Lessons Learned from
Post-Earthquakes and Tsunami’s Rehabilitation and Reconstruction in Aceh and Nias, Indonesia:
With Special Regards to the Housing and Settlements Sector

Japan, February 21st 2012

Bambang Sudiatmo
Indonesia
What makes the Aceh-Nias disaster significant?

**Its scale...**

- 221,205 people killed/missing
- 635,384 people displaced
- 139,195 houses destroyed with land certificates and land boundaries lost
- 65,185 houses heavily/lightly damaged
- 3,415 schools destroyed
- 1,927 teachers killed
- 517 health facilities destroyed
- 1,089 religious facilities destroyed
- 669 government buildings destroyed
- 2,618 kilometers of road destroyed
- 119 bridges destroyed
- 22 ports destroyed
- 8 airports or airstrips destroyed
- 73,869 hectares of agricultural lands destroyed
- 13,828 fishing boats destroyed

Source: BRR Book Series, 2009
Some situational complications also affected the process

Following the peace settlement, a post-conflict environment was still remaining \textbf{security challenges} and increased pressure for a more equitable distribution of post-tsunami resources.

Aceh and also Nias located in the westernmost part of Indonesia as one of the poorest provinces and districts respectively in Indonesia had \textbf{low local capacity} to support the reconstruction.

The 30 years of conflict in Aceh had also been resulting in \textbf{weak governance} and serious corruption.

The poor people demanded \textbf{similar services} as the victims or the survivors of the disaster.

Rehousing the people is not only building houses...

\textbf{Emergency Response} \rightarrow \textbf{Rehabilitation and Reconstruction}

1. Tents or Public Buildings
2. Temporary Shelters
3. Economic Development
   - Jobs
   - Market
4. Village Centers
5. Social and Cultural Facilities
   - Mosques, Churches
6. Land clearing
7. Environment Rehabilitation
8. Land & Environment
9. Water Supply
10. Roads/Bridges
11. Utilities and infrastructure
12. Public Facilities
   - Schools
   - Public Health Centers
13. Public Services
   - Electricity
   - Sanitation
   - Drainage
During early recovery, they lived in tents...

...then moved to barracks
Housing reconstruction process: from community to community

1. Organizing the community, land mapping and village planning
2. Data collection and verification of beneficiary
3. Construction planning and procurement
4. Construction execution/ House construction
5. Construction and revitalization of basic infrastructure and facilities
6. Hand over houses to the survivors and infrastructures and facilities to the local governments

From community

To community
The programs...

**PRE-CONSTRUCTION PROGRAM:**
1. Village planning (bottom-up) & spatial planning (top-down)
2. Land procurement and land certification
3. Beneficiary identification and data collection

**MAIN PROGRAM (CONSTRUCTION):**
1. Construction of new houses:
   a. Reconstruction (new construction in the previous site)
   b. Relocation/resettlement (new location/site)
   c. Housing aids for renters (‘BSBT’)
2. Rehabilitation of damaged houses
3. Neighborhood basic infrastructure and facilities:
   a. Reconstruction; b. Rehabilitation, c. Relocation

**POST-CONSTRUCTION PROGRAM:**
1. Policing of housing aid abuse
2. Hand over of houses to community
3. Hand over of basic infrastructures to local government
Spatial planning principles

- **Disaster-based spatial planning** (take mitigation of disaster into account)
- **Community-based planning** (start from ‘village level’ planning; creating a map being agreed and signed by all relevant inhabitants)
- Formulating more macro **spatial plan** at district/city and provincial level

- Using spatial plan as a **disaster mitigation tool** to improve disaster preparedness

Land certification and management principles

**Land certification:**
- Community-driven adjudication or community-based arbitration
- Surveying the land boundaries and creating land map which standardized and approved by the National Land Agency (BPN)
- BPN issued land ownership certificate which stated not only the head of family (men) but also the wives (so-called Joint Land Titling – previously uncommon in traditional or national law)

**Land acquisition for resettlement**
- Compliance with spatial planning: accessible to clean water and electricity, not prone to flooding
- Relatively easy to build settlement
Building new house: core house principle

- Main house of 36m² with the concept of growing house
- Not a semi-permanent house
- Having a proper architectural design
- Safe, particularly against earthquake
- Be consulted with the community
- Easy supply of logistic
- Can be built fastly
- Labour efficient

Some challenges...

1. Community development, land mapping and village planning
   - Land boundaries and land certificates (incl. archives in the land administration offices) were lost or damaged.
   - Difficulties in identification of land tenure since the land owners were dead, missing, moving out, or the heirs were underage.
   - Land dispute took very long time, and reclaiming the land after the reconstruction almost end, it was impossible to get housing aid.

2. Identification and verification of beneficiaries
   - Weak disaster preparedness: no (spatial) data indicating identity and place of inhabitants; during the survey there were no people in place
   - Eligible beneficiaries were underage (no parents)
   - Beneficiary got married with other beneficiary, potential to get double aid (supposedly household-basis aid)
   - Beneficiaries asked grants from more than donors/NGOs
   - Remote areas difficult to reach

3. Construction planning and procurement
   - Facing the dilemma between involving qualified contractors from outside or incapable local contractors but insisted to involve
   - Rapid procurements were very required, though the data about the fields very limited. It brought high risk of improper implementation.

4. Construction execution/ House construction

5. Construction and revitalization of basic infrastructure and facilities
   - Difficult to bring the logistic due to road/bridges damaged or in islands
   - Need heavy engineering design (landslide, land submerged)
   - Shortage of materials or local people offered substandard materials
   - Contractors could not work, hold up by local communities
   - Rivalry among the contractors (opposed by local contractors)
   - No workers available
   - Improper subcontracting practices

6. Hand over of the houses and neighborhood facilities
   - In the end of BRR mandate, it was quite common getting and responding complaints from the community on the result of housing aids (due to hundreds development partners, thousands beneficiaries, varied situation on the field, limited time)
The Houses

January 2003 Pre-disaster

29 December 2004  3-day post-disaster

This mosque is the only standing structure left

ACEH BESAR – Pre-disaster, post-disaster, to early 2007
Housing GIS (on line)
Housing GIS (on line)

Data of the City of Banda Aceh:
- Finished
- On going
- Unfinished

Then zoom in the City of Banda Aceh

Housing GIS (on line)

City of Banda Aceh

Then click to "Kecamatan" of Meurasa
Lessons Learned

The works that should be done immediately after the disaster take places includes

1. Inventory the impact area
2. Inventory the survivor and house destroyed and damaged.
All of the activities above should be done together local government and lock the data.
3. It is not required to provide completed house construction to the survivor. We can provide them with the house with main construction such as foundation, pillar and roof. The others finishing construction like floor and wall can be given to the survivor.
4. Do the house inventory using geospatial methods
5. Always using environmental and health friendly material
6. Re-develop impacted area without causing environmental damages
Thank You