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RESILIENT BIHAR: CASE STUDY OF BIHAR FLOODS 2016

ABSTRACT

{Disaster has become a regular global event adversely affecting lives of millions of people. The question is why so many people are affected. The reason being increased vulnerability created by human being itself. To reduce increasing disaster risks communities need to be resilient. This is why 'disaster risk reduction' policies are being introduced. This paper discusses roadmap for disaster risk reduction (DRR) in Bihar and its implementation at the grass root level. Taking the case of 2016 Bihar Floods, the paper tries to look into how National Disaster Response Force (NDRF) and State Disaster Response Force (SDRF) actively works towards fulfilling targets and milestones of 'Bihar DRR Roadmap' which was born inspired by Sendai Framework held in Japan in 2015.}

Keywords: Disaster Risk Reduction, Vulnerability, Resilience, Roadmap

Introduction

Disaster, according to DM Act 2005, is a 'catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or human-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, and degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area'¹. Disaster risks are evolving everyday with increasing rate of poverty (resulted from increased unemployment and unsystematic distribution of resources) as poor people suffer the most.

Bihar is a multi-disaster prone state with almost all types of natural and man-made disasters (floods, drought, cyclonic storm, hailstorm, fire, earthquake, heat/cold waves, road/boat accidents, drowning, lighting, etc.) affecting its all 38 districts. Thus, people residing in Bihar are most vulnerable to disasters. To reduce their increasing risks Government of Bihar has taken an initiative by formulating DRR Roadmap to make Bihar a 'resilient' state. In this paper we would be discussing the roadmap in detail along with its implementation at the grass root level.

Disaster Management deals with planning, organizing, coordination and implementation of various measures necessary to deal with severe disasters once they are imminent or have occurred. DRR is the policy objective of anticipating future disaster risk, reducing existing exposure, vulnerability or hazard, and strengthening resilience.

The disaster management landscape in Bihar has evolved considerably since the early 2000 in terms of the policies, institutions, policy instruments, programs, plans, and capacities. The DRR Roadmap seeks to build on this work and provides a basket of policies and policy instruments that need to be revised or developed in order to create an enabling policy

environment for implementing the Roadmap. DRR roadmap in Bihar is the result of inspiration from Sendai Framework for Disaster Risk Reduction (SFDRR).

Sendai Framework for Disaster Risk Reduction

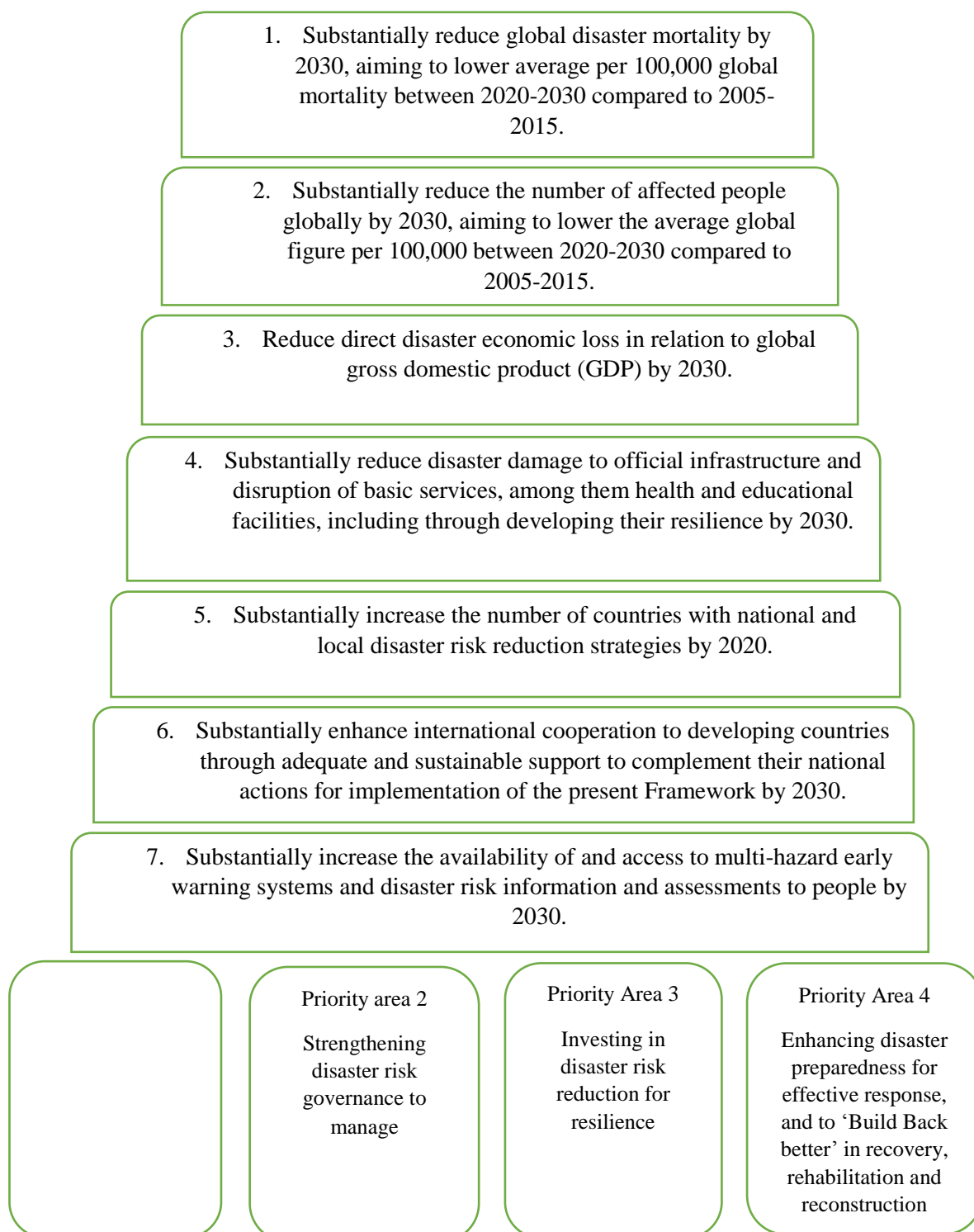


Fig. 1: Targets and Priority Areas of the SFDRR

The Third World Conference on Disaster Risk reduction (3rd WCDRR) was held from March 14-18, 2015 in Sendai, Japan. The conference was attended by representatives from 187 countries who deliberated on post-2015 agenda for disaster risk reduction and adopted the SFDRR. It is a comprehensive 15 year (2015-2030) framework, successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. SFDRR shifted the paradigm of resilient activities all over the globe by fixing 7 global targets and 4 priority areas.

The SFDRR stresses the need for ‘enhanced work to reduce exposure and vulnerability, thus preventing the creation of new disaster risks, and accountability for disaster risk creation are needed at all levels’ It exhorts that ‘more dedicated action needs to be focused on tackling underlying disaster risk drivers, such as the consequences of poverty and inequality, climate change and variability, unplanned and rapid urbanization, poor land management and compounding factors such as demographic change, weak institutional arrangements, non-risk-informed policies, lack of regulation and incentives for private disaster risk reduction investment, complex supply chains, limited availability of technology’.

Drawing from SFDRR, the Government of Bihar (GoB) decided to develop a DRR Roadmap (F.Y. 2015-16 to F.Y. 2030-31) for Bihar keeping in mind state’s Disaster Management landscape as well as its Disaster Risk profile. The GoB hosted its first DRR conference in May 2015.

Disaster Risk Profile of Bihar

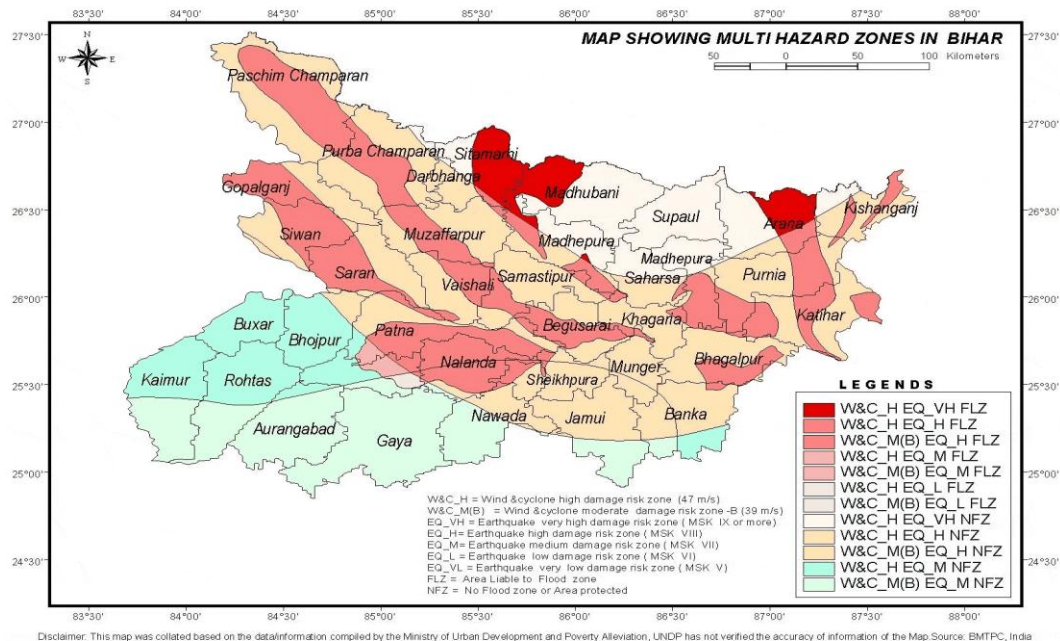


Fig. 2: Map of Hazard Profile of Bihar

Disaster risks in Bihar emanate from the interplay of multiple contributing factors. The state is prone to not only natural hazards (floods, earthquakes, drought, cyclonic storms, fire, hailstorms, lightening, heat wave, and cold wave) but also to other hazards such as road/rail accidents, boat capsizing, drowning, snake bites, stampedes, etc. which mostly are man-made.

The prevalence, frequency and severity of these hazards vary across the all 38 districts. Out of these 38 districts, 28 districts are flood-prone with major flood events occurring in 2004, 2007, 2008, 2011, 2013, 2016, and 2017. Areas typically not experiencing floods hitherto in the state have also started experiencing occasional floods especially in areas lying in southern Bihar. The vagaries of nature are such that floods as well as droughts occur in the same year (2013, 2016) in Bihar and sometimes in the same district.

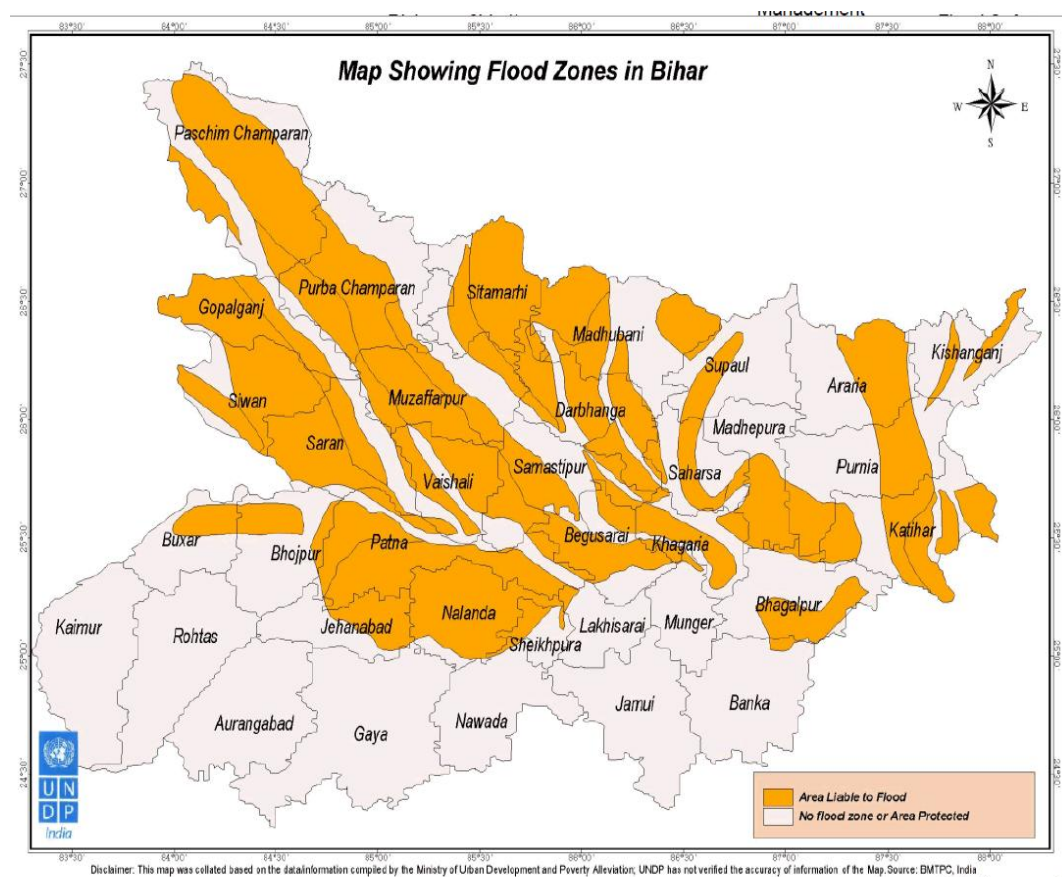


Fig. 3: Map of Flood Prone Districts of Bihar

As regards earthquake, 8 districts fall in seismic zone V of which 2 districts (Madhubani and Supaul) fall entirely in seismic zone V; 30 districts fall in seismic zone IV and seismic zone III, with most districts falling under multiple seismic zones. In the year 1934, 1988 and 2015 major earthquake events have occurred in Bihar resulting in severe destruction and loss of lives and property. Intermittent tremors are experienced in the northern part of the state with intensity and frequency of the same increasing since 2013.

During the Nepal earthquakes of April-May 2015, Bihar experienced three major shocks and many tremors during the months of April and May 2015 resulting in 59 deaths and economic damage occurring mainly in rural parts of Northern Bihar.

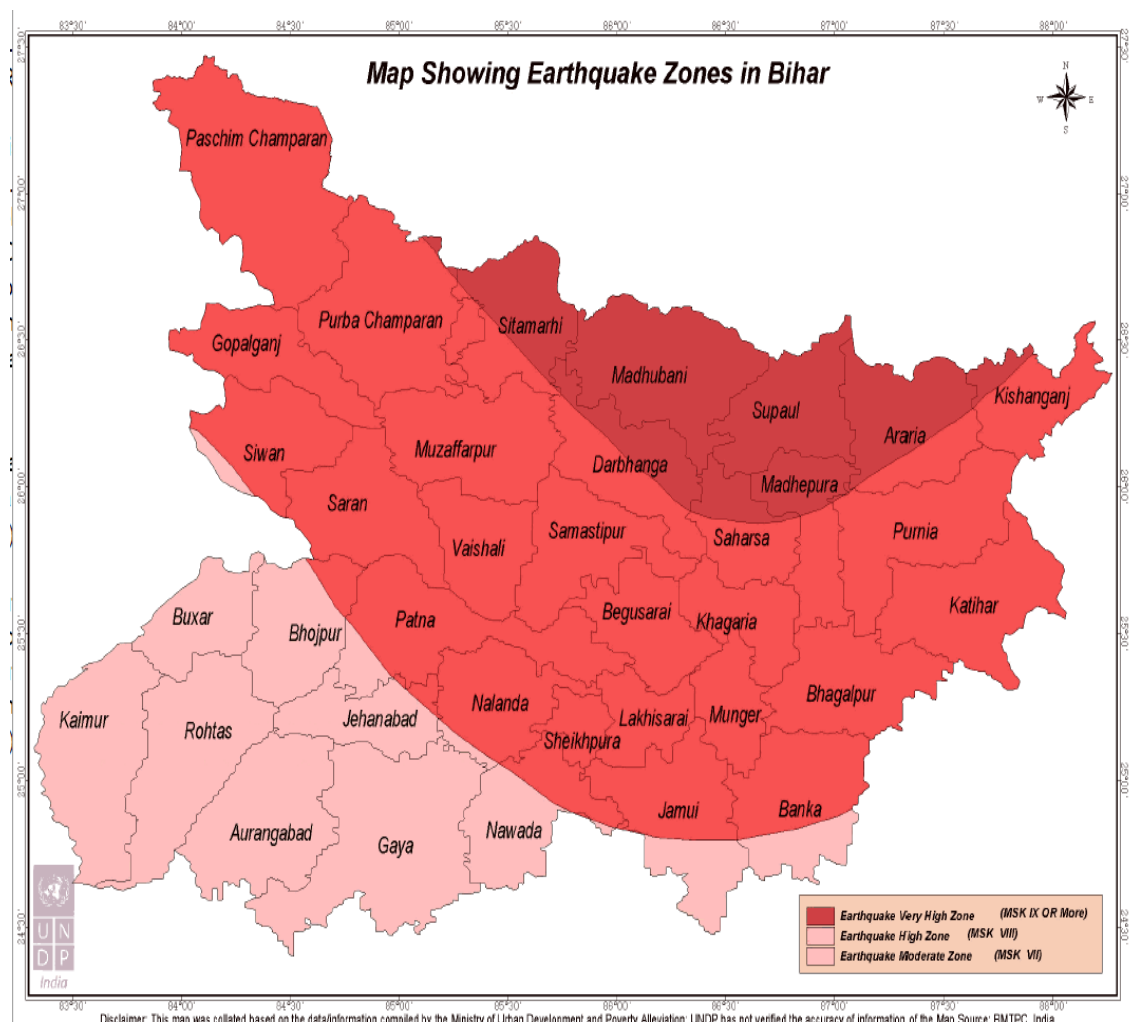


Fig. 4: Map of Earthquake Prone Regions in Bihar

Districts lying in the north-east part of Bihar are prone to cyclonic storm. In the year 2010 more than 80 persons lost their lives and vast damage to infrastructure and property was caused due to cyclonic storm. Again in April 2015, cyclonic storm hit the same part killing more than 50 people and destroying infrastructure and crops hugely. The other parts are also prone to severe storms during summer season.

Fire incidents are also evident primarily in rural areas causing severe damage to lives and livelihoods. For instance, numerous fire incidents took place during 2010-11 to 2015-16 wherein 750 lives were lost. As per data, 948ⁱⁱ lives have been lost in the state because of

lightening between 2010 and 2015; 2204ⁱⁱⁱ because of boat capsizing incidents and 34,914^{iv} because of road accidents between 2003 and 2013.

To guide and contextualise actions in the DRR Roadmap, various hazard prone districts have been categorised in three groups: Group A, Group B, Group C.

Group	Profile	Constituent Districts
A (10 Districts)	Mainly Flood Prone and Earthquake Zone V	Araria, Darbhanga, East Champaran, Kishanganj, Madhepura, Madhubani, Saharsa, Sheohar, Sitamarhi, and Supaul
B (18 Districts)	Mainly flood Prone and Earthquake Zone IV	Banka, Begusarai, Bhagalpur, Bhojpur, Gopalganj, Katihar, Khagaria, Lakhisarai, Muzaffarpur, Nalanda, Patna, Purnea, Saran, Samastipur, Sheikhpura, Siwan, Vaishali, and West Champaran
C (10 Districts)	Mainly Drought Prone and Earthquake Zone III	Arwal, Aurangabad, Buxar, Gaya, Jamui, Jehanabad, Kaimur, Munger, Nawada, and Rohtas
Note: All Districts in Groups A, B and C are prone to fire, hailstorm, heat wave, cold wave, lightening, road accidents, animal bites/attacks, and stampede.		

Table 1: District grouping as per Hazard profile

To deal with disaster risks, DM landscape evolved in 2000 in Bihar, as mentioned earlier, in line with national and state level policy commitments, socio-political changes as well as experiences gained in the process of managing small and large-scale disasters affecting the state.

Disaster Management Landscape

The year 2004 appears as a clear marker in the State's disaster management history in which Bihar experienced one of the worst floods affecting 20 districts and 212.99 lakh people followed by severe floods in 2007 affecting 22 districts and 244.42lakh people. Again in 2008, severe floods caused due to breach in the embankment at Kusaha (Nepal) on the Kosi River created havoc in 5 districts affecting 33.29 lakh people. These disasters spurred a number of actions towards institution building and system strengthening for disaster management in Bihar and thus Department of Relief and Rehabilitation was renamed as Department of Disaster Management. National disaster Management act was adopted in 2005 followed by establishment of institutions like Bihar state Disaster management authority (BSDMA, vide notification no. 3449 dated 16.11.2007), District Disaster Management Authorities (DDMA, vide notification no.1502 dated 03.06.2008),

state Executive Committee (SEC, vide notification no.1597dated 25.06.2008), State Disaster Response Force (SDRF, vide notification no. 698 dated16.03.2010) with clear mandates of disaster management. Apart from these initiatives, the GoB also persuaded the central government to locate one battalion of National Disaster Response Force (NDRF) in Bihar.

EVOLUTION OF DISASTER MANAGEMENT IN BIHAR

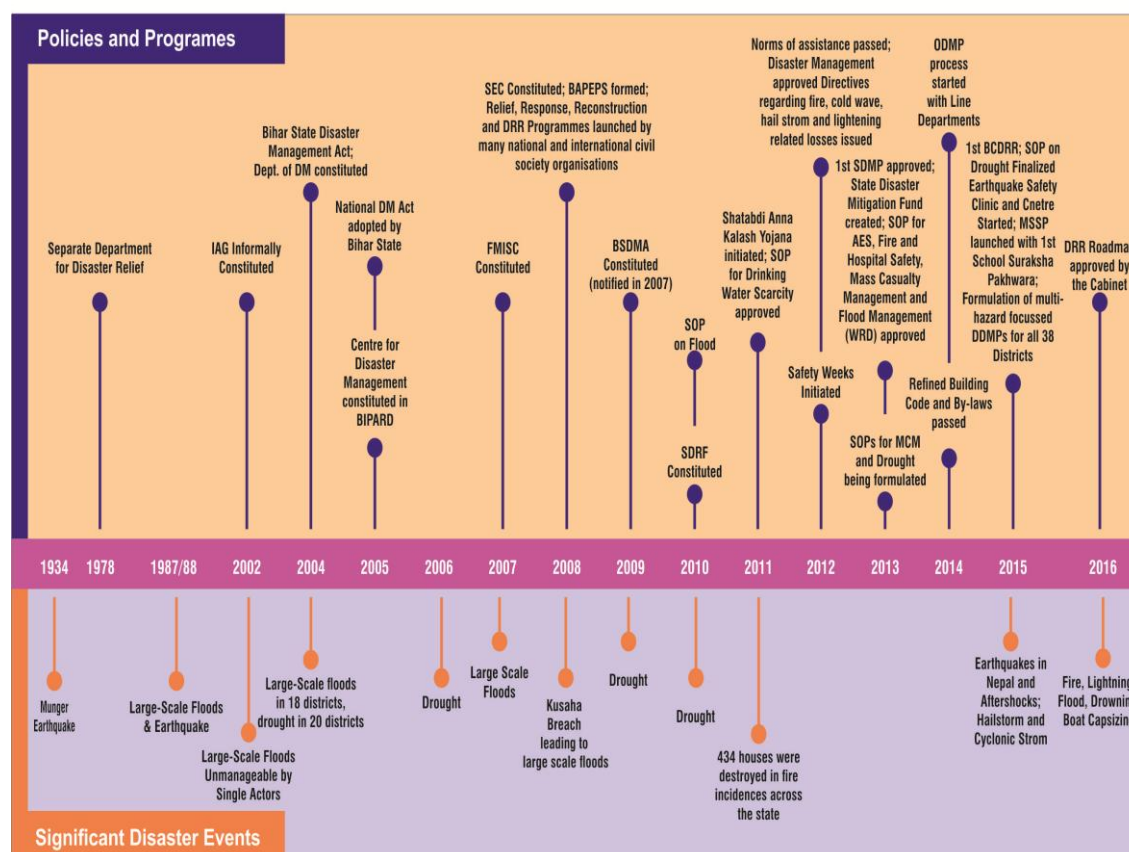


Fig. 5: Evolution of Disaster Management in Bihar

Further triggered events because of large-scale disasters in 2004 include: formation of the Bihar Inter Agency Group (B-IAG) by the non-state agencies; initiation of community based disaster risk reduction (CBDRR) programmes by civil society organisations; Standard Operating procedures (SOPs) on Flood disaster/Flood Control, drought, Fire, Drinking Water Crisis, Fire Safety in Hospitals; and development of various Schemes^v in the state. Various DRR initiatives and achievements (see table 2) took place under the guidance of BSDMA.

DRR Initiatives and Achievements in Bihar till 2015	
Policies	<ul style="list-style-type: none"> • Kosi Disaster: Rehabilitation and Reconstruction Policy • Bihar State Disaster Management Policy (2007) • Agricultural Roadmap • Bihar State Action Plan on Climate Change
Institutions	<ul style="list-style-type: none"> • Disaster Management Department (DMD) • Bihar State Disaster Management Authority (BSDMA) • Crisis Management Group (CMG) • State Executive Committee (SEC) • Bihar Institute for Public Administration and Rural Development (BIPARD) • National Disaster Response Force (NDRF) • State Disaster Response Force (SDRF) • District Disaster Management Authorities (DDMAs) • Flood Management Information System Centre (FMISC) • Bihar Apada Punarvas Evam Punarnirman Society (BAPEPS) • Bihar Inter Agency Group (BIAG)
Plans, SOPs and Financial Management	<ul style="list-style-type: none"> • State Disaster Management Plan (SDMP) • State Disaster Response Fund • State Disaster Mitigation Fund • Building Code and Bye-Laws • Standard Operating Procedures (SOPs) for Flood Disaster Management, Fire, Drought, Drinking Water Crisis, Fire Safety in the Hospitals • Treatment Protocol for AES • Directives/Guidelines • District Disaster Management Plans (DDMP) (in formulation stage) • Departmental DM Plans/Office DM Plans (in formulation stage)
Infrastructure, Materials and Equipment	<ul style="list-style-type: none"> • State Emergency Operations Centre (SEOC) • District Emergency Operation Centres (DEOCs) • District-level Disaster Management Warehouses • Communications and Transportation Equipment • Search and Rescue Equipment • SDRF Base at Bihta with Search and Rescue Equipment • NDRF Base at Bihta with Search and Rescue Equipment • Flood Shelters

Capacity Building	<ul style="list-style-type: none"> • Search and Rescue • Community Training to combat disasters • Training of divers • Training of youth belonging to weaker sections • Training of community living in Diara areas • Building bye-laws for 'Safe Construction' in urban areas • Mock drills for earthquake safety in the schools, secretariat and villages • School Safety programme • Advance trauma and life support through QMRT • Training of Engineers, Architects and Masons for earthquake resistant construction • Rapid Visual Screening of Schools • Training of BAS & BPS and other officers
Public Awareness and Education	<ul style="list-style-type: none"> • Organization of Hazard-Specific Safety weeks (Flood, Earthquake, fire, Road Safety) • School Safety Fortnight and Day • Bihar Diwas • Development and Dissemination of IEC Materials • DM related Exhibitions
Risk Assessments	<ul style="list-style-type: none"> • Flood Hazard atlas • Flood Management Information System • Risk Informed Development Planning-system (RIDP-S)
DRR Programs and Schemes	<ul style="list-style-type: none"> • Kosi Flood Recovery Project • School Safety Programmes • Community Based DRR Programmes • Shatabdi Anna Kalash Yojana (Scheme) • Bihar Scheme for Assistance to Farmers in Farm Distress

Table 2: DRR Initiatives and Achievements in Bihar

Bihar DRR Roadmap

Bihar DRR Roadmap is grounded in fifteen principles. These draw from the spirit of the National Disaster Management Act (2005) and Policy (2009), SFDRR (2015) and the enduring lessons from the practice of DRR in Bihar. In essence, they are based in the inherent social contract between the citizens of Bihar and the state government wherein the government's actions are directed towards the well-being and safety of the citizens, and for which, the citizens agree to be governed. The fulfilment of this social contract means the realization of rights and the practice of responsibilities by both the right-holders and duty-holders. This not only includes the duties of the state and citizens to each other but also the duties of the citizens towards themselves and other citizens for ensuring disaster risk reduction. The fifteen principles are^{vi}:

- i. Primacy of rights of at-risk people and communities;
- ii. Participation of and action by at-risk communities;
- iii. Risk Reduction;
- iv. Polycentric Governance;
- v. Partnerships;
- vi. Coherence and consistency across policies, programs and plans;
- vii. Transparency and Accountability;
- viii. Resilience in Development;
- ix. Praxis;
- x. Inclusive DRR;
- xi. Right to safe and secure environment;
- xii. Do No Harm;
- xiii. Investing in the future through focus on schools;
- xiv. Culture of Preparedness;
- xv. Build Back Better

One of the guiding principles for this roadmap, ‘resilience in development’ (विकास ऐसा हो जो आफत से बचाए, विकास ऐसा न जो आफत बन जाए |)^{vii}, is organising principle for the actions within DRR Roadmap of Bihar. With conceptual origins in understanding the properties of building materials, and application in diverse fields like ecology, psychology, and sociology in the 1970s, the concept of resilience has increasingly gained prominence within the disaster risk reduction discourse in the past decade. Despite this prominence, interpretations about its definition, manifestations and practical application continue to be diverse and varied.

Understood simply as ‘the capacity of an individual, household, community or system to anticipate, absorb (through effective preparedness, response and mitigation) and recover from hazards and other shocks and stresses without compromising its existence and functioning in the long term’, resilience provides clarity about both the ‘end’ and the ‘means’ for DRR actions in this Roadmap. Providing the ‘desired state’ of communities and systems in Bihar, resilience, becomes the goal that the DRR actions in this Roadmap lead Bihar towards ‘A Resilient Bihar’.

The framework for this DRR Roadmap is grounded in resilience because of the following key reasons:

- It has the potential to motivate and galvanise actions and energies towards a collectively envisioned goal;
- It widens the pitch of DRR actions in the Roadmap towards safeguarding development gains from multiple shocks and stressors (as opposed to only known hazards), while at the same time, retaining their hazard-specificity for clarity of action;
- It enables the framing of a seemingly intractable problem within coherent (albeit interconnected) building blocks which unlike the earlier framing of sector-

specific, department specific or vulnerable group specific actions, take a more holistic view of people's lives, struggles and solutions.

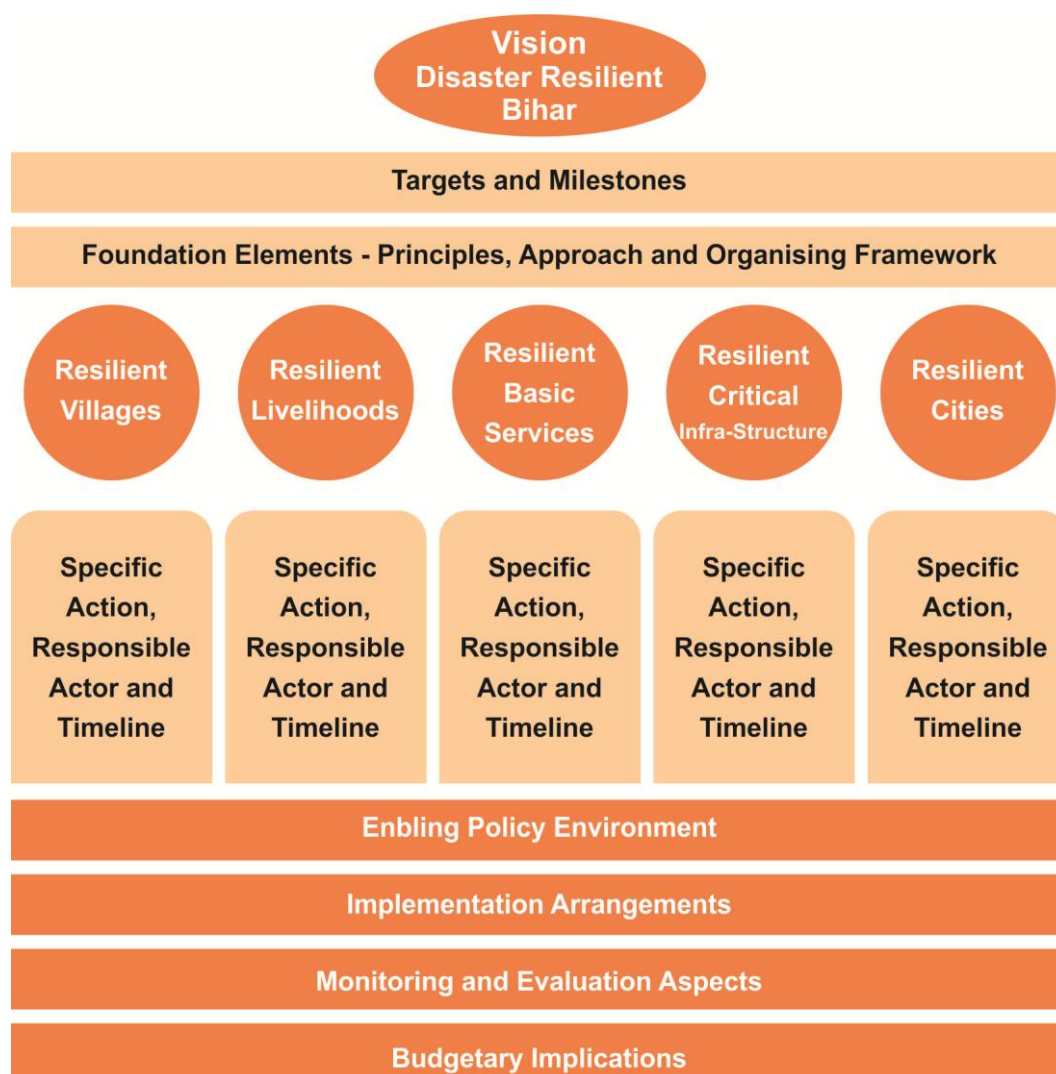


Fig. 6: Bihar Disaster Risk Reduction Roadmap Based on Principle of Resilience

Implementation of Roadmap

The Department of Disaster Management (DMD) is the nodal department of GoB mandated for disaster management while Bihar State Disaster Management Authority (BSDMA) is mandated to inform policy and focus on DRR. Further, the Crisis Management Group (CMG), SEC, SDRF and Bihar *Apada Punarvas Evam Punarnirman* Society (BAPEPS) have specific mandates pertaining disaster management at the state level while the District Disaster Management Authority (DDMA) has been created at district level specifically for disaster management. The state level B-IAG, comprising UN Agencies and civil society organizations, has been formed for strengthening coordinated responses to disasters.

This institutional framework has managed quite a few large and small scale disasters over the last decade in the state and has accordingly evolved its preparedness and response capacities through well-defined mandates, plans, procedures, and guidelines as well as human, financial, and technical resources.

BSDMA was constituted in 2007 as per the DM Act 2005 and is headed by the Chief Minister as the Chairperson with one of the members nominated as the Vice-Chairperson. In line with the DM Act and BSDMA's Constitution, BSDMA has taken up the roles, responsibilities and facilitate the processes for implementation of this roadmap especially pertaining to disaster and climate change induced risk analyses, formulation of disaster management plans, capacity enhancement, and strengthening public awareness and communication of disaster and climate change induced risks.

NDRF was constituted in 2006 with 8 Battalions. At present, NDRF has a strength of 12 Battalions with each Battalion (Bn) consisting of 1149 personnel. In the beginning, the personnel of NDRF were deployed for routine law and order duties also. 9th Battalion of NDRF has its headquarter also at Bihta in Patna with two teams positioned on permanent basis in Supaul district which is extremely prone to floods. The practice of 'proactive availability' of this Force to the States and that of 'pre-positioning', in threatening disaster situations have immensely helped in minimising damage, caused due to natural calamities in the country. The first major test of disaster for NDRF was Kosi Floods, 2008. NDRF resources were moved to Bihar immediately after the breach in Kosi barrage on 19th August 2008. The situation was handled by the NDRF on a war footing, by airlifting 153 high speed motorized boats with 780 flood rescue trained personnel drawn from three different Battalions and sent to the five flood affected districts with utmost promptitude. As a result, over 1,00,000 affected people were rescued during the initial stage itself.^{viii}

Bihar has raised a dedicated Battalion of State Disaster Response Force (SDRF). This force has shown exemplary courage and conviction in responding during floods and other disasters. The force was deputed in Srinagar during Kashmir floods in 2014 for assisting in rescue and relief operations there and the force was appreciated by all. The SDRF has its headquarters at Bihta in Patna. Besides Patna, SDRF teams have been positioned on semi-permanent basis in 6(six) flood and earthquake prone districts, namely, Sitamarhi, Madhubani, Madhepura, Purnia, Khagaria and Bhagalpur with cluster of adjoining districts attached to each team.

Case Study of Bihar Floods 2016

In 2016 Bihar has suffered from floods on account of heavy rain fall in the catchment areas of rivers emanating from out of this State and Nepal. Floods came and affected about 85 lakh population, flooded vast swathes in 31 districts in four phases. The mighty river Ganges got flooded because of unusual amount of water discharge in river Sone from Bansagar dam located in MP and Mohammedganj barrage located in Jharkhand. The water discharge to say the least was unprecedented: it was 11.67 lakh cusec in the night of 19/20 August. Prior to that due to heavy discharge of water in the

ivers such as Mahananda, Bakara, Kankai and some minor rivers, whose catchments lie in Nepal, vast area of north eastern districts, namely, Purnia, Araria, Kishanganj, Supaul got flooded. Because of Sone water, three districts, namely, Rohtas, Aurangabad, and Arwal, which are traditionally not considered flood prone suffered from floods. Even Falgu, Dardha and some non-descript non-perennial southern rivers got flooded due to heavy rainfall in their catchments in Jharkhand plateau. At the fag end of the monsoon season, river Punpun got flooded causing damage to life and property in Patna district.

With onset of monsoon, teams of NDRF were pre-positioned at flood prone districts of Darbhanga, Muzaffarpur and Gopalganj with cluster of districts attached to each location. The SDRF and NDRF teams located/pre-positioned in the aforesaid districts have also conducted community awareness programme to prepare community to combat floods and earthquakes. DMD has also trained thousands of community members in the flood prone panchayats for rescue and relief operations including people residing in the riverine (diyara) area. It has also trained youth in deep diving in all districts. This trained human resource is utilized for rescue and relief during floods and other disasters.

As a preparedness measure, all flood prone districts have been provided with sufficient number of inflatable boats, life jackets, GPS sets by the Government and have been authorized to procure sufficient number of country boats, polythene sheets, tents and other material resources as per requirement. For the last couple of years a constant effort has been made by DMD to equip the districts with country boats and District Magistrates have been authorized to procure boats @300 per extremely flood prone and 150 per flood prone districts. The districts were also authorized to fix rates and suppliers of essential commodities/materials required for flood relief so that these could be procured as and when required. The DDMA's were also asked to invoke the relevant provisions of Disaster Management Act whenever necessary to procure materials as per requirement to meet the threatening disaster situations.

The State Government launched a massive response in all phases of floods. The first task was deployment of boats and NDRF/SDRF teams for rescue and relief, to distribute food packets to the marooned villagers and open relief camps for providing temporary shelter and cooked food to the rescued people. So, accordingly large numbers of country boats were pressed into service for transport, rescue and relief, and, SDRF/NDRF teams got engaged in rescue and relief operations. In the third phase of floods 10 additional teams of NDRF were requisitioned from the Central Government which reached the State quickly and deployed in the flood affected districts for rescue and relief operations.

Community kitchens were opened on the uplands available in some of the marooned villages. There is an elaborate process delineated in SOP to run the relief camps, so arrangements were made accordingly in the relief camps: all inmates were registered, breakfast and cooked lunch and dinner was served, medical camps were established, temporary toilets were erected and hand pumps were installed, and even schools and

Anganwadi centers were opened. It was also decided to provide clothing, utensils, soaps, hair oil to all inmates and sanitary napkins to women inmates of relief camps from Chief Minister's Relief Fund. People were also relocated to their lands with whatever government could provide to each family to start their livelihood in a routine manner.

Since livestock is an important source of livelihood of people in the villages, animals were brought from the marooned area to the cattle relief camps where arrangements of fodder, water, cattle shed and medical facilities was made. During course of inspection of relief camps and flood affected areas, Hon'ble Chief Minister realized that there was need of opening 'langars' where flood affected people can come on their own or if need be can be brought through country boats and take food. Accordingly 'langars' were opened where cooked lunch and dinner was provided to those flood victims who were neither staying in relief camps nor were beneficiaries of community kitchens. The 'langars' largely provided succor to the people in distress due to flood. He also instructed that packets of rice, pulses, potato, salt and turmeric powder should be sent to the families affected who were not willing to come out of their villages.

Bihar has established a benchmark of reaching ex-gratia to the families of the persons deceased due to disasters within 24 hours. Accordingly, barring few exceptions this benchmark was followed and ex-gratia was reached instantly to the affected families.

Families were also provided Gratuitous Relief (GR), House Damage Relief (HDR), and Agriculture Input Subsidy in case of crop damage and cattle damage relief once water recedes from the flooded area.

Conclusion

Bihar DRR Roadmap was formulated based upon one of the important agenda of SFDRR that is 'resilience' and was discussed in detail in First conference on DRR in May 2015 in Patna Bihar. BSDMA has taken the responsibility to facilitate the implementation of this roadmap with the help of different other institutions and authorities such as DDMA, NDRF, SDRF, SEC, and others. Civil society organizations, B-IAG, and UN agencies also assist the GoB in fulfilling the task. Tasks actively performed by NDRF and SDRF during 2016 Bihar floods is one incident where implementation of Bihar DRR Roadmap is evident.

When the flood disasters struck, the entire State machinery swung into action immediately and massive rescue and relief operation was launched. At the beginning dry food packets were distributed in the marooned areas through country boats and units of SDRF/NDRF. However, relief camps for humans and cattle as per need were set up for sheltering rescued people and livestock. The Disaster Management Department has developed a detailed Standard Operating Procedure (SOP) for flood disaster management. The rescue and relief operations started in accordance with SOP. More than twenty teams of SDRF/NDRF were deployed for rescue and relief and all necessary arrangements in the relief camps were made which include

arrangements for providing cooked food, water and sanitation, health care, fodder and cattle care, Anganwadis and school for children. Where people were reluctant to move out of their houses/villages, community kitchens and langars were opened where cooked food was made available to the needy. In case of death caused by flood ex-gratia was provided expeditiously. The State has established a reputation of providing ex-gratia in death cases the same day.

After water receded Gratuitous Relief, House Damage Relief, Cattle Damage Relief and Agriculture Input Subsidy was distributed to the affected persons. People were relocated to their homes aftermath of the disaster. However, the State faced huge challenge to restore damaged infrastructure, especially rural roads, which may require substantial financial resources.

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- i Disaster Management Act, Government of India 2005.
 - ii See Disaster Management Department, GoB database.
 - iii National Crime Records Bureau, Accidental Deaths and Suicides in India (ADSI) Reports.
 - iv GoI, Ministry of Road Transport and Highways, Road Accidents in India.
 - v For Instance, Bihar Shatabdi Anna Kalash Yojana, Bihar scheme or Assistance to Farmers in Farm distress.
 - vi For details see Roadmap for Disaster Risk reduction, GoB, 2016, pp. 29-32.
 - vii Slogan coined by High Powered Committee on Disaster Management (1999-2001) and popularised by BSDMA, translated as: ‘Development should be such that it safeguards from disaster and not that it becomes a disaster.
 - viii <http://ndrf.gov.in/ndrf>

Article is contributed by

BRIEF RESUME of the Contributors



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Shri Vyas Ji has done **MBA, M. Phil., LL.B. and P. G. Diploma in Public Administration** and his interest areas include social and economic issues. He has widely travelled across

the world, including USA, UK, Italy, Russia, China including Hongkong, South Korea, Japan, Singapore, Vietnam, Lao PDR, Nepal, Thailand and Australia etc. He has held responsibilities at many key positions in Government of Bihar and Government of India. He has many distinctions of new initiatives and reforms to his credit during his service period including the development of a DRR Roadmap in the State of Bihar, on the lines of Sendai Framework of DRR, making Bihar the first State to follow the footprints of Sendai framework.



Ms. Monisha Dubey, Senior Editor in Bihar State Disaster Management Authority (BSDMA), Government of Bihar, is a journalist for past more than 15 years. She has served many leading media houses. She has served as **Chief Copy Editor** with **Hindustan, New Delhi**, **Executive Editor of MBAlife (management/ business monthly magazine)**, **Copy Editor** with **Hindustan Times Media, Noida**, **Editorial Coordinator/ Feature Editor** with **State Times**, (English Daily, published from Delhi and Jammu), **Copy Editor/ Researcher** with **ETV, R.R.G - E. Media, Hyderabad (A.P.)**, **Reporter/Subeditor** with **Hindustan (Hindi Dainik) Patna, Bihar**, **Reporter/ copy editor** with **Doordarshan (DD News Samvad etc.** She has worked both for **electronic and print media** and **held responsible positions of Executive Editor, Assistant Editor, Feature Editor, and Editorial Coordinator, Correspondent, sub editor and Researcher etc.**

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