



Community Based Disaster Risk Reduction Activities of ADRC

March 18th, 2008

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1. Why Community based DRR is necessary ?

- Hanshin Awaji EQ Case
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- Community based DRR in the all phase of Disaster Risk Management (TDRM)

2. EWS and Community Risk Awareness

- Japanese Case
- Other Country's Case

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- PNG Risk Awareness Programme
- Community based Hazard Mapping ("Town Watching Program") Sustainability



What is the Community Based Disaster Risk Reduction?

- Background
- Hanshin Awaji Case
 - Fire Case
 - Rescue Activity
- "Self-Help", "Mutual-Help", "Public-Help"
- CBDRR in the all phase of DRR



How many fire engine need for put out the fire ?



Date: Jan 17, 1995
Magnitude: 7.2
Depth: 16km
Human Lost: 6432
Affected ; 43792





Overtured Building



- These interruption is the factor to delay the response to the affected site immediate after the earthquake.
- In this case, the 280 sites of the fire started simultaneously !
- 31 fire station * Average 3 Tracks = About 100 Engine !
- Public could not respond the fire sites !



Rescued / Survived People After the EQ

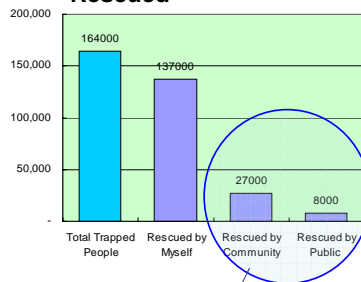


Where is the 4th Floor ? People were confined ?

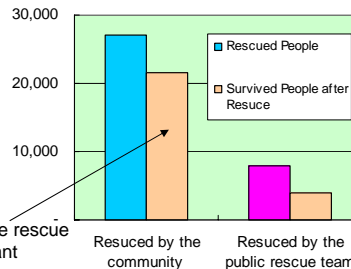


Collapsed Residential Structure

Rescued



Survived



Immediate rescue is important



Self-Help, Mutual-Help, Public-Help ?

Self-Help (1st Step)

The community people have to be a first responder of the natural disaster !
ex; *In case of Earthquake,*

- *Evacuation from the collapsed house by myself*
- *Extingushe the cooking heater to prevent the fire spreading over*

Mutual-Help (2nd Step)

If the "Self-help" activity is failed, the "Mutual-help" within the community is important. In case of the huge natural disaster, it take much time to provide the rescue activity to the affected site by the public, in this case, mutual help is very important to mitigate the disaster.

Public-Help

- *To strengthen the Community DRR level is important*



Community based DRR on Preparedness Phase

- Most important phase of CBDRR is to evacuate from the natural disaster at the emergency situation.
- Establishment of "EWS" (Early Warning System)
- How to disseminate early warning to the end ? ("End to End")

- National
- Local
- Community

Disseminate EW



Safe Evacuate
Action

Difficult to
Establish and
Maintain the EWS

- Successful establishment of the EWS depends on the knowledge of natural disaster at the community.
- Key issues are to establish "Disaster Education" and "Culture for DRR" in the community.



EWS Establishment History in Japan

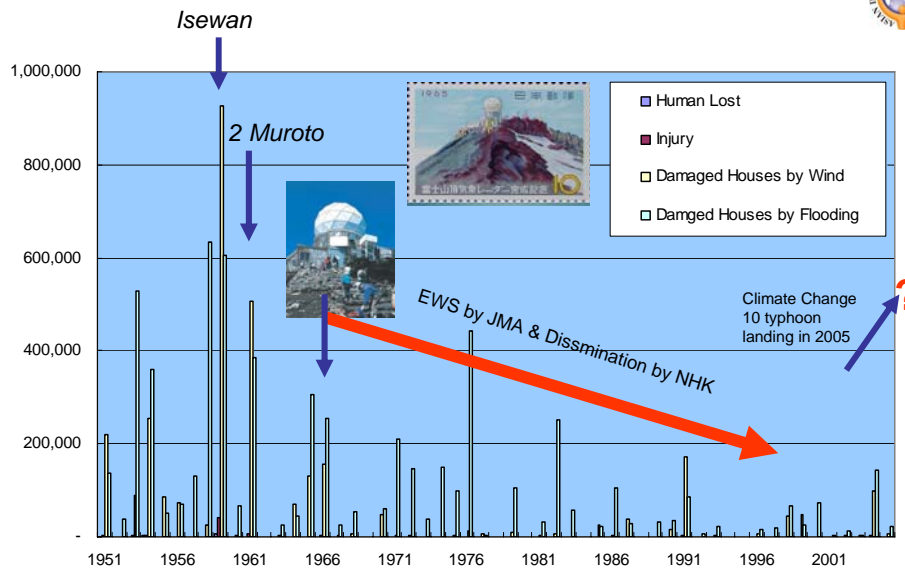
-Before 1960's, a series of huge typhoons landed on Japan caused the heavily human and property losses.

- 1938 Typhoon Muroto; killed over 2700
 - 1947 Typhoon Kathline; Killed over 1000
 - 1956 Typhoon Vera ;killed over 5000
 - 1961 Typhoon No.2 Muroto; Killed 194
- At that time, there was no sufficient weather prediction for the preparedness to the typhoon attacking.

-For safe evacuation, Early Warning System was prepared.



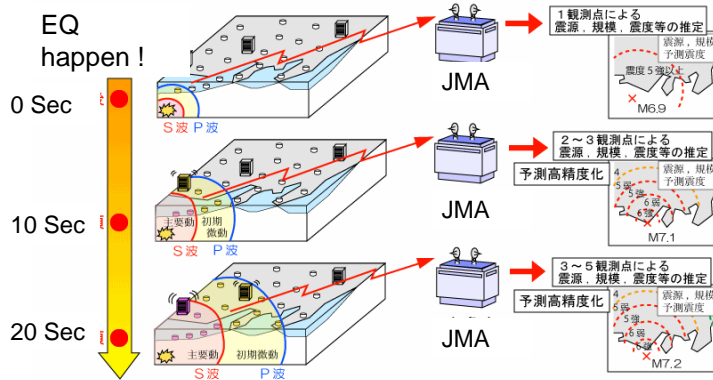
Storm Surge of Vera



- In 1964, the radar was installed on the top of the Mt. Fuji to observe the cloud pattern of the typhoon for the early warning. (Operation started from 1965.)



Recent EQ-EWS in Japan



-To use the time difference of the Primary wave and Secondary wave reaching to the site, JMA disseminate the earthquake early warning to the community.

- P Wave with 7km/sec, S-Wave with 4km/sec.

Good EWS !, High-Technology, Expensive System, Easily implement to the anywhere natural disaster prone area in the world ?

Low Tech. & Effective Way ?



Question

- What is the worst single natural disaster event that caused most huge human lost in modern time ?
- Where ?
- When ?
- How was the number of the human lost at the event ?



Cyclone in Bangladesh on Nov.12, 1970

- Over 500,000 human lost
- Just only one night
- Surge & Wind Damage
- 966hpa at the landing ?



Cyclone Preparedness Program ("CPP") in Bangladesh



National

Early Warning Disseminate from BMD in Dhaka

Evacuation



Local

Local District (Tana)



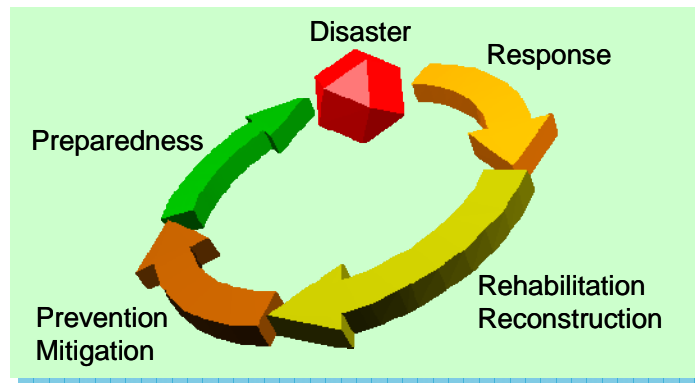
Community



- The program have started since 1970 after the huge losses of Cyclone. One night wiped out over 400,000 human lost.
- Volunteer Staff (over 42,000) circulate the village to disseminate the Early warning with hand microphone
- Sustain for over 30 years with no fee !



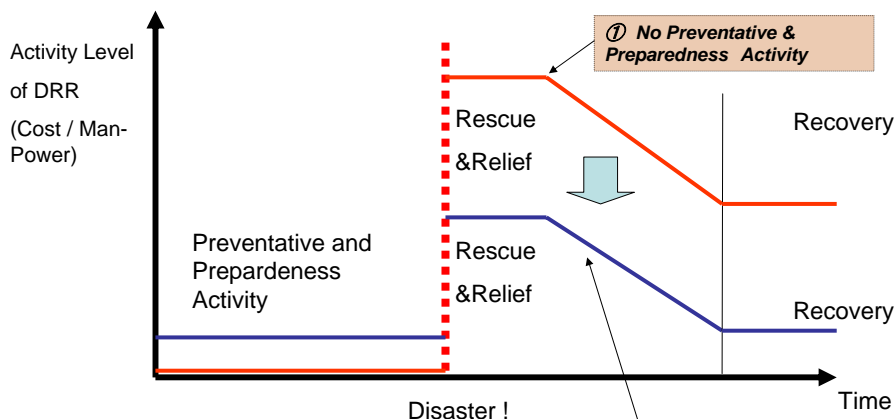
Incorporation CBDRR into All Phases of Disaster Management Cycle



- To mitigate the possibility of the disaster losses before the disaster is more important to respond the disaster it self.



Cost Effectiveness of Preventative & Preparedness Activity



Preventative activity decrease the total cost of disaster risk management after the disaster, it is a cost effective way and mitigate the human and property losses.



ADRC's Activity on the CBDRR

- Community Risk Awareness (PNG Case)
- How to motivate the community's risk awareness ?
 - Return Period of the Natural Disaster
 - Low Probability and High Impact Event
 - After the Natural Disaster (Sri Lanka's Case)
- Effective Approach of CBDRR
 - -Community Based Hazard Mapping (India)



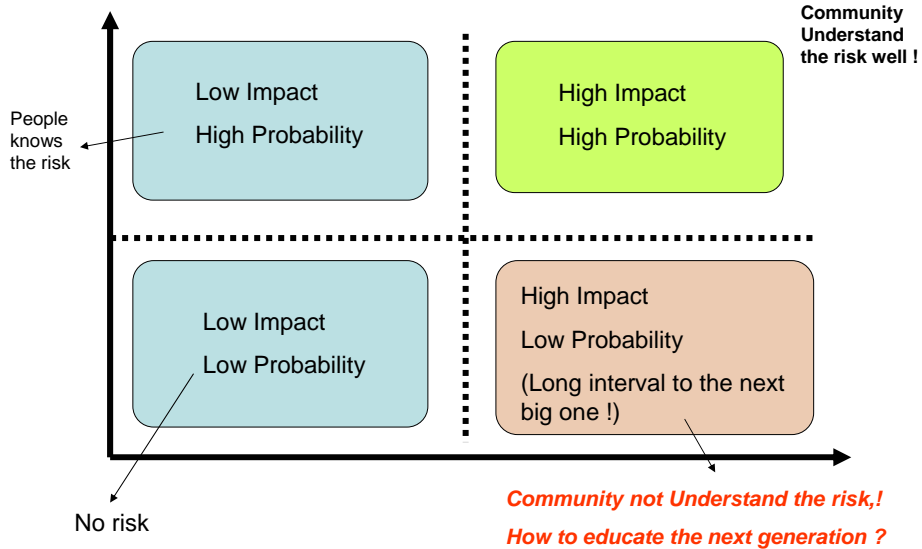
Successful Case on the Risk Awareness Program After Aitape Tsunami

- In 1998, an earthquake M 7 occurred, with the epicenter 30 kilometers from the coast of north-west Papua New Guinea, the Aitape tsunami struck the west coast in Sandaun Province causing the death of **2,022 people** and destroying entire villages and leaving thousands homeless.
- After the Aitape Tsunami, ADRC have had a project with PNG on the enhancement of the community risk awareness to the tsunami.
- In 2000, an earthquake M8 occurred off the Papua New Guinea coast. While it created a tsunami that destroyed thousands of houses, fortunately there were **no human losses**.
- **Program was so effective ! and also people remember the past tsunami event for 5 years !**

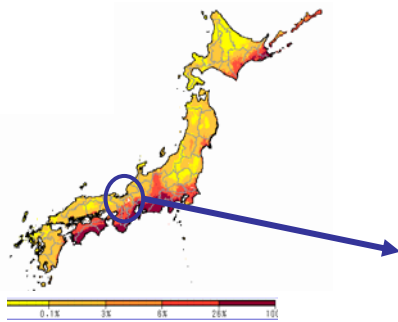




Risk Map and the Difficulty of the Implementation of CBDRR

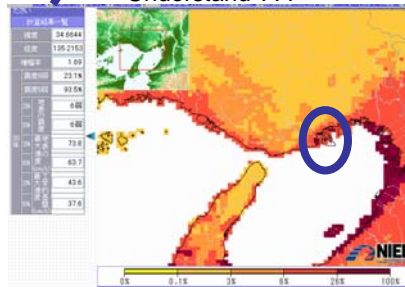


EQ Hazard Map as an effective tool to enhance the community risk awareness ?



EQ hazard at Kobe is shown on the map with orange color that means the ground acceleration at Kobe will be exceeding over 73.8Gal on the ground with 3% the occurrence probability in the next 30 year

What does it means ? Easily Understand ???



Is it easy to understand for the community people for their DRR ?

NIED: JSHIS: Japan Seismic Hazard Information Station
<http://www.j-shis.bosai.go.jp/>



Bridging Risk Perception Gap

- Despite best endeavors, the number of people affected and economic losses caused by natural disasters have been increasing over recent decades.
- Lack of proper recognition of risks is one of the major factors aggravating this situation.
Our society is vulnerable to disasters due to, among other things, "risk perception gaps", i.e. a disparity between the actual risk and that recognized by people.
- Therefore, it is vital that we plug this gap in order to lessen the negative impact of disasters.

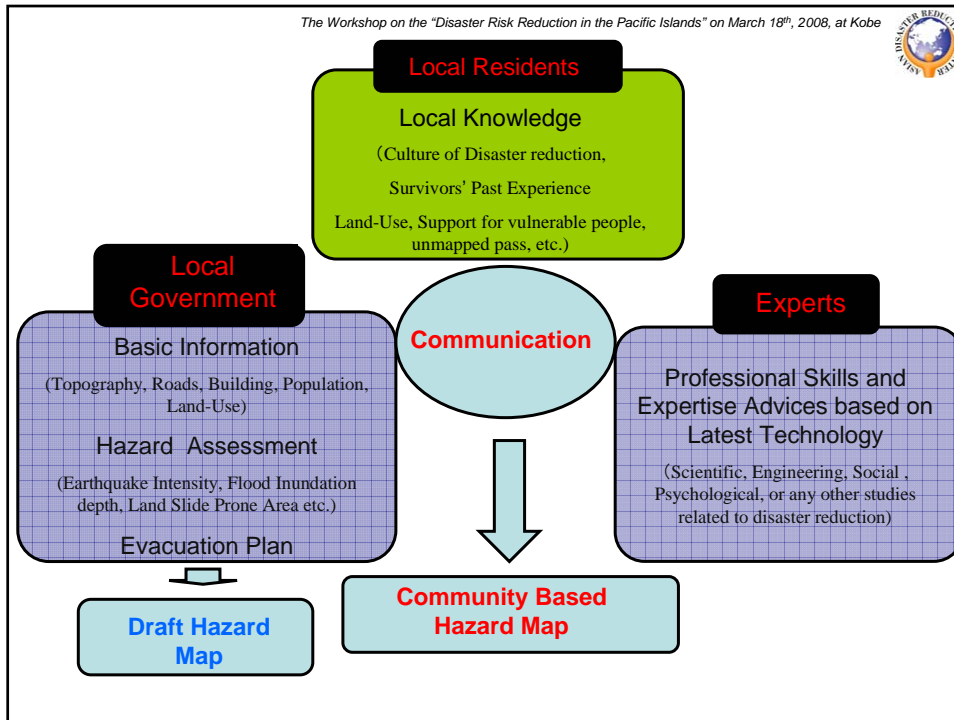


What is Community Based Hazard Mapping ?

- "Community Based Hazard Mapping" (CBHM) has been used in some countries as a tool for improving disaster preparedness. This approach focuses on the process of developing hazard maps, not just their distribution.
- The premise is that by working through the process, communities will gain enhanced awareness of risks, thereby bridging the risk perception gap.
(Communication Process is Important !)

CBHM has three key objectives:

- 1) To involve local residents in developing the hazard map for their community
- 2) To reflect the options of local residents in policies made by their local government
- 3) To foster common understanding of risks among local residents, government officials and experts.



Community Based Hazard Mapping

Step 1 Field Survey

Residents, officers in local gov't and experts survey the positive and negative features relating to the disaster risk by walking around the town.



Step 2 Development of a Map

Visualize the observations and findings on the map. Enhance the awareness and cooperation through the joint activities.



Step 3 Discussion and Presentation

What are the problems? Who is responsible?
What are the countermeasures?
Let's share the information.





Example of Community-based Hazard Map



Promotion of appropriate awareness raising initiatives on disaster reduction through self-help, mutual help and public help



Sustainability of the DRR Activity

- After conducted the "CBHM" to the community, everyone says "It is a good program for the community !".
 - However, how to continue the activity for the future ?
 - In case of no grant provided by donors for the project, where does the project go ?
 - What is the incentive of the community ?
It's a difficult problem !
- Ex. *Make a Voluntary System such as "CPP" in Bangladesh
Galle Project in Sri Lanka
(not so far from the Indian Ocean Tsunami)*



Sustainability "Create a DRR Culture"

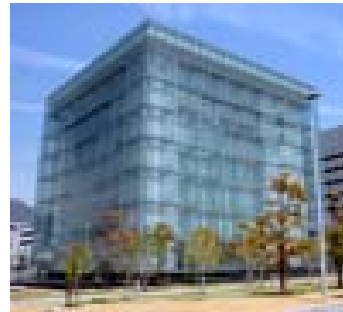
1. Incorporate the DRR activity into the other activity that continue for a long time.

Ex. Education System (DRR School Curriculum, "Inamura-no hi")

2. Establish the Disaster Memorial Day
*Ex. Sept.01 National Disaster Memorial Day from 1960
(Great Kanto EQ in 1923; Killed over 105,385)
Jan.17 Hyogo Disaster Memorial Day from 1996
(Great Hansin EQ in 1995)*
3. Disaster Museum
4. Disaster Monument



The Raising Water Level at the Past Typhoon Flood at JR Amagasaki Station



Tsunami Height at Sanriku



Evacuation Training at Kindergarten on the National Disaster Day 09.01



Summary

- "Self-Help", "Mutual-Help", "Public-Help"
(Limitation of the rescue activity by Public at the disaster)
- Incorporation of the Community DRR activity into all phase of the disaster cycles (Cost Effective !)
- ADRC's Community Based DRR Activities
- Sustainability



Regional Cooperation within the Pacific Islands

- Information exchange with other region
- Strengthen the Regional Cooperation within the region
ex; Central Asia/SAARC
 - *Newsletter*
 - *Workshop (Training of Trainers etc.)*
 - *Collection Indigenous Knowledge*
 - *Vulnerability Map Development*
- DRR Project in other region (SAARC)
 - *Vulnerability Atlas using the satellite technology*
 - *Collection of the indigenous knowledge on DRR in the region*