

**RESEARCH REPORT ON  
A COMPARATIVE STUDY OF DISASTER  
MANAGEMENT SYSTEM & COMMUNITY  
PARTICIPATION IN BANGLADESH & JAPAN**

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KOBE,JAPAN,9<sup>TH</sup> APRIL,2011**

Mina sama ,Konnichiwa, Suvo Din



## My Research plan

- Study the community participation during disaster in Japan and Bangladesh.
- Learn basic ideas for preparing community through learning, training & drill in Japan.
- Conduct case study on the behavior of the community in response to disaster in Japan.
- Study the community participation and adaptation during disaster in Japan & Bangladesh.

## Specific Aims of the research

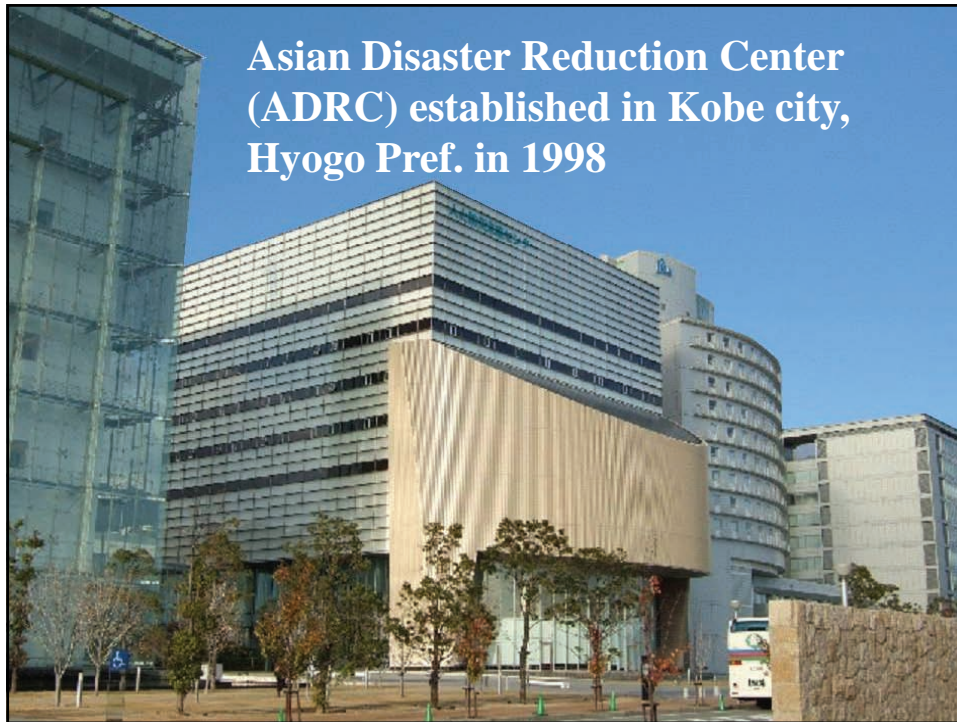
- Gather knowledge & skills from the DM system in Japan especially the techniques of community mobilization
- Mainstreaming disaster risk reduction and strengthening of community institutional mechanisms
- Empowering community at risk particularly women, the poor & disadvantages.
- Involving local community/stakeholders in disaster response and post disaster recovery & decision making process

## Specific Aims (continued)

- Expanding disaster risk reduction programming across a broader range of hazards
- Strengthening emergency response system & early warning system in Bangladesh
- Replicating Japanese vast experience on DM in Bangladesh
- Prepare recommendations for improvement of DR in Bangladesh

## Research Methodology

- Analytical methods used to develop a prediction between community participation in Japan and compare it with Bangladesh.
- Interview, secondary methods of data analysis(qualitative analysis) on community mobilization in Japan and Bangladesh



# Japanese Government System

## 3 Layers of Government

### National Government

(Prime Minister is elected by the National Diet)

### 47 Prefectural Government

(Governor is elected by the residents)

Most Populated Prefecture: Tokyo 12 million

Least Populated Prefecture: Tottori 0.6 million

*(Population data based on national census in 2007)*

### 1,804 Cities, Towns, Villages Municipal Government

(Mayor is elected by the residents)

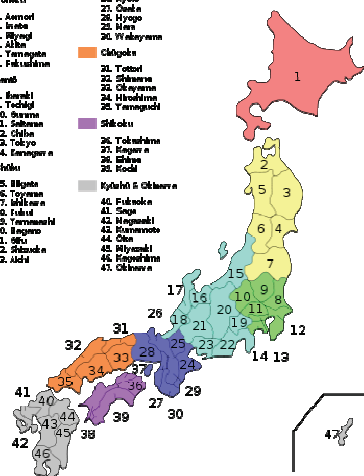
*(as of March 2011)*

### Residents

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## Regions and Prefectures of Japan

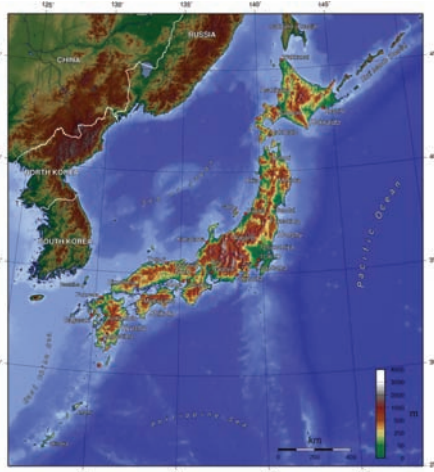
- |                 |                             |
|-----------------|-----------------------------|
| <b>Hokkaidō</b> | <b>Kansai</b>               |
| 1. Hokkaidō     | 24. Mie                     |
| <b>Tōhoku</b>   | 25. Shiga                   |
| 2. Aomori       | 26. Kyoto                   |
| 3. Iwate        | 27. Osaka                   |
| 4. Miyagi       | 28. Hyogo                   |
| 5. Akita        | 29. Wakayama                |
| 6. Yamagata     | <b>Chūgoku</b>              |
| 7. Fukushima    | 30. Tokushima               |
| <b>Kanazawa</b> | 31. Kagawa                  |
| 8. Kanazawa     | 32. Ehime                   |
| 9. Toyama       | 33. Kochi                   |
| 10. Ishikawa    | <b>Shikoku</b>              |
| 11. Fukui       | 34. Tokushima               |
| 12. Saitama     | 35. Kagawa                  |
| 13. Chiba       | 36. Ehime                   |
| 14. Tokyo       | 37. Kochi                   |
| 15. Kanagawa    | <b>Kyūshū &amp; Okinawa</b> |
| 16. Chiba       | 40. Fukuoka                 |
| 17. Saitama     | 41. Saga                    |
| 18. Chiba       | 42. Nagasaki                |
| 19. Tokyo       | 43. Kumamoto                |
| 20. Kanagawa    | 44. Ōita                    |
| 21. Chiba       | 45. Miyazaki                |
| 22. Saitama     | 46. Kagoshima               |
| 23. Chiba       | 47. Okinawa                 |



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## National Disasters in Japan

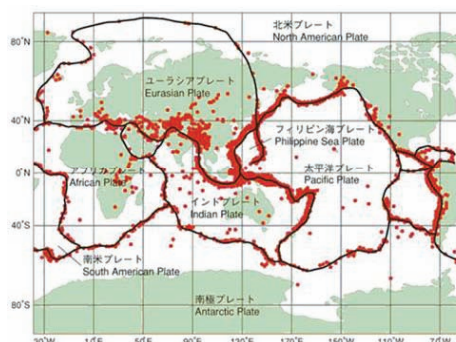
A Highly Developed country and  
a Country vulnerable to Disaster



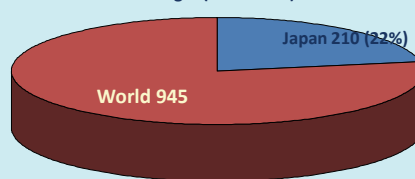
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## Natural Disasters in Japan

- Earthquake
- Tsunami
- Volcanic Eruption
- Typhoon
- Flood
- Landslide
- Snow Fall (Avalanche)



Number of earthquakes with magnitude of 6.0 or larger (1995-2011)



## Recent Strong Earthquakes

Year	Earthquake (Magnitude)	Death Toll
1945	Mikawa Earthquake (M6.8)	2,306
1946	Nankai Earthquake (M8.0)	1,330
1948	Fukui Earthquake (M7.1)	3,769
1952	Tokachi-oki Earthquake (M8.2)	33
1960	Chile Earthquake & Tsunami (M8.5)	139
1964	Niigata Earthquake (M7.5)	26
1968	Tokachi-oki Earthquake (M7.9)	52
1974	Izu-hanto-oki Earthquake (M6.9)	30
1978	Izu-Oshima Kinkai Earthquake (M7.0)	25
1978	Miyagiken-oki Earthquake (M7.4)	28
1983	Nihonkai Chubu Earthquake & Tsunami (M7.7)	104
1984	Nagano-ken Seibu Earthquake (M6.8)	29
1993	Hokkaido Nansei-oki Earthquake & Tsunami (M7.8)	230
1995	Hanshin-Awaji <Kobe> Earthquake (M7.3)	6,436

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## Recent Strong Typhoons

Year	Typhoon	Death Toll
1945	Makurazaki Typhoon	3,756
1947	Catherine Typhoon	1,930
1948	Ion Typhoon	838
1950	Jane Typhoon	539
1951	Ruth Typhoon	943
1954	Toyamaru Typhoon (with big ferry shipwreck)	1,761
1958	Kanogawa Typhoon	1,269
1959	Ise-wan Typhoon	5,098

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## 2011 Great East Japan Earthquake



## 2011 Great East Japan Earthquake Victim





## Pray for Japan



## Pray for Japan



## Help Japan



## 2011 Great East Japan Earthquake Devastation



## 2011 Great East Japan Earthquake Victims



## 2011 Great East Japan Earthquake Devastation



## Profile of the 2011 Great East Japan Earthquake

- **Date and Time:**
  - 11 March 2011 at 14:46 JST (5:46 GMT)
- **Areas affected by the quake:**  
IWATE, MIYAGI, FUKUSHIMA, IBARAKI, CHIBA
- **Type of earthquake:**
  - Plate-boundary thrust-faulting earthquake on or near the Japan Trench subduction zone
- **Hypocenter:**
  - 130km off the Pacific coast of Tohoku region
  - (38°N, 142°E ), 24km depth

## Profile of the 2011 Great East Japan Earthquake (continued)

- **Magnitude:**9.0 (interim value, in Japan Source: OCHA Situation Report No.1 the largest and the 4th largest in the world)
  - c.f. 1960 Chile Earthquake M9.5
  - 1964 Alaska Earthquake M9.2
  - 2004 Sumatra Earthquake M9.2
- **Damage:**
  - The destruction of social infrastructure, housing and corporate facilities is estimated to cost
  - between 16 and 25 trillion yen (Cabinet Office)

## Total of Loss of lives & Property at a Glance

- Dead people : 14,084
- Missing people :13,511
- Injured person : 5302
- Shifted to temporary shelters :1,63,000
- Houses collapsed totally : 68,005
- Houses collapsed partially : 23,382
- Total Economic loss : 25 Trillion Japanese Yen  
( Sources : National police Agency , Economic Experts, News Papers , Japan)

## Profile of the 2011 Great East Japan Earthquake (continued)

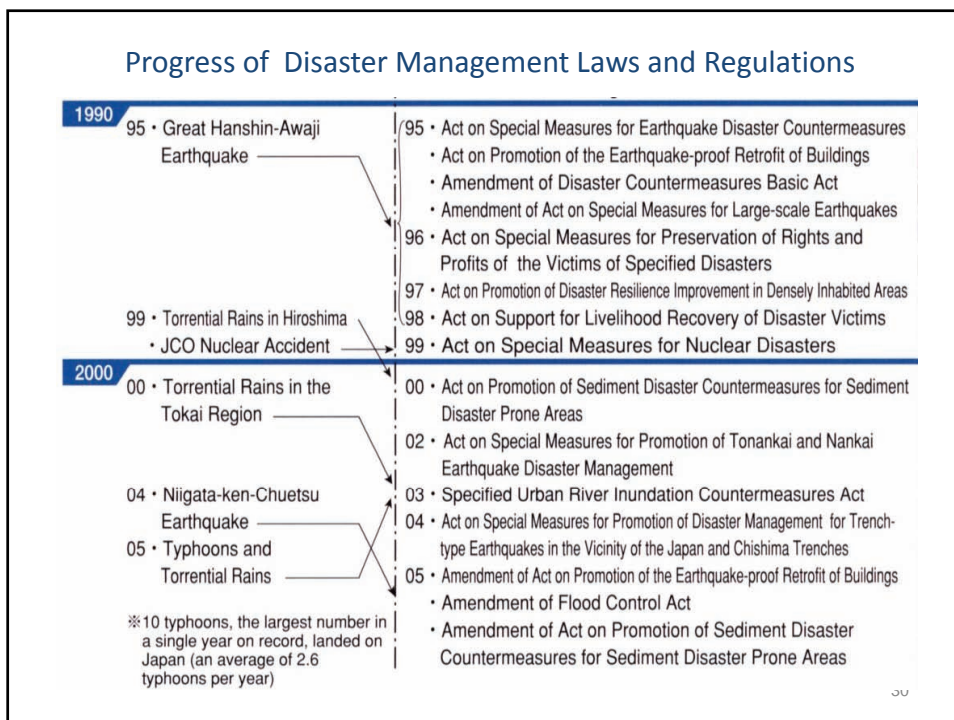
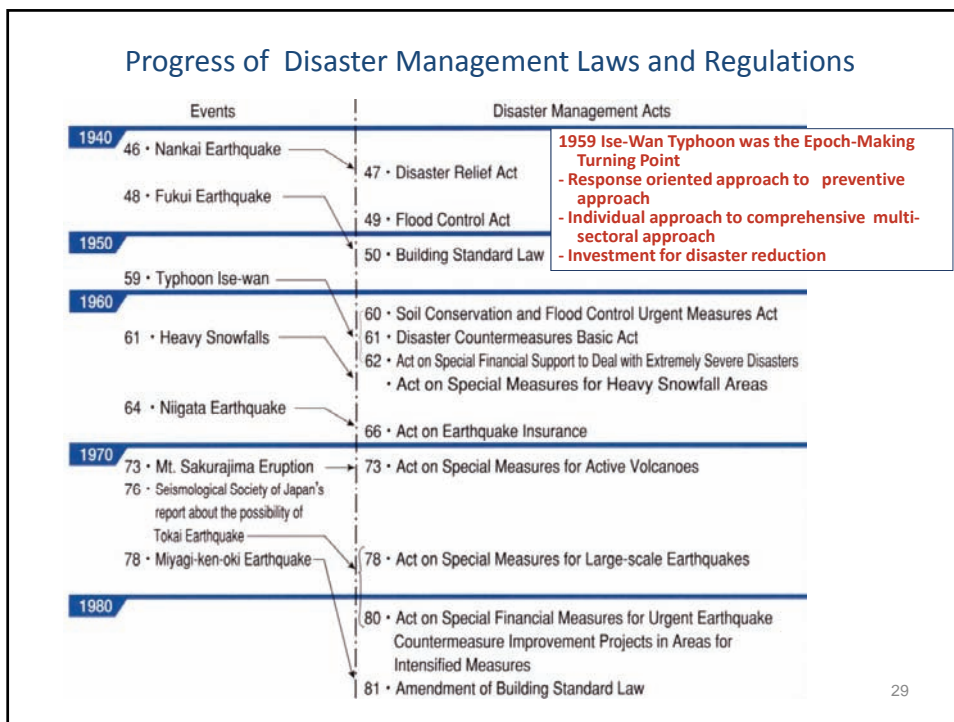
- **The areas hit by the Great Eastern Japan Earthquake are known to be vulnerable to tsunami, as they were recurrently hit by tsunami.**
- **Large offshore earthquakes occurred in the same subduction zone in 1611, 1896, and 1933.**
- **Each of earthquake caused devastating tsunami on the coast.**
- **Large inter-plate earthquakes had been predicted to occur in this region with 99%probability within thirty years and the magnitudes ranging from M7.5 to M8.0. (Source: The Headquarters of Earthquake Research Promotion)**

## Profile of 2011 Great East Japan Earthquake (Cont.)

- The March 11 earthquake was much bigger than predicted, recording M9.0 and the rupture zone stretched 500 km length and 200 km width.
- It is the 4th strongest ever recorded in history around the world.
- Some experts say that the occurrence of this kind of earthquake and tsunami is by one thousand return period.
- Source: USGS

## Japan's Disaster Management System





### Learning from experiences

1946 Nankai Earthquake → 1947 Disaster Relief Act

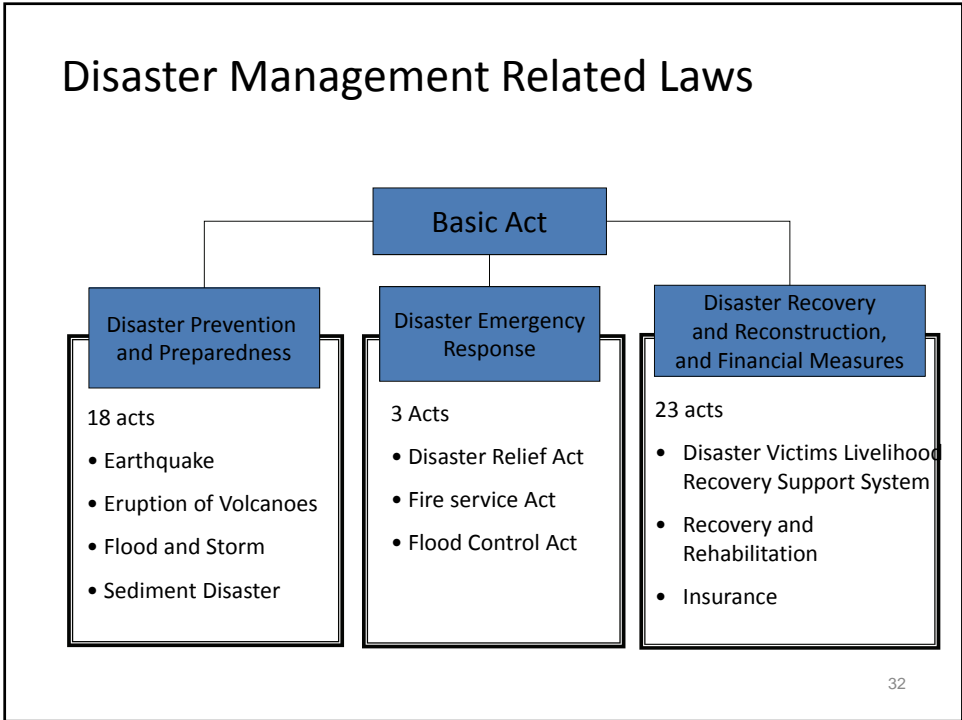
1948 Fukui Earthquake → 1950 Building Standard Law

1959 Ise-wan Typhoon → 1961 Disaster Countermeasures Basic Act

1964 Niigata Earthquake → 1966 Act on Earthquake Insurance

1995 Hanshin-Awaji Earthquake → **1995 Amendment of Disaster Countermeasures Basic Act**  
**Amendment of Act on Special Measures for Large-Scale Earthquakes**  
**Act on Support for Livelihood Recovery of Disaster Victims**

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## Disaster Countermeasures Basic Act (1961)

Disaster Management Council at national/ prefectural/ municipal level

→ cross-sectoral coordination body

Disaster Management Plan at national/ prefectural/ municipal level

→ Disaster management planning system

Ad-hoc Headquarters for emergency response

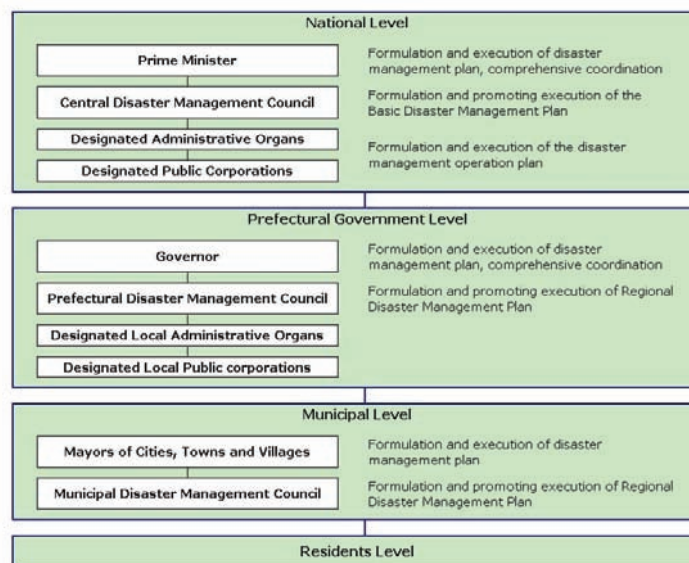
→ Cross-sectoral body in case of emergency

Annual Gov't Official Report (White Paper) on Disaster Countermeasures

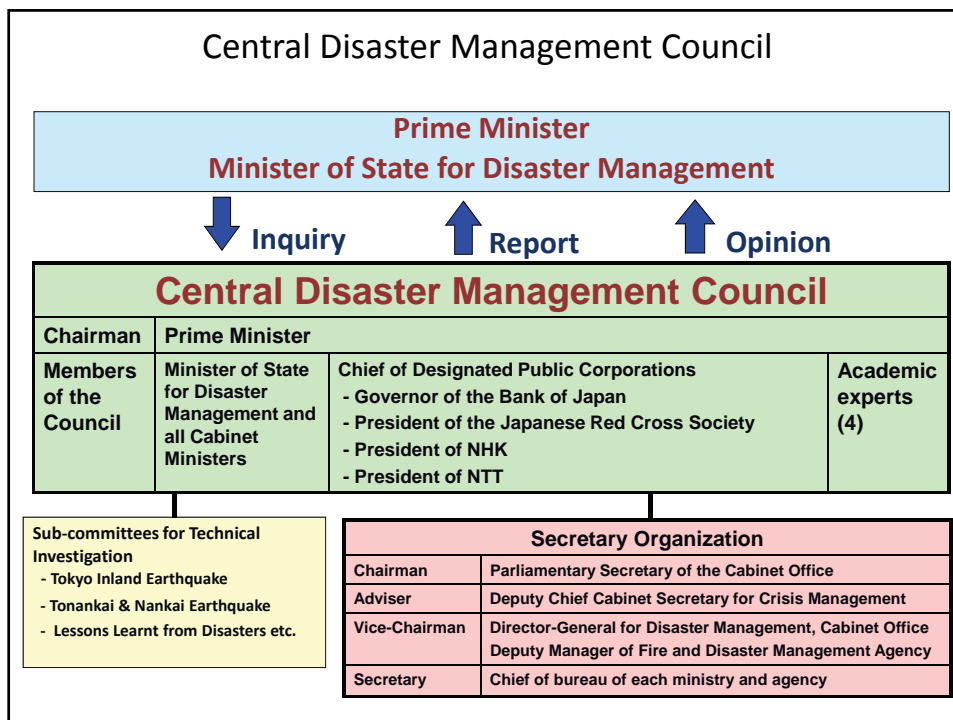
→ Raise awareness among politicians, public, etc.

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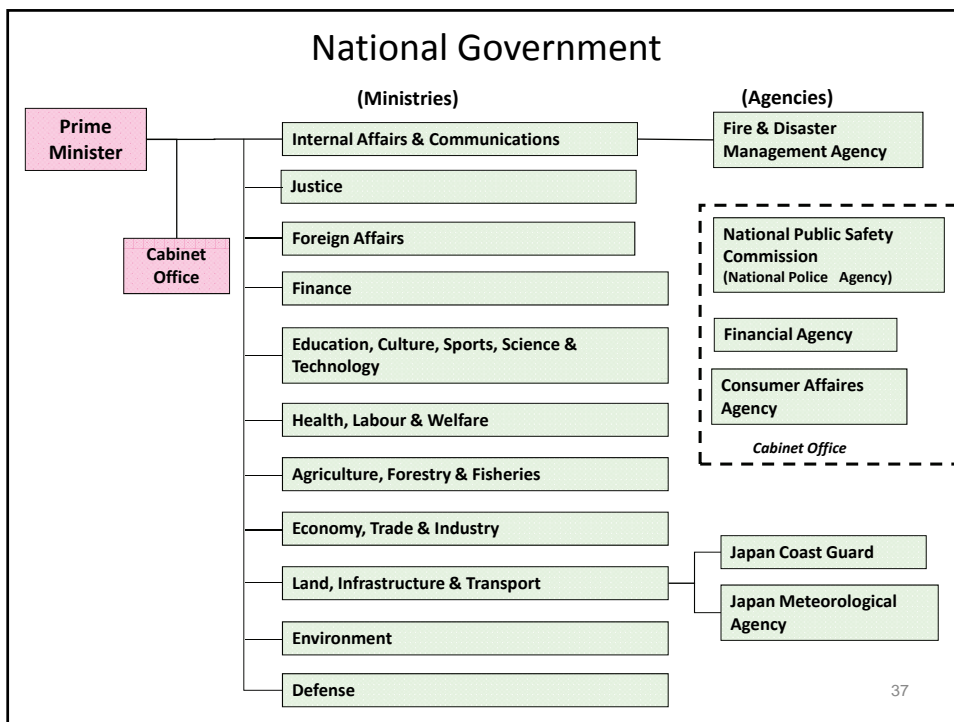
## Disaster Management in 3 Layers



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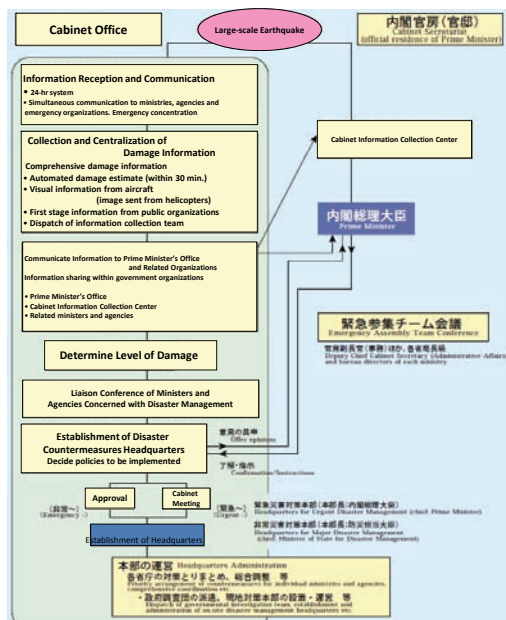
- Duties of Central Disaster Management Council**
- **Prepare and promote implementation of the Basic Disaster Management Plan**
  - **Deliberate important matters pertinent to disaster management according to requests from the Prime Minister and/or Minister of State for Disaster Management**
  - **Offer opinions regarding important matters pertinent to disaster management to the Prime Minister and Minister of State for Disaster Management**
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## Disaster Emergency Response

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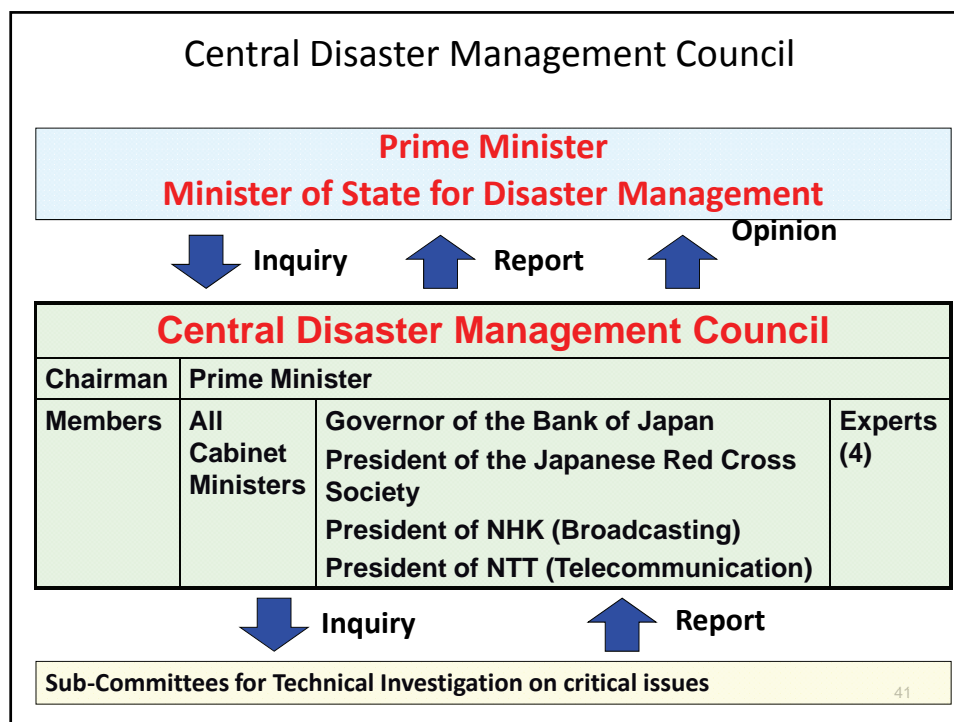
### Disaster Emergency Response of the Cabinet Office



### Volunteer Activities on Recent Disaster

Disaster	Numbers of volunteers (man-days)	Remarks
Grate Hanshin-Awaji Earthquake, January 1995	1,377,300	Hyogo Prefecture
Oil Spillage Accident by Wordage of a Tanker, January 1997	274,604	





## Sub-committees for technical investigation

### At present

- Countermeasures for the Tonankai and Nankai earthquakes (2011 -)
- Lessons learnt from Past Disasters (2003-)
- The Promotion of Nationwide Movement for Disaster Management
- Evacuation measures for the Tokyo Inland Earthquakes
- Large-Scale Flood Countermeasures

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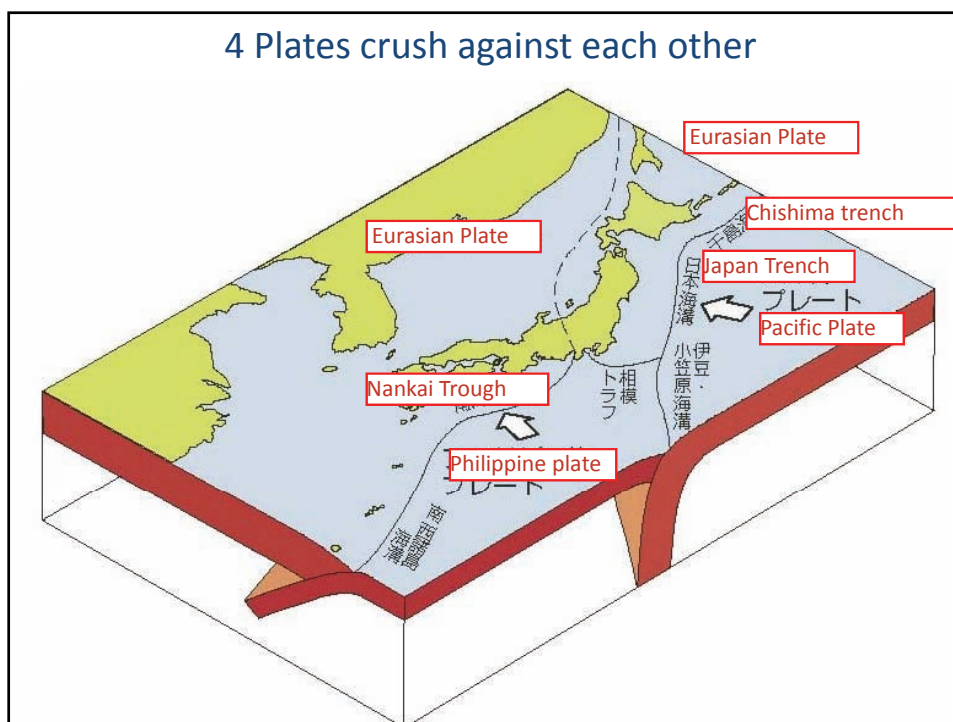
## Sub-committees for technical investigation

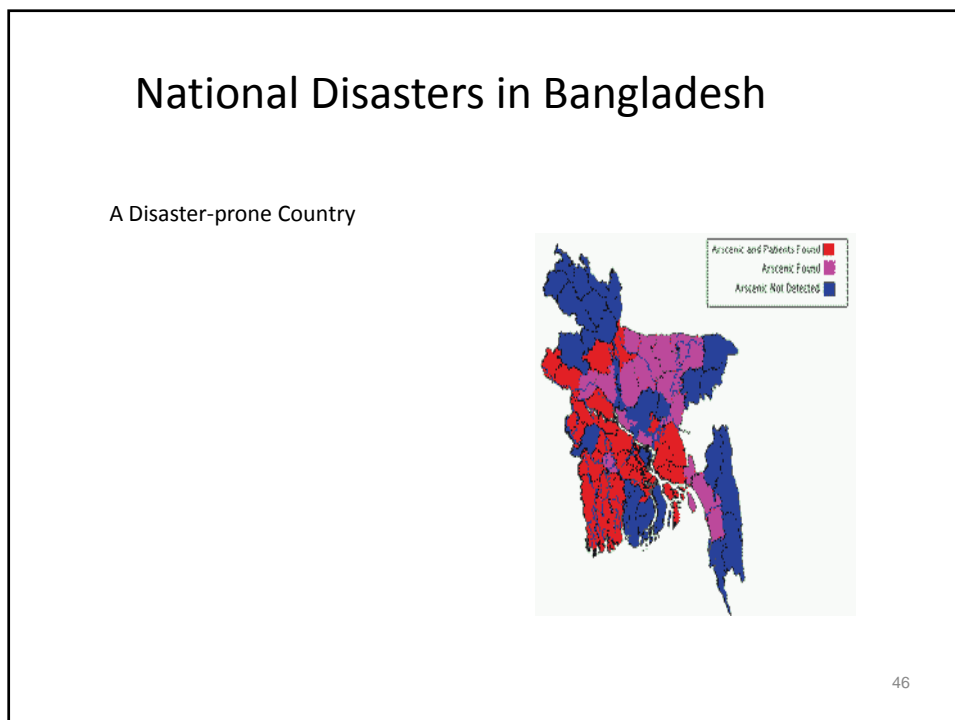
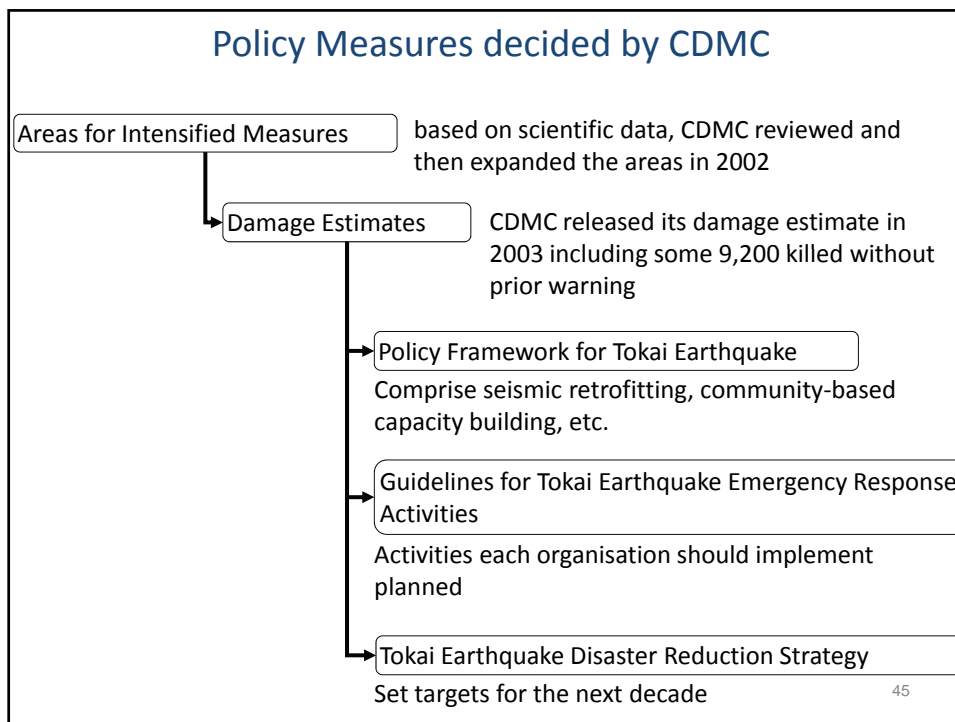
### In the past

- the Tokai Earthquake
- Information Sharing in Disaster management
- The Use of the Private Sector in Disaster Management
- the Tokyo Inland Earthquake
- The Trench-type Earthquake in the Vicinity of the Japan and Chishima Trenches

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## 4 Plates crush against each other





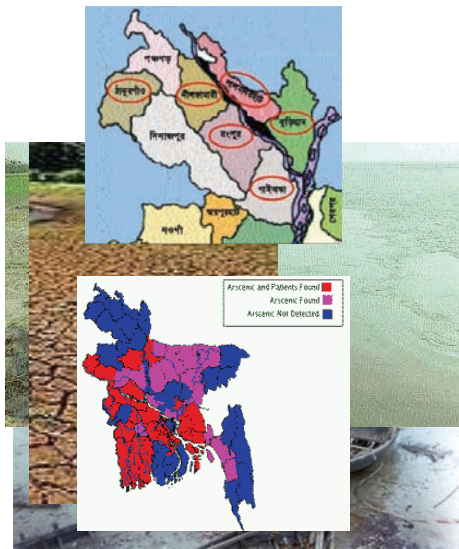


**Bangladesh have inherited the typical characteristics of one of the most natural disaster prone countries of the world due to geography, topography and geophysical location. Flood and cyclone related losses almost every year create a major set-back for the sustainable development of the country.**

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Disasters and Bangladesh																																								
Major Hazards	Major Disasters																																							
<ul style="list-style-type: none"> <li>◆ Flood</li> <li>◆ Tropical Cyclone</li> <li>◆ Storm Surge</li> <li>◆ Tornado</li> <li>◆ River Bank Erosion</li> <li>◆ Drought</li> <li>◆ Earthquake</li> <li>◆ Arsenic</li> <li>◆ Fire</li> </ul>	<table border="1"> <thead> <tr> <th colspan="3">Year Disaster Death</th> </tr> </thead> <tbody> <tr> <td>1970</td> <td>Cyclone</td> <td>300,000</td> </tr> <tr> <td>1988</td> <td>Flood</td> <td>2,373</td> </tr> <tr> <td>1988</td> <td>Cyclone</td> <td>5,704</td> </tr> <tr> <td>1989</td> <td>Drought</td> <td>800</td> </tr> <tr> <td>1991</td> <td>Cyclone</td> <td>138,868</td> </tr> <tr> <td>1996</td> <td>Tornado</td> <td>545</td> </tr> <tr> <td>1997</td> <td>Cyclone</td> <td>550</td> </tr> <tr> <td>1998</td> <td>Flood</td> <td>1,050</td> </tr> <tr> <td>2004</td> <td>Flood</td> <td>747</td> </tr> <tr> <td>2007</td> <td>Flood</td> <td>1,071</td> </tr> <tr> <td>2007</td> <td>Cyclone(SIDR)</td> <td>3,406</td> </tr> <tr> <td>2009</td> <td>Cyclone Aila</td> <td>190</td> </tr> </tbody> </table>	Year Disaster Death			1970	Cyclone	300,000	1988	Flood	2,373	1988	Cyclone	5,704	1989	Drought	800	1991	Cyclone	138,868	1996	Tornado	545	1997	Cyclone	550	1998	Flood	1,050	2004	Flood	747	2007	Flood	1,071	2007	Cyclone(SIDR)	3,406	2009	Cyclone Aila	190
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## Major Hazards of Bangladesh



Floods



Cyclone, Tornado and Storm surge



Drought



River bank erosion



Water logging



Salinity

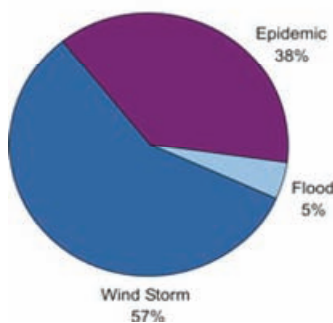


Monga

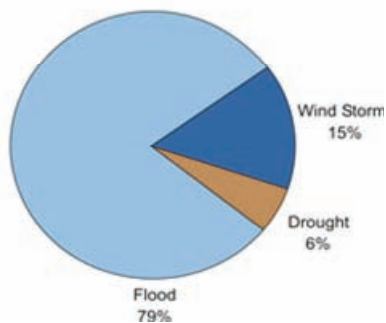
Arsenic

## Natural Disaster from 1904-2004

Percentage of people killed by disaster type



Percentage of people affected by disaster type



Source : ISDR website

## Bangladesh's Disaster Management System

### Disaster Management in Bangladesh: An Evolution

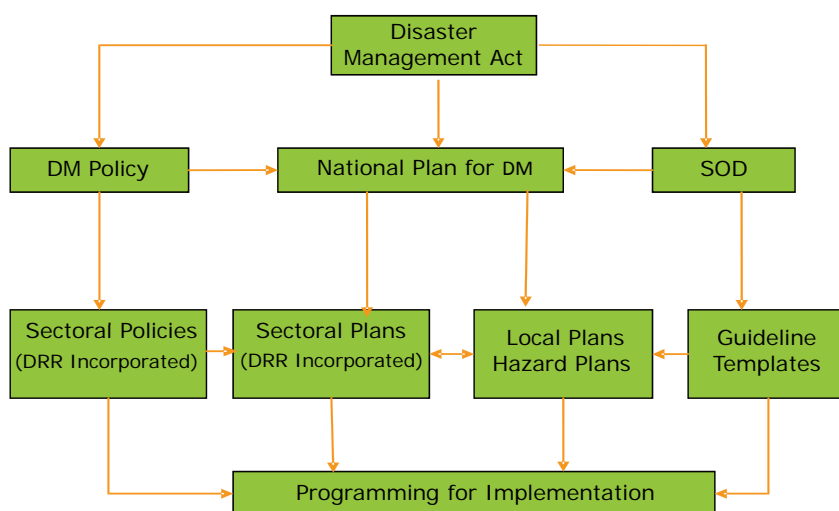
- Disaster Management in Bangladesh had gone through a significant reforms, previously the focus was limited in relief activities
- Following the devastating cyclone of 1991, the focus has been shifted towards adaptation of a holistic approach that embraces processes of hazard identification and mitigation, community preparedness and integrated response.



## Permanent Water Logging After Tidal Surge



### Disaster Management Regulative Framework



## Floods in Bangladesh



**☒ Disaster Management Legislation and National Disaster Management Plan has for final approval with the purpose of providing for the formulation of disaster management policy relating to preparedness and emergency measures, and rehabilitation program to deal with disaster.**

**☒ As part of training and public awareness nearly 70000 people related to disaster have been trained through 700 courses/workshops/seminars.**

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## Cyclone Devastated Area



## Bangladesh Government System

### 4 Layers of Government

**National Government**

(Prime Minister is elected by the National Assembly)

**07 Division**

**64 Districts**

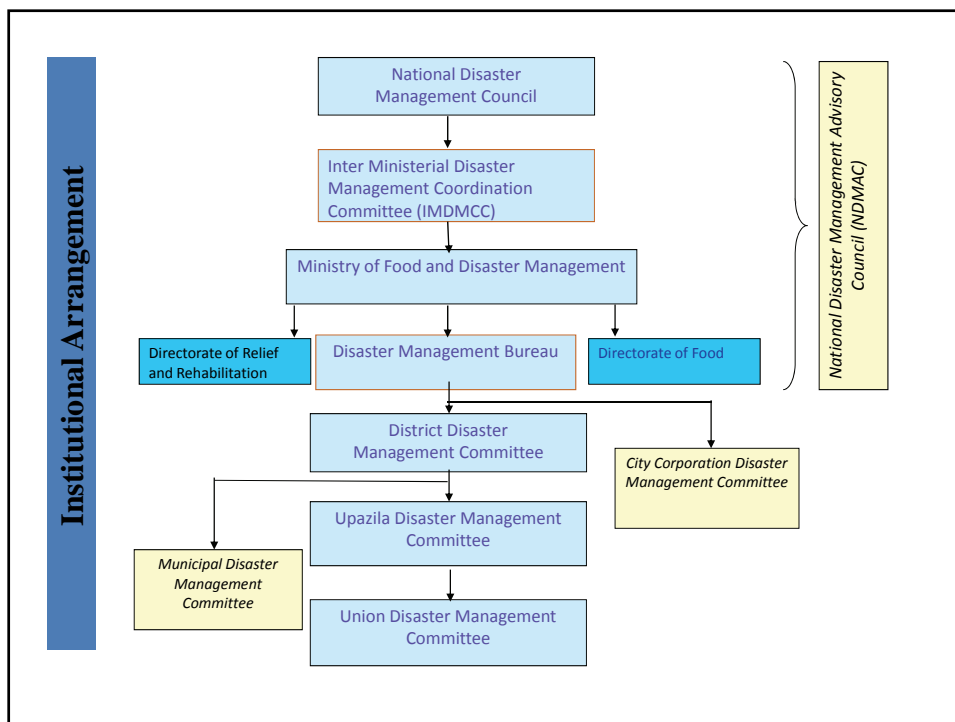
(90, Mayor is elected by the residents)

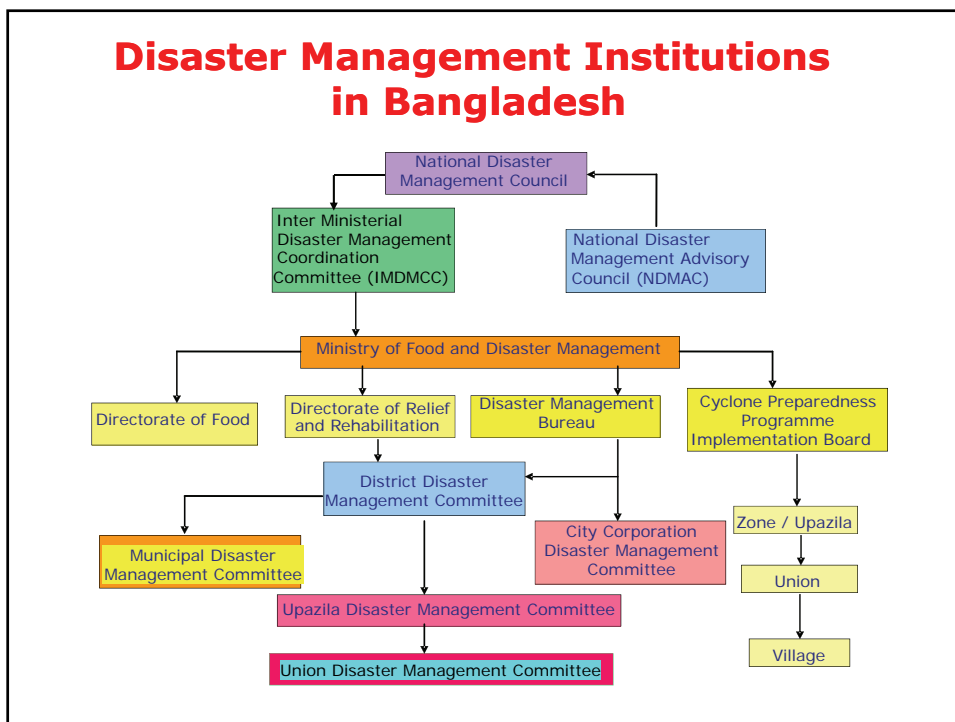
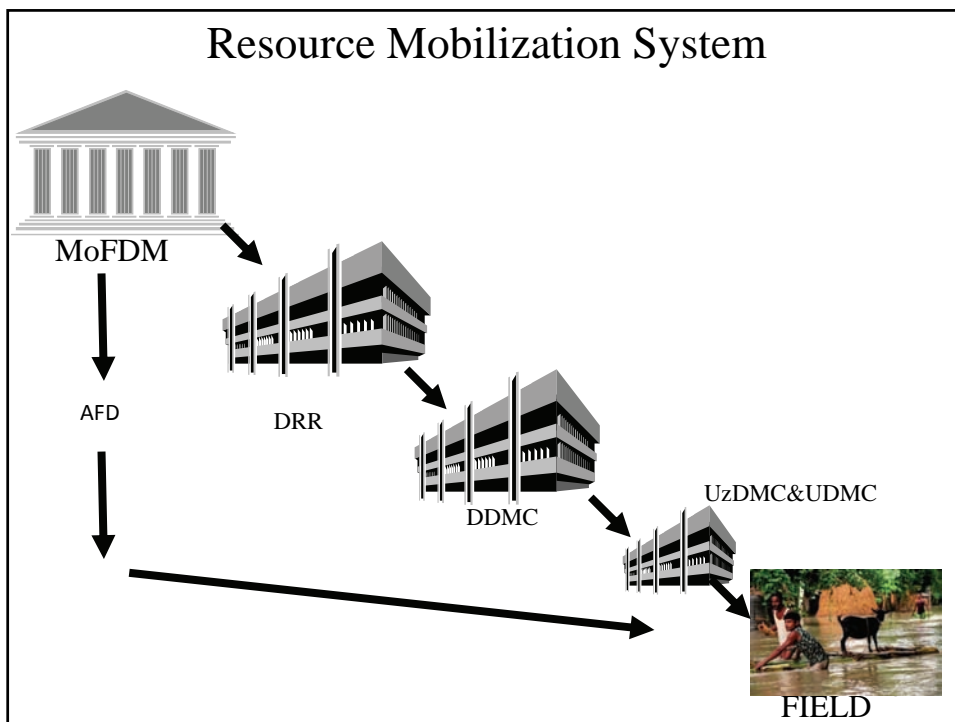
*(as of March 2011)*

**470 sub-district, 4500 union council**

# Disaster Emergency Response

## Bangladesh Perspectives





## Meaning of community Development

- A community development includes both software structures: community Based organizations and hardware aspects: includes roads and infrastructures.
- **Holistic-ness:** How the system can be developed
- **Voluntary:** handmade development, creation of an environment to take advantage the characteristic of the community
- **Cooperation:** Implementing development to everybody, not only participations but networking different types of people different backgrounds.
- **Sustainability:** Involve in recovery and sustain as development in daily life.

## Community Action

- Risk reduction steps are most successful when they involve direct participation of people to be exposed to hazards in planning, decision making, community mobilization, enhance capacity & responsibility of the community
- In theory, its easy to define the role of community, but in practice its difficult to involve community in the time of disaster.

## Community Participation & Recovery

- According to professor Yoshiter Murosaki, there are 3 types of Recovery Momentum from Disaster:
- Momentum from Lessons : Recovery( disaster utopias & rehabilitation process) occurs after destruction
- Momentum to rebound from crisis: Dame it ,I will get over this
- Project Momentum: The energy from support by concentration of global assistance and projects according to the needs of the community.

## Objectives & Challenges of Recovery

- To immediately work towards disaster recovery
- Whether it has become safer than before
- To solve the contradictions and issues faced by the subject community
- Principle Objective of Recovery is to “create value” by learning from lessons.



## Pillars of Community Development

- According to Mr. Hisanori Nakayama(DG, Urban Development Department , Kobe City 3 pillars of community development with resident's participation are:
- **Establishment of Local Consultation Centers:** After the great Hanshin-Awaji Earthquake
- **Establishment of Community Development Council:** organize community as a group rather to act individually
- **Dispatching Community Consultants:** Hyogo prefecture Government dispatched consultants for 2 way communication between local government and community members, to assess the needs of the community and to ensure resident's participatory strategy after the Great Hanshin-Awaji earthquake

## Principles of Recovery from Disaster

- To sustain local society or community
- To carry on local cultures of the community
- To utilize local resources

## Community Mobilization in Bangladesh

- Non structural /software measures on DM in Bangladesh includes creating public awareness through community participation, training/drills of community members and school children
- Structural/hardware measures includes construction of roads, bridges, embankments and cyclone shelters
- During post disaster emergency survival needs meet by people themselves & neighborhood or community NOT the government, private or foreign organizations
- Enhance of the capacity of community combining both structural and non-structural measures thru massive public awareness program(PAP) is the policy of Government

## Community resilience after disaster



## Community Mobilization and Disaster Mitigation in Bangladesh

- Government of Bangladesh gives equal importance to both structural and non-structural mitigation measures

### Structural Mitigation

- As part of structural mitigation GOB has so far constructed 20,23 cyclone shelters and 200 flood shelters

## Community Mobilization(continued)

- About 4000 km long coastal embankment to protect coastal land from inundation by tidal waves and storm surges and drainage channels of total length 4,774 km. have so far been constructed

### Non Structural Mitigation

- For non structural mitigation GOB has given emphasis on:
  - Legislation and policy
  - Training and public awareness

## **Cyclone Preparedness Program (CPP)**

- **Community Based Early warning through devoted volunteers.**
  - **A Joint Venture Program of GOB & BDRCS.**
- To minimize loss of lives and properties in cyclonic disaster by strengthening the capacity in disaster management of the coastal people of Bangladesh.**
- Covers 11 districts and 32 Upazilas (Sub-District).**
- Total Volunteers: 42675**

### **Community Adaptation by Informal Village Community Volunteers**

- Main Motto of community volunteers is “ self-help, mutual help and neighborhood help”
- Community participation in dissemination of early warnings to community through local and traditional early warning methods
- Leadership from union council/ward members proved effective
- Informal learning from experience, ancestor, nature & GO-NGO, INGO.

# Community Participation in Japan

A Review

Community Hall used as temporary  
shelter for Tohoku Earthquake victims



## The Great Hanshin-Awaji Earthquake and community participation

- After the Hanshin-Awaji EQ ,in 1995, necessity of social capital & collaborative community participation was needed
- Kobe City development ordinance passed in 1981
- This ordinance implemented through the partnership of prefecture govt. and community members
- Community participation played significant role for massive rebuilding & for initial settlement of houses

## Pictures of the great Hanshin-Awaji Earthquake



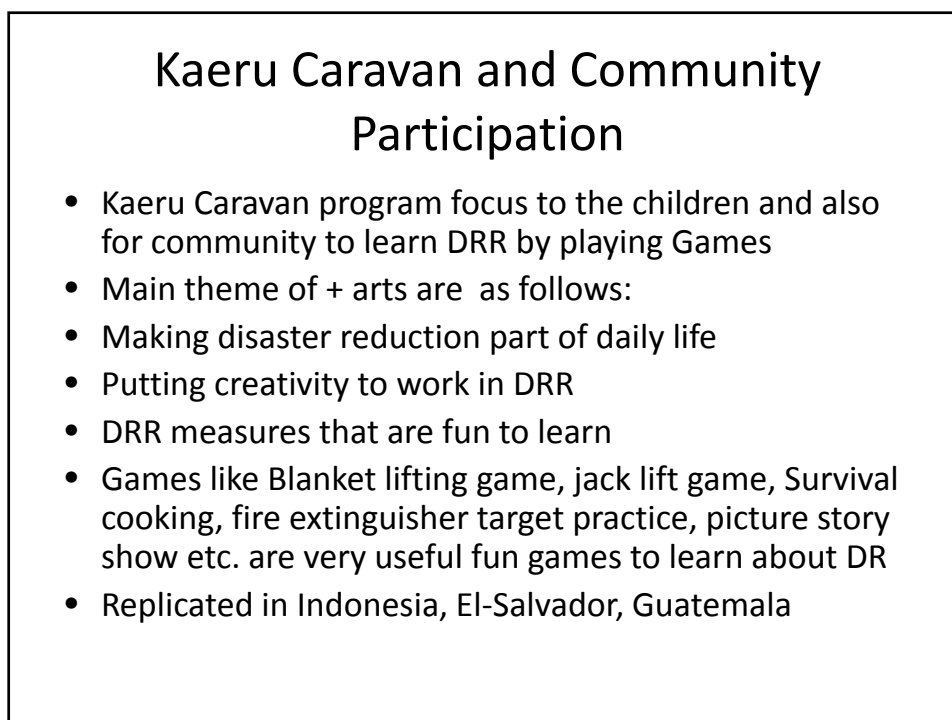
## The Fault line at Nojima of the great Hanshin-Awaji Earthquake



## Fire and Disaster Management Agency and community participation

- Disasters linked with fire in other words Fire and Disaster Management Agency(FDMA) linked with Disasters
- FDMA promotes disaster preparedness strategy(including anti-earthquake Measures) for safety of the community
- Promotes first aid education to community
- Promotes awareness against disasters through fire drills/training and simulation of community members at ward office/community hall
- Volunteer training and earthquake preparedness at home & work with furniture immobilized





## Iza! Kaeru Caravan! Activity



## Visit to Inamura-no-Hi Tsunami Village & Education Center



## Earthquake proof Building Technology



## Comparative Analysis of community participation in Japan & Bangladesh

### Japan

- Disaster prone. Volcanoes, earthquake,
- tsunami, typhoon & floods, landslides
- Geographic location at the ring of fire & colliding plate boundary
- Worst disaster in 2011 Tohoku earthquake claimed 14000 lives
- Severity and intensity more, loss of lives and property minimum
- Sufficient allocation (4.5 trillion Yen) of fund for DM & DRR and for R&D, technologically highly developed

### Bangladesh

- Disaster prone. Floods, Tidal surge, cyclones, tornadoes, tidal bore, earthquake, tsunami & landslides.
- Sub tropical monsoonal, heavy rainfall
- Worst disaster tidal surge in 1970 claimed 4,7000 lives
- Severity and intensity more, loss of lives and property more
- Insufficient allocation ( USD500 million )for DM & DR and for R&D , Technological Development

## Voluntary Activity in Kobe



## Comparative Analysis (Continued)

- Japan highly developed country and pioneer in DM & DRR
- Disaster management counter measures Basic Act formulated in 1961
- Enacted Building code in 1950 and retrofitted buildings & KPIs
- Many public and private organizations working on DM & DR
- Act on sediment Disaster
- Community mobilization best in the world. Large number of community volunteers and local residents worked in every disasters.
- Recovery from the Great Hanshin-Awaji EQ and community participation can be replicated.
- Bangladesh developing country
- Recent shift (in 1991) from relief to comprehensive DM and DRR
- Legal framework and DM Act Passed this year
- Building code enacted in 2006, Not implemented, no retrofitting of houses, and KPIs
- No land slide control Act
- Basically MOFDM, DMB & DRR(Public org) and few NGOs working on DM and DRR
- Community mobilization and community volunteers expanding gradually

## Visit to Sakurajima Active Volcano



## CBDM Project by UNCRD

- CBDM emphasizes capacity building of community, which better prepares for DR
- Look at communities as active partner rather than helpless victims
- Shift from relief to mitigation
- A holistic livelihood approach enhances sustainability
- Effective program to train up and integrate community activities at the disasters
- Wider stakeholders/local community involvement and participation

## Community Participation at Kobe



### DM & DR system in ADRC member countries

- India, Pakistan, Nepal, Sri Lanka, Brazil, Afghanistan, Philippines, Australian disaster Management system has been reviewed
- In the review Disaster awareness and livelihood creation and local community involvement are the 03 key factors identified for successful implementation of DM and DR



## Learned from Japan on DM

- Mutual help, self help , neighborhood help and community help is necessary for disaster mitigation
- DM requires coordinated by individuals , communities and governments
- Residents and communities should not think themselves disaster free and preparation for disaster in daily life
- Disaster information lessens damage
- Accurate assessment of situation and rapid action saves life
- Importance of wider area disaster relief systems and medical strength

## Hazard Mapping in Rokko Area





## Lessons Learned(Continued)

- Importance of providing assistance suitable to the needs of disaster stricken people
- Emergencies of new way of living and community businesses
- Checking electricity and gas and other actions of individuals to ensure fire does not occur help protect the community
- Importance of coordinated restoration of roads and life lines
- Importance of establishing laws and legislation to respond to a large scale natural disasters
- Reconstruction and mitigation/preparedness are premised on risk assessment

## Retrofitting of Building



## Recommendations for community mobilization in Bangladesh

- Replicate the Japanese experience and transfer of Knowledge and technology on DM
- Communities have inherent capacity to respond to any disaster. So community opinions should be implemented at disasters
- Comprehensive Action plan on DM& DR should be developed
- Development of disaster mitigation tools for communities by involving teachers , students
- Awareness creation , sensitization & capacity building of media in DR

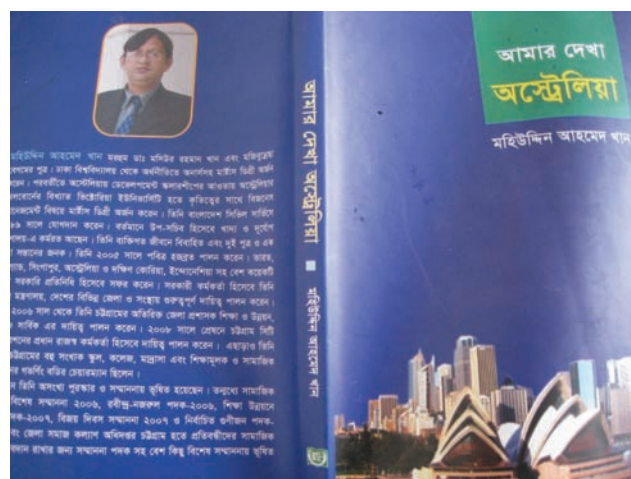
## Recommendations(continued)

- Develop & implement a public awareness strategy involving communities and public information campaign to disaster prone areas
- Integrate DR activities into normal practice of good governance and planning & Budgeting process
- Networking among communities, local government should be further strengthened
- Strengthen community capacity building & livelihood programs
- Establish disaster related museums
- Application of micro finance & micro insurance to increase social protection and resilience
- Strengthen cooperation with ADRC, JICA and DMRD

## Findings of the Research

Knowledge and practical experiences I gained from Japan as VR have been reflected in the Research paper. I firmly believe, findings of this research will benefit and assist Bangladesh for developing a sophisticated and effective system of community participation for disaster management and disaster mitigation system

## My publication



## References

- Reference material/Sources used in the slides taken from Cabinet Office, Japan, ADRC, JICA Hyogo, IRP, UNCRD, DMRD, MOFDM, CDMP , Police Agency of Japan, News Papers, Journals and Internet .

