



# UTTAR PRADESH STATE DISASTER MANAGEMENT AUTHORITY



**Sri Yogi Adityanath**  
Hon'ble Chief Minister of Uttar Pradesh

UTTAR PRADESH  
STATE DISASTER MANAGEMENT POLICY



## Uttar Pradesh State Disaster Management Policy

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UP STATE DISASTER MANAGEMENT AUTHORITY | PICUP BHAWAN, PICUP BLDG RD,  
VIBHUTI KHAND, GOMTI NAGAR, LUCKNOW, UTTAR PRADESH 226010



योगी आदित्यनाथ



मुख्य मंत्री  
उत्तर प्रदेश

संख्या-

लोक भवन,  
लखनऊ - 226001

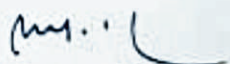
दिनांक : 17 JUN 2022

### संदेश

यह अत्यन्त सराहनीय है कि उत्तर प्रदेश राज्य आपदा प्रबन्धन प्राधिकरण द्वारा उत्तर प्रदेश राज्य आपदा प्रबन्धन नीति तैयार की गई है।

आपदा के दृष्टिगत उत्तर प्रदेश एक संवेदनशील राज्य है। आपदाओं से न केवल जन-धन की हानि होती है, बल्कि यह विकास की प्रक्रिया को भी प्रभावित करती है। जागरूकता, प्रशिक्षण एवं सतर्कता से आपदाकाल खण्ड में जन-धन की हानि को न्यूनतम किया जा सकता है।

मुझे आशा है कि राज्य आपदा प्रबन्धन नीति के प्रभावी क्रियान्वयन से हम हर तरह की क्षति को न्यूनतम करने में सफल होंगे।

  
( योगी आदित्यनाथ )

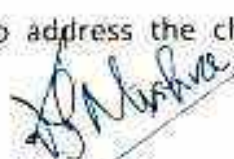
## MESSAGE

State Disaster Management Policy serves as the fundamental document for Disaster Risk Reduction. It serves as conduit for transforming the National Policies to State level, as applicable, and further provides strategic direction for action-oriented plans at the State as well as district level.

2. I am sure that this document will assist in minimizing the losses in the State, as envisaged in National Policy on Disaster Management and Hon'ble Prime Minister's Ten Point Agenda pronounced during Asian Ministerial Conference on Disaster Risk Reduction in 2016.

3. My hearty congratulations to Uttar Pradesh State Disaster Management Authority for conceptualizing and preparing this document.

4. I hope it will be used extensively to address the challenges posed by the natural disasters.



(Durga Shanker Mishra)

Lt. Gen. R.P. Sahi, AVSM,  
Vice Chairperson

Uttar Pradesh State Disaster Management  
Authority  
Picup Bhawan, Lucknow -226010



## MESSAGE

It is a statistical fact that disasters, both natural and anthropogenic, are growing in frequency and intensity with each passing year. The impact of disasters has been aggravated due to Climate Change and its direct and cascading socio-economic fallout. The State of Uttar Pradesh has been traditionally vulnerable to disasters in view of its geographical location and diverse climatic conditions. Despite progress, risk creation is outstripping risk reduction.

To mitigate human suffering there have been global landmark agreements in the past decade, which are comprehensively documented in the National Disaster Management Plan 2019, and also enunciated by the Hon'ble Prime Minister in his Ten Point Agenda on Disaster Risk Reduction. There is thus, a functional requirement for laying down the State policy on Disaster Risk Reduction for all stages of Disaster Management Continuum. Towards this, and synchronous with the National Policy on Disaster Management 2009, our focus has been on providing clarity and transparency in the State for Disaster Risk Reduction, specifically highlighting the cardinal principles to be followed and objectives to be achieved. A detailed consultative process with several rounds of discussions, both internal and with domain experts, has given finality to this document.

Investment in understanding risk is the foundation for sustainable development. I am confident that the Policy will add value to our strategy in risk mitigation and consequently management of disasters, through required evolution and refinement of State and District plans.

(Lt. Gen. Ravindra Pratap Sahi)



**Sudhir Garg**

Additional Chief Secretary (Revenue)



**U.P. Secretariat**

"Lal Bahadur Shastri Bhawan"

Room No. 201, Lucknow-  
226001

**MESSAGE**

The State's proneness to multiple disasters, natural as well as human induced, warranted a State Policy on the basis of which the State and District Disaster Management Plans can be evolved and executed. With that backdrop, the formulation of State Policy on Disaster Management can be seen as a significant milestone event in the ambit of Disaster Management.

It's my conviction that the State Policy will have immense contribution to State's efforts towards Disaster Risk Reduction. It goes without saying that any policy will serve its utility only if applied in letter and spirit and for that to happen, it's imperative that Authority and various departments work in tandem.

I sincerely express my gratitude to Uttar Pradesh State Disaster Management Authority for evolving this all-important State Policy.

A handwritten signature in black ink, appearing to read 'Sg' or 'Sudhir Garg'.

**( Sudhir Garg )**

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# UTTAR PRADESH STATE DISASTER MANAGEMENT POLICY: 2019

## Chapter 1: Introduction

### 1. Context

**1.1.1:** Disasters destroy developmental efforts and push back progress by several decades. Thus, in recent times, efficient management of disasters by a strategy of disaster risk reduction has received increased attention rather than a mere focus on efficient response to their occurrence. This is as much a result of the recognition of the increasing frequency and intensity of disasters, as it is an acknowledgement that good governance in a caring and civilised society, needs to deal effectively with the devastating impact of disasters.

**1.1.2:** Success of any DM and mitigation scheme would largely depend on the dictum of “more you sweat in peace less you bleed in war”. This primarily implies that preparedness and disaster mitigation take top priority in the overall ambit of disaster management, though other aspects of disaster management cannot be ignored. Disasters can neither be completely prevented nor predicted; so, the only way to control is by having a robust, responsive, effective and efficient disaster management scheme in place. Resource constraint is a universal phenomenon; therefore, economy of efforts and resources would assume utmost concern for planners at all level. Clear understanding of roles and responsibilities of each stakeholder is critical if any disaster management scheme has to succeed.

**1.1.3:** The frequency and magnitude of natural disasters are increasing in most regions across the world with weather and water-related disasters being the most common and recurrent. Economic costs and toll of these disasters are enormous and are significant obstacles to eradicating poverty and achieving human security and sustainable socioeconomic development. As climate change increases the frequencies and intensity of extreme weather-related disasters such as floods, droughts, landslides and heat/cold waves will pose an ever-increasing threat to vulnerable communities and sustainable development. Investments in disaster resilience can reduce losses and contribute to sustained economic growth and poverty reduction, and better management of natural resources. When coupled with the context of holistic development, careful integration into the development process of these investments can have far-reaching effects.

**1.1.4:** In order to protect the state from the onslaught of disasters, the GoUP has envisaged the development of a holistic approach designed to manage disasters in a more proactive manner. The approach involves formulating a comprehensive policy on all phases of disaster management and address the entire gamut of disasters arising from natural (droughts, floods, earthquake etc.) and man-made (oil spills, fire including forest fire, industrial catastrophes etc.)

causes. This policy takes full cognisance of other related policies and initiatives at both national as well as state level. In particular, this policy is intended to be consistent with the approach adopted nationally. Relevant and applicable aspects of National Disaster Management Plan 2016, National Disaster Management Policy 2009, SENDAI Framework for Disaster Risk Reduction 2015-30, Paris Agreement 2015, Disaster Management Operational Manuals etc. have been studied and incorporated in Uttar Pradesh State Disaster Management Policy, where applicable. The purpose of this policy is to institutionalise the systems and processes of disaster management in the state of Uttar Pradesh.

## **2. Disaster Risks in the State of Uttar Pradesh**

**1.2.1:** The State of Uttar Pradesh is exposed to multiple natural as well as man-made hazards with potential for many turning into disasters depending upon extant vulnerabilities and mitigation schemes in place. These hazards have time and again precipitated into disasters and emergencies causing widespread loss of human life and extensive damage to economic assets. Moreover, disasters have also been regressive in nature and disrupted decades of progress made on various development indices in the state.

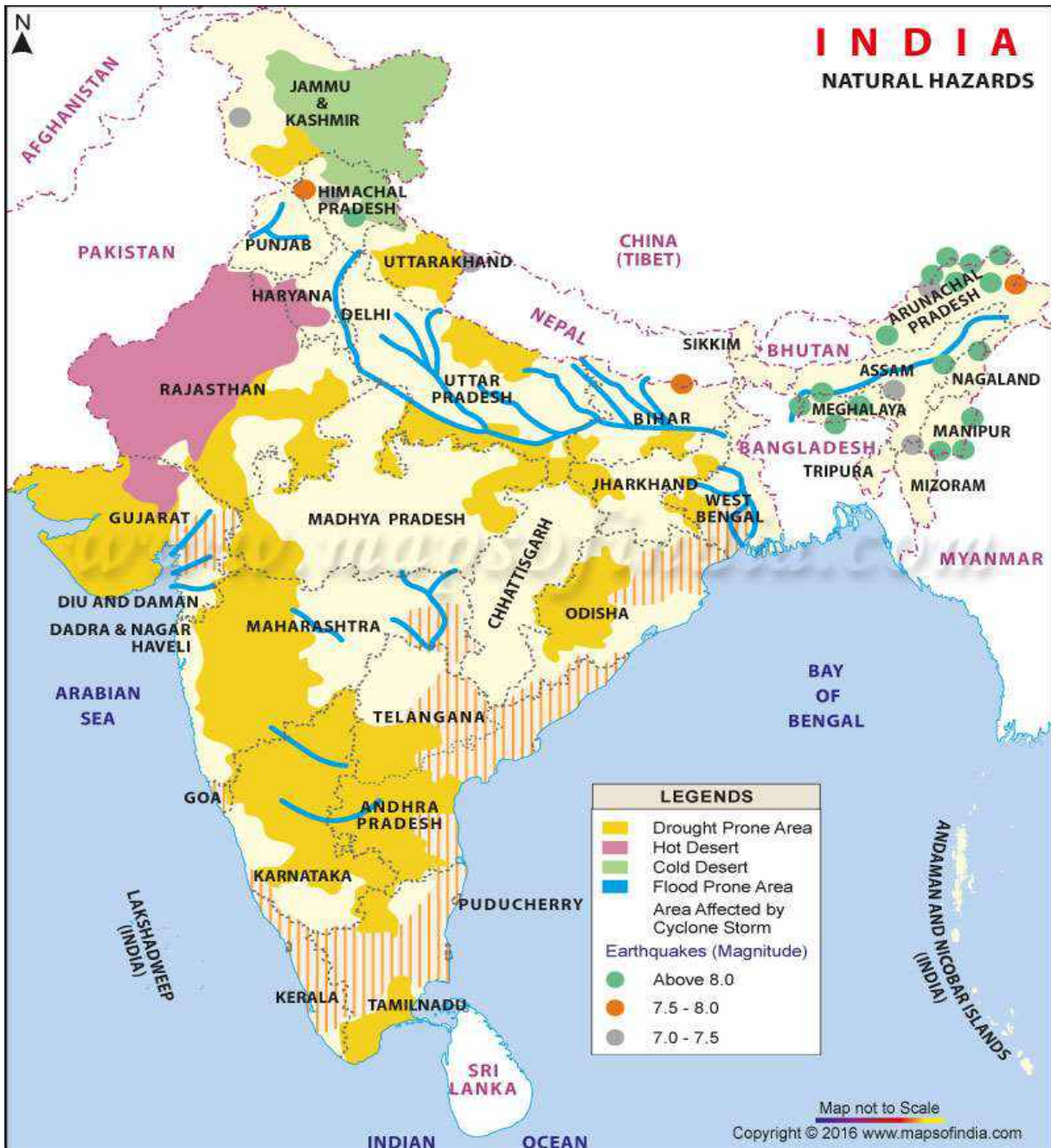
**1.2.2:** Uttar Pradesh is the most populous state of India with the population of approximately 230 million, and is fourth largest in terms of size with an area of approximately 2,43,290 sq. km. The state shares its boundary with Nepal in the North which is predominantly a mountainous region, however, the State itself is mostly plains, distinctly different from the mountainous terrain of Nepal. It has 32 major and minor rivers flowing through with Ganga, Yamuna, Saraswati, Betwa, Rapti, Saryu, Gomti, Gandak and Ghaghra being the larger ones. Geographically, the lay of the land in lower reaches of Himalayas has ample vulnerabilities as well as opportunities, depending on the efficiency and forethought applied in tapping resources.

**1.2.3:** Rains in Uttar Pradesh can vary from an annual average of 170 cm in hilly areas to 84 cm in Western Uttar Pradesh. Given the concentration of most of this in the four months of the monsoon, excess rainfall leads to floods and shortage to droughts, with substantial brunt faced by the agriculture sector. Both floods and droughts commonly recur in the state. The State also experiences varied temperatures fluctuating between zero degrees centigrade during extreme winters to 50 degrees C in extreme summers resulting in cold or heat wave conditions respectively. The state also lies on the seismic zone III and IV, and therefore, subjected to high damage risk and moderate damage risk respectively (refer Maps 1-3).

**1.2.4:** Vulnerability to disasters/emergencies of CBRN origin also exists. Heightened Risks because of vulnerabilities and exposure can be related to factors such as expanding population, urbanisation, industrialisation, development within high-risk zones, environmental degradation and climate change. Economically and socially weaker sections of the population are

predominantly more vulnerable. Within these vulnerable groups, children, women, elderly persons and differently-abled persons are more exposed to the risks.

**1.2.5:** India's and State's vulnerability to various natural as well as man-made disasters are depicted in following maps: -



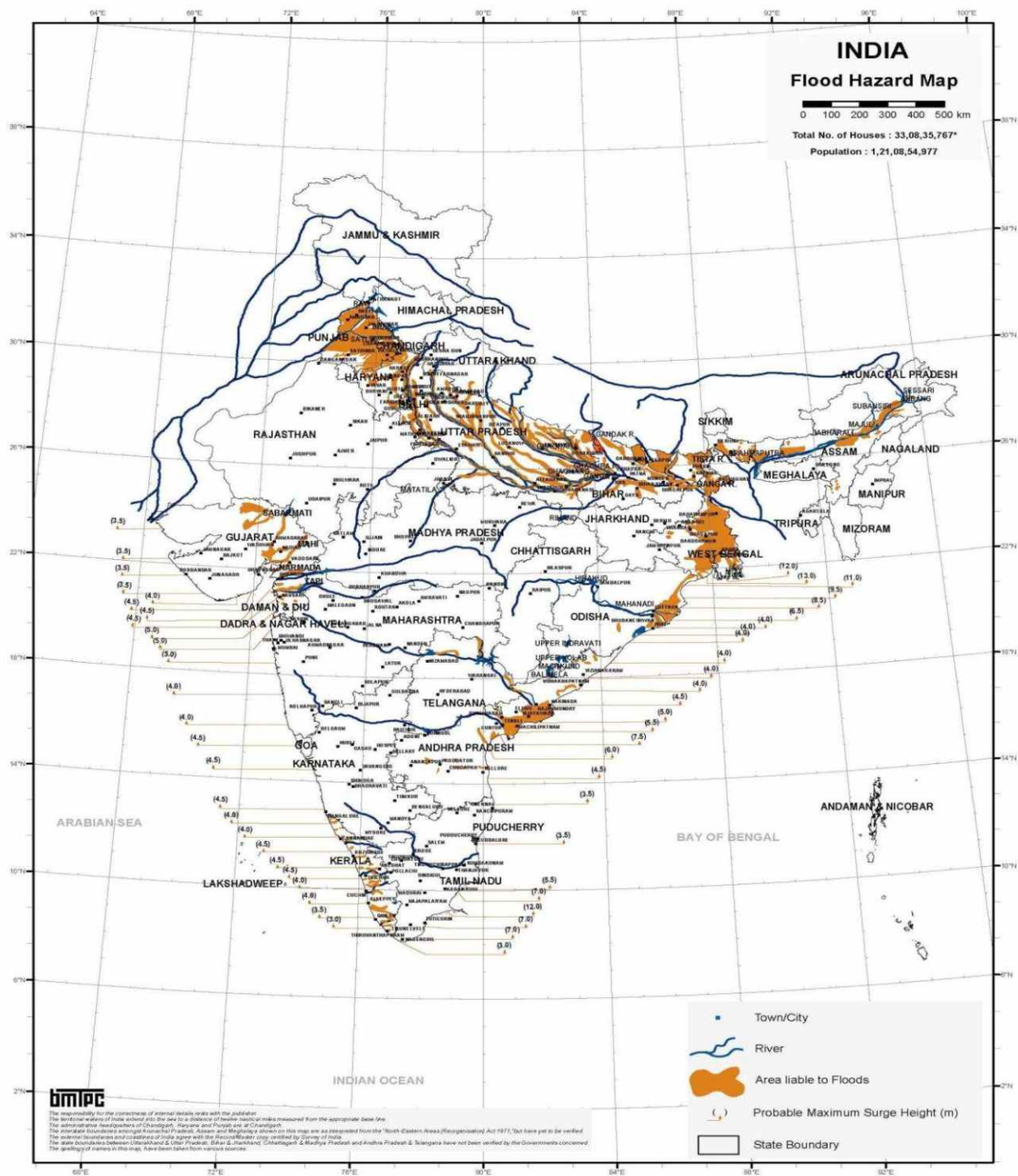
**MAP 1: NATURAL HAZARDS IN INDIA**



BMPIC : Vulnerability Atlas- 3rd Edition; Peer Group, MoHUA; Map is Based on digitised data of SOI, GOI; Basic Wind Speed Map National Building Code: 2016; Cyclone Data, 1891-2015, IMD, GOI; Houses/Population as per Census 2011; \*Houses including vacant & locked houses. Disclaimer: The maps are solely for thematic presentation.

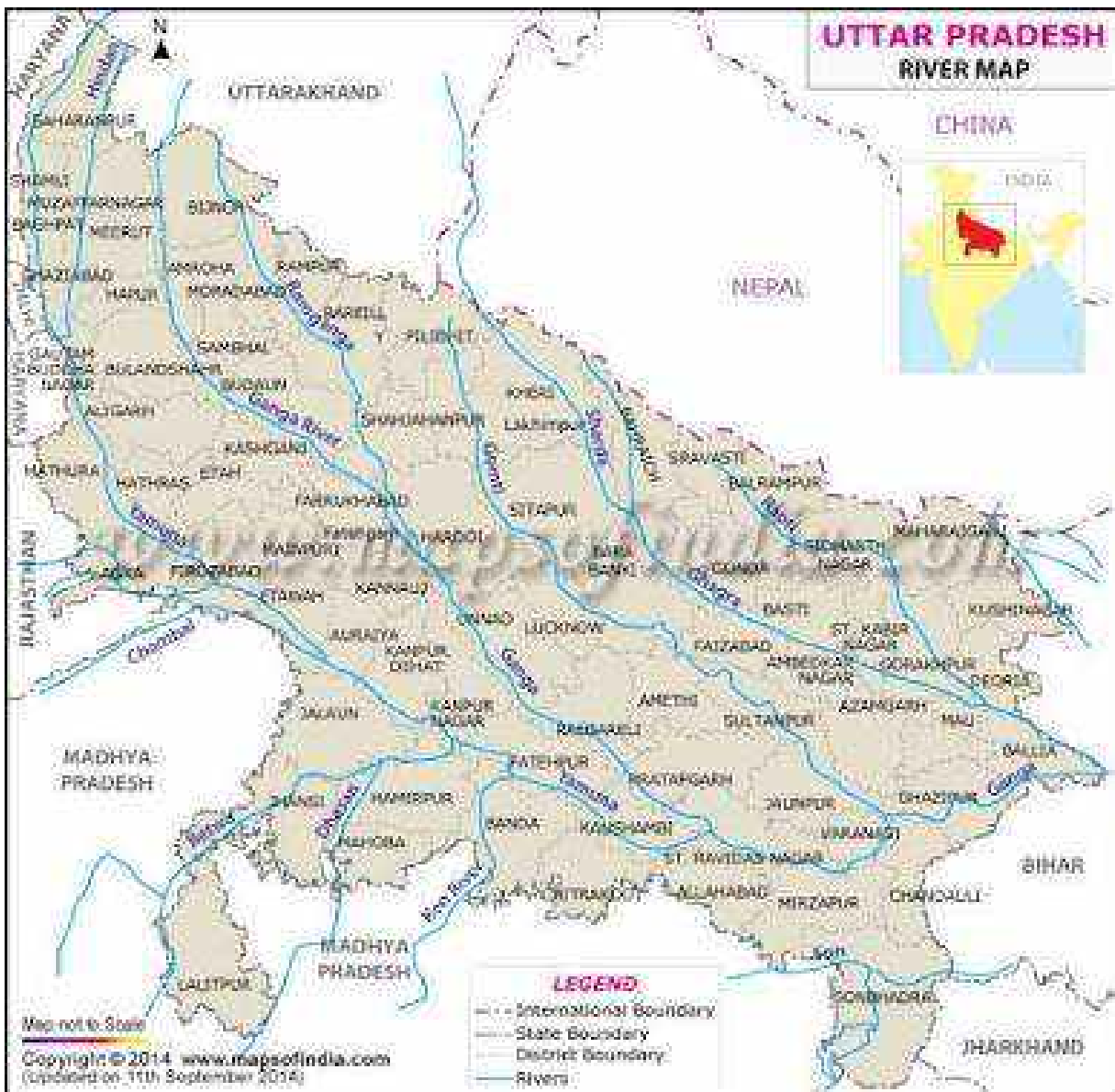
## MAP 2: WIND & CYCLONE ZONES IN INDIA





BMTPC : Vulnerability Atlas - 3rd Edition; Peer Group, MoHUA; Map is Based on digitised data of SOI, GOI; Census of India 2011; Flood Atlas (1987), Task Force Report (2004), C.W.C., G.O.I. Houses/Population as per Census 2011; \* Houses including vacant & locked houses. Disclaimer: The maps are solely for thematic presentation.

**MAP 3: FLOOD ZONES IN INDIA**



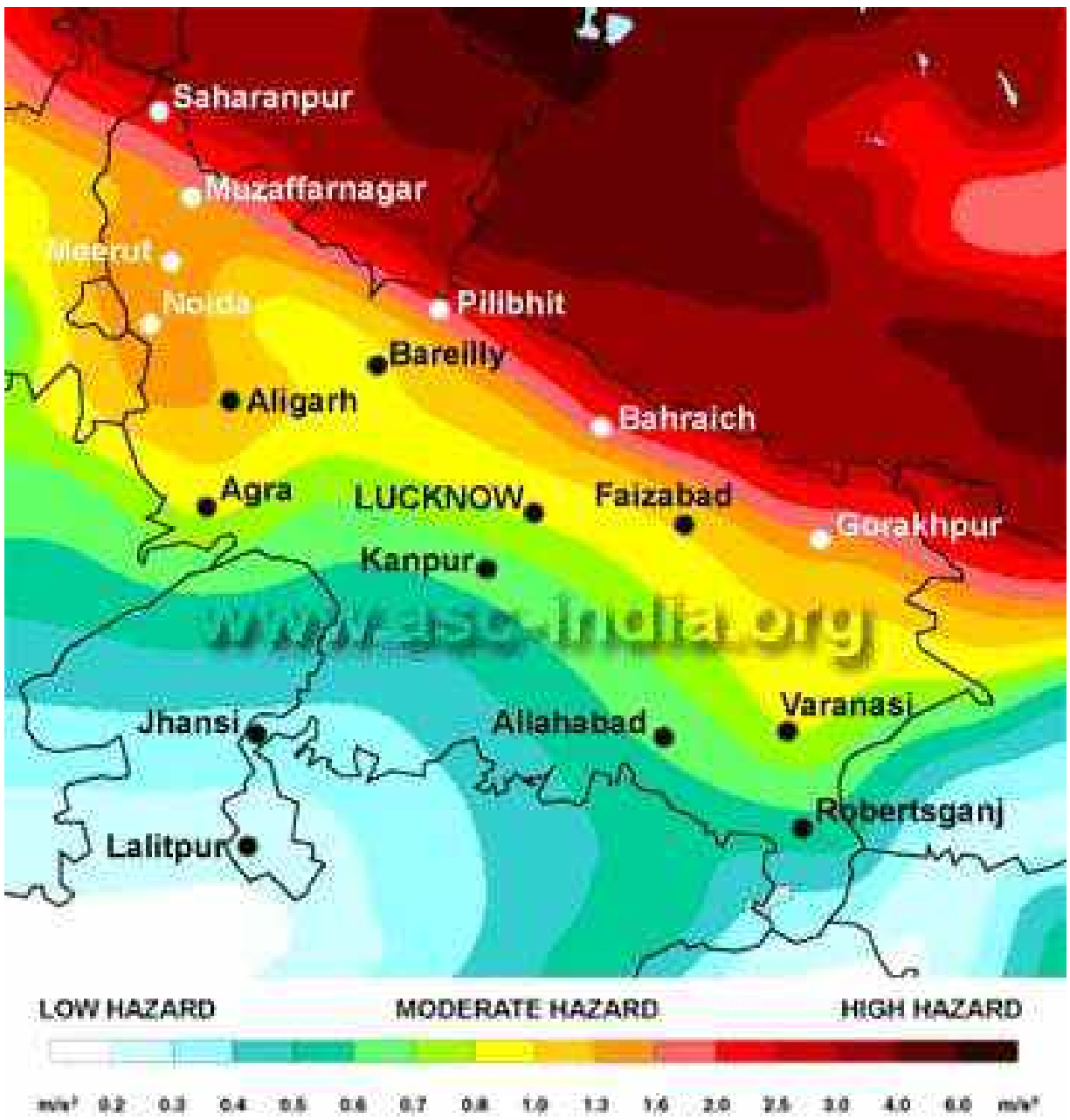
**MAP 4: MAJOR RIVERS IN UTTAR PRADESH**



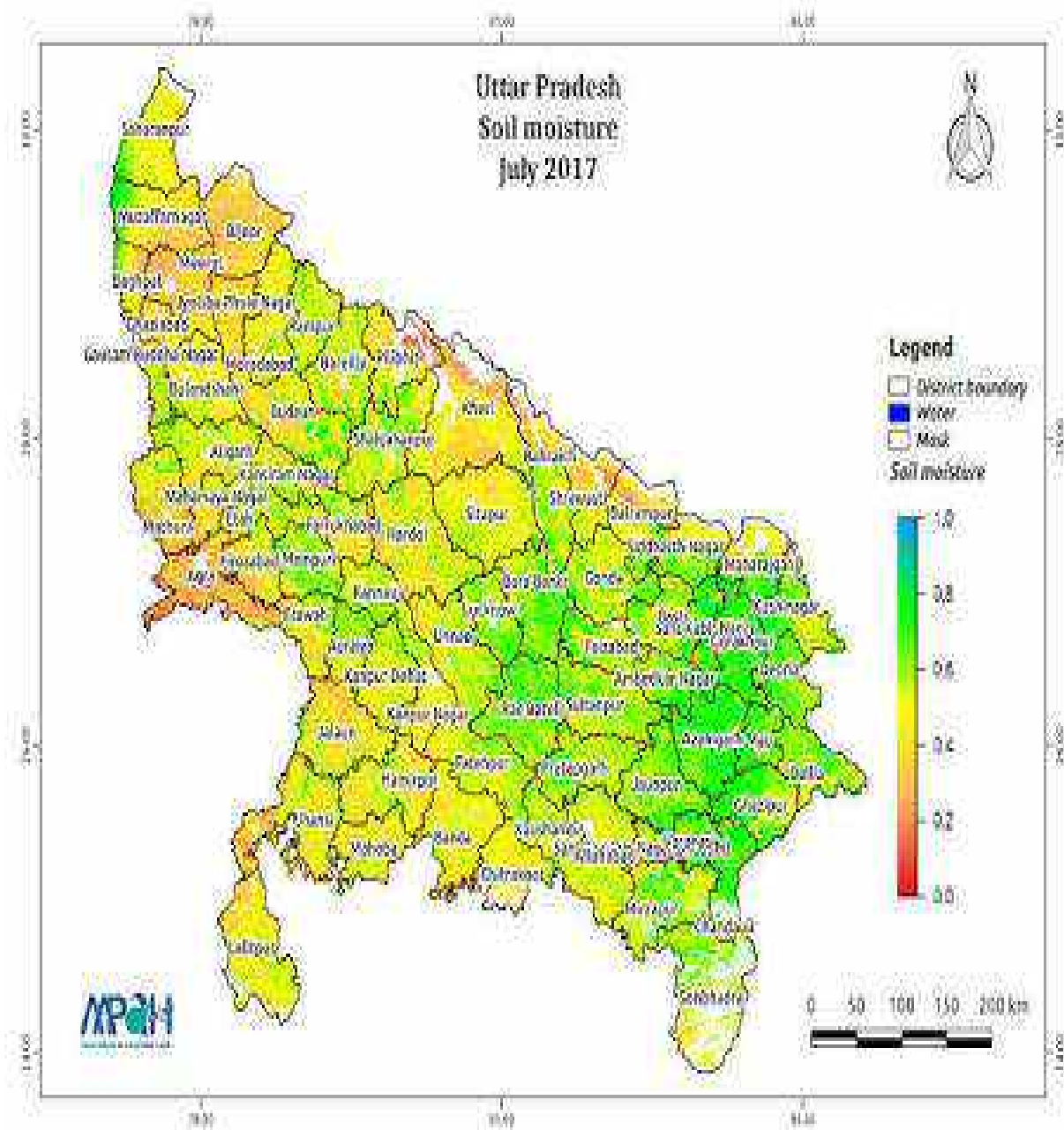


**MAP 5: FLOOD AREAS IN UTTAR PRADESH**

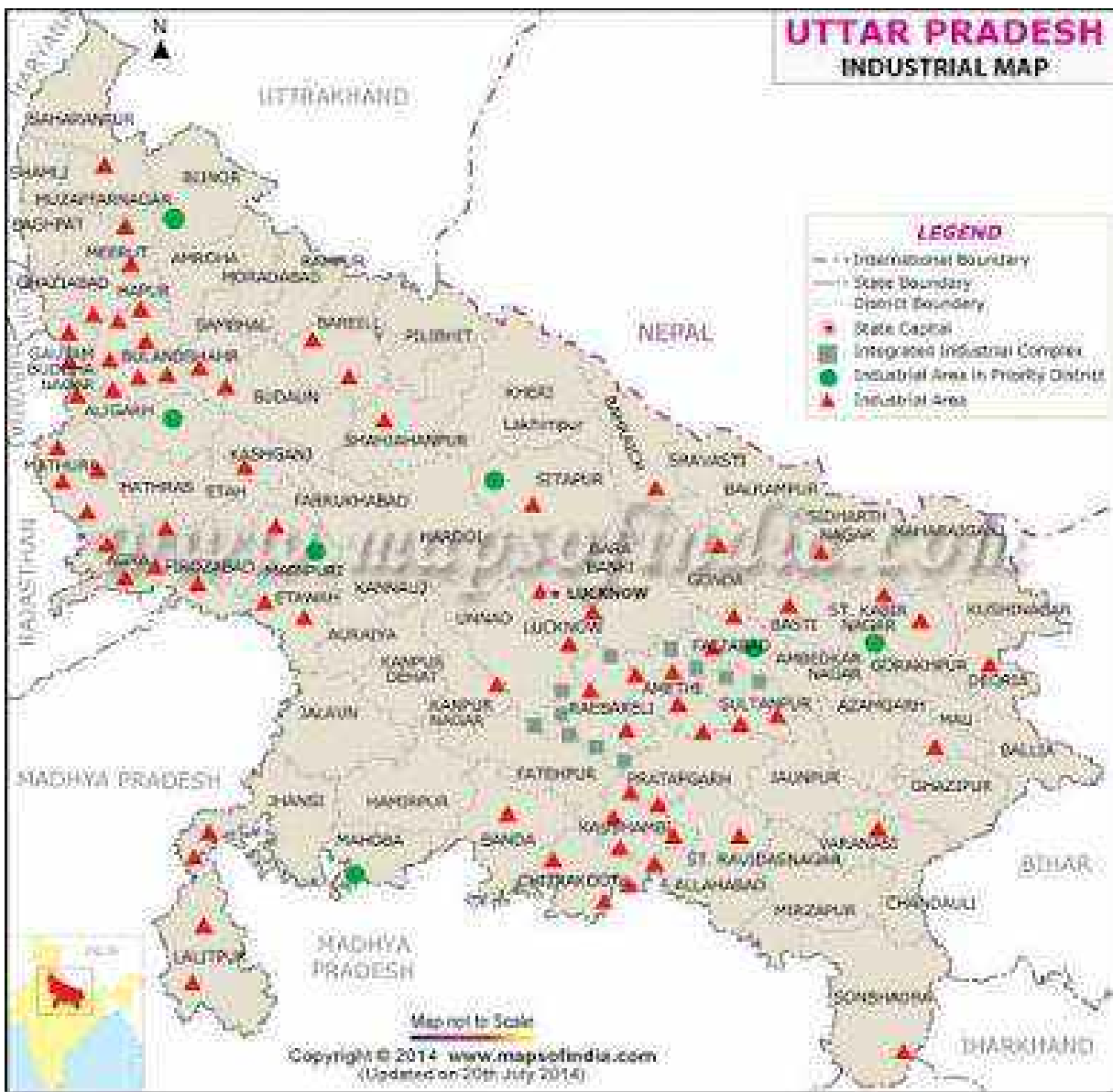




**MAP 7: EARTHQUAKE ZONES IN UTTAR PRADESH**



**MAP 8: SOIL MOISTURE LEVEL IN UTTAR PRADESH  
INDICATING DROUGHT PRONE AREAS**



**MAP 9: INDUSTRIAL AREAS OF UTTAR PRADESH**

### 3. Need for a State DM Policy

**1.3.1:** The Government of Uttar Pradesh recognises the need for a proactive, comprehensive and sustained approach to DM, inclusive DRR and DRM, to reduce the detrimental impact of disasters on the overall socio-economic development of the State. The GoUP believes that there is a need of a policy, which articulates its vision and strategy, towards the approach to disaster management in the state.

**1.3.2:** It is imperative that due to resource constraints, and in order to have a focused, more pragmatic and concerted approach, the SDMP takes a short-, mid- and long-term view (five, ten- and fifteen-years period) of various activities, programs and projects. Certain amount of overlap would be unavoidable, and also desired, for a concurrent execution rather than a sequential approach. Short term plans and programmes would essentially be the activities of immediate concern involving resumption of markets, commerce, trade, restoration of social services, transitional and temporary shelters to mitigate sufferings of population and acceleration of economic activities. Mid-term activities would correspond to recovery plans for assets and livelihoods, and reconstruction plans for housing, infrastructure, public buildings and cultural heritage buildings.

**1.3.3:** The programs with larger lead times would have potential and scope to be implemented along with developmental schemes for community benefit under the overall umbrella of disaster risk reduction. A philosophy of turning “curse into boon” would fall under the ambit of long-term. These time frames are tentative and subject to changes depending on many factors like technological advancement and any unforeseen events necessitating diversion of funds and resources. There should be enough flexibility in the plans to shift some of the activities from a longer timeframe to a shorter one. However, all efforts are needed to ensure that those under smaller time frames do not take additional time for completion.

### 4. Vision & Aim

**1.4.1: Vision:** To build a safe and disaster resilient state within the framework of National Policy on DM, by developing a holistic, proactive, multi-disaster oriented and technology-driven strategy and policy revolving around a culture of prevention, mitigation, preparedness and response.

**1.4.2: Aim:** The aim of the Uttar Pradesh DM Policy is to effectively and efficiently manage disaster risks in the state and lay down guiding principles for various stakeholders in order to save lives and property, avoid disruption of economic activities and damage to environment, and ensure sustainable socio-economic development.

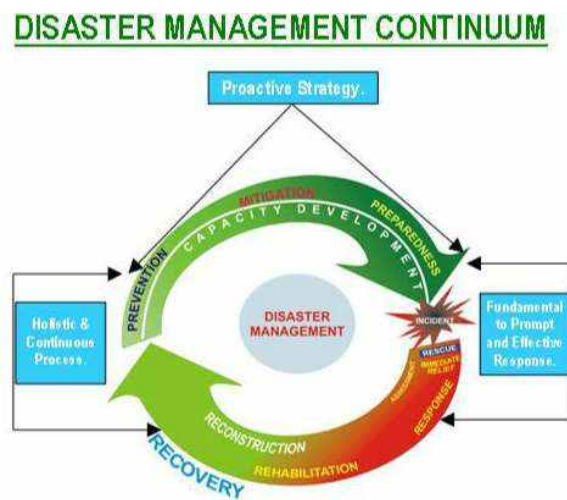


## 5. Approach and Objectives

**1.5.1: Paradigm Shift in DM:** On 23 December 2005, the Government of India (GoI) took a defining step by enacting the Disaster Management Act, 2005, (hereinafter referred to as the Act) which envisaged the creation of the NDMA, headed by the Prime Minister, SDMAs headed by Chief Ministers, and DDMAAs headed by District Collectors or District Magistrates or Deputy Commissioners as the case may be, to spearhead and adopt a holistic and integrated approach to DM. The act aimed a paradigm shift from the erstwhile relief-centric response to a proactive prevention, mitigation and preparedness-driven approach for conserving developmental gains and to minimize loss of life, livelihood and property.

**1.5.2: DM Continuum:** A typical DM continuum comprises of six elements; the '*pre-disaster phase*' which includes prevention, mitigation and preparedness, while the '*post-disaster phase*' includes response, rehabilitation, reconstruction and recovery. A legal and institutional framework binds all these elements together (Diagram 1).

### MAP 10: DISASTER MANAGEMENT CONTINUUM



**1.5.3: Approach:** The policy aims at developing a holistic and integrated approach towards disaster management with emphasis on building strategic partnerships with stakeholders and knowledge institutions at various levels. The themes underpinning the policy are:

- Community-based DRR and DRM, including last meter (not mile) integration of policies and plans, and their execution
- Follow principles of sustainability based on Disaster Management Act 2005, National Policy on Disaster Management 2009, and National Disaster Management Plan 2016/2018 which focus on disaster resilience and integrate all three international

documents of 2015 such as Sendai Framework for Disaster Risk Reduction, Paris Agreement and SDGs 2030. The authority shall also take cue and guidance from Core Humanitarian Standard on Quality and Accountability

- Capacity development in all spheres and at all levels
- Consolidation of past initiatives and current best practices across the world
- Cooperation with agencies at local, district, state, national and international levels.
- Multi-sectoral approach and synergy
- Strengthen institutional coordination, and implement new activities to prevent WRDs and reduce its impact through DRM
- Underline environmental concerns in all schemes

**1.5.4: Cardinal Principles:** A holistic and integrated approach will be evolved towards DM with emphasis on building strategic partnerships at various levels. The cardinal principles which would be the basis of approach are: -

- Holistic capacity development in all spheres
- Consolidation of past initiatives and best practices
- Cooperation with agencies at State, National and International levels
- Multi-sectoral synergy
- Integrating Disaster Management into Development Planning
- Multi-hazard approach to disasters
- Local dynamics-based approach to disaster management
- Sustainable and continuous approach
- Leveraging existing government machinery
- Autonomy and equity
- Legal sanction
- Balanced and situation specific delegation of authority for decision making
- Addressing the aspirations of citizens
- Economy of efforts and resources; avoid duplication
- Financial sustainability
- Empowerment of local community
- Cost saving and cost recovery

- Developing and disseminating knowledge
- Just, unbiased and fair approach to DM

**1.5.5: Objectives:** The following objectives should guide all thought and actions towards better DM at all levels: -

- Promoting a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education
- Identifying geographical areas of concern and assess the risk and vulnerabilities associated with various disasters
- Developing appropriate disaster prevention mitigation strategies as applicable to identified areas
- Laying down and provide clarity as to the roles and responsibilities of various stakeholders concerned with disaster management
- Streamlining resource management for effective and timely utilisation, both prior to as well as during disaster, including funding for the purpose
- Integrating all agencies, including public, private, NGOs, and communities in the scheme of disaster management
- Creating awareness, impart training and empower the local communities in the identified respective geographical areas of concern
- Streamlining arrangements to ensure effective and timely mobilisation of resources and capabilities for relief, rehabilitation, reconstruction and recovery
- Developing contemporary and fail-free communication network for the disaster management
- Integrating the latest technology available worldwide and satellite-based observation stations with the DM schemes, for forecasting and early warning of disasters.
- Improving the socio-economic conditions of the population following the philosophy of “build back better” and turning “curse into boon”
- Mainstreaming DM activities into economic development planning process

## **6. Key Elements of Uttar Pradesh Disaster Management Policy**

**1.6.1:** The UPSDMA, as the apex body for disaster management in Uttar Pradesh, is headed by the Chief Minister and has the responsibility for laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters in the state. This policy directive will assist the State Ministries, Departments and Districts to formulate their respective DM plans. It will approve the State Disaster Management Plans and DM plans of all State Ministries/Departments. It will take such other measures, as it may consider necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster. All State Ministries/Departments, District Authorities and Local Bodies will extend necessary cooperation and assistance to UPSDMA for carrying out its mandate. It will oversee the provision and application of funds for mitigation and preparedness measures. UPSDMA has the power to authorise any Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster.

**1.6.2:** The UPSDMA is mandated to deal with all types of disasters; natural or man-made. Whereas, such other emergencies including those requiring close involvement of the security forces and/or intelligence agencies such as terrorism (counter-insurgency), law and order situations, serial bomb blasts, hijacking, air accidents, CBRN weapon systems, mine disasters, port and harbour emergencies, forest fires, oilfield fires and oil spills will continue to be handled by the extant mechanism i.e., NCMC and SCMC. UPSDMA may, however, formulate guidelines and facilitate training and preparedness activities in respect of CBRN emergencies. Cross-cutting themes like medical preparedness, psycho-social care and trauma, community-based disaster preparedness, information and communication technology, training, preparedness, awareness generation etc., for natural and man-made disasters will also engage the attention of UPSDMA in partnership with the stakeholders concerned as per extant NDMA Policy.

**1.6.3:** The SEC is the executive committee of the SDMA and is mandated to assist the SDMA in the discharge of its functions and also ensure compliance of the directions issued by the State Government. The SEC is to coordinate the response in the event of any threatening disaster situation or disaster. The SEC will prepare the State Plan for DM based on the National and GoUP Policy on DM. The SEC will monitor the implementation of guidelines issued by UPSDMA. It will also perform such other functions as may be prescribed by the State Government in consultation with the UPSDMA.

**1.6.4:** UPSDMA, headed by the Chief Minister, will lay down policies and plans for DM in the State. It will, inter alia approve the State Plan in accordance with the guidelines laid down by the NDMA, coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different

Departments of the State to ensure the integration of prevention, preparedness and mitigation measures. The State Government shall constitute a SEC to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government and coordinate and monitor the implementation of the State Policy and Plan. The SEC will also provide information to the UPSDMA and NDMA relating to different aspects of DM.

**1.6.5:** The primary responsibility for DM rests with the State Authorities. The institutional mechanism put in place at the Centre, State and District levels will help to manage disasters in an effective manner. The Act mandates the State Governments inter alia to take measures for preparation of Disaster Management Plans, integration of measures for prevention of disasters or mitigation into development plans, allocation of funds, establishment of early warning systems, and to assist the Central Government and other agencies in various aspects of Disaster Management.

**1.6.6: Funding:** A SDRF may be constituted as mandated. This fund will be applied by the SEC towards meeting expenses for emergency response, relief and rehabilitation, in accordance with the guidelines laid down by State Government in consultation with the UPSDMA. Similarly, SDMF may be created for projects exclusively for the purpose of mitigation. The SDMF shall be applied by UPSDMA and shall be as recommended by the Revenue Dept from time to time. It shall be the responsibility of the States to constitute the Disaster Mitigation and Response Funds at the District levels. The modalities for the application of these funds will be worked out in accordance with the provisions of the Act. The guidelines on various disasters will form the basis for the formulation of plans for mitigation projects at the National, State and District level. Central Ministries and Departments as well as the State Governments will identify Mitigation Projects for implementation. The National level mitigation projects will be duly prioritised and approved in consultation with the NDMA.

**1.6.7: Plans & Response Mechanism:** State Government and various Departments, District Administration and local bodies must accord the highest priority to building up their own DM capabilities. Plans at all levels will be made in consonance with the guidelines and provisions in the DM Act, 2005. While the State Plan will be prepared by the SEC, the disaster and domain-specific plans will be made by the respective State Ministries and Departments. State and District plans will be prepared for their specific disaster related vulnerabilities in accordance with the guidelines issued by UPSDMA. New institutional mechanisms may have to be built specifically in those sectors of DM where none of the existing agencies are working towards the building of required capacities. The participation of all stakeholders, communities and institutions will inculcate a culture of preparedness. A bottom-up approach needs to be adopted for better understanding and operationalisation of these plans.

**1.6.8:** The establishment of Emergency Operations Centres at the National, State, Metro and District level and equipping them with contemporary technologies and communication facilities and their periodic upgradation, will be accorded priority. For last mile connectivity and control

of the operations at the disaster hit areas, availability of portable platforms will be catered for. The integration of Ham radios and such other innovative facilities, into the DM communication system, will be advantageous.

**1.6.9:** During any disaster, communities are not only the first to be affected but also the first responders. Community participation ensures local ownership, addresses local needs, and promotes volunteerism and mutual help to prevent and minimise damage. Therefore, the efforts of the State Government and various Departments, District Administration and local bodies, in this regard need to be encouraged. The needs of the elderly, women, children and differently-abled persons require special attention. Women and youth will be encouraged to participate in decision making committees and action groups for management of disasters. As first responders to any disaster, communities will be trained in the various aspects of response such as first aid, search and rescue, management of community shelters, psycho-social counselling, distribution of relief and accessing support from government/agencies etc. Community plans will be dovetailed into the Panchayat, Block and District plans.

**1.6.10: Response: State, District and Local Authorities:** It is the primary responsibility of the State Government Ministries/DDMA/Local Bodies to monitor and assess any developing situation and keep the UPSDMA and SEC apprised of the same. They will also be responsible to constantly evaluate their own capabilities to handle that situation and project the anticipated requirements for Central resources well in time. Inter-state assistance and cooperation is encouraged by the Central Govt. State Govt is responsible to develop its own response potential progressively and complete the process at the earliest. This will comprise training and equipping of State Response Forces, community preparedness, training and creation of response caches at the District level. District level preparations will provide the cutting edge to all response activities. Local authorities, PRIs and ULBs will play a significant role in the entire process, particularly in response and rescue operations, relief and rehabilitation, awareness generation and disaster preparedness, restoration of livelihood options and coordination with NGOs and civil society.

**1.6.11: SOPs:** All State Ministries, District Authorities and other stakeholders will prepare SOPs in consonance with the National and State Plans. SOPs will be prescribed for activities like search and rescue, medical assistance and casualty management, evacuation, restoration of essential services and communication at disaster sites, etc. The other important activities are provision of food, drinking water, sanitation, clothing and management of relief camps. Detailed SOPs will also be devised by all concerned for despatch, receipt and deployment of Central resources.

**1.6.12: Review of Standards of Relief:** In most Districts, existing standards of relief need to be reviewed to address the contemporary needs of communities affected by disasters. The UPSDMA is to review the Relief Codes/manuals and prepare DM Codes for prescribing the



norms, standards and criteria for the provision of relief in conformity with the guidelines of NDMA.

**1.6.13: Provision of Intermediate Shelters:** In the case of devastating disasters, where extreme weather conditions can be life threatening or when the period of stay in temporary shelters is likely to be long and uncertain, construction of intermediate shelters with suitable sanitary facilities will be undertaken to ensure a reasonable quality of life to the affected people. The design of such shelters will be eco-friendly and in consonance with local culture. It would be the endeavour of UPSDMA through respective DDMA's to plan during periods of normalcy, the layout of intermediate shelters which is cost-effective and as per local needs with multi-use potential.

**1.6.14:** The establishment of UPSDMA as a nodal agency is an important element in the overall framework for DRM in the state. UPSDMA will facilitate, coordinate and monitor work for mitigation and preparedness for disasters. It will also coordinate and monitor emergency relief measures, relief, reconstruction and rehabilitation. The UPSDMA will be provided with the statutory powers in its role, as per the Uttar Pradesh State Disaster Management Act 2005. The GoUP will have the prerogative to declare and define the occurrence of a disaster, including the geographical boundary of disaster affected area, by issuing a "disaster declaration". The declaration for level II and III disasters by UPSDMA can be made in consultation with SRC. District Magistrate shall take care of Level I disasters that do not require SDMA's declaration. The Revenue Department, through the offices of SRC and the District Magistrate, along with relevant Government Departments, will be responsible for implementation of emergency relief measures and relief after a disaster. UPSDMA will facilitate, coordinate and monitor the activities of the revenue department and other relevant Government Departments related to DRM where necessary. Disasters take place in local environment and the first responders to most disaster situation are the local community and victims themselves. It is incumbent that local community is co-opted in DRM schemes at local and district level.

**1.6.15:** GoUP views DRM as a long-term process that involves the creation of various capacities in the state. This is in addition to developing systems and processes which are designed to carry out emergency responses (e.g. search and rescue operations) and provide relief and rehabilitation. The Uttar Pradesh Disaster Management Policy takes a long-term view of DRM with an aim to improve the socio-economic conditions of the population. The policy has been aligned broadly with the goals and priorities set out in the SENDAI Framework for Disaster Risk Reduction 2015-30 and Paris Agreement on Climate Change 2015, National Disaster Management Plan 2016/2018 and National Disaster Management Policy 2009. SDGs 2030 have also been referred in framing this policy.

## **7. Key Responsibilities**

**1.7.1:** The responsibility for the declaration of disaster at all levels in the state rests with The State Government. The declaration can be made on the advice /recommendation of the SRC or the District Magistrate. Responsibility of decision for initiation of emergency relief measures and relief in times of disasters lies with SDMA, and execution through State Revenue Department, in conjunction with the other relevant Government Departments. The State Revenue Department shall act through its functionaries at the state and district level.

**1.7.2:** Responsibility for facilitation, coordination and monitoring of the development and implementation of reconstruction and rehabilitation activities following disasters rests with UPSDMA. It shall also coordinate the efforts in utilisation of resources and expertise and assistance of relevant Government Departments, district administration, local authorities, NGOs, the public sector, private sector, international agencies, donors and the communities. Academia and scientists and other experts in the field need to be hired/tapped and tasked with responsibility to undertake study/research to implement long term mitigation efforts to various disaster situations.

## Chapter 2: Institutional Responsibilities & Legal Architecture

### 1. At the National Level

**2.1.1:** The Act lays down institutional, legal, financial and coordination mechanisms at the National, State, District and Local levels. These institutions are not parallel structures and will work in close harmony. The new institutional framework is expected to usher in a paradigm shift in DM from one-time relief centric approach, to a proactive regime that lays greater emphasis on preparedness, prevention and mitigation. NDMA, as the apex body at national level for disaster management, is headed by the Prime Minister and has the responsibility for laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters. The general superintendence, direction and control of the NDRF are vested in and will be exercised by the NDMA. The National NIDM works within the framework of broad policies and guidelines laid down by NDMA. NDMA is mandated to deal with all types of disasters; natural or man-made. Whereas, such other emergencies, including those requiring close involvement of the security forces, and/or intelligence agencies such as terrorism (counter-insurgency), law and order situations, serial bomb blasts, hijacking, air accidents, CBRN weapon systems, mine disasters, port and harbour emergencies, forest fires, oilfield fires and oil spills will continue to be handled by the extant mechanism i.e., NCMC.

**2.1.2:** The Act also provides for the NEC at the National level. The NEC comprises the Union Home Secretary as Chairperson, and the Secretaries to the GoI in the Ministries/Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science & Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways, and the Secretary, NDMA will be special invitees to the meetings of the NEC. The NEC is the executive committee of the NDMA and is mandated to assist the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Government. The NEC is to coordinate the response in the event of any threatening disaster situation or disaster.

### 2. At the State Level

**2.2.1: UPSDMA:** At the State level, the SDMA under the chairmanship of the Chief Minister (functional through Vice Chairperson) has the responsibility of policies, plans and guidelines for DM and coordinating their implementation for ensuring timely, effective and coordinated

response to disasters. The Chief Secretary is the Chief Executive Officer of the SDMA. Besides these, UPSDMA will have seven other members. The SDMA will carry out the following: -

- Approve the State Plan in accordance with the National DM Act 2005 and guidelines laid down by the NDMA
- Approve DM Plans prepared by the departments of the State Government
- Coordinate the implementation of the State Plan
- Recommend provision of funds for mitigation and preparedness measures
- Review the developmental plans of the different Departments of the State to ensure the mainstreaming of DRM with integration of prevention, preparedness and mitigation measures.
- Review the measures being taken for mitigation, capacity building and preparedness by the departments.
- The State Authority shall lay down detailed guidelines for providing standards of relief to persons affected by disaster in the State.

**2.2.2: SEC:** The GoUP shall constitute a SEC to assist the SDMA in the performance of its functions. The SEC headed by the Chief Secretary and four other Secretaries as its members shall be there to assist the SDMA in the performance of its functions. The SEC will carry out the following: -

- Assist SDMA in coordinating and monitoring the implementation of State Plan in consonance with the National and State Policy.
- Examine vulnerability of different parts of the State to different forms of disasters and specify measure to be taken for their prevention and mitigation.
- Lay down guidelines for preparation of disaster management plans by the departments of the State, and the District Authorities, and monitor the implementation of DM Plans so prepared
- Monitor the implementation of the guidelines laid down by the State DM Authority for integration of measures for prevention of disasters and mitigation by the departments in their development plans and projects
- Evaluate preparedness at all governmental or non-governmental levels to respond to any threatening disaster situation or disaster and give directions, where necessary, for enhancing such preparedness.
- Coordinate response in the event of any threatening disaster situation or disaster.
- Promote general education, awareness and community training regarding the forms of disasters to which different parts of the State are vulnerable.

- Advise, assist and coordinate the activities of the Departments of the Government of the State, District Authorities, statutory bodies and other governmental and non-governmental organisations engaged in disaster management.

**2.2.3: DDMA:** The DDMA will be headed by the District Collector, Deputy Commissioner or District Magistrate as the case may be, with the elected representative of the local authority as Co-Chairperson. Its charter would entail: -

- The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by UPSDMA.
- It will, prepare the District DM plan for the District and monitor the implementation of the National and State Policy, and the State and District Plan.
- The DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by NDMA and SDMA are followed by all Departments of the State Government at the district level and the local authorities in the District.
- The DDMA will further ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are taken. Feedback must be given to UPSDMA and SEC to prepare state level assessments that are accurate and updated.
- Ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all departments
- Lay down guidelines for prevention of disaster management plans by the department of the Government at the districts level and local authorities in the district.
- Monitor the implementation of disaster management plans prepared by the Departments of the Government at the district level
- Lay down guidelines to be followed by the Departments of the Government at the district level for purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and monitor the implementation of the same
- Review the state of capabilities and preparedness level for responding to any disaster or threatening disaster situation at the district level and take steps for their up-gradation as may be necessary.
- Organise and coordinate specialised training programmes for different levels of officers, employees and voluntary rescue workers in the district.



- Facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organisations
- Set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public, prepare, review and update district level response plan and guidelines.
- The DDMA will also coordinate response to any threatening disaster situation or disaster, coordinate with, and provide necessary technical assistance or give advice to the local authorities in the district for carrying out their functions.
- Examine the construction in any area in the district and issue direction to the concerned authority to take such action as may be necessary to secure compliance of such standards as may be required for the area
- Identify buildings and places which could, in the event of any threatening disaster situation or disaster, be used as relief centres or camps and make arrangements for water supply and sanitation in such buildings or places, establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice.
- Encourage the involvement of non-governmental organisations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management, ensure communication systems are in order, and disaster management drills are carried out periodically.

**2.2.4: Local Authorities:** For the purpose of this Policy, local authorities would include Panchayat Raj Institutions (PRI), Municipalities, District and Cantonment Boards, and Town Planning Authorities which control and manage civic services. These bodies will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with the guidelines of NDMA, SDMA and DDMA. Specific institutional framework for dealing with DM issues in mega cities will be put in place.

**2.2.5: State Government:** The primary responsibility for disaster management rests with the States. The institutional mechanism put in place at the Centre, State and District levels will help the State manage disasters in an effective manner. The Act mandates the GoUP, inter-alia to take measures for preparation of Disaster Management Plans, integration of measures for prevention of disasters or mitigation into development plans, allocation of funds, establishment of early warning systems, and to assist the Central Government and other agencies in various aspects of DM.

**2.2.6:** In accordance with the provisions of the Act, the State Government will take all such measures, as it deems necessary or expedient, for the purpose of DM and will coordinate actions of all Department/agencies. All Departments of the State Government will take into consideration the recommendations of the State Government while deciding upon the various pre-disaster requirements and for deciding upon the measures for prevention and mitigation of disaster. It will ensure that the State Government Departments and Agencies integrate measures for the prevention and mitigation of disasters into their developmental plans and projects, make appropriate allocation of funds for pre-disaster requirements and take necessary measures for preparedness and to effectively respond to any disaster situation or disaster. It will have the power to issue directions to SEC, State Government Departments or any of their officers or employees, to facilitate or assist in DM, and these bodies and officials shall be bound to comply with such directions. It will take measures for the deployment of Armed Forces for disaster management, if required. The State Government through Central Government will also facilitate coordination with the UN Agencies, International Organisations and Governments of Foreign Countries in the field of disaster management.

**2.2.7: Role of State Government Departments at State and District Level:**

- It shall be the responsibility of every department of the Government of a State to prepare DM Plans with respect to their respective departments as per guidelines issued by the UPSDMA, SEC and DDMA, take measures necessary for prevention of disasters, mitigation, preparedness and capacity-building in accordance with guidelines laid down by the National Authority, State Authority and District Authority. Departments will integrate the following into their development plans and projects: measures for prevention of disaster and mitigation; allocate funds for prevention of disaster, mitigation, capacity-building and preparedness; respond effectively and promptly to any threatening disaster situation or disaster in accordance with DM Plans and direction issued by the SEC or the DDMA; and, review the enactments administered by it, its policies, rules and regulations with a view to incorporate where necessary for prevention of disasters, mitigation or preparedness. Departments will also provide assistance as required by NEC, SEC and District Authorities, for drawing up mitigation, preparedness and response plans, capacity-building, data collection, and identification and training of personnel.
- Departments will also make provision for resources in consultation with the State Authority for implementation of the District Plan by its authorities at the district level, and make available its resources to the NEC, SEC or District Authorities for the purposes of responding promptly and effectively to any disaster in the State. This includes measures for: providing emergency communication within a vulnerable or affected area; transporting personnel and relief goods to and from the affected area; providing evacuation, rescue, temporary shelter or other immediate relief; carrying

out evacuation of persons or live-stock from an area of any threatening disaster situation or disaster; setting up temporary bridges, jetties and landing places; providing drinking water, essential provisions, healthcare and services in an affected area; and, such other actions as may be necessary for disaster management.

#### **2.2.8: Other Institutional Arrangements:**

- **Armed Forces:** Because of their vast potential, ability to respond to any disaster situation with lightning speed and resources at their disposal, Armed Forces are a critical entity in the entire gamut of DM. At the state and district level, local Military Authorities must form part of their executive committees for better and closer coordination. The issue must also feature in already structured civil-military liaison conferences.
- **Central Paramilitary Forces:** The CPMFs, play a key role at the time of immediate response to disasters. Besides contributing to the NDRF, they will develop adequate disaster management capabilities within their own forces and respond to disasters which may occur in the areas where they are posted. The local representatives of the CPMFs may be co-opted/invited in the executive committee at the State level.
- **State Police Force and Fire Services:** The State Police and Fire Services are immediate responders to the disaster situations and need to be co-opted not only in response mechanism but also in training and other mitigation efforts.
- **Civil Defence and Home Guards:** The mandate of Civil Defence and Home Guards need to be realigned to the needs of DM. Culture of voluntary reporting to duty in the event of any calamity needs to be promoted.
- **State Disaster Response Force (SDRF):** The GoUP, with the assistance of NDMA and NDRF, may consider raising requisite force within own resources, which should be capable, trained and ready to respond immediately on occurrence of any disaster.
- **NCC, NSS, NYKS, Scouts and Guides, Youth & Women Organisations:** These organisations would be co-opted in DM. They will be trained in SAR and MFA and other related aspects as per requirement. The potential of these organisations will be also be used for education and awareness generation. The department of Education, NCC and NYKS would incorporate the subject of disaster management in the trainings of their respective organisations.

## Chapter 3: Prevention & Mitigation

### 1. Approach

**3.1.1: Disaster Prevention & Mitigation:** Unlike man-made disasters, natural hazards like floods, earthquakes, and cloudbursts cannot be avoided. However, with mitigation measures, along with proper planning of developmental work in the risk prone area, these hazards can be prevented from turning into disasters if we take preventive and mitigation measures in advance. Certain identified Common Hazards & their Remedial Action Plan is attached as Annexure-I. This requires changes in the current development model, practices and priorities. Since disaster is a development problem, prevention and mitigation need to be built in this process only. A multi-pronged approach needs to be adopted to undertake mitigation measures: -

- Incorporating elements of climate and disaster resilience, mitigation and risk reduction into all the development projects and programmes.
- Initiating state level mitigation projects in accordance with the guidelines issued by the NDMA for various hazard in high priority areas with the help of Government Departments and Agencies.
- Developing a culture of safety and safe practices in the state.
- Integrating elements of Disaster Risk Reduction (DRR) into the development plans, policies and projects.
- According high priority to projects contributing to vulnerability reduction of the area.
- Indigenous knowledge on disaster and coping mechanisms adopted by various States and sections of society should be given due weightage.

### 2. Disaster Prevention & Mitigation

**3.2.1: DRR Mainstreaming:** DRR issues would be mainstreamed in development plans, programmes and policies at all level by all the departments, organisations and agencies. It would be ensured that all the development programmes and projects, that originate from or are funded by Government, are designated with evident consideration for potential disaster risks to resist hazard impact. They will also ensure that all the development programmes and projects, that originate from or are funded by Government, do not inadvertently increase vulnerability to disaster in all sectors: social, physical, economical and environmental. It would also be ensured that all the disaster relief and rehabilitation programmes and projects that originate or are funded by Government are designed to contribute to development aims and to reduce future disaster risk.

**3.2.2: Risk Assessment and Vulnerability Mapping:** As a first step towards disaster prevention and mitigation, hazard zoning, mapping, vulnerability and risk analysis (HRVA analysis) in a multi-hazard framework will be carried up to Tehsil level and local level. In-depth studies of major towns and urban conglomerations would be required to be done for effective disaster management planning. The HRVA studies would be carried out using GIS and remote sensing data and other modern tools so that the study act as a decision support system (DSS) for disaster management. As per the National Policy on DM, the increasing use of GIS, remote sensing and applications of GPS in DM, has made it imperative to set up a mechanism for sharing thematic and spatial data through a designated electronic clearing house. The NSDI has been set up by the Survey of India to collect, compile, analyse and prepare value-added maps for use by various agencies in the field of DM, management of natural resources, industrial applications etc. The NSDI needs to work towards interoperability of data and information sharing protocols to facilitate effective policy analysis. A two-way inter-operable link will be established between NSDI and the proposed National Disaster Emergency Communication Network for easy and quick sharing. The programme, designed to have spatial and non-spatial databases in a secure environment under the NDEM, will derive the data sets through NSDI for addressing the information needs for disaster management”. Stress will be laid to store and back-up essential baseline geo-spatial datasets so that they can be used immediately once a disaster occurs.

**3.2.3: Management of Disasters in Urban Areas:** Disasters in urban areas are distinct in many ways and the intensity of damage is usually very high, warranting effective DM plans. Search and rescue efforts in urban areas also require specialised training. Action plans for checking unplanned urbanisation and ensuring safer human habitat against all forms of disasters is to be recognised as priority areas. Authorities of Urban Local Bodies concerned should accord priority for improving urban drainage systems with special focus on non-obstruction of natural drainage systems. Urban mapping of infrastructure of spatial resolution will be taken up for development of DSS for management of urban risks. Urban Local Bodies need to implement and enforce building codes and regulations and hazard resistant constructions within their respective jurisdiction.

**3.2.4: Critical Infrastructure:** It is of utmost importance that critical infrastructure like dams, power projects, roads, bridges, railway lines, power stations, water storage tanks, irrigation canals, river embankments, communication network, and other civic utilities are constantly monitored for safety standards in consonance with worldwide safety benchmarks and strengthened where deficient. The building standards for critical infrastructure need to be aligned to safety norms and Departments/Authorities concerned must ensure requisite actions and measures.

**3.2.5: Environmentally Sustainable Development:** Developmental activities taking place in the state must take environmental consideration into account. Disposal of solid and industrial

waste must be dealt in a way that it does not pollute water sources. Restoration of ecological balance would be needed in areas where environmental degradations have taken place. Ecosystems of forests, and rivers, and the agricultural, urban and industrial environment are also to be prioritised for restoration of ecological balances and sustainable development. Zonal regulations must ensure preservation of natural streams, forest areas and natural habitats.

**3.2.6: Climate Change Adaptation:** There are evidences to indicate that Himalayas are warming at a higher rate than the global average rate. It is a matter of great concern as the region has more snow and ice than any other region in the world outside the Polar caps. Himalayas are the maker of climate of much of the South Asia, and the Himalayas glaciers are receding faster than glaciers of other parts of world. Mountainous ecosystems are particularly vulnerable to warming. Therefore, climate change is likely to impact our glacial reserves, water balance, agriculture, forestry, bio-diversity and human and animal health. There are definite indications that climate change would increase the frequency and intensity of natural disasters like cyclones, floods, cloudbursts, flash floods and droughts in the coming years. In order to meet these challenges in a sustained and effective manner, synergies in our approach and strategies for climate change adaptation and disaster risk reduction needs to be encouraged and promoted.

**3.2.7: Pre-Disaster Recovery Plans:** Region/area based proactive recovery plans need to be drawn with total involvement of communities and local administration. There exists no standard template to formulate this as each geographical area will have its own dynamics and vulnerabilities due to various disasters. Accordingly, local authorities in conjunction with communities need to draw their own plans with district administration.

**3.2.8: Creation and Activation of State Disaster Response Fund:** The State Disaster Response Fund shall be used only for meeting the expenditure for providing immediate relief to the victims of disaster in the state. The GoUP must take utmost care and ensure that all individual beneficiary-oriented assistance is disbursed through the beneficiary's bank account as laid in the National Disaster Management Plan. For disasters needing central support over and above the State Disaster Response Fund, the request of GoUP will be processed for support through the Ministry of Home Affairs, Government of India.

**3.2.9: Development of Policies and Guidelines:** GoUP will develop clear guidelines that would include following: -

- Civil/architectural/structural/land use planning specifications to ensure that disaster management plans can be executed with least hindrance.
- Other guidelines specific to disaster type like quarantine (epidemic), cropping pattern (flood), evacuation (flood/cyclone/fire), rehabilitation plans (flood / earthquake/ cyclone).



- Development of laws/by laws that will assist the implementation of a framework for DM.
- Laws/regulations for forest management to prevent deforestation and better management of forests.
- Laws/norms for stringent control of greenhouse emission of all forms be it industries, vehicular and other sources.
- Training of Government and Non-Government organizations including, private, NGOs, communities.

**3.2.10: Establishing a Functional Chain of Command:** The GoUP will lay down a clear chain of command with UPSDMA as the nodal agency for all DM activities and coordination mechanism across all entities, responsible for implementation of DM in the state.

**3.2.11: Develop DM Plans:** Detailed DM plans that are tailored to local dynamics would enable the relevant authorities and the community to respond in a systematic and effective manner to the disaster situation. The guidelines for such plans will be prepared by the stakeholders like Government departments, district administration, local authorities and expert agencies etc., in consultation with UPSDMA. The relevant authorities will ensure that these are constantly reviewed and updated.

**3.2.12: Establish Communication and Technology Network:** A robust state-wide information network is critical not only for managing disasters but also for the effective functioning of the state Government. It would be prudent to assume that in the event of disasters the existing communication network will be disrupted, and the efficiency of the concerned department would be put to test in restoring the existing network and implementing the contingency plans with least loss of time. The GoUP will ensure that a comprehensive communication network is always available with contingency plans.

### **3. Developing Early Warning Mechanisms**

**3.3.1:** Early warning mechanisms help relevant authorities in taking timely preventive measures and thereby mitigate the potential damage caused. Wherever possible, the relevant department, in conjunction with the Government shall set up early warning mechanisms for advance warning of hazards like floods, cyclone, wildfire etc. All this must take into account a community's knowledge, experience and skills

**3.3.2:** Concerned departments will explore setting up CCTV based network (for wildfire) at local level or satellite-based observation stations for the purpose. Though, satellite or aircraft based remote sensing has worldwide proven its applicability in the field of post disaster damage assessment, it's application in forecasting and early warning of disasters like floods, drought and pest damaged crops is also vital for disaster management. Contemporary forecasting and

early warning practices that are globally available need to be explored/studied and implemented in the state, if possible and necessary.

**3.3.3: Establish Flexible & Adaptive Procedures:** The philosophy of a simple plan needs to be followed as a driving principle. Emergency situations may warrant simplified procedures for quick and effective decision making relating to evacuation, procurement of essentials, deployment of resources, and such other activities. The relevant Government departments shall accordingly define flexible procedures for emergency situations.

**3.3.4: Building Capacities and Expertise:** It is mandatory to build strong capabilities and expertise for handling various aspects of disaster. UPSDMA shall network with a number of entities such as DM agencies, science and research institutions, academia, DM specialists, NGOs, community groups, line departments, local Government authorities, and other stakeholders to augment the capabilities of all relevant entities.

**3.3.5: Community Empowerment:** It is a well-established fact that victims themselves and local communities are first responders to most disaster situations. Therefore, it is incumbent on Government authorities and all relevant agencies that local communities are empowered appropriately and a sense of pride in DRR activities be inculcated. UPSDMA and the relevant authorities shall ensure that required awareness, resources and training are provided to all communities. Communities will also be urged to develop self-reliance by promoting and encouraging a spirit of self-help and mutual assistance. Necessary incentives, where required, will also be instituted for local communities. SDMA shall support these initiatives by providing necessary resources and expertise from time to time.

**3.3.6: Health and Medical Care:** Health and medical care is one of the most critical and immediate response components of disaster management. The United Nations in partnership with local governments has implemented an array of emergency response programmes across the world, designed and implemented using existing primary health care systems. The evidence from implementation also shows that provision of such an integrated healthcare services from primary health care facilities during disasters has drastically reduced associated mortalities and morbidities. There is a need to study the same in the context of UP and implemented if considered necessary. The following is recommended: -

- The integration of DM within the primary health care can prove instrumental in provision of optimal and low-cost emergency medical assistance under the ambit of existing primary health care networks.
- Prompt first aid to victims will go a long way in saving many lives. Therefore, training of all, including local communities, and utilisation of resources including those locally available, are to be incorporated in health and medical plans of the state.
- The capacity and quality of medical assistance in disaster response will be developed through trained personnel and appropriate infrastructure.

- Services of privately-owned medical facilities are to be dovetailed in state plans.

**3.3.7: Fund Generation:** Disasters can cause extensive strain on financial resources because of relief, reconstruction and rehabilitation activities. In addition, activities relating to mitigation and preparedness for disaster situations require funds. For this: -

- The GoUP intends to have a budgetary allocation for DM. Further, funds would be made available through State Disaster Response Fund.
- UPSDMA, as a nodal agency, would also identify alternate sources of funding for activities related to DM in the state.
- Identifying sponsors for activities such as training and awareness of communities and imparting necessary skills for managing specific disasters would save money for the exchequer and need to be explored by the UPSDMA.

**3.3.8: Promoting Risk Transfer Mechanisms:** In-depth research by the World Bank shows that current post-disaster financing, including donor assistance and commercial insurance, covers only a fraction of disaster losses, leaving a vast gap. Costs from these disasters also disproportionately fall on poor and vulnerable populations and, therefore, innovative ways need to be thought of to close this gap. Need for projects or risk transfer instruments by private agencies is also acknowledged by the Government of India and the corresponding policy changes and fund requirements is under deliberation in detail in consultation with the relevant stakeholders at national level. This concept of sharing and transferring a part of the disaster risk to a third party, which is willing to indemnify the beneficiary against the disaster for a specific premium. The GoUP would explore innovative means of sharing the cost associated with the disasters through risk sharing, risk transfer and other measures, since this would alleviate the burden on the state exchequer.

## 4. Taking Note of Some Best Practices

**3.4.1: Smart-Cities: Issues:** Recent advancements in Internet of Things (IoT) and revolution in big data analytics technologies have provided an open opportunity to develop disaster resilient smart city. The implementation model of the environment consists of data harvesting, data aggregation, data pre-processing, and big data analytics and service platform. A variety of datasets (i.e., smart buildings, city pollution, traffic simulator, and social media) are utilised for validation and evaluation of the system to detect and generate alerts, for example, for a fire in a building, pollution level in a city, emergency evacuation paths, and collection of information about natural disasters (i.e., earthquakes and tsunamis).

**3.4.2:** Disaster Management can be considered as a set of organized processes that incorporates planning and managing of activities in any of the disaster phases i.e., mitigation, rescue, response, and recovery. Traditional disaster management systems are getting outdated as they are becoming inadequate to manage operations with multi-sourced data, and to store

and analyse huge volumes in real-time. With constraints of accurate and timely decision-making, disaster management and resilience processes require a reliable and effective environment that integrates various state-of-the-art technologies to enhance performance. Moreover, it is very important to be able to engage all information sources critical to a situation in real-time for effective and timely response. A DRSC environment would allow rapid and effective analysis backed with multi-sourced data for generating an early warning to citizens and assisting in the prevention, monitoring, and recovery from catastrophic situations.

**3.4.3:** The UN predicts that by 2050, more than 70% of the global population will be living in cities and megacities (metropolitan areas spanning multiple cities and exceeding a population of 10 million each). Wireless communication technologies will take an increasingly central role and replace wired or physically connected technologies. A Smart City will incorporate information and communication technologies to reduce costs, optimize resource consumption, improve interactivity and improve quality of life for its citizens. An example of applied technology is usage of networked unmanned air vehicles (UAV). There are many opportunities to employ UAVs in the context of smart cities and public safety:

- Public Safety and Civil Security
- Emergency/Disaster Monitoring and Control
- Traffic and Crowd Management
- Security for Public Events
- Environmental Management
- (Big) Data Generation
- Surveying
- Coordination between heterogeneous systems
- UAV-based aerial communication infrastructure to deliver broadband wireless connectivity or for UAV-based mobile wireless access networks.

**3.4.4: Aiming for Inclusiveness: Addressing Disability:** During the last decade disasters and increasingly climate change has had a significant impact on about 2.68 crores (26.8 million) people with disabilities in India. Their vulnerabilities are recognized to be linked to their socio-economic conditions and their capacity to cope. Physical disability is highest in terms of absolute numbers in Uttar Pradesh. The NDMA Disability and Disaster Guideline (draft) advocates a framework that considers:

- Recognition of the issue of disability inclusion to ensure that persons with disabilities are fully engaged in DRM activities
- Inclusion of persons with disabilities at all levels of DRM especially decision making

- That inclusion does not view persons with disabilities as passive actors but as decision makers in the process
- The purpose of inclusion is to ensure that barriers are removed and/or do not impede the effort
- To enhance awareness and knowledge about disability and the needs of persons with disabilities amongst stakeholders.

**3.4.5:** There is a need to develop practical guidance to support implementation mechanisms of Disability-Inclusive Disaster Risk Management (DiDRM) and ensure engagement by all stakeholders and thereby strengthen inclusion in disaster risk reduction. For example, Individuals with a disability are at greater risk of injury and death than are other populations. Individuals with disabilities often have specific needs leading to difficulties when seeking shelter during disaster events. Emergency shelters are generally not purposefully built to accommodate such requirements.

**3.4.6: Role of Women:** The whole world recognizes that gender, disability, age and cultural perspectives are needed in all policies and practices; and that “women and their participation are critical to effectively managing disaster risk and designing, resourcing and implementing gender-sensitive disaster risk reduction policies, plans and programmes; and adequate capacity building measures need to be taken to empower women for preparedness as well as build their capacity for alternate livelihood means in post-disaster situations.

**3.4.7: Child Labour:** India has approximately 13 million child labourers in various industries with State of Uttar Pradesh taking the share of approximately 2 million. Various NGOs like Bachpan Bachao Andolan, Care India, Child Rights and You, Global March against Child Labour, amongst many others, have taken the initiative to eradicate the menace of child labour. It's well proven that state's failure to meet the basic needs of children of health, education and other services would undermine the abilities of communities to prevent, manage and recover from disasters. It would be incumbent on Government machinery and various stakeholders to give necessary impetus to control this menace in their schemes.

**3.4.7: Involvement of Civil Society:** The importance of involvement of local communities in DM schemes is recognised all over the world. The role of the humanitarian agencies and NGOs is to supplement the efforts of the government thereby helping communities to cope and recover from a disaster. There are national level NGOs acting as donor and advocacy organizations, state level NGOs involved in mobilizing communities through various campaigns and action research, and local NGOs working directly with communities. There are many community-based organisations, which also play a significant role in disaster management. NGOs within their own capacities and mandates perform these roles in line with the basic principles of The Humanitarian Charter, The Red Cross and Red Crescent NGO Code of Conduct, and other laws and regulations, as applicable.

**3.4.8: The National Policy on the Voluntary Sector (2007):** It was the first step which paved way in evolving a new working relationship between the government and voluntary organisations. Voluntary organizations are defined as formal as well as informal groups such as: community-based organisations; non-governmental development organisations; charitable organisations; support organisations; networks or federations of such organisations; as well as professional membership associations. This Policy recognizes three instruments of partnership: consultation, through a formal process of interaction at the Centre, State and District level; strategic collaboration to tackle complex interventions where sustained social mobilization is critical over the long term; and, project resource generation through standard schemes.

**3.4.9:** The National Policy on DM of 2009 spells out the role of NGOs and other stakeholders as potential partners for disaster management. This reiterates the importance of contributions made by the NGOs in all phases of disaster management over the years in the country. The participation of civil society which includes NGOs will be coordinated by the SDMAs and DDMAAs. The State Governments may give more detailed guidelines to coordinate the efforts of NGOs working for disaster management by virtue of their powers under Section 38(2) of the Disaster Management Act. NGOs play a vital role and can be made responsible at various levels in developing capacity and skills for disaster preparedness. At state level, NGOs have been organized to take coordinated action for disaster preparedness. Government officials in many states are active partners of such coordinated action and both stakeholders are known to benefit from this collaboration.

**3.4.10:** The DM Act 2005 provides the legislative back-up to enable collaborative mechanisms at all levels for participation and joint/coordinated action by Government and NGOs in planning, learning and action for disaster preparedness. powerful advocacy institutions; initiating Participatory Assessment of Disaster Risk processes at the community level to assess vulnerabilities and risks to various hazards in their respective areas of operation, build capacities of the community and other government officials at district and state level to undertake activities in various thematic areas which will result in the integration of the same in Disaster Management or other departmental plans, and may also facilitate preparation of DM Plans by involving local communities and Panchayat Raj Institutions; play an important role in generating awareness and building capacity on DM at various levels; involvement in all phases.

**3.4.11: Managing Volunteers in Disasters:** Collaboration between civil society and govt authorities play a key role for successful emergency and disaster management. In many instances, the tradition of organised volunteering in support of organised disaster management processes is a long one. However, new technologies, large scale disaster events, and different aspirations are some factors that bring new, spontaneous or emergent forms of volunteerism to official disaster management activities. To many state authorities, this would seem unpredictable and a challenge to absorb and align. But there is evidence in many disasters where smart and proactive planning and training, these obstacles that often complicate



collaboration have been positively overcome. This can result in well-trained first-responders, unburden official capacity to do more important tasks and help build social acceptance through participation.

**3.4.12:** Creating standards and routines in volunteer recruitment, deployment, communication, resource management, and training will yield an operational framework that addresses safety, legal and other challenges. During emergencies and disasters, it is often very difficult to interact directly with emergent groups or individual volunteers due to time and other pressures, therefore, some recognised intermediate organisations can be given the role of coordination in delegated tasks. ITC-related tasks, crowd sourcing, big data and social-media analysis etc are just some of the areas that volunteers can play an important part, online or offline.

**3.4.13: Waste and Debris Disposal:** Disasters and environment are inextricably linked. Disaster operations management is closely associated with the environment, especially in managing disaster waste, for example, carbon emissions from transportation, pollution generated from incineration and land-filling, the risks of waste exposure and environmental effects of temporary storage and disposal. Rapid post-disaster waste clean-up is closely associated with psychological recovery because of the awareness of available social support, which could be more important than the reconstruction of building and infrastructure that takes a longer time. Also, relief materials (e.g. medical, food, water and tent) are transported into an affected area and utilised, the related wastes (e.g. medical waste, plastic bag and bottle) must be transported out from the affected area to other processing sites. A complete close-loop supply chain must be planned incorporating input of relief materials and output of related waste.

**3.4.14: National Environment Policy, 2006:** The principal objectives of this policy, which need to be dovetailed in development plans, are enumerated:

- Protect and conserve critical ecological systems and resources, and invaluable natural and manmade heritage, which are essential for life support, livelihoods, economic growth, and a broad conception of human well-being.
- Ensure equitable access to environmental resources and quality for all sections of society, and in particular, to ensure that poor communities, which are most dependent on environmental resources for their livelihoods, are assured secure access to these resources.
- Ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations.
- Integrate environmental concerns into policies, plans, programmes and projects for economic and social development.
- Ensure efficient use of environmental resources in the sense of reduction in their use per unit of economic output, to minimise adverse environmental impacts.

- Apply the principles of good governance (transparency, rationality, accountability, reduction in time and costs, participation, and regulatory independence) to the management and regulation of use of environmental resources.
- Ensure higher resource flows, comprising finance, technology, management skills, traditional knowledge, and social capital, for environmental conservation through mutually beneficial multi-stakeholder partnerships among local communities, public agencies, the academic and research community, investors, and multilateral and bilateral development partners.

**3.4.15: Clean Air & Water:** Climate change is caused by the anthropogenic emission of greenhouse gases and leads to alterations in global climate patterns with shifts in local precipitation, temperature and weather patterns. According to the Intergovernmental Panel on Climate Change (IPCC), climate change will stress critical ecosystems and lead to water and food shortages this century. Climate change is already evident in many parts of the world.

**3.4.16:** There is a common understanding between scientists and practitioners about benefits from green solutions for disaster risk reduction, but fully taking advantage of nature-based solutions for disaster risk reduction can be challenging. International experts agreed that it is most important to both push the current boundary of science and technology and establish local actions for the acceptance and maintenance of nature-based solutions. Well-managed ecosystems - such as wetlands, forests and many others - often act as natural infrastructure, reducing physical exposure to various natural hazards, and increase socio-economic resilience of people and communities. Healthy ecosystems also provide many more services and goods, playing a role in water quality and availability, air quality, food security, and much more.

**3.4.17: Air:** There are many examples of “green innovation”. A national project aims to collect air quality information to allow policy makers and citizens to deploy data-driven control and preventive mechanisms. The focus is on low-cost PM 2.5, Ozone, nitrogen oxide and sulphur oxide sensors. The idea is to integrate hardware, communication and software stack, from local sensing to distributed analytics. Considerable work is going on in the country on high resolution air quality monitoring and air pollutant data analytics; measuring parameters like dissolved oxygen, conductivity, temperature, nutrients, carbon-dioxide and select heavy metals. A novel energy harvesting system integrating solar panel, piezo electric system and micro wind turbine is also being tried out.

**3.4.18:** State authorities need to take proactive steps including: reducing toxic emissions from industrial sources; reducing emissions from vehicles and engines through new stringent emission standards and cleaner burning gasoline; and, addressing indoor air pollution through voluntary programs. According to a reliable Indian report, air pollution is responsible for 12.5 percent of all deaths in India. Its impact on children is equally worrying. Over 100,000 children below the age of five die due to bad air in the country. The study says as many as 80 lives are

lost every day in a city like Delhi. Yet, this is not seen as a health emergency. Rural issues such as of crop-burning in rice-fields every winter and the resultant “agricultural shock” to air quality in northern India due to smog, raises a question—can farmers be held responsible for the crisis? Similarly, administrators should encourage farmers to take up crop diversification or switch to less water-intensive crops by extending price incentives and better marketing facilities.

**3.4.19: Water:** It is one of the most crucial elements in developmental planning. As the country prepares itself to enter the 21st century, efforts to develop, conserve, utilise and manage this important resource have to be guided by holistic perspectives. Planning and implementation of individual irrigation or multi-purpose projects at the state level, must involve a number of aspects and issues such as environmental protection, rehabilitation of project-affected people and livestock, public health consequences of water impoundment, dam safety, etc. There are many complex issues with water management at macro and micro levels. Some common issues recurring in most districts are: substantial time and cost overruns on projects; problems of water logging and soil salinity; complex problems of equity and social justice of water distribution; over- exploitation of groundwater resources and poor resource management and conservation. Another important aspect is urgent attention to improve existing strategies and innovation of new techniques to eliminate pollution of surface and groundwater resources, to improve water quality and to step up the recycling and re-use of water.

**3.4.19: Integration of Disaster Risk Reduction (DRR) and Climate Change Adaption (CCA) for sustainable development:**

1. There are vital interconnections between gender, social equity, environment and development. Environmental change can affect different social groups in different ways: women and men, rich and poor, specific ethnic and age groups, people in developed and developing countries. Patterns of development and economic growth that neglect the needs of specific groups of people can exacerbate disparities, stratifying people into losers and winners, worsening living conditions and creating unjust outcome. A deliberate focus on gender and social equity in development can help achieve more inclusive benefits and enhance human and environmental well- being.
2. We need to identify underlying causes of vulnerability and drivers of risk in different contexts and working to strengthen the adaptive capacity of DRR participants and build resilience. Reducing disaster risk is a complex task that cuts across a broad range of related thematic areas, economic sectors and public, private and voluntary stakeholders along a diverse set of interests and spheres of influence. Understanding this complexity and finding solutions to reduce risk in a holistic way requires a system perspective. It also involves the collaboration of researchers with diverse sets of skills, cultural backgrounds and perspective, with experience in academia, policy and the private sector.

3. Although the two terms (DRR & CCA) cannot be used interchangeably, there is a large amount of crossover and common interest. DRR deals with all hazards, including hydro-meteorological and geophysical hazards, while CCA deals exclusively with climate-related hazards associated with changes in the average climate conditions. CCA also considers long-term adjustment to changes in gradual changing climatic conditions, including opportunities that this can provide, whereas DRR is predominantly interested in extremes leading to disasters. However, the point of convergence between DRR and CCA is in their management of climate-related risk. DRR and CCA share common objective such as reducing community vulnerability and achieving sustainable development. They also share a common conceptual understanding of the components that make up risk and the methods and process to build resilience; both highlight exposure and vulnerability as a product of risk. Both exposure and vulnerability are compounded by other societal and environmental trends, such as urbanization, environmental degradation, and the globalization of markets. Thus, to reduce these risks, exposure needs to be minimized, vulnerability reduced, and capacities for resilience strengthened. This is a dynamic process requiring continual effort across economic, social, cultural, environmental, institutional and political spheres to move from vulnerability to resilience.

4. The following objectives must be realised in order to make disaster resilient communities able to adapt to climate change:

- Sustainable adaptation;
- Community participation in planning and managing DRR and CCA;
- Vulnerability and risk assessment methods for adaptation planning;
- Good governance and capacity-building; and
- Linking DRR and CCA

5. There are two general principles that apply to all contexts: First, SDMA needs to ensure that the state has adequate capacity at relevant levels to mainstream DRR and CCA – if capacity gaps are identified, these need to be filled through training, support from State Govt or through linkages with external partners such as research institutes. Second, it is worth stressing that given altering risk patterns, risk should be regularly monitored (at least once per year).

6. As DRR and CCA are cross-cutting issues, the mainstreaming process needs to be owned by all departments, staff and volunteers rather than by a single department or individual.

It is important to anticipate potential barriers to ownership and consider how to address them to ensure that mainstreaming can be considered as an institutional asset rather than a liability. As building the ownership of DRR and CCA mainstreaming is a process that will take time, it is helpful for authorities to understand more generally how change can be achieved, and how to manage change.

7. DRR and CCA focal points should be appointed in technical departments to direct and coordinate sectoral DRR and CCA initiatives, including the mainstreaming of DRR and CCA into broader programmes, to identify and draw on existing DRR and CCA expertise within the department and to provide sector- specific technical support. Appropriate institutional capacity should be put in place to support the mainstreaming process.

8. Building the necessary skills and knowledge is crucial to increasing staff's understanding and ultimately, ownership of the mainstreaming process. Policies and best practices must be understood, implemented and maintained by authorities and national departments. Skills, knowledge and understanding can be developed through senior management briefings, reference materials, training for staff and volunteers, and regular communication between themselves such as joint participation in lessons learnt exercise following major disasters. The assessment of the capacity to understand and address the DRR and CCA mainstreaming issues should be followed by institutional measures to strengthen it and supported by regular monitoring and evaluation. Support of the mainstreaming process should include active advocacy from different stake holders both private and public.

9. Internal advocacy plays an important part in creating the conditions for mainstreaming DRR and CCA within national frame work to give government a better understanding of disaster and climate related risks and address them when making decisions in different areas.

## Chapter 4: Preparedness & Capacity Building

### 1. Preparedness

**4.1.1:** The GoUP and districts will accord highest priority in formulating their own DM plans and build capabilities. The plans will be strictly in consonance with the DM Act 2005 and the State Disaster Management Policy.

**4.1.2: Forecasting and Early Warning System:** The state and districts will establish, upgrade and modernise own forecasting and early warning system. Districts will provide necessary infrastructure to India Meteorological Department for establishment/up-gradation of meteorological observation system/station in their respective areas of jurisdiction. Climate-meteorological disaster such as flash floods etc. need to be predicted with certain degree of accuracy. The existing IMD and CWC network in the state requires strengthening. River basin wise early warning system requires to be established with last mile connectivity. Matter would be taken up with the concerned agencies for the establishment, up-gradation and modernisation of forecasting and early-warning system in the state. The nodal agencies responsible for monitoring and carrying out surveillance, for specific natural disasters, will identify technological gaps and formulate projects for their up-gradation, in a time-bound manner. ICT tools need to be used for data receptions, forecasting and timely dissemination

**4.1.3: Communication and IT Support:** Efforts should be made for setting up IT infrastructures consisting of required IT processes, architecture and skills for quick updating of data sets. A communication network, involving contemporary space and terrestrial-based technologies in a highly synergistic configuration with considerable redundancy, needs to be developed. This Network will ensure real time dissemination of warnings and information to the affected communities and local authorities.

**4.1.4: Medical Preparedness and Mass Casualty Management:** Medical preparedness is a crucial component of any DM Plan. The SDMA, in close coordination with the Department of Health and Family Welfare and premier medical research institutes, will formulate policy guidelines to enhance capacity in emergency medical response and mass casualty management. DM plans for hospitals will include developing and training of medical teams and paramedics, capacity building, trauma and psycho-social care, mass casualty management and triage. The surge and casualty handling capacity of all hospitals at the time of disasters will be worked out and recorded through a consultative process by all the districts in close coordination with GoUP in the pre-disaster phase. District authorities will be encouraged to formulate appropriate procedures for treatment of casualties by private hospitals during disasters. These plans will also address post-disaster disease surveillance systems, networking with hospitals, referral institutions and accessing services and facilities such as availability of ambulances and blood banks.



**4.1.5: Develop Repositories of Information (Knowledge Management):** It would be critical in any disaster situation that relevant authorities are in position to quickly establish contact with people and resources in the aftermath of a disaster. **UPSDMA, SIDM** and relevant Government departments will ensure that a comprehensive repository of information such as names, contact details of persons, their address, local availability of heavy equipment, machinery and stores and medical facilities etc. is created, maintained, regularly updated and made easily accessible to the relevant authorities at the time of occurrence of any disaster so as to ensure that no time is lost in implementation of schemes. The experience from previous disaster situations can also provide valuable insights in managing disasters, therefore, necessitating that lessons of previous disaster situation be captured in a systematic manner and applied, where applicable, through knowledge management system, feedback mechanism etc.

## **2. Capacity Building**

**4.2.1: Approach:** It is important to build effective capacity building of all the stakeholders and institutions in disaster management. This process comprises awareness generation, education, training, knowledge management, R&D, etc. It further addresses putting in place appropriate institutional framework, management systems and allocation of resources for efficient prevention and handling of disasters.

**4.2.2: Training:** The State Government through various departments will organise and coordinate specialised training programmes for different levels of officers, employees and voluntary rescue workers in the district and facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organisations. Keeping in view the requirement of Act and for effective handling of disasters and building capacity at all level, Government machinery and other stakeholders' training needs to be imparted at according to the needs and requirement of respective departments and other stakeholders. All departments irrespective of their roles will require to be trained in the all aspects of disaster risk reduction/DM. Training modules are to be developed for different categories of employees depending upon their roles. The main areas where training inter-alia would be provided are as under: -

- Awareness about the provisions of the Disaster Management Act, 2005.
- Orientation and awareness on Disaster Management and its various aspects.
- Preparation of DMPs.
- Preparation of response Plans.
- Training to perform the ESF assigned to the departments.
- Training on integration of DRR into development plans and policies.
- Training on mitigation measures and plans.

- Community awareness and IEC.
- Damage and needs Assessment.
- Conduct of mock drills.
- Training of all the new entrants into Government Services at the training institutes and academies itself such as UPAAM, SIHFW, SIRD Medical Colleges, DIETs, B.Ed institutions, Revenue Training Institute, Patwari Schools etc.

**4.2.3: Capacity Development:** In the field of capacity development, priority will be given to training to DM officials, functionaries, trainers and elected representatives and communities and community-based organisations. DM training and orientation of professionals like doctors, engineers, and architects will be given due importance. Further, expansion of DM training in educational institutions at all levels, including schools, with orientation towards practical requirements will be given due weightage. The approach to capacity development will include: -

- According priority to training for developing community-based DM systems for their specific needs in view of their requirement and multi-hazard vulnerabilities.
- Conceptualisation of community-based DM systems at the State level through a consultative process involving districts and other stakeholders with local level authorities in charge of implementation.
- Identification of knowledge-based institutions with proven performance.
- Promotion of national, inter-state and regional cooperation.
- Adoption of traditional and global best practices and technologies.
- Laying emphasis on table-top exercises, simulations, mock drills and development of skills to test the plans.
- Capacity analysis of different disaster response groups at district/sub-division/local levels.

**4.2.4: Institutional Capacity Development:** The UP SIDM will play an important role in developing and facilitating the implementation of the State training schedule for DM. It will be strengthened with financial assistance including required to handle the load of training in DM. Also, Police Academies, State Institute of Rural Development, District Battalion Training Institutions of Home Guards, Combined Home Guard and Civil Defence Training Institute, Health and Family Welfare Training Institute, Fire Training Institute, Revenue Training Institute, State Council for Education, Research and Training and all other training institutions of various departments will be strengthened so that they can also contribute most significantly in developing DM related skills. The capacity of existing departmental training institutes needs to be improved and modernised in accordance with regional and local requirements. Tie up with specialised training institutions such as CBRI Roorkee, NIT Hamirpur, National Academy of

Construction, Hyderabad, Civil Defence College, Nagpur and other designated specialised training institutions will be done to build a cadre of 'Master Trainers' in the State.

**4.2.5: Community Capacity Development:** Building the capacity of communities as first responders to disasters is a significant part of the capacity development process. It will include awareness, sensitisation, orientation and developing skills in areas such as SAR, MFA, relief distribution, management of relief camps, and psycho-socio care of communities and community leaders. Assistance from Civil Defence and NGOs/other voluntary organisations such as the Red Cross and self-help groups will be encouraged. Community based organisations such as Mahila Mandals, Yuva Mandals, Market Associations, and 'Faith Based' organisations will be targeted in SAR and MFA training. The overall responsibility to give impetus to leadership and motivation will rest with local authorities, PRIs and ULBs under the overall guidance of State and District authorities.

## Chapter 5: Response & Relief

### 1. Response

**5.1.1: Approach:** Disaster response is a multi-agency function. Well-coordinated, prompt and effective response minimises loss of life and property. On the contrary, delayed response will multiply the ill effects of disaster. The response can be prompt and effective only when there are proper institutionalised planning processes. Plans need testing through mock drills to improve learning. The roles and responsibilities need to be defined well in advance. Chain of command should be well defined and understood. The institutional mechanism needs to ensure an integrated, synergised and proactive approach in dealing with any disaster. This is possible through contemporary forecasting and early warning systems, fail-safe communication, anticipatory deployment of specialised response forces, stockpiling of some relief material, identification of relief camps and temporary shelters. A well-informed and prepared community can mitigate impact of disasters

**5.1.2: Role of State, District and Local Authorities:** DDMA and Local Authorities will monitor and assess any developing situation in order to respond appropriately. They will keep the SDMA apprised of the same. They will also be responsible to constantly evaluate their own capabilities to handle a situation and project anticipated requirements for State/Central resources well in time. Inter-district assistance and cooperation will be encouraged. At the State level, such tie up would be made done with other states. Districts will be supported to develop their response potential progressively in order to complete the process at the earliest. This will comprise training and equipping of response forces, community preparedness, training and creation of response caches at the District level. District level preparations will provide the cutting edge to all response activities. Local authorities, PRIs and ULBs will play a significant role in the entire process, particularly in response and rescue operations, relief and rehabilitation, awareness generation and disaster preparedness, restoration of livelihood options and coordination with NGOs and civil society.

**5.1.3: Role of Nodal and Other Government Department of the State and Centre:** The nodal departments would be notified to deal with different disasters. Nodal departments so notified will chart out detailed response plans which would be integrated with the District and State Response Plans. ESFs would also be notified at all levels. The respective departments would also appoint officers at various levels to perform ESFs. Other departments (other than ESF departments) will perform tasks assigned to them by the 'Incident Commander' or the 'Responsible Officer' from time to time. 'Responsible Officer(s)' may coordinate response through incident response system in the event of any threatening situation or disaster.

**5.1.4: Standard Operating Procedures:** All departments of the State Government, District Authorities, Local Authorities and other stakeholders will prepare SOPs in consonance with this

Policy and State, District and Local Plans applicable to them. SOPs will be prescribed for activities like search and rescue, medical assistance and casualty management evacuation, restoration of essential services and communication at disaster sites, etc. The other important activities are provision of food, drinking water, sanitation, clothing and management of relief camps. Detailed SOPs will also be devised by all concerned for despatch, receipt and deployment of resources received from other sources.

**5.1.5: Levels of Disasters:** The SOPs for determining the levels of disasters and for issuing alerts to electronic messaging systems of various agencies about disasters have been formulated by MHA. These SOPs will be reviewed periodically for disaster response management in case of natural and man-made disasters. The state specific SOPs will also be issued.

## **2. IRS**

**5.2.1:** In view of the paradigm shift towards improved pre-disaster preparedness, there is an urgent need for establishing a proper and a well prepared response system, which would have well thought out pre-designated roles for each member of the response team, systematic and complete planning processes, system of accountability for the IRT members, clear cut chain of command, effective resource management, proper and coordinated communications set up, system for effectively integrating independent agencies into the planning and command structure without infringing on the independence of the concerned agencies, and integration of community resources in the response effort. It is with this view in mind that the IRS has been adopted for the country and NDMA has issued guidelines thereof.

**5.2.2:** The IRS is an effective mechanism for reducing the scope for ad-hoc measures in response. It incorporates all the tasks that may be performed during DM irrespective of their level of complexity. It envisages a composite team with various sections to attend to all the possible response requirements. The IRS identifies and designates officers to perform various duties and get them trained in their respective roles. If IRS is put in place and stakeholders trained and made aware of their roles, it will greatly help in reducing chaos and confusion during the response phase. Everyone will know what needs to be done, who will do it and who is in command, etc. IRS is a flexible system and all the Sections, Branches and Units need not be activated at the same time. Various Sections, Branches and Units need to be activated only as and when they are required.

**5.2.3:** The IRS is an effective mechanism for reducing the scope for ad-hoc measures in response. It incorporates all the tasks that may be performed during DM irrespective of their level of complexity. It envisages a composite team with various Sections to attend to all the possible response requirements. The IRS identifies and designates officers to perform various duties and get them trained in their respective roles. If IRS is put in place and stakeholders trained and made aware of their roles, it will greatly help in reducing chaos and confusion

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**5.2.4:** The IRS system in the state would be grounded properly by imparting training to all the government functionaries and other stakeholders so that the response is coordinated and effective and devoid of chaos. It also needs to be emphasised that this is more importantly a framework for collaboration and synergy. Over-hyping command & control can prove counter-productive.

### **3. Medical Response**

**5.3.1:** The medical response needs to be effective, because the DM plans and deployment of medical resources warrant special attention, both at the state and district level, in most situations. Medical resources would be planned and deployed to the disaster site, irrespective of the administrative boundaries and, therefore, inter-district coordination assumes importance. Air ambulance, mobile medical hospitals and other resources available with the Centre will also be requisitioned in time of emergency if situation so warrants, and, therefore, plans need to be drawn up by state and district medical authorities for administrative arrangements to receive and co-opt the same in the response mechanism. Post-disaster management of health, sanitation and hygiene services is crucial to prevent an outbreak of epidemics and must be planned during pre-disaster phase.

**5.3.2: Animal Care:** It is of importance that animal life is valued and catered to in plans, in consonance with the objectives of Sustainable Development Goals of UNDP. It is necessary to devise appropriate measures to protect animals and find means to shelter and feed them during disasters and their aftermath through a community effort, to the extent possible. Many communities have shown compassion to animals during disasters, and these efforts need to be tapped and formalised in the preparedness plans.

### **4. Information and Media Partnership**

**5.4.1:** Dissemination of accurate information through electronic and print media is very important during disasters to avoid panic and confusion. Regular press briefings by trained disaster management officials are essential. Training in information management and accurate reporting with sensitivity and respect for privacy and custom will be undertaken at all levels.



## 5. Relief

**5.5.1: Approach:** Relief, rehabilitation, reconstruction and recovery are important phases of post disaster response. Relief is no longer perceived only as gratuitous assistance or provision of emergency relief supplies on time. It is on the contrary, viewed as an overarching system of facilitation of assistance to the victims of disaster for their rehabilitation in States and ensuring social safety and security of the affected persons. The relief needs to be prompt, adequate and of approved standards. Guidelines defining minimum standards of relief will be prepared by the UPSDMA as per the guidelines laid down by the NDMA.

**5.5.2: Relief:** Those affected by disasters would need to be provided relief as per the relief code. Displaced population may require to be housed in temporary shelters. DDMA's need to identify locations for setting up temporary camps and make an inventory in advance. Use of premises of educational institutions for setting up relief camps need to be discouraged as it hampers early recovery. Relief camps will have adequate provision of drinking water, and bathing, sanitation and essential health care facilities. PRIs, ULBs, CSOs and CBOs need to be trained in handling and running relief camps. The disaster affected population can also be roped in to manage community kitchens. Guidelines/SOPs for efficient governance of relief camps such as identification cards, rationing, entitlement, management of donations, procurement, packaging, transportation and storage etc. may be issued in advance. Stock-piling of essential relief material at suitable locations is also important. Pre-contracting of relief supplies with agencies is important during pre-disaster phase.

**5.5.3:** In case of a devastating disaster, extreme weather conditions can be life threatening. When the period of stay in temporary shelters is likely to be long and uncertain, construction of site-specific shelters befitting the local environment, ecology and culture, with suitable sanitary facility will be undertaken to ensure a reasonable quality of life to affected people. DDMA's in consultation with the SDMA will plan such shelters which are cost-effective and as per local needs with multi-use potential. Pre-identification of their availability, supply and testing in local conditions will be done.

**5.5.4:** Existing standards of relief need to be reviewed to address the contemporary needs of communities affected by disasters by UPSDMA based on comprehensive feedback and consultations. Relief Codes and Relief Manuals need to be reviewed and DM Codes for prescribing norms and standards and criteria for provision of relief in conformity with the guidelines of NDMA needs to be given. In nutshell, ensuring minimum standards of relief and speedy management of supplies are important features of relief operations.

**5.5.5: Inclusiveness:** The State of Uttar Pradesh recognises the need for equitable and responsive recovery across affected districts and communities, and for clear priorities to promote equitable, pro-poor, pro-vulnerable and gender-sensitive recovery. Recovery planning should include multiple stakeholders in consultative processes across affected locations, sectors

and social groups to gain support for and acceptance of recovery plans. Community participation is seen as fundamental to ensure local acceptance and ownership of recovery efforts and their long-term sustainability. Impartiality and equity and ensuring that all sides receive fair treatment are central to the approach.

**5.5.6: Implementation:** There is a need for multi-hazard preparedness, given the fact that a primary event brings with it an increased risk of secondary events, such as landslides following an earthquake. There is also a need for sharing of resources, leveraging technology, ensuring last mile connectivity, sharing best practices and success stories and involving the common man in everything planned henceforth. Implementation of guidelines and advisories is a major problem. There is need to look at the role of fixing accountability of stakeholders in case of a disaster and gaps in response, preparedness and information dissemination, both in terms of early warning messages and community awareness.

## Chapter 6: Reconstruction, Rehabilitation & Recovery

**6.1.1: Approach:** This phase is the longest and merges with mitigation and preparedness phase of DM cycle. The process must be comprehensive enough with the guiding principle of turning “adversity into opportunities” or more commonly “curse into boon”. A philosophy of “Build back better” will strengthen our mitigation efforts and preparedness. The appropriate choice of technology and project-impact assessment needs careful attention to ensure that the projects do not snowball into any side-effects in physical, socio-cultural or economic environment of communities. Systems for providing psycho-social support and trauma counselling need to be developed for implementation during the reconstruction and recovery phase.

**6.1.2: Reconstruction of Social Infrastructure:** Essential services, social infrastructure and intermediate shelters/camps will be established in the shortest possible time. In terms of permanent reconstruction, ideally the work including construction of houses must be completed within two to three years. State Government and Departments of State Government should create dedicated project teams to speed up the reconstruction process. Involvement of PRIs and ULBs for reconstruction at local level will be encouraged.

**6.1.3: Construction Efforts:** Reconstruction plans and designing of houses needs to be a participatory process involving the government, affected community, NGOs and the corporate sector. After the planning process is over, while owner driven construction is a preferred option, participation of the NGOs and corporate sector will be encouraged. Essential services, social infrastructure and intermediate shelters/camps will be established in the shortest possible time.

**6.1.4: Owner Driven Construction:** Reconstruction plans and designing of houses need to be participatory process involving the affected community, NGO, corporate sector and the Government. Having a clear-cut policy on entitlement, criteria for GIA and land ownership, relocation, exchange of land will facilitate speedy reconstruction. Reconstruction programme will be within the confines and the qualitative specifications laid down by the Government. In order to have acceptability for safe and quality standards, it will be better if safe construction norms, designs and guidelines are finalised during normalcy so that community is aware of them. Services of CBO, CSOs, and faith-based organisation may be taken for this purpose to gain acceptance.

**6.1.5: Restoration/Regeneration of Livelihood:** The GoUP and respective district administration in consultation with state government will have to lay emphasis on the restoration of permanent livelihood of those affected by disasters, with special attention to the needs of women-headed households, artisans, farmers and people belonging to marginalised and vulnerable sections of society.

**6.1.6: Linking Recovery with Safe Development/Reconstruction – ‘Building back Better’:** It will be ensured that the post disaster development/reconstruction does not end up in re-building existing vulnerabilities. The reconstruction phase would be utilised to incorporate building codes, safe construction practices and zoning regulations. Contingency plans for reconstruction in highly disaster-prone areas needs to be drawn out during the period of normalcy, which may include architectural and structural designs in consultation with the various stakeholders. Emphasis will be laid on plugging the gaps in the social and economic infrastructure and infirmities in the backward and forward linkages. Efforts will be made to support and enhance the viability of livelihood systems, education, health care facilities, care of the elderly, women and children, etc. Other aspects warranting attention will be roads, housing, drinking water sources, provision for sanitary facilities, availability of credit, supply of agricultural inputs, upgradation of technologies in the on-farm and off-farm activities, storage, processing, marketing, etc.

## Chapter 7: Financial Arrangements

**7.1.1: Approach:** With change of paradigm shift in DM from the relief-centric to proactive approach of prevention, mitigation, capacity building, preparedness, response, evacuation, rescue, relief, rehabilitation and reconstruction, effort would be made to mainstream and integrate Disaster Risk Reduction and emergency response in development process, plans and programmes of the Government at all levels. This would be done by involving all the stakeholders – Government organisations, research and academic institutions, private sector, industries, civil society organisations and community. SDMA and DDMA will ensure mainstreaming of disaster risk reduction in developmental agenda of all existing and new developmental programmes and projects, which shall incorporate disaster resilient specifications in design and construction. Due weightage will be given to these factors while allocating resources. Projects which help in reducing existing vulnerability of the area would be given preference over projects which are likely to enhance it.

**7.1.2: Disaster Response and Mitigation Funds:** State disaster response funds and state disaster mitigation funds would be constituted at the State level. District disaster response funds and district disaster mitigation funds would be created at the District Level as mandated in the Act. The disaster response funds at the State and district level would be applied by the SDMA and respective DDMA towards meeting expenses for emergency response, relief, rehabilitation in accordance with the guidelines and norms laid down by the Government of India. The mitigation funds shall be applied by the SDMA and DDMA respectively for the purpose of mitigation.

**7.1.3: Responsibilities of the State Departments and Agencies:** All State Government Departments, Boards, Corporations, PRIs and ULBS will prepare their DM plans including the financial projections to support these plans. The necessary financial allocations will be made as part of their annual budgetary allocations and ongoing programmes. They will also identify mitigation projects and project them for funding in consultation with the SDMA/DDMA to the appropriate funding agency. The guidelines issued by the NDMA vis a vis various disaster may be consulted while preparing mitigation projects.

**7.1.4: Techno-Financial Regime:** Considering that the assistance provided by Government for rescue, relief, rehabilitation and reconstruction needs, cannot compensate for massive losses on account of disasters, new financial tools such as catastrophe risk financing, risk insurance, catastrophe bonds, micro-finance and insurance etc. will be promoted with innovative fiscal incentives to cover such losses of individuals, communities and the corporate sector.

In this regard, the Environmental Relief Fund under the Public Liability Insurance Act 1991, enacted for providing relief to chemical accident victims is worth mentioning. Some financial practices such as disaster risk insurance, micro-finance and micro-insurance, warranty on newly constructed houses and structures and linking safe construction with home loans will be considered for adoption.

## Chapter 8: Knowledge Management, Research & Development

**8.1.1: Approach:** There is a need to create a network of knowledge institutions in the field of DM, to share their experiences and knowledge. While knowledge creation will be primarily carried out in specialised domains by nodal institutions, the SIDM in close consultation with SDMA and other similar institutions for Environment, Science and Technology etc. will play an important role in knowledge synthesis, data management and dissemination amongst its clientele groups, especially other training institutions.

**8.1.2: Knowledge Institutions:** The SIDM, SDMA and other institutions will collaborate and bring together academic and training institutions at the national, regional and international levels. These institutions will form the knowledge repository in DM, and also strive to enhance the knowledge base. Tie up with NITs, IITs, CBRI, SASE, ICIMOD, GSI, CWC, IMD, Wadia Institute of Himalayan Geology Dehradun, UN Agencies and other national and international agencies dealing with emergency response will be done to utilise their experience and knowledge for DM in UP.

**8.1.3: Dissemination of Knowledge:** In acknowledgment of the need for a knowledge sharing platform on DM, and to facilitate interaction and dialogue with related areas of expertise, the India Disaster Knowledge Network Portal has been set up. The portal serves as a tool to collect, collate and disseminate information related to DM. It connects all Government Departments, statutory agencies, research organisations/institutions and humanitarian organisations to share collectively and individually their knowledge and technical expertise. ICT would be utilised to disseminate knowledge to the stakeholder so that they can benefit from it.

**8.1.4: Documentation of Best Practices and Research:** Indigenous technical knowledge would be documented and promoted. In the immediate aftermath of any disaster or incident, field studies will be carried out with the help of experts wherever needed as an institutional measure. These studies will concentrate on identifying gaps in the existing prevention and mitigation measures and evaluate the status of preparedness and response. Similarly, lessons of past disasters will also be compiled and documented. The recovery and reconstruction process will also be analysed for further refining DM processes and training needs.

**8.1.5: Research and Development:** The entire DM architecture needs to be supported by a solid foundation of front-line R&D efforts, offering sound and state-of-the-art science and technology options in a user-friendly manner. A pro-active strategy to enhance mutual reinforcement and synergy amongst the various groups and institutions working in the field of DM will be recognised. Pooling and sharing of perspectives, information and expertise will be promoted by encouraging such efforts. The identification of trans-disciplinary concerns through a process of 'integration' of the talent pool groups will be facilitated and addressed by a standing mechanism at the State level i.e. SIDM.



Indigenous knowledge and practices would be tested and validated. Close interaction with all the stakeholders will be maintained for the identification of needs and promotion of research. The research on cross-cutting themes including technological and man-made disasters will be promoted in addition to natural disasters. Research and Development in areas such as construction technologies, SAR equipment, micro-zonation and scenario development based on simulation studies will also be encouraged to assess the short-term and long-term consequences of these disasters.

## Chapter 9: Conclusion

**9.1.1:** The crux of DM plans rests with capacity development at all levels which has been discussed in parts in chapters above. However, a comprehensive and robust plan needs to be evolved by various stakeholders in more innovative ways. Building the capacity of communities, being first responders to disasters, is a significant part of the capacity development process. It will include awareness, sensitisation, orientation and developing skills of communities and community leaders. The Education Department needs to focus on revision of curricula in graduate and post graduate courses in Government and private professional institutions, which should be more aligned and related to the needs of DM. On similar lines, the contents of syllabus in schools need to include aspects of DM.

**9.1.2:** The Uttar Pradesh Disaster Management Policy draws its framework from the National Disaster Management Plan 2016, National Disaster Management Policy 2009, Sendai Framework for Disaster Risk Reduction 2015, Paris Agreement on Climate Change 2016 and PM's 10-point agenda on DRR. Notwithstanding the above, the focus has been to formulate the policy guidelines keeping in view the existing dynamics of the state. There are peculiarities of the state which has direct bearing on exposure to hazards and its consequences which need to be taken into account.

**9.1.3:** The Uttar Pradesh Disaster Management Policy takes into account projects which would be completed in short, medium and long term of five, ten- and fifteen-years period, with the possibility of certain amount of time overlap that necessitates projects be undertaken concurrently rather than sequentially. The policy also provides flexibility and dynamism in order to factor in new and evolving dimensions/elements in the overall scheme of disaster management.

## ABBREVIATIONS

ARMVs	–	Accident Relief Medical Vans
BIS	–	Bureau of Indian Standards
CBOs	–	Community Based Organisations
CBRN	–	Chemical, Biological, Radiological and Nuclear
CPMF	-	Central Para Military Force
CSR	–	Corporate Social Responsibility
CRF	–	Calamity Relief Fund
CWC	–	Central Water Commission
DDMA	–	District Disaster Management Authority
DCMC	–	District Crisis Management Committee
DiDRM	-	Disaster Inclusive Disaster Risk Management
DM	–	Disaster Management
DMC	–	Disaster Management Cell
DRR	-	Disaster Risk Reduction
DRM	-	Disaster Risk Mitigation
DRSC	-	Disaster Resilient Smart Cities
DSS	-	Decision Support System
ESF	-	Emergency Support Functions
GIS	–	Geographic Information System
GSI	–	Geological Survey of India
GoUP	-	Government of Uttar Pradesh
GoI	–	Government of India
GPS	–	Global Positioning System
HPC	–	High Powered Committee
IAY	–	Indira Awas Yojana
IAG	–	Inter Agency Group
ICIMOD	–	International Centre for Integrated Mountain Development

IRS	–	Incident Response System
ICT	–	Information and Communication Technology
IDRN	–	India Disaster Resource Network
IDKN	–	India Disaster Knowledge Network
IMD	–	Indian Meteorology Department
IITs	–	Indian Institutes of Technology
IoT	-	Internet of Things
IT	–	Information Technology
ITIs	–	Industrial Training Institutes
ITK	–	Indigenous Technical Knowledge
MFA	–	Medical First Aid
MHA	–	Ministry of Home Affairs
NCC	–	National Cadet Corps
NCCF	–	National Calamity Contingency Fund
NCCMC	-	National Crisis Management Committee
NDEM	–	National Database for Emergency Management
NDMA	–	National Disaster Management Authority
NDMF	–	National Disaster Mitigation Fun
NDRF	–	National Disaster Response Force
NEC	–	National Executive Committee
NGOs	–	Non-Governmental Organisations
NIDM	–	National Institute of Disaster Management
NITs	–	National Institutes of Technology
NSDI	–	National Spatial Data Infrastructure
NSS	–	National Service Scheme
NYKS	–	Nehru Yuva Kendra Sangathan
PPP	–	Public-Private Partnership
PRIs	–	Panchayati Raj Institutions
R&D	–	Research and Development

RH	–	Reproductive Health
SAARC	–	South Asian Association for Regional Cooperation
SAR	–	Search and Rescue
SASE	–	Snow and Avalanche Study Establishment
SCMC	–	State Crisis Management Committee
SDMA	–	State Disaster Management Authority
SIDM	–	State Institute of Disaster Management
SDMP	-	State Disaster Management Policy
SDMF	-	State Disaster Mitigation Fund
SDRF	–	State Disaster Response Force
SEC	–	State Executive Committee
SRC	-	State Relief Commissioner
SOPs	–	Standard Operating Procedures
ULBs	–	Urban Local Bodies
UP	–	Uttar Pradesh
UN	–	United Nations

## Common Hazards & Remedial Action Plan

**Common Hazards in the State:** There are several common hazards which the state of Uttar Pradesh is exposed to with the potential to cause disasters of varying severity, when interacting with vulnerabilities. Some of those having severe consequences for the state of Uttar Pradesh are enumerated below: -

**Floods:** This is a known annually recurring hazard of the state due to overflowing of its main rivers like Ganga, Yamuna, Sharda, Rapti, Ghaghra, Gomti and Gandak resulting in colossal loss of life of inhabitants and damage/destruction of economic assets. Major flood management efforts have been undertaken to mitigate the risk in the past, however, more needs to be done. Most of these floods occur due to the monsoon rains and overflowing of rivers during the rainy periods. Release of water from Nepal due to excessive rains and overflowing of rivers during monsoon months has further compounded the problem of flooding in eastern part of the state.

- In the short-term, a realistic and pragmatic analysis of vulnerabilities of susceptible areas (preparation of vulnerability map), coupled with mitigation efforts, both to strengthen the existing infrastructure and also planning and undertaking new projects, requires attention. Evolving designs of shelters in flood prone areas and study for creating support system of people living in such areas would remain short-term priority. In the mid-term, execution of flood protection and drainage improvement schemes of major rivers of the state needs to be undertaken, besides strengthening the existing infrastructure and constructing new ones.
- In longer-term, the emphasis should be to implement flood management measures along with developmental projects. It is a well-known fact that water is a precious commodity and needs to be tapped. With a long-term view, the subject needs to be researched on how best this excess water be made use of; may be by creating suitable reservoirs or tunnelling/ channelling to areas with deficient rainfall. Study, research and planning work for major flood control and prevention measures would also form part of this phase of flood management.

**Drought/Shortage of Rains:** During the highly variable monsoon season causes drought in the state, though Western Uttar Pradesh remains more susceptible. But it is seen that other parts of the state are also quite affected.

- In the short-term or as a regular ongoing practice, improve the drought forecast, and assessment of water deficit areas. The relevant departments and officials will ensure that food grains and essentials commodities and water are supplied uninterrupted to all needy population of state as a matter of immediate concern. District magistrates will ensure that emergency relief and relief plans are executed timely and in efficient manner in conjunction with the SRC.
- In the mid-term, agricultural research focused on drought prone areas, arid/semi-arid tracts, and dry land farming areas, needs to be undertaken. Research related to water conservation and management assumes great significance. Preparation of detailed advisories on water conservation and crop management measures based on drought and water deficit in consultation with experts needs attention.
- In the longer-term, responsibility be assigned to academic institutions (IITs) to undertake the projects of interlinking susceptible drought and flood areas so as to utilise excess water appropriately. For sustained growth and development and as a long-term perspective, the Government needs to put in place a practical action-plan to invest in the field of R & D in conjunction with academia, scientists and local agricultural communities. The aim being to cope with drought by developing drought resistant crops, protect livestock and conserving precious water.

**Earthquakes:** In recent times, the population of Uttar Pradesh has increased significantly. An earthquake near an urban locality of the state has the potential to cause severe damage. Most of the state falls in the seismic zone III and IV with classification of high damage risk and moderate damage risk respectively. Though, one may not witness or experience earthquake in a life time, this hazard carries the potential of widespread damage and destruction, and therefore needs appropriate attention. The devastation of Bhuj and Latur is still fresh in our minds and lessons learnt from these catastrophic disasters are required to be built into state plans and mitigation strategies.

- In short-term or as a regular ongoing feature, awareness and education of communities, periodic mock drills to practice building evacuation plans, “drop, hold and cover drill” etc. will have to be incorporated in state DM schemes. It needs to be ensured that earthquake resistant features are incorporated in planning and execution of social housing schemes. Compliance with relevant building codes needs to be adhered to.



Audit of all existing structures will be carried out to ensure that buildings and other structures are as per the building codes and adhere to minimum seismic standards, and action taken to replace or retrofit the existing structures.

- In mid-term, strengthening and seismic retrofitting as per recommendations of safety audits in all Government departments, agencies, public utilities, schools, colleges, community halls, etc. needs attention. Mechanisms are to be established for constant consultation with experts and stakeholders. Strengthening ability of communities to manage and cope with disasters based on a multi-hazard approach is the way forward. Training for panchayats, Home Guard, NCC, NSS, Youth and local community organizations needs to be planned.
- For the long-term, promote the use of insurance/risk transfer as per policy enunciated in the National Disaster Management Plan.

**Fire/Forest Fire:** This is a most common hazard and if not attended/responded promptly, results in substantial loss of life and damage to property. It may occur in buildings, fields, forests and industries. Wildfires/forest fires will least expose human life to risk but results in tremendous environmental damage to forests which is essential for human living and habitation of animals. Human carelessness is also major contributory factor to forest fire and necessary measures at local/district level need to be put in place.

- In the short-term or as a regular ongoing practice, building evacuation drills are to be practiced periodically in community places such as malls, schools, hospitals etc. The state administration will ensure that both “passive fire protection” and “active fire protection” are in place in urban buildings and building codes are adhered to regarding fire protection. Controlled burning, which minimizes inflammable material in the vicinity for potential wildfire, are to be implemented. The latest forest fire fighting technologies available worldwide need to be dovetailed in state/district DM schemes. Stringent fire protection laws are required to be built in and executed ruthlessly in buildings, schools, community places, hospitals, malls etc.
- In the mid-term, installation of CCTV cameras at suitable locations and satellite-based observation stations will provide real time or near real time information for prompt response to prevent spread of wildfire and must be made use of. Mapping of hazardous sites that pose fire and explosion risks in urban areas need to be carried out and constantly updated.
- In the long-term, latest evacuation technology in case of fire like rubberized collapsible ramps, chutes etc. be studied and installed in community buildings, schools, hospitals, malls etc., wherever possible. Establishment of fire posts, on the lines of police posts, may be thought of at suitable places both in urban as well as rural areas.

**Epidemics:** The World Health Organization defines epidemic as “an unusually large and unexpected increase in number of cases of disease for a given time, place or period”. The commonly occurring human epidemics in the state of Uttar Pradesh are Cholera, Measles, Acute Encephalitis, Typhoid, HIV/AIDS, Dysentery and Malaria. These epidemic situations and their counter measures should not be seen in isolation but need to be dovetailed in state DM plans for floods as well as drought, as these may occur as a secondary hazard of floods or drought.

- In the short-term or as a regular ongoing practice, district medical officers will ensure that necessary medical arrangements are in place, and requisite medicines and vaccinations required for specific epidemic are catered to tide over an epidemic. The district veterinary officials will ensure that similar arrangements exist to ensure no or minimum loss of animal life. Eastern Uttar Pradesh has been subjected to Acute Encephalitis annually coinciding with onset of monsoon or post monsoon period. That all efforts, to prevent this epidemic from spreading, required to be taken on a war footing to save precious lives.
- In mid-and long-term, study and detailed research work in collaboration with the global institutes, would be required to be undertaken with an aim to minimize impact of epidemics and to prevent their occurrence.

**Pest Menace:** The threat posed to crop production by plant pests and diseases is one the key factors that could lead to severe shortage of food grains, colossal losses to the farmers and threaten to destabilize food security. The Government of India, Directorate of Plant Protection, Quarantine, & Storage have already documented the “Strengthening and Modernization of Plants Quarantine Facilities in India”. This needs to be seen in the context of Uttar Pradesh and applied where necessary. Integrated Pest Management Program of the Directorate needs to be applied in letter and spirit. More Central Integrated Pest Management Centres, in addition to three already existing, may be established in consultation with Centre for ease of function as a long-term project.

**Rail/Road Accidents:** Rail and road accidents are common hazards and are unpredictable unlike floods and need a multifaceted approach to respond. Also, the response mechanism would be different for goods train/truck/lorry which may be transporting inflammable or hazardous/chemical material and for the passengers’ train/bus. Plans will be drawn up at local/district level which would also incorporate availability, earmarking and mobilisation of heavy equipment, stores and machinery to the site with least possible delay. It is incumbent that local communities, including the medical set up, be amalgamated in the overall scheme of search, rescue and immediate relief, being first responders to the disaster before the Government machinery arrives and takes control of situation. Necessary training and awareness in this regard be imparted to the locals with periodic rehearsals so as to execute the initial response with minimum loss of time and save maximum lives.

In case of accidents of trains/road with non-hazardous material, it would essentially be clearing, and restoration of transportation means, however, measures need to be put in place at the earliest to prevent any pilferage or looting. In case of accident of transportation of hazardous goods, there may be necessity to quarantine or even evacuation of a particular area which needs to be built into the plans.

**Climate Control:** Climate change is a global phenomenon and needs to be addressed in that perspective. Any strategy to deal with the subject has to be in conjunction with the National Action Plan on Climate Change (NAPCC). It is imperative that State Specific Action Plan (SSAP) for Uttar Pradesh be formulated/revised on priority in sync with the NAPCC. Paris agreement of 2015 lays down certain norms for member countries about reduction in the level of greenhouse gas emission. There are relevant sections which need to be studied and applied in the state. Climate change can be attributed to many “natural” and “anthropogenic” (human-induced) factors. Human activity has increased greenhouse gases in the atmosphere since the Industrial Revolution, leading to more heat retention and an increase in surface temperatures. Deforestation in parts of Uttar Pradesh has led to changes in the amount of sunlight reflected from the ground back into space. In short term or as a regular ongoing practice, stringent laws for industrial emissions and river discharges are not only required to be in place but made effective. There is a need for positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and for conservation and sustainable management of forests. Contamination of rivers in the state due to discharge of untreated industrial waste is a cause to worry and requires high priority. Necessary collaboration for public, private and NGOs will be thought of and their contribution in the field will be explored as a mid and long-term activities. Uttar Pradesh Pollution Control Board need to be given more powers in this regard, if required.

Notwithstanding the subject being a global concern, the GoUP will focus in areas of development and research in the field of renewable sources such as solar and wind energy with a long-term view of replacing fossil-based fuel. Focus needs to be accorded to futuristic projects such as building codes for urban area development with aim of energy conservation, energy trading certificates for the industries something akin to carbon trading, legislating state water policy in line with the National Water Mission to deal with the water scarcity duly dovetailing river clean-up Action Plan, and afforestation and control on deforestation with the aim to increase forest cover by 10% in the coming decade. Innovative ways of funding the above projects need to be thought of to meet the challenges of resource crunch.

**Industrial Accident Disasters:** Uttar Pradesh has a large industrial base. Sonbhadra, Mirzapur, Ghaziabad, Kanpur, Gautam Buddha Nagar, Lucknow, Balrampur and Agra are some of the major industrial hubs. Stringent laws/regulations need to be applied on industries in order to mitigate adverse consequences of any industrial disaster occurring in the state.

Evacuation plans in the event of any accident or gas/chemical leaks in industries needs to be very pragmatically drawn and well-rehearsed with the population in the proximity of such factories. A very exhaustive study of “Environment Impact Assessment” (EIA) in case of setting up of new industries is required to be conducted prior to rendering approval.

**Heat Waves:** Heat wave conditions frequently occur in some part of the State, predominantly Western Uttar Pradesh, due to sparser showers during pre-monsoon and monsoon period coupled with rise in temperatures to more than 46 degrees C. It is imperative that necessary plans be drawn, and arrangements made beforehand of measures such as availability of safe and potable drinking water at public places, oral dehydration salt, intravenous fluids etc. Plans for emergency medical camps be made and established, where required. The public needs to be sensitised and made aware of possible effects of heat waves and remedial measures.

**Cold Waves:** Uttar Pradesh is exposed to extreme temperatures ranging from zero degree C to 50 degrees C. Dense fog coupled with very low temperature is a recurring annual phenomenon causing many losses of life and disruption to routine economic and other activities. Concerned Government departments will ensure that necessary mitigation efforts are realised, and sufferings of population are reduced to negligible level.

**Hailstorms:** This is another common feature in the state which results in losses to life, damage to property and crops, and would need intervention of relevant Government machinery to mitigate the adverse effects.

**Crowd Management during Festivals:** In the State of Uttar Pradesh many religious festivals are routinely celebrated with congregation of large crowds, at times in a relatively constricted space. This necessitates efficient and effective management of crowd by the organizers. It also implies that planners at various levels identify the choke points along the approaches to the event site and take appropriate action beforehand. Lessons learnt of the stampede at Allahabad Railway Station during 2013 Maha Kumbh, resulting into death of 42 persons, be incorporated into state and district plans of such events.

### Relevant Extracts: SFDRR, Paris Agreement, SDG 2030 & PM's 10-Point Agenda

#### Sendai Framework:

The Sendai Framework for DRR (SFDRR) was adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015. SFDRR improves on HFA by identifying the gaps, good lessons learned and future challenges. Key features of SFDRR are:

- Shifting focus from disaster management to disaster risk management by focusing on the underlying drivers of risk.
- For the first time one global goal and outcome is defined.
- Seven global targets are defined to support the assessment of global progress in achieving the outcome and goal of the present Framework.
- The Framework emphasizes the need of strengthening the disaster risk governance by placing governments at the centre of disaster risk reduction.
- A wider scope of DRR focussing on both natural & man-made hazards and related environmental, technological and biological hazards and risks.
- A set of guiding principles are provided for the implementation of Framework.
- Learning from the experience gained by the implementation of HFA and to achieve the expected outcome & goal, the Framework prioritizes the actions into four priority areas.
- Along with social vulnerability, great emphasis is given to environmental aspects by strongly recognizing that implementation of integrated environmental and natural resource management techniques is needed for disaster reduction.
- DRR is identified as a policy concern which cuts across many sectors, including health and education.

#### Paris Agreement:

- The Paris deal is the world's first comprehensive climate agreement. The aim of the agreement is to decrease global warming described in its Article 2, "enhancing the implementation" of the UNFCCC through:
- Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

- Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;
- Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.
- This strategy involved energy and climate policy including the so called 20/20/20 targets, namely the reduction of carbon dioxide (CO<sub>2</sub>) emissions by 20%, the increase of renewable energy market share to 20%, and a 20% increase in energy efficiency.
- Countries furthermore aim to reach "global peaking of greenhouse gas emissions as soon as possible". The agreement has been described as an incentive for and driver of fossil fuel divestment.

### **SDGs 2030:**

Goals, paradigms and the power to transcend the paradigms are seen as being the most effective leverage points to intervene in a system in order to transform it. Keeping in line with this principle, in September 2015, 193 countries became signatories to the 2030 Agenda for Sustainable Development which puts forth 17 Sustainable Development Goals (SDGs) to direct investments and actions towards sustainable development outcomes over the next 15 years. These act as successors to the United Nation's eight Millennium Development Goals (MDGs) that were adopted for the period 2000–2015. The Signatory Nations have committed to report their baselines and subsequent development trajectories across a set of select and suitable indicators. Although this reporting is required largely at the national level, effective implementation, monitoring and evaluation of any significant investments require measurements at a local level. While there is a dedicated goal for urban areas (SDG 11), simply focusing on this goal would be insufficient to address key development outcomes for urban areas that span many SDGs and sectors to enable accelerated implementation.

Recognising the importance of Indian urbanisation and disaggregating SDGs, targets and indicators for urban areas is necessary to enable localisation and to assist in implementation. This document is an attempt to recognise the current status of sustainable development in India, using select indicators that are largely representative and practical to gather. It situates Indian states and localises metrics for their urban areas in a national and regional context. Specifically, it aims to analyse the available information to estimate if India is pivoting appropriately to achieve these goals.

This goal-based analysis suggests that urban areas in India are performing better on five out of ten goals (for which urban disaggregated analysis was possible due to availability of data), except Goal 3 (health) where it is performing worse.

It is also evident from the comparisons that urban areas are only doing marginally better than the states' overall averages on Goal 2 (hunger), Goal 4 (education), Goal 8 (economic development), and Goal 10 (equality). This substantiates the development discourses on the growing challenges of urban development in the context of growing urbanisation. For 6 of the 17 goals (Goals 9, 12, 13, 14, 15, and 16), there is a paucity of relevant data available for urban areas to conduct the analysis.

Further, looking at the more nuanced individual indicators and their outcomes for each, it becomes evident that the urban area picture is not that rosy. For instance, there are proportionally more people living below the poverty line than state averages. Also, women's economic status has worse outcomes in urban areas, even though the overall goal on poverty is biased towards urban areas. While the overall goal indices may be useful for an overview and purposes of cross-comparison, it is critical to use a disaggregated analysis of the indicators presented in this report to direct specific investments and monitoring frameworks.

The analysis highlights specific metrics where urban areas are currently performing better, and others that need urgent local attention. The analysis shows that urban areas in Himachal Pradesh, Goa, Sikkim, Delhi and Kerala are performing better than urban areas in other states. Bihar, Uttar Pradesh, Chhattisgarh, Madhya Pradesh (MP) and West Bengal (WB), on the other hand, are among the worst performing urban areas. Overall, Goa, Delhi, Kerala, Punjab and Sikkim are amongst the better performing states, and Bihar, Uttar Pradesh (UP), Jharkhand, Arunachal Pradesh and Assam are the most challenged across Indian States around sustainable urban development, and potentially require immediate attention.

Among these 17 goals was also a standalone goal on Sustainable Cities (SDG 11). The core rationale for this goal was the acceptance that our world has by now largely urbanised and more people live in urban areas than not. It also set forth an understanding that focusing on cities could help make the implementation of all other goals more achievable once devolved and measured at a localised scale. This sub-national place-based approach is a unique attribute of the SDGs and highlights the challenge of meeting the objective of no one and no place left behind.

#### **The 17 SDGs Goals:**

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation

- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions
- GOAL 17: Partnerships to achieve the Goal

### **Core Humanitarian Standards for Quality Management**

- Communities and people affected by crisis receive assistance appropriate and relevant to their needs.
- Communities and people affected by crisis have access to the humanitarian assistance they need at the right time.
- Communities and people affected by crisis are not negatively affected and are more prepared, resilient and less at-risk as a result of humanitarian action.
- Communities and people affected by crisis know their rights and entitlements and have access to information and participate in decisions that affect them.
- Communities and people affected by crisis have access to safe and responsive mechanisms to handle complaints
- Communities and people affected by crisis receive coordinated, complementary assistance.
- Communities and people affected by crisis can expect delivery of improved assistance as organisations learn from experience and reflection.
- Communities and people affected by crisis receive the assistance they require from competent and well-managed staff and volunteers.
- Communities and people affected by crisis can expect that the organisations assisting them are managing resources effectively, efficiently and ethically.



## Prime Minister's 10-Point DRR Agenda

The Prime Minister had listed a 10-Point agenda during his inaugural speech at the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2016, which was held in New Delhi in November 2016. The all-inclusive agenda presents a holistic approach to disaster risk management and addresses a whole range of issues, from community preparedness to use of technology and international cooperation. The Prime Minister's 10-point agenda on DRR is -

- **All development sectors must imbibe the principles of disaster risk management:** Mainstreaming Disaster Risk Reduction concerns in development planning can guide the prioritized and optimized allocation of resources towards the protection of life and assets, restoration of productive systems and livelihoods, regaining market access, rebuilding social and human capital and physical and psychological health. Development plans, therefore, take on a critical role in disaster risk management. The principle to inculcate the 'culture of safety and prevention (CUSP)' would be fundamental to imbibe DRM in sector's planning and actions.
- **Work towards risk coverage for all**-starting from poor households to SMEs to multi-national corporations to nation states. Risk transfer tools and insurance schemes are increasingly playing visible role as a means of providing economic security against natural disasters. The Insurance Regulatory and Development Authority (IRDA), India has framed micro insurance regulations that allow distribution of micro insurance products in the state. The regulations cover insurance for personal accidents, health care for individual and family and assets like houses, livestock, tools and others.
- **Encourage greater involvement and leadership of women** in disaster risk management. The increased vulnerability of women is primarily due to biological reasons, but social and cultural factors are also associated which are often rooted through the community. Women and their participation are critical to effectively managing disaster risk and designing, resourcing and implementing gender-sensitive disaster risk reduction policies, plans and programmes. Adequate capacity building measures need to be taken to empower women for preparedness as well as build their capacity for alternate livelihood means in post-disaster situations
- **Invest in risk mapping globally:** For mapping risks related to hazards like earthquakes we have accepted standards and parameters. By categorizing regions according to their level of vulnerability, it is possible to design and redesign/modify the developmental plans and activities over land.
- **Leverage technology to enhance the efficiency of our disaster risk management efforts:** The use of technology may emerge as a key to planning sustainable and disaster resilience infrastructure and systems. Technology plays a crucial role with satellite-based Geographic Information System and computer simulations providing

for disaster mapping, vulnerability assessment and disaster response as well as preparedness. Effective actions when combined with right forecasting and prompt warnings can definitely avert large scale damages and destructions occurring through natural disasters particularly hydro-meteorological disasters. Equally important is not to forget and miss the potential of traditional knowledge and local or indigenous innovations, which may offer many cost-effective solutions in risk mitigation.

- **Develop a network of universities** to work on disaster issues. Research Programmes in Universities are not synchronized with the principle mainstream of DRM, and programmes are designed on lines of other conventional disciplines. Therefore, their outcomes are seldom utilised in DRM improvement in planning and practice.
- **Utilise the opportunities provided by social media and mobile technologies:** The world is witnessing an increasing and pertinent role of social media during times of disasters and crisis. It has become a vital tool in helping government agencies and other rescue organizations by disseminating information to wider audiences. Each disaster finds its space on social media for information exchange and plays an important role in DRR by informing and raising public awareness to forecasting of disasters.
- **Build on local capacity and initiative:** The approach is to build people's capacity of coping with disaster risks and reducing their vulnerability, thereby developing safer and more resilient communities. Measures include developing district wide institutional networks, improving understanding on disaster risk and sensitive land use, maintain rosters of skilled volunteers e.g. ex-defence personnel
- **Opportunity to learn from a disaster must not be wasted:** After every disaster there are papers on lessons that are rarely applied. Major disasters occur time and again, necessitating emergency measures. Comprising success stories as well as failures, these relief and reconstruction measures hold valuable lessons for the future. However, much of the experiences, insights and lessons are lost as time passes because they are not documented in a way that can be retrieved and utilized when needed.
- **Bring about greater cohesion in international response** to disasters.



