangobeng.

Complaint handling and conflict resolution in Nias

In Nias, an approach similar to that adopted in Aceh was used, both under on-budget and off-budget subprojects. The focal point for conflict resolution under on-budget projects was the project implementation consultant team. Most complaints focused on technical house construction issues and were resolved by the project implementation consultant team leader. Involvement by the project implementation consultants in complaint handling seemed appropriate, since most house construction issues related to community contracts supervised by the project implementation consultants. Other types of complaints, grievances, or conflicts were in principle left to the beneficiaries for disposition; however, in some cases the beneficiaries requested the project implementation consultants to play an active role in resolving these conflicts. As for conflicts relating to house construction, in some cases, the project implementation consultants chose to become directly involved, while in others they requested the assistance of BRR officials.

On legal issues concerning land, it was always the oversight consultant team that helped clarify and resolve matters. Typically, the oversight consultants would study the *adat* legal system's disposition of land tenure issues before making suggestions as to the disposition of particular cases. A meeting would then be organized by the project implementation consultants that brought the parties to the dispute together with the *adat* leaders for help in resolving such cases.

HELP developed its own procedures for complaint handling (Figure 3) by establishing a community negotiation team (CNT) for resolving complaints and grievances locally at the subproject location concerned. As with the oversight consultants under on-budget subprojects, the CNT typically deferred to adat conflict resolution procedures, regardless of whether the issues concerned were social-cultural or technical in nature. CNT staff made adaptive use of the *adat* system by identifying complaints and conflicts during regular coordination meetings and field inspections, and subsequently organized meetings as necessary with beneficiaries, *adat* elders and representatives (*satua hada*), and the village head or head of the hamlet (*dusun*) concerned. In cases involving persons living outside a particular hamlet, government representatives such as subdistrict officers, local military officers, or police commanders were likewise included in conflict resolution consultations.

While involvement by local government officials was occasionally necessary, this led to risks as well as possible benefits. One possible benefit was that it might prevent the parties to a dispute from becoming aggressive or violent; however, as in Aceh, such involvement always introduced the risk of conflict resolution becoming protracted, legally complicated, and thus costly. In addition, such procedures could lead to legally binding agreements. In cases involving a complaining beneficiary, decisions were recorded in a



Figure 3: Community negotiation team in HELP subprojects

CNT = community negotiation team, HELP = Health, Education, and Literacy Programme; WatSan = water and sanitation.

Source: Herman Soesangobeng.

simple minutes-of-meeting document (*berita acara rapat*), together with a statement by the plaintiff concerned. However, if the complaint or conflict involved another village, the subdistrict head would be required to issue a formal decision on the matter.

Resolution of grievances or conflicts was typically followed by an *adat* ritual known as *gowasa*, the purpose of which was to restore peace and tranquility in the community. The manner in which this ritual played out depended on the type or severity of the complaint or conflict in question. It could involve something as simple as a verbal statement of apology by an offender to the offended person, followed by drinking tea or coffee, or the offender might treat the offended person at a local coffee shop (*warung*). Alternatively, the offender might serve food to those involved in conflict resolution. Such ceremonies typically involved pig slaughtering and drinking of liquor, these occasions often becoming village fiestas.

Complaint handling and conflict resolution as part of the ETESP housing program

Complaint handling or conflict resolution is a necessary and unavoidable part of development initiatives that provide material benefits to beneficiaries. During beneficiary selection and allocation of the completed houses, the possibility of fraud perpetrated through the use of complaint or conflict resolution procedures always existed. Three conditions had to be fulfilled for beneficiaries to be entitled to a reconstructed house or repair grant: (i) the eligibility of the applicant had to be verified, (ii) each beneficiary family was entitled to a maximum of one house, and (c) the house had to be constructed on land with clear ownership status. The ETESP consultants took an active role in verifying and validating beneficiaries, developing house designs, and ensuring construction quality. The three cases described below illustrate how conflict resolution played out in specific circumstances.

(i) Duplication of housing benefits in Meulaboh, Aceh Barat

During preparation for the final handover of reconstructed houses in Meulaboh, it came to light that 99 households were simultaneously listed as beneficiaries by both the ETESP and Caritas, an international NGO. The ETESP consultants immediately conducted a painstaking revalidation of beneficiaries in close coordination with Caritas. The outcome was that these beneficiaries were asked to choose between the benefit provided by the ETESP-financed housing program or that provided by Caritas. If they chose a house provided by the ETESP, this was to be supported by a written statement both endorsed by Caritas and acknowledged by the village head.

Of the 99 beneficiary households, 22 insisted that they should receive two houses, one from ETESP and the other from Caritas. To make their point, all 22 families requested local government assistance to approve their requests for ETESP assistance, despite the fact that these same requests had earlier been turned down on the ground that the 22 reconstructed houses should be handed over to 22 alternate beneficiary households that met BRR eligibility criteria. The oversight consultants and project implementation consultants thus suggested that BRR's district branch office nominate new candidate beneficiary households. BRR responded by suggesting that the ETESP consultants should work with the local BRR verification team in identifying the 22 alternate beneficiary households. In accordance with this suggestion, a list of 22 eligible alternate households was drawn up in consultation with the local BRR verification team.

However, upon presentation of the list of alternate beneficiaries to the district deputy head (*wakil bupati*) who chaired the local BRR verification team, the *wakil bupati* refused to approve the list. This made it necessary for the ETESP consultants to resolve this conflict by meeting numerous times with the *bupati*, who approved the list only after a series of extensive, time-consuming discussions.

(ii) Squatters in Mireuk Lamreudeup/Labuy, Aceh Besar

BRR acquired the land for the Mireuk Lamreudeup relocation site by purchasing it from a landowner. However, neither the Mireuk Lamreudeup village head nor any adat or religious leader was in attendance when the transaction was consummated. Thus, once the houses were ready for occupancy, a provocateur convinced the Mireuk Lamreudeup villagers that they should occupy the houses, since the site was located on Mireuk Lamreudeup communal land, and the adat leaders and village head had not agreed to the transfer. According to the provacateur's argument, the procedure BRR followed in acquiring the land had violated the village adat right to it known as hag tamong, a tradition relating to customary land use that once fulfilled permits newcomers to settle on communal land. The provocateur argued that the means by which BRR acquired the tract of land had ignored Mireuk Lamreudeup customary adat law and had thus violated the villagers' dignity, ultimately entitling them to occupy the houses. In April 2009, some 54 houses were illegally occupied before the entitled beneficiaries could move in.

When the oversight consultants brought this case to BRR's attention, BRR requested the police to evict the intruders. However, the police felt uneasy about evicting them, despite the fact that none of the occupants held a beneficiary certificate. The police instead suggested that the eligible beneficiaries should refer their case to the courts, declaring that they could not legally evict the occupants without a court-ordered eviction notice in hand. During subsequent ADB intervention with BRR (and its successor organization, known as the "Liquidation Team"), the case was brought to the attention of the district head. Surprisingly, the district head suggested that ADB construct 25 additional houses. The location of these additional houses, adjacent to the existing ADB-financed resettlement site there, is to accommodate the 25 beneficiaries who are still waiting to receive the reconstructed houses to which they were entitled under the ETESP. The disposition of this case illustrates the fact that involvement by government agencies risks lengthy, complex, and often expensive bureaucratic procedures that in the end provide no guarantee of impartial resolution of conflicts.

(iii) A criminal case in Nias

During a community meeting convened during house construction at the South Nias village of Böwögönöwö, the village head insisted that all funds be disbursed through him. The project implementation consultant attending the meeting objected to this proposal, reiterating that cash disbursements were to go directly to the community groups. Feeling publicly insulted in front of his charges, the village head lost his temper and struck the consultant, who subsequently reported this to the local police. The police suggested to treat the matter not as a criminal offense, but instead resolve it in accordance with Police Law 2003, which includes provisions for addressing "misunderstandings" among individuals, and allows such cases to be addressed through *adat* reconciliation processes. Both parties agreed to this, and settled the dispute.

Meanwhile, during *adat* reconciliation, the head of BRR's district office had sent a report to the local police commander. Two weeks later, the regional police commander called the village head in before making a report of the matter to the provincial police office in Medan. The village head complied, and was interrogated by the regional police commander. The village head explained that the case had already been resolved through *adat* reconciliation processes. Nevertheless, the police claimed that a criminal case concerning the matter was still pending. Two months later, the village head was called by the provincial prosecutor's office in Medan for another interview, following which all charges were dismissed.

The implication of all three cases recounted above is that rather than functioning independently of one another, legal structures and longstanding sociocultural traditions are closely interwoven. While at times, legal processes have facilitated conflict resolution, in some cases they have led to complications that prolong and frustrate these. In the case of ETESP implementation, the oversight consultants made use of these long-standing sociocultural traditions to minimize the impact of conflicts that could have potentially threatened successful implementation of entire subprojects. This successful and adaptive course of action contrasts sharply with that undertaken when implementing loan-financed ADB projects. In the latter case, it is generally more prudent to defer to the government in matters relating to conflict resolution.

Achievements in complaint handling and conflict resolution

Table 1 summarizes the success achieved in handling complaints and conflicts under ETESP housing program subprojects. During the period August 2006–October 2008, 701 cases of complaints and conflicts were addressed. Of these, construction-related issues accounted for 74% (517 cases), management issues for 24% (165 cases), legal issues relating to landownership for 1% (10 cases), and social issues, 1% (9 cases).

By August 2009, 90% of all cases (634 of 701) had been resolved, leaving 10% (67) under resolution. These 67 cases comprise the 54 squatters

lecuo	Casas	No. of	Paacan	Solvod	Under	Notos
Social	Conflict between or among beneficiaries	2	Grandmother vs. grandson, sisters vs. brothers	2	0	Resolved by oversight consultants
	Conflict between eligible beneficiaries and non- eligible disaster victims	2	Insisting on enrollment as beneficiaries; beneficiary striking a consultant	2	0	Resolved by project management office through Nias <i>adat</i> ceremony
	Protests by beneficiaries	5	Requesting cash for infrastructure works; demanding more transparency in budgeting	5	0	Resolved by project management office, by Nias PIC-10 team
Total		9		9	0	
Cons- truction	Total damage	0	None	0	0	None
	Light damage	36	Light crack, doors did not open well, etc.	36	0	Resolved by oversight consultants; repaired by contractor
	Heavy damage	0	None	0	0	None
	Damage caused by natural causes	206	Roofs broken by wind, flooded houses	12	194	Resolved by BRR; repairs by contractor; additional investment in embankment by ETESP
	Poor construction quality	19	Ceiling fell down, broken foundation, weak trusses, etc.	19	0	Resolved by oversight consultants; repaired by contractor
	Delayed construction	256	Bankruptcy of contractor due to financial, managerial, or other problems	0	256	Resolved by BRR, in Meunasah Mesjid—Aceh Besar and Aceh Barat.
Total		517		67	450	

Table 1: Achievements in complaint handling of the ETESP housing program

continued on next page

Table 1: continued

Issue	Cases	No. of	Reason	Solved	Under	Notes
10000	Invalid registration	0	None	0	0	Corrected by BPN
	Illegal claims	4	Non-eligible disaster victims filed as owners without sufficient proof	4	0	Resolved by local governments of Sabang and Aceh Barat
	Boundary disputes	6	Structure encroached on neighbor's land	6	0	Resolved by oversight consultants and BPN.
Total		10		10	0	
Manage- ment- related	Disputes between contractors and beneficiaries	6	Slow progress of damage repair	6	0	Resolved by oversight consultants; repaired by contractor
	Disputes between contractors and workers	5	Contractor failed to pay workers	5	0	Resolved by work team (<i>satker</i>) and contractor
	Disputes involving contractors working under subcontracts	6	Original contractors received fee, but actual work performed by subcontractors	0	6	Under resolution by satker
	Beneficiaries claiming more than one housing grant	148	Difficulties in preventing double award of housing grants; donors lacked shared databases	148	0	Resolved by oversight consultant and verification team.
Total		165		159	6	
Sum total		701		245	456	

BPN = Badan Pestanahan Nasional (National Land Agency), ETESP = Earthquake and Tsunami Emergency Support Project; PIC = project implementation consultants.

Source: Oversight consultants.

in Labuy and the 22 families attempting entitlement to double benefits described earlier. Construction-related cases, which represent the majority of all those addressed, mainly related to poor contractor performance in

that they involved poor construction quality or delays in completion. Most of these cases involved subcontracting, an illegal practice that often produced poor construction quality. An estimated 11% of all construction contracts involved subcontracting in one form or another.

Beneficiaries often aired their complaints to the ETESP consultants, some of them suggesting they would prefer no further visits until repairs were completed. For their part, the oversight and project implementation consultants had limited powers over contractors and their workers in terms of improving construction quality or accelerating completion. The powers of BRR's procurement teams (*satker*) operating under on-budget subprojects were likewise limited in this regard, in that they could only forward instructions for the repairs and improvements required through official communication with the contractors. As a result, the consultants typically became the target of blame for both further construction delays and lack of improvement in construction quality.

The relatively large number of conflict resolution cases involving management issues was mainly due to attempts by beneficiaries to receive housing grants from multiple donor agencies (148 cases). In some of the cases in which they were able to achieve this, lack of both shared databases and communication permitted it. In contrast, only 1.28% (9 cases) involved conflicts between relatives, and only 1.43% (10 cases) involved issues relating to landownership or tenure, indicating a relatively high degree of success in resettlement and land registration activities. The relatively small number of cases involving social conflict similarly demonstrates that the socialization process was adequate, and that beneficiaries understood their rights and obligations.

Lessons learned

Overall, the experience under the ETESP housing program demonstrates the importance of immediately establishing procedures, policies, and guidelines for handling complaints and conflicts when implementing reconstruction projects. This, together with ensuring proper dissemination of information among beneficiaries concerning these procedures before the onset of implementation can minimize the number of complaints, conflicts, and disputes that must be addressed. At all costs, making promises that cannot be fulfilled must be studiously avoided.

In the case of conflicts regarding land tenure, both Indonesian statutory laws and culturally based *adat* interpretations of these should be applied. This pertains equally to acquisition of land for purposes of resettlement or house reconstruction, particularly in areas where *adat* law is closely embraced by the communities concerned, such as in Aceh and Nias. In particular, both the legal and the *adat* status of land offered for sale must be verified prior to its acquisition.

Any complaint handling unit established under a project should have sufficient authority or influence over disagreeing or conflicting parties to allow resolution of conflicts to take place outside the formal judicial system. This requires extensive knowledge of local customs, traditions, and belief systems.

Conclusions and Looking Ahead

by Florian Steinberg, Emiel Wegelin, and Pieter Smidt

Outputs and achievements

Inder housing reconstruction, the output of the Earthquake and Tsunami Emergency Support Project (ETESP) housing program comprised about 6,000 newly reconstructed housing units. This is considerably less than both the 14,000 units anticipated at project appraisal, and the 8,000 units envisioned in March 2006 when the housing program's overall target was downscaled. Essentially, unit cost increases due to price hikes and quality improvements, and implementation and land constraints account for this difference between the number of reconstructed units planned and that achieved. In particular, the following four factors were significant:

- (i) During implementation, there was a significant preoccupation with housing quality. Reinforcement of the support structures for the housing units was upgraded to ensure earthquake resistance. Similarly, the height of the walls was increased by about 0.5 meters to improve ventilation, thereby lowering the temperature inside the dwellings. While these upgrades no doubt produced a superior product, it increased the per-unit cost above that specified by the government.
- (ii) Rapid increases in the price of construction materials (including timber from certified sources) continued well into 2008.
- (iii) The implementation capacity of both BRR and the entire commercial construction industry in Aceh and Nias was highly constrained. This factor could only partly be mitigated by contracting the United Nations Human Settlements Programme (UN-HABITAT) and five nongovernment organizations (NGOs) to implement some of the subprojects under offbudget implementation arrangements.¹

¹ The four NGOs were as follows: Catholic Organisation for Relief and Development Aid (CordAid); Deutsche Welthungerhilfe (German Agro Action); Health, Education, and Literacy Programme (HELP); and Muslim Aid. The United Nations International Organization for Migration (IOM) was subsequently engaged by ADB in 2009 to improve infrastructure works in Aceh Utara and Aceh Besar.

(iv) Over the project implementation period, it became increasingly difficult to locate land suitable for building new housing on the scale required, without forcing the disaster victims to relocate to areas distant from their home villages and employment opportunities.

Under housing rehabilitation, the 1,103 units achieved by the end of project implementation was likewise considerably less than the 10,000 units envisioned during appraisal. This is unsurprising given that most other donor agencies found it equally difficult to rehabilitate housing units due to the same variables that negatively impacted the ETESP housing program. First, the verification procedure for rehabilitated housing units was highly labor-intensive and time-consuming. Second, many potential beneficiaries found it advantageous to completely demolish their damaged homes in order to qualify for a new house under the government's post-disaster housing replacement program. These factors notwithstanding, 834 homes were rehabilitated under on-budget implementation arrangements, and 269 under the off-budget implementation mode. Further, in all of these cases, community contracting was employed as the method of procurement.

In the case of on-budget housing rehabilitation in Nias, use of community contracting was a major success in terms of rehabilitation of heritage structures in a culturally sensitive context. If for no other reason, the initiative was a major success because by its very nature, the combination of on-budget implementation and community contracting leads to complex implementation challenges. In large measure, the success achieved was due to the unprecedented manner in which these implementation challenges were addressed.

In South Nias, use of community contracting was key in (i) encouraging maximum beneficiary participation; (ii) overcoming problems associated with the supply of building materials; and (iii) rehabilitating architecture of significant historic interest in an environmentally sustainable manner, while at the same time introducing appropriate innovations in building technology. With the financial support provided, beneficiaries had the option of renovating their homes or completely reconstructing them. In the end, a remarkable 30% of beneficiaries used their own funds to augment the ETESP investment in rehabilitating their homes by 50%–100% of the assistance provided. Moreover, reconstruction of houses in non-traditional villages made an important contribution to earthquake-resistant construction, in that the typology applied was copied by BRR and at least some of the NGOs in their housing reconstruction and rehabilitation programs.

Implementation of the ETESP housing program in South Nias was likewise remarkable in that it provided an example of adaptation within a highly complex cultural setting that few donor organizations would have dared to attempt. This is not to say that housing rehabilitation and reconstruction in Nias was without its difficulties. In retrospect, such a program would have benefited greatly from a substantial increase in the amount of time spent socially preparing the beneficiaries for implementation by means of community contracting. As it turned out, technical planning and implementation of civil works were completed relatively quickly. However, preparation of the agreements with the communities concerned required a much longer period than expected. Further, in some villages, disagreements still remain due to tensions between traditional *adat* leaders and modern village heads (*kepala desa*).

For about one-third (1,700) of the total new housing units provided under on-budget reconstruction, there was no alternative but to relocate the beneficiaries. This required the purchase of more than 32 hectares (326,818 square meters) of land by BRR. In such cases, issuance of land title certificates provided beneficiaries with legal proof of ownership, just as it did for beneficiaries who continued living on the same plots as they did before the earthquake and tsunami. This was particularly important in the case of beneficiaries who lived in rented quarters or who were squatters before the disaster. In virtually all cases, by facilitating issuance of legal proof of ownership, the housing program greatly increased the beneficiaries' security of land tenure. The only exception to this was beneficiaries living on plots claimed under traditional land use rights in the housing program villages in South Nias.

A microfinance subprogram for home repairs and improvements was designed in 2005. However, it was cancelled in 2007, and the funds supporting it were reallocated to housing reconstruction since conditions for implementing such a program were inappropriate for both the beneficiaries and the banking institutions. At that time, the market remained flooded with housing reconstruction grant funds as a result of the government's "build back better" policy. Thus, none of the local banking institutions was motivated to implement a microfinance scheme. Moreover, since the resources supporting this subprogram were provided under on-budget implementation processes, these funds had already been allocated by BRR for housing reconstruction. It thus would have been operationally impractical to transfer these resources from BRR's budget to commercial banks. On hindsight, it could be said that it would have been feasible to launch such an innovation in 2008-2009. However, by that date, funds for supporting the microfinance subprogram had already been reallocated to other uses. Further, and somewhat ironically, by 2008-2009 the demand for housing reconstruction finance had decreased significantly.

The idea of establishing construction support centers (CSCs) was introduced during preparation of the ETESP project administration memorandum in 2005. However, this idea was dropped since even during periods of peak demand, the market had ensured a sufficient supply of construction materials. The only exceptions to this were a few cases in which global supply bottlenecks occurred. However, in these cases, BRR intervened by augmenting the supply of building materials offered by the market. The fact that it took quite a long time to agree on the geographic locations of the ETESP housing subprojects also contributed to the decision to drop the CSCs. Without knowing the exact locations of the ETESP housing subprojects, it would have been difficult to identify appropriate locations for the CSCs and to arrange for purchases of land for them.

Impacts of the housing program

Impacts at the level of the reconstruction program

The housing program consistently adhered to the basic guidelines adopted by the Government of Indonesia and the international donor community at the onset of housing reconstruction in early 2005. Examples of these guidelines include (i) "building back better," (ii) reestablishment of property rights, (iii) using community contracting wherever feasible, (iv) construction standards for the government-approved 36-square meter basic housing unit, and (v) a standardized financial entitlement. Adherence to these guidelines greatly assisted the Government in general, and BRR in particular in maintaining uniform standards across the Aceh–Nias housing reconstruction effort. In turn, adherence to uniform standards ensured that the overall reconstruction effort would in the end be feasible, both in terms of budgetary resources and the operational aspects of implementation.

Incorporation of the off-budget mode of subproject implementation, in addition to the on-budget mode, accelerated implementation progress. Further, it demonstrated that NGOs and specialized agencies such as UN-HABITAT were capable of successfully implementing housing reconstruction initiatives through turnkey-type agreements at funding levels of \$6 million. Moreover, these off-budget arrangements represented an innovation in ADB procurement procedures in that previously, authority for procuring materiel had always been delegated to governments or government agencies for amounts exceeding \$100,000. Use of the off-budget implementation mode under the housing program likewise demonstrated that community contracting can successfully be combined with both on-budget and off-budget implementation arrangements.

As for the quality of construction, the experience under both contractorbuilt civil works and construction of housing units under community contracting was mixed. Overall, the housing program demonstrated that quality housing units can be produced both by employing commercial contractors and using the community contracting approach to procurement, provided that adequate supervisory arrangements are in place. In the case of commercial contractors, both the project implementation consultants and the oversight consultants provided the supervision. Similarly, success in employing the community contracting approach required substantial input by the project implementation consultants in the case of on-budget subprojects, and the NGO or agency concerned in the case of off-budget subprojects. In both cases, the oversight consultants provided a substantial amount of supervisory input into the construction process.

Social impacts

Without doubt, provision of high-quality, permanent, environmentally appropriate and earthquake-resistant housing under the ETESP significantly improved the living conditions of approximately 7,100 beneficiary households. As intended, all landowners were returned to their original plots or to plots with similar characteristics at adjacent relocation sites. Likewise, all landowners received (or are about to receive) land titles constituting formal proof of ownership of their plots. Some of these land titles, particularly those provided under customary or traditional law such as *tanah adat* and *hak guna* will be formally registered for the first time. The security of land tenure thus provided will positively impact the beneficiaries in a lasting manner. In addition, the housing units they now occupy were constructed in accordance with government-approved building standards. This, together with the fact that the titles to their plots and homes are fully transferable, positively impacts the value of these assets.

Finally, gender equality among beneficiaries was safeguarded during housing program implementation and beyond in that both men and women are now listed as registered owners. Women participated equally with men in most meetings of the beneficiary communities, and female beneficiaries were strongly encouraged to participate in all aspects of housing program implementation. Former renters now have full ownership of the houses they occupy as well as the plots on which these houses sit as a result of the ADB-financed housing subproject in Labuy, Aceh Besar and the efforts BRR, which acquired and provided the land for this subproject. Similarly, all beneficiary communities enjoy improved access to basic amenities, such as electricity, water, and sanitation, as well as the long-term positive impacts associated with their provision.

Local economic development impact

Under the housing program, approximately 2,500 new housing units were constructed and 1,100 units rehabilitated at least partially under community contracting arrangements. Since community contracting was used to implement a significant portion of these works, the employment opportunities provided under the housing program were relatively widespread among beneficiaries. Moreover, in cases in which commercial contractors were employed, this provided a significant number of jobs to the local commercial contractor labor force, many of whom were also residents of beneficiary communities. Finally, the community contracting approach to procurement allowed numerous beneficiaries to learn basic construction skills.

Technical impacts

The housing program significantly improved construction standards in the beneficiary communities. This occurred not only through the earthquakeresistant construction techniques employed, but also by demonstrating first-hand the techniques for implementing appropriate construction standards. Use of these techniques is likely to spread widely throughout the beneficiary communities, as the basic housing units incorporated an expandable core, which allowed the beneficiaries to expand the size of their basic units at relatively low cost, either immediately or as funds become available. Summary building permits were issued for all units constructed, which allowed homeowners to live in housing structures built to government-approved construction standards for the first time. All housing units also enjoy on-site sanitation systems constructed to standards significantly higher than those that existed before the earthquake and tsunami.

Environmental impacts

Water and sanitation services were provided to most beneficiaries, either under the ETESP housing program or through other agencies such as Perusahan Daerah Air Minum (PDAM), the local government water supply company, BRR, or other development partners such as UN-HABITAT or one of the NGOs. The septic tank packages initially included in housing reconstruction works under the housing program suffered from design and implementation flaws. This was particularly true in the case of the beneficiary communities located in and near Banda Aceh. Subsequently, significant improvement in both the design and installation of these systems corrected these flaws. As a result, the flaws in several of the initial systems installed in a number of beneficiary communities in and near Banda Aceh have been rectified through retrofitting of these improved systems. Following completion of the housing program, overall wastewater management will thus be substantially improved over pre-disaster conditions.

For their part, residents of beneficiary communities will require increased levels of awareness regarding the operation of these systems, additional training in the maintenance and cleaning of the septic tanks installed under the housing program, and improved neighborhood-level solid waste management, if the environmental standards at housing program completion are to be maintained. Finally, adherence to the environmental standards set by BRR and the donor community regarding the use of certified timber products significantly contributed to a reduction in deforestation.

Institutional impacts

The full positive impact of community contracting is only apparent when community contracting is viewed in terms of a positive institutional experience at the community level. Groups of beneficiaries that followed the technical and administrative procedures required when building structures under community contracting arrangements may be used under future projects that employ block grants and similar implementation mechanisms. In addition, local leaders and community groups will likely build on the experience of beneficiaries under the housing program in learning how to maintain and manage their neighborhoods. This in turn will likely strengthen and empower local subdistrict (kecamatan) and district (kelurahan) government agencies, as well as local foundations (yayasan). The above notwithstanding, the limited involvement of local and provincial government agencies in the reconstruction process resulting from BRR's exclusive role in implementing the housing program in the end produced a negative institutional impact that was beyond the control of the housing program. Nevertheless, the benefits resulting from the substantial amount of training invested in preparing community facilitators and field inspectors that in turn resulted from the participatory manner in which the housing program was implemented remains an asset that can be drawn on in implementing future post-disaster initiatives.

Lessons learned

Cross-sectoral coordination and spatial planning

One principle that guided implementation of the housing program was that housing is but one part of an integrated package of habitat-related services

necessary for rebuilding the lives and livelihoods of disaster victims. For maximum beneficial impact in this regard, this package of services must include those provided by the following facilities: water supply, sanitation, sewerage, drainage and flood control, neighborhood roads and footpaths, solid waste management, and other related infrastructure and environmental services. That said, the housing program faced limitations in providing all houses with access roads and water and sanitation services in which BRR and/or PDAM undertook to provide them, since in such cases, it was left to BRR and the PDAMs to do so.

After consultation with BRR, ADB contracted UN-HABITAT in February 2009 to survey the sanitation facilities installed under the on-budget subprojects located in and near Banda Aceh to identify the necessary remedial sanitation works.² In addition to identifying these works, the survey also revealed that on average, 30% of the on-budget housing units at these subproject locations were not yet occupied by the beneficiaries to whom the houses had been handed over, since water and electrical connections were not yet complete.³ The UN-HABITAT survey cites deficiencies in water and electrical connections as the most prominent reason for these relatively high vacancy rates, employment opportunities outside the original place of residence, or changes in family situation may have also been a contributing factor. Interestingly, by end of 2009, vacancy rate had fallen to less than 5%.

Further, it was noted by the UN-HABITAT survey that many of the communities served by on-budget subprojects continued to experience problems with their water supply systems due to the fact that the PDAMs concerned have not yet completed the retrofitting works to which they had earlier agreed. It is critical to the sustainability of ETESP-financed assets that the remedial measures agreed to be implemented at the earliest opportunity, although where possible, ADB and BRR attempted remedial measures prior to the closing of the ETESP. The lesson to be drawn from this experience is that such remedial work could have been avoided if the design of the ETESP had placed more emphasis on infrastructure services such as water supply, electricity, and roads. Moreover, some of the ETESP-funded housing sites still lack habitat-related infrastructure such garbage cans, drainage systems, and appropriate amounts of greenery, such as roadside trees and parks. This lack of integration of housing with social and physical infrastructure

² UN-HABITAT. 2009. Aceh Post-Reconstruction Sanitation Assessment and Assistance Programme (ASAAP), Mid-Term Report. Banda Aceh, February 2009.

³ Equally interesting is the fact that in several of the ETESP housing areas, a substantial proportion of reconstructed housing units have been rented out. In the case of some locations such as Lamdingin in Banda Aceh, this proportion appears to be as high as 40%, according to the UN-HABITAT survey. This suggests that the demand for housing may have fallen among housing program beneficiaries, perhaps due to intermarriage or employment opportunities in relatively distant areas.

and livelihood activities was one of the major shortcomings of many donorassisted programs active in the overall reconstruction effort.

Unfortunately, coordination between the housing program and the other ETESP components occurred neither in the planning nor at the implementation phase of the project, despite early intentions to the contrary. Further, delays in implementing the ETESP's spatial planning component had a particularly negative impact on the housing program. Thematic maps and associated imagery produced from data gathered by geographic information systems would have been extremely useful in the housing program's participatory community action planning process and in other initiatives. However, planning support from the non-housing ETESP components was largely absent during the planning of the housing program. While coordination with the ETESP water and sanitation program occurred during the planning stage, which led to some initiatives being co-located with the housing program, had this occurred on a much larger scale and across more sectors, the increase in project benefits that was ultimately foregone would have been substantial. Moreover, the infrastructure facilities that as of this writing are still absent in some of the housing program's beneficiary communities could have been provided for under the ETESP, had there been greater cross-sectoral coordination among the managers of the various ETESP components.

The drawbacks of insufficient city-wide spatial planning are most obvious in Banda Aceh, and are well illustrated by the large tracts of prime real estate that remain vacant and unused. If higher population densities had been planned for the plots of land fronting the sea, much more efficient use could have been made of infrastructure services such as water, drainage and flood control, electricity and roads. Initially, a rigid policy of zero re-development within a uniformly specified distance from the shoreline was imposed. In retrospect, this was both counterproductive and inconsistent with the government's own reconstruction principle of "building back better." While this policy was ultimately abandoned, no macro spatial planning guidelines replaced this crude, blanket prohibition. Well articulated, flexible, and participative spatial planning efforts undertaken early on in the reconstruction process could have reduced the risk of reconstruction in areas in danger of annual flooding. Similarly, improved spatial planning and coordination with flood control investments could have made Banda Aceh a less flood-prone city than it is today. Unfortunately, visible throughout the city are numerous examples of the result of this lack of spatial planning and coordination: the plinth levels of many new housing units are so low as to expose these houses to recurrent flooding.

Planning and implementation

During 2006–2007, there was a dramatic (and intentional) increase in the volume of reconstruction activity in Aceh. While this predictably led to sharp increases in the price of construction materials, the magnitude of these price changes could not have been forecast with any degree of accuracy. That said, the relevant ETESP project documentation should have taken the likelihood of large-scale price increases of construction materials into account, and accordingly reduced the projected numbers of housing units expected to be completed during implementation.⁴

Designating the housing program a Category B project (i.e., a project "with potentially significant [positive] environmental impacts") implicitly assumed that an appropriate amount of time would be allowed for preparing the initial environmental examination (IEE) documents for each subproject, the purpose of the IEEs being to promote implementation practices that were both environmentally sound and verifiable. Further, the environmental assessments carried out during preparation of subproject appraisal reports (SPARs) and the more detailed subproject preparation reports (SPRRs) adhered to the government's environmental review procedures. Moreover, environmental clearance for each housing subproject was obtained from the Badan Pengendalian Dampak Lingkungan Daerah (BAPEDALDA, or provincial government environmental authority) concerned, even though the housing programs of most other donor agencies did not do so. Unfortunately, adhering to these procedures slowed subproject preparation and consumed a significant amount of costly consultant input. In retrospect, it would have been more cost-effective to establish a program-wide model IEE that incorporated verifiable compliance standards. This would have accelerated subproject approvals and hence program implementation, and would have conserved costly consultant resources as well.

Given BRR's highly constrained operational capacity, the decision to implement approximately half of housing program subprojects under offbudget implementation arrangements was a positive one. Had this decision not been taken, the program's achievements in terms of physical output of housing units would have been greatly diminished, owing to BRR constraints. The performance of UN-HABITAT and most of the NGO offbudget partners was both positive and time-efficient as expected, once they overcame their initial unfamiliarity with the complex procedures required in preparing SPARs and SPPRs. Preparation of these documents, which was a precondition to receiving technical approval by ADB and BRR for all subprojects, consumed a significant amount of time, given that all

⁴ This is particularly true of the final approval documentation for the ETESP (i.e., the Report and Recommendation of the President [of ADB] regarding the ETESP).

off-budget partners lacked experience in preparing such documents. Had the NGO partners employed more experienced staff or ensured a greater degree of staff continuity, the amount of time required for subproject preparation would have been significantly reduced. For ADB's part, it could have insisted on more qualified staff at the outset.

Nevertheless, the contribution of the off-budget portion of the housing program deserves special mention, as this adjustment to housing program implementation was essential in achieving the program's intended outputs, both in terms of housing and community infrastructure. Further, the decision to implement approximately half of housing program subprojects under off-budget arrangements demonstrated ADB's ability to respond appropriately to challenges that arose during implementation through the use of innovative measures. Finally, the total value of housing subprojects implemented under off-budget arrangements with NGOs in the end ranged between \$4.7 million and \$5.7 million. Because undertaking off-budget implementation on this scale was unprecedented in ADB's history, it represents an innovation that can be employed in implementing other post-disaster reconstruction initiatives.

Similarly, the housing program's success in employing community contracting arrangements demonstrates that this method of procurement is a viable alternative to commercial contracting, particularly in the case of small-scale housing construction and rehabilitation contracts (e.g., 6-8 houses). This is less true of neighborhood infrastructure works, despite the level of interest and enthusiasm demonstrated by local communities in this regard. The skill limitations of both community groups and local-mainly small-scale-contractors hampered implementation of both housing and infrastructure works, though this was less true in the former case than the latter. Had these limitations been more carefully considered in deciding which contracting method to use, the quality of outputs may have been higher, and the amount of time required for completion shorter. While community contracting may appear to be the most appropriate means of implementation due to its emphasis on beneficiary involvement, if employed in future post-disaster initiatives, it needs to be coupled with significant in-field supervision if compliance with construction quality guidelines is to be achieved. Further, this would ensure that progress payments are made only once on-site progress has been documented.

In terms of construction quality and earthquake resistance, the housing program demonstrated a high level of professionalism. This was in part due to the simple, convincing designs for the housing units formulated by the project preparation consultants, the architectural and structural identity of which formed their distinguishing characteristics.⁵ In general, the level of construction quality achieved under the housing program was relatively high, particularly in light of the implementation challenges that arose and the difficult field conditions under which the housing program was implemented. Much of this success can be attributed to the performance of the project implementation consultants and the oversight consultants, who managed to guide both contractors and beneficiaries alike to a quality of outputs that few other donor agencies achieved. Both the use of field inspectors and the oversight consultant team's capacity in construction technology were vital factors in achieving such a high level of construction quality, both under on-budget and off-budget implementation arrangements. The field inspectors were required to be present either before or on the dates when the ring beams of new housing units were set in concrete. Further, they regularly revised bills of quantities, recorded the actual use of steel and cement, and ensured that structural reinforcements necessary for earthquake resistance were appropriately performed. The level of construction quality achieved by the housing program is particularly noteworthy, given that many other housing reconstruction initiatives, including the Multi-Donor Trust Fund's Community-Based Settlement Rehabilitation and Reconstruction Project, struggled with construction quality and supervision issues, and were not always able to comply with safety standards as per technical specifications.

There were significant deficiencies in the provision of sanitation facilities during the early phase of implementation of on-budget subprojects. For the most part, these resulted from (i) insufficient attention being paid to environmental impacts, (ii) lack of specific BRR guidance regarding minimum standards, and (iii) deliberate attempts by some contractors to conserve labor and material inputs by failing to comply with specifications for facilities that were to be buried underground. In particular, numerous septic tanks were buried without the benefit of sealed, cemented floorings. This issue was closely monitored by the oversight consultant team in close consultation with the environmental specialist from the Extended Mission in Sumatera (EMS). As of this writing, UN-HABITAT has been contracted to implement a two-stage remedial procedure for addressing this deficiency. During the first stage, approximately 2,500 septic tanks were surveyed for signs of leakage or other deficiencies. During the second stage, 650 of the most deficient septic tanks were either repaired or rebuilt.

⁵ The use of both on-budget and off-budget arrangements in implementing housing subprojects resulted in a variety of designs for housing units, many of which were adapted to the needs of particular beneficiary communities. Nonetheless, owing to cost restrictions, no elevated houses adapted to flood-prone sites, such as Meulaboh or houses appropriate to the enhancement of livelihood activities, which would have been appropriate at several sites in Banda Aceh, were constructed.

Quality control of subproject implementation by off-budget partners was assured by three types of oversight: First, the oversight consultant team ensured that in Aceh, all off-budget reconstruction sites were free of any conflicting legal claims. The oversight consultant team further ensured that plot reconstitution and adjudication by the National Land Agency (Badan Pertanahan Nasional [BPN]) was performed in accordance with the procedures set out by the World Bank-supported Reconstruction of Aceh Land Administration System (RALAS) initiative. This step was important, since RALAS procedures required that the principle of reconstitution of tenure to previous owners or their heirs be respected. Second, the oversight consultant team ensured compliance with both ETESP procurement guidelines and guality standards. Third, both the oversight consultants and regular, external ETESP audits assured that financial standards were in accordance with ADB requirements. These three types of oversight of off-budget subprojects assured ADB and BRR that ETESP funds entrusted to the various off-budget implementation partners were used appropriately.

In most cases, both procurement and implementation of civil works by the off-budget partners proceeded at a faster pace than for housing subprojects implemented under on-budget arrangements, once the offbudget partners' technical and financial appraisals of their subprojects were accepted. However, implementation was slower in the case of NGO offbudget partners that constructed houses in remote areas such as Simeulue and Nias, this being mainly due to underestimation of the logistical challenges presented by building houses in such remote areas. Nevertheless, the assumption that off-budget implementation of subprojects would help in a timely completion of the ETESP housing program was proven correct. As for unit costs, both on-budget and off-budget subprojects exceeded BRR's standard cost ceilings. This was mainly because additional management and supervision resources were required. However, these were not factored into unit costs, but were instead met from other sources such as the budgets of the project implementation consultants, the oversight consultants, or the UN-HABITAT and International Organization for Migration (IOM) or the NGO teams.

The ETESP housing subprojects demonstrated a relatively high level of beneficiary participation. This was mainly due to the fact that participatory methods were employed to the extent possible (i) during village planning, which included community mapping and plot reconstitution; (ii) during in-house planning and preparations for home repairs; and (iii) in construction supervision. In pursuing community-driven development, the beneficiary communities have created a valuable asset that can be used to consolidate these communities further. This is particularly true of putting into place mechanisms for operation and maintenance of the facilities constructed. Ultimately, doing this would translate into sustainability of both public and private assets. Management of these facilities in the future would thus benefit from formulation of estate management plans that would ensure sustainability of neighborhood solid waste management facilities, further neighborhood greening, and maintenance of other social infrastructure. Further, estate management plans could incorporate disaster preparedness into the routine activities of all community members, regardless of age.

As for rehabilitation of housing units, implementation of this element of the housing program proved extremely cumbersome, due to the unique design challenges presented by each individual damaged house. In retrospect, it may have been more efficient to implement housing rehabilitation at the outset, so as to not delay overall program completion. Overall, the housing program did not adequately attempt to convey to beneficiaries how rehabilitation works or additions to houses should be implemented, or which principles of earthquake-resistant construction should be foremost when rehabilitating damaged homes. The large number of post-ETESP house additions that have already been undertaken suggest that conveying to beneficiaries how physical extensions could be best implemented will be an important future estate management issue.

Since relocation sites were generally chosen based on the availability of land suitable for construction, several of these sites were not particularly well-thought-out from the perspective of employment opportunities or availability of supporting infrastructure, water supply in particular. At the end of the implementation period, occupancy rates varied widely across reconstruction sites. This partly reflects the lack of full infrastructure services at some sites in Sabang and Aceh Besar, and the fact that some families have moved to other locations in search of employment. Given that government agencies ensure availability of full infrastructure services in the future, current occupancy rates will most likely rise.

By design, complaint handling and conflict management were mainly the responsibilities of the oversight consultants. The positive manner in which the oversight consultants fulfilled these duties was an important factor in the housing program's successful implementation, since these responsibilities were so far-reaching as to include resolving social conflicts, construction problems, legal issues relating to land tenure, and managerial issues that arose during virtually all aspects of implementation of the housing program. Over the life of the housing program, more than 700 complaints and conflicts were lodged, 245 of these being resolved. Of the total number of complaints registered, 75% comprised construction-related complaints (mainly damages and delayed construction), 20% were managementrelated, while the remainder comprised social and land tenure-related complaints. In resolving conflicts and complaints, village-level means of addressing conflicts were always preferred to bringing these before government agencies at the next higher level (i.e., the subdistrict [*camat*]). In Nias, the oversight consultant team assisted one of its off-budget partners in addressing a conflict involving provision of a right-of-way necessary for upgrading village roads. In most cases, focus group discussions or proper involvement of traditional *adat* leaders produced the results desired.

The housing program was planned rapidly, owing to the urgency of responding to the needs of the earthquake and tsunami victims in the shortest possible time. Implementation likewise was accelerated, beginning in mid-2005. In retrospect, accelerating the schedules for both planning and commencement of implementation was not particularly helpful, since government procedures guiding implementation of the housing program were not yet firmed up by the time the first construction contracts were to have been awarded. In the end, this led to re-tendering of the contracts, as well as all of the delays and frustrations associated with this. While the support structure for program planning and implementation was relatively elaborate in that it involved the EMS, the housing advisor, the project preparation consultants, the project implementation consultants, and the oversight consultants, for the most part, this positively impacted both project implementation and the quality of outputs produced. The oversight provided in the field by the consultants was particularly important. Coordination among the various elements of the support structure was problematic during planning of the housing program, this being aggravated by long chains of command within ADB itself during the initial phase. However, this problem was significantly ameliorated once responsibility for such coordination was delegated to the EMS, and improved flows of information facilitated coordination among the various units comprising the support structure.

Relevance of ETESP housing program to future ADB emergency assistance

Any future disaster response initiative undertaken by ADB will have its own peculiar requirements. Thus, lessons drawn from implementation of the ETESP housing program may not necessarily apply to such initiatives. Nevertheless, some suggestions for future disaster response initiatives have emerged from implementation of the housing program in Aceh and Nias. These are as follows:

(i) Avoid being drawn into emergency relief operations for which ADB is not well qualified, and in which it will only compete with agencies better equipped to provide emergency and transitional assistance. That said, early involvement in policy matters and programming relating to reconstruction is an important factor in circumscribing an appropriate role for ADB. At the very latest, this should occur when emergency relief initiatives give way to transitional (e.g., housing) reconstruction. At this stage, ADB has comparative advantage in addressing policy issues relating to reconstruction, such as putting into place appropriate construction standards.

- (ii) Assist government, NGOs, and civil society through both on-budget and off-budget implementation arrangements. Off-budget subprojects can be implemented not only by NGOs and specialized agencies, but also by consulting firms.
- (iii) Perform an initial, broad-brush subdistrict-level spatial planning exercise early on to facilitate reaching an agreement with the government as to (a) which settlements and habitats can be rebuilt, and in which cases resettlement should be considered; and (b) which primary infrastructure facilities (roads, water supply, or electricity supply) are to be included under the reconstruction initiative concerned.
- (iv) ADB should not construct housing units unless the level of habitat assistance provided by other donor agencies is insufficient. ADB support should be directed to integrated packages of essential habitatrelated infrastructure. Such support is vital in ensuring that damaged or destroyed settlements become livable again through activities such as settlement planning, site preparation for house construction, and provision of primary and secondary village and municipal infrastructure.
- (v) In planning disaster-related initiatives, keep the level of assistance to that which can reasonably be absorbed in a broken institutional environment, the absorptive capacity of which should be realistically assessed. Even in the case of relatively simple interventions, an unusually high level of "overhead" support costs is likely to be encountered when providing assistance under unusually constrained circumstances. Absorbing these extra costs is likely to pay substantial dividends at a later stage of implementation, both in terms of improved quality of outputs and preventing (or at least reducing) allegations of malfeasance.
- (vi) Reserve ADB assistance for interventions that other specialized donor organizations such as NGOs or United Nations agencies cannot implement or finance. ADB can respond to emergency situations in a more flexible way than agencies with more restrictive mandates. It is therefore appropriate for ADB to assume a wait-and-see stance during the early phase of reconstruction programs, at least until it becomes obvious what other donor agencies are capable of delivering. In many cases, ADB can most efficiently assist governments and communities

by filling gaps in the assistance provided by other agencies. That said, an early and visible presence in-county is essential to demonstrating ADB's commitment to disaster-related assistance. This can be achieved through initiatives such as (a) rapid, broad-brush spatial planning and assessment of the requirements for basic infrastructure, (b) supporting the (re)establishment of essential government services, and (c) implementation of carefully selected pilot or demonstration projects. Once the mandates and capacities of other donor agencies become apparent in a particular post-disaster context, ADB and the government concerned can jointly decide the sectors to which ADB support can most efficiently be directed.

The practical implications of the suggestions for future disaster response initiatives referred to above are as follows.

- (i) Keep options open. ADB project documents (e.g., the report and recommendation of the president relating to a specific disaster-related initiative) should not specify resource allocations to specific sectors as was done in the case of the ETESP. At most, these documents should identify priority sectors, but leave options for including other sectors open.
- (ii) Respond to unfulfilled requirements. Once government and community action plans have coalesced, ADB should allocate resources to sectors experiencing significant resource shortfalls. This approach is relevant in the case of large reconstruction programs involving numerous partners with restricted mandates and untested implementation capacities. It is less relevant in cases involving only a few partners of substantial implementation capacity, in addition to the government. The case of Pakistan in 2005 and 2006 provides an example of this, in that only the World Bank, the Japan Bank for International Cooperation, ADB, UN-HABITAT, and a few NGOs implemented reconstruction, while most NGOs focused on providing emergency relief.
- (iii) Plan ADB disaster-related assistance projects as initiatives of relatively long duration. Implementation of the ETESP housing program amply demonstrated that reconstruction requirements following a major disaster continue to evolve over quite an extended period. In the case of Aceh and Nias, this evolution continued for 2–3 years. In post-disaster contexts, confusion prevails regarding which agency is implementing which initiatives, what the outputs of these initiatives are expected to be, and which delays or difficulties have impacted, or are expected to impact these initiatives or the agencies implementing them. At times, the experience gained during the early phase of implementing a reconstruction initiative necessitates reconfirmation of the strategy

being pursued, or in some cases, even the entire program itself. A 3-year implementation period for ADB projects that respond to disasters or similar emergencies is of insufficient length to permit a cautious, process-oriented stance toward planning or implementation that relies on addressing unfulfilled disaster-response requirements. For major disasters such as the earthquake and tsunami that impacted Aceh and Nias, a period of 4–5 years may be more appropriate.

Rebuilding Lives and Homes in Aceh and Nias, Indonesia

In December 2004, a seaquake shook the Indian Ocean, producing a powerful tsunami. The greatest damage occurred in Indonesia, nearest the quake's epicenter. The Asian Development Bank responded with a \$290 million grant under the Earthquake and Tsunami Emergency Support Project. Housing accounted for more of this grant than any other sector.

While this book focuses on housing, more broadly it is about how implementing post-disaster projects under exceedingly difficult conditions can achieve success, while simultaneously incorporating the communitybased approach recommended by donors. The book's refreshing glimpse into on-the-ground, post-disaster project implementation contains important lessons for future disaster-response donor assistance.

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