



Urban Innovations and Best Practices

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Earthquake and Tsunami Emergency Support Project (ETESP)

Housing Component

Reconstruction and rehabilitation of housing in Aceh and Nias, Indonesia, which were destroyed by the dramatic earthquake and tsunami of 26 December 2004 (and a subsequent major earthquake in Nias on 28 March 2005), has become a major effort of a large number of international and Indonesian organizations. An unprecedented wave of pledges for assistance was made available, and numerous agencies—some of them without prior experience in housing construction—have contributed to reconstruction. As could be expected, the reconstruction process has been affected by numerous bottlenecks, and has been slower than intended. The Asian Development Bank (ADB) provided a package of grant financed assistance for the Government's ambitious reconstruction and rehabilitation program under the Earthquake and Tsunami Emergency Support Project (ETESP). Among the 12 sectors earmarked for ADB assistance, the housing sector received the largest assistance which was implemented through on-budget and off-budget measures.

When implementation picked up during 2006, concern for better quality, more integration with residential infrastructure, and additional livelihood support grew, since it is not only habitat which matters but reconstruction of lives and communities. The experiences of Aceh and Nias have been a testing ground for the massive application of community-driven development (CDD) which is meant to be the backbone of a sustainable development effort by the people themselves. At project completion in 2009, ADB has reviewed 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 in the region.

Objectives and Scope

Through the housing component, ADB's support was to embody the following principles: the approach adopted would be a people-centered, community-based, participative rehabilitation and reconstruction program and would define central roles for civil society and nongovernment organizations (NGOs); housing rehabilitation and reconstruction would be a lead intervention for



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Destruction after the 26 December 2004 tsunami

reconstructing lives and be integrated with other sector strategies, linking housing with employment/human resource and economy/business development; and coordination between and within ministries and levels of government was considered vital. The component was to give priority to urban or peri-urban areas.

The housing component was designed to reconstruct about 14,000 completely destroyed housing units and to rehabilitate about 10,000 partially damaged housing units. At \$72.5 million comprising 25% of the total ADB ETESP commitment of \$290 million, housing was the largest component of ETESP. Preliminary preparation was carried out by a group of consultants initially hired on direct contracts as early as April–May 2005 [some of these specialists were subsequently assigned to the Project Preparation Consultants (PPC) team], to prepare an initial batch of 11 subprojects for a total of 3,621 new houses and 2,039 rehabilitated units.

In March 2006 it was agreed between ADB and the Government of Indonesia (GoI) to implement parallel to the on-budget activities part of the Component off-budget through direct contracts between ADB and five implementing partners: UN-Habitat, and 4 NGOs (Cordaid; German Agro Action; Help; Muslim Aid) with the objective to accelerate the



delivery of houses to the community, in view of the very limited implementation capacity of BRR. The off-budget partners were also considered to have the comparative advantages of having available sites/beneficiaries and preparation work already carried out, while lacking funds for implementation. Once these five off-budget contracts had been established, the OC was also tasked with monitoring and oversight of the off-budget part of the Component. Project implementation has been carried out both by commercial contractors and through community contracts in both on-budget and off-budget implementation modalities.

Outputs/Achievements

As of April 2009, the output of the housing component comprises about 6,000 new housing units and 1,100 housing rehabilitations. Realized reconstruction of new housing thus has been considerably lower than anticipated at appraisal (14,000) and at the time of the component's agreed change in scope in March 2006 (8,000 units). This is essentially caused by four factors:

- significant pre-occupation with housing quality, particularly by introducing enhanced reinforced support structures to ensure earthquake resistance, and the adding of about 0.5 meter wall height to enhance ventilation and coolness; although this provided a better product, it also increased costs as compared to the standard government assistance package;
- the rapid construction price increases (including legal timber) continued well into 2008;
- the very constrained implementation capacity of BRR and the commercial construction industry, which could only be partly offset by the off-budget implementation modality through UN-Habitat and NGOs; and
- the increasingly more difficult task to find locations in which new housing could still be built at reasonable scale, while not requiring unreasonable relocations, given pre-Tsunami locations of the beneficiaries and their employment opportunities.

Housing rehabilitation has also been implemented at a considerably lower scale than anticipated at appraisal. This is not surprising as other agencies operating in the same sector found it equally difficult to develop rehabilitation programs. The verification process was too labor-intensive, and many potential beneficiaries realized that it was more beneficial to them to completely demolish any left-over structures and to request full compensation under the government's housing replacement policy. However, 834 on-budget and 275 off-budget housing rehabilitations have been realized.



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Beneficiary and community leader in Banda Aceh in front of his newly constructed house

All rehabilitation has been implemented through the community contracting mechanism. In the case of on-budget housing rehabilitation in Nias, this was a major success in terms of rehabilitation of heritage structures in a culturally sensitive context. The challenges of reconstruction and rehabilitation of earthquake damaged housing stock in traditional villages in Southern Nias was addressed in an unprecedented manner. The combination of on-budget and community contracting proved to be highly successful. The community contracting was the key to encourage maximum participation, overcome problems of building materials supply, and achieve sustainability of the historic architecture while carefully introducing some innovations in building technology. With the subsidies received, the residents had the option to renovate or reconstruct their houses, and a remarkable number of residents (some 30%) have actually increased investments by 50%–100% through their own contributions. The reconstruction of houses in non-traditional villages has produced an important contribution to earthquake resistant construction, and the typology applied has been copied by BRR and a few NGOs. The experience of Southern Nias represents an example of cultural adaptation within a highly complex cultural setting which few organizations dared to work in.

There have been significant deficiencies in the sanitation provisions in on-budget housing, driven by ignorance of environmental impacts and/or attempted contractor graft, like the attempt to build hundreds of septic tanks without sealed cemented floorings. This issue was monitored carefully by the oversight consultants (OC) in close consultation with ADB's Extended Mission in Sumatera's environmental specialist, and a



two-stage package of remedial action was implemented in 2009 with help from UN-Habitat. In the first stage about 2,500 septic tanks were surveyed, and in the second stage the 1,500 worst cases will be repaired/rebuilt.

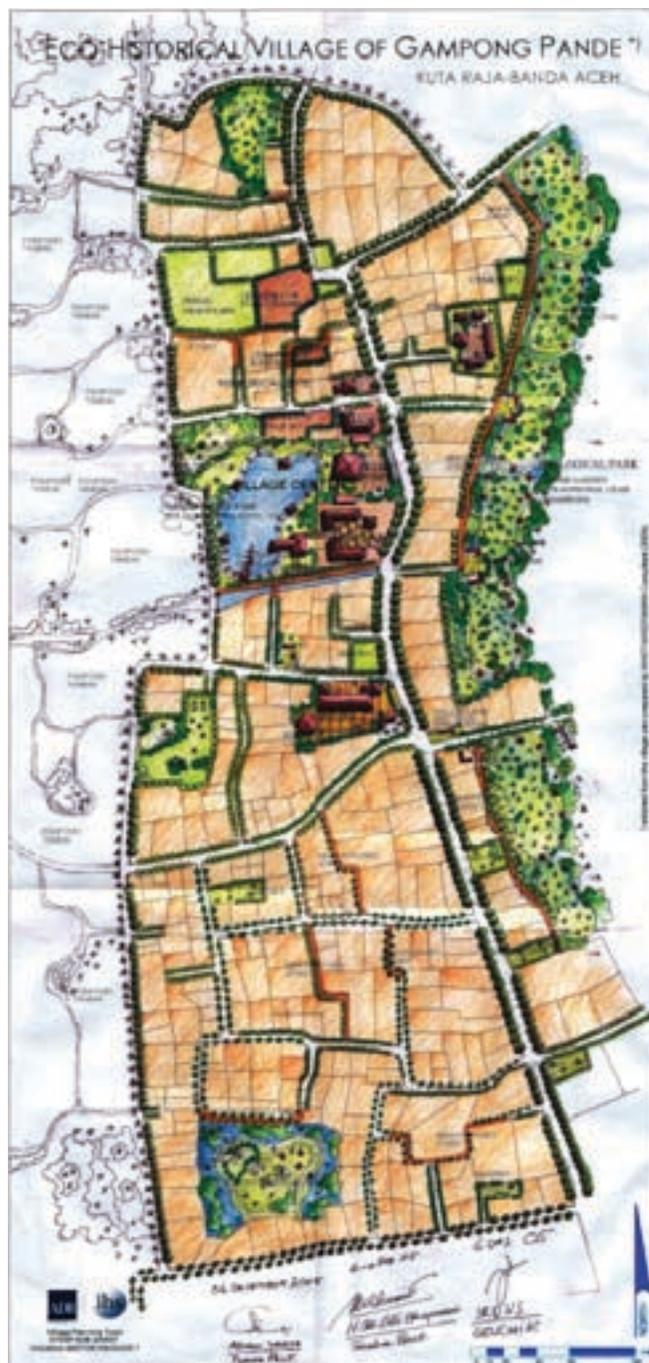
The Aceh and Nias Rehabilitation and Reconstruction Agency (known as BRR) has purchased more than 32 hectares (326,818 square meters) of land and granted it to beneficiaries who had to be relocated (for about 1,700 units of on-budget reconstruction or about one third of the total number of new housing units provided). The land title certificates were given to beneficiaries who received new lots and to those who were reinstated on their original plots, providing them with legal proof of land ownership (particularly in cases where they were renting or squatting prior to the tsunami/earthquake), and in virtually all cases (except for the traditional land ownership in the villages in South Nias, where this was not an issue) has thus significantly enhanced security of land tenure, both for men and women.

Component planning and implementation

The housing component was *inter alia* guided by the principle that housing is part of an integral package of habitat-related services which should include water supply, sanitation and sewerage management, drainage and flood control, neighborhood roads and footpaths, solid waste management and other infrastructure, and other environmental services.

However, there have been clear limitations to this approach to provide all houses with the required infrastructure. The component attempted to provide access roads and water and sanitation services where possible and imperative, but in cases where BRR and/or the local water company (PDAM) claimed to provide such infrastructure and/or services, it was left to BRR and the PDAMs to do so. With BRR's limited operational capacity, the decision to implement about 50% of the program off-budget turned out to be positive—if not, physical achievement would have been much lower in view of these BRR constraints.

The performance of the UN-Habitat and NGO off-budget partners has been positive and quick as expected, once initial unfamiliarity with elaborate feasibility and design studies had been resolved. But this planning phase consumed a significant length of time, which could have been reduced through better anticipatory action by EMS. The importance of the off-budget portion of the housing component must be underlined, as this adjustment of the housing component was essential to implement the intended housing and community infrastructure, and demonstrated that ADB was able to respond to implementation challenges in the field through innovative measures. Further, the large-scale use of NGO contracts—up to a maximum of \$5 million—was unprecedented in ADB's history and represents a breakthrough



Village reconstruction plan Gampong Pande, Banda Aceh

Source: Project Preparation Consultants, Earthquake and Tsunami Emergency Support Project (ETESP), ADB 2006



that can stand as an example for other similar post-disaster reconstruction situations. It may be assumed that in future reconstruction programs similar arrangements can be initiated with more time efficiency.

Community-contracting has demonstrated to be a viable alternative to commercial contracting, particularly for small sized housing and housing rehabilitation contracts (groups of 6–8 houses), but less so for neighborhood infrastructure works, in spite of the demonstrated interest of communities to participate in this type of work. Skills limitations of both community groups and contractors have hampered the implementation of both types of contractual arrangements, and such limitations should have been more carefully considered in the decision making of the type of contracting to be employed.

In terms of construction quality and earthquake resistance, the housing component has demonstrated a high level of professionalism. This is partly to be attributed to the simple and convincing design of the “ADB houses” by the project preparation consultants which are distinguishable through their architectural and structural identity. This can be attributed to the performance of the project implementation consultants and OC who have managed to guide contractors and communities to quality standards which other agencies were not able to achieve. The

use of field inspectors and the capacity of the OC team in the area of construction technology proved vital for quality assurance, both for the on-budget and off-budget modality. The field inspectors assured to be present before and on the dates when ring beams of new housing units were cemented, and they meticulously revised bills of quantities and actual use of steel and cement, and structural reinforcements to ensure earthquake resistance.

The housing subprojects have demonstrated a high level of beneficiary participation. Participatory methods were employed, as much as possible, during village planning, which included community mapping and plot reconstitution exercises; in house planning and preparations for home repairs; and in construction supervision. The culture and concept of CDD is an important asset which will help these communities to consolidate further and to define the mechanisms for operation, maintenance, and sustainability of their public and private assets. The future management of these communities needs to be regulated and defined in the estate management plans to ensure neighborhood solid waste management, neighborhood greening, and maintenance of other social and technical aspects. In the context of estate management, it will be pivotal that communities will nurture and cultivate among its members disaster preparedness and that this be incorporated into routine activities of the young and old.