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A Comparative Study on Emergency Response System (ERS) in Japan and Myanmar

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Agenda

1. Overview of Emergency Management
2. Disaster Management in Japan
3. Current Status of Emergency Response System in Myanmar
4. Model Emergency Response System of Myanmar
5. Conclusion

1. Overview of Emergency Management

Overview of Emergency Management

- Define “Emergency Management”
- Components of Emergency Response System

Overview of Emergency Management

- "The managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters" defined by FEMA.
- Eight principles of emergency management; Comprehensive, Progressive, Risk-driven, Integrated, Collaborative, Coordinated, Flexible and Professional
- Four phases of emergency management; Mitigation/ Prevention, Preparedness, Response and Recovery

Components of Emergency Response System

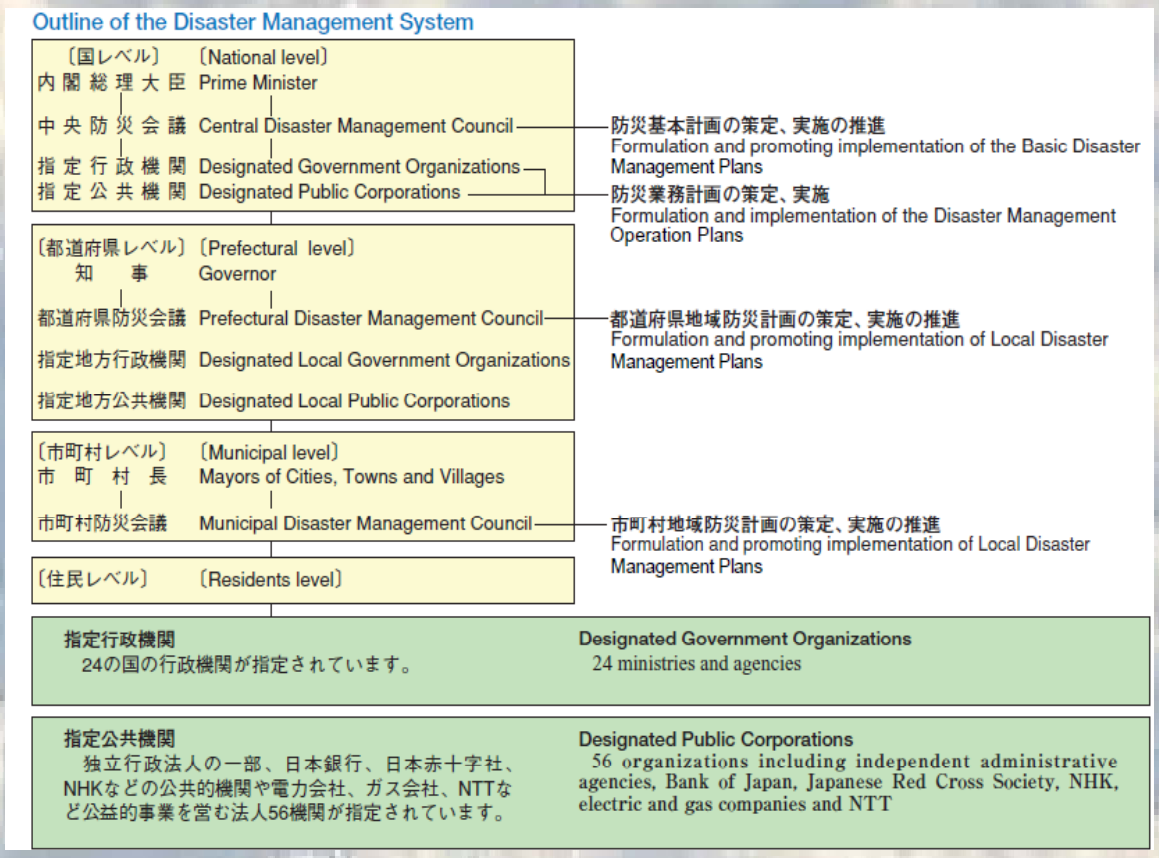
- **Response**: the provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected
- **Public awareness**: a key factor in effective disaster risk reduction (Example: the development and dissemination of information through media and educational channels, the establishment of information centers, networks, and community or participation actions, and advocacy by senior public officials and community leaders)
- **Early warning**: the set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss
- **Contingency planning**: a management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations
- **Emergency service:** include agencies such as civil protection authorities, police, fire, ambulance, paramedic and emergency medicine services, Red Cross and Red Crescent societies, and specialized emergency units of electricity, transportation, communications and other related services organizations.

2. Disaster Management in Japan

Disaster Management System of Japan

- Overview of Disaster Management System
- Legal and Institutional Framework
- Public Awareness
- Early Warning System
- Emergency Response Management
- Case study on Great East Japan Earthquake (GEJE)

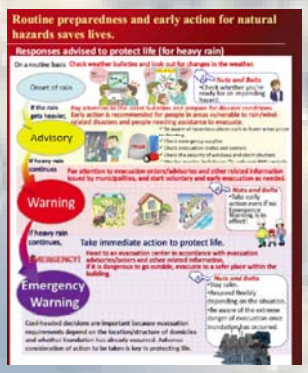
Overview of Disaster Management System



Legal Framework in Japan

- 7 Basic Acts
- 18 Disaster Prevention and Preparedness Legislations
- 3Disaster Emergency Response
- 23 Disaster Recovery and Reconstruction and Financial Measures Acts
- The learning of the 2011 Great East Japan Earthquake and Tsunami (GEJET) and nuclear disaster has been incorporated in the Disaster Countermeasures Basic Act by amending it in June, 2012 and by making changes in Basic Disaster Management Plan in December, 2011.
- Japan subsequently revised several time with lessons learnt from disasters and this learning is reflected in her laws, policies and plans.

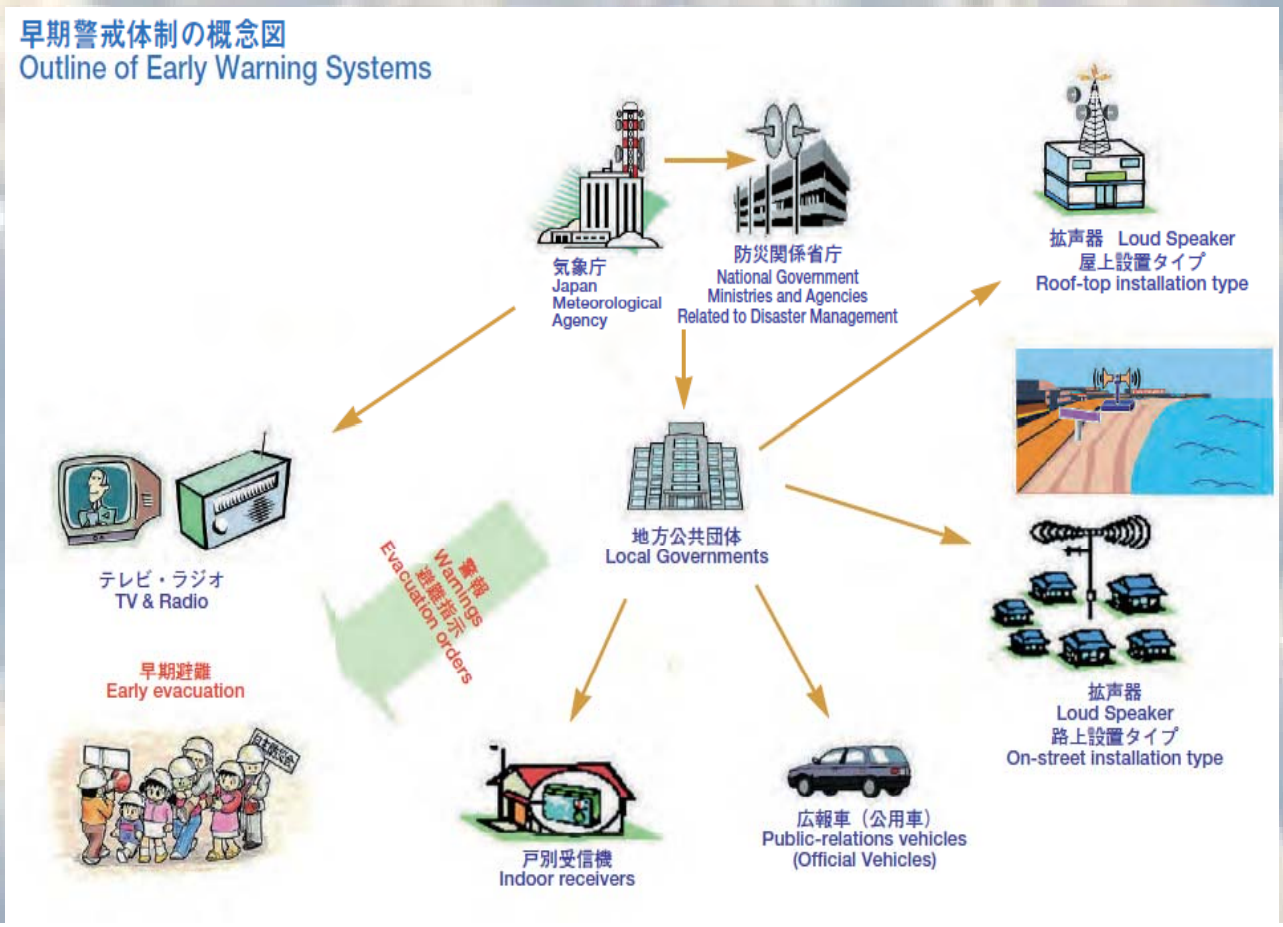
Public Awareness in Japan



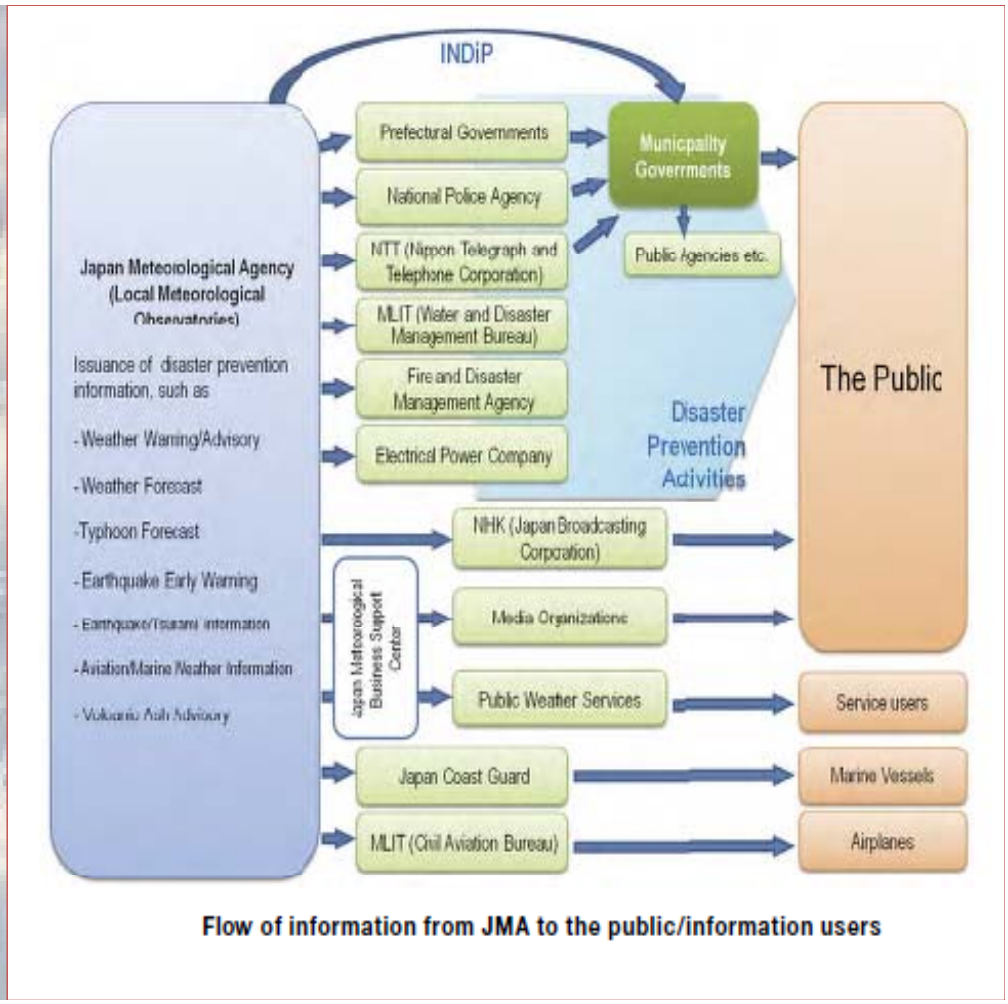
Early Warning System in Japan

- Early Warning System of Japan Meteorological Agency (JMA)
- Dissemination information of Forecast and Early Warning
- Utilization of Earthquake Early Warning Information
- J-Alert System
- Integrated Disaster Management Information System

Early Warning System of Japan Meteorological Agency (JMA)

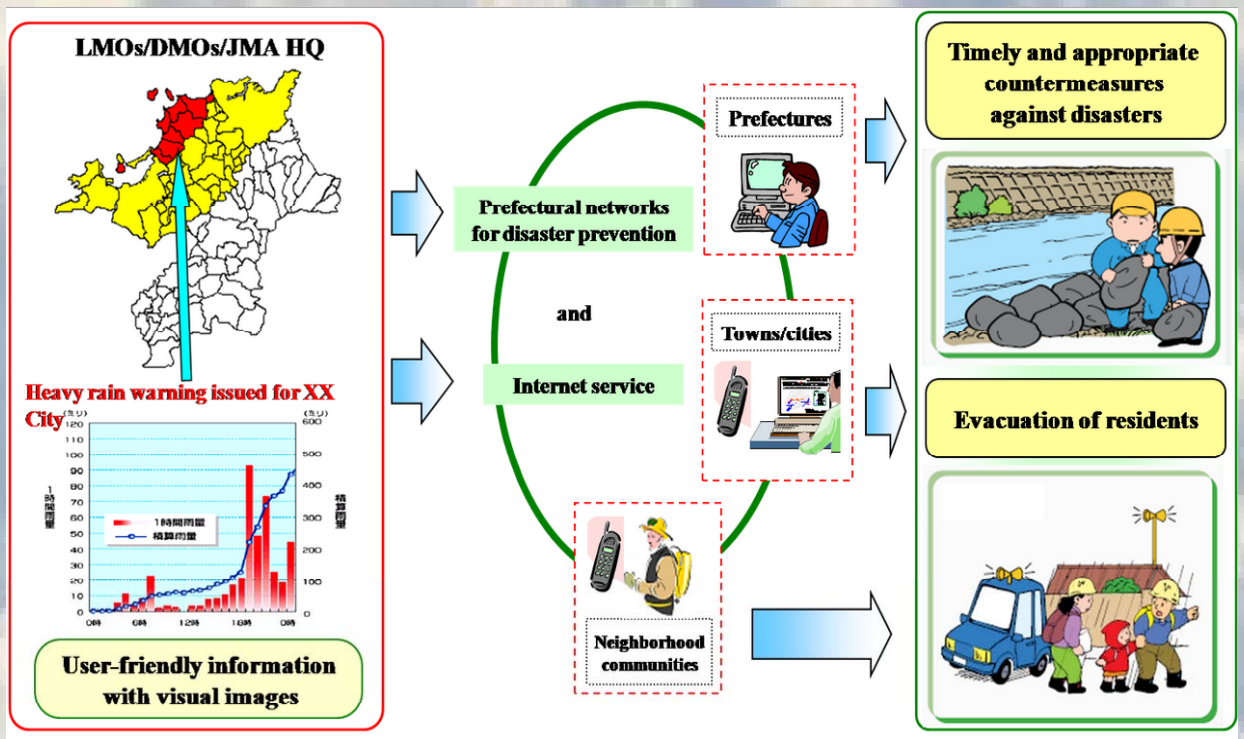


Weather and Disaster Information Dissemination by JMA

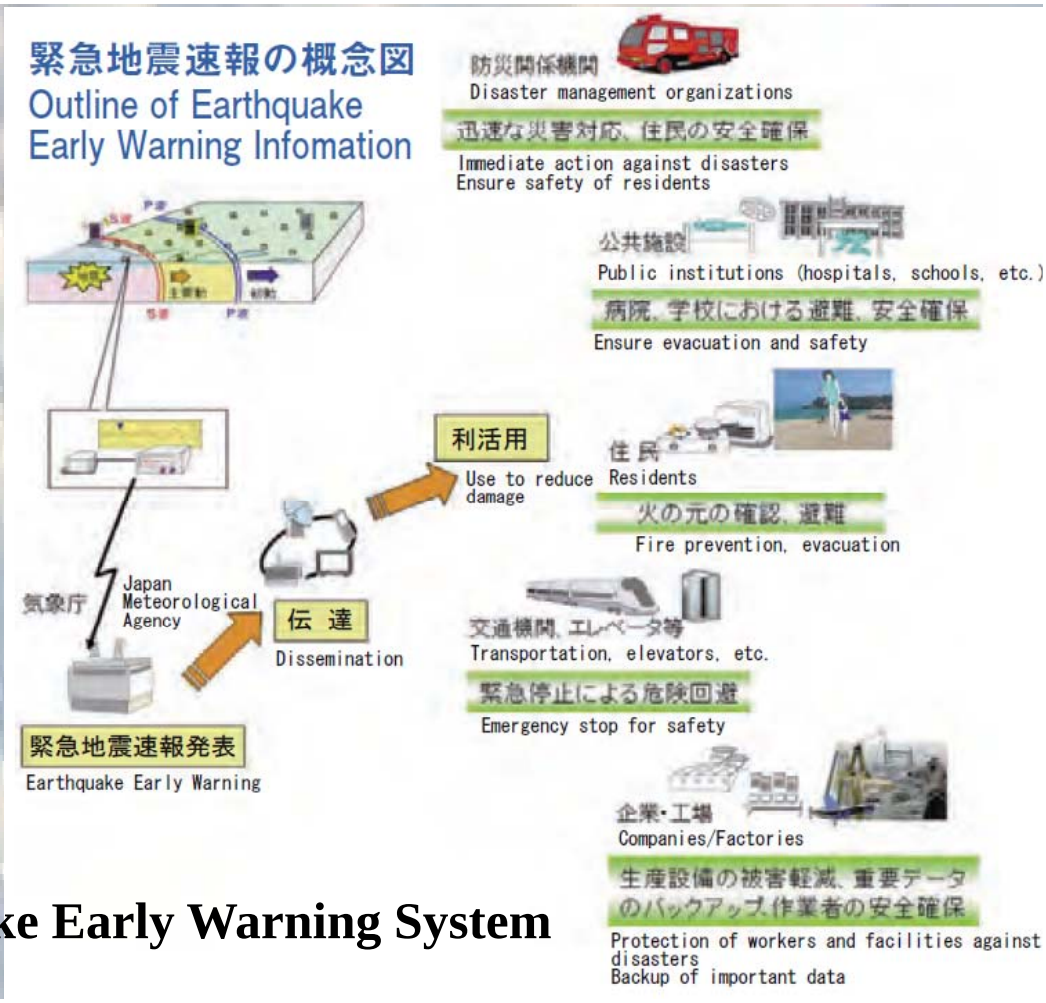


Flow of information from JMA to the public/information users

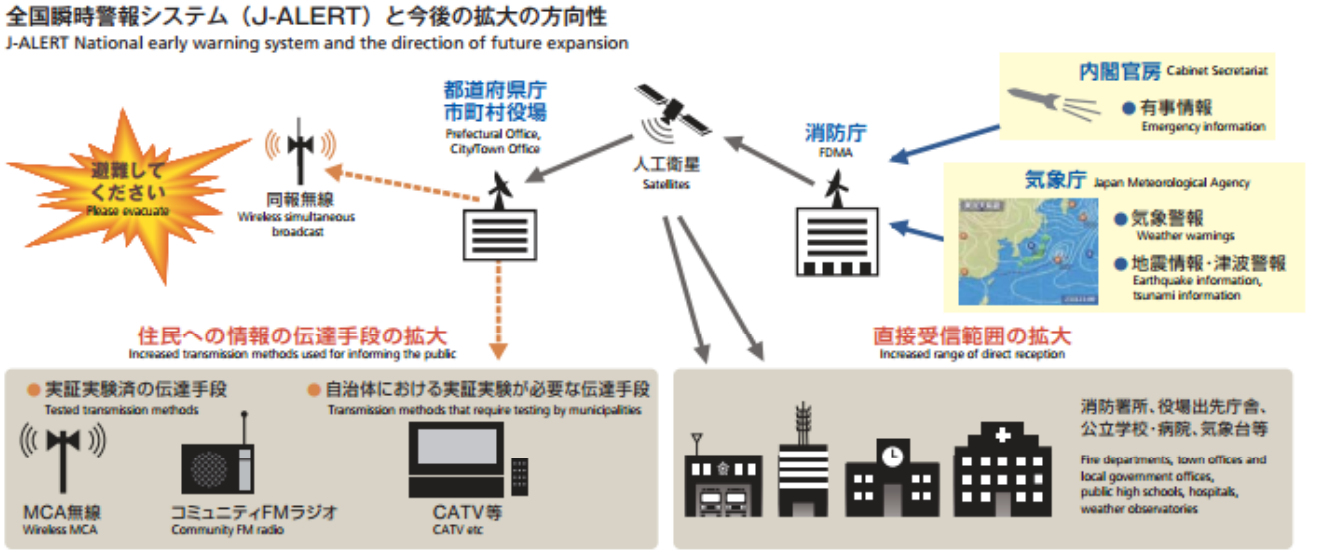
Weather Forecast and Warning and flow thereof



Earthquake Early Warning System



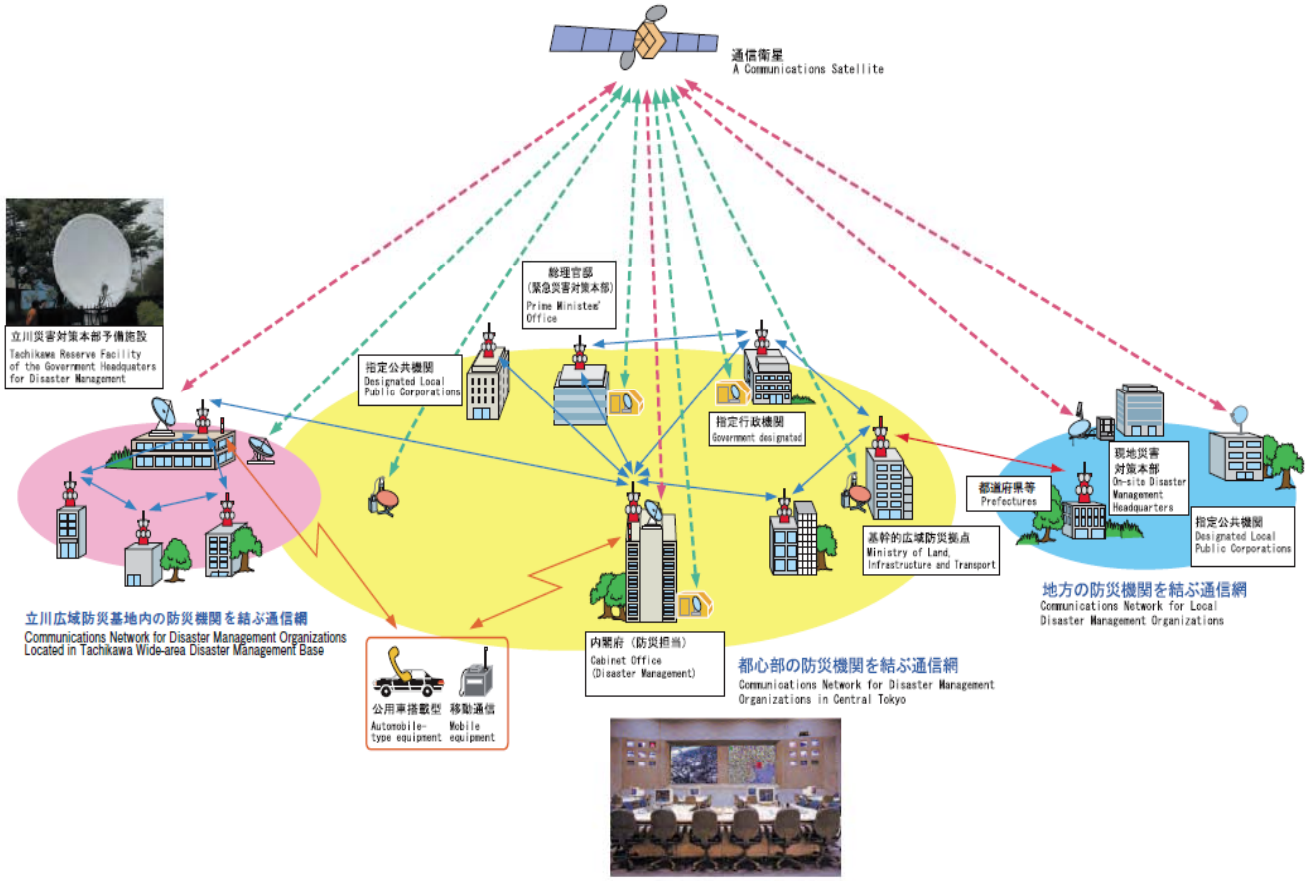
J-Alert System



Information Management System in Japan

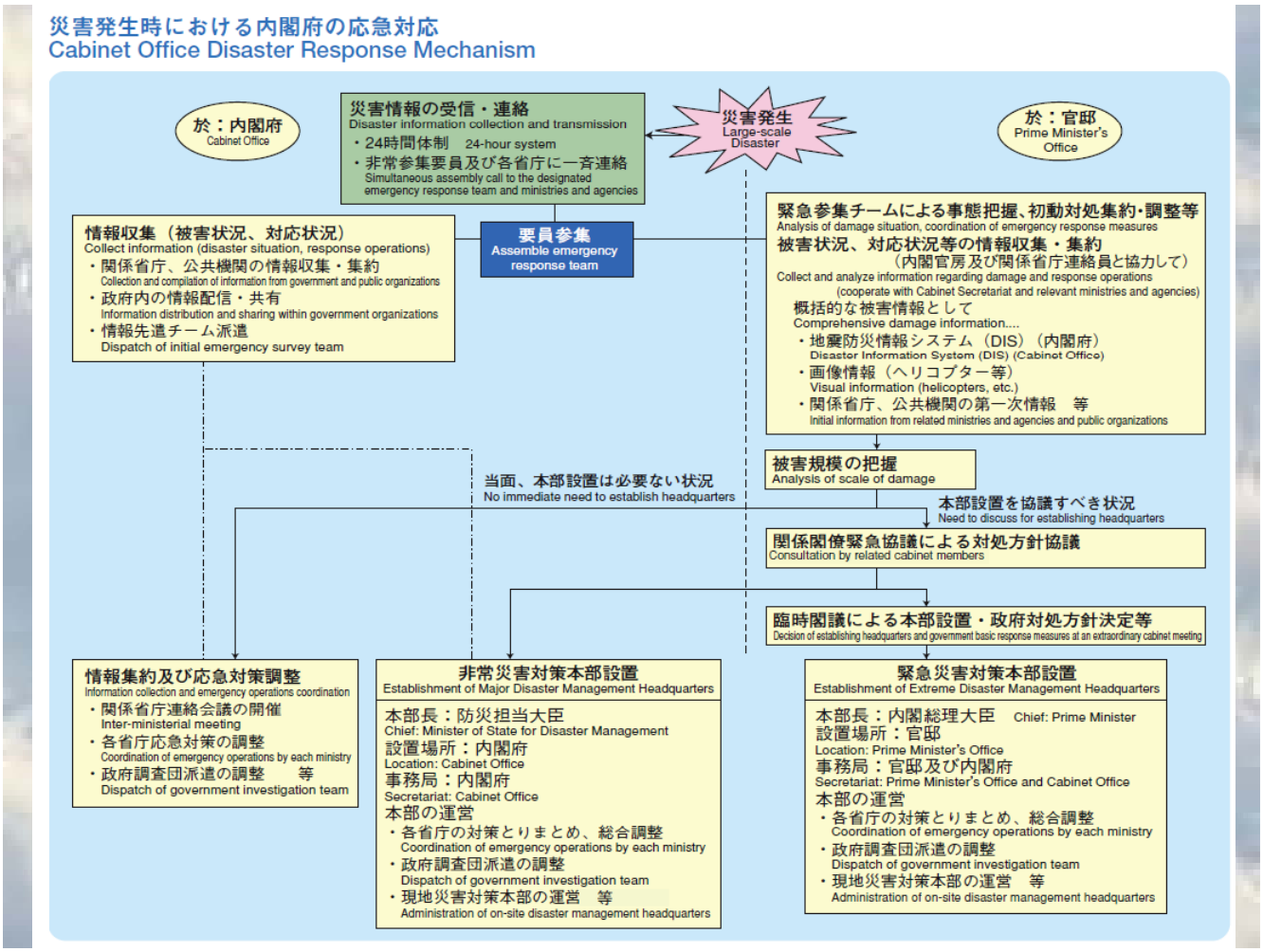
- Earthquake Disaster Information System (DIS)
- Real Damage Analysis System by Artificial Satellite (RAS)
- Disaster Information Sharing Platform (PF)

中央防災無線網の概念図
Outline of Central Disaster Management Radio Communications System

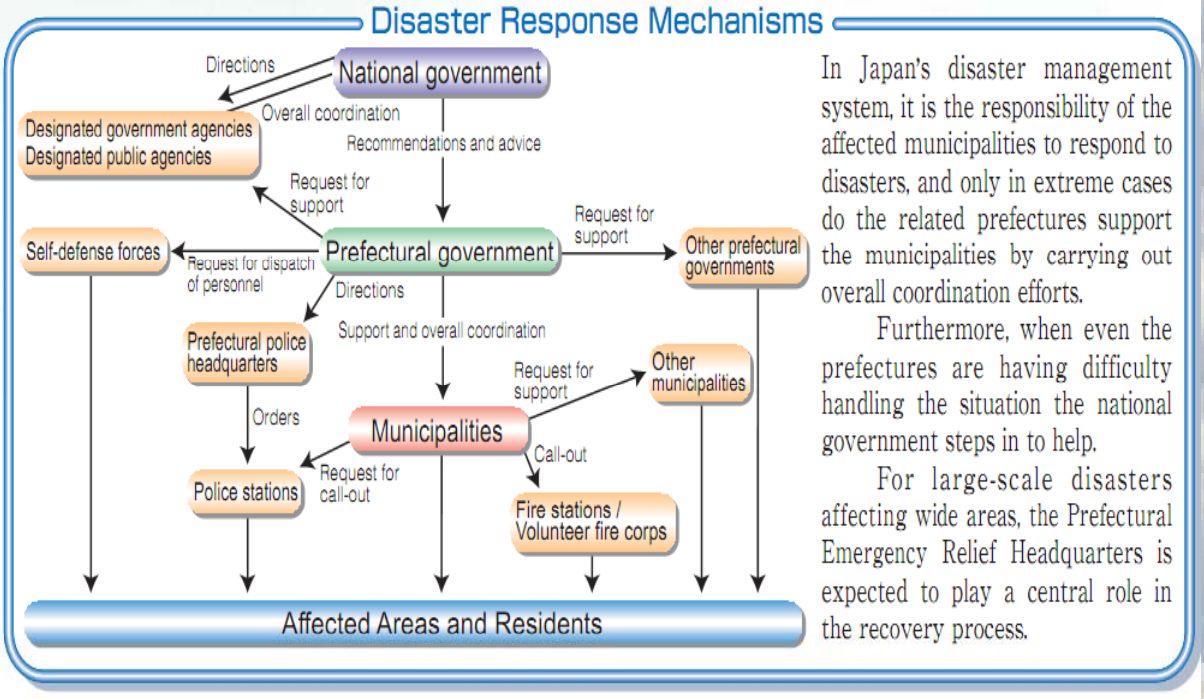


Emergency Response System in Japan

- Disaster Response Mechanism
- Emergency Management System, Hyogo Prefecture, Japan



Disaster Response Mechanism



In Japan's disaster management system, it is the responsibility of the affected municipalities to respond to disasters, and only in extreme cases do the related prefectures support the municipalities by carrying out overall coordination efforts.

Furthermore, when even the prefectures are having difficulty handling the situation the national government steps in to help.

For large-scale disasters affecting wide areas, the Prefectural Emergency Relief Headquarters is expected to play a central role in the recovery process.

Emergency Management System, Hyogo Prefecture, Japan






Case Study on GEJE (March 2011)

Before Tsunami:

- Japan's national territory is covered by early warning systems for storms, torrential rains, heavy snow, sediment disasters, tsunamis, tidal waves, high surf, inundation and flood." Generally, the Japanese population followed warnings issued before and during the alerts.
- Within 3 minutes after earthquake occurred, JMA disseminated (tsunami) emergency warning to NHK.
- NHK transmitted immediately emergency warning on all channels and call for evacuation.
- Then , TV, Radio and mobile automatically activated by signal.

After Disaster:

- 11 March 2011 at 14:46 JST (5:46GMT)
- 9.0 Magnitude
- 15.534 people - Dead
- 7,092 people - Missing
- 111,044 buildings - Damage
- 400, 000 buildings - Destroyed
- Government established emergency response team.
- To serve quickly relief work, organize and coordinate over 300 organization including government offices, non-governmental agencies, and civil society organizations.
- Social media such as Twitter, Face Book, Mixi, Web pages or Blogs, etc. were used extensively during the GEJE for various purposes, such as search, rescue, and fundraising.

After Disaster:

•Ministry of Information and Communication (MIC) distributed 10,000 portable radio receivers to evacuation shelters, and requested equipment manufacturers such as Panasonic and Sony, to distribute over 40,000 portable radio receivers.

•Emergency FM radio also played a crucial role in providing information to local residents.

•FM radio provided locally customized information, such as information about aftershocks, or the availability of local services and activities related to people's everyday needs.

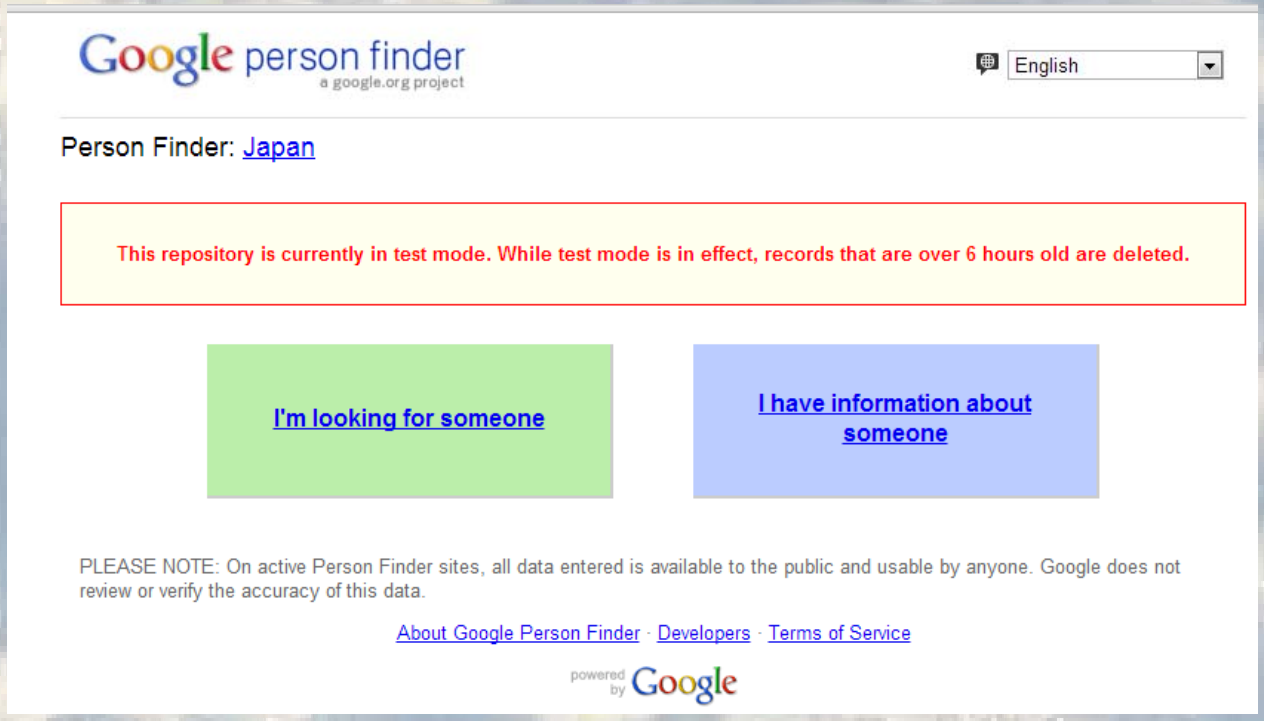
•Google Person Finder is an important tool to help reconnect people after a disaster event.

Weaknesses

•Although JMA and other channels transmitted (tsunami) emergency warning after earthquake, broadcasting companies including NHK, local operators as well as both communication announcement system with loud speaker and mobile system were interrupted.

•Although every person have tsunami knowledge like "If a tsunami comes, run to safety, don't go to find others". During the Great East Japan Earthquake, there were several cases where people ignored this, going back to help elderly residents or family members evacuate.

Case Study on GEJE (March 2011)



Opinions on Disaster Management in Japan

- Not only a leadership country among countries that are carried out for disaster risk reduction but also a country that practically distribute disaster knowledge into other countries
- Disaster management, disaster policies and practices are more effective than other countries
- Main best elements of that DRM system in Japan are:
  - Investments in structural measures (such as reinforced buildings and seawalls), cutting-edge risk assessments, early-warning systems, and hazard mapping- all supported by sophisticated technology for data collection, simulation, information, and communication, and by scenario building to assess risks and to plan responses (such as evacuations) to hazards
  - A culture of preparedness, where training and evacuation drills are systematically practiced at the local and community levels and in schools and workplaces
  - Stakeholder involvement, where the national and local government, communities, NGOs, and the private sector all know their role
  - Effective legislation, regulation, and enforcement—for example, of building codes that have been kept current
  - The use of sophisticated instrumentation to underpin planning and assessment operations.

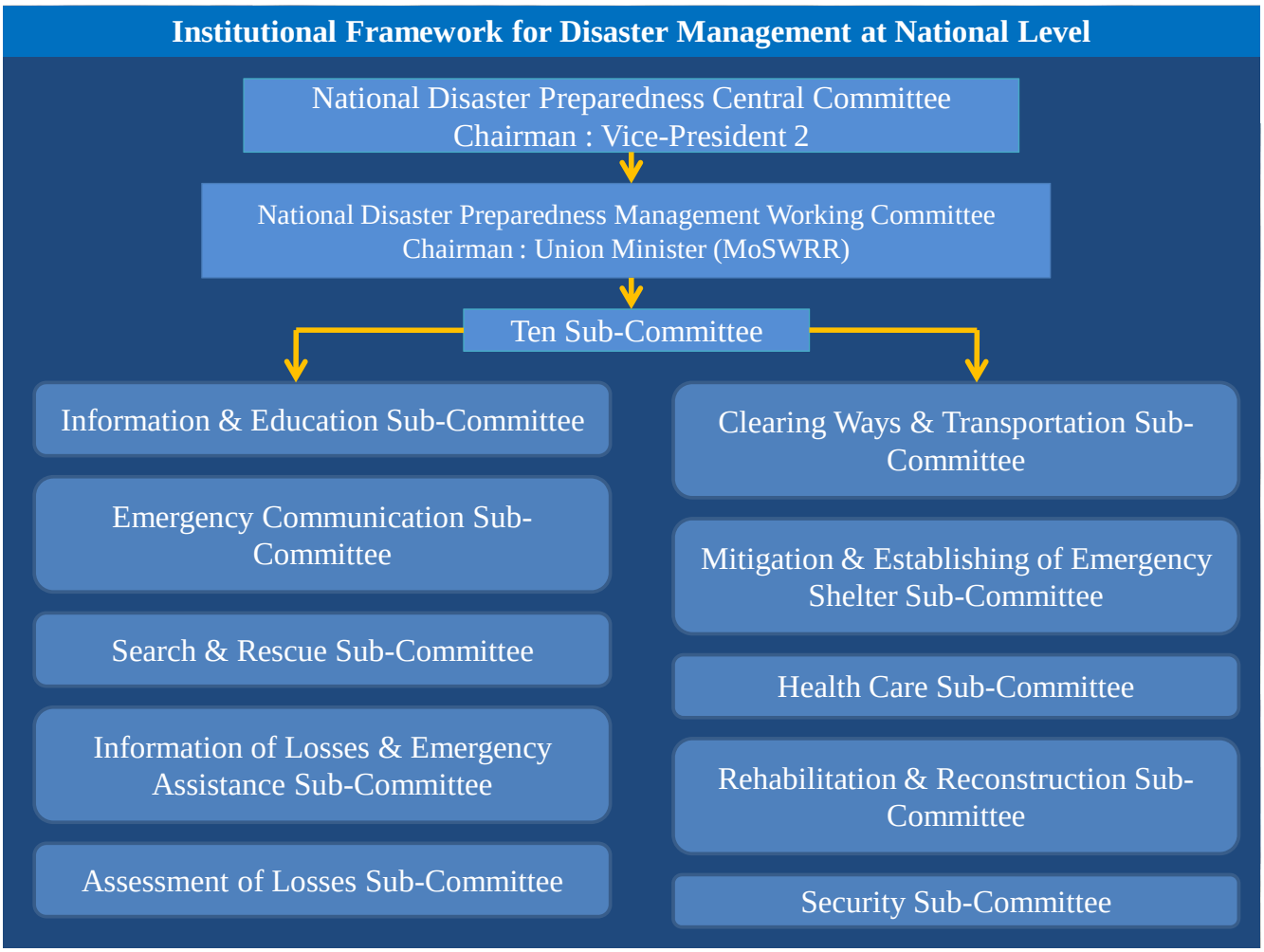
3. Current Status of Emergency Response System in Myanmar

Emergency Response System in Myanmar

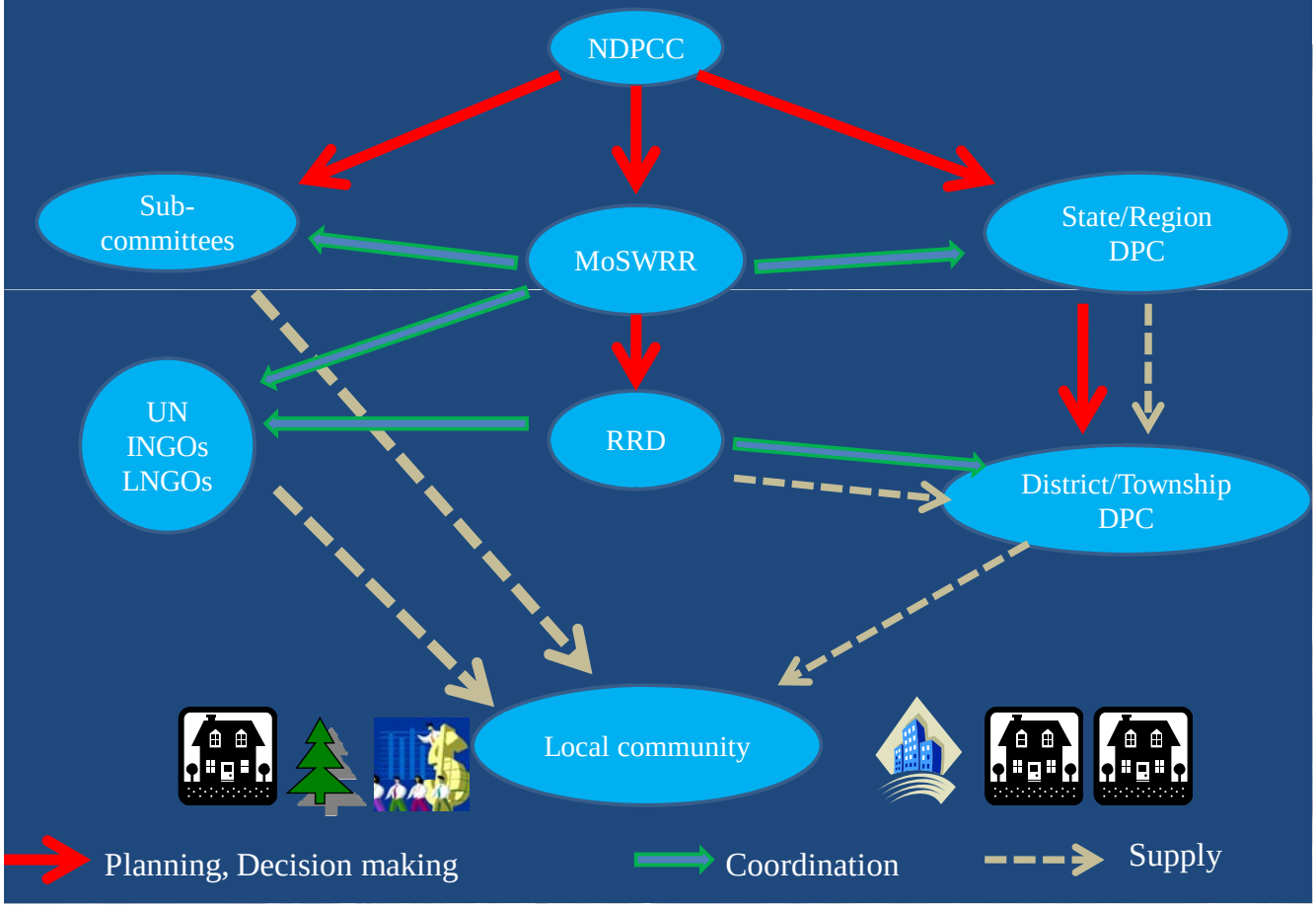
- Legal and Institutional Framework
- Organization of Emergency Response Mechanism
- Public Awareness
- Emergency Services
- Early Warning System
- Case Study on Nargis Cyclone

Legal and Institutional Framework in Myanmar

- Rehabilitation Board Act (41/1950)
- Board of Development Affairs Act (11/1993)
- Epidemic Diseases Prevention Act (1/1995)
- Implementation of Insurance Act (6/1996)
- Fire Services Act (1/1997)
- Disaster Management law (7/2013 - enacted)



Mechanism of Disaster Response in Myanmar



Emergency Services in Myanmar

- **Ambulance Service** - run by multiple agencies such as Red Cross, health department, private health care organizations, charitable organizations, civil defence, etc.
- **Fire Services –** emergency search and rescue teams including Myanmar Red Cross Society in whole country have 72 teams. One team includes 100 people. Total are 7200 people.
- FSD consists of 4778 fire personnel and the strength of voluntary firemen consists of over 249,324.
- Emergency phone number of FSD in Myanmar is 191.

Emergency Services in Myanmar

- **Myanmar Red Cross Society -** one of the few organizations in Myanmar that offer a certified First Aid training course to the general public.
- Red Cross Volunteers (RCVs) work day and night to respond to some of Myanmar's worst disasters and are always the first responders to any emergency, small and large.
- In 2011, a total of 3,528 Red Cross Volunteers were involved in various activities – by serving as blood donors, relief operations, and providing emergency health and care. Approximately 54,341 people have benefited from these services.
- MRCS's Disaster Preparedness & Response initiatives focus on reducing deaths, injuries, and impacts from natural disasters. MRCS prepares for emergency situations through the following activities:
  - Strengthening logistics, particularly warehouse capacity
  - Establishing emergency response teams
  - Strengthening communication and early warning systems
  - Promoting coordination and collaboration with partners and authority
  - Disseminating contingency plan and standard operating procedures
  - Establishing and scaling up emergency management funds
  - Enhancing MRCS branch organizational preparedness for disasters
  - Improving township-level branches' capacities
  - Advocating and ensuring MRCS's improved positioning in country context
  - Encouraging sustainable volunteer-based recovery operations

Public Awareness in Myanmar

No	State/ Division	Opening Total	Population
1	Kachin State	8	8
2	Kayah State	5	5
3	Kayin State	8	8
4	Chin State	4	4
5	Sagaing Division	6	6
6	Taninthary Division	9	9
7	Bago Division	8	8
8	Magway Division	9	9
9	Mandalay Division	6	6
10	Mon State	10	10
11	Rakhine State	15	15
12	Shan State	9	9
13	Yangon Division	14	14
14	Ayeyarwady Division	20	20
	Total	131	131

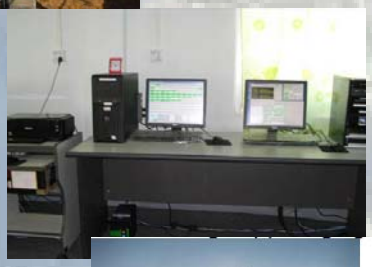
Early Warning System in Myanmar

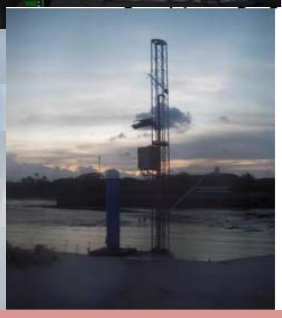
- DMH) is responsible for all tasks related to the works for mitigation and prevention of natural disasters including earthquakes monitoring and sea level observations to establish a Multi-Hazard Early Warning System.
- DMH forecasts
  - (1) Daily Weather Forecast;
  - (2) 10-day and Monthly Weather Forecast;
  - (3) Sea Route Forecast;
  - (4) Aviation Forecast;
  - (5) Special Weather Forecast;
  - (6) Water-level Forecast;
  - (7) Lowest Water-level Forecast;
  - (8) Water-level Bulletin;
  - (9) General Forecast for Southwest Monsoon;
  - (10) Pre-, Mid- and Post- monsoon Weather Forecast;
  - (11) Analysis of Pre-, Mid- and Post-monsoon Rainfall Condition;
  - (12) Hydrologic Summary;
  - (13) Special Weather Condition;
  - (14) Technical Report for Southwest Monsoon; and
  - (15) Seismological News.

Early Warning System in Myanmar

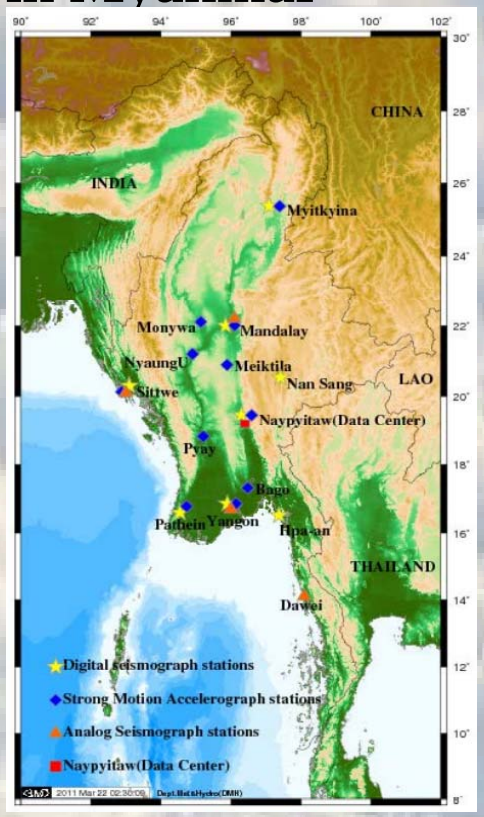
- DMH releases the following warnings:
  - (1) Storm Warning;
  - (2) Storm Surge Warning;
  - (3) Strong Wind Warning;
  - (4) Port Warning;
  - (5) Heavy Rainfall Warning;
  - (6) Untimely Rainfall Warning;
  - (7) Flood Warning;
  - (8) Significant Weather Report for Aircraft;
  - (9) Special Weather Report for the Airport (SPECI);
  - (10) Fog Warning; and
  - (11) Tsunami Warning.
- In accordance with the meteorological law, the above forecasts and warnings are disseminated by DMH to Government authorities; local authorities; UN Offices, NGOs and other relevant organizations; national media and the general public through telephone; fax; mobile phone; Internet (website and e-mail); VHF; port wireless; AFTN (aviation) and Radio/TV and print media.

Early Warning System in Myanmar

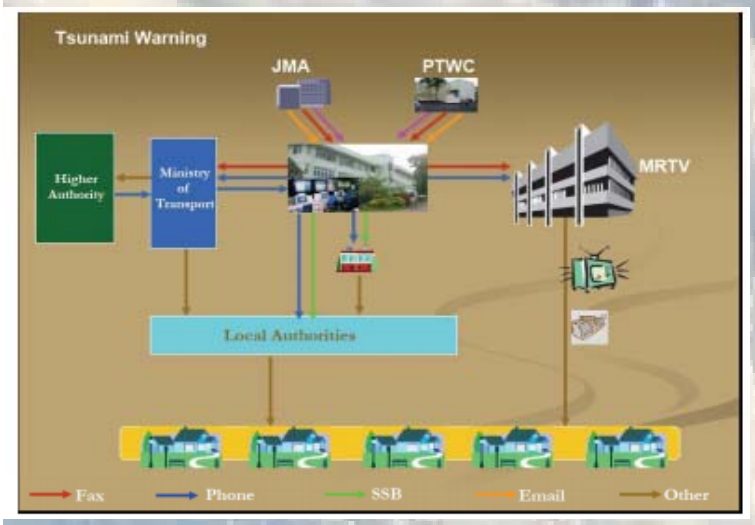


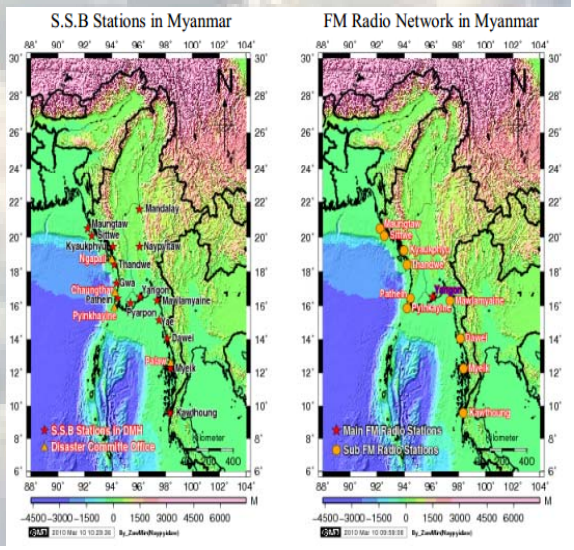


Sea Level Tide Gauge at Sittwe and Sea Level Tide Gauge at Mawlamyine



Early Warning System in Myanmar





Case Study on Nargis Cyclone

Before Disaster:

- The warnings by DMH were sent to: Prime Minister Office; Secretary of State Office; National Disaster Management Committee; National Disaster Risk Committee; Ministry of Defence (Central Headquarters); Ministry of Transport; Ministry of Home Affairs; Ministry of Social Welfare, Relief and Resettlement; and other relevant Ministries (34 Ministries in total); Naval Headquarters; Air Force Headquarters; Chairman Offices in Rakhine State and Ayeyarwady and Yangon Divisions; Naval Commander Office at Heingyi; Local Authorities (in Rakhine, Ayeyarwady, Yangon); NGOs, UN Offices, other relevant organizations; national media (Newspapers, TVs (4 channels), Radios (MRTV and City FM)); and four phone line services for public information.
- All the authorities/organizations immediately carried out necessary actions (e.g., rerouting flights, relocation of UN workers in the field to safer places, closing ports, etc.) were taken based on warnings and information provided by DMH.

After Disaster:

- 84537 people - dead
- 53836 people - missing
- 19359 people - injured
- 450000 houses - totally damaged
- 350000 houses - partially damaged
- 4000 schools – Damaged
- Government carried out emergency relief activities which consist of meeting immediate food, clothing and medical needs of the cyclone victims and getting them under shelter speedily
- Carried out emergency search and rescue , and assistance without delay in townships and rural areas that suffered extensive damages due to the cyclone Nargis in accordance with the instruction of the State, the National Disaster Preparedness Committee headed by the Prime Minister.

Case Study on Nargis Cyclone

After Disaster:

- Played a role for emergency search and rescue Fire Service Department, Tatmadaw (Army) and MRCS.
- Rear, mid-point and forward relief camps were set up systematically and the strength of the Government, the public and the Tatmadaw (Army) were combined and cyclone relief and assistance activities were carried out in harmony enthusiastically.
- Doctors and nurses from the Defense Services Medical Corps and Ministry of Health also provided emergency medical care in the affected areas
- The Air Force has placed its helicopters at the disposal of the relief operation for ferrying and evacuating to and from the affected areas.

Weaknesses

- The frequent power shortage disrupted the operational services of DMH and the blackout after the landfall of Nargis significantly affected its services. All communications were broken down in Yangon from 20:00 MST on 2 May to 17:00 MST on 3 May 2008.
- Only the communication between NMC Yangon and coastline observing stations were made by SSBs.

Weaknesses

- Required effective multi-hazard early warning system and effective equipments that can forecast for operation tropical cyclones, river flooding, tsunami and other coastal hazards.
- Coordination and cooperation with other relevant ministries and academia need to be strengthen.
- The linkages and communication system between township level to village and community level need to be strengthened.
- People's lack of knowledge on the necessary actions for preparedness (many local people were aware of the warning 48 hours in advance, but they thought that staying at home and not going out was enough for storm preparedness), planning and what people would do with the warning was not quite understood at community level.
- Myanmar had not experienced such a cyclone (moving along the coast) for a long time.
- Although much of the communities had received some sort of warning at their communal levels, both local authorities and people's lack of knowledge, public awareness towards the warning, limited shelters and high ground, and poor mobility (only waterways along small canals by boats are available) made them vulnerable in a large way.

4. Model Emergency Response System of Myanmar

Model Emergency Response System of Myanmar

- Legal and Institutional Framework
- Effective Early Warning System and Information Dissemination
- Public Awareness Raising
- Emergency Services
- IASC (Inter-Agency Standing Committee) Contingency Plan and EOC

Legal and Institutional Framework

- In DRR budget allocation, State budget should have separately allocate/mention DRR component and the consolidation efforts among ministries and capacity development / institutional strengthening should be reinforced. The same needs to be ensured at the ministerial levels. Plans have been drafted at all administrative levels, but need for more detailed activities and implementation.
- Coordination and cooperation with other relevant ministries and academia needs to be strengthened. In addition, the integration of technical research works into policy making and implementation in practical problem solving should be made.
- Need to change the system for monitoring, maintaining the data of departments concerned with effective modern equipments instead aging and obsolete equipment.
- Financial and technical support as well as coordination among different stakeholders need to be improved.
- A specific institution or department needs to be established for better coordination and standardization
- Need to add effective facts of Disaster Countermeasures Basic Act among 7 basic acts in Japan into legal system in Myanmar

Effective Early Warning System and Information Dissemination

- Need to be strengthen the linkages and communication system between township level to village and community levels by providing communication facilities as well as capacity building for the stakeholders at community level.
- Mobile service for hazard and early warning information is needed.
- For Emergency Early Warning Dissemination in Emergency Situations, radio network system needs.
- Government must made to get internet access throughout country. Even not get internet access throughout country, radio communication system should have.
- Different ministries, organizations and stakeholders are providing DRR information and building capacity at different levels but more co-ordination is needed to reach public in a regular and sustainable way

Public Awareness Raising

- Radio, TV, and other channels should be showed disaster movies and On-Air programs to improve disaster awareness among public.
- In addition, disaster drills should be held cooperation with other agencies
- Need to enhance “soft measures,” such as community awareness and effective risk communications because of a more decisive role in saving lives.
- National and local governments can create and publicize earthquake disaster prevention maps that are detailed enough to allow people to identify individual neighborhoods.
- This is one means of raising awareness of disaster management among residential and other property owners, and it is an effective method for making the public better understands the necessity of disaster-proofing.

Emergency Services

- Fire services needs to strengthen to make more effective emergency search and rescue.
- Urgent need to convert and equip the fire services all over the country as multi-hazard response force by strengthening, revamping, training and equipping.
- The Home Guards should also be trained in fire-fighting besides training them in other aspects of emergency response such as search and rescue, medical first aid, management of relief, etc.
- And also Myanmar Red Cross Society need to have enough RCVs like Fire Services.

IASC (Inter-Agency Standing Committee) Contingency Plan and EOC

- IASC including UN organizations, INGO, NGOs and various government agencies as a platform for coordination should be set-up and strengthened.
- Required for effective planning, coordination and execution over the issues pertaining to DRR, disaster preparedness and response.
- IASC would also promote sharing of best practices, tools & techniques and different types of resources among the stakeholder organizations for enhance solution exchange among stakeholders.
- To become more effective EOC:
  - GIS technology, more detailed country information for making country map, video conferencing system for coordination mechanism.
  - Emergency Relief Headquarter Control Room needs and should equip with Phoenix System which provides the latest information on disaster damage.
  - Need a cooperative organization staff room which is used by staff who deals with Defence Forces, the police, fire-fighting authorities, lifeline companies and other entities involved in damage prevention when a disaster occurs.

Conclusion

- The Republic of the Union of Myanmar is striving for peaceful, modern and developed nation.
- Although current status of Emergency Response System in Myanmar has some weakness by viewing foregoing discussions, national government is carried out to improve disaster management for disaster risk reduction by revising Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) and by re-enacting Disaster Management Law.
- But these plans are needed to carry out practically by cooperating national government and non-government organizations.
- If we must add and apply the best facts from numerous effective models and system on the world like Japan and other disaster leader countries to improve our disaster management system, Disaster Management Mechanism of Myanmar must more and more enhance in future.
- If so, we must create a system which saves lives and reduces losses at the minimum possible cost.

Future Plans

- Report and discuss together with our Minister and our Director General about disaster knowledge and experiences that are getting during stay in Japan
- Carry out to improve disaster awareness raising between public by cooperation with our organization (RRD), disaster related government organizations and non-government organizations
- When disasters occur, local people are first responders so try to extend teachings Disaster Management Course (DMC), awareness activities not only local administrators but also local people.
- Our organization is carried out to open Disaster Management Institute. When this Institute is finished, I have plans to share my disaster knowledge and experiences that are getting during stay in Japan.

Thank You For Your Attention!