Disclaimer

This report was compiled by an ADRC visiting researcher (VR) from ADRC member countries.

The views expressed in the report do not necessarily reflect the views of the ADRC. The boundaries and names shown and the designations used on the maps in the report also do not imply official endorsement or acceptance by the ADRC.

Asian Disaster Reduction Center (ADRC)
Visiting Researcher Programme FY2012B

Current Status of Emergency Response System (ERS) in India and Model ERS
Based on International Best Practices

D C Rana
Joint Secretary
Government of Himachal Pradesh
Shimla, Himachal Pradesh
INDIA

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Objectives of the Study

- To critically review the current system of ERS in India
- Study International Best Practices in ERS
- Suggest a Model ERS for the Country

Defining Emergency Management

- The word 'emergency' originated from Latin word '*emergere'* which means 'arise, bring to light'.
- Oxford dictionary defines emergency as "serious, unexpected, and often dangerous situation requiring immediate action."
- UNISDR - Emergency management means the organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps. It involves plans and institutional arrangements to engage and guide the efforts of all stakeholders in comprehensive and coordinated ways to respond to entire spectrum of emergency needs.
- The FEMA Principles of Emergency Management

Emergency Response

- UNISDR – Response consists of "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. ……. Sometimes called 'disaster relief'."
- Immediate response phase of an emergency may commence with early warning.
- Response encompasses all activities taken to save lives and reduce damage from the event and includes assimilation and dissemination of information, emergency communication, coordination, providing emergency assistance to victims, etc.
- Effective coordination of disaster assistance is often crucial, particularly when many organizations respond

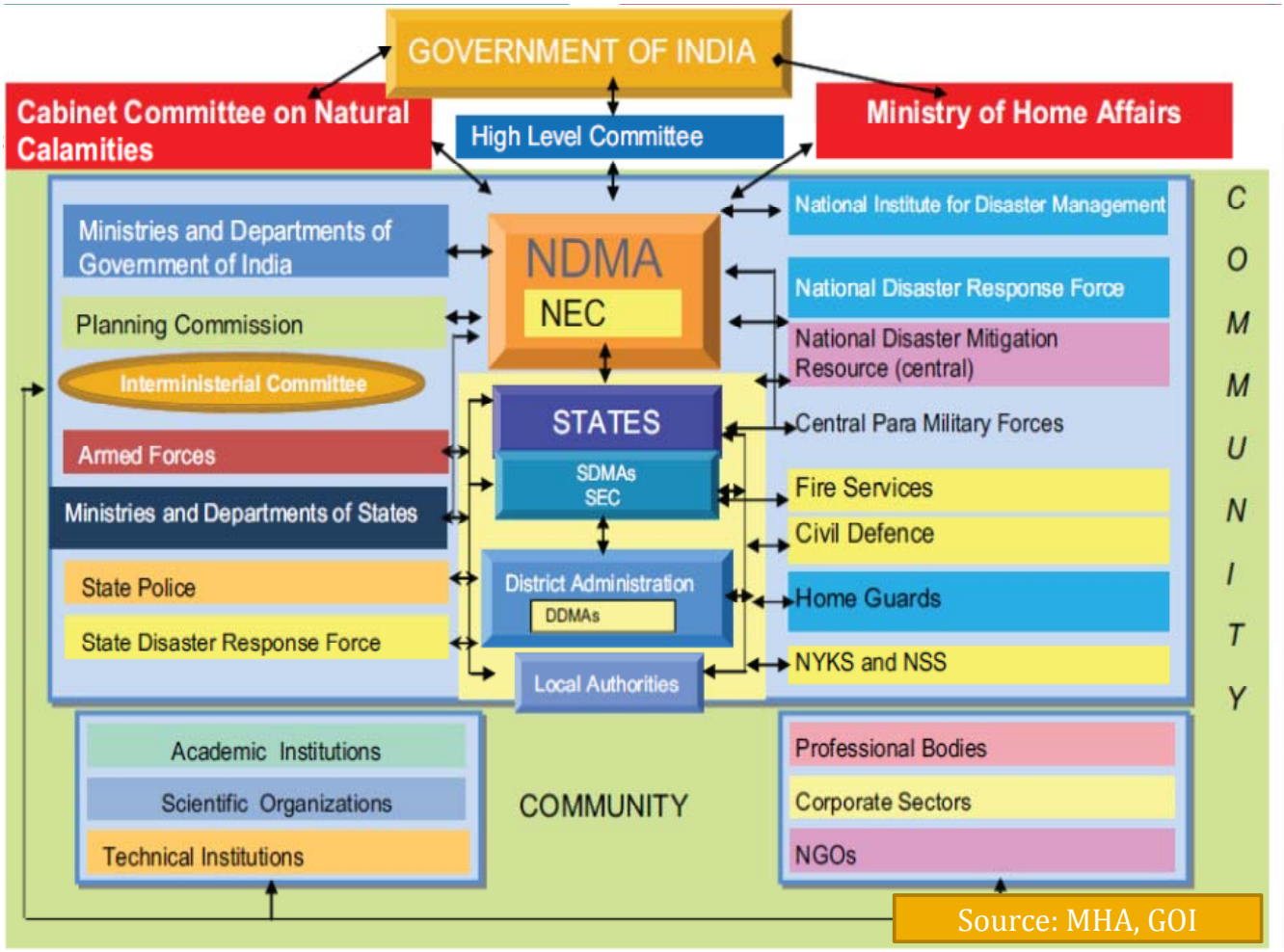
Components of ERS

- Legal and Institutional Framework
- Emergency Services
- Contingency Planning
- Early Warning System
- Communication and Information Management
- Summoning of Emergency Services
- Coordination Mechanism

Current Status of ERS in India

Legal and Institutional Set-up

- Prior of 1990s – totally relief centric
- Relief Commissioners and Crisis Management System
- 1990s – IDNDR – DM Cell Shifted to MHA from MOA
- Disaster Management Act, 2005
- New institutions set-up created and notified
- New Authorities at the State and District Level not staffed and functional in most of the cases
- Co-existence of old and new system – more pronounced at the national level where new system has come into existence.



Emergency Services in India

- Ambulance Service being run by multiple agencies
- Fire Services – No uniformity
- Current deficiency of Fire Services as per SFAC norms:-
  - Fire stations – 97.54%;
  - Fire fighting and rescue vehicles – 80.04%; and
  - Fire personnel – 96.28%
- Civil Defence Services – DM added as one their activities in 2011 by amending the CD Act.
- 10 Battalions of NDRF raised under the Act which are drawn from the CPMFs and stationed around the country.

Contingency Planning

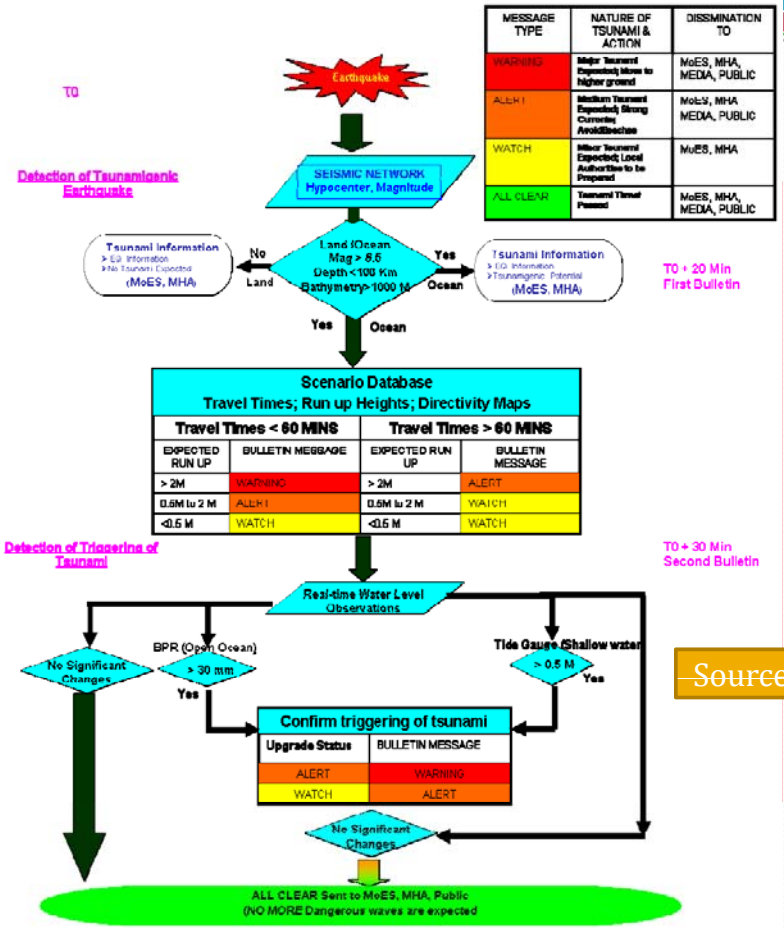
- National Crisis Management Plan, 2003
- SOPs for Responding to Natural Disasters, 2010
- Disaster Management Plans
  - No National DM Plan
  - Many States are yet to finalize their State Plans
  - Most of the district DMPs not finalized
  - Local Level Planning is yet to take off

Nodal Agencies for Issuing Early Warning

Name of the Disaster	Agency
Cyclone	Indian Meteorological Department (IMD)
Tsunami	Indian National Centre for Oceanic Information Services (INCOIS)
Floods	Central Water Commission (CWC)
Landslide	Geological Survey of India (GSI)
Avalanches	Snow and Avalanche Study Establishment (SASE)
Heat and Cold Wave	Indian Meteorological Department

Source: SOPs, 2010, MHA, GOI

The flow chart of the SOP is given in figure below:



Source: SOPs, 2010, MHA, GOI

Meteorological Centre
India Meteorological Department
Shimla

Dated 08th March,2013

To get more information dial toll Free No. 1800 180 1717 or visit website http://www.weathershimla.gov.in

Weather Summary

Weather Summary (0830hrs)	During last 24 hrs, weather was mainly dry in Himachal Pradesh. No appreciable change in Maximum & Minimum temperatures in last 24 hrs. The Lowest temp recorded at Keylong = (-) 06.1° C and Highest at Una = 30.4° C
Significant Snowfall (cm) & Rainfall (mm)	NIL.

Station (Himachal Pradesh)	Min Temp °C			Max Temp °C			Precipitation		Station (Other Major Cities)	Temp °C				Precipitation	
	Act	24hr**	Dep.	Act	24hr**	Dep.	R/F (mm)	snow (cm)		Min	Dep.	Max*	Dep.	R/F (mm)	snow (cm)
Shimla	9.6	-0.8	4.5	21.8	1.1	8.9	0.0		Chandigarh	14.8	3	28.5	2	0.0	
Sundernagar	10.1	1.5	2	29.0	0.1	5.0	0.0		Dehradun	15.0	4	29.0	3	0.0	
Bhuntar	7.0	0.0	1.0	28.5	0.7	8.5	0.0		Srinagar	4.0	1	21.5	9	0.0	
Kalpa	1.0	0.0	-2	8.0	1.0	-3.0	0.0		Jammu	14.4	0	27.4	2	0.0	
Dharamshala	13.2	0.0	2.7	23.2	1.0	3.5	0.0		Amritsar	11.2	1	29.4	3	0.0	
Una	11.0	0.3	3	30.4	0.6	3.4	0.0		Ludhiana	12.7	2	29.5	5	0.0	
Nahan	12.9	0.7	-2	25.2	0.3	0.2	0.0		Patiala	14.1	2	29.4	4	0.0	
Keylong	-6.1	0.7	-2	6.3	0.6	3.3	0.0		Ambala	13.5	1	28.1	1	0.0	
Palampur	11.0	1.0	2	24.7	0.7	5.7	0.0		Hissar	11.0	-2	31.7	3	0.0	
Solan	9.0	0.8	-	25.0	0.2	-	0.0		Jaipur	16.3	1	32.1	2	0.0	
Manali	4.0	0.2	-	21.9	1.2	-	0.0		Delhi (SFD)	13.7	0	30.6	3	0.0	
Saluni	9.0	0.5	-	29.0	1.5	-	0.0		Kolkata	20.8	0	34.6	2	0.0	
Shimla(AP)	11.7	-0.1	-	23.3	0.4	-	0.0		Mumbai	18.2	-2	39.0	6	0.0	
Kangra(AP)	11.8	0.7	-	28.3	0.1	-	0.0		Chennai	25.0	2	31.1	-1	0.0	

Weather Forecast

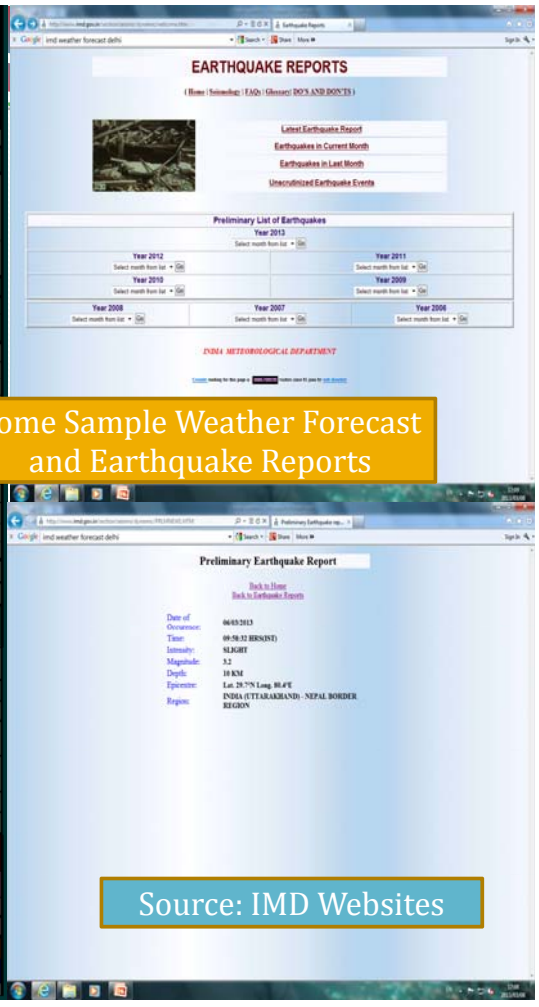
(VALID TILL 08:30 IST OF THE NEXT 5 DAYS)

Synoptic Features	The Western Disturbance (W.D) as an upper air system lies over north Pakistan and neighbourhood.

Date	Plains/Low Hills	Middle Hills	High Hills
Today	Weather will be mainly dry.	Weather will be mainly dry.	Weather will be mainly dry.
09th Mar.	Weather will be mainly dry.	Weather will be mainly dry.	Rain/snow at isolated places.(High reaches of Chamba & Lahul Spiti)
10th Mar.	Weather will be mainly dry.	Weather will be mainly dry.	Rain/snow at isolated places.(High reaches of Chamba & Lahul Spiti)
11th Mar.	Weather will be mainly dry.	Weather will be mainly dry.	Weather will be mainly dry.
12th Mar.	Weather will be mainly dry.	Weather will be mainly dry.	Weather will be mainly dry.
Warning	NIL		

	Day	Local Weather F/C	Max. Temp.	Min. Temp.	Sunrise	Sunset
ShimlaCity	Today	Mainly clear sky.	22	10	06:40	18:25
	Tomorrow	Mainly clear sky becoming partly cloudy.	22	10	06:39	18:25
Earthquake	NIL					
Astronomical Info	NIL					

* Maximum Temperatures of the previous day. ** Temperature change in 24hours. Act- Actual. Dep - Departure from Normal



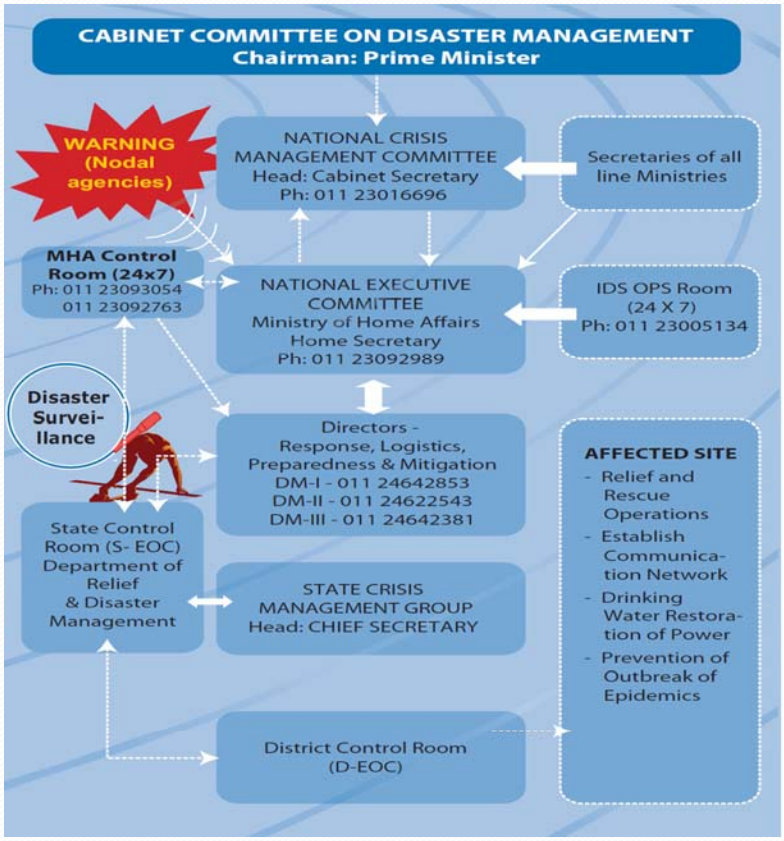
Some Sample Weather Forecast and Earthquake Reports

Source: IMD Websites

Multiple Toll Free Numbers

Police	Ambulance	Fire	EOC	Other Important Control Rooms
100	102, 1298, 108, 112	101	District – 1077 State and National - 1070	Chennai Traffic Police - 103. Delhi Traffic Police - 1095. Kolkata Traffic Police - 1073. Bangalore Traffic Police - 108 and 100. Women crisis response – 1091 Child Distress Service - 1098

Coordination Mechanism



Sphere India Initiatives and NDMA Guidelines

- IAGs
- URS

Source: MHA, GOI

Case Studies of Recent Major Disasters – Summary of Lessons Learnt

- Timely and effective early warning could have saved many precious lives and given lead time for the emergency services and government machinery to respond.
- Emergency communication network which failed after disaster hampered disaster response.
- Absence of legal and institutional institutions such as SDMA was felt and immediately after Orissa Super Cyclone and Gujarat Earthquake such institutions were immediately set-up.
- Inter-agency coordination mechanisms are required at all levels to ensure that humanitarian agency act in a coordinated way.
- Information management is very important in the aftermath of a disaster.
- Multi-hazard DMPs would have improved emergency response.

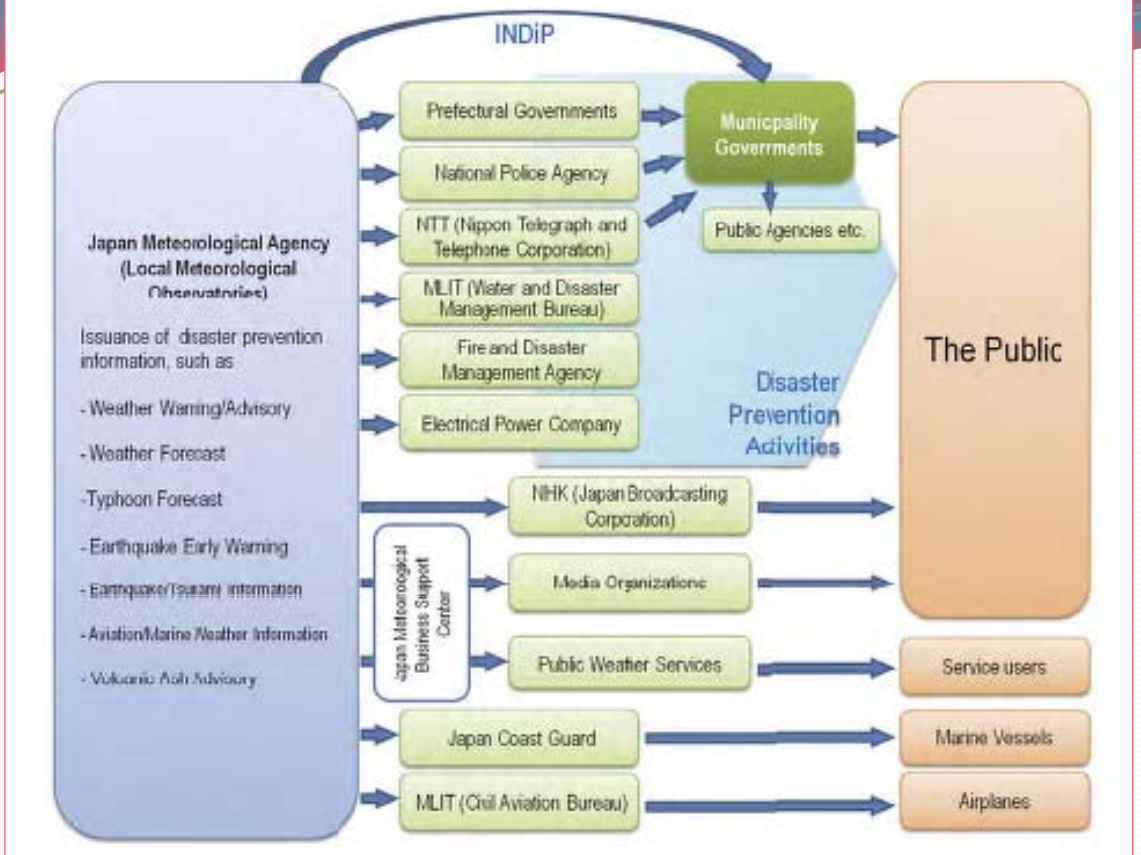
Relevant International Best Practices

Legal Framework of Japan

- 7 basic acts
- 18 disaster prevention and preparedness legislations
- 3 legislations governing disaster emergency response
- 23 disaster recovery and reconstruction and financial measures acts
- Act on Special Measures for Promotion of Tonankai and Nankai Earthquake Disaster Management, 2002
- Japan has learnt from disasters and this learning is reflected in her laws, policies and plans
- The first DMP was prepared in 1963 and subsequently revised several time.

Early Warning System in Japan

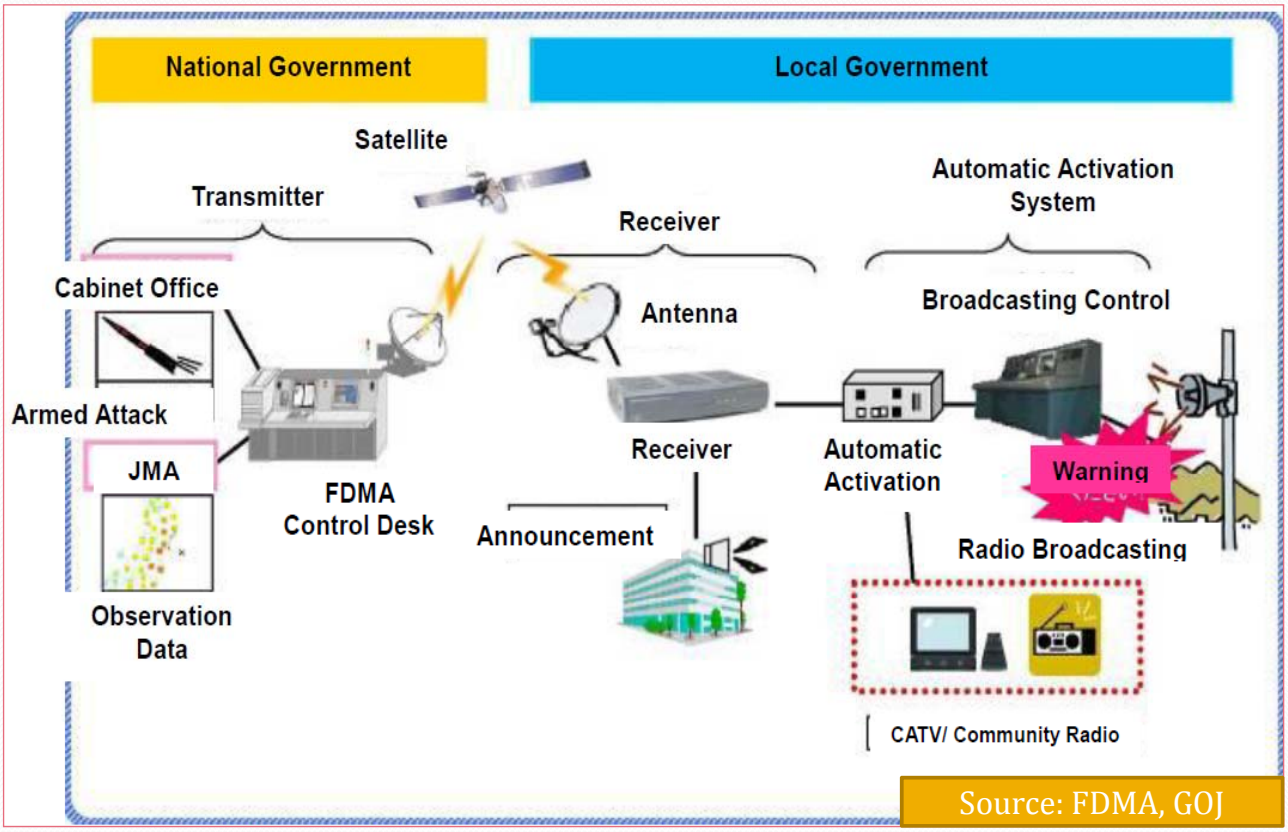
- JMA main agency to monitor and issue alerts/warnings
- Observation system for earthquakes and EEWS and use of EEWS (2006)
- Information Network for Disaster Prevention (INDiP)
- J-Alert – Since 9th February, 2007
- Legal Framework - Section 57 of the Disaster Countermeasures Basic Act, (Act No. 223, November 15, 1961)



Flow of information from JMA to the public/information users

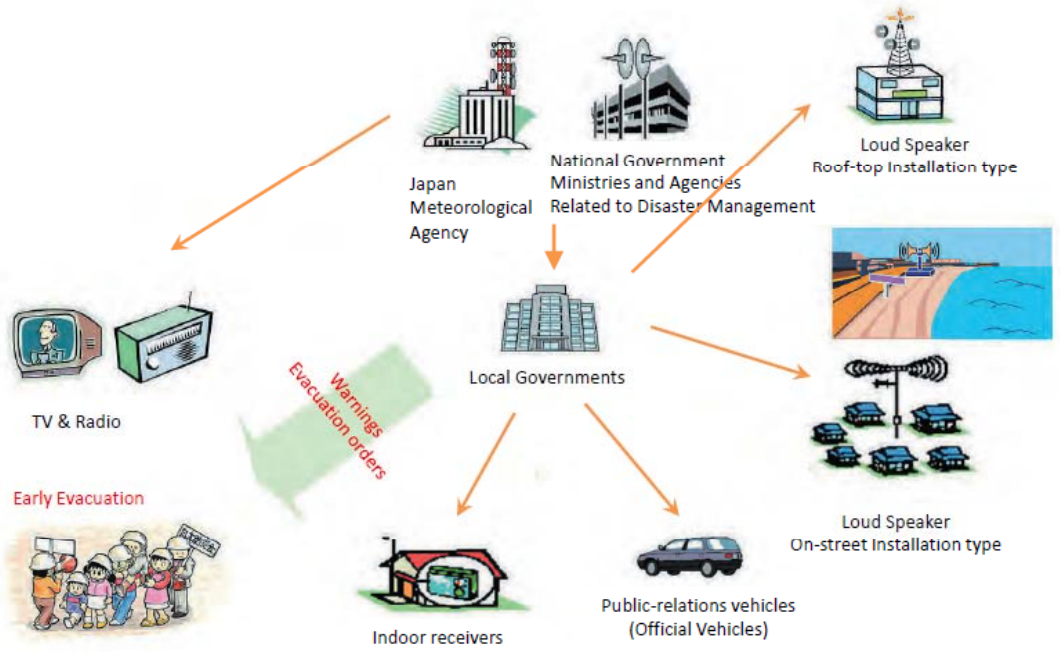
Source: JMA

J-Alert System

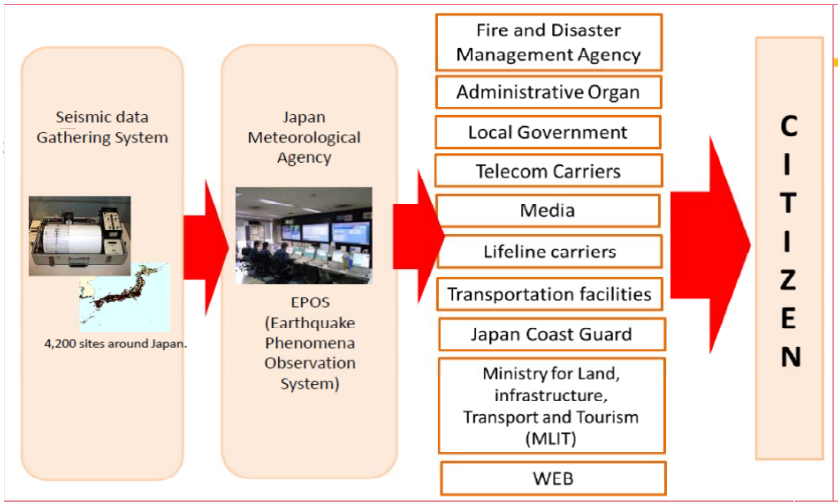


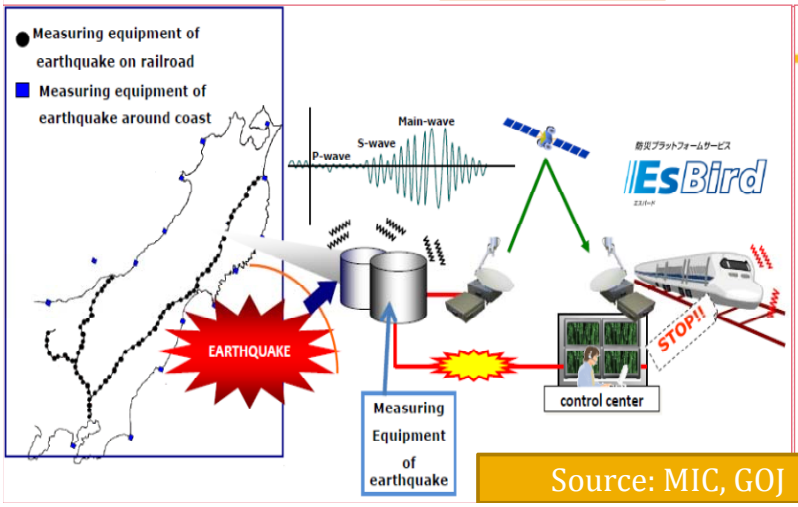
Source: FDMA, GOJ

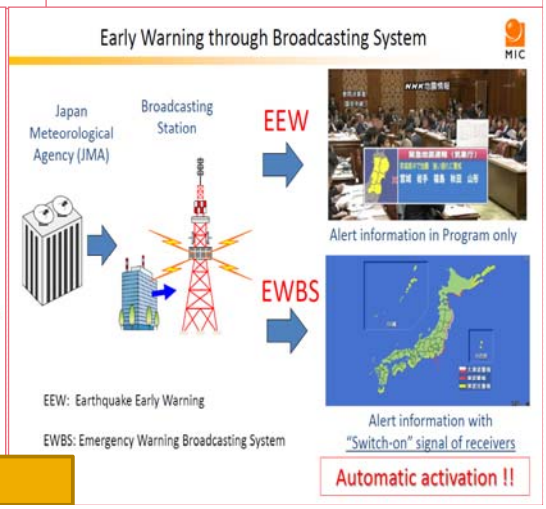
Early Warning Systems



Source: Cabinet Office, *Disaster Management in Japan*, p.14



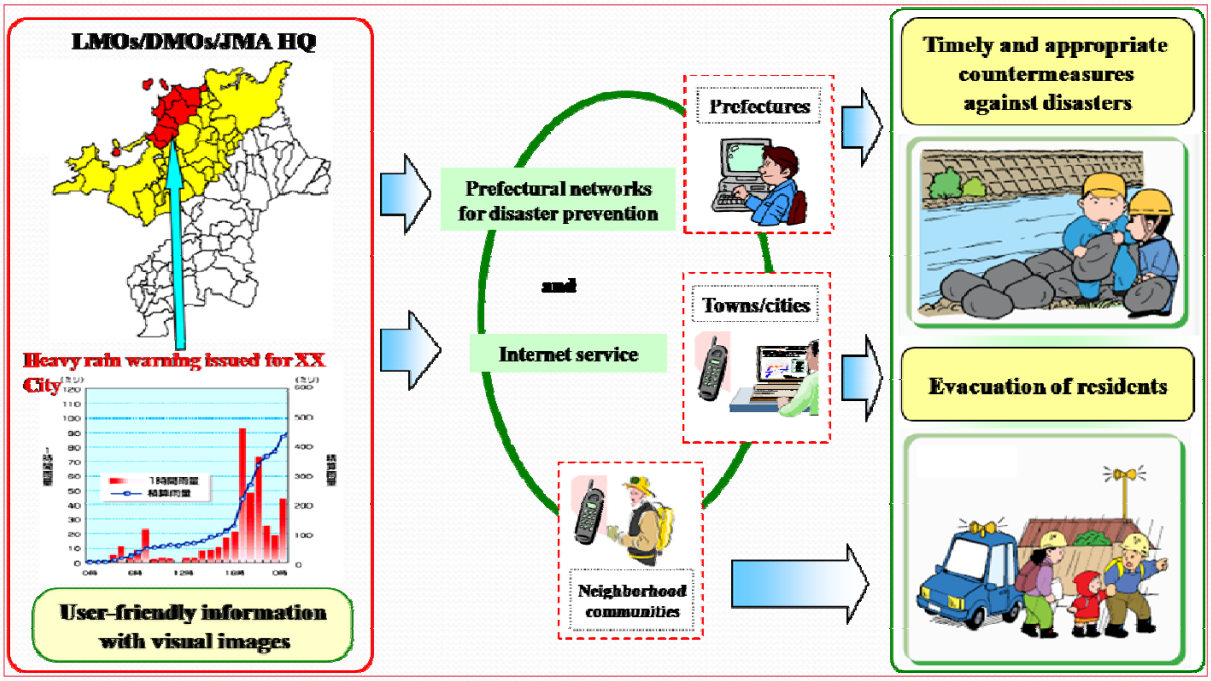




Source: MIC, GOJ

Tsunami Advisory – Solomon Island Earthquake

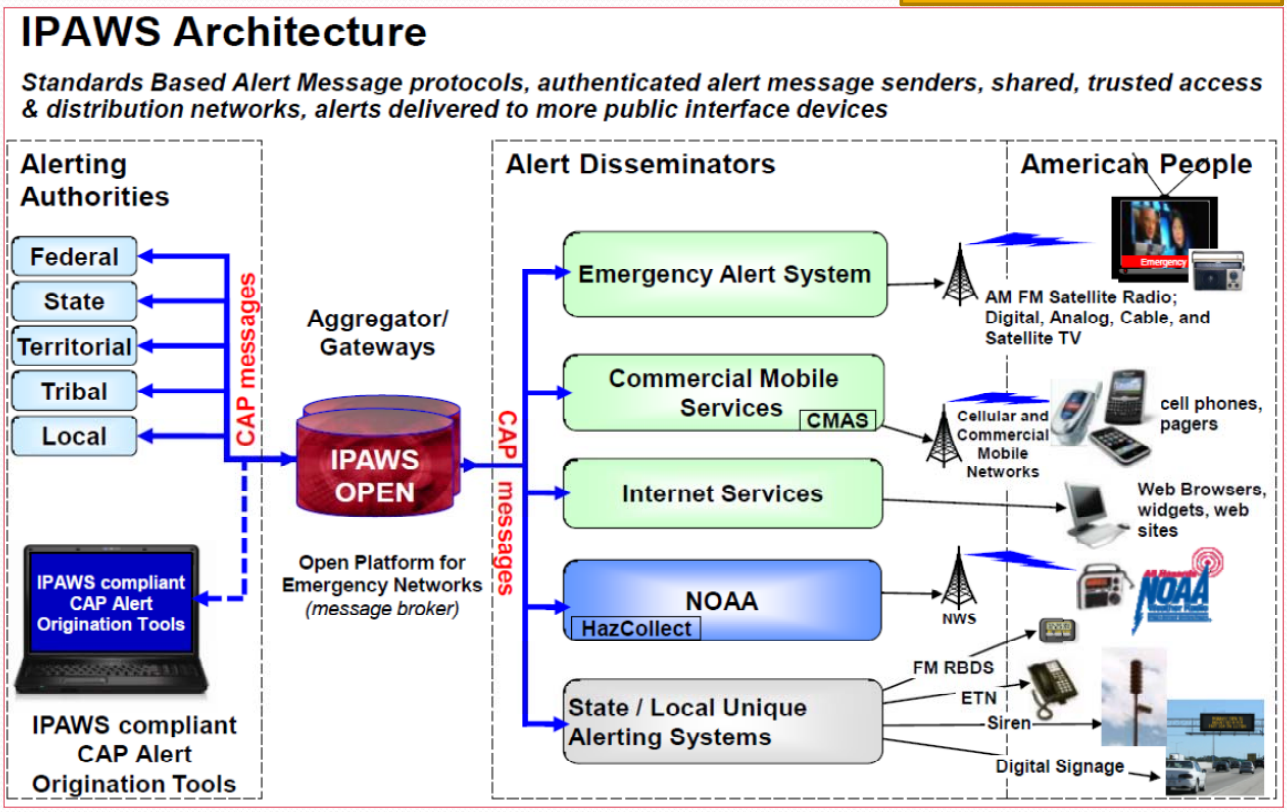
User-friendly Weather Forecast



Source: JMA, GOJ

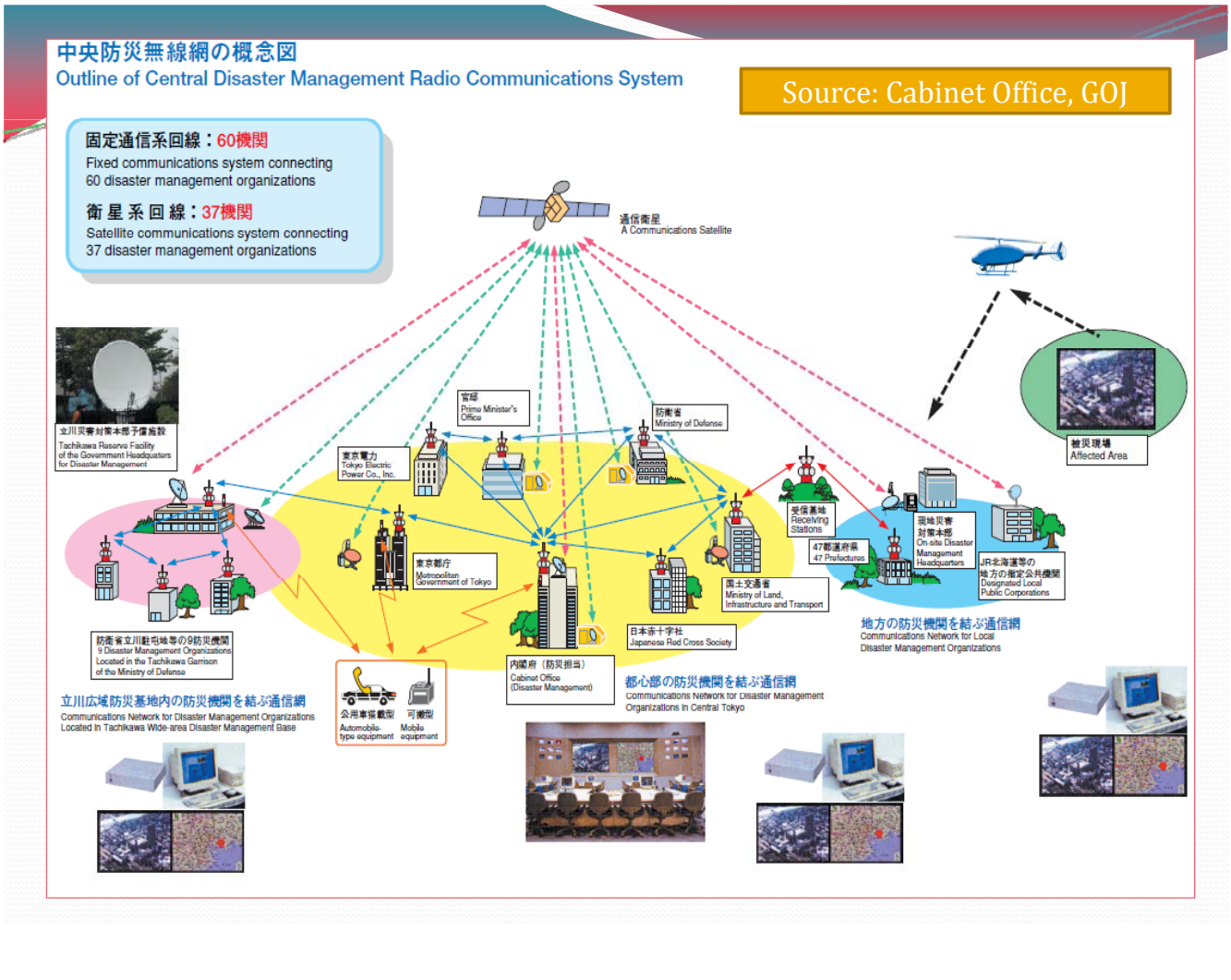
Integrated Public Alert and Warning System (IPAWS) – USA

Source: FEMA



Information Management System Japan

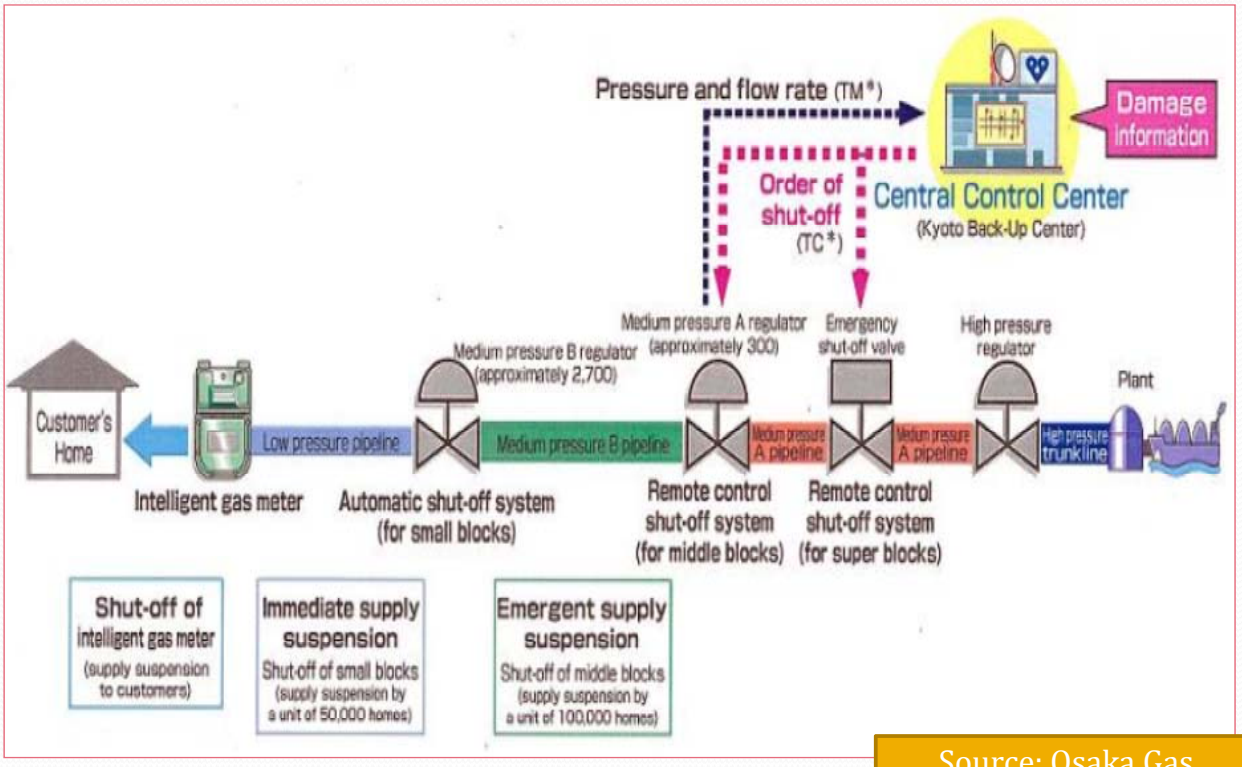
- Earthquake Disaster Information System (DIS)
- Real Damage Analysis System by Artificial Satellite (RAS)
- Disaster Information Sharing Platform (PF)
- In house Radio Network and Response System



Emergency Response and Communication System of Osaka Gas Engineering Co. Ltd., Japan

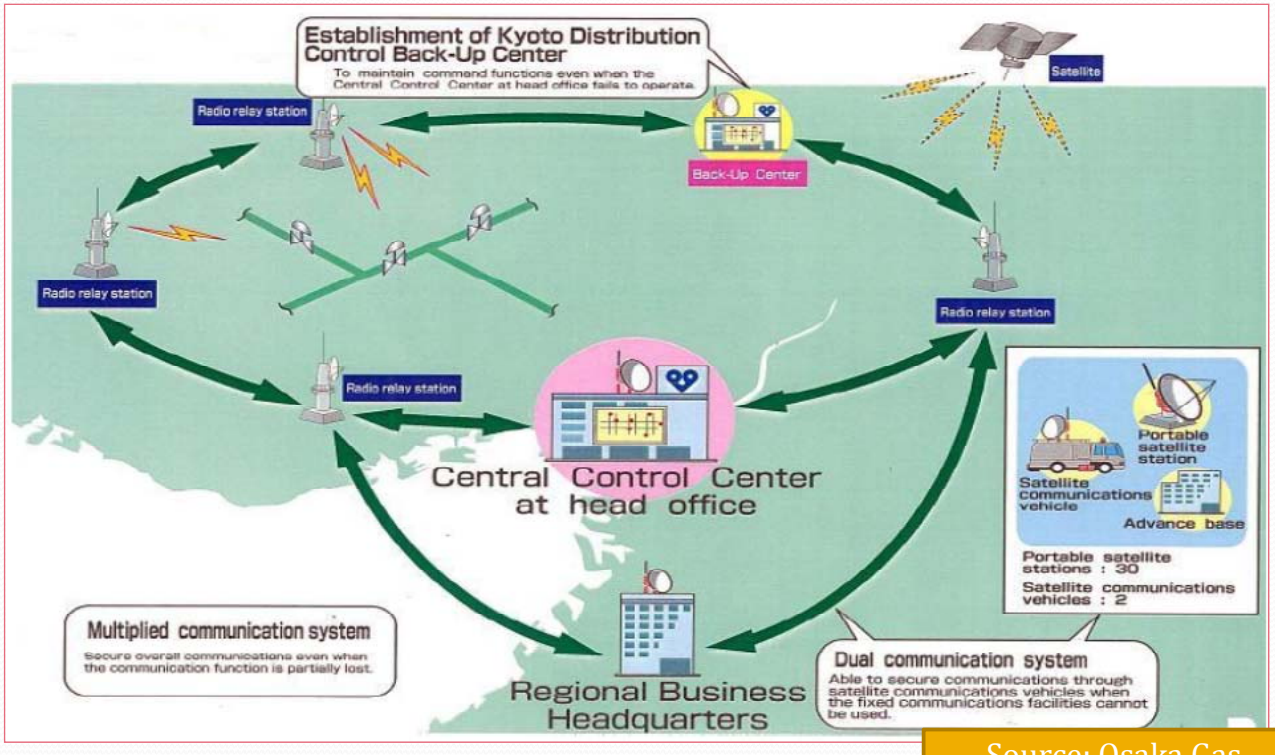
- The Co. supplies gas in Kansai region of Japan which comprises of six prefectures namely Hyogo, Osaka, Kyoto, Nara, Wakayama and Shiga consisting of 6.3 million households/customers.
- Intelligent gas meters installed at each customer's location
- Low pressure gas supply is automatically shut off in earthquakes capable of damaging pipelines and structures by an automatic shut-off system
- Gas supply can be shut off remotely from the Central Control Center and Back-Up Center

Automatic Shut-off System



Source: Osaka Gas

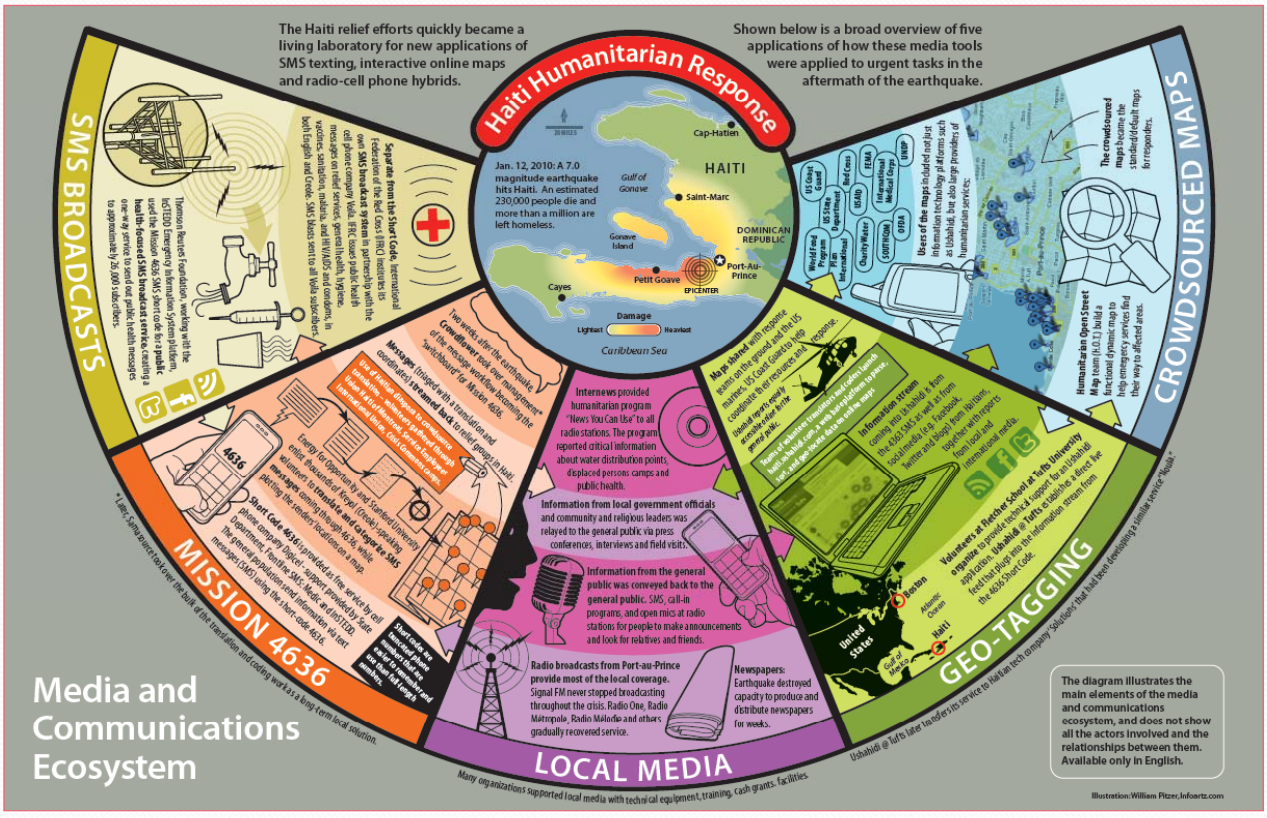
In-house Radio Network



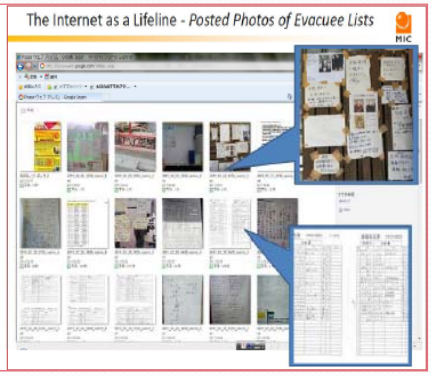
Source: Osaka Gas

Use of ICT during Large-scale Disaster for Humanitarian Response and Coordination

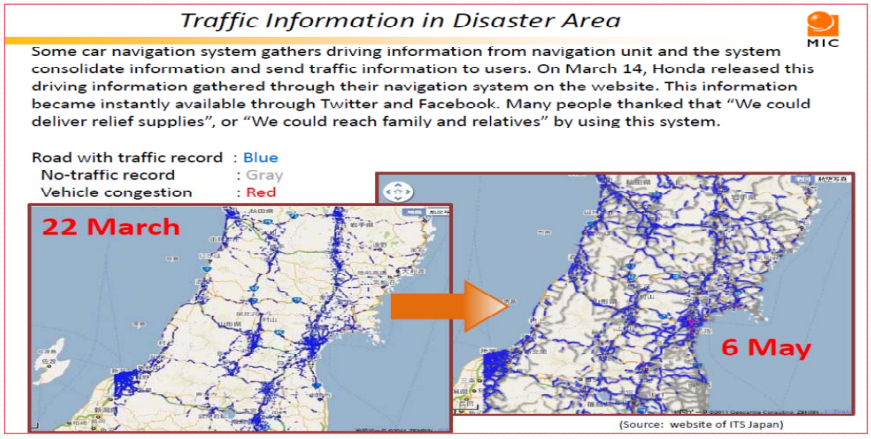
Case Study 1: 2010 Haiti Earthquake

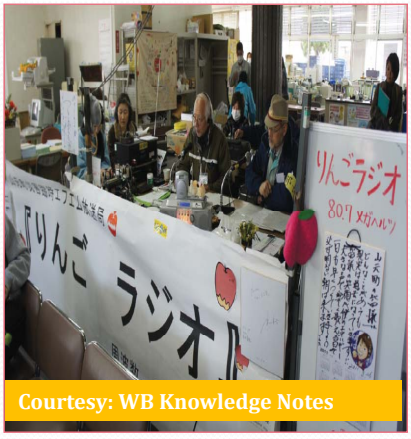


Case Study 2: 2011 GEJET



Courtesy: MIC




Courtesy: WB Knowledge Notes

Summoning of Services – Universal Emergency Telephone Number

Sr. No.	Name of the Country/Region	Emergency Helpline
1.	USA	911
2.	Australia	000/112
3.	United Kingdom	999/112
4.	European Union Member Countries	112
5.	France	112
6.	New Zealand	111
7.	South Africa	10111/10177
8.	Nigeria	199
9.	Sudan	999
10.	Bahrain	999
11.	Cambodia	117
12.	East Timor	112
13.	Myanmar	191
14.	Hong Kong	999
15.	North Korea	819
16.	Kuwait	112
17.	Macau	999
18.	Maldives	112
19.	Malaysia	999
20.	Oman	999
21.	Philippines	117
22.	Qatar	999
23.	Thailand	999
24.	Solomon Island	111
25.	Canada	911
26.	Greenland	112
27.	El Salvador	911
28.	Nicaragua	118
29.	Honduras	199
30.	Haiti	118
31.	Surinam	115
32.	Uruguay	911
33.	Venezuela	171

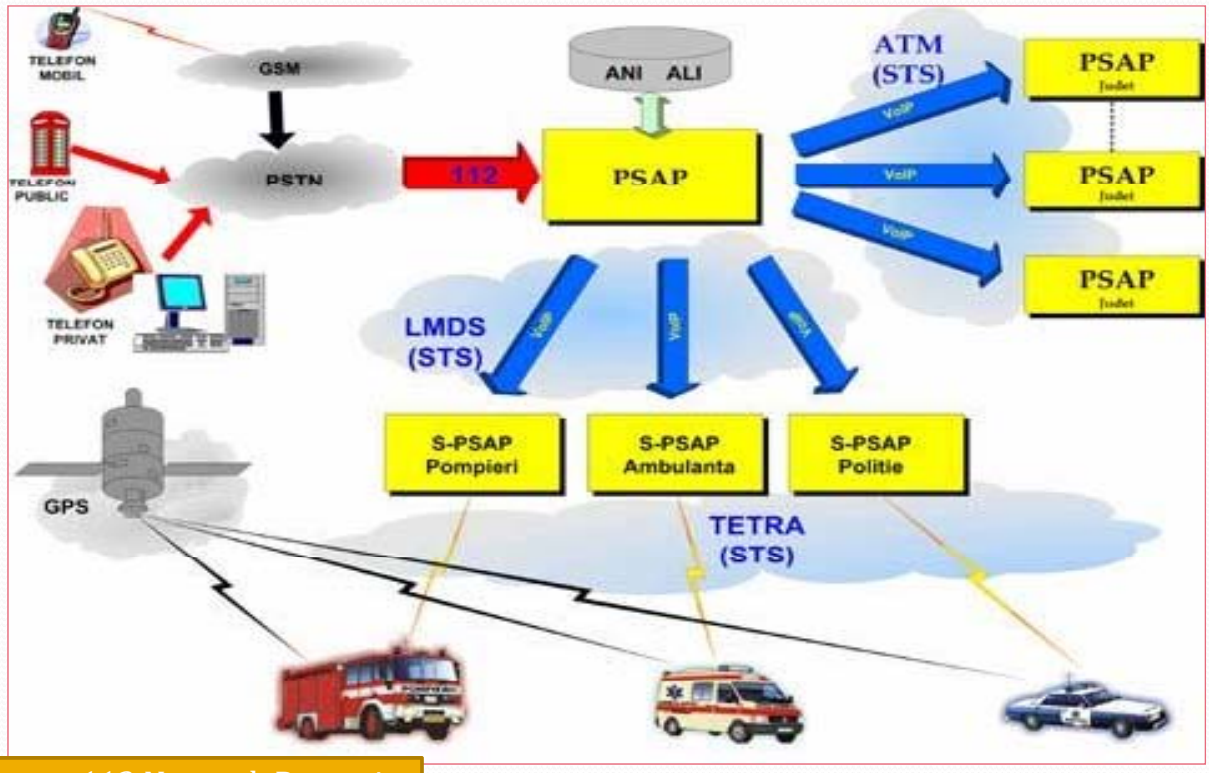
Case of European Union

- Directive No. 98/10/EC (ONP: provisions for the open telephone networks and the universal service in telecommunications)
- 112 became the single European emergency number in 1991
- Being answered to in several foreign languages
- It is to be first implemented alongside the already existing systems.
- The 112 European Emergency Number Association Foundation was created in order to promote the knowledge and appropriate use of the European Emergency Number 112

Case Study of Romania

- The Single National Emergency Call System (SNECS) 112 became functional in 2004
- The SNECS consists of emergency call answering centers known as Public Safety Answering Points (PSAP)
- Special Telecommunications Services (STS), a legal government operator operates the SNECS which works through 40 PSAP
- Automatic Number Identification (ANI), Automatic Location Identification (ALI) and Automatic Vehicle Location (AVL)
- The STS uses Phoenix, Dimetra and conventional UHF and VHF networks to achieves local cooperation for the response

Communication Network of 112 in Romania



Source: 112 Network Romania

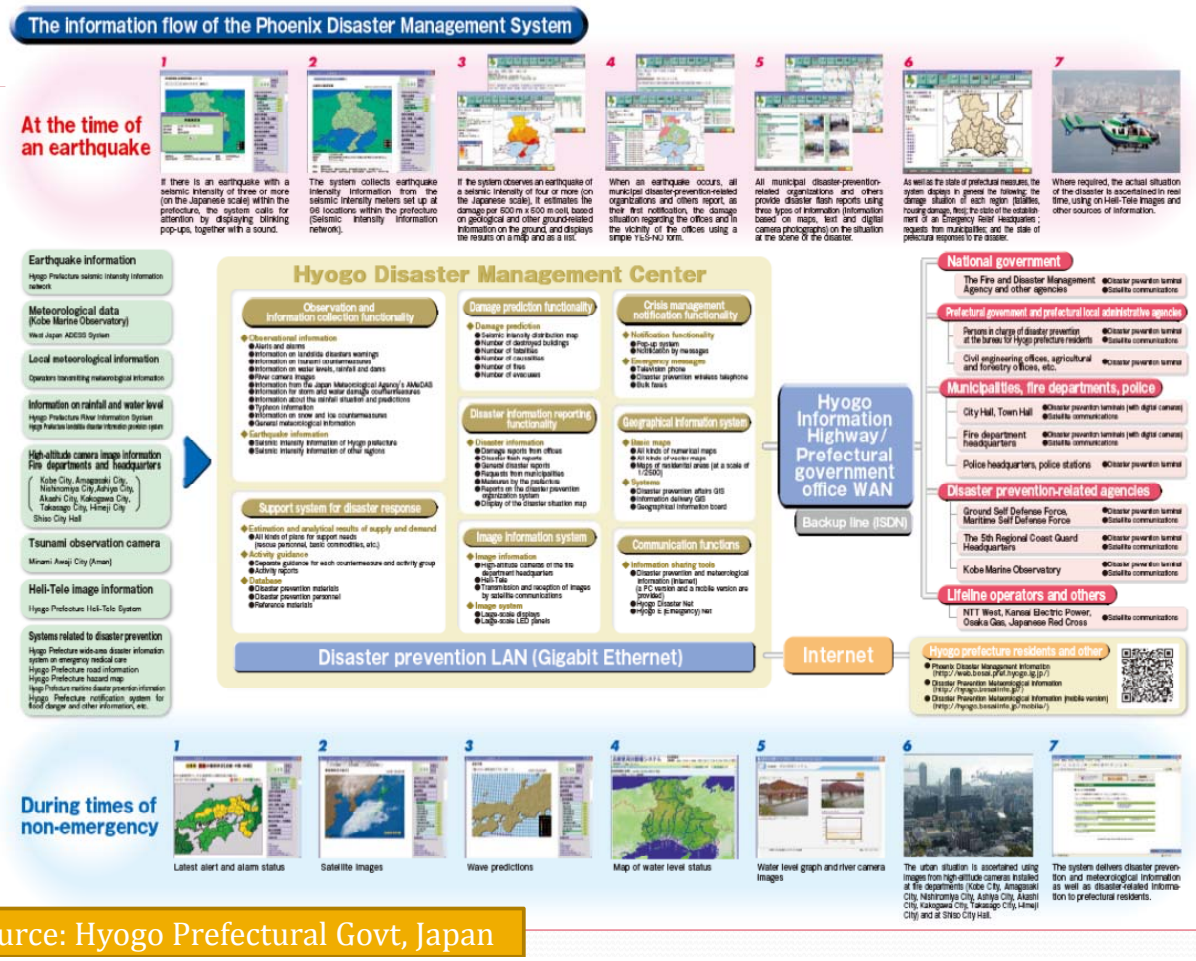
Emergency Management System, Hyogo Prefecture, Japan

- **The Disaster Management Center**
- **Phoenix Disaster Management System**
- **Hyogo Prefectural Emergency Management and Training Center**

Source: Hyogo Prefectural Govt, Japan

Patrol 117- Philippines

- Launched in 2003, a local counterpart of th eUS 9-1-1, by the DILG
- 117 – a Call Center
- Call relayed to the appropriate agency and monitored



Source: Hyogo Prefectural Govt, Japan

Model Emergency Response System for India

Universal Emergency Number and Integration of services

- There is need not only to integrate all the toll free numbers but also to integrate numerous control rooms
- One Central control room/call center and one each for ES at the state level with back-up center is good enough
- Resources of these services should be centrally managed at the state level only U
- Utilizing the modern ICT tools the calls in these centers should be assisted by CACH and CAD should be used for dispatching emergency resources.

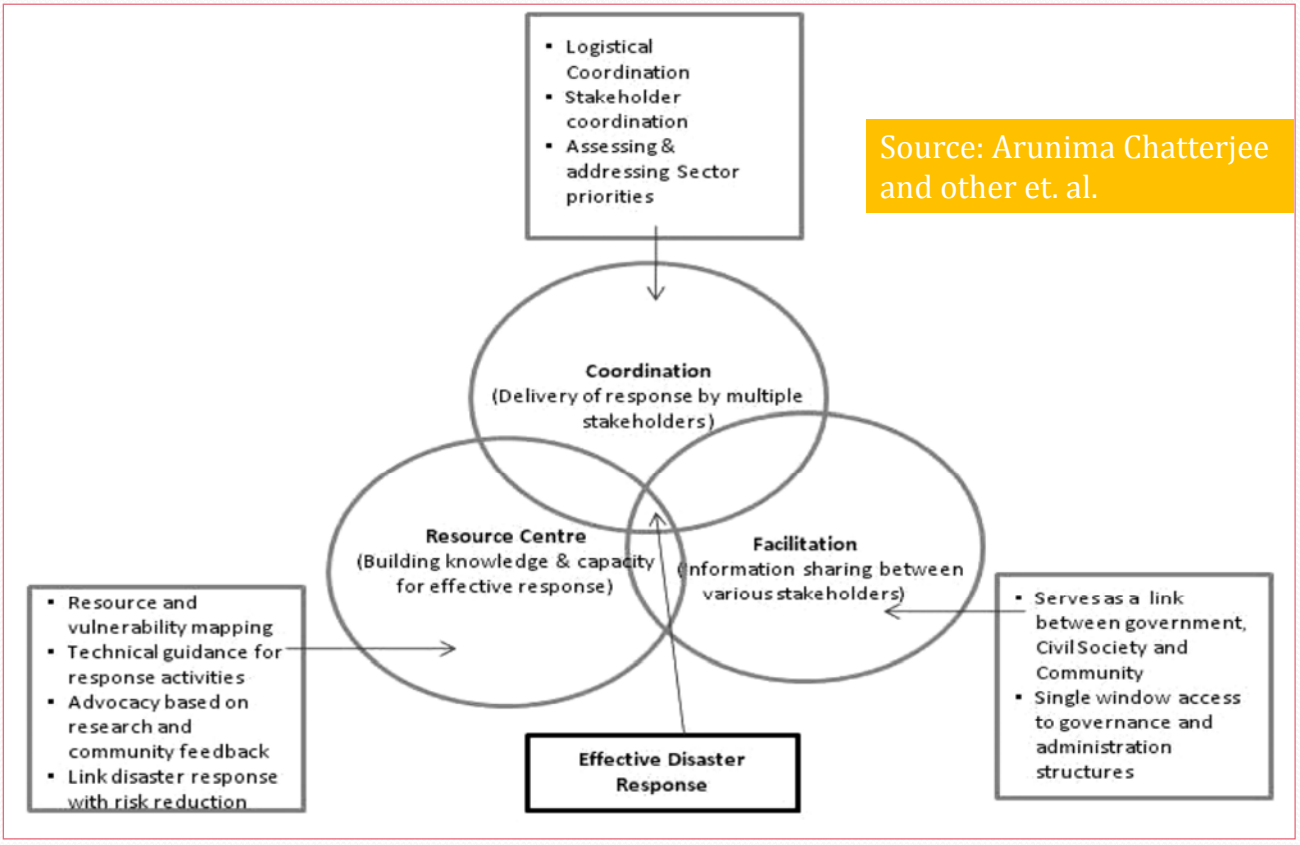
Comprehensive and Integrated Legal and Institutional Framework

- Integration of old and new system
- The new systems created under the Act should be staffed and made functional
- Need to fill up legal and policy framework which is more glaring in case of post-disaster scenario¥
- Need to proactively take concrete actions with tangible and measurable outputs to reduce the damages from future earthquakes

Recommendations Contd…

- Strengthening of Fire Services
- Communication and Information Management System
- Use of ICT, Social Media and Community Radio
- Integrating the existing communication networks
- Integrated Contingency Planning
- Effective and User-friendly Early Warning System
- Inter Agency Coordination and Unified Response Mechanism

A Model of Coordination Mechanism



Thanks !

Domo Arigato-gozaimasu !