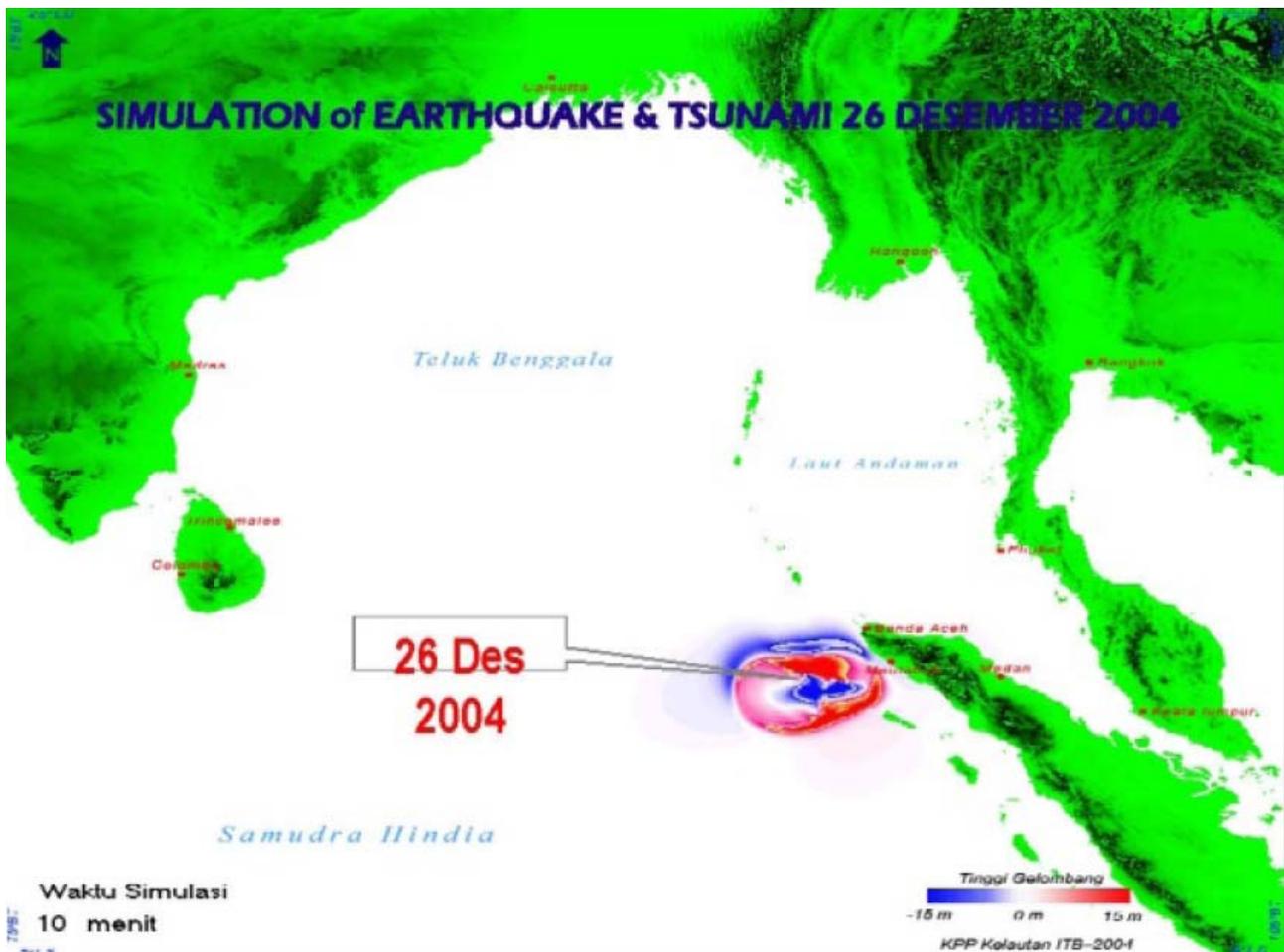




Lessons Learned from  
**Post-Earthquakes and Tsunami's  
 Rehabilitation and Reconstruction in  
 Aceh and Nias, Indonesia:**  
 With Special Regards to the Housing and  
 Settlements Sector

Japan, February 21<sup>st</sup> 2012

Bambang Sudiatmo  
 Indonesia



January 2003 Pre-disaster

29 December 2004 3-day post-disaster



ACEH BESAR – Pre-disaster

## 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

December, 26<sup>th</sup> 2004  
Earthquake (9.1 Richter Scale)  
and Tsunami in Aceh



March, 28<sup>th</sup> 2005, Earthquake  
(8.7 Richter Scale) in Nias Island

# Some situational complications also affected the process



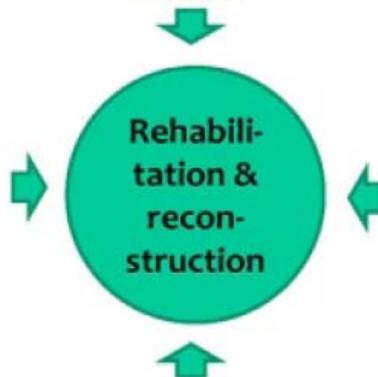
Aceh and also Nias located in the westernmost part of Indonesia as one of the poorest provinces and districts respectively in Indonesia had **low local capacity** to support the reconstruction.



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



The 30 years of conflict in Aceh had also been resulting in **weak governance** and **serious corruption**.



The poor people demanded **similar services** as the victims or the survivors of the disaster.



# Rehousing the people is not only building houses...

**Emergency Response** → **Rehabilitation and Reconstruction**

1



Tents or Public Buildings

2



Temporary Shelters

3





DURING EARLY RECOVERY, THEY LIVED IN TENTS...



... THEN MOVED TO BARRACKS



20,000 units provided  
by International Federation  
of Red Cross



...OR TO TEMPORARY SHELTERS

## Housing reconstruction process: from community to community

**1** Organizing the community, land mapping and village planning



*From community*

*To community*

**2** Data collection and verification of beneficiary



**3** Construction planning and procurement



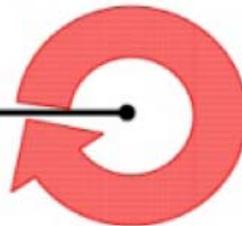
**4** Construction execution/ House construction



**6** Hand over houses to the survivors and infrastructures and facilities to the local governments



**5** Construction and revitalization of basic infrastructure and facilities



# COMMUNITY BASED APPROACH ON RECONSTRUCTION

Village Meetings (consensus building),  
Village Mapping, Village Planning,  
and Housing Devt Meetings as  
community based approach reconstruction



11

## 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:

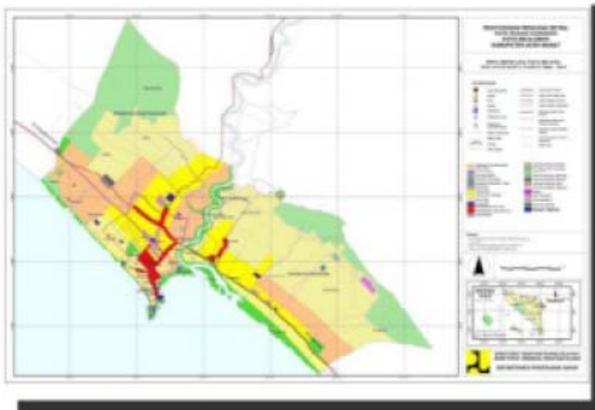
- 1 Policing of housing aid abuse
- 2 Hand over of houses to community
- 3 Hand over of basic infrastructures to local government

12

## 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

13

## 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)

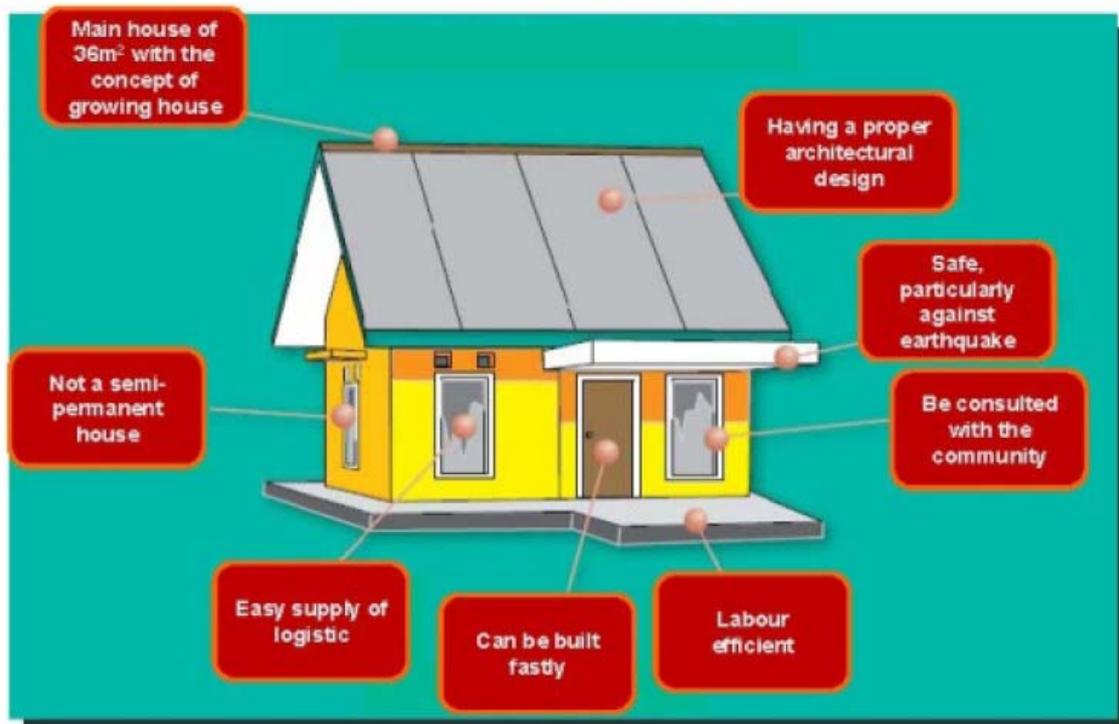
### Land acquisition for resettlement

- Compliance with spatial planning: accessible to clean water and electricity, not prone to flooding
- Relatively easy to build settlement



14

## Building new house: core house principle



15

## Some challenges...

### 1 Community development, land mapping and village planning

- **Land boundaries** and land certificates (incl. the 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.

### 6 Hand over of the houses and neighborhood facilities

- In the end of BRR mandat, 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)

### 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

### 4 Construction execution/ House construction

16

# The Houses



17

January 2003 Pre-disaster



29 December 2004 3-day post-disaster



ACEH BESAR – Pre-disaster, post-disaster, to early 2007

December 2007



## BARRACK AND RELOCATION COMPLEX

(Another 859 HH will soon get their houses)



## DAILY LIFE IN RELOCATION COMPLEX



21

## Housing GIS (on line)

Badan Rehabilitasi & Rekonstruksi Nanggroe Aceh Darussalam dan Nias

Select Location:  Progress Project:

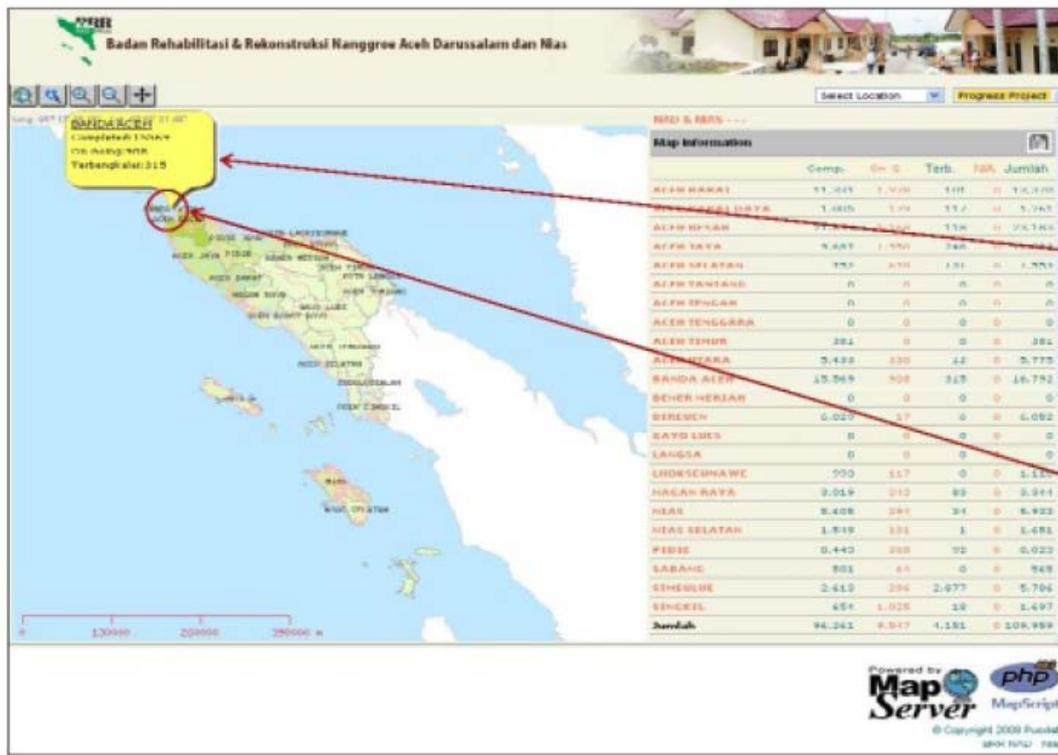
Map Information

	Comp.	CA-3	14FD	14K	Jumlah
ACEH BARAT	11.333	1.426	101	0	12.860
ACEH BARAT DAYA	1.000	100	117	0	1.217
ACEH BESAR	21.077	1.100	110	0	22.287
ACEH JAYA	3.687	1.920	246	0	5.853
ACEH SELATAN	732	470	131	0	1.333
ACEH TENGAH	0	0	0	0	0
ACEH TENGAH	0	0	0	0	0
ACEH TENGGARA	0	0	0	0	0
ACEH TIMUR	201	0	0	0	201
ACEH UTARA	8.433	330	33	0	8.796
BANDA ACEH	19.500	700	315	0	20.515
BENER HERIAH	0	0	0	0	0
BEBEHEN	0.020	27	6	0	0.053
BAYO SUES	0	0	0	0	0
LANGSA	0	0	0	0	0
LHOEK MEYAYE	790	117	0	0	1.110
NAGAN RAYA	9.019	212	83	0	9.314
NIAS	8.408	241	31	0	8.680
NIAS SELATAN	1.519	101	1	0	1.621
PEDEE	0.443	200	72	0	0.715
SABANG	801	61	0	0	862
SEHENGUE	2.413	324	2.077	0	4.814
SENGUL	451	1.025	18	0	1.494
<b>Jumlah</b>	<b>96.261</b>	<b>9.517</b>	<b>4.181</b>	<b>0</b>	<b>109.959</b>

Powered by Map Server php MapScript  
© Copyright 2008 Pustakaloka siber nusantara

Click to the City of Banda Aceh

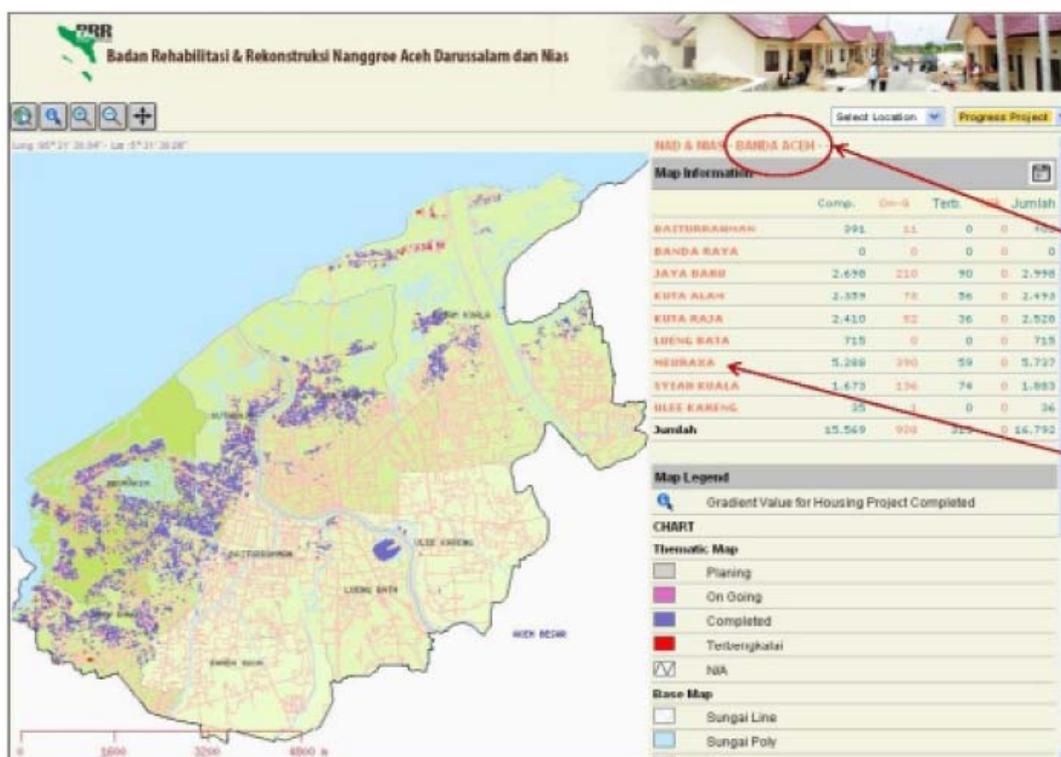
# Housing GIS (on line)



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

Then zoom in the City of Banda Aceh

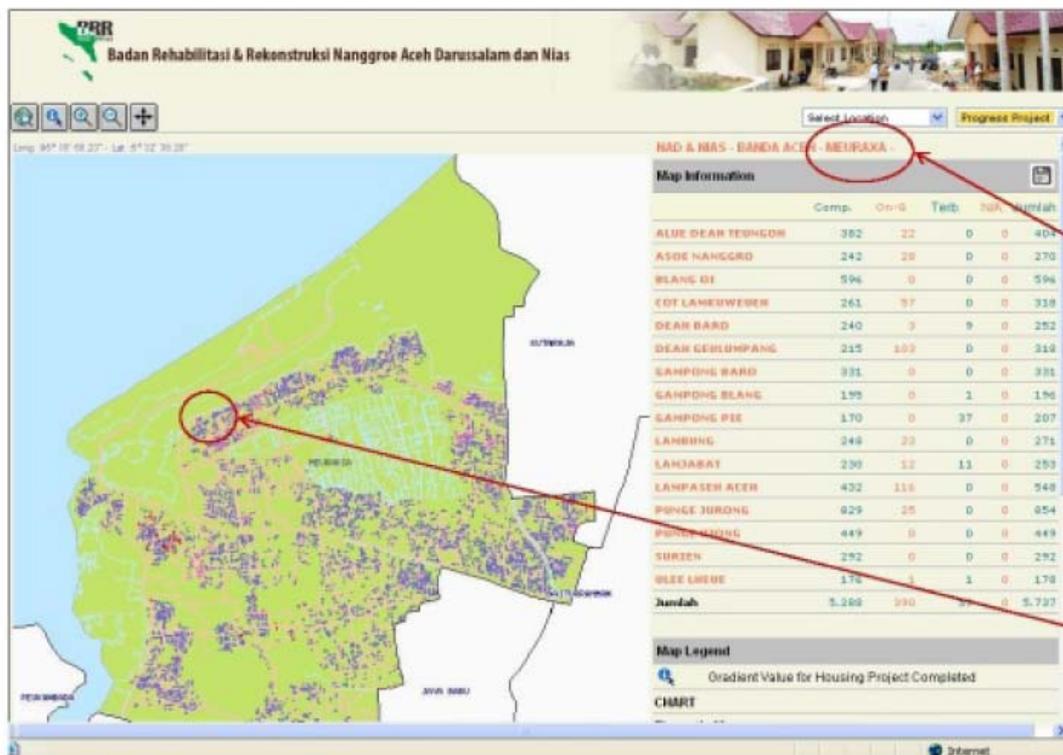
# Housing GIS (on line)



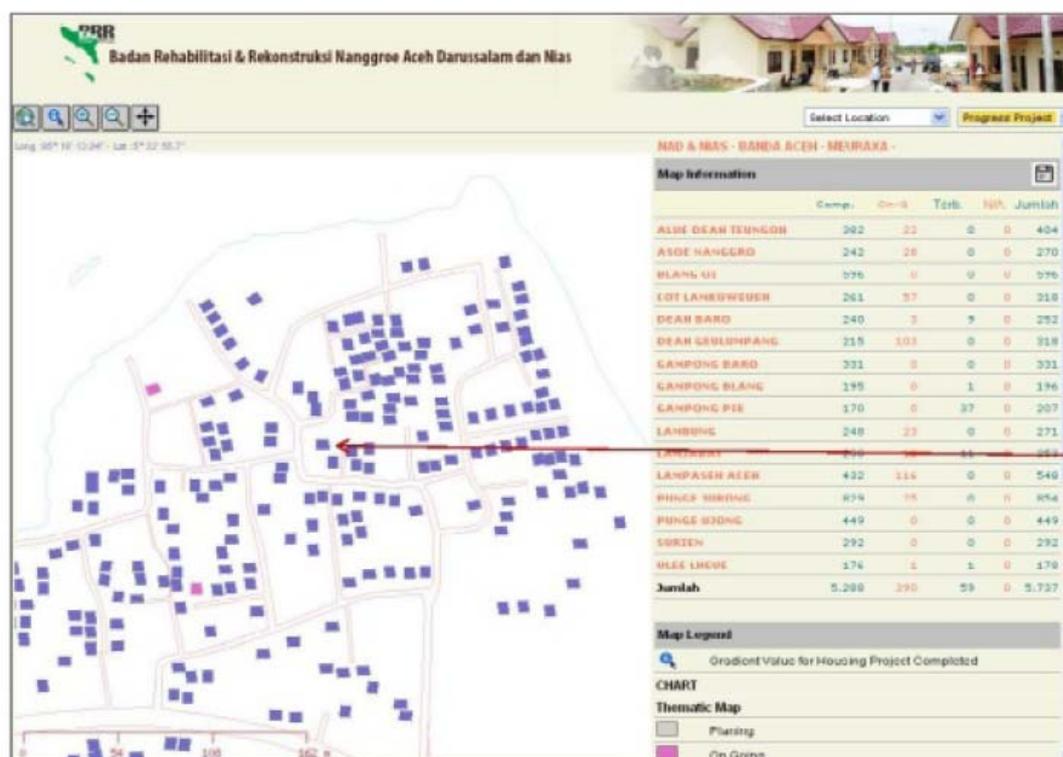
City of Banda Aceh

Then click to 'Kecamatan' of Meuraxa

# Housing GIS (on line)



# Housing GIS (on line)



# Housing GIS (on line)

Badan Rehabilitasi & Rekonstruksi Nanggroe Aceh Darussalam dan Nias

http://172.26.12.11:8080 - Untitled Document - Microsoft Internet Explorer

Propinsi : NANGOROE ACEH DARUSSALAM  
Kabupaten : BANDA ACEH  
Kecamatan : MEURAXA  
Desa : ALUE DEAH TEUNGOH

Koordinat Rumah : 95° 18' 09.45" BT - 5° 33' 51.99" LU

No rumah	: 0220
Provider	: BRR
Jenis Bantuan	: Rekonstruksi
Pemilik	: Bustoff
Hunian	: Dihuni

On Going

Data of the house:  
-Foto  
-Location  
-Number  
-Provider  
-Type of aid  
-Owner  
-Status of occupation

Location shown on the map

## 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*

