

**Emergency Response
&**

Disaster Risk Management

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plan of presentation

Part :1

- a. DRR vs. DRM : a perception**
- b. HFA(2005-15) to Sendai Frame Work for DRR (2015-30)**
- c. Challenge before policy makers during HFA (2005-15)**
- d. Disaster Risk Governance includes DRM**
- e. Need of Disaster risk Governance /DRM in post HFA Policy-Framework**
- f. Disaster Risk Governance : A function of Sustainable development and livelihood**
- g. DRM: An essential ingredient to achieve sustainable livelihood**

Part :2 :(Disaster Risk Governance: India & Bihar)

- a. Qualitative shift in India's Strategy 2005: DRM**
- b. National Policy on Disaster Risk Management 2009**
- c. Bihar: hazard profile**
- d. Institutional development in Bihar**
- e. Disaster risk management for flood in Bihar**

(a) DRR vs. DRM : a perception

Disaster Risk Reduction (DRR) refers to the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Disaster Risk Management (DRM) includes but goes beyond DRR by adding a **management perspective** (administrative mechanism and procedures related to the management of both risk and disasters) that combines prevention, mitigation and preparedness with response.

Source : ISDR (International Strategy for Disaster Reduction) Terminology

(b) HFA(2005-15) to Sendai Frame Work for DRR(2015-30): manifestation of DRM

Seven global targets of Sendai Framework

- Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rate in the decade 2020-2030 compared to the period 2005-2015.
- Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020 -2030 compared to the period 2005-2015.
- Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
- Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
- Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.
- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

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HFA Priorities for Action

- DRR, a national and a local priority with a strong institutional basis.
- Identify, assess and monitor disaster risks and enhance early warning.
- Build a culture of safety and resilience at all levels,
- Reduction of underlying risk factors.
- Strengthen disaster preparedness for effective response at all levels.

Sendai Priorities for Action

- Understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard-characteristics and the environment.
- Strengthening **disaster risk governance** to manage disaster risk at the national, regional and global level.
- Public & private investment in DRR for economic, social, **health and cultural resilience** of person, community and countries.
- Enhancing disaster preparedness for effective response.

Disaster risk governance embrace DRM

(c) Challenge before Policy makers during HFA (2005-15)

- Policy makers of developing countries showed their interest to
 - Select measures that reduce the overall level of risk.
 - Protect the most vulnerable.
 - Gain credibility.

& all above are, at the same time, measures must in a “Economically Efficient” way.

“The above approach has propagated the need of better understanding and realization of DRM that any economic assessment of risk must take account of environmental loss and a full appreciation of the range of benefits of effective Risk Governance.”

Source : Odi (Overseas Development Institute, Landon) briefing paper-2012: DRM in post 2015 policy framework & UNISDR 2014-Progress and challenges in DRR: A contribution towards the development of policy indicators for the post 2015 framework on DRR, Geneva, Switzerland the UN office for DRR

(d) **Disaster Risk Governance includes DRM**

- Supportive governance is necessary to ensure coping capacities of vulnerable people/community and manage disaster
- Governance influences the way in which national and sub-national actors (including governments, parliamentarians, public servants, the media, the private sector, and civil society organizations) are willing and able to coordinate their actions to manage and reduce disaster-related risk.

Essentials of risk management and Risk Governance-

- Public awareness to recognize risk
- Political will to set policies and allocate appropriate resources
- Institutions with sufficient managerial and coordination capacity to manage and integrate the efforts of relevant sectors,
- Broad participation, transparency, accountability, efficiency and responsiveness.
- voices of the poorest and the most vulnerable are heard in decisions about the allocation of resources affecting them.

(e) Need of Disaster risk Governance /DRM in post HFA Policy-Framework

- Despite the prevailing recognition that Good Governance and DRR are mutually supportive objectives, the understanding of the linkage is still at a nascent stage. (Source; UNDP: DRR, Governance & Mainstreaming)
- Mainstreaming DRR concerns into development practices as an underlying principle, is still elusive. (Source; UNDP: DRR, Governance & Mainstreaming)
- The failure to prioritize DRR and the resulting absence of its inclusion in country development policies, planning and implementation leads to new or heightened patterns of disaster risk, and ultimately an increased risk of the loss of lives and livelihoods.
(Source; UNDP: DRR, Governance & Mainstreaming)
- More than 95% of humanitarian finance is still spent on responding to disaster and their aftermath with less than 5% spent on reducing the risk of disasters.
- Particularly in Asia and Africa, growing impact of climate change on the frequency and severity of extreme weather events.

Source : Odi (Overseas Development Institute, Landon) briefing paper-2012: DRM in post 2015 policy framework

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- The data on disaster impacts and risks vary considerably in quality and quantity makes difficult to evaluate accurately the magnitude of problem.
 - Extensive risk, characterized by small scale and repeated disasters have much impact on communities than the intensive mega disaster but these daily disasters often go uncounted .
 - Greater consistency in the reporting of and documentation of disaster, as well as evidence on the effectiveness of risk management measures, is crucial to establish baseline and track.
 - Thorough analysis of causes using up-to-date scientific and technological knowledge and institutional analysis to built an **evidence base** of how natural hazards become disasters.
 - Risk assessment to identify the extent of risk, are based on data about hazard, exposure, vulnerability and capacity. They could be used **to identify priorities of intervention and avoid risky investment.**

Source : Odi (Overseas Development Institute, Landon) briefing paper-2012: DRM in post 2015 policy framework

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- To Improve inter-sectoral coordination.
 - Though HFA prompted to creation of national legislation and organization structures for DRM, but work of those organization that already exist is not acknowledged or strengthened.
 - Government departments, such as Water resources, Health and Agriculture already doing a lot to reduce the impact of hazards, without labeling it DRM, but their activity is rarely coordinated and often go unnoticed.
 - Government departments are not accustomed to working together on cross-cutting issues, but can be encouraged to do so, through inter-sectoral planning and budgeting for DRM and wider efforts to make development more resilient.

Source : Odi (Overseas Development Institute, Landon) briefing paper-2012: DRM in post 2015 policy framework

- Evolving the mechanism of accountability and evaluation.
 - To know about the implementation and outcome of DRM policy in term of reducing disaster risk.
 - To make relevant and realistic targets and milestones for implementation of DRM through multi stakeholder consultation.
 - Creation of regional platform and forums to demonstrate method and tools to achieve targets and oversee report on progress.

(f) Disaster Risk Governance : A function of Sustainable development and livelihood

- Natural disasters adversely impact development gains
- Non-risk informed development increases disaster risk
- Disaster losses may be considerably reduced by integrating DRM practices in development programmes
 - By strengthening institutions and mechanism of DRM
 - Assisting vulnerable groups to
 - build assets,
 - diversify income generating activities
 - strengthen community-based self-help institutions.
 - DRM practices and principles in sectoral development and post-disaster rehabilitation plans.

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- Special long-term DRM interventions to increase the coping capacities of the poorest and most vulnerable.
 - Development policies and programmes that assist poor men, women and youth to build livelihood assets, diversify income-generating activities, improve human capacities (health, nutritional status, education, technical skills), and strengthen community-based self-help organizations, can make a major contribution to reducing vulnerability and risk, and improving the coping strategies of the poorest.
- Improved technologies can help prevent or mitigate damage caused by natural hazards, like
 - Water control/ conservation technology
 - Improved Crops varieties that are drought or flood tolerant and disease and pest resistance
 - Soil conservation techniques etc.
- Disasters may be perceived as opportunities for building back better & adopting risk-informed sustainable development practices.

(g) DRM: An essential tool to achieve sustainable livelihood

- Natural resources provide key livelihood assets and security, especially in rural areas.
- A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living.
- Disasters reduce household livelihood assets to different degrees depending on the asset and type of disaster and lead to livelihood insecurity (and may result in death or injury)
- Policies and institutions influence household livelihood assets positively or negatively.
- Policies and institutions can increase or decrease vulnerability to disaster.
- Enabling institutions and diversified household assets widen livelihood options
- Asset ownership decreases vulnerability and increases ability to withstand disaster impacts
- A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain its capabilities and assets both now and in the future, while not undermining the natural resource base.

Disaster Risk Governance: India & Bihar

PART:2



(a) Qualitative shift in India's Strategy 2005: DRM

Guided by HFA(2005-15)

- The Disaster Management Act 2005 – enacted on 23rd December, 2005 lays down institutional and coordination mechanism at all level and provides for establishment of Disaster Mitigation Fund and Disaster Response Fund at national, state and district level.
- Defines Disaster to include natural as well as man-made disasters.
- The Government recognized the need for a paradigm shift from a post disaster reactive approach to a pre-disaster pro-active approach:
 - **Preparedness/ Mitigation/ Prevention/ Response/ Relief/ Recovery**
- It envisages the creation of DM institutions such as, the National Disaster Management Authority (**NDMA**), headed by the Prime Minister, State Disaster Management Authorities (**SDMAs**) headed by the State Chief Ministers, and District Disaster Management Authorities (**DDMAs**) headed by the District Collector or District Magistrate
- The Central Government have established the National Institute of Disaster Management (NIDM).NIDM plans and promotes training and research in disaster management, documentation and development of national level information base.

(b) National Policy on Disaster Risk Management 2009

(Approved by the Union Cabinet on 22nd October, 2009)

Vision

To build a safe and disaster resilient India by developing a holistic, proactive, multi-disaster oriented and technology driven strategy through a culture of prevention, mitigation, preparedness and response.

Approach

A holistic and integrated approach will be evolved towards disaster management with emphasis on building strategic partnerships at various levels. The themes underpinning the policy are:

- Community based DM, including last mile integration of the policy, plans and execution.
- Capacity development in all spheres.
- Consolidation of past initiatives and best practices.
- Cooperation with agencies at National and International levels.
- Multi- sectoral synergy.

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Objectives

- a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education.
- Encouraging mitigation measures based on technology, traditional wisdom and environmental sustainability.
- Mainstreaming disaster management into the developmental planning process.
- Establishing institutional and techno legal frameworks to create an enabling regulatory environment and a compliance regime.

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- Ensuring efficient mechanism for identification, assessment and monitoring of disaster risks.
- Developing contemporary forecasting and early warning systems backed by responsive and fail-safe communication with information technology support.
- Ensuring efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society.
- Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat for ensuring safer living.
- Promoting a productive and proactive partnership with the media for disaster management.

(c) Hazard profile of Bihar

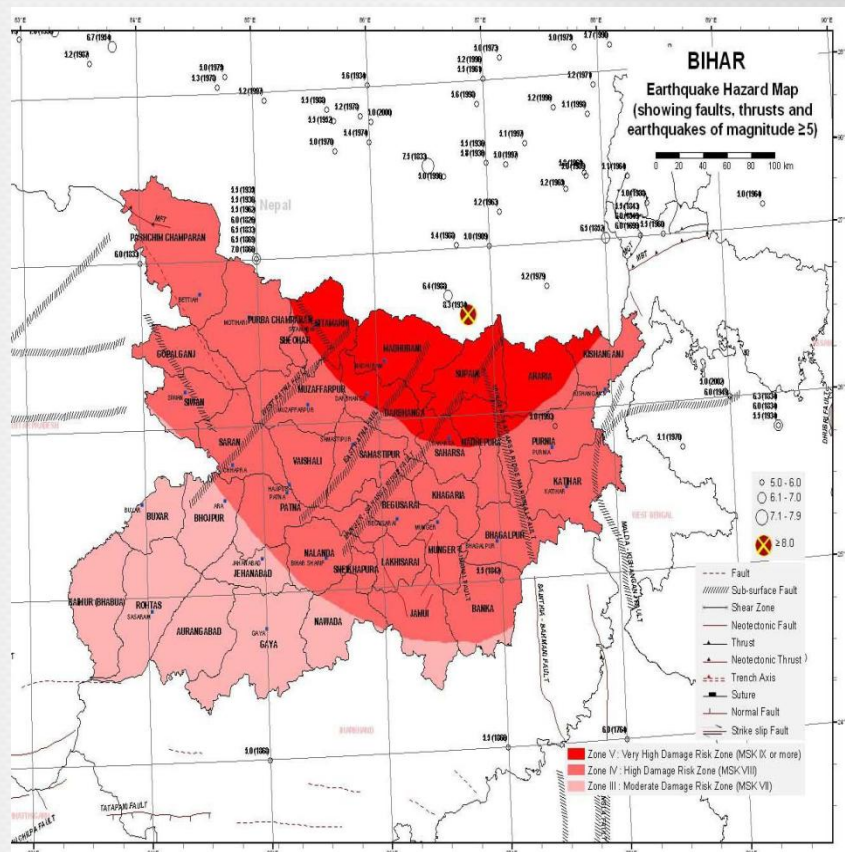
- The hazard profile of the state makes it literally the House of Hazards → Multi-hazard prone
 - the whole of State is earthquake prone → Seismic Zone III, IV, V
 - over 70% of the area flood prone → Rivers originating in Nepal & India criss-crossing Bihar
 - over 30% of the area drought prone and
 - High speed wind prone, Cyclonic storm prone, fire incident prone & gale/ hailstorm prone.
 - Boat tragedies/ drowning

➤ Earthquake

Total 21.1% area of Bihar in Zone IV

Total 63.7% area of Bihar in Zone IV

Total 15.2% area of Bihar in Zone V

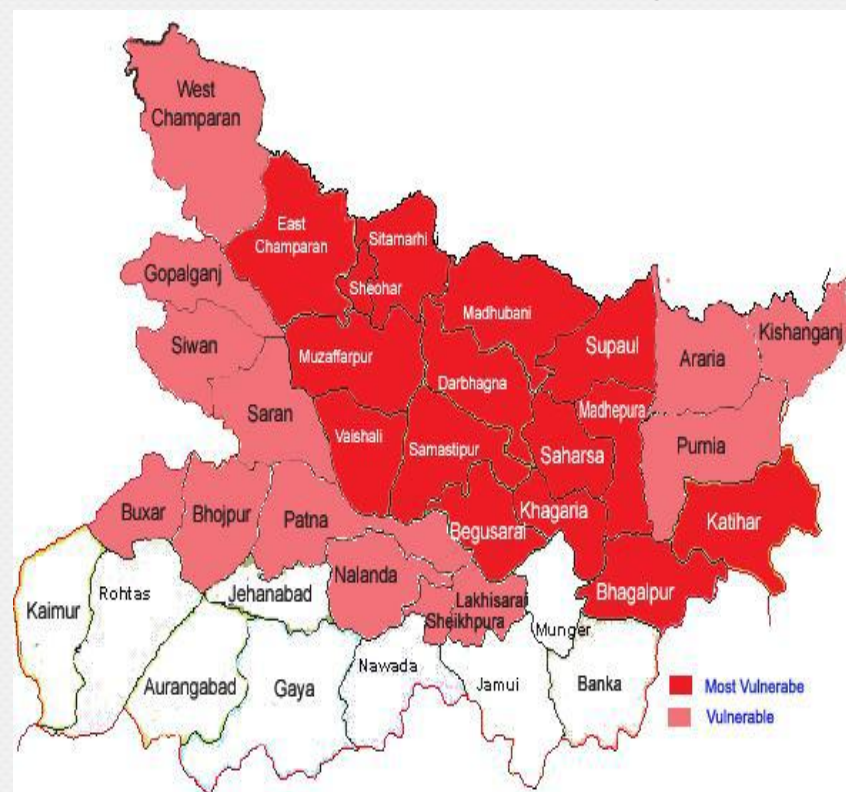


➤ Flood— Most Vulnerable : 15 districts

East Champaran, Sheohar, Sitamarhi, Katihar, Madhubani, Vaishali, Muzaffarpur, Darbhanga, Samastipur, Madhepra, Supaul, Saharsa, Khagaria, Begusarai, Bhagalpur.

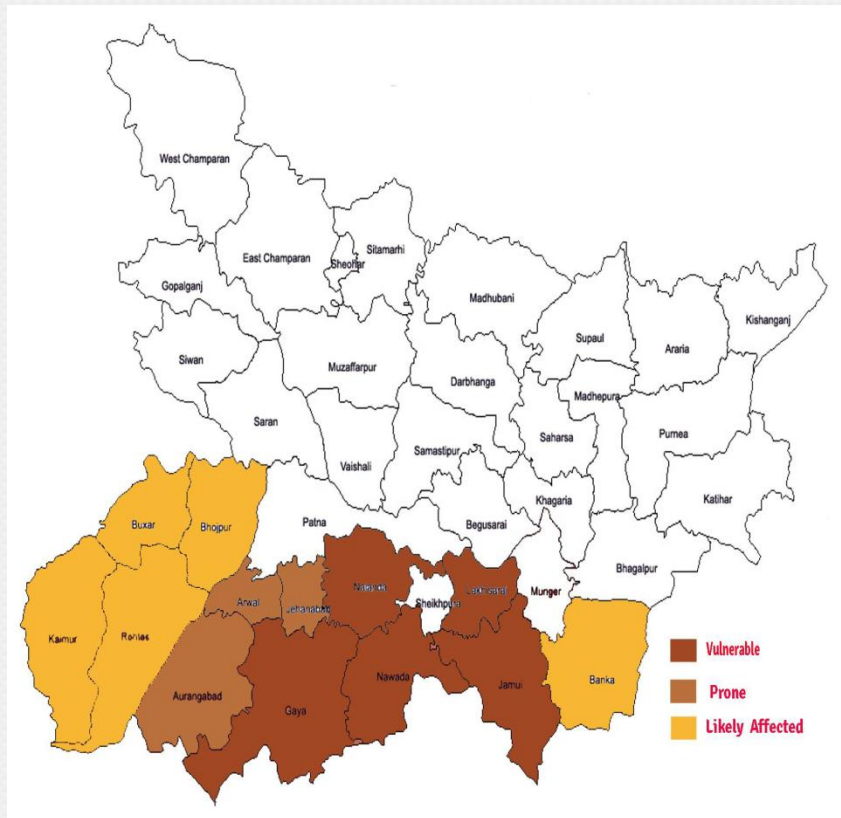
Vulnerable : 13 districts

West Champaran, Gopalganj, Siwan, Saran, Buxar, Bhojpur, Patna, Nalanda, Lakhisarai, Sheikhpura, Purnia, Araria, Kishanganj



➤ **Drought** — Most Vulnerable Districts : Gaya, Nawada Jamui, Nalanda, Lakhisarai Prone District : Jahanabad, Arwal, Aurangabad Kaimur, Bhojpur, Buxar, Rohtas, Banka

➤ **High Speed Wind** — Around 86% of area of Bihar prone to cyclone of 47 m/s
/Gale /Hail Storm intensity
— Around 14% of area of Bihar prone to Cyclone of lesser intensity



(d) Institutional strengthening in Bihar

- After passage of DM Act-2005, State Govt. established State Disaster Management Authority in line with NDMA.
- In pursuance of sec. 25(1) of DM Act-2005, District Disaster Management Authority in 38 districts of Bihar, established.
- In pursuance of DM Act-2005, State Executive Committee (SEC) established.
 - *SEC competent to issue necessary directions, instructions for DRR to any department, authority and institution and make necessary coordination.*
- The rate and norms of assistance to provide immediate relief to disaster victims are fixed. It covers not only natural disaster like flood, drought, fire, cyclone but also the man-made disasters and local disasters like heat-waves, cold wave, excess rainfall etc.

- The state disaster management plan (SDMP) prepared, having two parts; Disaster Risk Management & Disaster Crisis Management.
 - Disaster Risk Management part consists of sections on the Perspective and on Prevention, Mitigation and Preparedness.
 - The Disaster Crisis Management part consists of sections on Response & Relief, 'Build Back Better' dealing with reconstruction and resettlement, Roles and Responsibilities of Govt. Depts. and other stakeholders.
 - The structure of the Plan rests on four pillars:
 - ❖ **The Disaster Management Act, 2005 and NDMA Guidelines.**
 - ❖ **The State and Government Departments & other Stakeholders.**
 - ❖ **Disaster Management related specialized institutions & other organizations and**
 - ❖ **Local bodies like Panchayati Raj, Institutions & the communities.**
 - Standard Operating Procedures(SOP) for flood/ drought/ drinking water crisis/ fire (including fire hazards in hospitals) in place.

- A specialized force for Disaster Management, NDRF was raised by National Govt: a battalion of NDRF stationed in the State consists of specialized teams trained to respond in various type of natural and manmade disasters.
- A battalion of State Disaster Response Force (SDRF) on the pattern of NDRF raised in Bihar
- NDRF/SDRF battalions consists of specialized well equipped & trained team to provide effective response in various types of disasters.
- Emergency Operation Centres at state & district level in place.



KOSI CALAMITY-2008

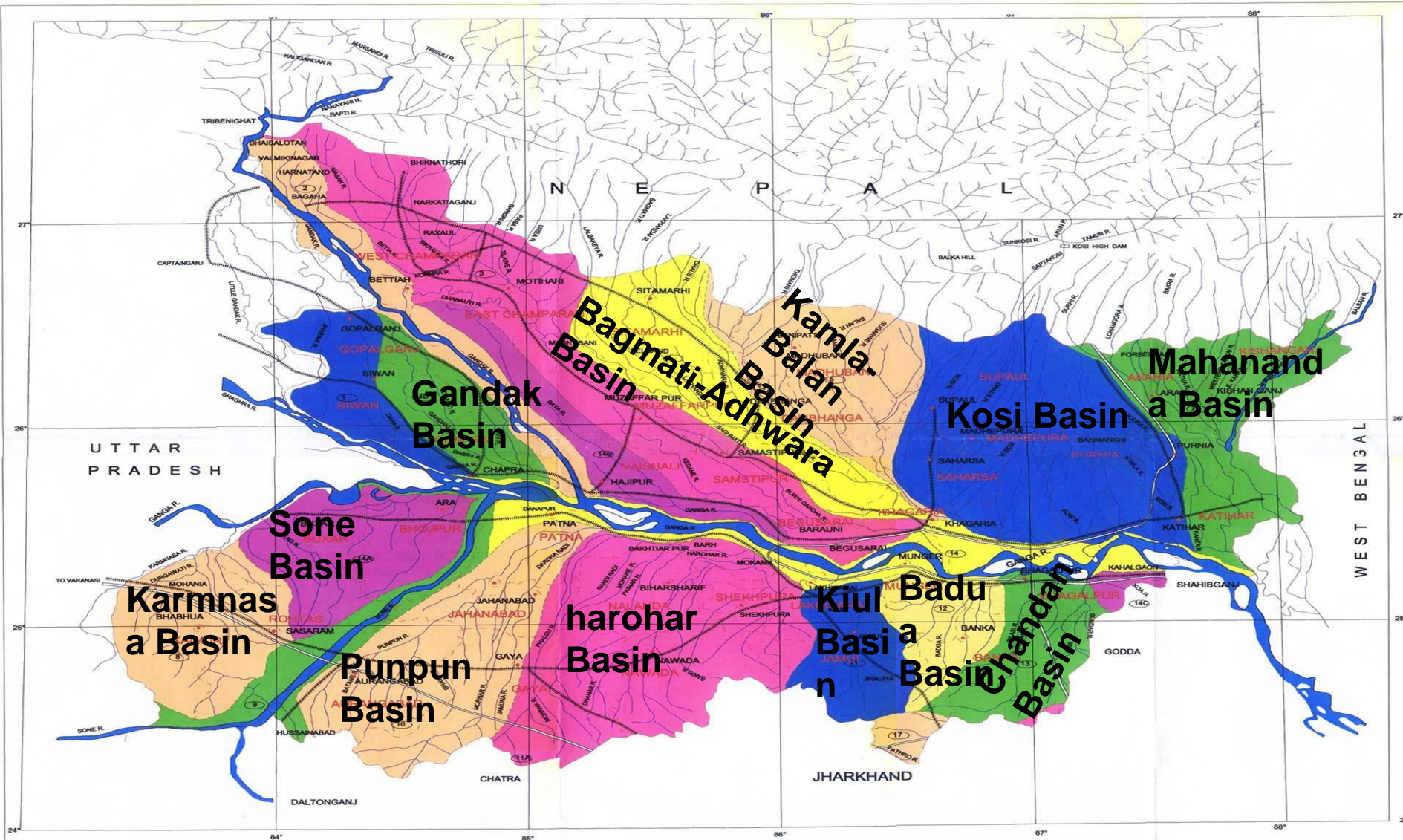
(e) DISASTER RISK MANAGEMENT FOR FLOOD IN BIHAR

i. Common Characteristics of Rivers in Bihar

- **Bihar, in North, is a courtyard of Himalayan rivers, south Bihar is a backyard of rivers flowing from the hills of Chotanagpur and Rajmahal.**
 - **17.2% of total flood prone area of the country falls in Bihar**
- **North- plains of Bihar, adjoining Nepal, drained by number of rivers having their catchment areas in steep and geologically nascent Himalayas**
- **65% of this catchment area of these rivers lies in glacial region falling in Nepal/Tibet, receive very heavy rainfall during monsoon increasing the discharge level 50 to 90 times larger than normal time.**
 - **76% of the population in north Bihar live under the recurring threat of flood**
 - **56% of total geographical area covering 28 districts in north Bihar is flood prone.**

- ☐ **Unstable water flow and tendency to shift their course,**
- ☐ **Unsteadiness in the incidence of flash flood due to sudden heavy discharge,**
- ☐ **Destruction of banks & embankments due to problem of erosion,**
- ☐ **Problem caused by uncontrolled silting,**
- ☐ **Flooding of crops land due to rising level of river.**

ii. River zones of Bihar



➤ River zones in North Bihar

Ghaghara-gandak zone

- Total area 15.91 lakh hect, 5.88 lakh hect is flood prone.
- Floods in the region mainly due to
 - ✓ Overtopping of banks
 - ✓ Breach in embankment
 - ✓ Bank erosion

Gandak-bagmati zone

- Total area 12.32 lakh hect, 10.65 hect is flood prone
- Extremely meandering in nature all along their courses
- Inside Bihar flow of river slows down dropping its bed load of sand & silt; stream meander through serpentine course
- Devastating flood aggravated by tributaries Labakia, Lakhandei.

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Bagmati-kosi zone

- Total area 11.60 lakh hect; 8.14 lakh flood prone
- Includes Adhwara group of rivers
- 12 rivers flow in this zone
- All the rivers come down from the steep slopes of the Himalayas
- Accumulates silts along the courses of rivers results in changing of their course

Kosi- mahananda zone

- Total area 16.48 lakh hect; 15.30 lakh hect is flood prone
- Kosi is the river of seven streams, each one originates in the high region of the Himalayas, the region with plenty of snow and precipitation.

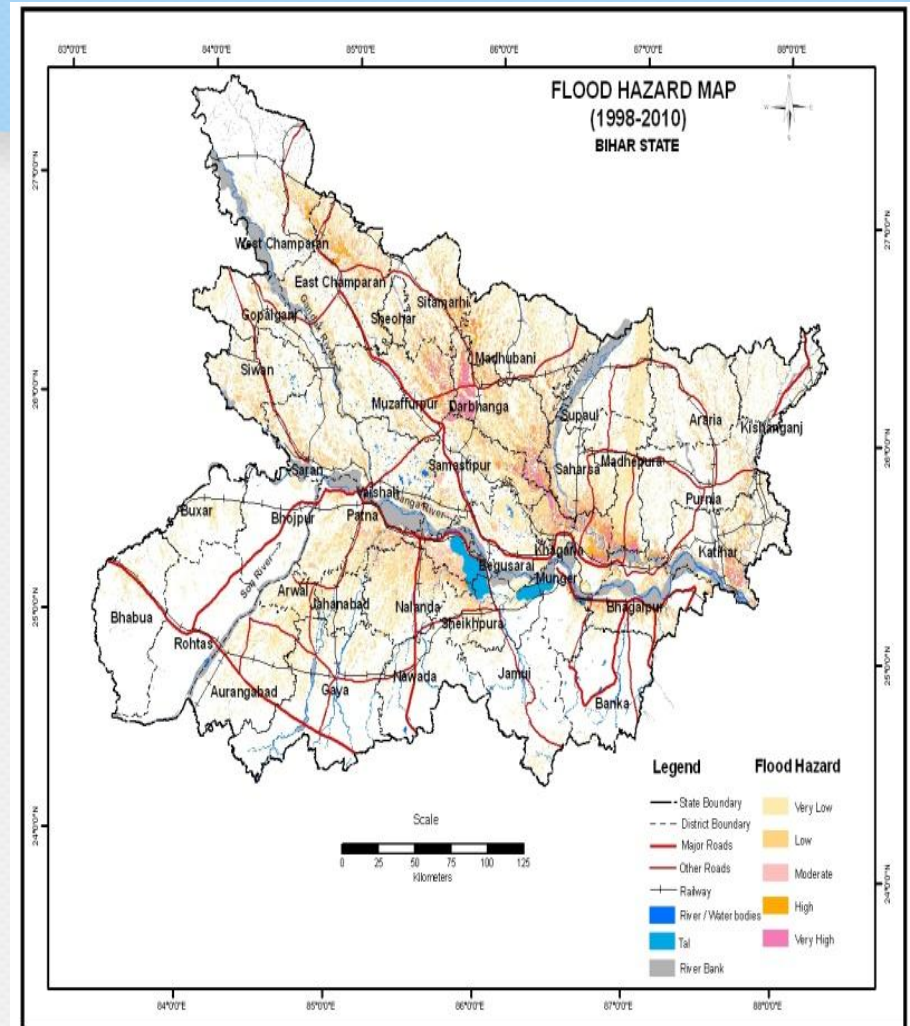
iii. Flood hazard zonation (FHZ) in Bihar

- Flood hazard zonation is a technique which allow to use of flood plains by reducing the disaster dimension, while retaining its beneficial needs.
- Flood hazard maps are used to delineate areas of land which are at risk of flooding up to some extreme limit.
- Hazard maps show a flood boundary based on different magnitudes of flood with various specific return periods.
- Hazard maps can be used to regulate developmental activities within the floodplain, so that damage can be minimized.
- Satellite data sets (128 in number) acquired during flood season between 1998 and 2010 covering Bihar state have been used for preparation of flood hazard zone map.

(Optical data from IRS Advanced Wide Field Sensor and Microwave SAR data of SCANSAR WIDE & NARROW beam modes from Radarsat satellite are mostly used for this study)

Flood Hazard map of Bihar

- It is observed that about 26.09% (24.56 lakh hectares) of land in Bihar state is affected by flood during 1998-2010 out of the total state geographical area 94.16 lakh hectares.
- Out of total 24.56 lakh hectares of flood affected area, about 0.83 lakh hectares of land falls under very high (inundated 11-13 times), 1.22 lakh hectares under high (inundated 8-10 times) flood hazard categories.
- About 2.7 lakh hectares is under moderate flood hazard category, whereas 5.24 lakh hectares under low hazard and about 14.5 lakh hectares under very low flood hazard.

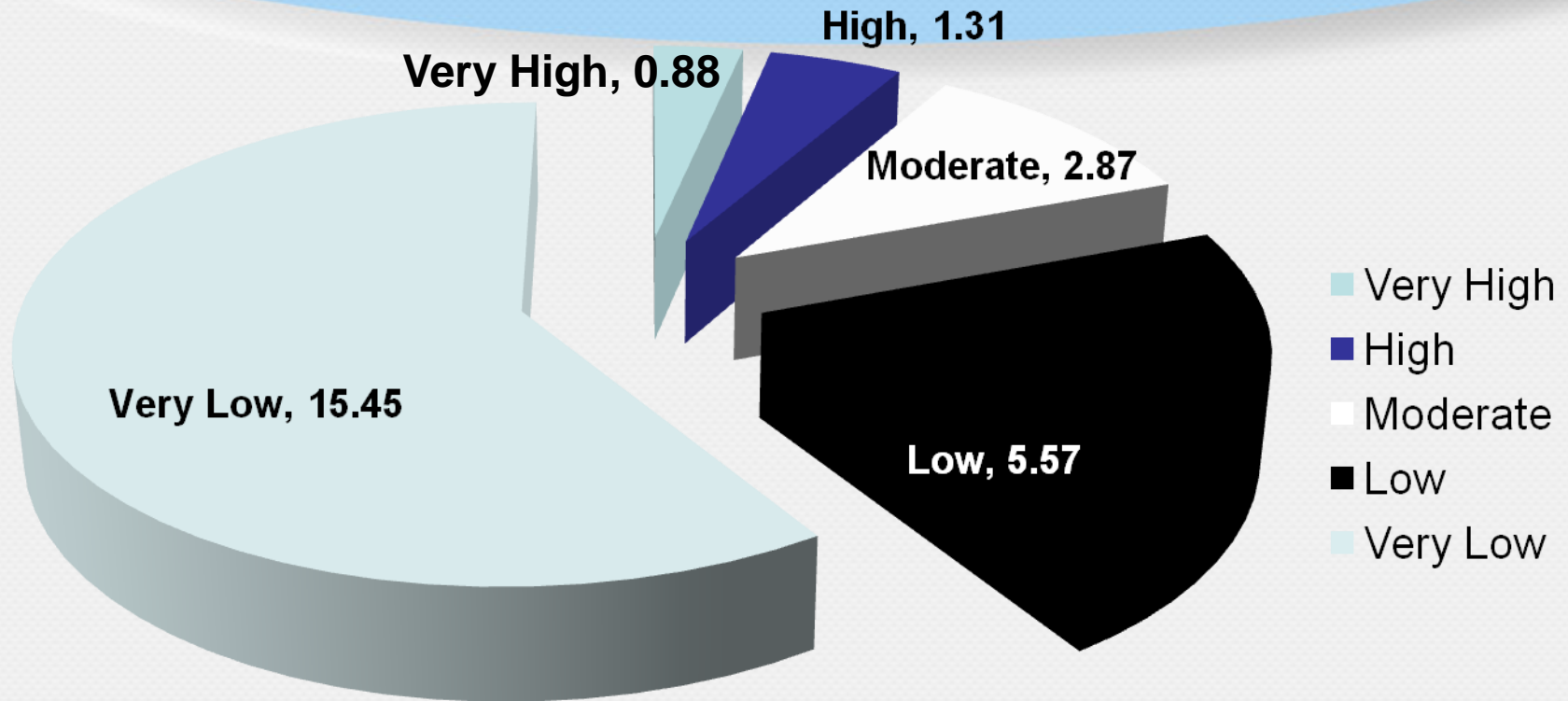


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➤ Flood Hazard Area under Various Categories

S.No.	Hazard Severity	Flood Hazard Area (ha)	% Flood Hazard (wrt State Geographic Area)	% Flood Hazard (wrt Total Flood Hazard Area)
1	Very High	83280	0.88	3.39
2	High	122905	1.31	5.00
3	Moderate	270579	2.87	11.01
4	Low	524862	5.57	21.36
5	Very Low	1455278	15.45	59.23
	Total	2456904	26.09	100.00

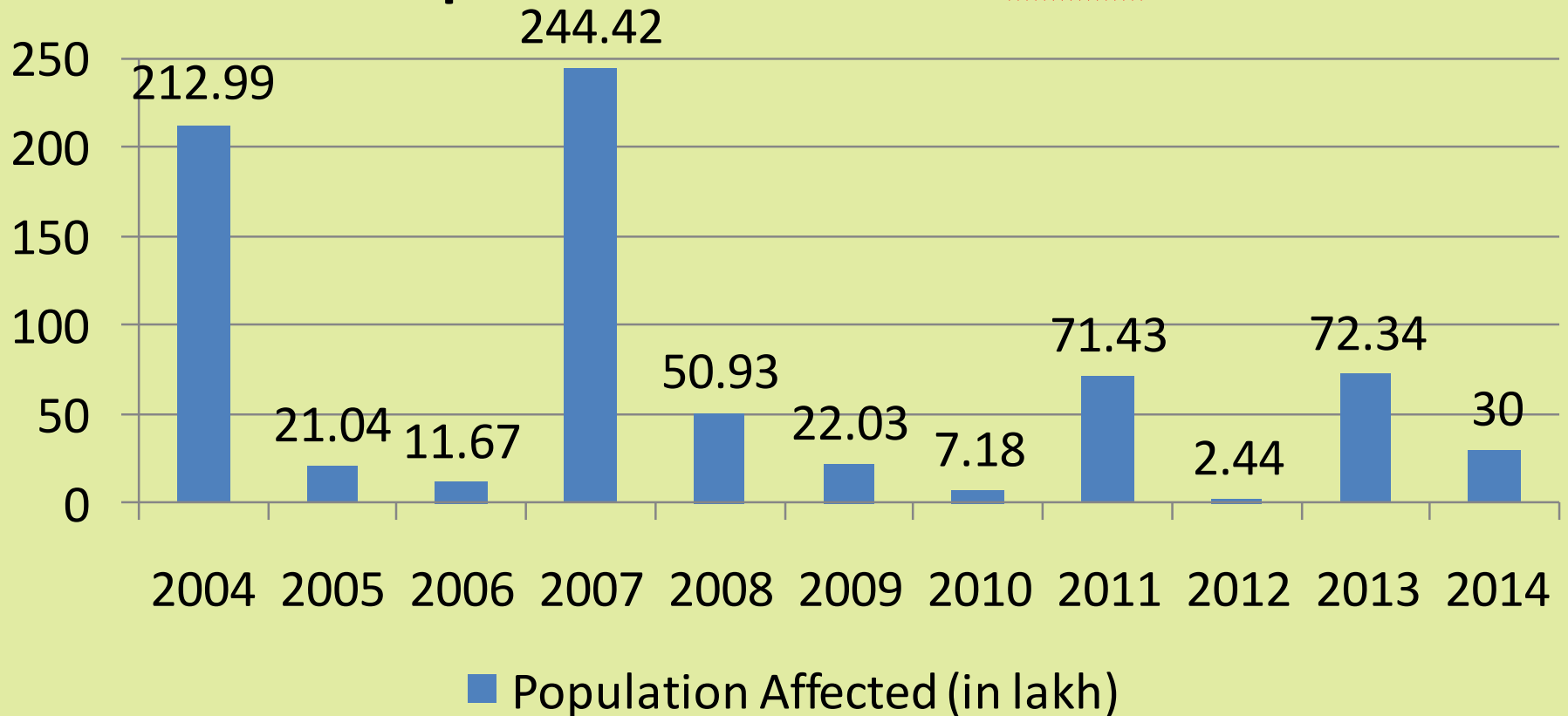
➤ **Percentage of various flood hazard categories wrt total geographical area in the state**



**Total Geographical Area of State
94.16 lakh hectare**

➤ Flood Affected Population during 2004-2014

**Population Affected (in lakh)/ Total population
in 28 flood prone districts – 7.99 crore**



iv. Flood Mitigation Measures

a. Structural Measures (Few Examples)

- 36.46 lac hectare out of 68.80 lac flood prone area has been protected by constructing 3746 km flood protection embankment during 2005-15
- An additional flood prone area of 7.30 lac hectare has been protected by constructing 206 km new flood protection embankment on different rivers of the state; namely, Bagmati, Chandan, Kosi, Kamla, Adhwara, Gandak etc. during 2005-15
- Raising and strengthening of 105 km and 50 km flood protection embankment under Bagmati Flood Management Scheme and Mahananda Flood Management Scheme during 2005-15
- Satellite Imagery is being used for identification of vulnerable points to prevent river erosion during flood period and subsequently selecting the type of flood protection works.
- Geo bag, Mega geo bag, Geo textile filter, porcupines and RCC Jack zety are being adopted as modern techniques of flood protection measures.

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- Field channels have been constructed in 226185 hectares and Field and Intermediate link drains have been constructed in 101096 hectares during the period from the year 2005 to June 2015.

b. Nonstructural Measures

- Engineers are being trained in GIS based modern tools and techniques in **Flood management Improvement Support Centre (FMISC)**.
- ❖ *“A Flood Management Information System Cell (FMISC) has been created under the overall supervision of Chief Engineer (CE), Monitoring and Planning, in Water Resources Department (WRD), GoB, to develop and operate the Flood Management Information System (FMIS) with technical assistance from the World Bank.*
- ✓ FMIS produces useful maps of flood showing “points to be observed” for flood protection works, based on the available satellite data
- ✓ Provide Satellite imageries for rescue and rehabilitation measures.
- ✓ e-bulletins on FMIS website regularly during flood season includes daily hydro metrological status, daily flood bulletins. Inundation map with aerial extent of flood water spread, End season flood report and district level rainfall fall forecast.

- **Spatial Data Base System** for all the 38 districts in Bihar has been developed at FMISC. Trainings are being imparted to engineers for recently developed **Embankment Asset Management System** for Bagmati-Adhwara and Kosi basins.
- **Work on Flood forecasting and estimation of flood inundated area with three days' lead time in Bagmati-Adhwara basin is going on as a pilot-project.**
- **The establishment of a Centre of Excellence for technical studies, modeling, Geo technical study and Research Work is proposed under Bihar Kosi Flood Recovery Project.**

Source-Water Resource Dept.

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c. Flood forecasting and warning system in Bihar

- Role of Indian Metrological Dept. in flood forecasting
 - IMD has 10 flood Met.offices (FMOs) for flood forecasting, **Patna office provides information for Kosi, Mahananda, Baghmata, Kamla, Gandak, Buri Gandak, North Koel, Kanhar, Punpun and Upper Sone.**
 - During flood season each FMO provides categorical QPF catchment-wise/ Sub-Catchment-wise to Flood Forecasting Divisions of CWC daily in the morning for flood forecasting purposes.

(QPF-Quantitative Precipitation Forecast is the expected amount of melted precipitation accumulated over a specified time period over a specified area.)

- Hydro met bulletins issued daily containing following information-
 - i. Prevailing Synoptic Situation
 - ii. Heavy Rainfall Warning for next 48 hrs.
 - iii. QPF catchment-wise/ Sub-catchment-wise
 - iv. Precipitation occurred during the past 24-hours catchment-wise/Sub-catchment-wise
 - v. Station wise significant rainfall (>5cm) during past 24 hrs.

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- FMOs keep watch round the clock during flood alert/ flood situation and work with close coordination with CWC and State Governments.
- **Role of Central Water Commission (CWC) in flood forecasting**
 - Central Water Commission collect Hydro-Metrological data on major interstate/ international rivers for formulation of issuing flood forecast.
 - CWC maintains 32 Flood Forecasting Stations in Bihar through two divisions in Patna.
 - Formulate flood forecast at a station as soon as the river level touches or crosses the warning level.
 - Daily flood bulletins containing water level at the forecast stations at 0600 hours, trend of river during past three hours, rainfall at 0830 hours, forecast, if issued, with validity time and trend.
 - Frequency of bulletins once in case of low and moderate flood and twice during high floods, also every three hours during unprecedented flood.

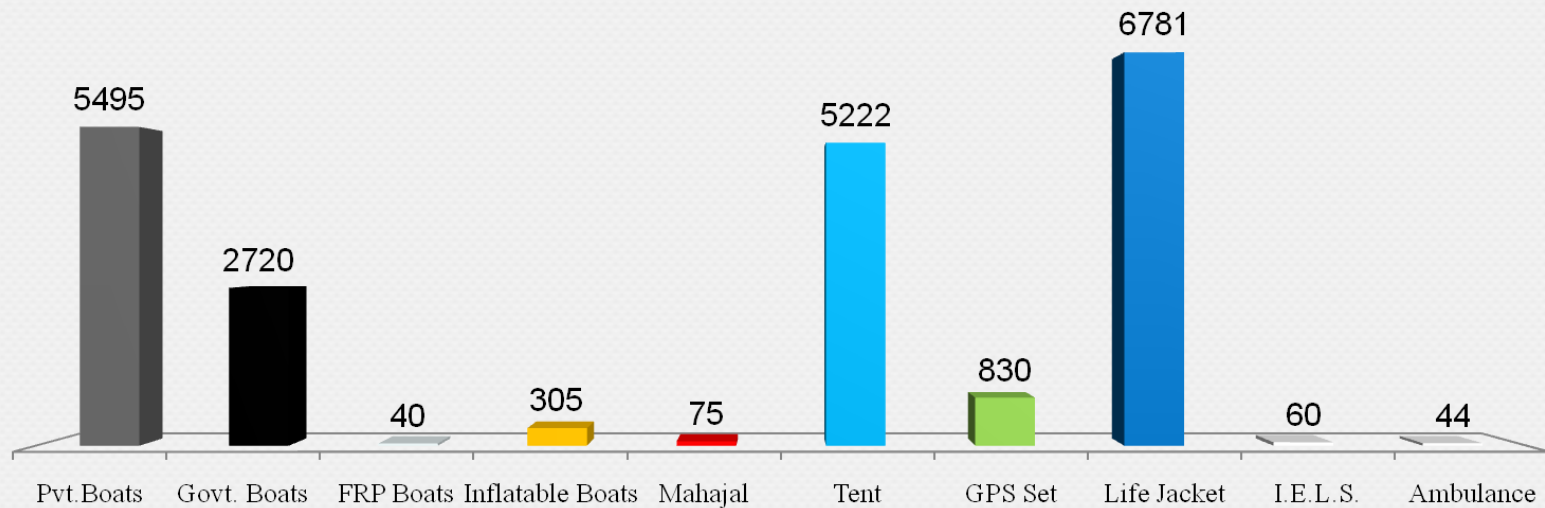
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- Co-operation with Nepal flood forecasting
 - Under the bilateral Flood Forecasting and warning system on rivers common to India & Nepal, Hydro-meteorological stations have been set up in Nepal and India for exchange of data on real time basis
 - 42 hydro-meteorological stations in Nepal territory. Data received by CWC are shared with Bihar & U.P.
 - 18 stations in Indian territory
 - Joint Task Force (JTF) and Committee on Flood Forecasting (CFF) recommended 47 stations against 42 existing stations for improving the existing flood forecasting scheme.

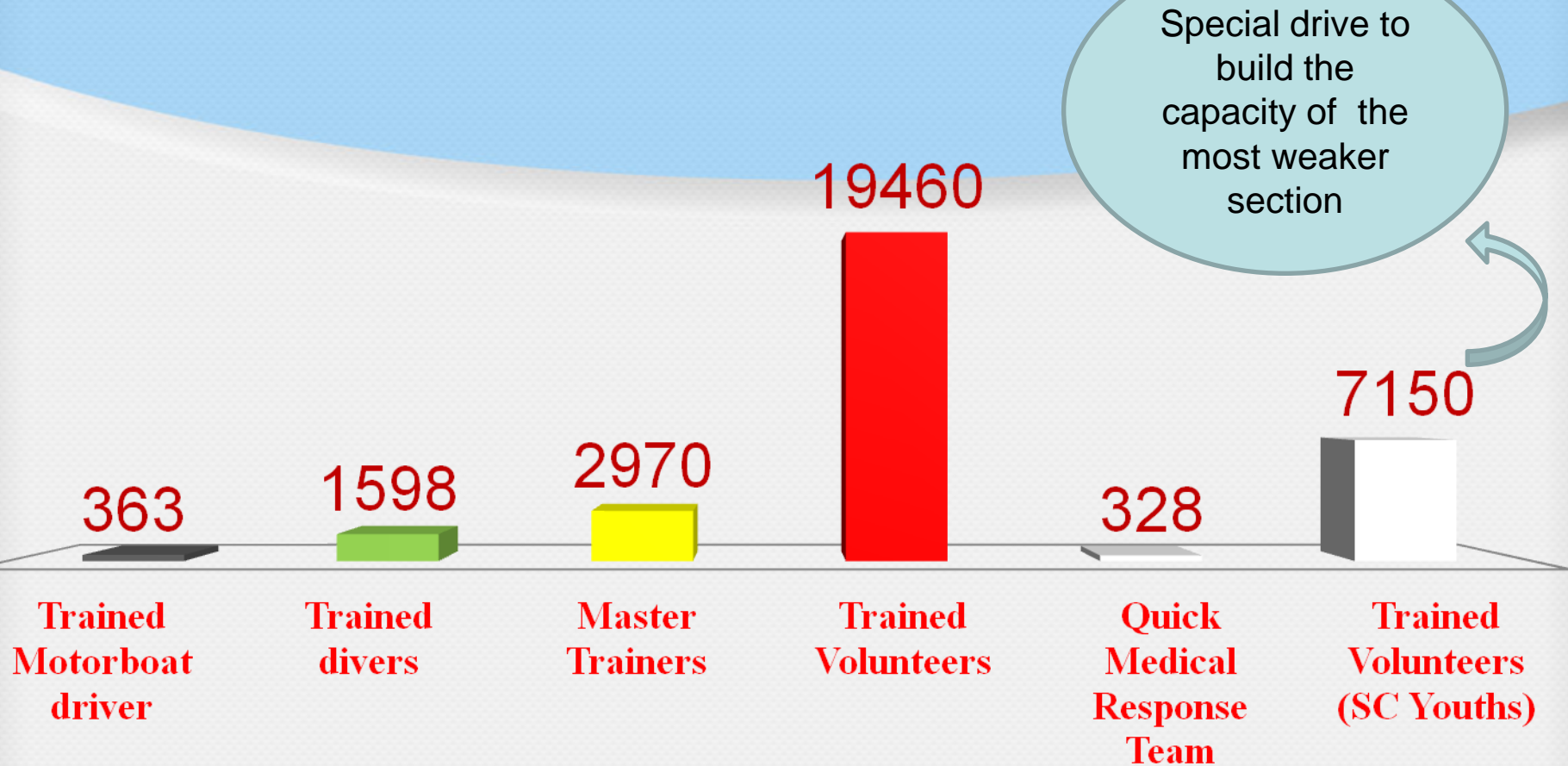
v. Flood Disaster Management

- SOP for flood disaster management :- Who will do what & when.
- Monitoring of preparedness before onset of floods, relief & response during floods & recovery post floods.
- Districts provided with material resources to combat floods effectively.
- Trained human resources to combat floods effectively.
- Community training to make a resilient community & create volunteers

➤ Availability of material Resources



➤ Trained Human Resources



Community Training (Photographs)



vi. Bihar conference on DRR (BCDRR)



- **On 13th-14th May 2015, Government of Bihar organised the first Bihar Conference on Disaster Risk Reduction (BCDRR) for preparing of Bihar's DRR Roadmap.**
- **Bihar became the first State Govt. to organize BCDRR immediately after 3rd WCDRR at Sendai.**
- **84 panellists and 400 participants discussed the issues and specific actions that needed to inform Bihar's DRR roadmap in 17 thematic sessions.**
- **A 'Patna Declaration', comprising 10 commitments by the GoB for the time period 2015-2030, towards a Disaster Resilient Bihar unveiled.**
- **Based on BCDRR recommendation a DRR roadmap is being formulated.**

- 'Patna Declaration' focusses on following 10 commitments:
 - Disaster Risk Reduction will be institutionalised by launching a state-wide campaign in 2015 through collaborative partnerships by involving all stakeholders.
 - Disaster prone communities and regions will be guaranteed inalienable right to the state's resources for safety, prompt relief and protection.
 - Disaster Risk Reduction will be mainstreamed across Government of Bihar's planning processes addressing the requirements for strengthening preparedness, emergency response, rehabilitation, reconstruction and recovery.
 - All development planning initiatives will factor in risk avoidance, risk transfer, risk sharing and residual risk management.

- Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs) will be empowered with financial and regulatory roles for Disaster Risk Reduction.
- Community skills, knowledge and capacities will inform decision making about Disaster Risk Reduction at all levels through inclusive and participatory processes, with special emphasis on context-specific differential needs of social groups.
- Resilience of critical infrastructure and delivery of essential services will be ensured, including restoration of functionality and continuity, in case of disruptions.
- Mechanisms for gathering, analysing and disseminating targeted early warning information to key stakeholders will be established in line with the national framework
- Lives, livestock and livelihoods will be protected from disruption due to natural and human-induced disasters and extreme events.
- Requisite financial and human resources will be committed for fulfilling the vision of Disaster Resilient Bihar through the creation of a corpus fund.

Thanks for co-operation

