Rehabilitation of Urban Settlements in the Early Reconstruction Stage after a Tsunami  
-A Case Study of Banda Aceh Municipality in Indonesia-

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Abstract

This paper aims to analyze the rehabilitation process in Banda Aceh after the tsunami, focusing on the housing supply as of August 2005. The paper also reveals a community-based approach in a settlement named Deah Glumpang. The main findings are outlined as follows.

The basic process of the rehabilitation of urban settlements consists of the following four steps. i) confirmation of the survivors, ii) confirmation of the boundary between plots and making of maps (PS), iii) land consolidation (LC) and iv) supply of permanent houses. There were two organizations active in the rehabilitation process. UN-Habitat adopted a community-based approach. ADB adopted a comprehensive approach to rehabilitate the settlement by drawing up a master plan to reconstruct the infrastructure and surrounding environment prior to housing supply. The initial permanent housing model led to a mismatch between the proposal and the actual needs, especially in the inner-city situations where people were hoping to obtain houses with better conditions.

Keywords: housing supply; UN-Habitat; tsunami; Banda Aceh; Indonesia

1. Introduction

The coastal area of Banda Aceh municipality on the Sumatra Island of Indonesia was one of the areas most heavily damaged by the tsunami following the earthquake on the 26th of December 2004. This paper first aims at outlining the overall rehabilitation process of the urban settlements in Banda Aceh municipality during the early reconstruction stage, with a special focus on organizations that played a coordinating function. The paper aims to clarify both the approach and achievement of the two organizations i.e. UN-Habitat and Asian Development Bank as of August 2005. Before the establishment of the Multi Donor Trust Fund, these two were the main international agencies, which have responsibility to act as public organizations1.

The paper also focuses upon one urban settlement, Deah Glumpang, where a community-based approach functions well in terms of rehabilitation of the settlement.

2. Tsunami Stricken Areas and Areas Surveyed

Fig.1. shows the extent of the areas damaged by the tsunami and the subsequent flood. The darker grey hatch indicates the areas directly hit by the tsunami, extending approximately two kilometers landwards from the coastal line. In these areas existing houses were most likely to have been totally destroyed and flushed away leaving only their foundation on their original plots. The lighter grey hatch indicates that the areas were seriously deteriorated by the subsequent flood, which reached as high as the second story of the buildings. The center of the municipality of Banda Aceh is very near the intersection of the largest river and the boundary of the two grey hatched areas.

Using the information in Fig.1., a survey was conducted covering the areas directly affected by the tsunami as shown in Fig.2. The small units shown by the boundary lines drawn in Fig.2. are traditionally called gampong in the Acehnese language. Today gampongs are identical to kelurahan, which is the familiar name for an urban administrative unit in other parts of Indonesia such as in Java2. The administration unit named ‘kecamatan’ is larger than the gampongs. Our survey was carried out in fourteen gampongs spread among four different kecmanats in Banda Aceh municipality.

The data on the overall rehabilitation process dealt with in this paper is generally based on interviews conducted with several important informants such as local government, its sub-divisions in charge of each urban administrative unit and international organizations. In Deah Glumpang settlements, interviews were conducted with members of the Committee for Settlement Rehabilitation (mentioned later in the paper). Interviews...
3. From the Emergency Assistance Stage to the Reconstruction Stage

The Indonesian central government established BRR (Badan Rehabilitasi dan Rekonstruksi: Rehabilitation and Reconstruction Agency) in April 2005 to carry out rehabilitation of the disaster-stricken area. With the establishment of BRR, it is generally understood that Aceh moved out of the emergency assistance stage into the reconstruction stage. At the same time, serious efforts were started to provide tsunami victims with permanent housing.

The international organization in charge of shelter supply during the emergency assistance period was the UNHCR (United Nations High Commissioner for Refugees), which provided mainly temporary shelters such as tents and wooden row houses called barracks to satisfy urgent needs.

When the reconstruction stage began in April 2005, UNHCR's housing efforts were supplanted by the UNDP (United Nations Development Program) and UN-Habitat. With the participation of these two UN agencies, so-called 'permanent housing' began to be provided. UN-Habitat in particular played an important role in terms of permanent housing, under the supervision of UNDP. It became the coordinator among many donors including various NGOs, as well as directly supplying housing itself to victims. The housing provided during this reconstruction stage was defined as permanent housing by UN organizations simply because they were detached houses, in spite of their small floor areas and in some cases rather vulnerable structures.

4. Rehabilitation Process of the Settlements Before the Supply of Housing

Prior to the construction of permanent housing, settlements generally needed to meet several basic conditions. According to the interviews with communal leaders and heads of the administrations responsible for their settlements' rehabilitation, the general process for rehabilitation can be summarized as follows.

i) Confirmation of the Survivors from Each Family

When no member survived from a family, the gampong residents looked for a legitimate heir who was eligible to succeed the plots. Normally the heir would be chosen from close relatives who belonged to the same extended family as the victims. This qualified heir was called 'ahli waris' in the Indonesian language.

ii) Confirmation of the Boundary Between Plots

When houses and buildings have been totally destroyed and disappeared, gampong residents must confirm and restore the boundary between plots. This usually was carried out by the land owners in the presence of the other gampong members who were commissioned to monitor its fairness. This activity was called PS (Pemetaan Swadaya), which is literally translated as 'Self-supportive mapping'. After PS was done, piles were driven in each corner of the plot to fix the boundaries. As shown in Table 1, ten out of fourteen gampongs surveyed had already completed PS between March and August 2005. The rest of the gampongs were either in the process of executing PS or just getting ready to start, except for one gampong called Lampaseh Kota (Fig.2., No. 5).

Another important purpose of PS is to produce a new map of the settlement reflecting its actual physical conditions after the tsunami such as the land surface submerged under water.

The practice of PS by the gampong residents was normally aided by technical assistance from organizations outside the gampong such as NGOs, Syiah Kuala University from Banda Aceh (UNSYIAH), UN-Habitat and BPN (Badan Pertanahan Nasional: National Land Matters Agency). Such supporting organizations usually provided residents with instructions and measuring instruments, while actual fieldwork was left to the residents. The supporting organizations varied depending on gampongs. The names of the supporting organizations involved are also listed in Table 1.

iii) Land Consolidation

After completion of PS, as of August 2005, nearly half of the gampongs surveyed were planning general improvement of the physical settings in their settlements. Most cases included the expansion of the
width of the roads and opening of new roads where they were necessary. This is called LC (Konsolidasi Lahan: after the English word: land consolidation). The process is different from the Japanese experience of land readjustment; none of the gampongs were planning to exchange or relocate plots.

There were also gampongs which were planning new infrastructures and facilities for security reasons to protect against another tsunami in the future. So-called ‘escape roads’ were being planned for evacuation inland. Some reconstruction of communal buildings such as mosques as ‘escape buildings’ also served as emergency shelters for refugees. This idea obviously came from Aceh’s experience that many mosques somehow survived the tsunami.

Most of the gampongs that had a plan for LC were supported either by UN-Habitat or by ADB (Asian Development Bank). Besides providing assistance for PS, UN-Habitat also took part in making plans for LC with the residents in several gampongs, which will be illustrated later in the paper through the case study of Deah Glumpang (Fig. 2., No. 1). There were two gampongs where ADB took part in the process of LC, namely Gampong Pande (Fig. 2., No. 7) and Lamdingin (Fig. 2., No. 13). However, in these gampongs ADB was making new master plans with the consultants. Residents were unaware of the new master plan before the blueprint was presented in December 2005.

5. Construction of the Permanent Houses

5.1 Preliminary Coordination for Housing Supply

When UN-Habitat tried to provide permanent housing (with other donors), a very confusing situation developed according to interviews with UN officials. There was no consensus among the donors involved about which administrative office had the authority to give permission to provide a gampong with permanent houses. No one knew who to ask, or where to get permissions. As a result some donors asked permission from the kecamatan office, some from the office of Public Works of the local municipality, some others from BRR and so forth. UN-Habitat and UNDP tried to negotiate a resolution to this problem with BRR and Bappenas (Badan Perencanaan dan Pembangunan Nasional: National Development Planning Agency). Finally BRR, as the top decision making agency for overall rehabilitation, decided that donors must get permission from the Camat, the administrative head of each kecamatan office.

There remained another serious problem. Donors found that there was no responsible coordinating organization which had complete information to control the entire supply of permanent housing. There was often an overlap among donors in the effort to supply permanent housing. To overcome this disorder, the UN organizations and other donors initiated weekly meetings called 'Monday Meeting' at the local Public Works office. Participants are UNDP, UN-Habitat, NGOs and local government. In this meeting, donors exchange information and report progress so that they can supply the proper number of permanent houses promptly without overlapping each other.

5.2 Criteria for Receiving Permanent Houses

It is noteworthy that nearly half of the gampongs surveyed have set their own criteria, by the residents themselves, to decide who has priority to receive permanent houses. These criteria varied among gampongs as shown in Table 2. Yet all share the common trait that the criteria are decided on the basis of a humanitarian perspective. Keudah (Fig. 2., No. 10) for instance gave the first priority to households consisting of a widow with children. Second priority were households of children who lost both of their parents, followed by low income households (No. 3), households of elderly people (No. 4) and those of handicapped persons (No. 5). Other households would be able to obtain houses after all the households on these priority lists had obtained theirs.

5.3 Specification of the Permanent Houses

The physical specification of the permanent houses is restricted to a floor area of 36 square meters per unit. The budget for a unit is not allowed to exceed three thousand US dollars (approx. 28.8 million Indonesian Rupiah). Regardless of the various materials and
structural systems which vary by donors, floor areas and the budget limitation became common rules which every donor must obey. A typical floor plan of a permanent house consists of two bedrooms, one living room and a toilet/shower unit (sometimes placed outside the house).

5.4 Construction Work

In August 2005, there were three gamponggs where the construction of permanent houses were in progress. They were Deah Glumpang, Deah Baro (Fig.2., No. 2) and Deah Teunggoh (Fig.2., No. 3) as shown in Table 3. These gamponggs are adjacent to each other and in all three the donors were Oxfam and YBI (Yayasan Berkati Indonesia: Bless Indonesia Foundation). Judging from direct interviews at several construction sites, the construction work was carried out by both skilled and semiskilled workers who, in most cases, came from outside of the Banda Aceh municipality. Some came from the adjacent prefecture Aceh Besar (Large Aceh); others came from the largest city on Sumatra Island, Medan. Workers were sent by the domestic contractor that the donor had commissioned. The donor had once offered employment to the residents so that they could earn a living. But very few residents were willing to take on the work by themselves because the population had declined so drastically that they were lacking the sufficient manpower. In one gampong, the population declined by ninety percent. Survivors complained that they did not feel strong enough to recover from the trauma or start working again. Consequently the entire process of the construction -- including specification of the houses, building material supply and management of workers -- was totally managed by the donors and their contractor.

UN-Habitat took a different approach. They did not propose a uniform house type of their own design. Instead, they made three sample models constructed basically in wood (one of which is the so-called 'semi-permanent' type with a concrete construction for the lower part of the walls). They did not directly supply building materials or start construction with the workers they commissioned, but instead asked people to form groups, each of which consists of ten members. The group opens a bank account and UN-Habitat transfers funds into the account. Then the groups themselves decide how they will spend the budget in terms of materials, workers' wages and the other necessary items.

In the gamponggs where UN-Habitat was playing the role of coordinator, it was also trying to persuade the residents to carry out self-help construction so as to allow some of the funds to be reserved for living expenses. This community-based housing approach was the basic principle of UN-Habitat in Banda Aceh. To achieve this, UN-Habitat made use of existing residents' organizations already formed by a government program called P2KP (Proyek Penanggulangan Kemiskinan di Perkotaan: Tackling Project Against Poverty in the Urban Area). UN-Habitat also mobilized so-called facilitators who played an important role (on site) as the interface between the community and UN-Habitat.

6. Numbers of Permanent Houses Requested and Under-construction as of August 2005

Table 3. shows the number of permanent houses needed by each gampong, the coordinating organization, and the donors of the houses, with the actual number in progress compared with the total number proposed as of August 2005. The source of data was the interviews conducted with the administrative head of each

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Table 2. Criteria to Decide Priority of the Residents to Receive Permanent Houses (source: interviews)

<table>
<thead>
<tr>
<th>Gampong</th>
<th>Priority list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kec. Meuraksa</td>
<td></td>
</tr>
<tr>
<td>1. Deah Glumpang</td>
<td>Those willing to live in the gampong</td>
</tr>
<tr>
<td>2. Deah Baro</td>
<td>Those suffering from trauma</td>
</tr>
<tr>
<td>3. Deah Teunggoh</td>
<td>Legitimate heir</td>
</tr>
<tr>
<td>4. Lampaseh Aceh</td>
<td>Households with many members</td>
</tr>
<tr>
<td>5. Punge Jurong</td>
<td>Those who have already returned to the gampong</td>
</tr>
<tr>
<td>Kec. Kuta Raja</td>
<td></td>
</tr>
<tr>
<td>6. Gampang Jawa</td>
<td>Orphans</td>
</tr>
<tr>
<td>7. Kekurahun</td>
<td>Those who had their own house and own land, now taking refugee in tents</td>
</tr>
<tr>
<td>8. Gampong Jawa</td>
<td>Those who rented a house but have their own land, now taking refugee in tents</td>
</tr>
<tr>
<td>9. Teunggah</td>
<td>Low income households</td>
</tr>
<tr>
<td>10. Kekurahun</td>
<td>The elderly</td>
</tr>
<tr>
<td></td>
<td>The handicapped</td>
</tr>
</tbody>
</table>

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Fig.3. Coordinator for Permanent Housing Supply
(source: interview)
6.1 UN-Habitat and Inner-city Problems

In terms of gampong supported by UN-Habitat, some construction was in progress in August 2005 in two areas: Deah Glumpang and Deah Baro. But in Lampaseh Aceh (Fig.2., No. 4), Punge Jurong (Fig.2., No. 6), Peulanggahan (Fig.2., No. 9) and Keudah there was no housing construction in progress. The different rates of progress seem to be related to the location of each gampong within the town. The former two gampongs are located along the coastal area and assume the form of rather suburban settlements. These can be described as 'outer-city gampongs'. The latter four are located closer to the central area of the town (Fig.3.). This 'inner-city' area used to be densely populated with residents of greater economic means. These residents demanded more than the standard 36 square meters of floor space. Those who used to own shops also claimed that they would need so-called shophouses. The large scale of these demands was a mismatch with the proposed housing models. Residents also rejected temporary structures made of wood, structures which were accepted by the outer-city gampongs. A similar situation probably explains why Lampaseh Kota and Merduati (Fig.2., No. 11), located right in the town center, were not requesting the permanent houses.

There was another problem in the inner-city area. Many renters used to live in this area before the tsunami. There was a question as to whether they were qualified for the permanent housing. If so, who would own the houses? To deal with this issue, UN-Habitat announced that it would supply owners with extra rooms to rent, but the owners would be requested to convert the rental units to public or common facilities such as Islamic prayer places after several years.

6.2 The Process of Housing Supply by ADB

Meanwhile, as of August 2005, there were no permanent houses completed by the donors in the gampongs coordinated by ADB. ADB had commissioned ITS (Institute of Technology 10 November Surabaya) to make new master plans for its two pilot projects Gampong Pande and Lamdingin. The new master plans were not scheduled to be presented until the end of 2005. This explains why permanent houses were not yet being built, despite the fact that they were both 'outer-city' areas and relatively free from the above-mentioned 'inner-city' problems.

ADB is funded in large part by the Government of Japan, and has decades of experience assisting Indonesia with regard to various development programs. ADB's intention was to implement steady and sustainable reconstruction in the long run. Slight delay in the delivery of housing must be an inevitable trade-off for entire reconstruction with proper infrastructures. ADB's past experience in Indonesia seemed to help the reconstruction of infrastructures, for which a master plan was indispensable.

7. Rehabilitation Process in Deah Glumpang

Deah Glumpang was one of those gampongs where the supply of permanent houses was promptly in progress, satisfying the residents' urgent needs as of August 2005 (See the number in the column 'in progress' in table 3). Deah Glumpang also represents an example of a community-based approach which seems to be an essential factor in the rapid supply of housing. Major actions and dates in the following descriptions were summarized in Fig.4.

7.1 Damage and Human Loss

As shown in Fig.2., the location of Deah Glumpang is very close to the coastline and it was directly affected by the tsunami. About five hundred houses were completely washed away. Deah Glumpang consists of four smaller community and administrative units called 'dusun'. They are named Damai (Peace), Makmur (Prosperity), Sejahtra (Harmony) and Bahagia (Happiness). Their locations and boundaries are shown in Fig.5. Table 4. shows.
the population decrease after the tsunami for each dusun. The total population decreased to 24.7 percent of the pre-tsunami population, from 1,429 persons to 352. Another striking fact is the number of surviving children; only 36 children survived out of 237 (a survival ratio of 15.2% as opposed to the adult's survival ratio of 26.6%).

7.2 Structuring the Organization for Rehabilitation

According to the residents, on 3rd January 2005, one week after the tsunami, the first five residents came back to the gampong. They first built a modest structure called 'posko'17, which later functioned as the meeting place for discussions about reconstruction. In February the new head of the gampong (guechik) was chosen through consultation by the surviving residents. Next came the formation of KERAP (Komite Rehabilitasi Permukiman: Committee for Settlement Rehabilitation). The process of the election started with formation of an election committee on 16th of May, and a vote was held on 21st of May. The eight gampong residents, aged 20 to 33, were inaugurated as KERAP members on 25th of May. Two working groups were established under KERAP. One was in charge of housing and the other in charge of matters concerning the settlement. The organizational structure of KERAP followed the scheme prepared by the existing improvement program for urban poverty called P2KP (mentioned earlier in 5.4), which had been supported by local government. KERAP was fully authorized to manage and coordinate the needs of the residents and the aid provided by donors so that the rehabilitation process could proceed efficiently and successfully.

7.3 Program for Short Period

After the formation of KERAP, members started making a rehabilitation plan called PJP (Program Jangka Pendek: Program for Short Period) during the period between 26th of May and 10th of June. The work formally started with documentation and evaluation of the condition of the gampong after the tsunami, though several KERAP members had already been working as volunteers to document the damage and impact before the KERAP was formed. Based on the data collected and the problems analyzed, KERAP set up criteria to decide priorities for the coming one year. Following is the list of these priorities as outlined in their report Dokumen PJP18, which was presented to the residents for discussion on 11th of June. The PJP was finally authorized by the residents on 25th of June.

i) Confirmation of Landownership and Heirs

Based on the list of residents who survived the disaster, KERAP first made a list of landownership. The list consists of information on each resident such as status of ownership (owner or renter), condition of the plot (submerged under water or not), structure of the house before the tsunami (permanent, semi-permanent, or wooden temporary), condition of the house after the tsunami (disappeared or heavily damaged), and addresses of the landowners. The main purpose of this work was to find the legitimate heir of those plots which had lost their original landowners. According to the list, out of 285 plots, either the original landowner or the heir within the original landowner's family was found for 230. For the other 55 plots, an heir was found from relatives as shown in Table 5.

ii) Describing Problems and Establishing Priorities

KERAP then described the problems the gampong and its residents were facing. The contents of the list were classified into four categories i.e. (1) infrastructure and social facilities, (2) housing and households, (3) education, health and social affairs, and (4) Economy and human resources. Including all these categories, a total of 33 items were examined with regard to locations, causes, management and requests by the residents for each item.

During the period between 11th and 16th of June 2005, the residents and KERAP members held communal meetings to establish priorities among the listed items. Table 6. shows the listed items together with the criteria used to decide priorities. There were four aspects to be considered. They were (A) feasibility, (B) frequency of use, (C) urgency and (D) degree of contribution.

Table 4. Population of Deah Glumpang before and after Tsunami

<table>
<thead>
<tr>
<th>Dusun</th>
<th>Before tsunami</th>
<th>April 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Households</td>
<td>Population</td>
</tr>
<tr>
<td>Damai</td>
<td>129</td>
<td>349</td>
</tr>
<tr>
<td>Makmur</td>
<td>152</td>
<td>384</td>
</tr>
<tr>
<td>Sejahtra</td>
<td>120</td>
<td>331</td>
</tr>
<tr>
<td>Bahagia</td>
<td>137</td>
<td>362</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>535</strong></td>
<td><strong>1426</strong></td>
</tr>
</tbody>
</table>

Table 5. Condition of Plots and Landownership in Deah Glumpang

<table>
<thead>
<tr>
<th>Dusun</th>
<th>Households</th>
<th>Numbers of plots</th>
<th>Submerged plots</th>
<th>Original landowners</th>
<th>Relatives qualified for heir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damai</td>
<td>62</td>
<td>69</td>
<td>22</td>
<td>58</td>
<td>11</td>
</tr>
<tr>
<td>Makmur</td>
<td>49</td>
<td>73</td>
<td>12</td>
<td>61</td>
<td>12</td>
</tr>
<tr>
<td>Sejahtra</td>
<td>51</td>
<td>75</td>
<td>9</td>
<td>59</td>
<td>16</td>
</tr>
<tr>
<td>Bahagia</td>
<td>31</td>
<td>68</td>
<td>18</td>
<td>52</td>
<td>16</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>193</strong></td>
<td><strong>285</strong></td>
<td><strong>61</strong></td>
<td><strong>230</strong></td>
<td><strong>55</strong></td>
</tr>
</tbody>
</table>

Table 6. shows the listed items together with the criteria used to decide priorities. There were four aspects to be considered. They were (A) feasibility, (B) frequency of use, (C) urgency and (D) degree of contribution.
For each aspect, one to four points were assigned to an item; thus the maximum possible score for an item was 16 points. The top five items are highlighted in bold Italic in Table 6. The item given the first priority was housing. Next came better structuring of the gampong. Even though this is a rather ambiguous description, one can understand that residents paid great attention to the general improvement of the physical setting of their gampong. The items ranked from 3rd to 5th were dikes against high tides, capital and working tools, and reclamation of the submerged land.

iii) Fund Raising

After setting priorities, the KERAP estimated costs to implement each item, and then thought about where to obtain the necessary budget, depending on the item. Basically KERAP anticipated four different sources for the budget: local government, P2KP, residents and NGOs. The budget for items that required large scale civil engineering work such as construction of dikes and repair of water pipes, was assigned to local government. Smaller scale infrastructure including gutters along the streets and escape roads was assigned to the P2KP program. There was also the budget from the residents themselves; this was generally to supplement the budget prepared by local government or the program. NGOs were expected to support almost every item including housing.

7.4 Self-Supportive Mapping and Land Consolidation

The initiative of PS (self-supportive mapping) was also taken by KERAP members in Deah Glumpang. The training for PS work was first given to KERAP members on 27th and 28th of May 2005. The training was given at Deah Teungoh close to Deah Glumpang. On the following day KERAP started giving instruction to the residents. On 31st of May, teams for PS were formed for each dusun. The fieldwork of PS then started on 1st of June and continued for two weeks ending on 15th. The result of PS was then presented to the gampong residents and they reached final agreement on the allocation of plots on 18th of June.

LC (Land Consolidation) in Deah Glumpang was based on the following rules. (1) The basic unit for LC was the plots occupied by extended families, (2) Every extended family's plot must align on a footpath, (3) Submerged graveyards would be relocated, (4) If partly submerged, such graveyard plots should be merged, (5) Intact graveyards would remain as they were, (6) All the responsibility must be shared among the residents.

Fig. 5. shows the land consolidation plan. The drawing was technically assisted by UN-Habitat, and a workshop was held by the Rhode Island School of Design from the USA to get a basic idea of how an LC plan should be prepared. The LC plan includes planning for the several new escape roads for evacuation to the inland, and at the same time enclosing the southern edge of the gampong's tract. There were several new footpaths planned for each extended family's plot so as to align on a single footpath. Reconstruction of the mosque and prayer houses where people can take refuge from high waves was planned for the center of the gampong and in both the east and west ends. However there was no plan for exchanging or relocating the plot for houses. The LC plan was finished in the middle of July 2005, although KERAP still tried to modify its plan before the actual implementation.

8. Conclusion

This paper analyzed the overall rehabilitation process in Banda Aceh Municipality with the main focus on the supply of permanent housing as of August 2005. The case study revealed the actual process of rehabilitation.
of the settlements. The main findings can be outlined as follows.

1) The basic process of the rehabilitation of the settlements consisted of four steps. i) confirmation of the survivors from each family, ii) confirmation of the boundary between plots and map making (PS), iii) land consolidation (LC) and iv) supply of permanent houses.

2) There were two coordinators active in this process. UN-Habitat took the approach of working directly on site with the community. ADB distributed its assistance through an existing relationship with the central government and adopted a comprehensive approach to rehabilitate the settlement by drawing up a master plan to reconstruct the infrastructure and surrounding environment prior to housing supply.

3) The specification of a permanent housing model resulted in a mismatch between the model provided and the actual needs, especially in the inner-city situation where people were hoping to obtain houses with better conditions.

4) A community-based approach was adopted in the rehabilitation process in Deah Glumpang. The initiative was taken by KERAP which played a very important role in preparing the plan for rehabilitation, including PS and LC.

In community-based housing construction, quality control is the essential factor to achieve success. We will discuss this issue in our next paper.

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Endnotes

1) Multi Donor Trust Fund (MDTF) was established in October 2005. Although it has been a very basic stakeholder, its establishment was after our research in August 2005. The 16 pilot project villages for housing reconstruction by the MDTF started in December 2005. This is why the MDTF is excluded in our analysis in this paper.

2) The municipality called 'kota' in Banda Aceh is similar to 'kota' in Java. The administration hierarchy consists of the following three levels ranging from the larger unit to the smaller one: kota - kecamatan - kelurahan (identical to gampung in Banda Aceh).

3) The United Nations Human Settlements Programme (UN-Habitat) is the United Nations agency for human settlements. It was established in 1978 and has its headquarters at the UN office in Nairobi, Kenya. It is mandated by the United Nations General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

4) In Aceh it is working closely together with UNDP. UN-Habitat is in charge of housing reconstruction. Meanwhile UNDP deals with various levels of projects including infrastructure.

5) It is confusing to adopt the word 'permanent' to describe some of these housing models when we consider that some donors provided ones with wooden structures because in Indonesia, wooden structure buildings have been generally considered 'temporary.' 'Permanent' is only used for those with brick or concrete structures. This has been the conventional way to describe the structures of buildings since the Dutch colonial Indonesia period. By the UN's definition temporary housing means tents and row houses during an emergency assistance period, while permanent housing means a detached model during the reconstruction period. In this paper we follow the UN's definition to avoid misunderstanding.

6) The administrative head of gampung (kelurahan) is called geuchik in Aceh, which is identical to lurah in other parts of Indonesia.

7) The Asian Development Bank was established in 1966. Its headquarters is in Manila, Philippines. It aims to provide funds and technical assistance to developing countries in Asia, often in cooperation with the World Bank and other financial institutions for international development.

8) Public Works (PU: Pekerjaan Umum) in the Indonesian administration system means Ministry of Construction or its local branches. In addition, NGOs and the government institutions mentioned in Table 1 are: Peduli Aceh (Care about Aceh) and YIDP: Yayasan Indonesia di Pari
tik (Indonesian Foundation in the Pacific).

9) Oxfam was established in Oxford, Great Britain in 1942. Its original name was Oxford Famine Relief. Now it is one of the world's largest NGOs devoted itself to humanitarian aid, programs against poverty and many other supportive activities in developing countries.

10) UN-Habitat's models are;

1) Traditional Aceh dwelling type with temporary structure (wooden),
2) Kalimantan dwelling type with temporary structure designed by Gadjamada University in Yogyakarta, 3) semi-permanent (partly wooden, partly concrete) dwelling type without a typical style.

These three model houses were constructed in Deah Glumpang.

11) This was still the scheduled scheme in Banda Aceh although UN-Habitat had already practiced this manner in the reconstruction of villages outside Banda Aceh at the time of August 2005. One of the UN-Habitat officials told us that the first transfer of money was to come by the end of August 2005.

12) There were 20 facilitators (7 Community Development Facilitators, 6 Community Architect Facilitators and 7 Civil Engineering Facilitators) who worked for the UN-Habitat district office of Banda Aceh along with their supervisors such as 1 District Manager, 5 specialists (1 Community Development Specialist, 2 Community Architect Specialists and 2 Civil Engineering Specialists).

13) In Table 3, the abbreviations of donors are; KPBU: Pos Keadaian Pemulihan Ummat, Justice association for the care of the followers of Islam GTZ: Deutsche Gesellschaft für Technische Zusammenarbeit.

YBI: Yayasan Berkati Indonesia, Bless Indonesia foundation WV: World Vision

14) At a meeting at Public Works on 15th August 2005, several donors reported that residents in the center of the town often rejected small houses with semi-permanent structures and that it seemed to be becoming a trend.

15) ADB seems to distribute its assistance through existing paths by way of the central government. This also seems another trade-off between implementation of steady construction management and slightly delayed speed in supplying permanent houses as of August 2005. Two months later in October 2005, the Multi Donor Trust Fund (MDTF) was established. ADB also contributed funds to MDTF.

16) Compared to ADB's potential to supply infrastructure, UN-Habitat itself might lack resources to reconstruct infrastructures. UN-Habitat was trying to collaborate with P2KP or directly with KERAP to cover its week points. This aspect should be carefully observed by further monitoring.

17) Quick consensus and solidarity among residents are often very important factors in working with NGOs. It is important for NGOs to have concrete responses because in the shortest possible time in order to reserve their funds for operations on site.

18) Posko is originally the abbreviation of Pos Komando; military box. But it also sometimes means voluntary organization in a community.

References 1)