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ADRC VR2015B – FINAL PRESENTATION

EARLY WARNING SYSTEM AND COMMUNITY BASED EMERGENCY RESPONSE MECHANISM

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National Disaster Management Authority



Disaster Prevention Centre at Minamisanriku

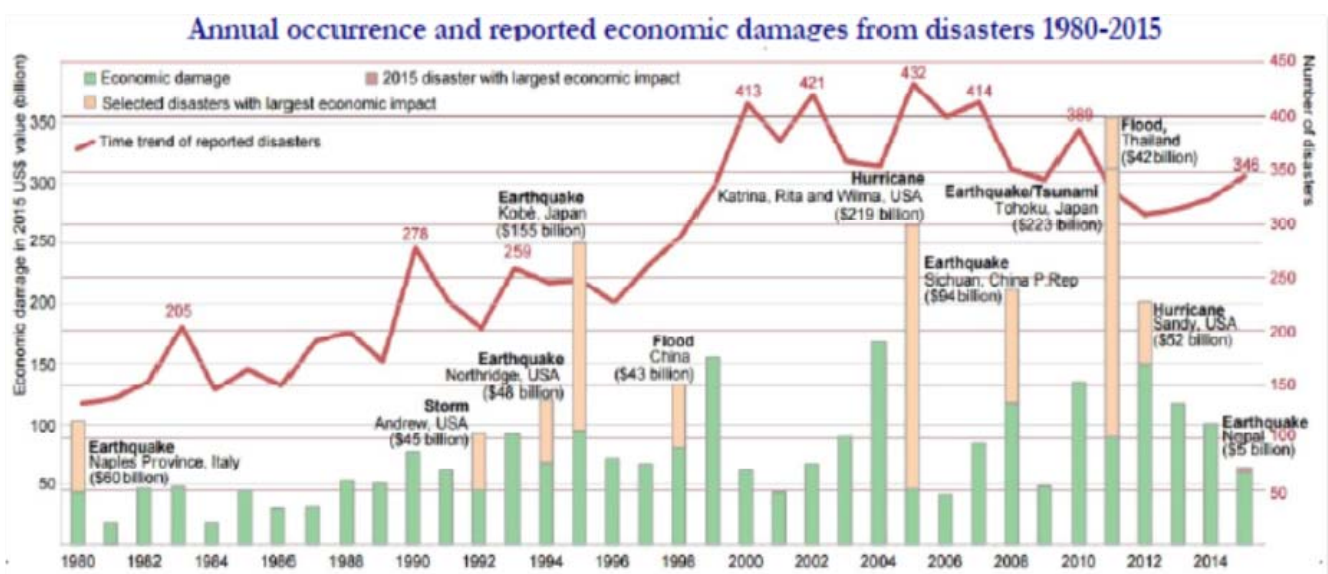


An Angel's Voice

OUTLINE

- Chapter 1 – Introduction
- Chapter 2 – Literature Review
- Chapter 3 – Research Methodology
- Chapter 4 – Disaster Risk Profiles
- Chapter 5 – Disaster Management Systems
- Chapter 6– Early Warning Systems
- Chapter 7 – Emergency Response Mechanism
- Chapter 8 – Findings, Recommendations and Conclusion

Introduction



Introduction

- No country is 100 percent safe and disaster risk free.
- Reliable disaster early warning is a prerequisite and a vital component of preparedness for disaster response.
- EW serves as the trigger point for evacuation order and timely response initiation decision by the individuals and local government which could result in saving numerous lives and loss of property.

Objective

The overall objective of this study is to understand the importance and role of multi-hazard early warning system and the community based emergency response mechanism

Specific Objectives

- To learn and understand about the early warning systems, procedures and protocols in Japan and in the Maldives;
- To identify how early warning initiates emergency response in the context of Japanese local communities;
- To identify and understand the community volunteer based emergency first response and relief mechanism in Japan; and
- To provide recommendation to establish Island Emergency Response Teams and integrate them into the emergency response and relief operations and disaster preparedness at the community level in the islands.

Why Community Based EW and Emergency Response is Important?

- At the Great Hanshin-Awaji Earthquake in 1995, the number of people captured in the collapsed buildings is around 35,000. After the earthquake, 27,000 people were rescued by neighbors and 80% of them were alive. However, 8,000 people were rescued by Army, Police or Fire Fighters and less than 50% of them were alive.
- During GEJE and Tsunami, the community-level response (and community-based warnings) was the key that saved countless human lives. The volunteer fire corps are community-based organizations (CBOs) trained in disaster management used various tools such as handheld loud speakers, fire bells, sirens, and fire engine loudspeakers to warn communities throughout the affected areas.
- The community is the first responder in any disaster.

Why Community Based EW and Emergency Response is Important?

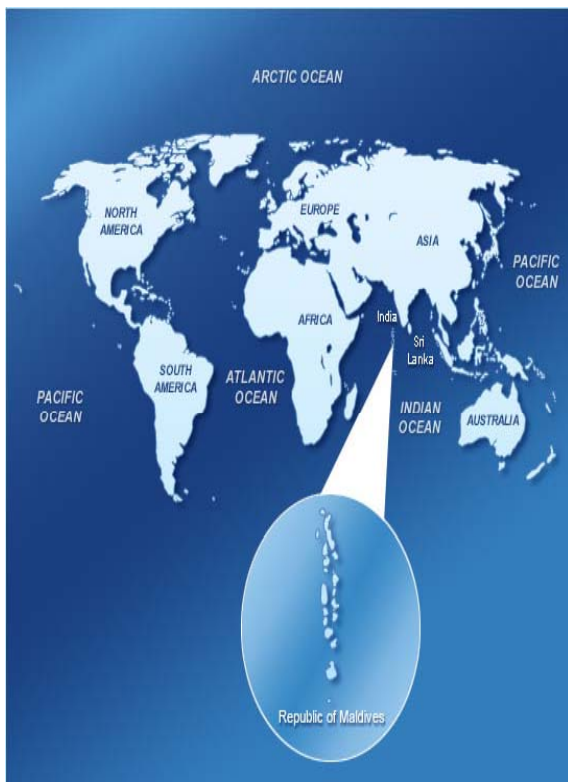
Disaster Loss in Maldives mainly because no community early warning and efficient first response

Event/Year	Islands affected	People affected	Damage
Addu City Flood Crisis (24-25 Nov 2015)	03 Islands (Feydhoo, Maradhoofeydhoo and Maradhoo)	297 Households got severely flooded	US\$ 0.3 million
Cyclone Nilam (Oct-Nov 2012)	Caused flooding in 51 islands, 28 islands severe flooding, 4 islands critical	33,826	133,090.60 USD
Surge Waves (15- 17 May 2007)	68 Islands in 16 Atolls 600 m inundation inland	1649 Evacuated 579 Housing units damaged	-
Indian Ocean Tsunami (Dec 2004)	82 people killed, and 26 people missing	More than 3997 buildings damaged. Nearly 12,000 displaced.	470 million USD 62% GDP

Methodology

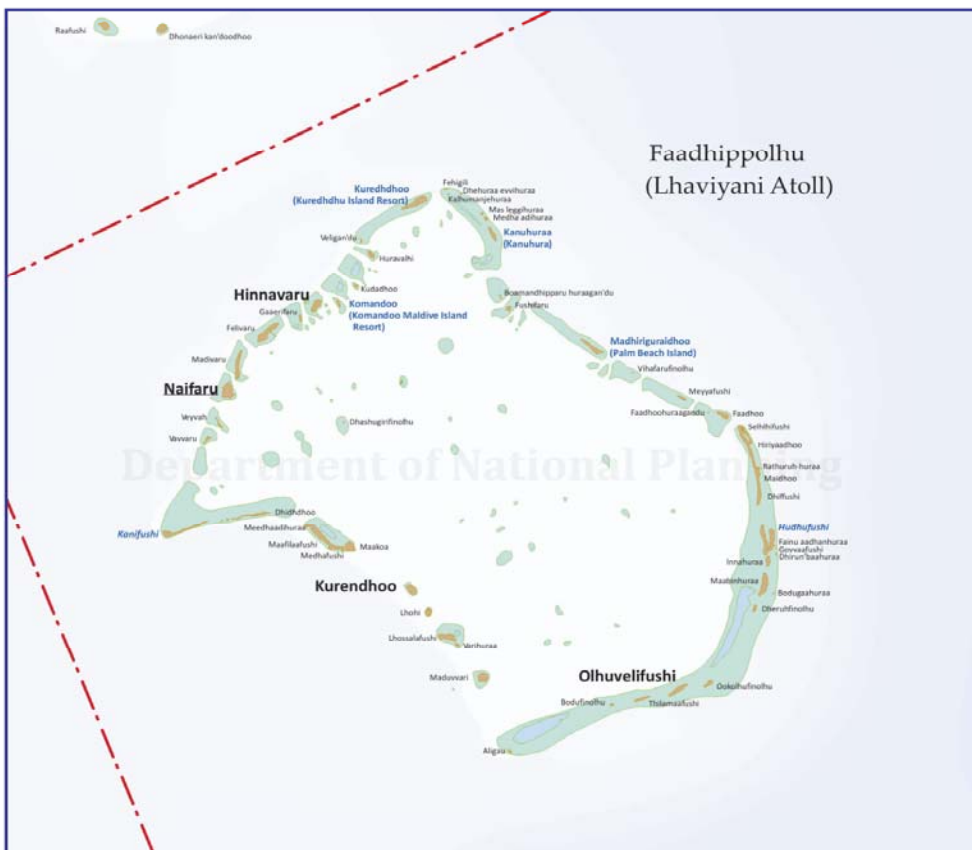
- Descriptive in nature and mostly qualitative
- Has used both primary and secondary data
- Primary Data Collection include;
 - 18 x Institutional Briefings and presentations,
 - 15 x Tours, field visits and observations.
 - 9 x Community Disaster Awareness Programs
- Secondary Data
 - From the relevant authorities, departments and Bosai Units in Japan.
 - Published and unpublished researches and other related data
 - Books, journal articles, papers, research reports, NGO reports, documents and reports.
 - Internet websites
 - ADRC's web portal and Research Bank with numerous English translated documents and readings

Disaster Risk Profile of Maldives



Department of National Planning
Spatial Planning Section | GIS & Mapping Unit

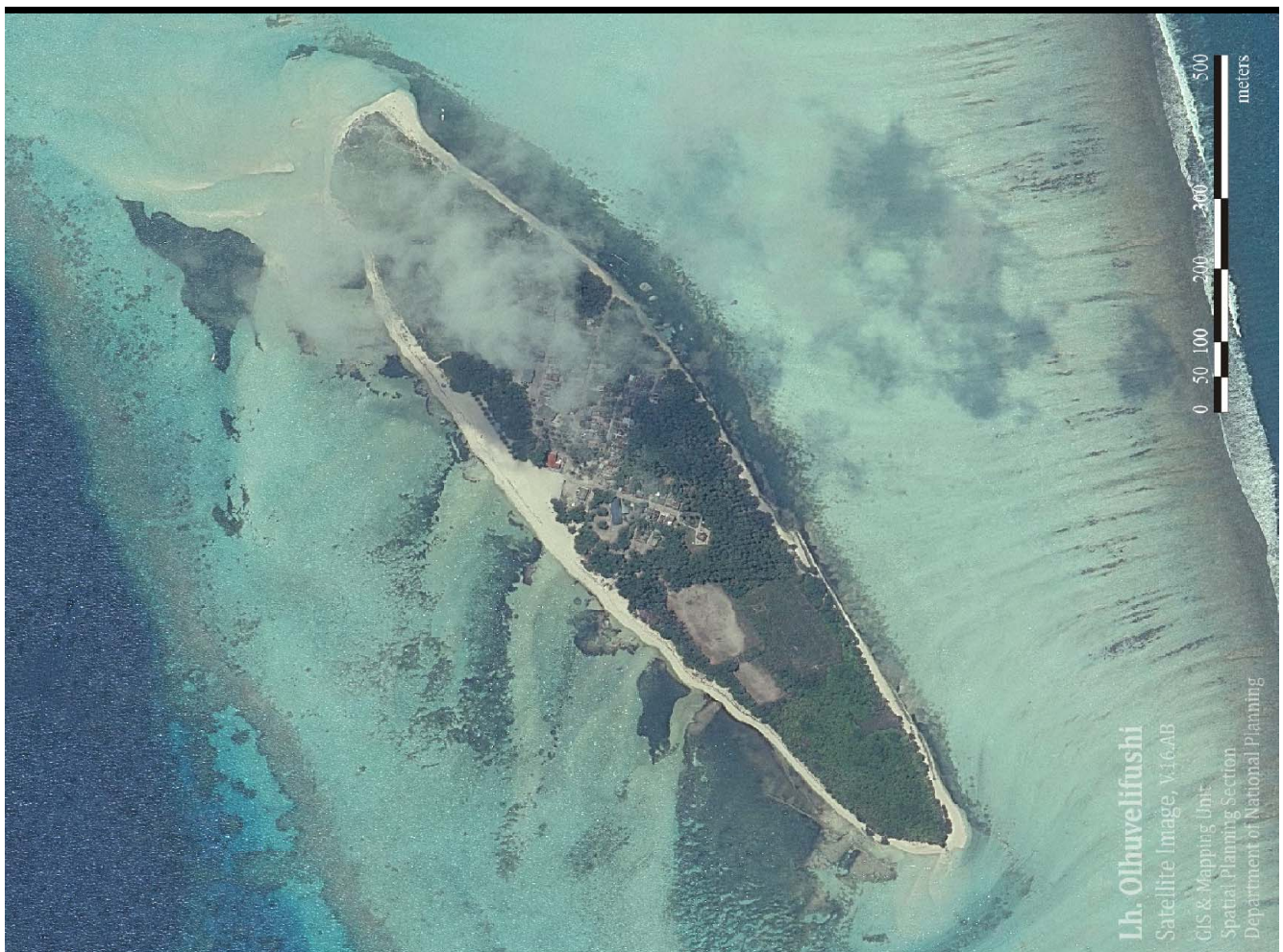
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Rev: 7.2, March 22, 2009







Risk Profile

- Maldives is one of the most vulnerable countries in the world.
- The most flat and the lowest elevated nation with average height of 1.5 meters.
- Maldives faces multi-hazard risks, and threats from the global warming and climate change induced sea level rise and extreme weather events.

Risk Profile

- The country's geographic location, physical and geo-climatic features of its islands near the equator in the Indian Ocean exposes the country to different natural hazards from earthquakes (particularly the Southern region), tropical cyclones, storms, thunderstorms, heavy rainfall, dry spell, floods induced by heavy rainfall to storm surges, swell waves and tsunami.

Hazard Inventory

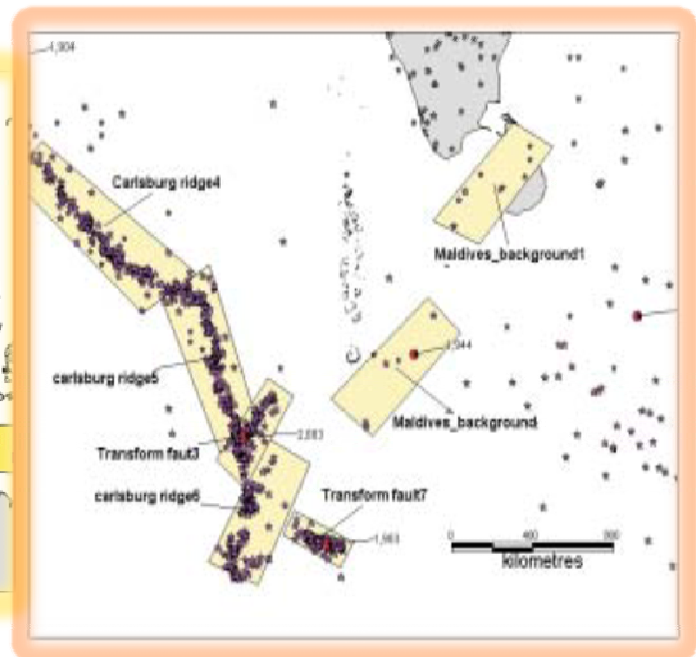
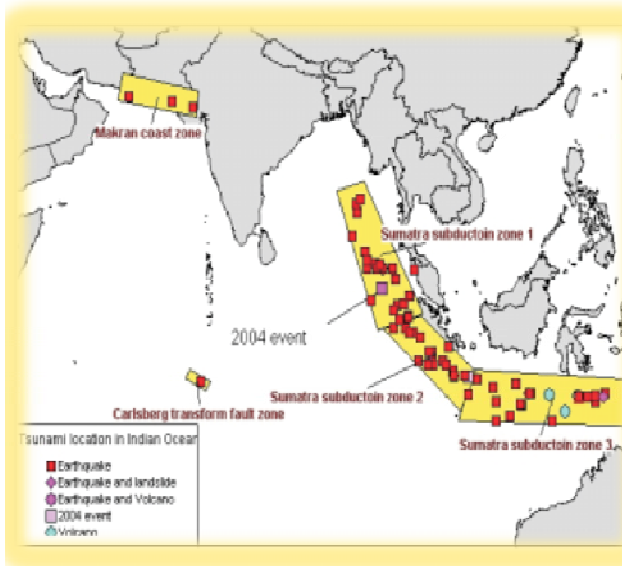
Natural Hazards

- Tsunami
- Floods
- Tropical Storms
- Cyclones
- Sea surge
- Drought / Water shortage
- Sea level rise
- Earthquake

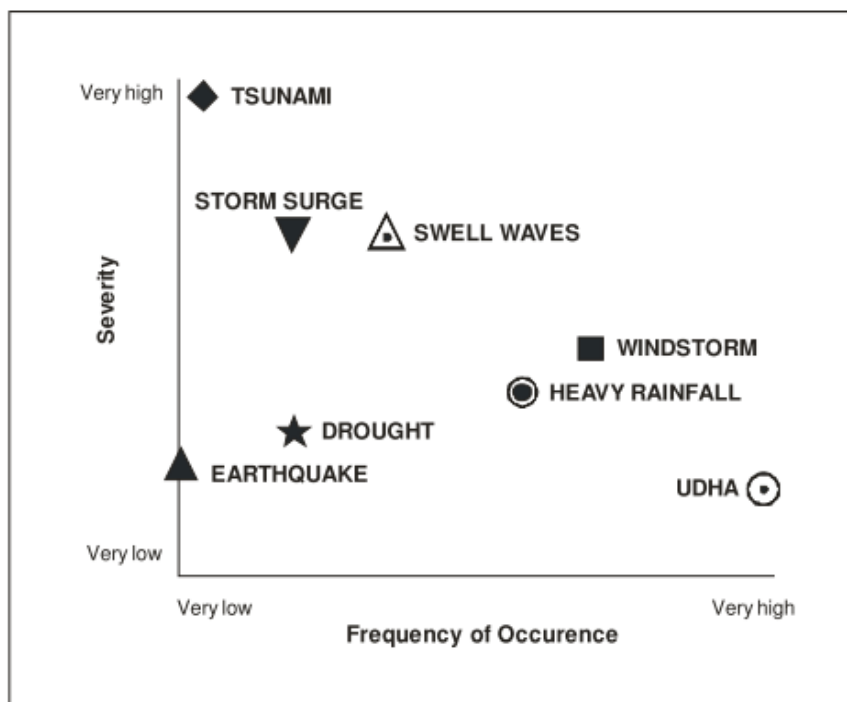
Man-made Hazards

- Fire
- Airport Emergencies
- Maritime Accidents
- Public Health Emergencies
- Oil Spill and Environmental Incidents

Tsunami

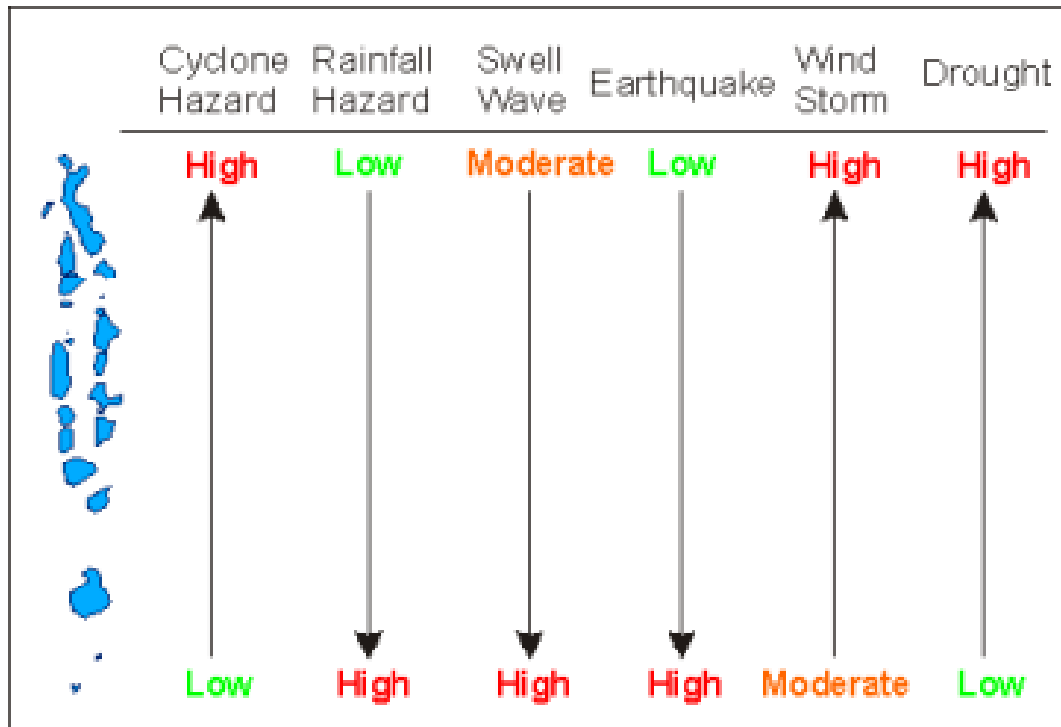


Disaster Risk



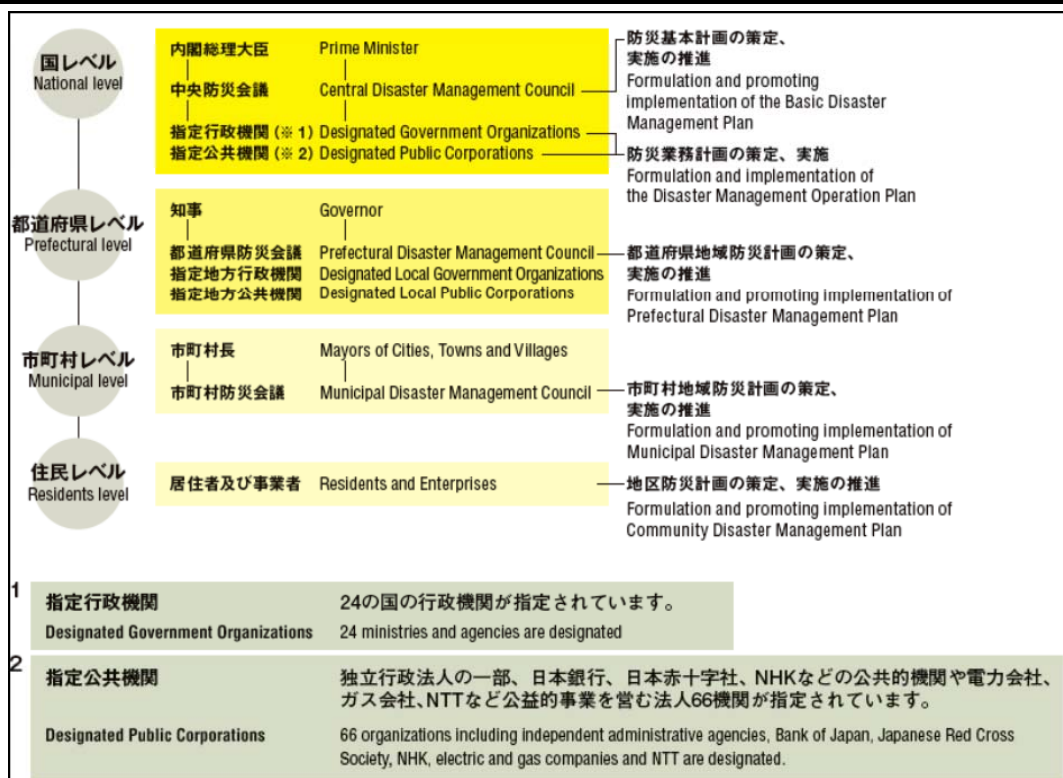
Source: DIRAM

Disaster Risk

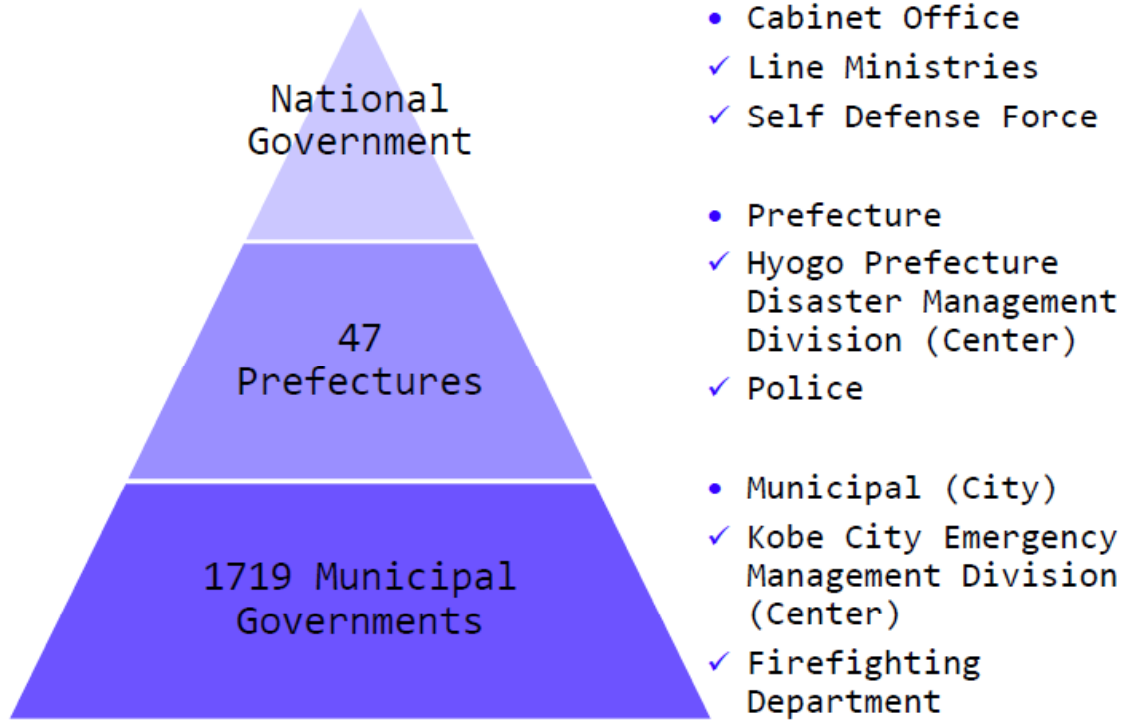


Source: DIRAM

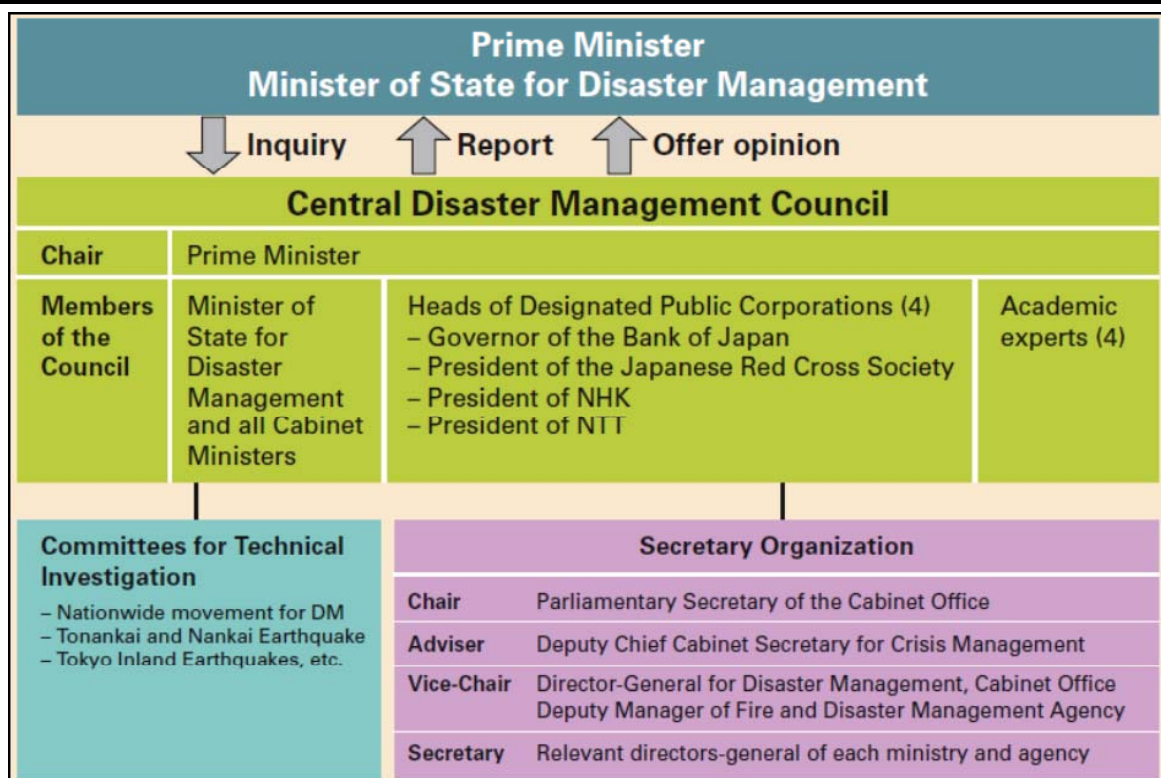
Disaster Management System (Japan)



Disaster Management System (Japan)



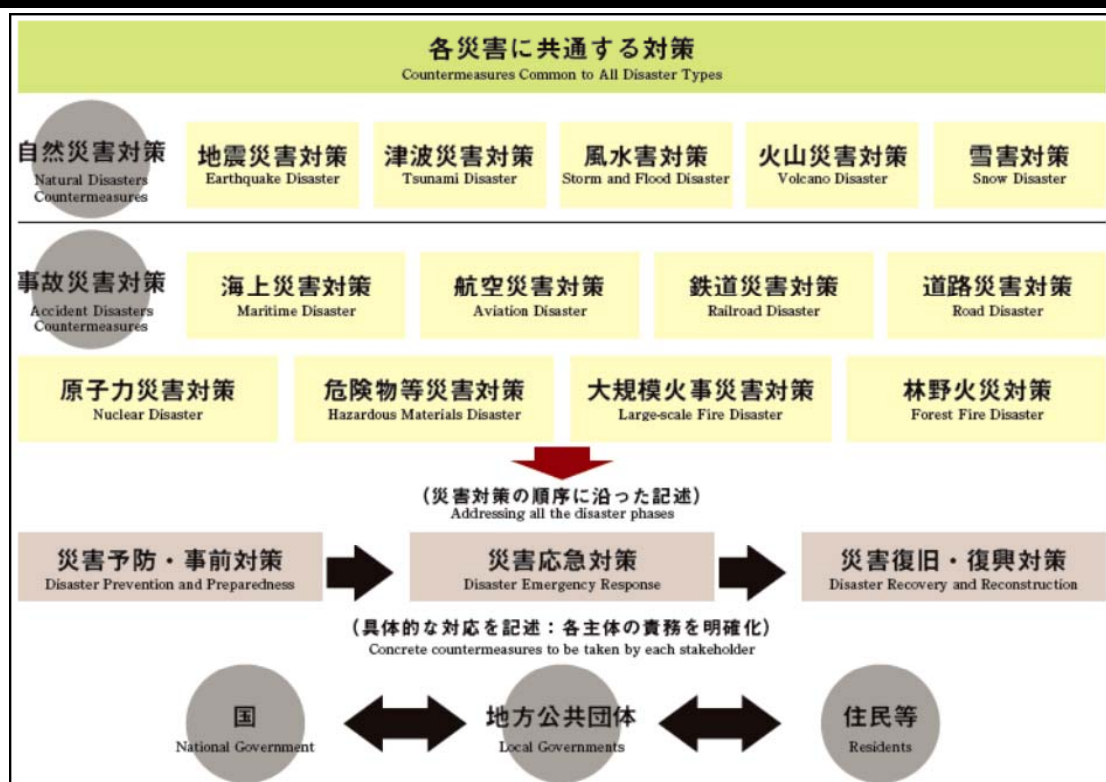
Central Disaster Management Council



Disaster Management System (Japan)

- Basic Disaster Counter Measures Act
 - Definition of responsibilities for disaster management;
 - Disaster management organizations;
 - Disaster management planning system;
 - Disaster prevention and preparedness;
 - Disaster emergency response;
 - Disaster recovery and rehabilitation;
 - Financial measures;
 - State of Disaster Emergency

Basic Disaster Management Plan



Disaster Management System (Maldives)

- Disaster Management Act (28/2015)
- Decentralization of Administrative Divisions Act (2010)
- Armed Forces Act (1/2008)
- Police Service Act (5/2008)
- Maldives Red Crescent Act (7/2009)

Outline of DM Organizations

National Level	City / Atoll Level	Island Level
<ul style="list-style-type: none"> • National Disaster management Council • National Disaster Steering Committee • National Disaster Management Authority • Maldives National Defence Force • Maldives Police Service • Maldives Red Crescent Society • Maldives Meteorological Service • Public Media Service 	<ul style="list-style-type: none"> • City / Atoll Council • City / Atoll Disaster Management Committee • City / Atoll Disaster Management Unit • MNDF Area Commands • Police Divisions / City / Atoll Police • MRC Branches 	<ul style="list-style-type: none"> • Island Council • Island Disaster Management Committee • Island Disaster Management Unit • MNDF Posts / Unit • Island Police Station • MRC Unit • Community Based Organizations

DM Plans

- National Disaster Management Plan (Draft)
- National Emergency Operations Plan (Draft)
- National Framework for Community Based Disaster Risk Management
- National Framework for Managing Internally Displaced People
- Guide for School Emergency Operation Plan
- Disaster Management Plan for Tourism Sector
- Island Disaster Management Plans
- Public Health Emergency Plan
- Island Development Plans



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Standard Operating Procedures (SOP)



National Community Based Disaster Risk Reduction (CBDRR) Framework Maldives

National Multi-Hazard Early Warning Centre Maldives Meteorological Service Republic of Maldives

Standard Operating Procedures (SOP)

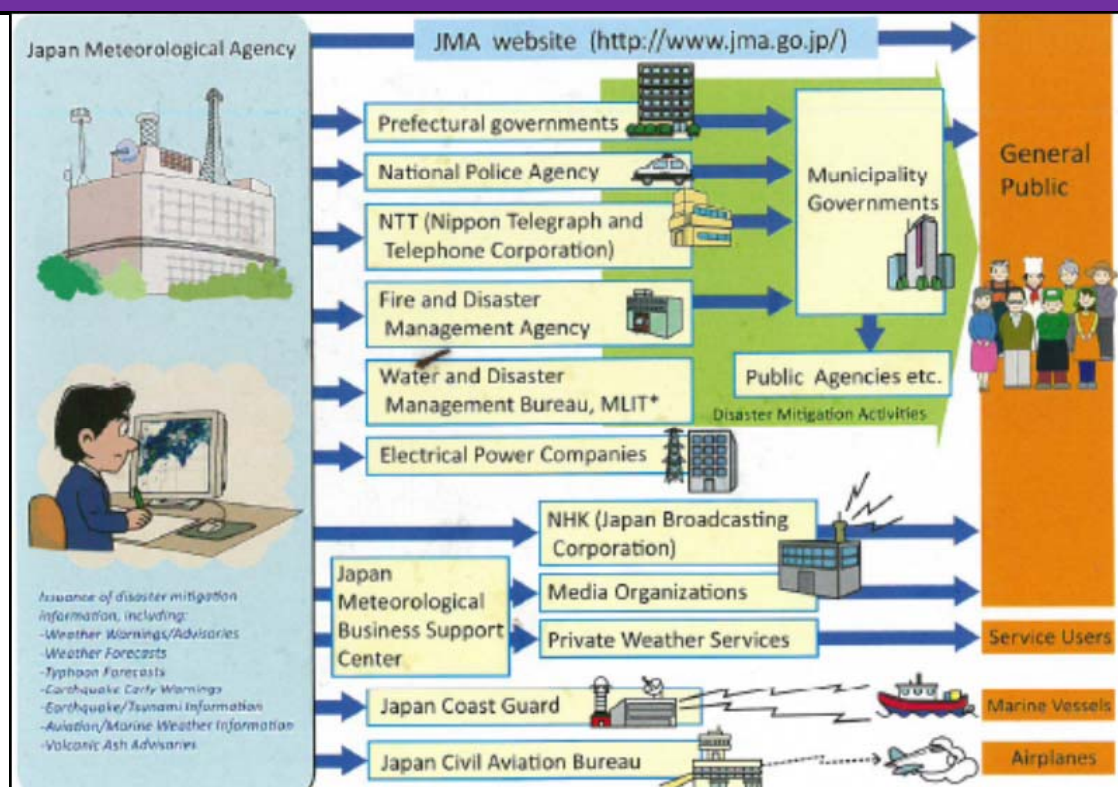
Early Warning System (Japan)

JMA – Japan Meteorological Agency

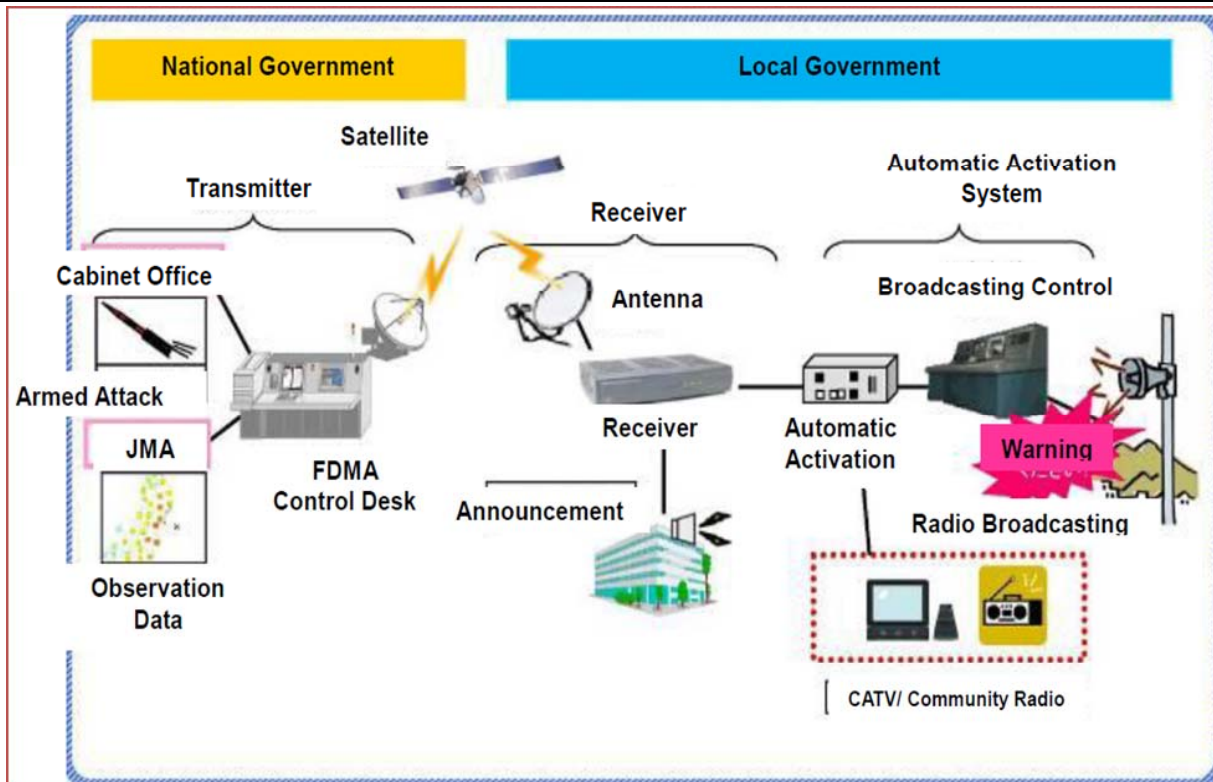
Advisories, Warning, Emergency Warning

- Earthquake and Tsunami Early Warning
- Volcanic Hazard Early Warning
- Meteorological Early Warning
- Sediment Disaster Early Warning
- Emergency Warning
- J-Alert
- L-Alert

Early Warning Dissemination

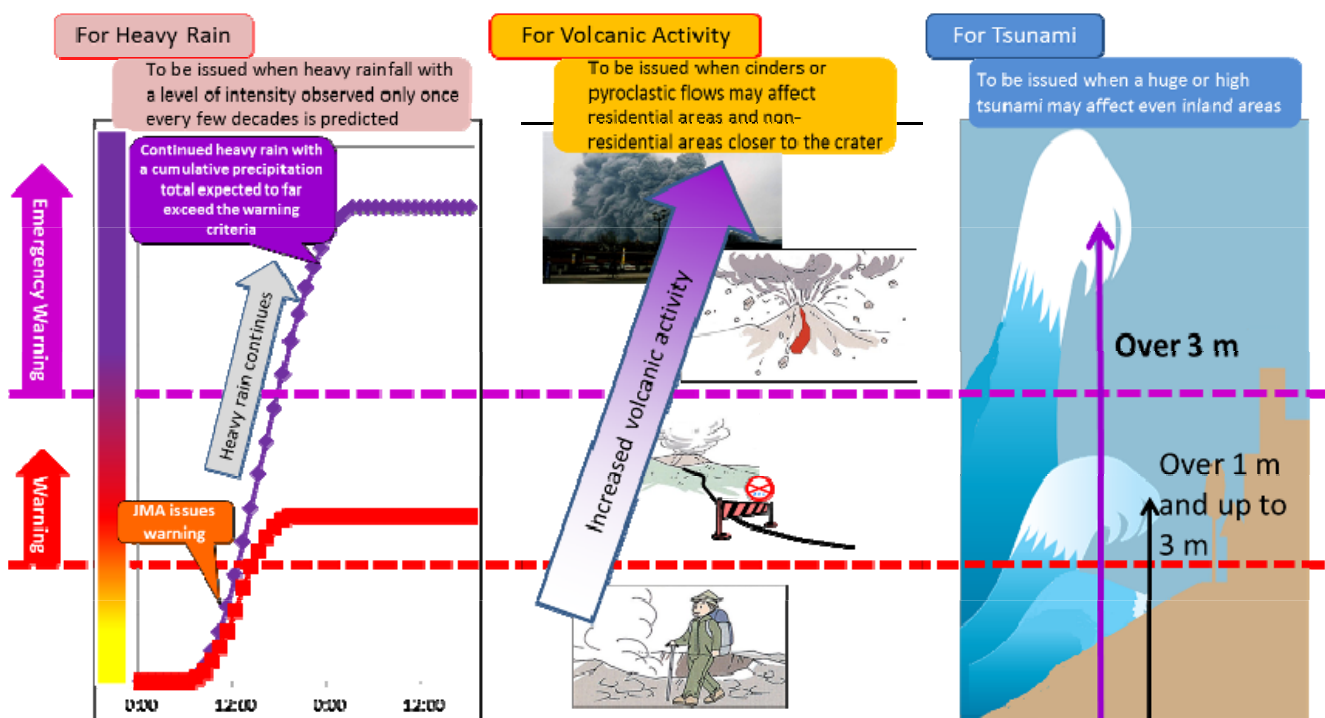


Early Warning Dissemination (J-Alert)

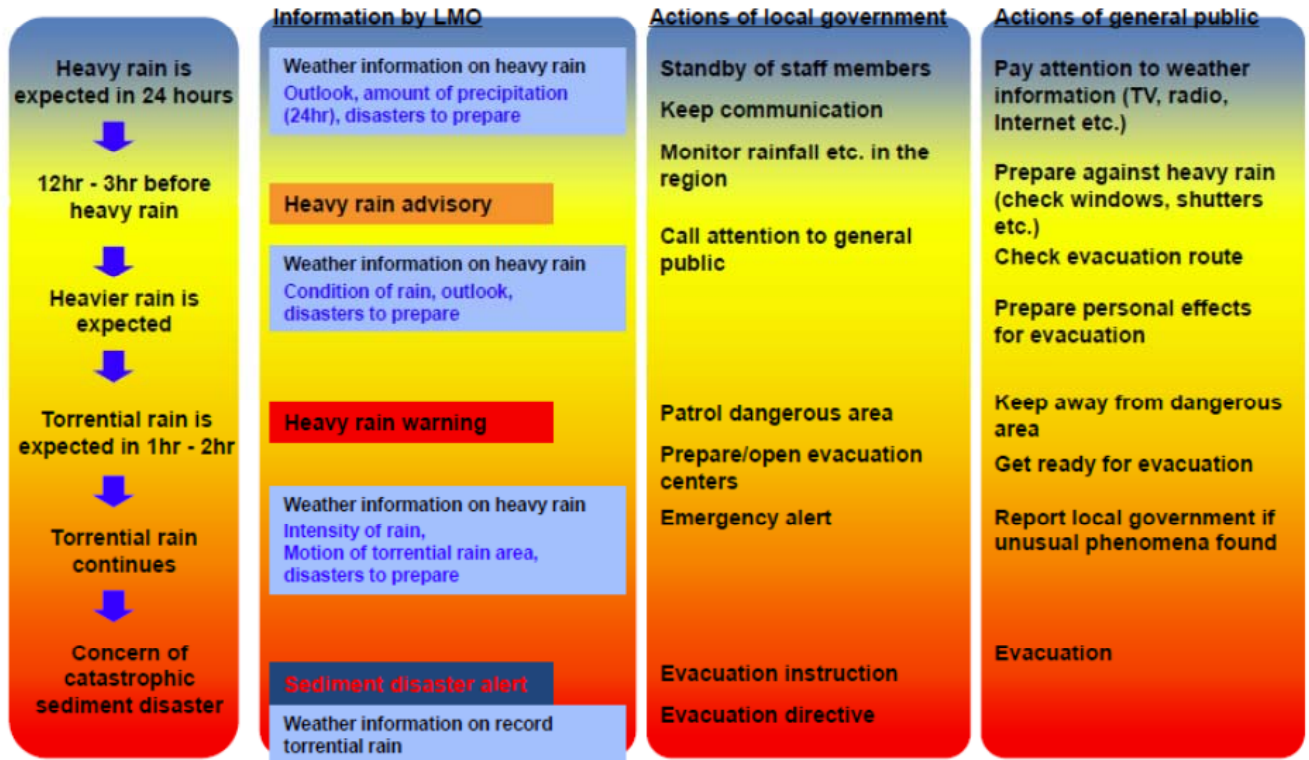


Emergency Warning

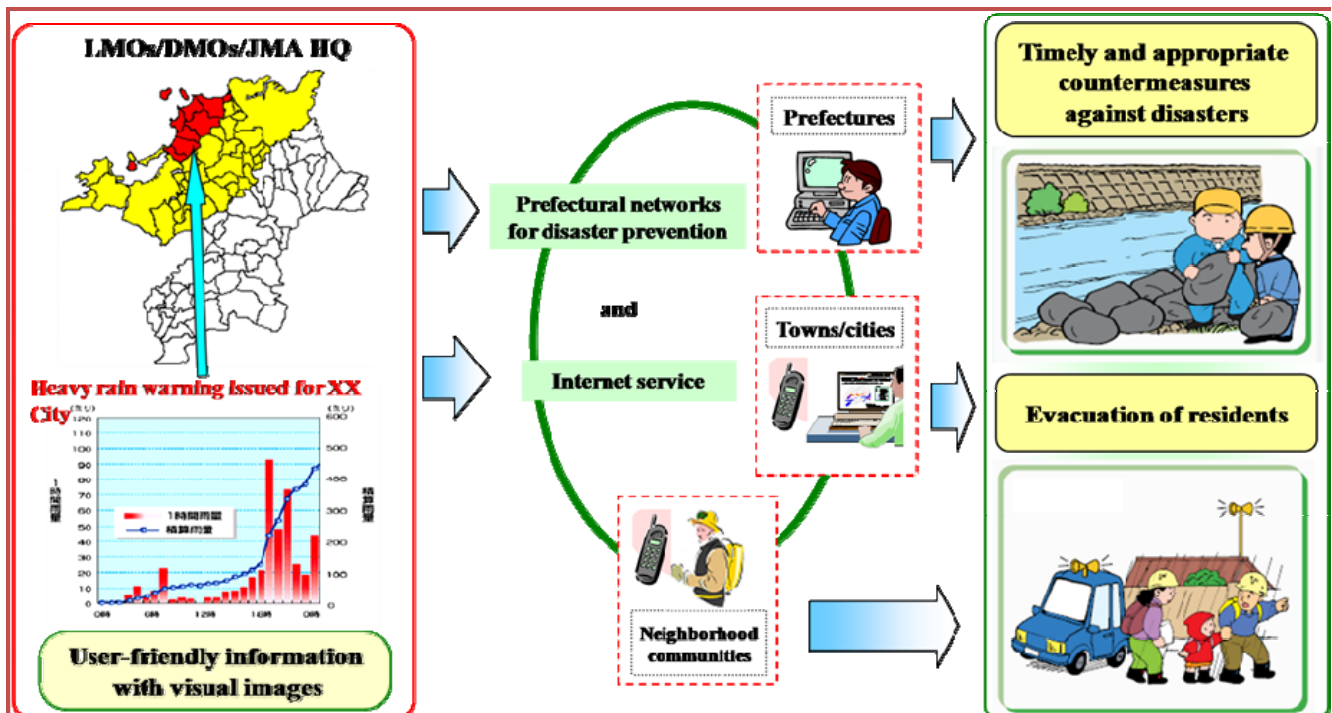
Emergency Warning Overview



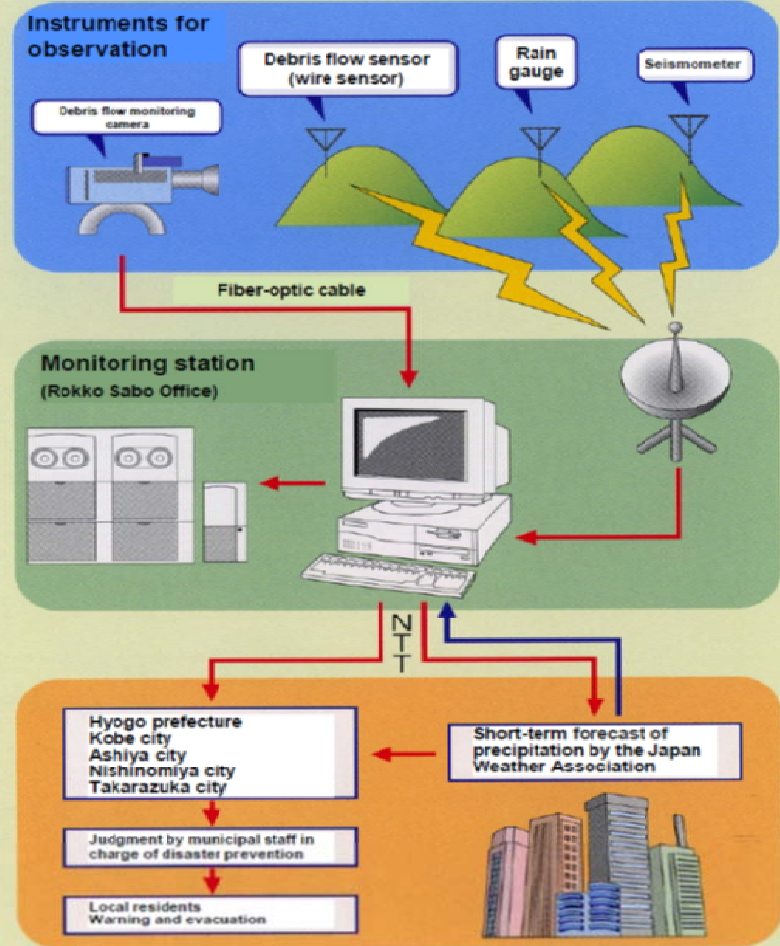
Early Warning Dissemination



Early Warning Dissemination



Early Warning Mechanism and Dissemination (Sediment Disasters) Prefecture Level at Rokko Sabo Office



Early Warning System (Maldives)

MMS – Maldives Meteorological Service

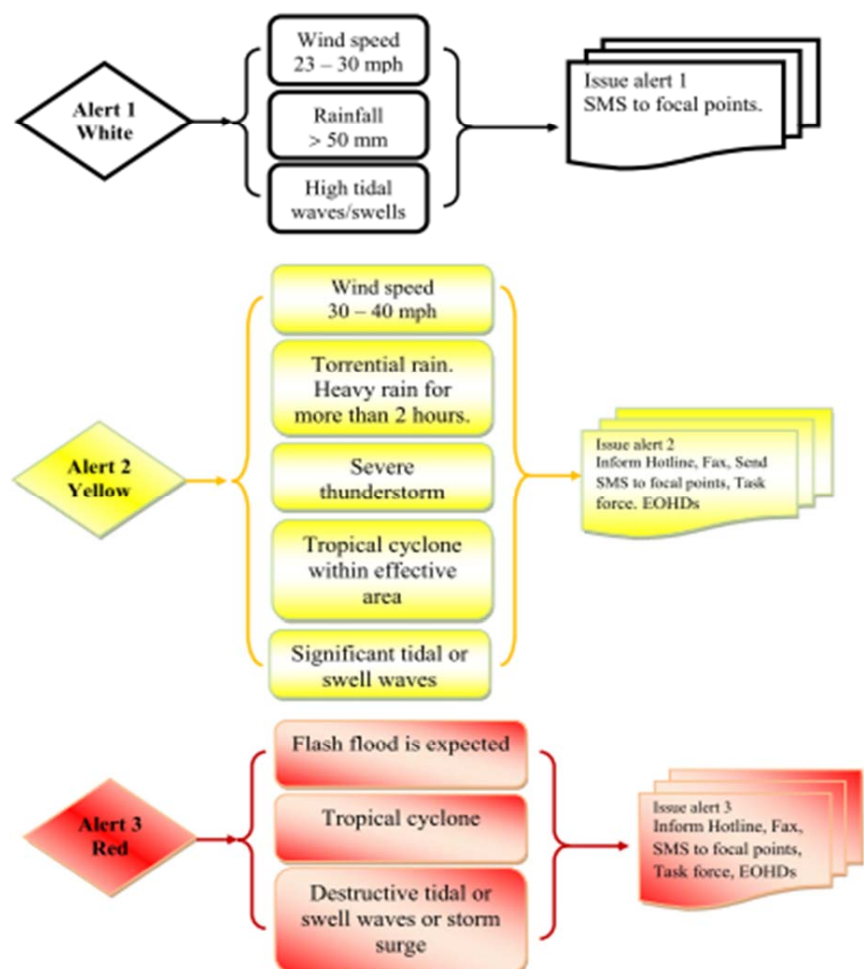
Alerts, Advisories, Warning

- Earthquake and Tsunami Early Warning
- Meteorological Early Warning

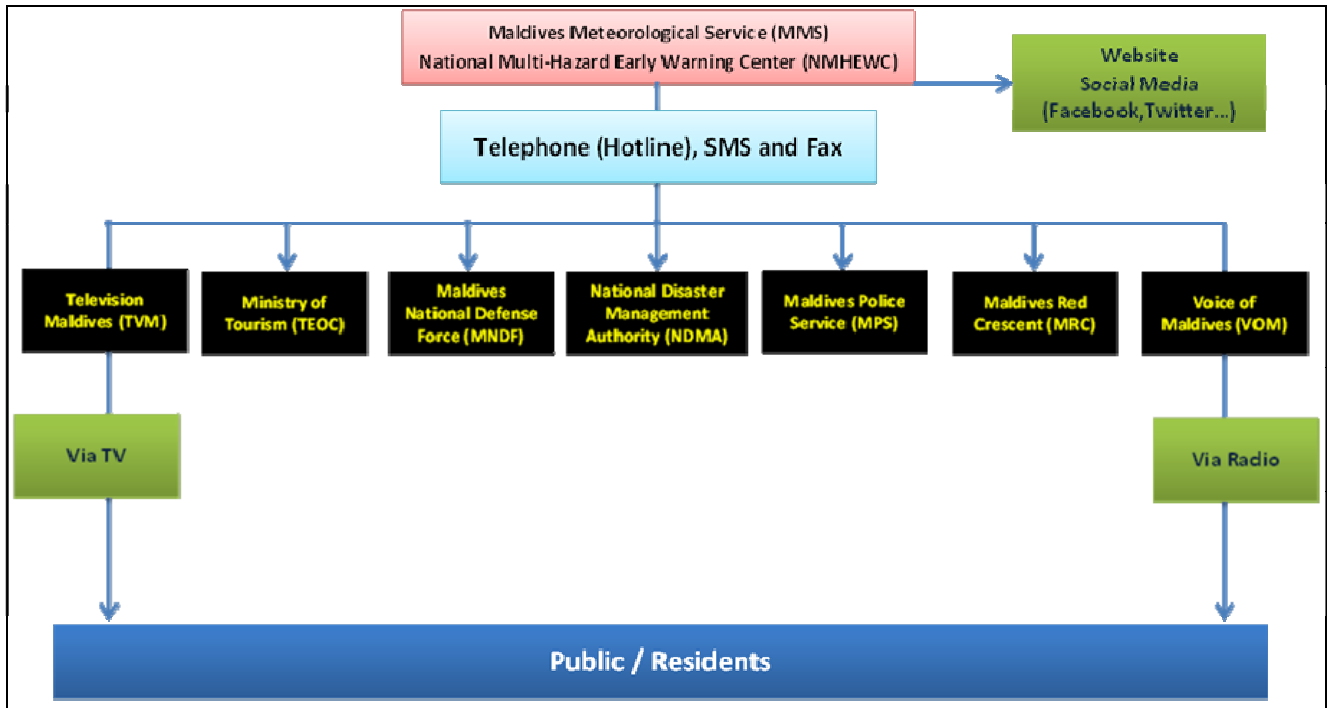
Earthquake and Tsunami Early Warning

Alert Level	Description	Action
1 White	<ul style="list-style-type: none"> An earthquake with magnitude of 7.0 or higher in Richter scale, occurred in the Indian Ocean ring but there is no immediate threat from the event 	Earthquake information
2 Yellow	<ul style="list-style-type: none"> An earthquake occurred with magnitude of 8.0 or higher in Richter scale over the Indian Ocean region. The earthquake has the potential to generate a widely destructive regional tsunami in the Indian Ocean 	Earthquake and Tsunami advisory, concerned authorities and public are advised to be on alert and be ready to move safer areas and high rise buildings
3 Red	<ul style="list-style-type: none"> An earthquake of 8.0 or higher in Richter scale, occurred in the Indian Ocean ring and confirmation of an ocean wide destructive tsunami originated from the epicenter 	Tsunami warning. People at risk to be evacuated from the danger zones
4 Green	<ul style="list-style-type: none"> The condition has improved 	Cancellation message, MMS assumes that the tsunami threat does not exist to Maldives

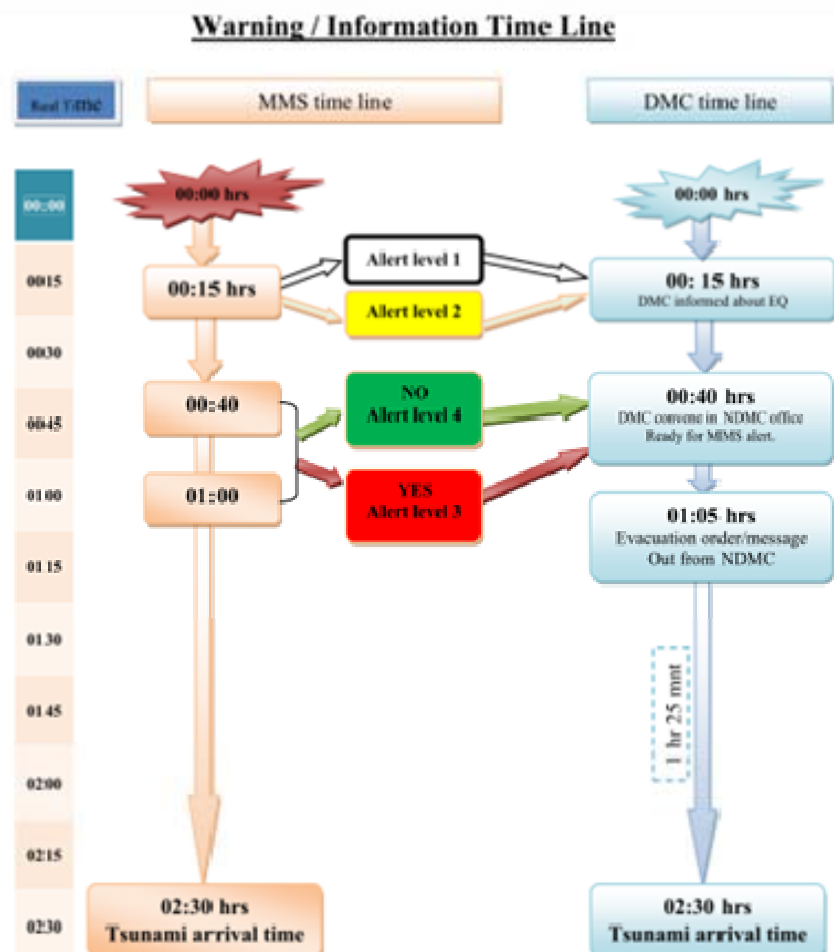
Meteorological Early Warning



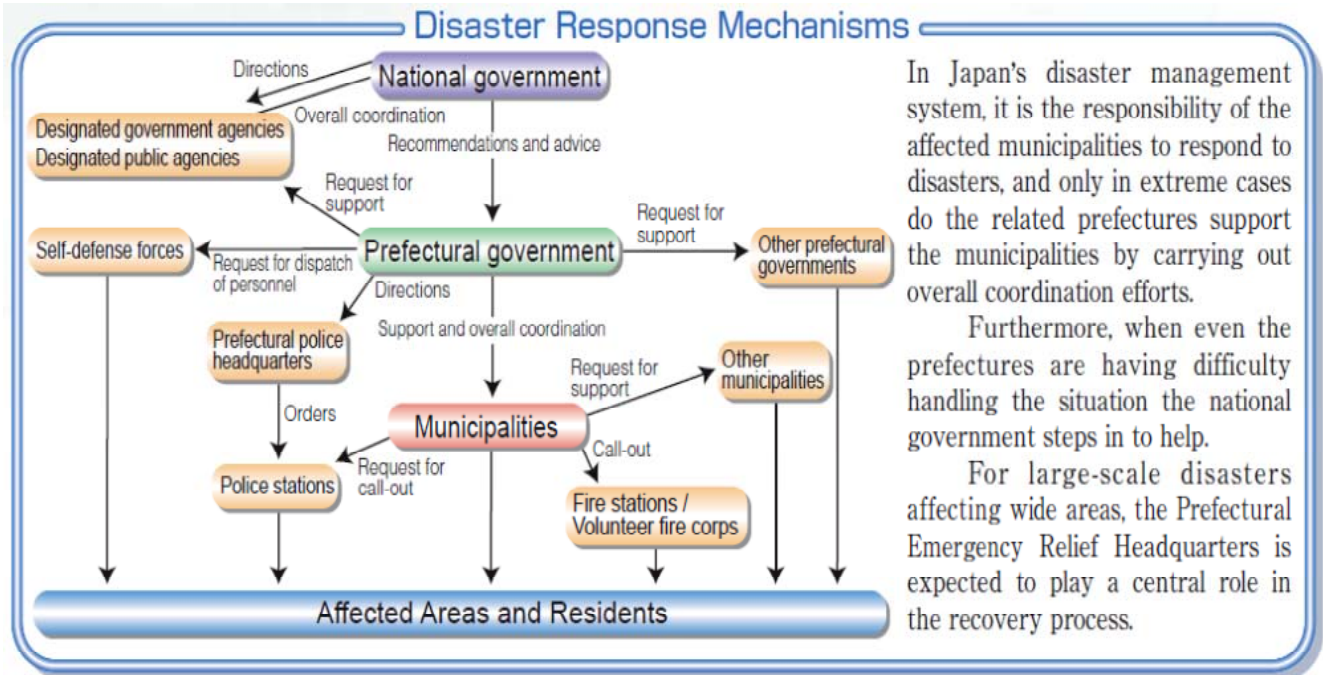
Early Warning Dissemination



Timeline for a Tsunami Early Warning

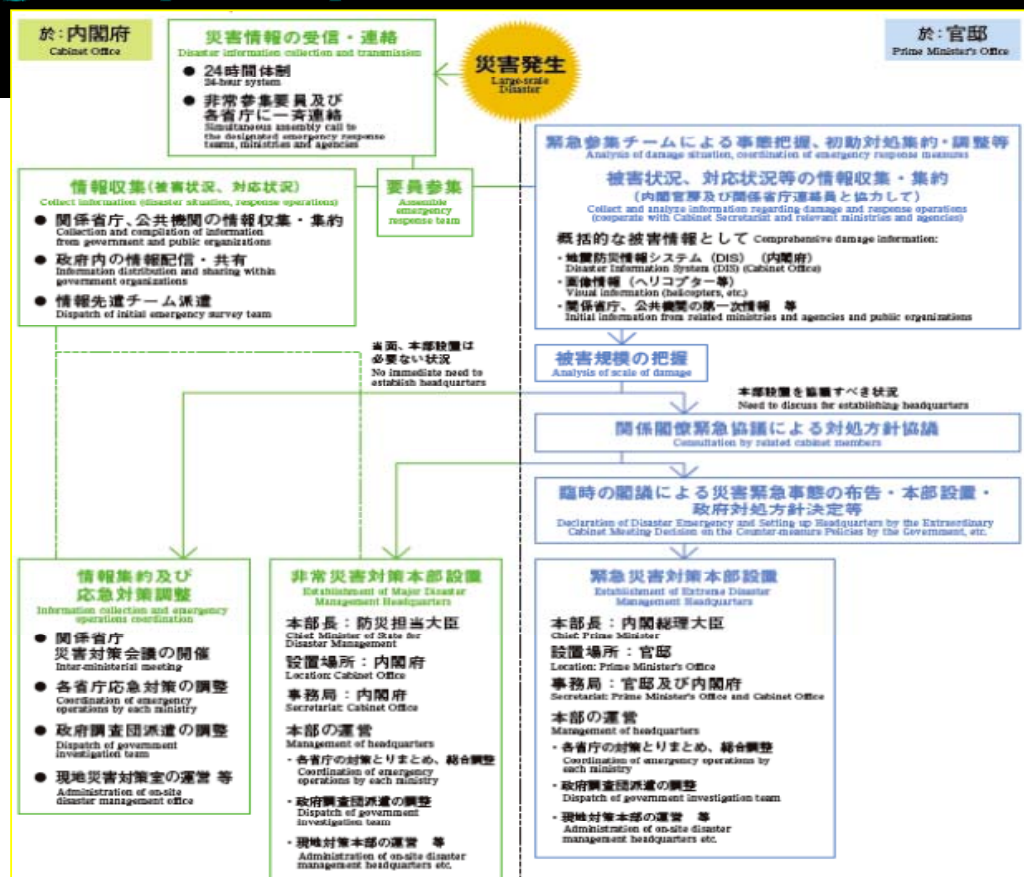


Emergency Response mechanism (Japan)

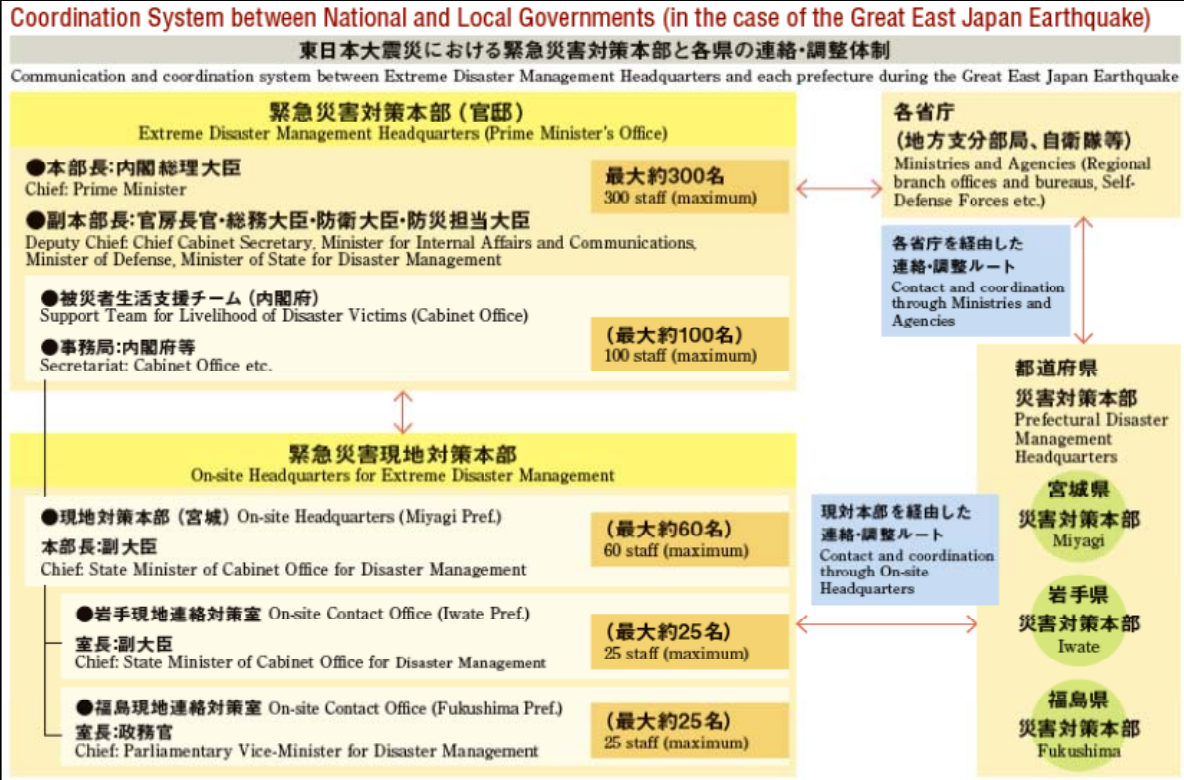


Emergency Response mechanism

- Prime Minister's Office and Cabinet Office



Emergency Response Coordination System

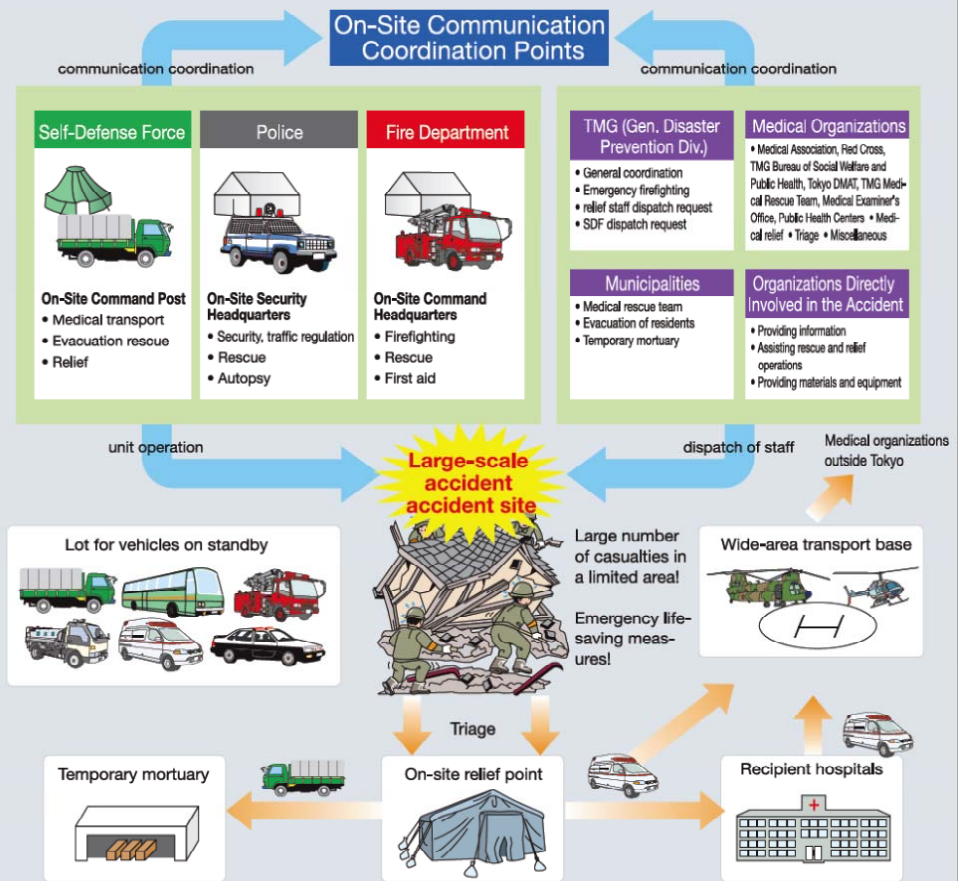


Emergency Response Organizations

- Japan Self Defense Force
- National Police Agency
- Fire and Disaster Management Agency
- TEC - Force
- Disaster Medical Assistance Team (DMAT)
- Japan Coast Guard
- Japanese Red Cross Society
- JMA
- NHK

Emergency Response Mechanism (Tokyo Prefecture)

Flowchart of Actions in the Event of a Large-Scale Accident



Community Disaster Response Organizations

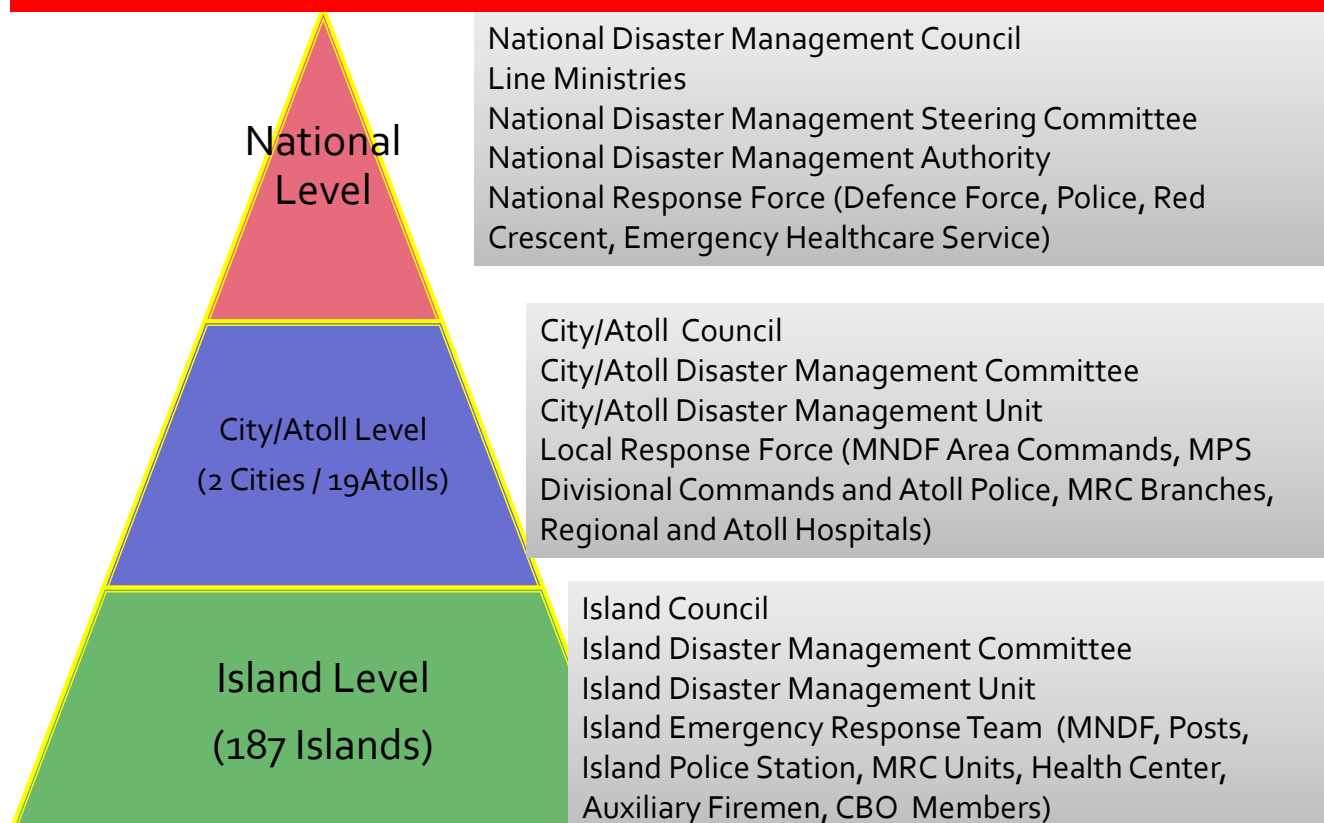
- Voluntary Firefighting Corps
- Voluntary Flood Fighting Teams
- Neighborhood Associations
- Voluntary Disaster Reduction Organizations
 - BOKOMI – Disaster -Safe Welfare Community, Kobe



Emergency Response Mechanism (Maldives)

	National	Atoll/City	Island/Local Level
Decision Making/Strategic	Disaster Management Council Disaster Management Steering Committee	Atoll/City Disaster Management Committee	Island Disaster Management Committee
Emergency Management / Operational	National Disaster Management Authority National Emergency Operations Centre	Atoll/City Disaster Management Unit	Island Disaster Management Unit
Field Level First Responders/ Field Operations	National Emergency Response Force (NERF)	City/Atoll Response Team	Local Emergency Response Force (LERF)

Emergency Response Organization



Lessons Learnt From Japan

“Acting for the common good is a frequent theme in Japanese culture and it infuses the country's approach to disaster preparedness and risk reduction. The rest of the world has much to learn from Japan, if we are to make progress on saving lives and livelihoods, and reducing disaster losses”

Banki Moon, UN Secretary-General

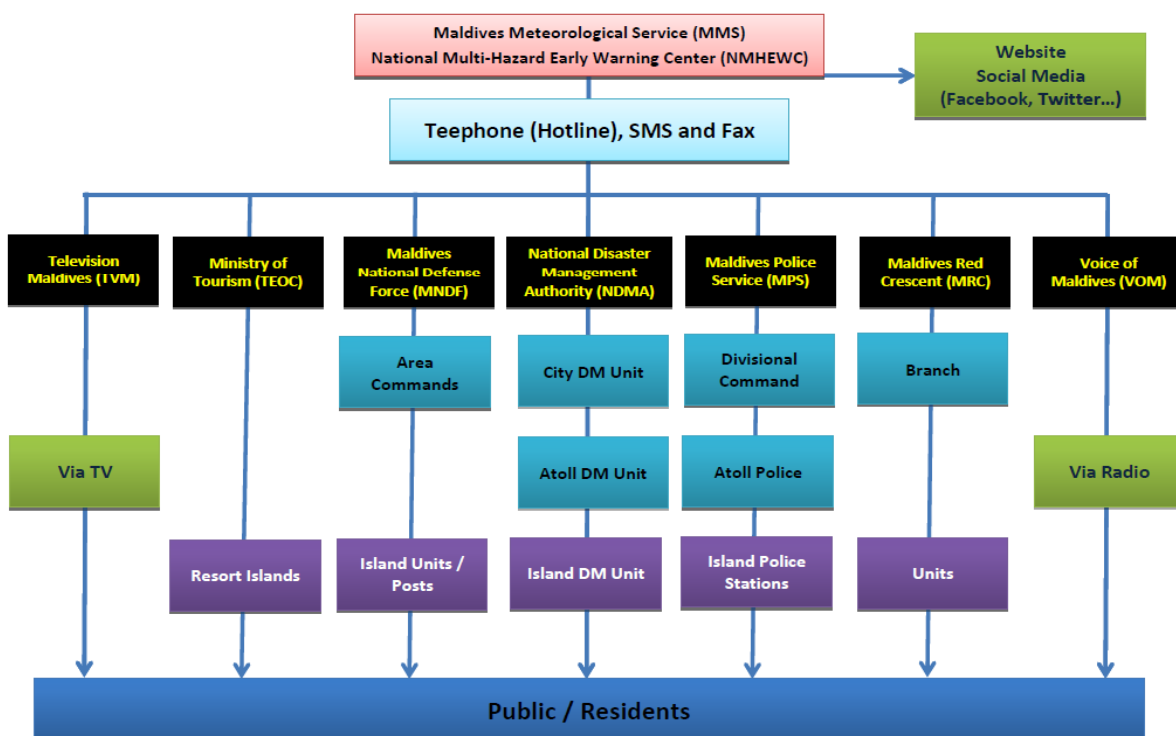
Lessons Learnt From Japan

- Tripod Disaster Response Concept - Self Help, Mutual Help and Public Help
- Multi-hazard, End-to-end Early Warning System
- Wide Area Support System
- Volunteerism and Community based Organizations
- Emergency Kit Bag
- Disaster Drills and Exercises
- Disaster Prevention Awareness

Recommendations

- Implementing and monitoring the action plans.
- Empower and promote the island communities to take the DRR ownership
- Prepare, implement and maintain emergency response plan for every island community with whole community participation.
- Establish community based early warning system in all the inhabited islands.

Recommendations



Recommendations

- Establish and create community emergency response team (CERT) in all inhabited island communities.
- Arrange and conduct drills and emergency exercises at all levels involving all the sectors and stakeholders.
- Teach disaster prevention skills for survival. Such as fire extinguishing, swimming and sea survival, basic first aid and maintaining emergency kit bag etc.
- Make DRM a learning module and a practical component at schools
- Develop wide area disaster support hubs in other parts of the country