

FACING THE ENVIRONMENTAL CHALLENGE

POST-TSUNAMI RECONSTRUCTION IN INDONESIA

Emiel A. Wegelin

Introductionⁱ

On December 26, 2004, an extremely strong earthquake (8.9 on the Richter scale) occurred below the Indian Ocean, northwest of Sumatra Island. This earthquake, which later caused a “tsunami” (ocean mega-wave), ravaged much of Aceh and Nias in Indonesia, along with parts of Thailand, Sri Lanka, Maldives, Bangladesh, Myanmar, and even some of Somalia’s eastern coast in East Africa.

In Aceh and Nias, the earthquake and tsunami damaged the larger part of Aceh’s coastal areas, claiming heavy casualties and destroying infrastructure, settlements, schools, health centers, shops, and public buildings. This disaster deeply affected the social and economic conditions of the population, severely dampening people’s sense of optimism.

According to the government of Indonesia’s April 2005 *Reconstruction Master Plan*, approximately 126,600 people were killed in Aceh and 93,600 people were still missing, even before the second earthquake struck on March 28, 2005. The number of internally displaced persons (IDPs) in the province was estimated at 514,100 people as of the middle of March. A total of 127,000 houses were completely destroyed and another 118,300 houses were partially damaged. The total cost of the property destruction just in Aceh alone, including housing and community infrastructure, was estimated to be US\$1.4 billion. The number of fatalities and displaced persons in Nias (North Sumatra province) was initially more limited than in Aceh, but this situation changed dramatically in the wake of the earthquake of March 28, 2005, with its epicenter close to the islands of Nias and Simeulue.

According to the assessment carried out in May 2005 by the International Organization for Migration together with the Indonesian Ministry of Public Works, a total of 116,900 houses were damaged, of which 66,800 houses were completely destroyed and an additional 14,200 houses sustained heavy damage in Aceh province (with the balance sustaining light to medium damage), and 15,300 houses were completely destroyed and 19,400 houses were heavily damaged (and another 60,000 houses sustained light to medium level damage) on Nias island. Other government damage estimates arrived at comparable numbers. On the basis of these damage assessments, combined with enumeration of tsunami victims not requiring housing restoration (those dead or resettled permanently elsewhere), the need for new housing reconstruction was estimated at approximately 73,000 houses in Aceh and more than 20,000 houses in Nias, while some 17,000 houses in Aceh required repairs, and perhaps as many as 30,000 houses in Nias. These estimates were subsequently revised, as many of the heavily damaged houses were later determined to be unfit even for substantial renovation.

The Indonesian Government Response

The initial response by the government of Indonesia, assisted by the international community, was to come up with a damage assessment and reconstruction strategy notes by the end of January 2005. A more detailed master plan for the overall multi-sectoral reconstruction was adopted by Presidential Decree in April 2005. A special agency, the Reconstruction and Rehabilitation Agency (BRR) was established by the Indonesian government in May 2005 to coordinate the overall reconstruction activities. The BRR’s main functions are to provide leadership and direction to all of the rebuilding efforts by national and international assistance agencies, and to develop and implement the reconstruction master plan. The Indonesian response strategy involved three overlapping phases: emergency relief, rehabilitation, and reconstruction.

Housing Rehabilitation and Reconstruction Strategy and Programs

Early in the reconstruction process, the Indonesian government in its strategy notes acknowledged the pivotal importance of rebuilding housing as part of the overall redevelopment strategy. The government's approach to rebuilding housing embraced rehabilitation and reconstruction efforts in shelter and community infrastructure *by the surviving victims themselves in the location where they lived before the Tsunami*, and the need to support these community efforts as the *core approach* to government and international community support. Indonesia's *Reconstruction Master Plan* set two core standards for tsunami victim household support: 1) that each surviving household would be entitled to grant funds to rebuild their houses, with amounts of about US\$3,000 per house if it needed to be rebuilt from scratch, and 2) about US\$1,000 for damaged houses that could still be renovated. Grant funds also were allocated for repair and reconstruction of community infrastructure.

On the basis of these grant fund commitments, a housing reconstruction program for 85,000 new houses and 17,000 houses to be renovated was planned at a total price tag of US\$280 million (not including community infrastructure), to be carried out over a period of three to four years. Given the generous financial assistance pledges for post-tsunami reconstruction coming from international donors, the Indonesian government believed that sufficient resources would be available to support the housing reconstruction program.

Issues in Implementing the Reconstruction Strategy

When the housing reconstruction strategy was quickly put together under great time pressure, the Indonesian government was very well aware that many operational problems would occur during its implementation, but decided to go ahead nevertheless. During the subsequent implementation process, problems were addressed in a learning-by-doing fashion. Some of these challenges included:

- a) **Identifying the surviving victim households and determining their grant entitlements:** Two areas of concern were the most difficult: 1) preventing "double-counting" because many victims registered for financial aid in more than one community; and 2) fine-tuning the grant entitlements, such as: i) what to do with the numerous part-surviving households, including sole surviving children? ii) what to do with the large numbers of tenants who were renting their housing before the tsunami disaster, rather than owning their houses? iii) how to determine the appropriate amount of the grant for housing renovation based on the actual degree of damage incurred?
- b) **The nature of the dominant community-driven reconstruction approach:** Many preparatory planning and organizational steps are necessary at the community level before people can begin rebuilding their houses, and this takes considerable time; some parties therefore thought a huge contractor-driven approach would work more rapidly and efficiently than a community-based process, despite the significant risks of oversupply, price escalation, lack of quality controls, and corruption.
- c) **Land issues:** What to do with the many households who did not own legal title to the land that they had lived on before? What to do with tsunami victims unable to rebuild on the land that they previously occupied because it is now submerged underwater as a result of geological changes?
- d) **Spatial planning and environmental issues:** Was it reasonable to let people rebuild in their pre-tsunami location, even in the case of central town areas that were totally destroyed (sizeable parts of the towns of Banda Aceh, Meulaboh, Sigli, Gunung Sitoli, and Sinabang), especially where there were obvious alternative areas for major reconstruction? What should be arranged for tsunami victims who had formerly been living in locations that were no longer environmentally safe or desirable to rebuild?
- e) **Linkages to infrastructure beyond the community level:** Funding for community level "micro-infrastructure" reconstruction was generally included in the housing support programs, but there was still a major gap, particularly in the larger urban areas that needed much more substantial investment in rebuilding infrastructure since resources of this nature and magnitude were not part of the community-based housing reconstruction effort, but still were vitally necessary for the overall success of the housing strategy, where would these funds come from?

- f) **Issues related to quality of housing and availability of building materials:** While it was generally agreed that the quality of both the newly built and the renovated houses should be higher than what people lived in before the tsunami, including a much higher level of earthquake resistance, these objectives, often seemed too ambitious within the financial constraints of the overall grant budget; with regard to building materials, there was an obvious concern about potential scarcity and inflationary price pressures generated by the massive rebuilding efforts. In addition, there was a concern that only environmentally acceptable and legally procured building materials (given the growing need to prevent illegal logging) should be used in reconstruction activities, but that such a policy could further limit supplies and drive up prices.
- g) **Temporary Shelter:** Once it became clear that resolving the above issues would take considerable time, new issues surfaced concerning what to do with the substantial group of displaced households who were living in tents, in temporary barracks, and with other families?
- h) **Programming and Coordination Issues:** This had two major dimensions: a) how to translate the generous national and international pledges of financial support into operational projects and programs, and b) how to ensure that the more than 80 national and international non-governmental organizations (NGOs), international assistance agencies, and government departments intending to support the community-based housing rebuilding efforts would all work together in accordance with the *Reconstruction Master Plan's* approach and standards over a wide geographical area, and not duplicate one another's actions.
- i) **Very Restricted Capacities to Manage and Implement the Housing Reconstruction Program.** The tsunami and the two earthquakes combined not only resulted in enormous human suffering, but they also decimated the capacity of local and provincial governments to provide routine public services. Most of the land ownership records were destroyed, as was a great deal of the infrastructure. Many of the public and private support agencies involved, NGOs in particular, were far more geared to maintaining emergency operations and providing emergency assistance. Very few personnel had any professional experience or capability in terms of housing reconstruction.

All of these important, complicated, and at times delicate policy and management issues had to be addressed professionally and equitably, all at the same time, in a high-pressure environment characterized by:

- a) A great impatience with the perceived slow pace of reconstruction as against the obvious humanitarian needs, and in the wake of quick and generous pledges for support. This frustration with the relatively slow pace of progress in the early stages led to quite unrealistic reconstruction time frames of three to four years.
- b) The actual capacity to address such a highly ambitious rebuilding agenda would have been quite limited at the best of times, and, as noted above, was even more so regarding segments of the local and provincial governments, because much of their human resources were wiped out by the tsunami.
- c) An ongoing civil war in Aceh Province between the Indonesian government and the Free Aceh Movement, with a very strong military presence in Aceh province, and a resulting phase 5 (the highest, later reduced to 4) security status seriously restricting movement of support workers.

Resolution

As noted above, all of these issues had to be resolved in a quick learning-by-doing fashion, in keeping with the spirit of the community-based reconstruction approach and the fair allocation of entitlement grants. The role of Indonesia's Reconstruction and Rehabilitation Agency (BRR) in managing and coordinating the entire process, issuing policy implementation guidelines, and strengthening workforce capacities, turned out to be very demanding.

At the time of writing (early November 2005) most of the above issues have been or are being resolved, and the predominantly community-driven housing reconstruction program has assumed operational momentum with about 15,000 houses expected to have been completed or under construction by the end of 2005. Outstanding issues are being resolved in favor of reinstating the tsunami victims in as broad terms as possible, even if such an inclusive approach takes priority over broader technical considerations

of efficient land allocation, land-use, and infrastructure planning. Further examples of approaches taken by BRR and its many national and international reconstruction partners to resolve outstanding issues are discussed below.

'Zonation' and spatial planning

Considering the risk of another tsunami, and the various geological changes that created new and different tidal levels in the victims' villages of origin, an initial government policy proposed that victims' housing reconstruction should not occur within a demarcated zone from the new shoreline (variously identified as between 300 and 1,000 meters). It became readily apparent over time, however, that such a guideline was unduly rigid and practically unenforceable. In view of this belated recognition, the strict shoreline "no-build zone" policy was abandoned and replaced by softer guidelines. The new policy simply informed communities and their support partners that, while rebuilding housing at the original location was the generally preferred option, this desired outcome should be balanced against the substantial risk of future flooding and the need for adequate tsunami protection, such as emergency exit pathways. In many cases this led villagers to collectively decide in favor of relocating their villages, land availability permitting, farther away from the new shoreline, or at least to plan for safe passage as part of the basic redesign of the village layout.

In urban areas in which sizeable sections of the town centers had been completely demolished by the tsunami, there was a strong initial preoccupation with completely replanning and redeveloping those areas (possibly at the expense of the return of all pre-tsunami residents), and an initial restriction against victim families rebuilding their houses in damaged areas. As there was a very strong grassroots movement insisting that the national government's reconstruction policy be fully implemented, this prohibition was subsequently lifted and communities were allowed to rebuild housing in damaged areas where their houses had previously been located. The winning argument was that the post-tsunami crisis should not be used as a convenient justification for "urban renewal", but that reinstatement of residents at the site of their former houses should take precedence, taking into consideration requirements for improved safeguards against flooding and earthquake risks.

Given the geological changes that have occurred, adequate flood protection will require massive investments in sea-walls and escape routes in many areas, while the quality of individual houses will have to be rebuilt at higher earthquake resistance levels than the destroyed pre-tsunami housing stock. Such issues are reviewed and resolved on an area-by-area basis at the community level, which in most cases is the best method for reaching such participatory decisions. However, the Indonesian Government also recognizes that in some seriously affected and now low-lying areas with high pre-tsunami population densities, a substantial infrastructure investment in protective structures and mechanisms is essential.

Housing Entitlements for Pre-Tsunami Renters

In some urban areas, the proportion of renter households before the tsunami was as high as 20 percent. Because initially there were no policy guidelines about entitlement grants for renter households, they tended to be excluded from community-based reconstruction planning, which mainly involved house owners. To overcome this disparity the BRR prepared new guidelines for communities and reconstruction partner agencies that included financial support for and participation by tenants. These policy guidelines were introduced after a series of public debates on earlier drafts, and they basically confirmed the principles of housing reinstatement and entitlement grants for former renters. They also provided for a number of practical options on how these principles could be realized either within renters' former communities or in other locations. The guidelines enable former renters to participate in the community reconstruction planning process with a legitimate claim comparable to property owners. These new guidelines also included operational guidance for NGOs and other reconstruction partners regarding effective implementation.

Land Acquisition and Tenure Provision for Victims Who Lost Their Land

Approximately 30,000 victim households in Aceh were unable to rebuild houses on the land they owned before the tsunami, as a result of the geological changes, even with the above-noted sea/flooding protection measures. In some cases the original village location is now permanently sub-merged by several meters of sea water.

The BRR, in agreement with the provincial governments, issued policy guidelines-of-last resort concerning acquisition of replacement land and provision for land tenure in such cases. The basic strategy gives priority for reinstatement on the original land wherever possible, with resettlement on other lands only in cases where the original land was physically unsuitable for reconstruction. In the guidelines the government has, however, recognized that the affected victims should not be hit doubly by inevitable loss of land such as by the above submergence, and that the government has a responsibility to assist through land acquisition. The principal agent to do so under the law is the local government. The guidelines provide for a land acquisition cost-sharing mechanism between BRR and the provincial government in appropriate and well-defined cases. The guidelines provide for several land tenure options to be applied by local governments, communities, and reconstruction implementation partner agencies.

Temporary Housing

After the tsunami, people who lost their housing were initially given temporary shelter in tents, emergency barracks, and with host families. These arrangements were intended to last for no more than six months. This relatively brief time frame turned out to be inadequate, given the length of time it took to deal with all of the legal, technical, financial, and coordination issues involved in large-scale reconstruction. In recognition of the need to extend the time for which temporary shelter accommodation will be required, new guidelines were issued for communities and reconstruction partners regarding short-term housing, directed at:

- a) improving the quality of existing barracks;
- b) adding new barracks close to locations of origin or near future permanent rebuilding sites;
- c) replacement of dilapidated tents, preferably near future rebuilding sites or original locations;
- d) extending financial compensation to host families, and providing housing expansion and improvement grants to host families.

The BRR guidelines also reconfirm to the tsunami victims that extending and improving temporary shelter solutions will not detract from the financial support for and the entitlement commitments to provide permanent housing and community infrastructure.

Coordination of Reconstruction Actions

Coordination of the reconstruction support efforts by the various government departments and the more than 80 national and international NGOs and other donor support agencies has not been an easy task for the BRR. This task was made even more difficult due to the BRR's resource and personnel constraints, and because of the community-based reconstruction approach, with which many support agencies had no prior experience. The BRR is attempting to strengthen the existing shelter coordination mechanisms established during the emergency relief period, drawing lessons from its recent experience with the initial reconstruction activities.

A weekly Shelter Coordination Working group meeting of all involved agencies is conducted under joint provincial government and BRR sponsorship with an active UN-Habitat support secretariat to review outstanding and emerging issues. This forum also acts as a sounding board for review of draft BRR policy guidelines.

In addition, the BRR has mandated that all partner agencies submit reconstruction proposals in a common format, to be endorsed and approved through common procedures. The BRR also requires partner agencies to frequently submit progress reports with detailed data for the purpose of tracking implementation successes and overcoming obstacles. As the set of implementation guidelines becomes more complete, the BRR will use both its guidelines and partner agency progress reports for the purpose of monitoring compliance.

Conclusion

Looking back over these past 10-11 months, the author's view is that it is miraculous how much progress has, in fact, been made against staggering odds in dealing with the above issues, and despite the undoubted shortcomings in specific areas. One success factor has been the leadership by the Indonesian government in formulating policy and strategy through the *Reconstruction Master Plan*, and in coordinating reconstruction implementation by the BRR, thus providing a practical operational framework for support actions by all public, private, and community stakeholders within Indonesia and from all over the world.

In August 2005, the Indonesian government negotiated a peace agreement with the Free Aceh Movement, which has now been ratified and is being implemented step-by-step. Peace in Aceh has been of paramount importance in enabling the reconstruction process to move forward, and both sides deserve praise for putting aside their political differences at a time of environmental crisis and human tragedy.

The recent peace agreement holds out the promise of an accelerated reconstruction effort in Aceh in 2006 and beyond, though many operational capacity constraints will continue to limit progress. As reconstruction proceeds, a more realistic appreciation of those constraints will hopefully emerge. This new pragmatic perspective can lead to a more balanced view of what can reasonably be accomplished within a relatively brief period of time, with complete resolution of the housing reconstruction agenda possibly to be achieved within five years after the tsunami and two earthquakes initially occurred.

Emiel A. Wegelin is Vice Chair of Global Urban Development, Director of UrbAct in Rotterdam, Netherlands, and former Coordinator of the United Nations/World Bank Urban Management Program (UMP). Dr. Wegelin's books include *Housing the Urban Poor*, *Urban Low-Income Housing and Development*, *New Approaches in Urban Services Delivery*, and *Governing Cities and Shelter Upgrading for the Urban Poor*. He served as member of the United Nations Human Settlements Program (UN-Habitat) support team aiding post-Tsunami reconstruction in Indonesia.

ⁱ The author has been part of the UN-Habitat support team for shelter reconstruction in Aceh and Nias intermittently during February-September 2005. The views expressed in this article are his own and are not necessarily held by UN-Habitat.