

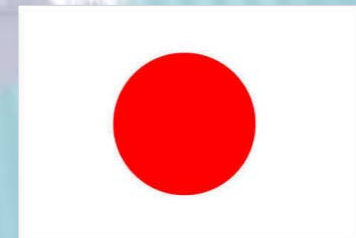


**MALAYSIAN METEOROLOGICAL DEPARTMENT
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION**



LESSON LEARNED FROM VISITING RESEARCHER PROGRAM

**AMIRZUDI BIN HASHIM
PRINCIPAL ASSISTANT DIRECTOR
CENTRAL FORECAST OFFICE
JAN - APR 2010**





MALAYSIAN METEOROLOGICAL DEPARTMENT MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION



OUTLINE OF PRESENTATION

GENERALLY ABOUT ADRC

ADRC LEADER IN TDRM APPROACH

LESSONS LEARNED FROM VISITING RESEARCHER
PROGRAM

FIELD TRIPS & STUDY TOURS

IMPRESSION OF JAPAN

RECOMMENDATIONS



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About ADRC

- was established in Kobe in July 30, 1998
- to facilitate multilateral cooperation through the International Decade for Natural Disaster Reduction (IDNDR)
- 28 member countries, 5 advisor countries and 1 observer organization
- budget contribution from member countries
- cooperation with a variety of UN agencies and international organizations - ISDR, OCHA, UNESCO, ESCAP, WMO, WHO, etc





Mission and objectives

- **To enhance disaster resilience of the member countries**
- **To build safe communities**
- **To create a society where sustainable development is possible**
- **To establish networks among countries through many programs including personnel exchanges**



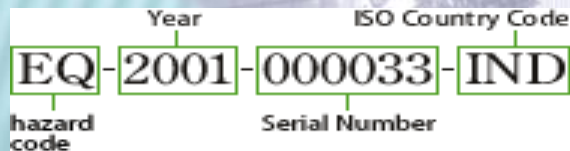
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ADRC MAJOR ACTIVITIES



ADRC website,
publication
Multilingual glossary

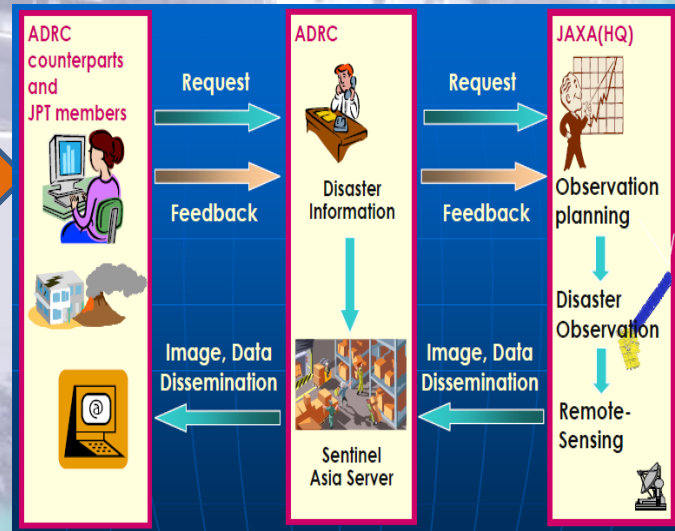


Global Unique Disaster Identifier
(GLIDE) number system



Meetings and
Conferences

INFORMATION SHARING



Sentinel Asia Project



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ADRC MAJOR ACTIVITIES

Human Resources Development



Conducts workshops & trainings



Accepting of Visiting Researcher

Building community Capabilities



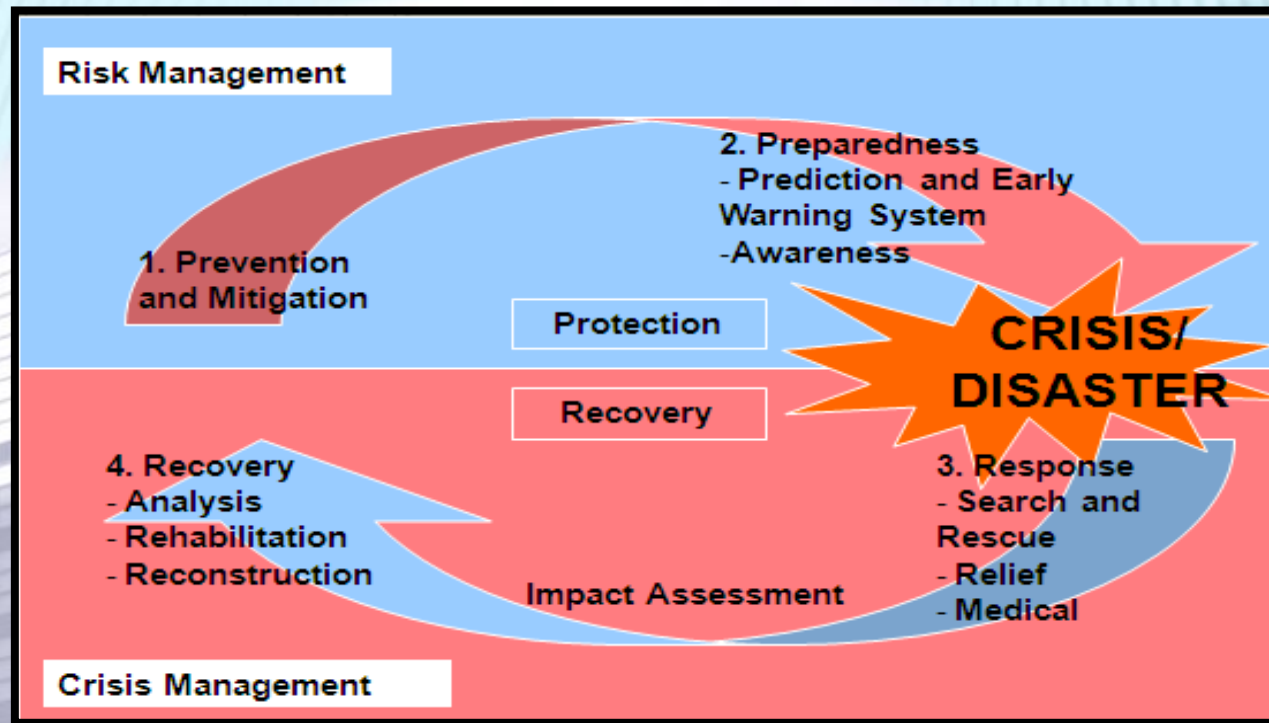
Assistance support for the activities of ADRRN



Development & Dissemination Tools for Encouraging Community Participation

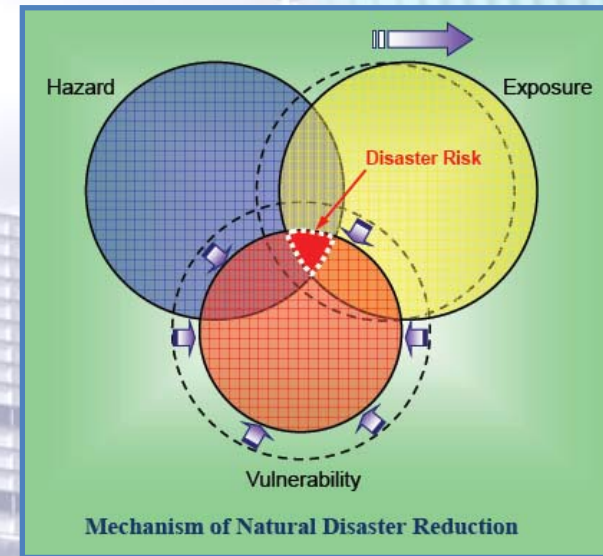
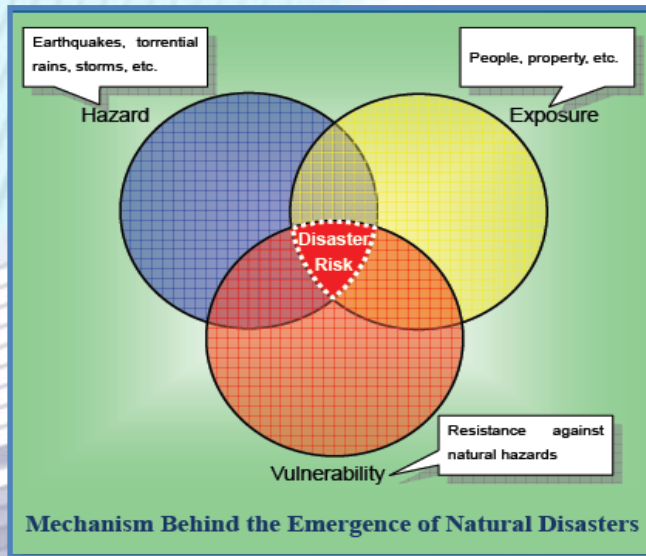


ADRC LEADER IN TDRM APPROACH



- Disasters give significant negative influence on the social and economic development of Asian
- ADRC pursue the idea of TDRM in Asia
- TDRM approach was jointly developed by ADRC and OCHA/ADRU Kobe
- TDRM approach looks at the entire cycle of disasters
- Involves all sectors of societies and communities in Disaster Management
- Encourages partnership to reduce risk and vulnerability to natural hazards

ADRC LEADER IN TDRM APPROACH



Disaster Risk = function (Hazard, Exposure, Vulnerability)

- Growing exposure & delays reducing vulnerabilities result in an increased natural disasters & greater levels of loss
- Reduce the level of vulnerability & keep exposure far from hazards so disaster risk also reduce



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LESSONS LEARNED FROM VISITING RESEARCHER PROGRAM

Establishment of Comprehensive Disaster Management System

Establishment of legal system of disaster reduction

Application of Scientific Technology Research to disaster reduction

Improving the disaster information & communications system

Improving the capability and preparedness of ERT

Enhancement of public awareness & disaster knowledge dissemination of disaster reduction

Great financial support for disaster reduction

Enhancement of disaster reduction volunteer activities & system

Sharing & exchange disaster information/knowledge throughout the world



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Flood



Volcanic Eruption



Heavy snow

NATURAL DISASTER IN JAPAN



Earthquake



Tsunami



Tropical Cyclone



Landslide

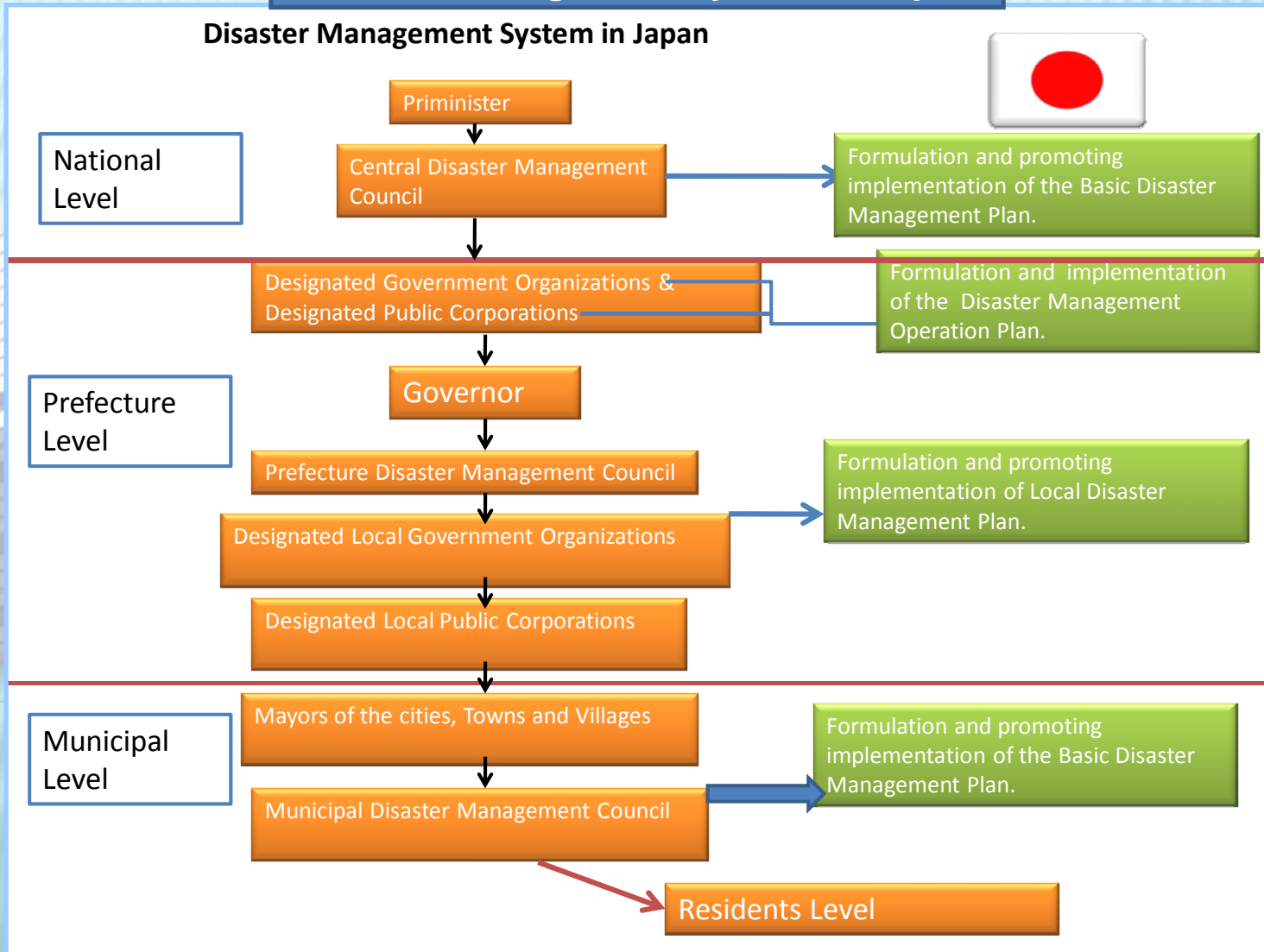


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DISASTER MANAGEMENT IN JAPAN

Disaster Management System in Japan





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Role of Disaster Management System

• **Municipal level**

(First response to disasters)

- **Set up disaster management HQ**
- **Evacuate residents**
- **Dispatch fire fighters and rescue teams**

• **Prefectural level**

- **Supporting city level activities**
- **Coordination between city level and national level activities**

• **National level**

- **Supporting city/prefectural level responses**
- **Dispatch of ERT in a large-scale disaster**

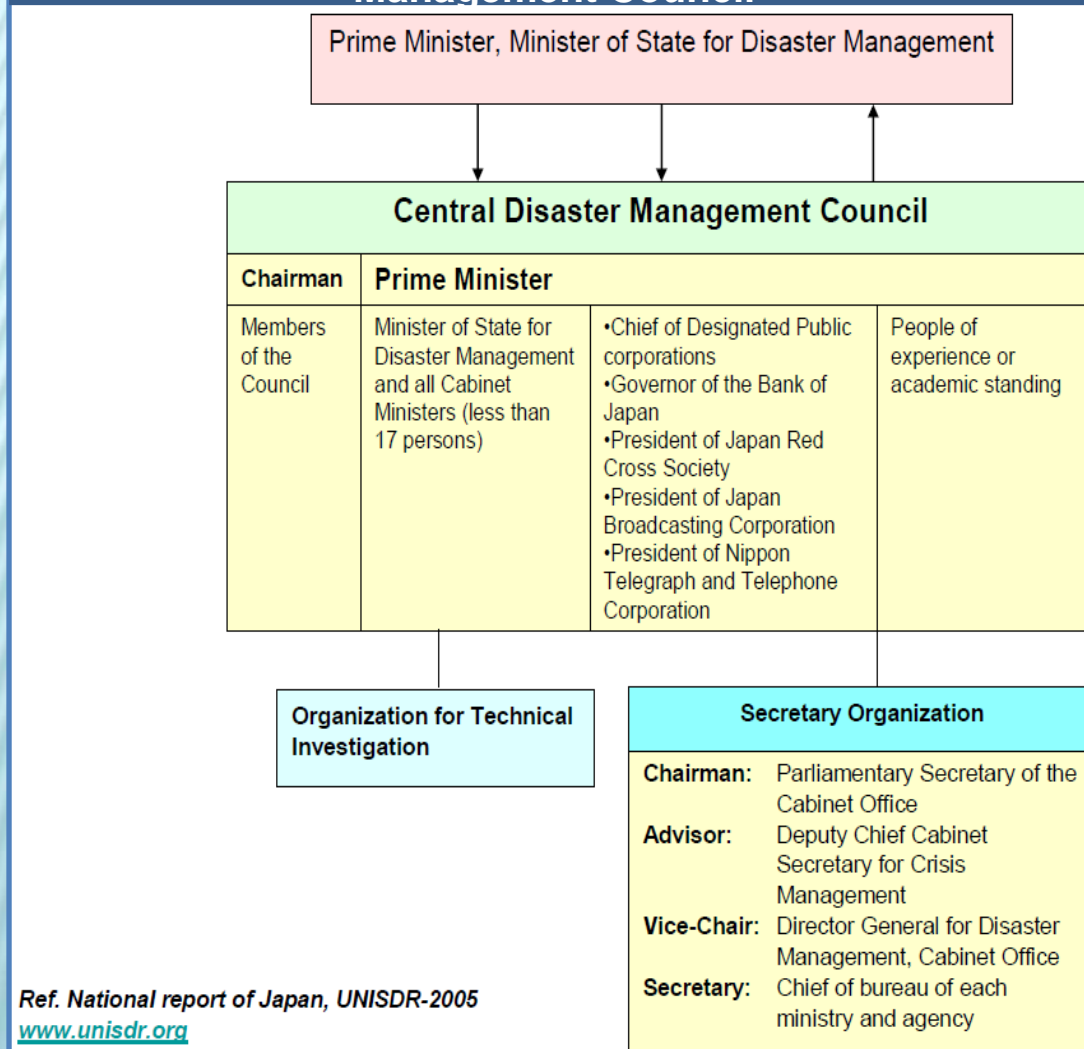


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DISASTER MANAGEMENT IN JAPAN

Organization of the Central Disaster Management Council



Role Central Disaster Management Council

- To integrate & coordinate disaster reduction policies & measures of ministries & agencies
- Responsible for securing cooperation & collaboration among related government agencies
- To undertake the planning of basic disaster management policies & response to large-scale disasters
- To coordination disaster management agencies during disaster events



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Progress in Disaster Management Laws and Systems

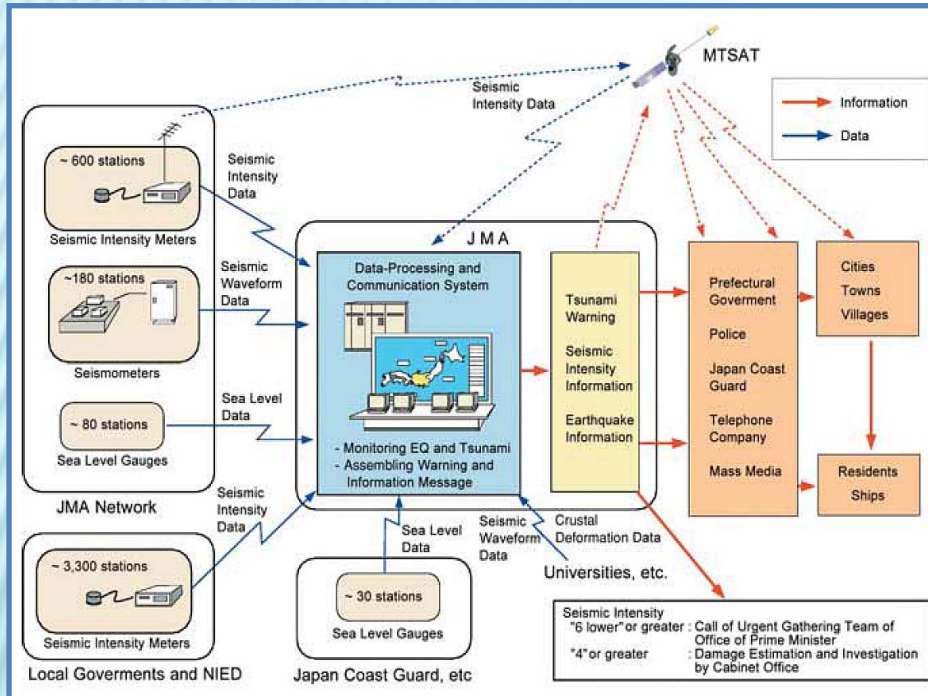
Events	Systems
1940	Disaster Management Acts
46 • Nankai Earthquake	47 • Disaster Relief Act
48 • Fukui Earthquake	49 • Flood Control Act
1950	50 • Building Standard Law
59 • Typhoon Ise-wan	
1960	60 • Soil Conservation and Flood Control Urgent Measures Act
61 • Heavy Snowfalls	61 • Disaster Countermeasures Basic Act
	62 • Act on Special Financial Support to Deal with Extremely Severe Disasters
	• Act on Special Measures for Heavy Snowfall Areas
64 • Niigata Earthquake	66 • Act on Earthquake Insurance
1970	73 • Act on Special Measures for Active Volcanoes
73 • Mt. Sakurajima Eruption	
76 • Seismological Society of Japan's report about the possibility of Tokai Earthquake	
78 • Miyagi-ken-oki Earthquake	78 • Act on Special Measures for Large-scale Earthquakes
1980	80 • Act on Special Financial Measures for Urgent Earthquake Countermeasure Improvement Projects in Areas for Intensified Measures
	81 • Amendment of Building Standard Law
1990	95 • Act on Special Measures for Earthquake Disaster Countermeasures
95 • Great Hanshin-Awaji Earthquake	• Act on Promotion of the Earthquake-proof Retrofit of Buildings
	• Amendment of Disaster Countermeasures Basic Act
	• Amendment of Act on Special Measures for Large-scale Earthquakes
	96 • Act on Special Measures for Preservation of Rights and Profits of the Victims of Specified Disasters
99 • Torrential Rains in Hiroshima	97 • Act on Promotion of Disaster Resilience Improvement in Densely Inhabited Areas
• JCO Nuclear Accident	98 • Act on Support for Livelihood Recovery of Disaster Victims
	99 • Act on Special Measures for Nuclear Disasters
2000	00 • Act on Promotion of Sediment Disaster Countermeasures for Sediment Disaster Prone Areas
00 • Torrential Rains in the Tokai Region	02 • Act on Special Measures for Promotion of Tonankai and Nankai Earthquake Disaster Management
04 • Niigata-ken-Chuetsu Earthquake	03 • Specified Urban River Inundation Countermeasures Act
05 • Typhoons and Torrential Rains	04 • Act on Special Measures for Promotion of Disaster Management for Trench-type Earthquakes in the Vicinity of the Japan and Chishima Trenches
	05 • Amendment of Act on Promotion of the Earthquake-proof Retrofit of Buildings
	• Amendment of Flood Control Act
	• Amendment of Act on Promotion of Sediment Disaster Countermeasures for Sediment Disaster Prone Areas



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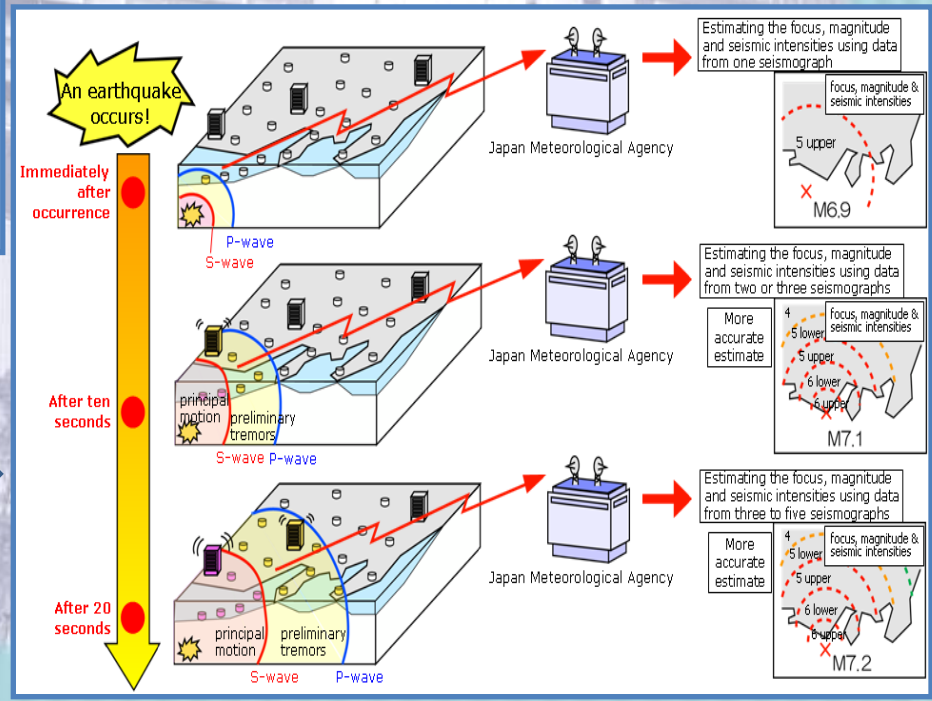
Earthquake Disaster Countermeasures in Japan



Data Collection and Dissemination of Earthquake Information

Earthquake Early Warning
Limitations to the EEW system:

- Timing
- False alarms
- Magnitude estimation
- Seismic intensity estimation

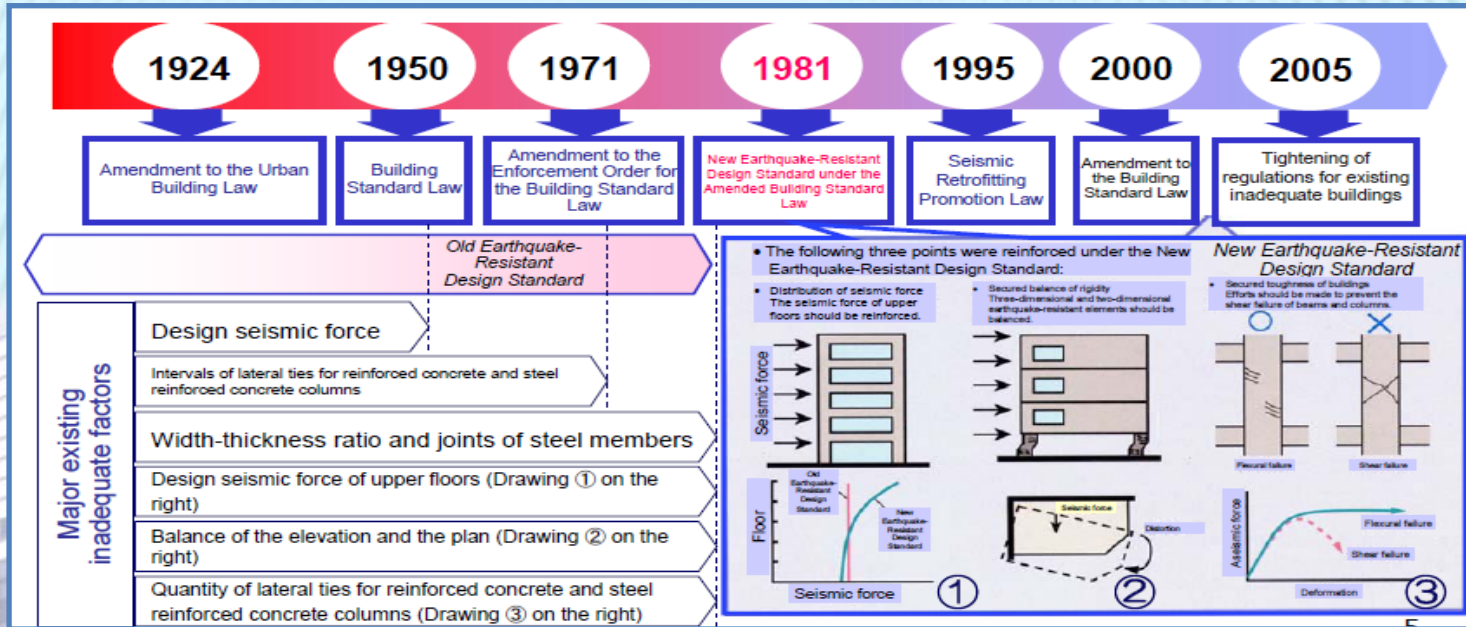




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Earthquake-proofing of Houses and Buildings



Background of Retrofitting Building in Japan



Brace-Type



Frame-Type



Wall-Type

Examples of Strengthening and retrofitting Methods



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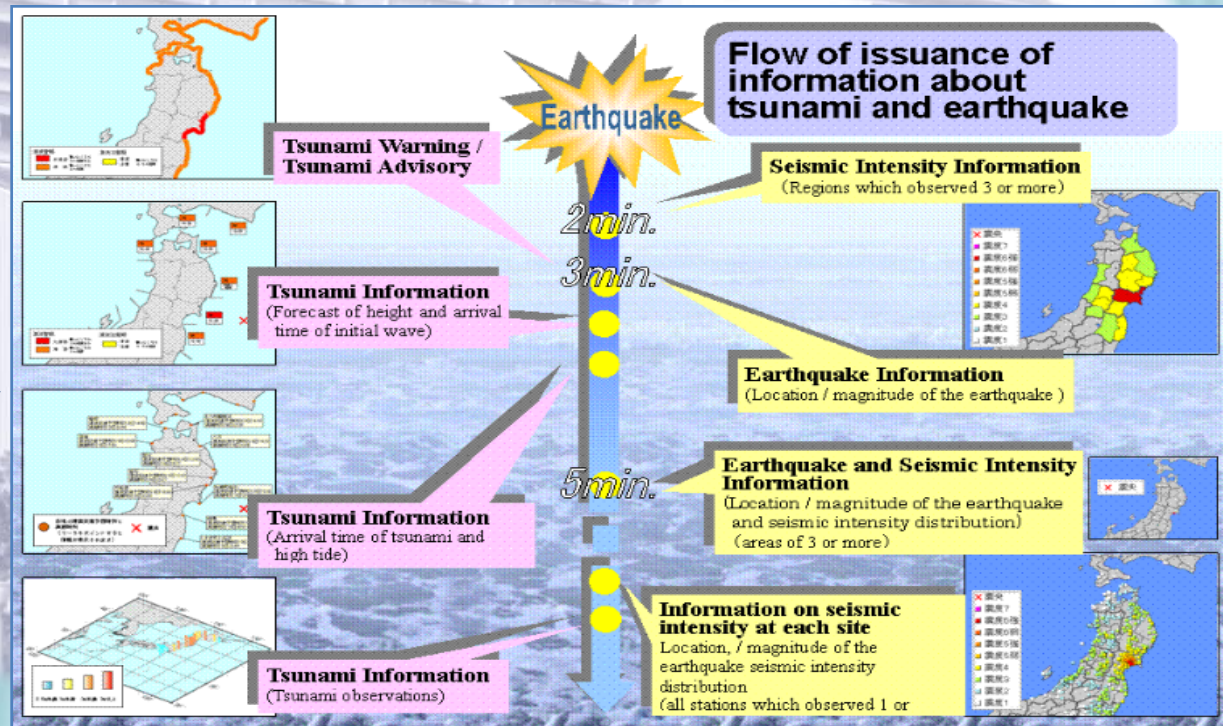


Tsunami Disaster Countermeasures in Japan

Tsunami Forecast and Information

Tsunami Forecast	Issued in 3-5 minutes after the earthquake occurrence Categorized by the estimated tsunami height	
	Category	Estimated Tsunami Height to be shown in the Forecast Message
	Tsunami Warning	Major Tsunami Tsunami
Tsunami Advisory	Tsunami Attention	"0.5m"
Information on estimated arrival time and height of tsunami for each coastal region		
Information on estimated time of high tide with tsunami arrival time at coasts		
Information on observed arrival time and height of tsunami		

Flow of issuance of information about tsunami & earthquake





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Tsunami Walls



Evacuation Tower



Tsunami Gates



TSUNAMI
MITIGATION
METHODS



Evacuation Routes

Evacuation Signs



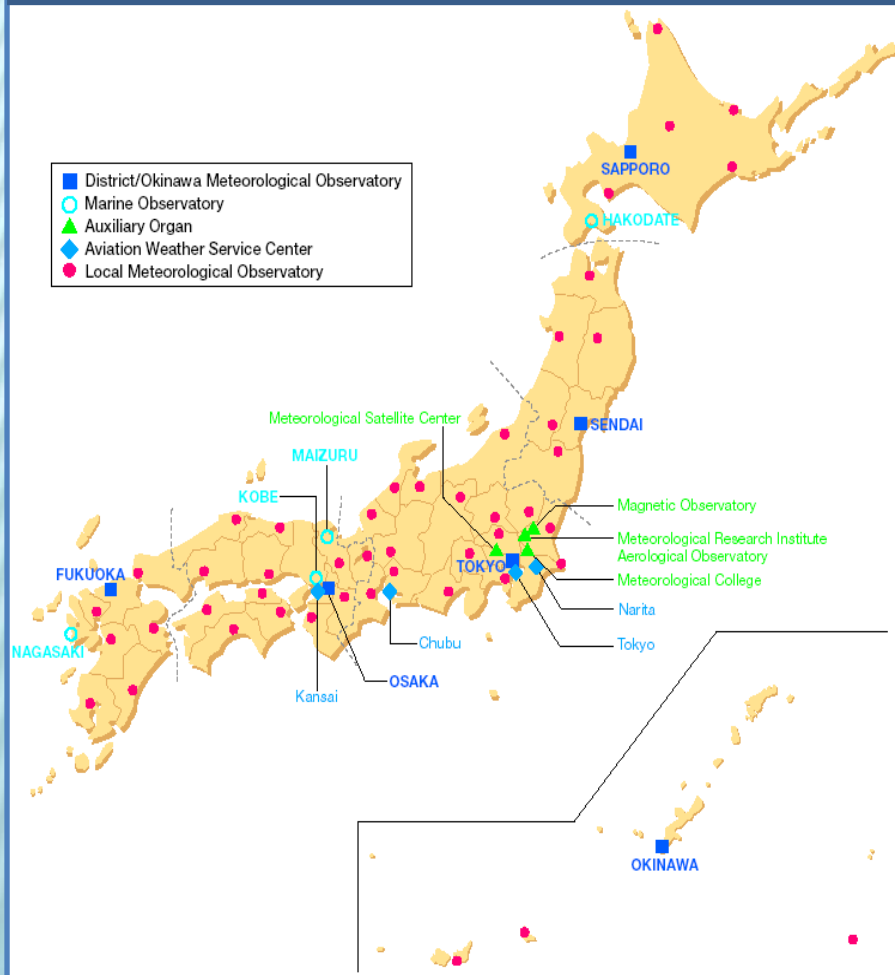


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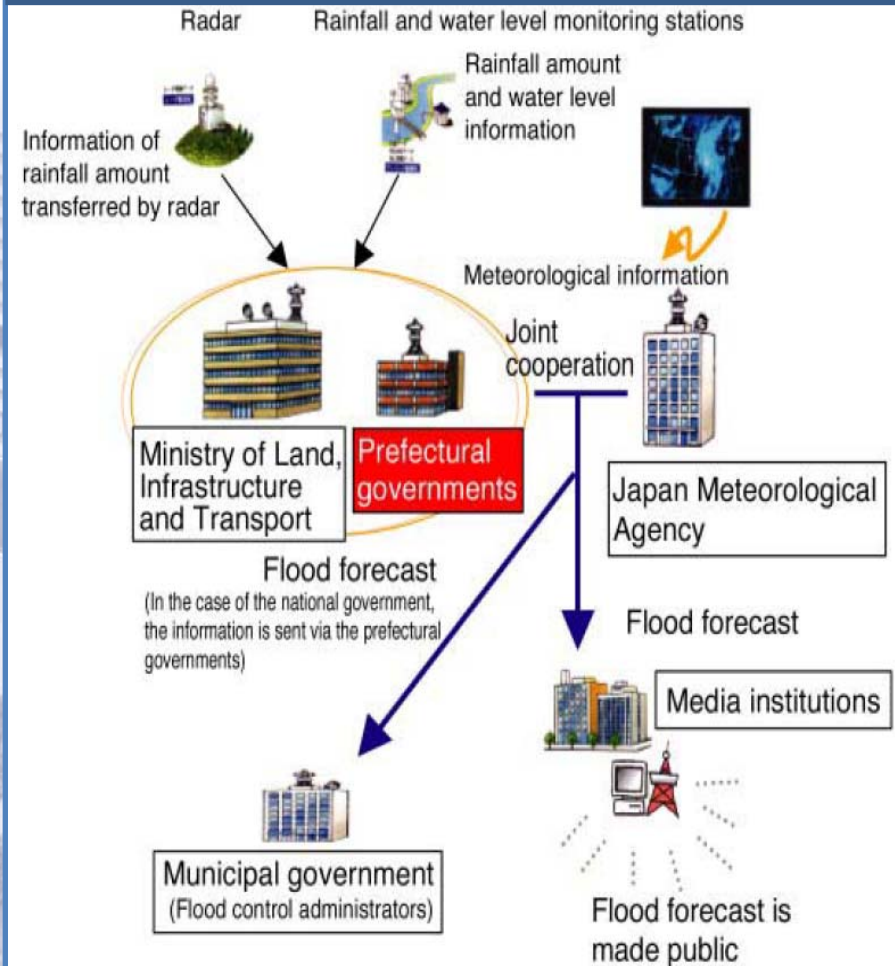


Storm and Flood Countermeasures in Japan

JMA offices and Observatory Stations



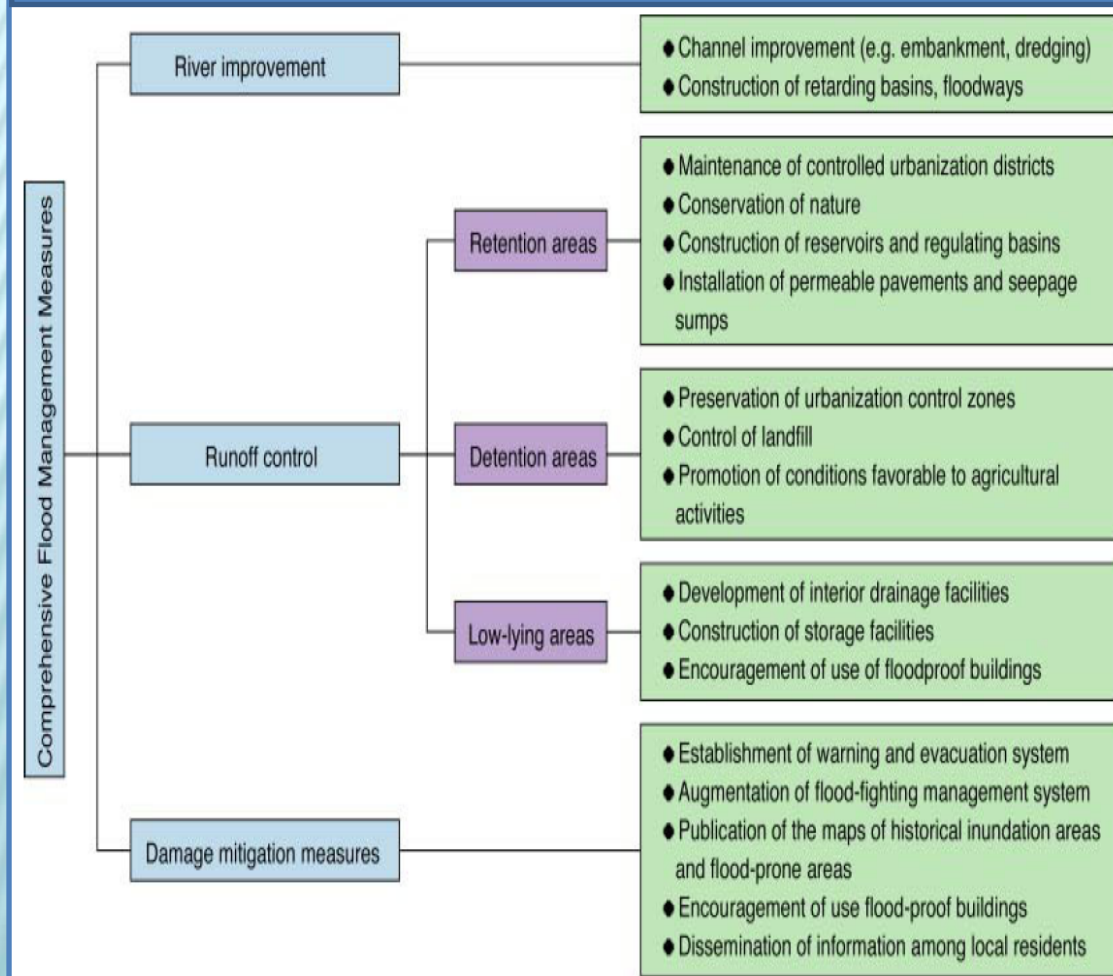
Flood Forecasting Network



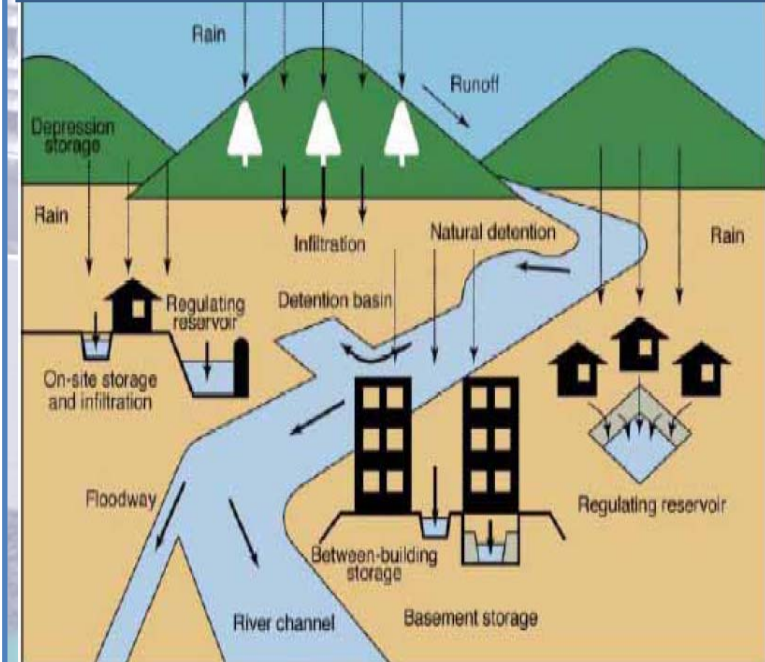


Storm and Flood Countermeasures in Japan

Comprehensive Flood Management Measures



Concept of Comprehensive Flood Control

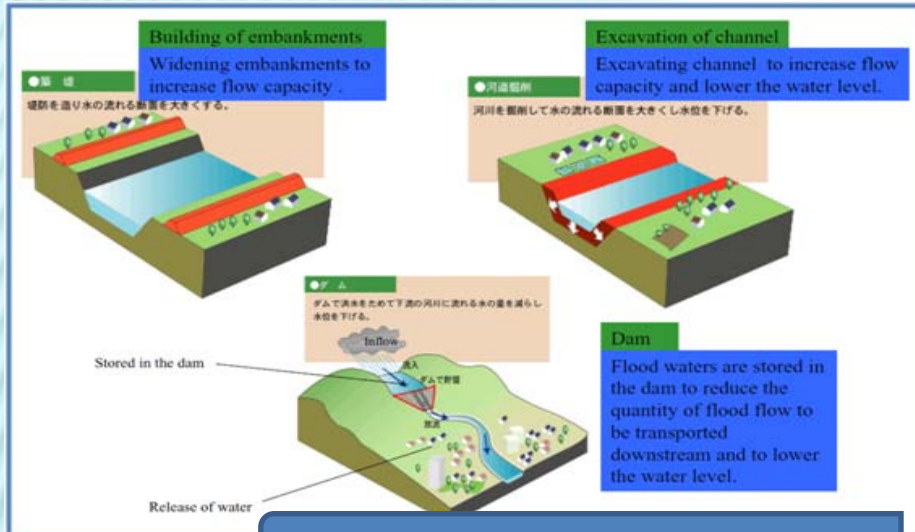




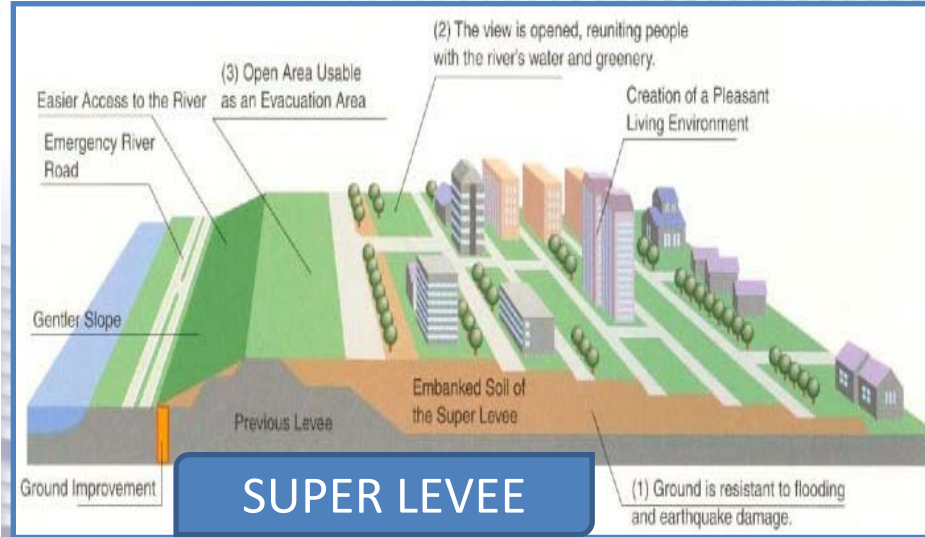
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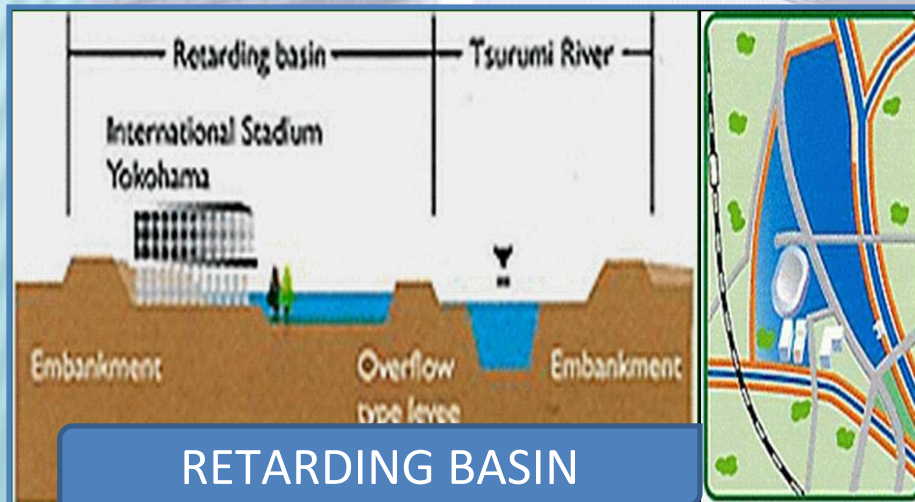
Storm and Flood Countermeasures in Japan



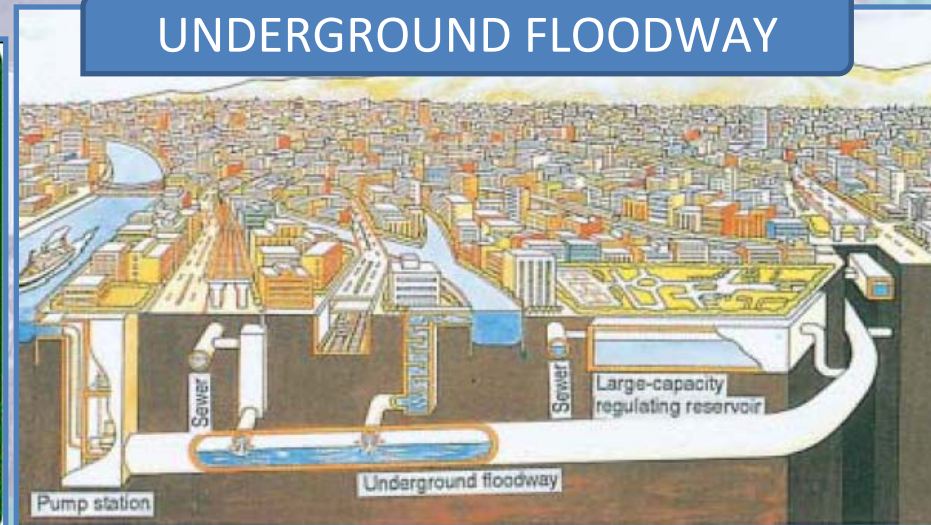
TRADITIONAL METHODS



UNDERGROUND FLOODWAY



RETARDING BASIN





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Storm and Flood Countermeasures in Japan



FLOODGATE



REGULATING RESERVOIR

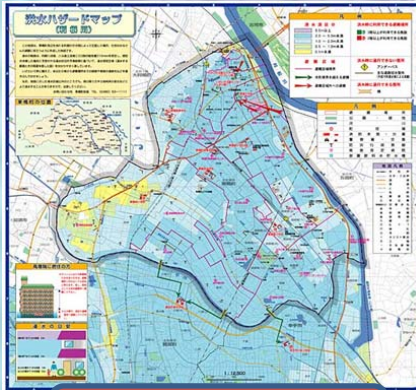


EVACUATION AREA

STRUCTURAL & NON-STRUCTURAL MEASURES FLOOD DISASTER



SUPER LEVEE



HAZARD MAP



BARRIER



ELEVATED FLOOR



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Sediment-Related Disasters Countermeasures in Japan

Outline of Countermeasures for Sediment-related Disasters

	Disasters	Rainfall triggered disasters	Volcanic disasters	Seismic disasters
1966	Ashiwada disasters	Start nationwide investigation on the debris flow from hazardous torrents		
1982	Nagasaki disasters	Start official announcement of information on areas prone to sediment-related disasters triggered by rainfall		
1990	Eruption of Unzen-fugendake		Start the hazard mapping for volcanic sediment-related disasters	
1991				
1995	Hyogoken Nanbu earthquake			
1999	Hiroshima disaster			
2001		Enforcement of the Sediment-Related Disaster Prevention Act		
2003	Minamata disasters			
2004	Mid Niigata earthquake			Proposed the method for seismic shallow landslide hazard assessment
2005	Typhoon No.14	Revision of the Sediment-Related Disaster Prevention Act		
2008		Proposed the manual on the method for extraction of torrents prone to a massive collapse		
Now		Producing hazard map for sediment-related disasters triggered by rainfall	Producing an emergency countermeasure plan for mitigating volcanic eruption disaster	Promoting a project to countermeasure for steep slope failure



Debris flow disaster at Harihara river basin, Izumi, Japan



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Sediment-Related Disasters Countermeasures in Japan

Steel pipe SABO dam (open type)



TYPICAL SABO WORKS

Sabo dams

They trap and deposit sediment to prevent mountains from collapsing

Hillside works

Re-forest the devastated slopes by tree plantation in order to prevent hillside collapses and sediment runoffs.



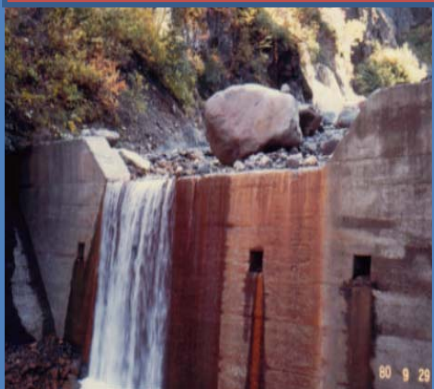
Groundsills

Prevent river beds from eroding. Also, they make the flow of rivers gentle.

Concrete slit SABO dam and steel bars



Concrete SABO dam (closed type)



Steel pipe SABO dam as downstream





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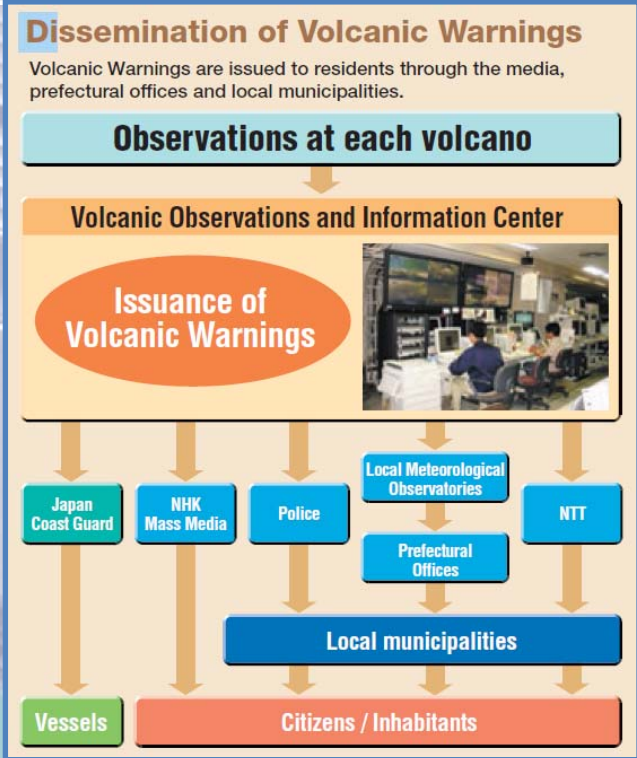
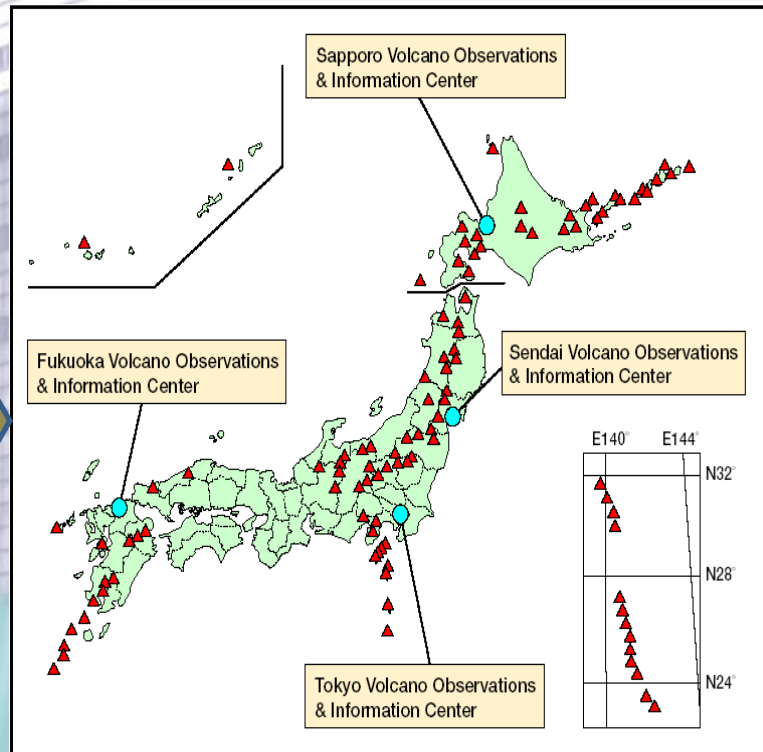


Volcanoes Disaster Countermeasures in Japan

**LATEST MAJOR
ERUPTIONS &
DAMAGED**

2000 -	Miyake-jima	Collapsed crater formation. Large amount of gas emission. Evacuation of all residents.
2000	Mt. Usu	The lava dome.
1990 - 1995	Mt. Unzen	Pyroclastic flows and debris-avalanches 43 death.
1986	Izu-Oshima	Lava flows. Evacuation of all residents.
1983	Miyake-jima	Lava flows. Villages were buried.

**Volcanic
Observations
& Information
Center**



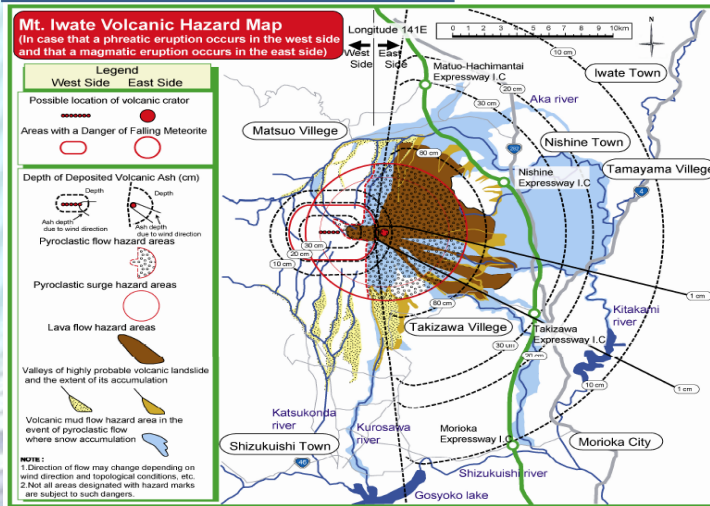


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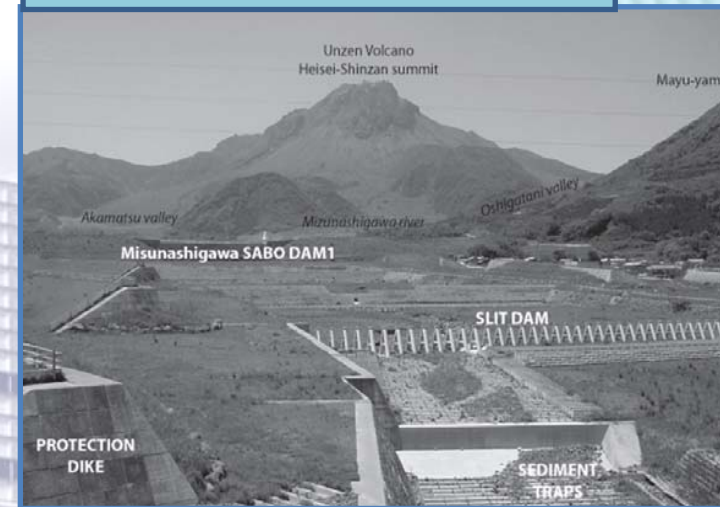


Volcanoes Disaster Countermeasures in Japan

HAZARD MAP



SEDIMENT CONTROL DAM



BROCHURE ABOUT VOLCANOES

Volcanic Warnings/Forecasts for volcanoes where Volcanic Alert Levels are not applied.

Warning level	Residential areas	Non-residential areas	Forecast
Warning	Warnings in residential areas and non-residential areas near the crater	Warnings in non-residential areas near the crater	Inside the crater
Near-crater Warning	Warnings around the crater	Warnings around the crater	Inside the crater
Forecast	Warnings around the crater	Warnings around the crater	Inside the crater

Tips for dealing with volcanic disasters

- 1. Pay attention to volcanic hazard maps and the areas of the danger areas for each volcano.
- 2. Check evacuation locations.
- 3. Call the municipal office, police or fire department to report volcanic disaster.
- 4. Pay attention to volcanic hazard maps and the areas of the danger areas for each volcano.
- 5. Evacuate from dangerous areas as soon as possible.
- 6. Follow orders issued by authorities.
- 7. Avoid walking from the path of pyroclastic flow.
- 8. Make training plans for volcanic disaster.

JMA issues volcanic forecasts and warnings to mitigate volcanic disasters. Volcanic warnings are issued with area categories of near the crater and residential areas.

Japan Meteorological Agency

MEMORIAL FOR VOLCANOES DISASTER





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Disaster Risk Education at School

CURRICULUM FOR DISASTER RISK EDUCATION AT SCHOOL

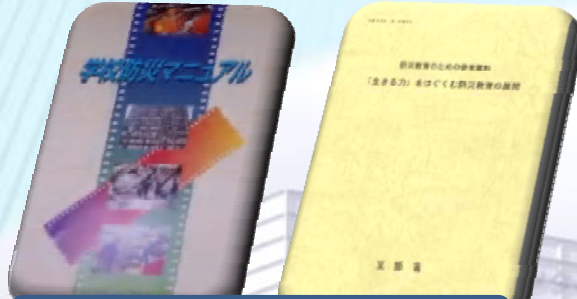
Stage	Curriculum	
Elementary School (age: 7-12)	<p>Life (2nd grade): Public facilities and workers, for example, fire station and fire-fighters</p> <p>Science (5th grade): Work of running water</p> <p>Science (6th grade): Change of land influenced by volcanic eruptions, earthquakes and floods</p> <p>Health and physical education (5th grade): Prevention for injury</p> <p>Home economics (5th and 6th grade): Out-door cooking exercise</p>	
Junior High School (age: 13-15)	<p>Science: Characteristics of volcanic eruptions and earthquakes</p> <p>Health and physical education: Injury prevention and first-aid in time of disaster</p> <p>Home economics: Out-door cooking exercise</p>	
Senior High School (age: 16-18)	<p>Health and physical education: First-aid training in time of disaster</p> <p>Ethics: Dignity for life, Relationship with nature and science</p> <p>Science: Mechanism of volcanic eruptions and earthquakes</p>	
Stage	Special activity	Special curriculum
Elementary School (age: 7-12)	<p>Class activity: Instruction on health and security, etc.</p> <p>School event: Drill for evacuation in time of disaster, Drill in case school becomes the evacuation space for local people, Visit to disaster prevention centre and fire station, Lecture of experts on natural disasters, Skill improvement for survival at camping, etc.</p> <p>Club activity: Science club activity, Meeting for security, Volunteer activity in time of disaster, etc.</p>	<p>For example: Investigation on disaster-proof house and no-disaster-proof house, Research on disasters and disaster preparedness, Cooking for survival in time of disaster, Research on mechanism of natural disasters, Study on disasters occurred in Japan, Creation of picture book on natural disasters, Exercise for rescue and first-aid, Volunteer activity in time of disaster, etc.</p>
Junior High School (age: 13-15)		
Senior High School (age: 16-18)		



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Disaster Risk Education at School



TEACHING MATERIALS



BUCKET RELAY



MOVING ON TIGHTROPE

**TEACHING
MATERIAL &
DISASTER
EDUCATION AT
SCHOOL**



CARDS GAME



HAZARD MAP



PUPPET SHOW



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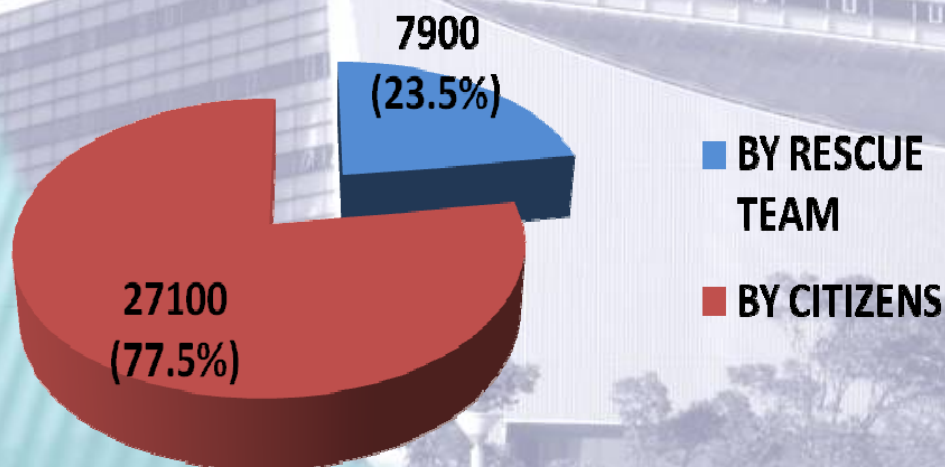


Community Based Disaster Risk Management (CBDRM)

LESSON LEARNED FROM HANSHIN AWAJI EARTHQUAKE

PEOPLE RESCUE AFTER EARTHQUAKE	TOTAL
ESCAPED WITHOUT ASSISTANCE	129,000
RESCUED	35,000
TOTAL PEOPLE TRAPPED	164,000

PEOPLE RESCUE AFTER EARTHQUAKE



- ERT don't have enough manpower to carry out large scale rescue operation.
- Citizens don't have sufficient rescue training & necessary rescue equipment.
- Need to forming voluntary disaster prevention group, "Organization by citizens, for citizens & support from government".





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Community Based Disaster Risk Management (CBDRM)



Advantages of CBDRM

Feelings of coordination and self belonging

Initiatives & provides assistance to agencies in disaster management

Exchange of knowledge, information, skills & techniques

Give ideas and suggestions for suitable program

Keep a watch/monitor the quality of works in their neighborhood

Generate a sense of responsibility

Capacity building on issues of disaster reduction activities





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Town Watching Program



The objectives of town watching

- Disaster Recovery Public Works
- Pointing out regional problems and suggesting solutions
- Telling the experience of disaster victims
- Establishing cooperation system whenever disaster occurs
- Preparation for disasters by residents & raised awareness of disaster prevention
- Increasing children's and adults' awareness of disaster prevention
- Knowing the current situation of the area



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City level	Prefecture level	National level
★ Responsible for first response to disasters ① Set up disaster management HQ ② Evacuate residents ③ Dispatch fire fighters and rescue teams	★ Supporting city level activities ★ Coordination between city level and national level activities	★ Supporting city level responses ★ Dispatch of ERT in a large-scale disaster

- ### Disaster Recovery & Rehabilitation Measures
- Disaster Recovery Public Works
 - Disaster Relief Loans Low
 - Disaster Compensation and Insurance
 - Tax Reduction or Exemption
 - Local Allocation Tax and Local Bonds
 - Extremely Severe Disaster - increased subsidies
 - Assistance for Rehabilitation Plan
 - Livelihood recovery of victims



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FIELD TRIPS & STUDY TOURS

Memorial walk and Memorial Ceremony for victims of Great Hanshin-Awaji Earthquake



Seminar "Asian Conference on Disaster Reduction 2010"



Disaster Drill at Kita-Shukugawa Primary School in Nishinomiya-City



Visit Radio FM YY



Town Watching Workshop



Visit Sayo Cho Town Flood Disaster 2009





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FIELD TRIPS & STUDY TOURS

Big Kaeru Caravan Program



Peace Park and Atomic Bomb Museum Nagasaki



Spectacle Bridge Nagasaki



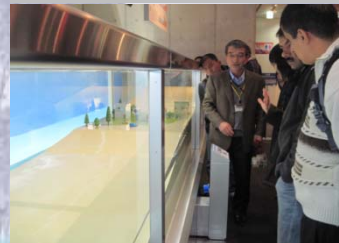
Mount Unzen Shimabara



Tsunami Storm Surge Disaster Prevention Museum & Water Control Office at Osaka



Tsunami Education Center: "Inamura-no-Hi no Yakata" at Wakayama Prefecture



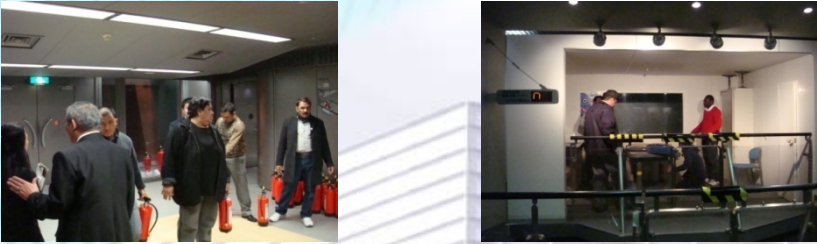


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FIELD TRIPS & STUDY TOURS

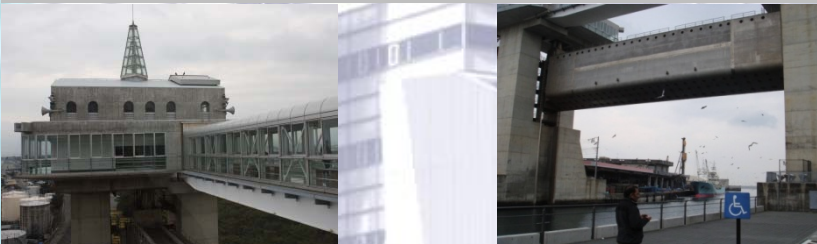
Honjo Bosaikan: Life Safety Learning Center, Tokyo



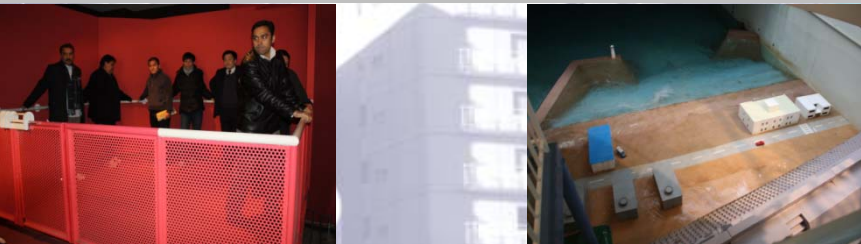
Japan Broadcasting Corporation/ Nippon Hōsō Kyōkai (NHK), Tokyo



Water Gate "View O" in Numazu City Shizuoka



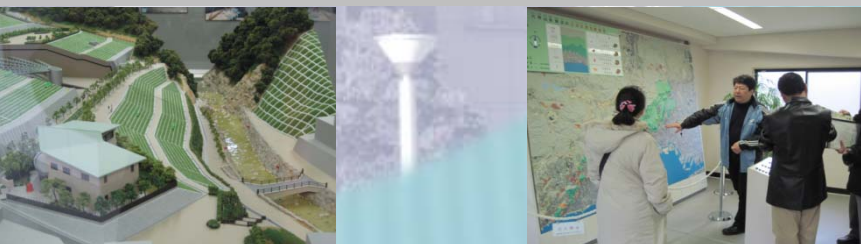
Earthquake Prevention Center in Shizuoka



Disaster Prevention Welfare Community Observation at Minatogawa Town



Nigawa-Yurino-cho Landslide Museum



IMPRESSION OF JAPAN

- POLITE
- KINDNESS
- HELPFUL



- CULTURE & HERITAGE
- BEAUTIFUL
- CLEANNESS



- DELICIOUS
- PRESENTABLE
- SIMPLE



- PUNCTUAL
- DILIGENT
- BUSY





RECOMMENDATION

- ❑ Course duration 4 - 4 1/2 month – to long VR will missed their family & started to lose concentration & focus
- ❑ Encourage/urge VR participant to exchange their knowledge & experience among participant & also ADRC staff
- ❑ Multilingual dictionary - should be done by language expert from the related country to avoid missed interpretation in future
- ❑ Glide program - choose the right person for right job. Glide operators (country operators) should be chosen from department who are responsible to release official data/information for disaster
- ❑ Icebreaker or orientation sessions (small party) where VR participants & ADRC staff can get to know each other so easily to get along together & smooth interaction
- ❑ Organize field trip to relevant agencies such as JMA (Japan Meteorological Agency) . JMA plays a very important role in observation and dissemination natural disasters warning information to the related agencies and public
- ❑ Basic Japanese language classes



**MALAYSIAN METEOROLOGICAL DEPARTMENT
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION**



PANTUN

(Malay traditional poetry)

MALAY

Pulau Pandan / jauh ke tengah
Gunung Daik / bercabang tiga
Hancur badan / dikandung tanah
Budi yang baik / dikenang juga

ENGLISH

The Pandan Isle is far from land
Have three peaks does the Daik Mountain
Though the self has rot in the sand
The good deeds are never forgotten



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“DISASTER OCCUR WHEN YOU ARE LEAST
EXPECTING IT, AND WHEN YOU ARE THE
WORST PREPARED”

ありがとうございます



(TERIMA KASIH)

