



Disaster Management

State Institute of Health & Family Welfare, Jaipur

Disaster

- Latin word:
 - Dis (Bad) Aster (Star)
- Theory of anger of God ↓
Theory of Fury of Nature
- Since not under the control of humans ‘Philosophy of Fatalism’ changed to ‘Management of Disasters’



Disaster=(Hazard + Risk)x Vulnerability

Hazard

- Potentiality of a physical event, phenomenon or human activity that may cause loss of life or property
- Characterized by its location, intensity, frequency and probability
- Could be natural or manmade
- Could be single, sequential or combined in origin and effect

Risk

- Probability of harmful consequences or expected losses
 - Death, injury, property, livelihood, economic activity disrupted or environment damage
- Hazard Risk Vulnerability and Capacity (HRVC) Analysis



Vulnerability

- Extent to which a community can be affected by the impact of a hazard
- Factors increasing vulnerability
 - Poverty, lack of information, poor living conditions, overloaded or poorly maintained equipments, inadequate safety precautions
- Precede disasters, contribute to their severity and impede disaster response



Thus, Disaster is ..

- Catastrophe, mishap, calamity or grave occurrence in any area,
- Results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of environment,
- Beyond the coping capacity of the community of the affected area.

(Source: National Disaster Act,2005).



When an Event is a Disaster:

- According to IFRC: any incident in which more than 5 persons are killed or 100 persons are injured is categorized as disaster

Forms of Disasters





Some Are Slow In Onset

Some are Rapid in Onset



Man Plays a Role in Many

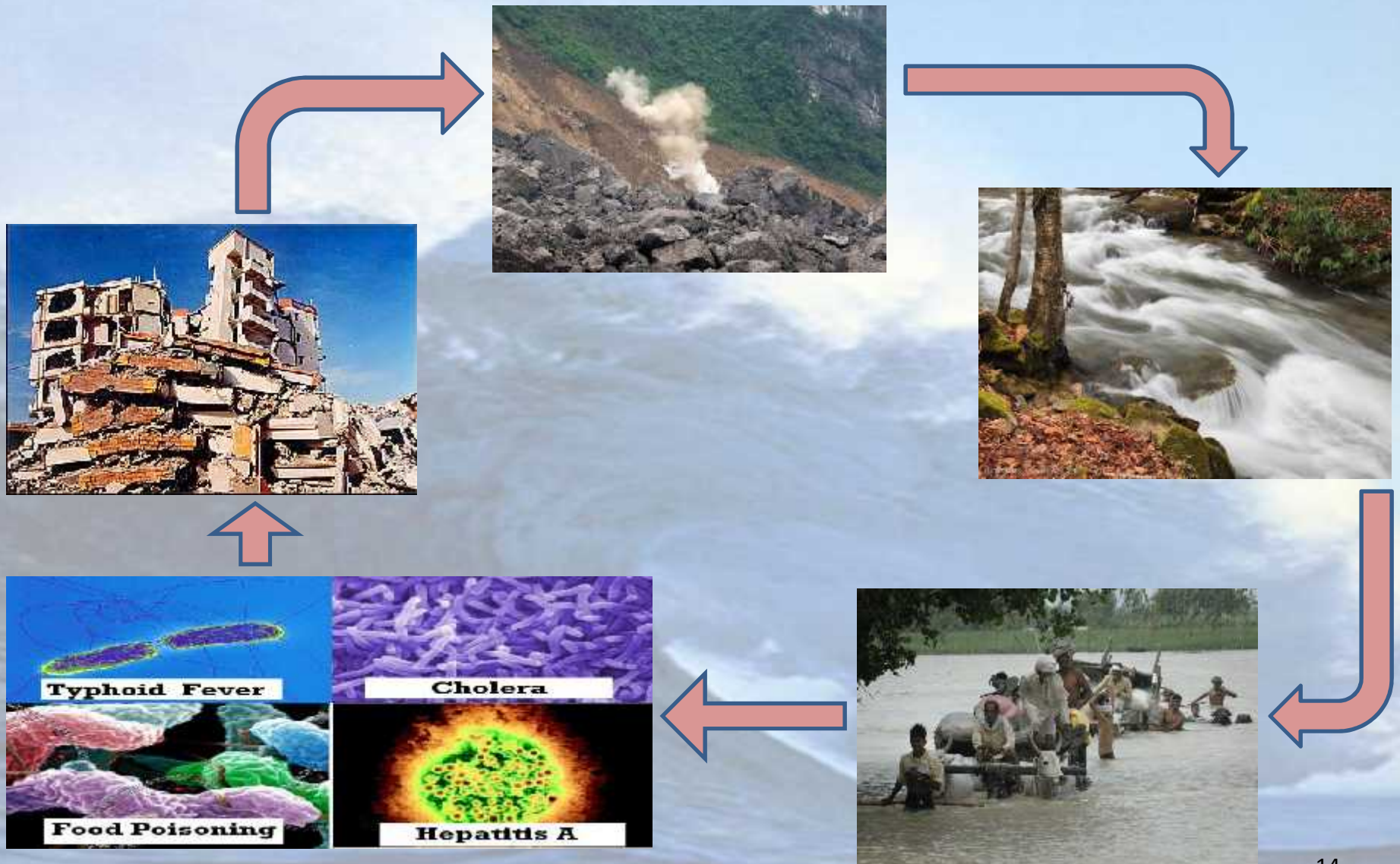




Types of Disaster

Natural Disasters	Man-Made Disasters
Sudden Impact – earthquakes, tropical storms, tsunamis, volcanic Eruptions, etc.	Industrial/Technological – fires, pollution, spillages, explosions etc.
Slow-Onset – drought, famine, pest infestation, deforestation, etc.	Complex Emergencies – wars ,civil-strife, armed aggression, etc.
Epidemic Diseases – water borne, food borne, vector borne, etc.	Others – transportations accidents, material shortages.

Disaster Chain





India's Key Vulnerabilities

- Coastal States, particularly in the east coast states and Gujarat are vulnerable to cyclones,
- 4 crores hectare landmass is vulnerable to floods.
- 68% of net snow area is vulnerable to drought.
- 55% of total area is in Seismic Zone III-IV , and vulnerable to earthquakes.
- Sub Himalayan/ Western Ghat is vulnerable to landslides.



Disaster Profile- India

2007	India	China	US
No of Significant disasters	21	38	31
Victims	7.3 m	88 m	2.3 m
Economic damages	3.3 bn US \$	13.5 bn US \$	5 bn US \$

- 1994-1998 - Rs 28,678 crores
- 1998-2004 - Rs 47,464 crores
- 2005 - Rs 87,500 crores

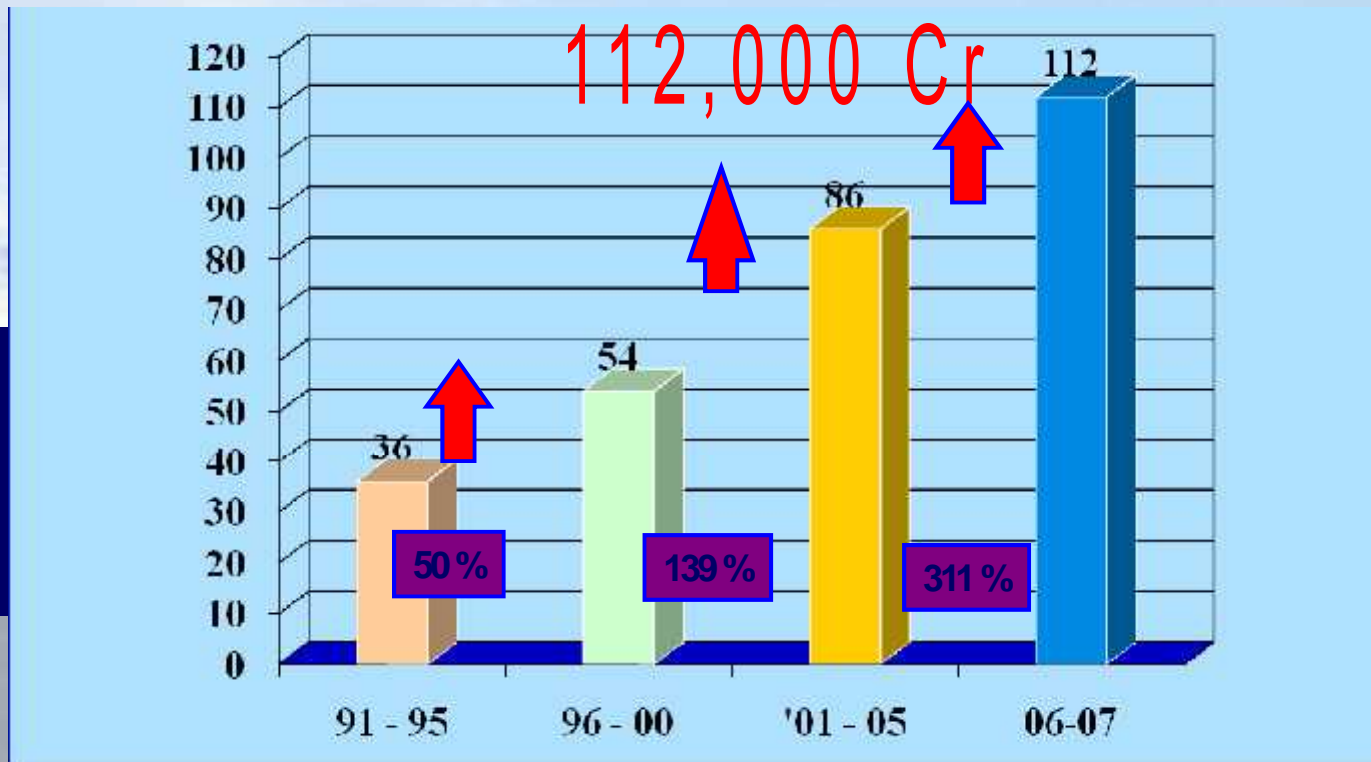
Source: Disaster Management Authority



INDIA

Economic Losses due to Disasters

**Losses in
Thousand
Crores**



Annual- Impact on People

1. Losses in lives - 4334.
2. People affected - 30 Million.
3. Houses lost - 2.34 Million.

Annual- Financial Losses

Percentage of Central Revenue
(for relief) - 12%.

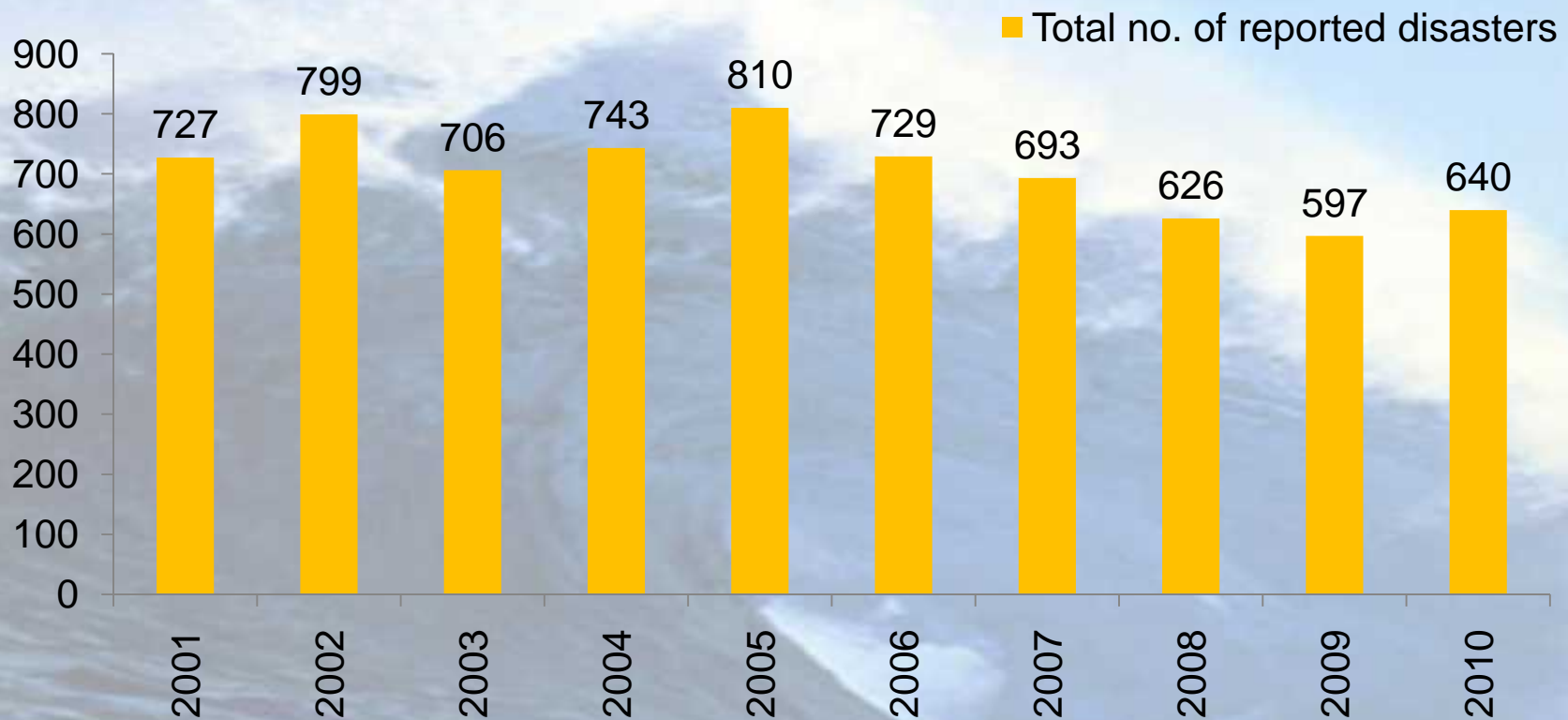


Vulnerable Group

- Elderly people
- Women
- Children

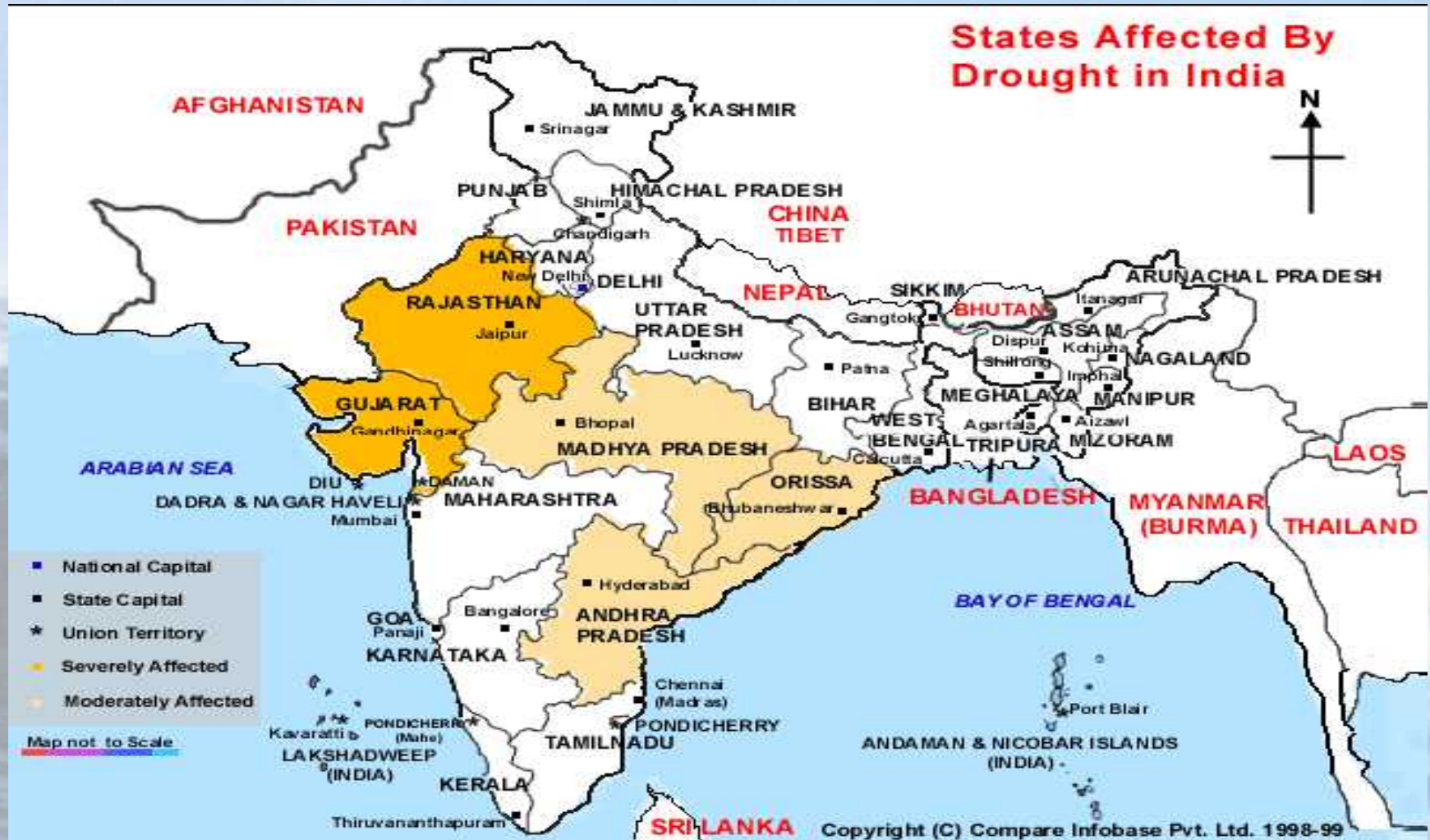


Trend of Disasters in World (2001-2010)

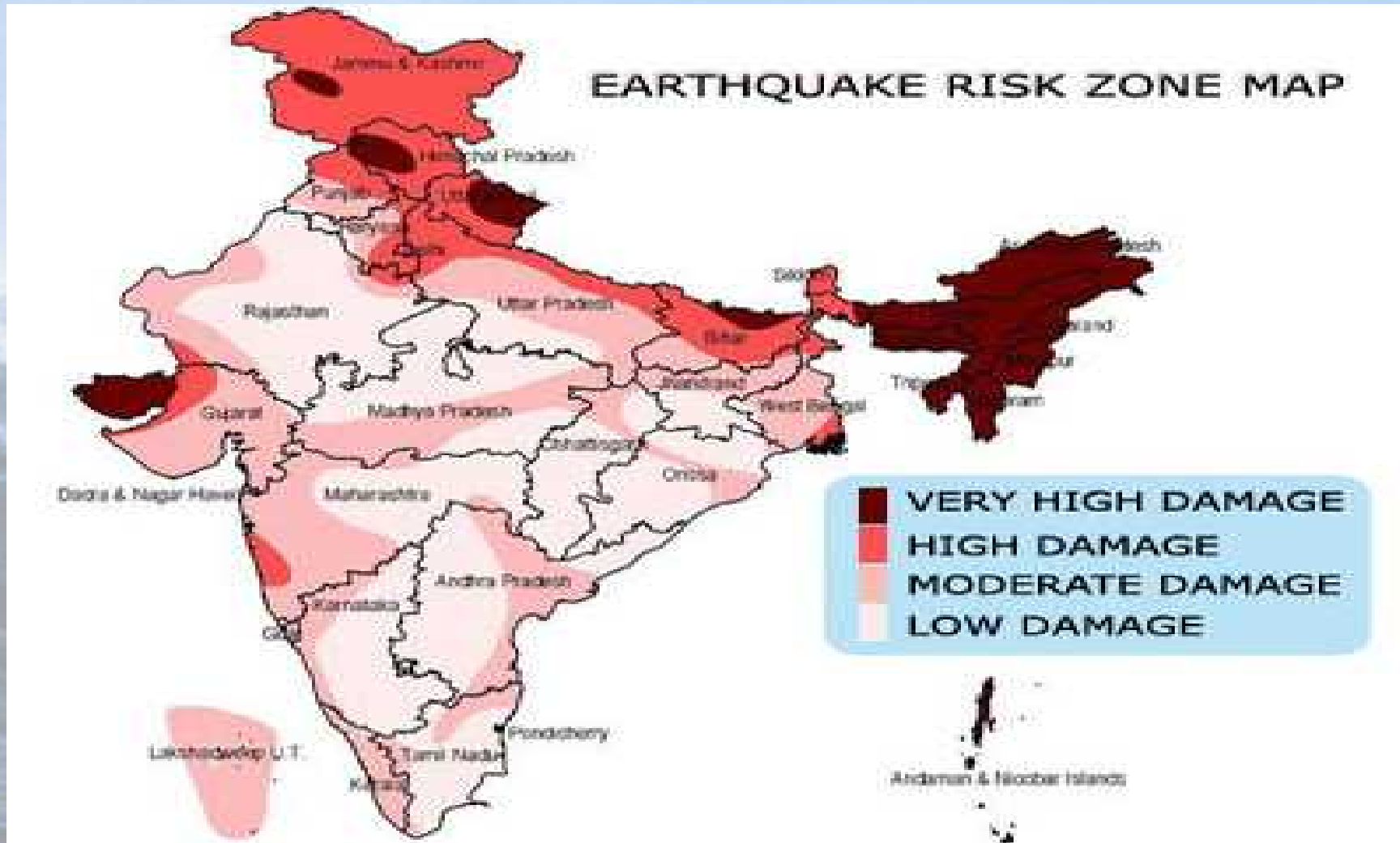


Source : World Disaster Report-2011

India's Proneness to Drought



India's Proneness to Earthquake



India :



Total no. of people reported killed (2001-2010)	63,611
Total no. of people reported affected (2001-2010)	563,498,367
Total no. of people reported killed 2010	2,234
Total no. of people reported affected 2010	4,790,863

Source :World Disaster Report-2011



Potential Consequence of Disaster

Consequences	Floods	Earthquake	Droughts	Complex Emergencies
Deaths	Few	Many	Many	May be many
Severe injuries	Few	Overwhelming	Few	May be many
Disease outbreak	Possible (water borne)	Possible	Possible (due to malnutrition)	Common (all types)
Food shortages	Common	Rare	Overwhelming	Common
Mass displacement	Common	Not common	Common	Common



“If sufficient number of management layers are superimposed on each other, it can be assured that disaster is not left to chance.”

Norman R Augustine

Disaster Risk Management



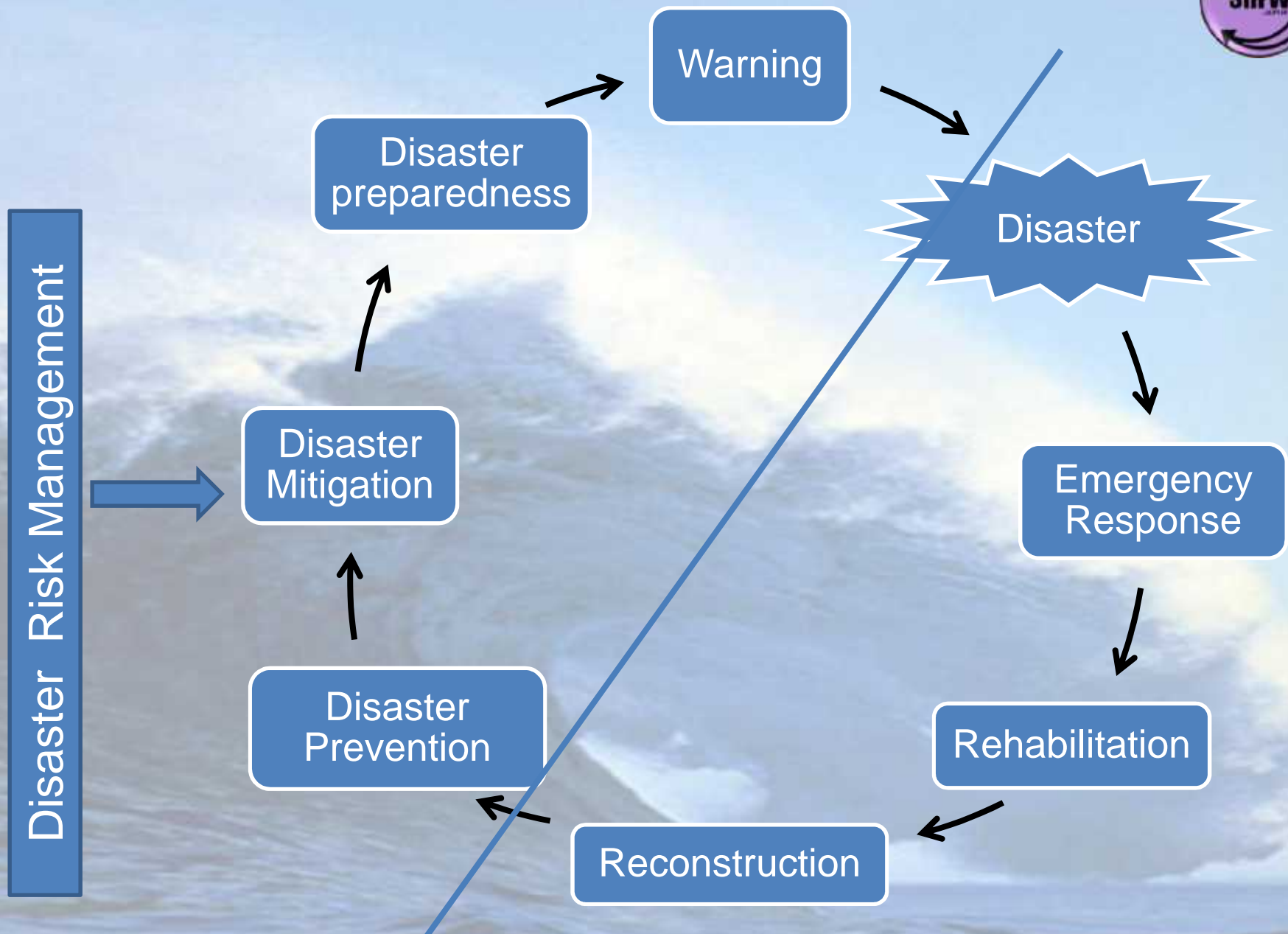
- Disaster management-
Effective organization, direction and utilization of available counter-disaster resources.
- Modern view –
Pre-disaster measures to prevent or mitigate disasters are called **Risk Management**.

Traditional Model-DM Cycle



- Disaster management -number of phased sequences of action or a continuum.
- Can be represented as a cycle.





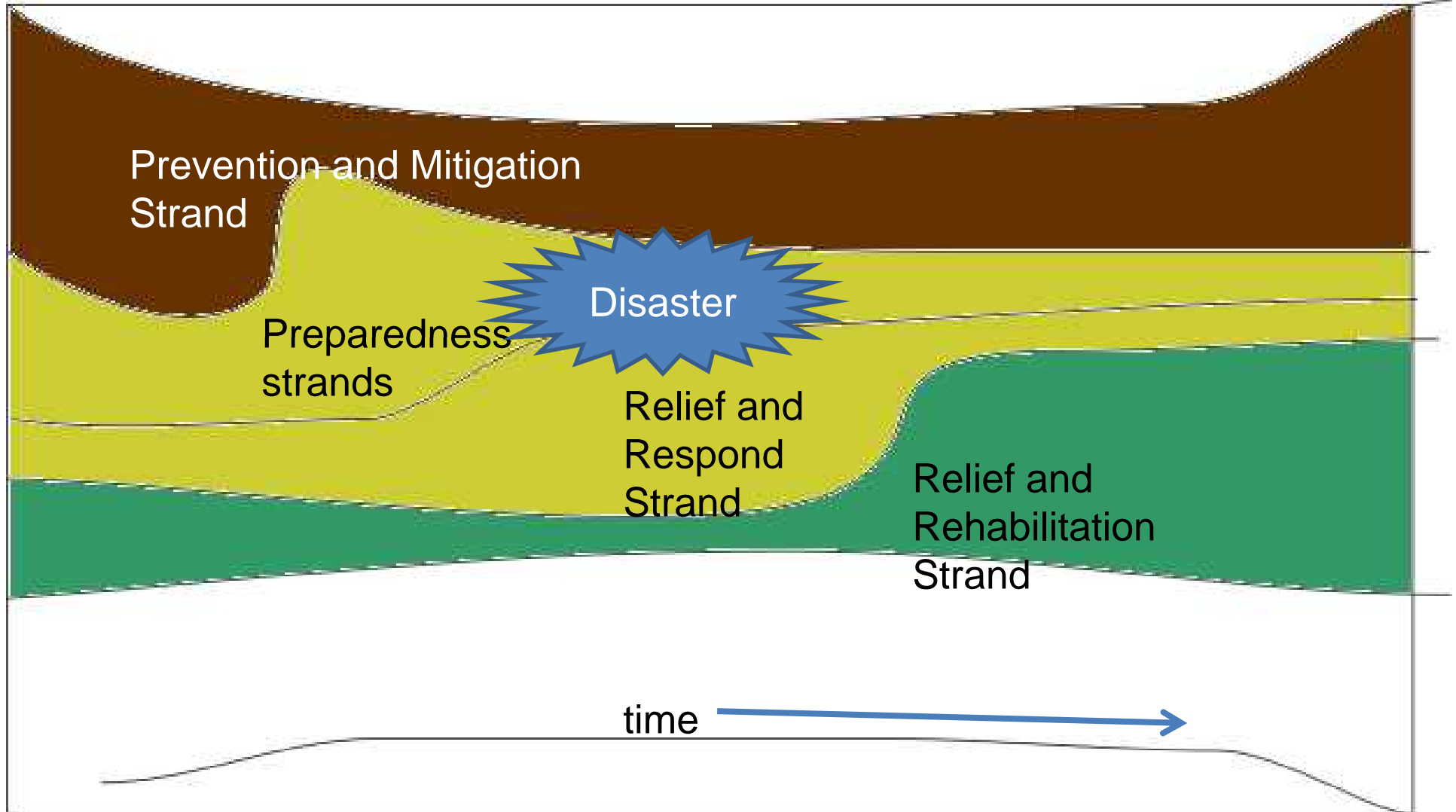


Expand Contract Theory

- There is a series of activities that run parallel to each other rather than as a sequence.



Expand Contract Theory





Disaster & Nodal Ministry

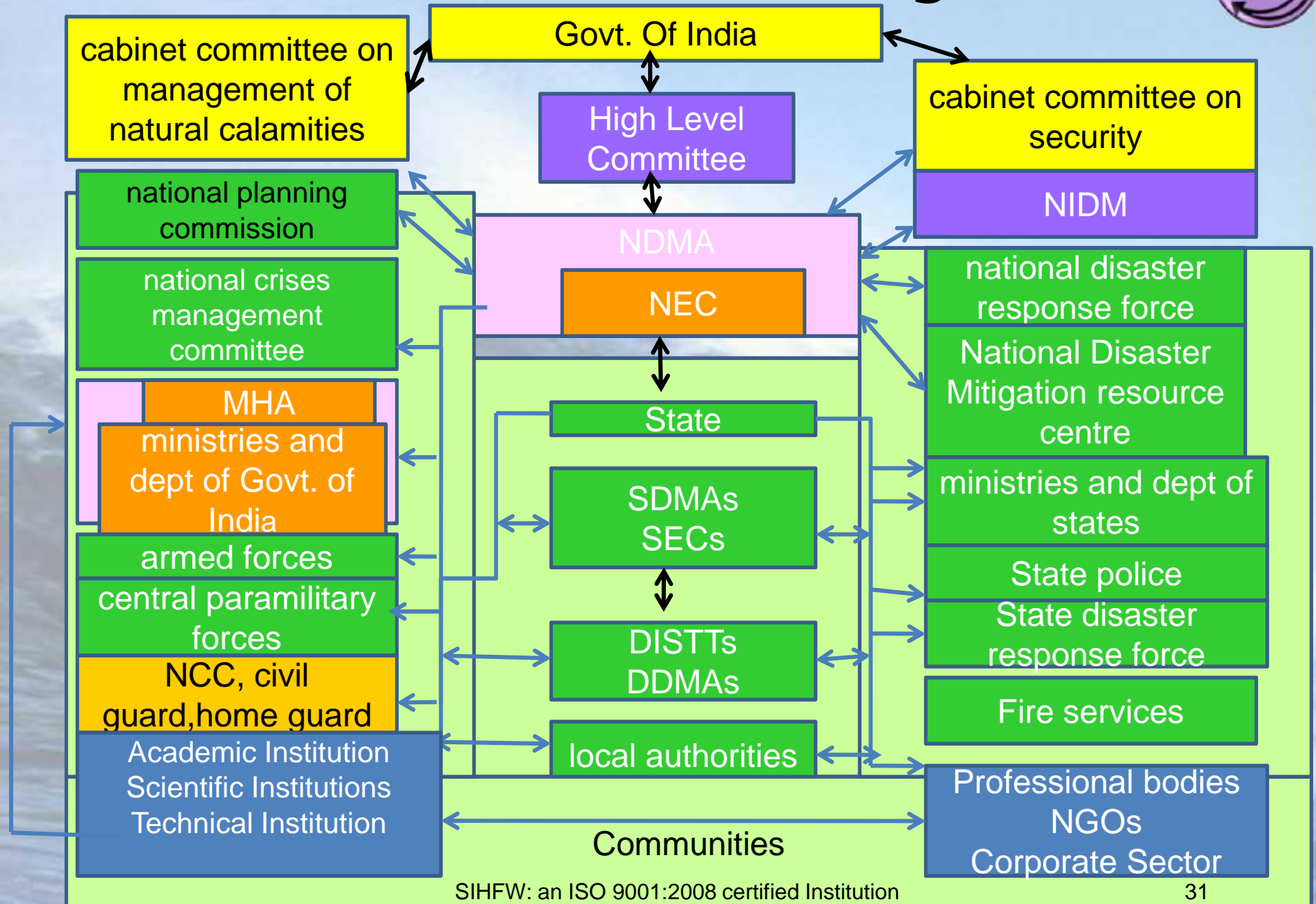
Disasters

- Earthquakes and Tsunami
- Floods
Resources/CWC
- Cyclones
- Drought
- Biological Disasters
- Chemical Disasters
- Nuclear Disasters
- Air Accidents
- Railway Accidents

Ministries/Departments

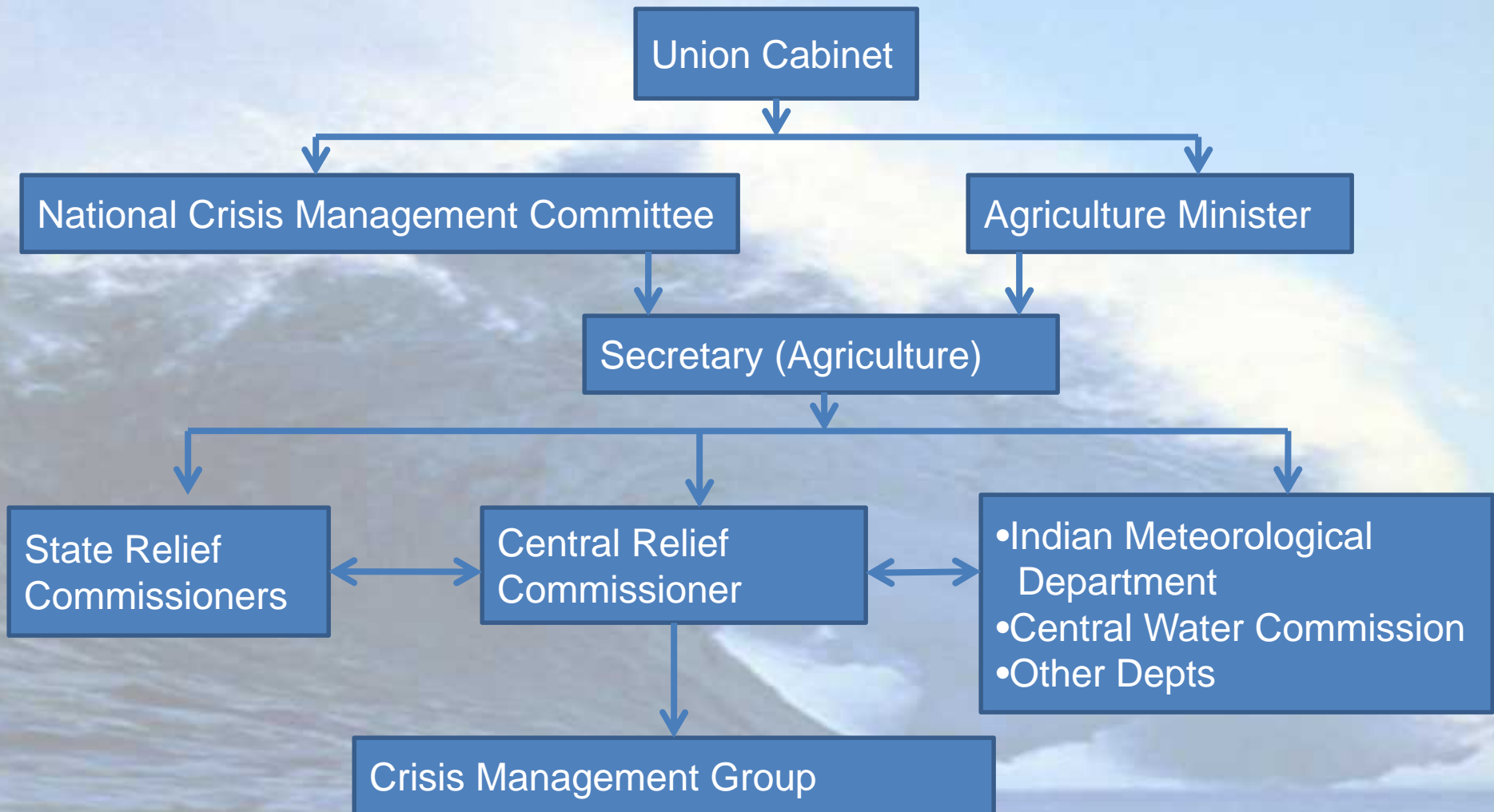
- MHA/Ministry of Earth Sciences/IMD
- MHA/Ministry of Water
- MHA/Ministry of Earth Sciences/IMD
- Ministry of Agriculture
- Ministry of Health and Family Welfare
- Ministry of Environment & Forests
- Ministry of Atomic Energy
- Ministry of Civil Aviation
- Ministry of Railways

National Disaster Management





National Response Mechanism



SOP for Disaster Management (GOI-2010)



- Phased approach
 - Preparedness
 - Early warning
 - Response
 - Relief
 - Restoration



Preparedness / Mitigation

A three-pronged approach to be adopted to undertake mitigation measures:

- Building mitigation measures into all development projects.
- Initiating of national level mitigation, in high priority areas, with the help of the Central Ministries and Departments concerned and the States.
- Encouraging and assisting State level mitigation projects.



Training, Simulation and Mock Drills

- Efficacy of plans and Standard Operating Procedures (SOPs) - tested and refined through training, seminars and mock drills.
- The NDMA - assist the states/UTs in these areas and conduct mock drills in different parts of the country.

Community Preparedness

- The greatest number of lives can be saved during the first few hours following a disaster, before help from the outside arrives.
- If a community is in a state of preparedness - reduce the impact of the disaster.
- Multi-sectoral activity for sustainable results.



Early Warning

- The nodal agencies, for specific natural disasters, will identify technological gaps and formulate projects for their upgradation.
- All States should provide to India Meteorological Department –
required infrastructure for upgradation/ establishment of meteorological observation systems.





Response

- The existing and the new institutional arrangements need to ensure an integrated, synergized and proactive approach in dealing with any disaster.



Role of National Executive Committee (NEC)

- Disaster specific guidelines will be formulated by NDMA, NEC.
- Give directions to the concerned Ministries/ Departments of the Govt. of India/State Governments –
 Regarding measures to be taken by them in response to any specific threatening disaster situation or disaster.
- NEC will coordinate response in the event of any threatening disaster situation or disaster.

State Response Mechanism (Rajasthan)



Disaster Management Authority

- Headed by Chief Minister
- Consist of following members
 1. Minister, Finance
 2. Minister, Water Resources
 3. Minister, Rural Development
 4. Minister, Health
 5. Minister, Urban Development
 6. Minister, Home
 7. Minister, Agriculture
 8. Minister, Science & Technology
 9. Minister, Revenue
 10. Minister, Transport
 11. Minister, Planning
 12. Chief Secretary
 13. Addl. Chief Secretary, Development
 14. Secretary, DM&R (Member Secretary)





Disaster Management Committee – Executive Committee

Headed by Chief Secretary,

Secretaries of the Department as members:-

- Addl. Chief Secretary, Development
- Home
- Finance
- Energy
- Public Works
- Urban Development
- Medical & Health
- Public Health and Engineering & Ground Water
- Secretary to Chief Minister
- Secretary, Irrigation

Disaster Management Committee – Executive Committee



- Secretary, Agriculture
- Secretary, Animal Husbandry
- Secretary, DM&R (Member Secretary)
- Any of the following members may be asked to attend the meeting as and when required by the Chairman:
 - Station Commander, Army and its nominee
 - General Manager, Railway
 - Director General of Police
 - Director General, Civil Defense
 - Director HCM RIPA
 - In charge, Centre for Disaster Management
 - BSNL



State Disaster Management Plan

- Under supervision of the Chief Secretary prepared by each Nodal Department.
- Plan include aspects of mitigation, preparedness and response.
- Annual updation of the plan is institutionalized at the state level by all departments.



Prevention

- The existing Town & Country Planning Act, Industrial Master Plan and Land use Zoning Norms evaluated to make amendments to decrease our vulnerability.
- To ensure safe planning enforcement, Department of Disaster Management is a member of all the regulatory bodies in the State.



Mitigation

- All State Plan Schemes will have mitigation in terms of their reference and Department of Disaster Management will be consulted before all plan schemes are formulated and implemented.

Preparedness and Response

- The Department shall prescribe the frequency of updation of the plans and also the frequency of drills to be organized to rehearse the plan from time to time.



Relief and Recovery

- The Department is Nodal agency for administration of relief and recovery programs including management of Calamity Relief Fund.





District Level Response Mechanism

District Disaster Management Authority headed by Collector.

Members

- Zila Panchayat
- Zila Parishad
- Different line departments
- NGOs
- District Red Cross and others
- Function : for coordinating all disaster management activities at the district level.
- In times of disasters, Distt. Collector constitutes a District Relief Committee to oversee management of relief

Urban Areas

- Disasters -managed by Municipal Commissioner and Chief Executive Officer under the overall supervision of District Collector.
- It will be responsible for putting in place techno-legal regime and its compliance, awareness raising.





Blocks and Tehsil Level

- Block and Tehsil level Disaster Management Committees -headed by SDO and tehsildars as the case may be.
- The Committee will look into all the aspects of disaster management including mitigation preparedness, response and relief.

Panchayat Level

- The Panchayat will also constitute a Panchayat Disaster Management Team consisting of officials and non-officials and organize training for them to be able to discharge their duties properly.





Village Level

- The Disaster Management Committee of a village led by gram sabha.
- This Committee responsible for awareness generation,
 - warning dissemination,
 - community preparedness plan,
 - adoption of safe housing practices and
 - organizing and cooperating relief in post disaster situations.



- Research in areas affected by earthquakes indicates that single parent families, women, handicapped people, children and the aged are particularly vulnerable social groups.

Disaster Management in Health Sector

- The **Emergency Medical Relief Division** of the Directorate General of Health Services in the Ministry of Health and Family Welfare (MoHFW) is the **technical unit** meant for the management of crisis situations.





Role of Epidemiology in Disasters

- Identify major health problems
- Determine extent of disease
- Identify causes of disease and risk factors
- Prioritize health interventions
- Monitor health trends
- Evaluate impact of health programs

Reasons of Health Related Problems

- Population density
- Population displacement
- Disruption of pre-existing sanitary services
- Disruption of normal public health programs





Displacement and Displaced Persons

Displacement of population due to:

- Escape the effects of conflict and violence
- Find food, water, shelter
- Seek protection from persecution
- Escape the devastation of an environmental disaster.

Impact of Displacement



Effect of Displacement on displaced persons

- Loss of livelihood/increased poverty
- Hunger, malnutrition, and starvation
- Lack of shelter
- Lack of heating and cooking fuels
- Lack of potable water
- Spread of communicable diseases
- Overcrowding
- Loss of land tenure
- Long-term psychosocial trauma
- Breakdown of traditions, common values and norms
- “Community” functioning is disrupted

Effects of displacement on the host population

Initially

- Competition for essential resources and services
- Food shortages and increases in food prices
- Reduced wages
- Impeded transportation and/or movement in the area

· Civil unrest

· Interruption of local commerce due to black market economies

· Increased pollution due to overburdened water and sanitation systems

· Spread of communicable diseases

· Overcrowding

· Long-term psychosocial trauma

Later

· Local commerce increases and booms



Disaster and Health

- Injuries from the event
- Environmental exposure after the event :
Sanitation options, personal hygiene, water supply etc.
- Malnutrition after the event
- Mental health consequences :
“Disaster syndrome”
- Communicable disease outbreaks
- Excess Non communicable disease mortality

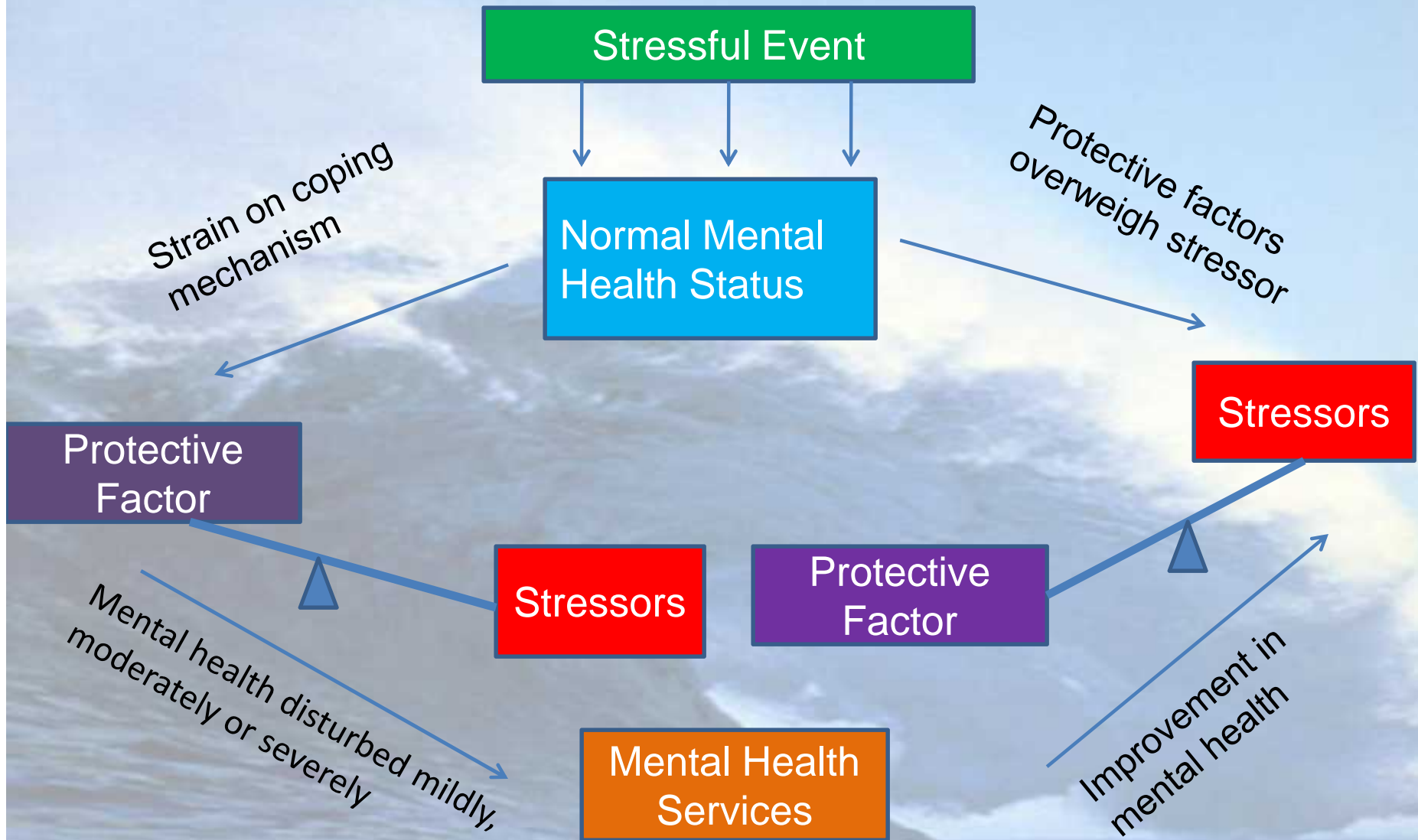


Communicable Disease Outbreaks

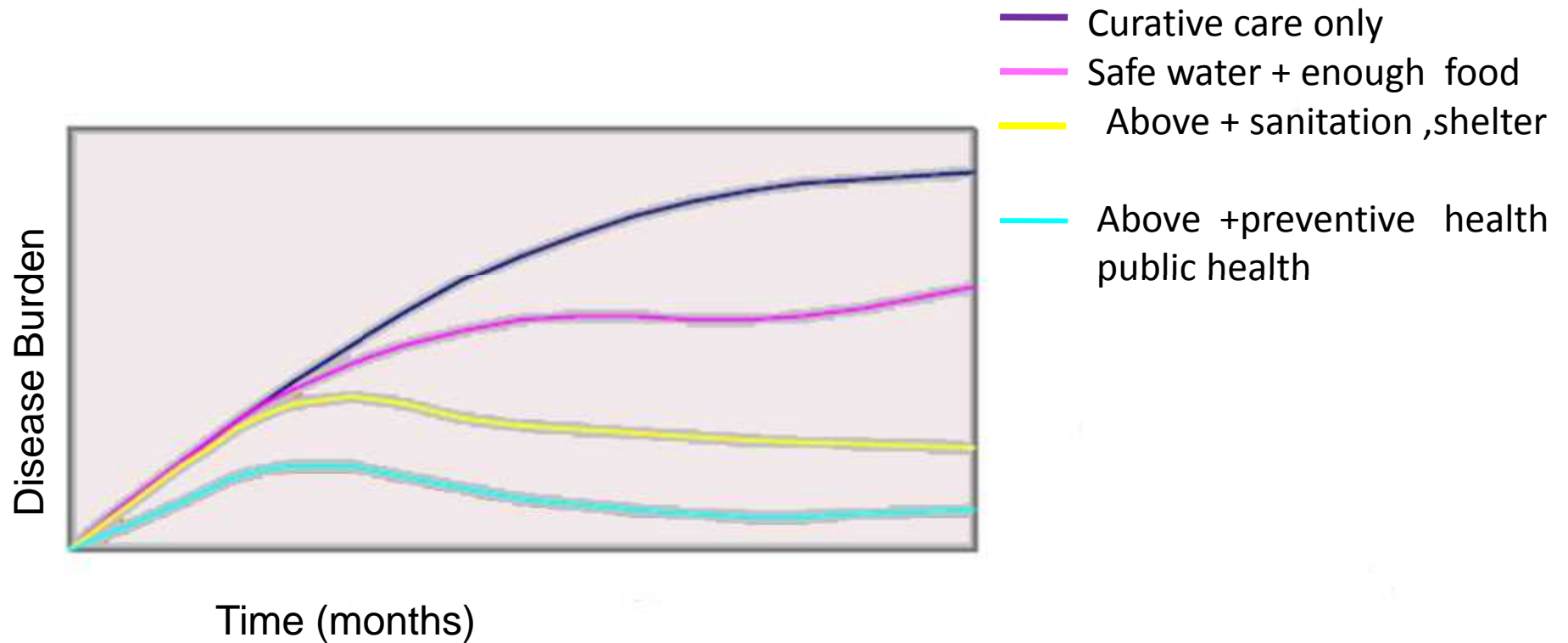
Limited evidence that they pose a major risk; but may occur due to

- Ecologic changes
- Population density changes
- Population displacement
- Disorganized health services
- Interruption of health services

Mental Health



Likely Relative Impact of Health Measures On A Community



Health Alert Network

- A nationwide integrated information and communication system managed by Center for disease control and prevention (CDC), is used as a platform for distributing health alerts, prevention guidelines and other information.





Should Disaster Strike ...

Be Prepared



Thanks for being patient

**For more details log on to
www.sihfwrajasthan.com
or**

**contact : Director-SIHFW on
sihfwraj@yahoo.co.in**