Uttar Pradesh State Disaster Management Plan

2022

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Abbreviations

AAI	-	Airports Authority of India
ACS	-	Additional Chief Secretary
ADM	-	Additional District Magistrate
AES	-	Acute Encephalitis Syndrome
ANM	-	Auxiliary Nurse Midwife
AQI	-	Air Quality Index
ASHA	-	Accredited Social Health Activist
AWC	-	Anganwadi Centre
AWW	-	Anganwadi Worker
BEE	-	Bureau of Energy Efficiency
BIS	-	Bureau of Indian Standards
BMTPC	-	Building Materials and Technology Promotion Council
BSA	-	Basic Shiksha Adhikari
BSNL	-	Bharat Sanchar Nigam Limited
CAGR	-	Compounded Annual Growth Rate
CASPER	-	Community Assessment for Public Health Emergency Response
CBO	-	Community Based Organization
CCA	-	Climate Change Adaptation
CHC	-	Community Health Centre
COP	-	Conference of the Parties
CRIDA	-	Central Research Institute for Dryland Agriculture
CSO	-	Civil Society Organisation
CSR	-	Corporate Social Responsibility
CSS	-	Centrally Sponsored Schemes
CWC	-	Central Water Commission
DCPC	-	District Child Protection Committee
DCPU	-	District Child Protection Unit
DDMA	-	District Disaster Management Authority
DDMP	-	District Disaster Management Plan
DEOC	-	District Emergency Operations Centre
DGFASLI	-	Directorate General, Factory Advice and Labour Institutes
DH	-	District Hospital
DIET	-	District Institute of Education and Training
DISH	-	Directorate of Industrial Safety and Health
DM	-	Disaster Management
DoEFCC	-	Department of Environment, Forest and Climate Change
DoMHFW	-	Department of Medical Health and Family Welfare
DOT	-	Department of Telecommunications
DRM	-	Disaster Risk Management
DRR	-	Disaster Risk Reduction
DUDA	-	District Urban Development Agency
DWCD	-	Department of Women and Child Development
EMR	-	Emergency Medical Response
EOC	-	Emergency Operation Centre
ESF	-	Emergency Support Function
F&ES	-	Fire And Emergency Services
FAP	-	Flood Action Plan
FMISC	-	Flood Management Information System Centre
GACC	-	Global Agreement on Climate Change
GIS	-	Geographic Information System

GP	-	Gram Panchayat
GPDP	-	Gram Panchayat Development Plan
GPS	-	Global Positioning System
GSDP	-	Gross State Domestic Product
GSI	-	Geological Survey of India
HAZCHEM	-	Hazardous Chemical (Codes)
HAZMAT	-	Hazardous Materials
HFL	-	Highest Flood Level
HMIS	-	Health Management Information System
HRIMS	-	Health Risk Information Management System
HRVA	-	Hazard Risk Vulnerability Analysis
HRVCA	-	Hazard, Risk, Vulnerability and Capacity Analysis
HUPD	-	Housing and Urban Planning Department
ICAR	-	Indian Council of Agricultural Research
ICDS	-	Integrated Child Development Services
ICT	-	Information and Communications Technology
IDRN	-	India Disaster Resources Network
IEC	-	Information, Education and Communication
IMD	-	Indian Meteorological Department
IRS	-	Incident Response System
IRT	-	Incident Response Team
ISR	-	Institute of Seismological Research
IT	-	Information Technology
IVRI	-	Indian Veterinary Research Institute
IWDP	-	Integrated Watershed Development Programme
IWRD	-	Irrigation and Water Resources Department
JE	-	Japanese Encephalitis
JJ	-	Juvenile Justice
KVK	-	Krishi Vigyan Kendra
LCO	-	Labour Commissioner Organization
LPG	-	Liquid Petroleum Gas
LYD	-	Lower Yamuna Division
MAH	-	Major Accident Hazardous
MGD	-	Middle Ganga Division
MGNREGA	-	Mahatma Gandhi National Rural Employment Guarantee Act
MHA	-	Ministry of Home Affairs
MIS	-	Management Information System
MOSPI	-	Ministry of Statistics and Programme Implementation
MPLADS	-	Members of Parliament Local Area Development Scheme
MSIHC	-	Manufacture, Storage, and Import of Hazardous Chemicals
NABARD	-	National Bank for Agriculture and Rural Development
NADCP	-	National Animal Disease Control Programme
NCC	-	National Cadet Corps
NCR	-	National Capital Region
NDEM	-	National Database for Emergency Management
NDMA	-	National Disaster Management Authority
NDMF	-	National Disaster Mitigation Fund
NDMP	-	National Disaster Management Plan
NDRF	-	National Disaster Response Force
NDRF	-	National Disaster Response Fund
NDRMF	-	National Disaster Risk Management Fund

NERS	-	National Emergency Response System
NFS	-	National Food Security Act
NGO	-	Non-Governmental Organization
NHM	-	National Health Mission
NIC	-	National Informatics Centre
NIDM	-	National Institute of Disaster Management
NPDM	-	National Policy on Disaster Management
NRSC	-	National Remote Sensing Centre
NSS	-	National Service Scheme
NYKS	-	Nehru Yuva Kendra Sangathan
ODR	-	Owner-Driven Reconstruction
PDNA	-	Post-Disaster Need Assessment
PHC	-	Primary Health Centre
PM	-	Particulate Matter
PMAY	-	Pradhan Mantri Awas Yojana
PMFBY	-	Pradhan Mantri Fasal Bima Yojana
PMGAY	-	Pradhan Mantri Gramin Awas Yojana
PMGSY	-	Pradhan Mantri Gram Sadak Yojana
PMJAY	-	Pradhan Mantri Jan Arogya Yojana
PMJJY	-	Pradhan Mantri Jeevan Jyoti Yojana
PMMVY	-	Pradhan Mantri Matru Vandana Yojana
PPE	-	Personal Protection Equipment
PPP	-	Public-Private Partnership
PR	-	Public Relations
PRD	-	Panchayati Raj Department
PRI	-	Panchayati Raj Institution
PSU	-	Public Sector Undertaking
PwD	-	Persons with Disability
PWD	-	Public Works Department
PWS	-	Piped Water Supply
R&D	-	Research and Development
RCO	-	Relief Commissioner's Office
RDD	-	Rural Development Department
RED	-	Rural Engineering Department
RRT	-	Rapid Response Team
RTSMN	-	Real-Time Seismic Monitoring Network
SC	-	Scheduled Caste
SCERT	-	State Council of Educational Research and Training
SCPS	-	State Child Protection Society
SDG	-	Sustainable Development Goal
SDM	-	Sub-Divisional Magistrate
SDMA	-	State Disaster Management Authority
SDMF	-	State Disaster Mitigation Fund
SDMP	-	State Disaster Management Plan
SDRF	-	State Disaster Response Force
SDRF	-	State Disaster Response Fund
SDRMF	-	State Disaster Risk Management Fund
SEC	-	State Executive Committee
SEOC	-	State Emergency Operation Centre
SEZ	-	Special Economic Zone
SFDRR	-	Sendai Framework for Disaster Risk Reduction

SHG	-	Self-Help Group
SIDCC	-	State Integrated Disaster Control Centre
SIHFW	-	State Institute of Health and Family Welfare
SIRD	-	State Institute of Rural Development
SMEs	-	Small and Medium-Sized Enterprises
SOP	-	Standard Operating Procedure
ST	-	Scheduled Tribe
STAA	-	Sub Thematic Areas for Action
SUDA	-	State Urban Development Authority
TAA	-	Thematic Areas for Action
UAV	-	Unmanned Aerial Vehicle
UDD	-	Urban Development Department
UHI	-	Urban Heat Island
ULB	-	Urban Local Body
UN	-	United Nations
UNDRR	-	United Nations Office for Disaster Risk Reduction
UNFCC	-	United Nations Framework Convention on Climate Change
UNICEF	-	United Nations Children's Fund
UP	-	Uttar Pradesh
UPPCB	-	Uttar Pradesh Pollution Control Board
UPPCL	-	Uttar Pradesh Power Corporation Limited
UPRSAC	-	Uttar Pradesh Remote Sensing Application Centre
UPSDMA	-	Uttar Pradesh State Disaster Management Authority
UPSTDC	-	Uttar Pradesh State Tourism Development Corporation
UYD	-	Upper Yamuna Division
VSAT	-	Very Small Aperture Terminal
WASH	-	Water, Sanitation and Hygiene
WCDRR	-	World Conference on Disaster Risk Reduction

Part I

1 Introduction

1.1 Need for the Plan

Section 23 of the Disaster Management Act 2005 (DM Act)[1] mandates every State to develop a State Disaster Management Plan and update it annually. The State Disaster Management Plan (SDMP) is a strategic document developed based on features of the National Disaster Management Plan (NDMP 2019) and provides the framework and guidelines for departmental action plans and the District Disaster Management Plans (DDMPs).

1.2 Hon'ble Chief Minister's Vision for Disaster Management

"To build a disaster resilient State within the framework of Prime Minister's 10 Point Agenda for Disaster Risk Reduction and post-2015 Global Frameworks on Disaster Management and to empower communities for disaster prevention, mitigation, preparedness and response".

1.3 Main Pillars of the State Disaster Management Plan

The five pillars of SDMP are aligned to the NDMP 2019. The five pillars are:

I. Conforming to the national legal mandate – the DM Act 2005 and the National Policy on Disaster Management (NPDM) 2009;
II. Participating proactively to realize the global goals as per agreements to which India is a signatory – Sendai Framework for Disaster Risk Reduction (SFDRR), Sustainable Development Goals (SDGs) and Paris Agreement on Climate Change – consistent with the international consensus for achieving mutual reinforcement and coherence of these frameworks;
III. Prime Minister's Ten-Point Agenda for Disaster Risk Reduction (DRR) articulating contemporary national priorities;
IV. Social inclusion as a ubiquitous and cross-cutting principle; and
V. Mainstreaming DRR as an integral feature.

1.4 Legal Framework

Under Section 23 (1) of the DM Act 2005[2] – it is mandatory for every State to have a SDMP. The SDMP is supposed to be a guiding document for all State-level departments with respect to their roles and responsibilities across all phases of Disaster Management (DM). According to Section 23 (2) of the DM Act 2005, the "State Plan shall be prepared by the State Executive Committee

[1] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 10). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf
[2] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 10). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf

(SEC) having regard to the guidelines laid down by the National Authority." Section 23 (3) states that "the State Plan shall be approved by the State Authority."[3]

1.5 Scope of State Disaster Management Plan

As per the DM Act 2005, the SDMP shall include[4]:

a. Vulnerabilities of different parts of the State;
b. Measures to be adopted for prevention and mitigation of disasters;
c. Integration of mitigation measures into development plans and projects;
d. Capacity building and preparedness measures;
e. Roles and responsibilities of different departments of the State Government in the context of the above-mentioned (a), (b), (c) and (d); and
f. Roles and responsibilities of different departments of the State Government in response to any threatening disaster situation or disaster.

According to Section 23 (5) of the DM Act 2005, "the State Plan shall be reviewed and updated annually." In line with Section 23 (6), "appropriate provisions shall be made by the State Government for financing the measures to be carried out under the State Plan." Section 23 (7) states that "copies of the State Plan referred to in Sub-Section (2) and (5) of Section 23 shall be made available to the departments of the State Government and such Departments shall draw up their own plans in accordance with the State Plan."

1.6 Objectives of State Disaster Management Plan

The key objectives of SDMP are to:

- Assess various hazards, risks, vulnerabilities, and capacities in the State;
- Promote DRR for resilience building through structural and non-structural measures;
- Strengthen disaster risk governance across all levels;
- Mainstream Disaster Risk Management (DRM) in development schemes and programmes;
- Implement rapid and effective disaster response and relief mechanisms in the State; and
- Ensure 'Build Back Better' in recovery, rehabilitation and reconstruction.

1.7 Time Frames: Short, Medium and Long-Term[5]

The measures listed in the Plan are set in line to be implemented by 2030 i.e. with the end of the three post-2015 international agreements – SFDRR, SDGs, and Conference of Parties (COP). They will be implemented within short (T1), medium (T2), and long (T3) terms, ending by 2024, 2027, 2030 respectively. To compensate for the time lost amidst the COVID-19 pandemic, the time frame of the short-term has been altered from 2022 to 2024. While some of the measures listed

[3] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 10). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf
[4] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 10). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf
[5] *National Disaster Management Plan, 2019*. [ebook] New Delhi: National Disaster Management Authority, Government of India, p.11. Available at: https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf

are already being implemented, few need upgradation, and many are yet to be started. Also, the short, medium and long term measures do not need to be taken up sequentially always. Depending upon the priority and completion time, the measures will require to be taken up parallelly or sequentially.

Table 1: Time Frames envisaged in SDMP

Short-Term (T1)	2024
Medium-Term (T2)	2027
Long-Term (T3)	2030

1.8 Multi-Hazard Approach

SDMP will not only address natural hazards but will also take care of human-induced disasters. It will enable the departments to assess a composite risk from all hazards so that integrated planning can be undertaken and mitigation measures planned such that one hazard may not create vulnerability for another hazard.

1.9 Stakeholders of the State Disaster Management Plan[6]

All major line departments of the State Government, District Disaster Management Authorities (DDMAs), technical institutions, academia, local self-governments, United Nations (UN) agencies, Non-Governmental Organizations (NGOs), communities, etc. are key stakeholders for the effective implementation of SDMP.

Detailed roles and responsibilities are depicted in the Thematic Areas for Action (TAA) along with the Sub Thematic Areas for Action (STAA).

1.10 Implementation of State Disaster Management Plan

The DM Act states that every Department of the State Government shall make provisions, in its annual budget, for funds to carry out the activities and programmes set out in its DM Plan. The SDMP sets out the priorities and time frames, and defines the TAA along with STAA, that must be implemented in a coordinated but decentralized manner by the State and District Governments.

[6] UPSDMA. (2017). UP State Disaster Management Plan. Lucknow.

2 Disaster Risk Reduction Coherence and Mutual Reinforcement of Three Post-2015 Global Frameworks and its Integration with Uttar Pradesh State Disaster Management Plan

2.1 Background

The adoption of three landmark global agreements – Sendai Framework for Disaster Risk Reduction (UNDRR 2015), Sustainable Development Goals (UN 2015) and Paris Agreement on Climate Change – COP21 (UNFCC 2015) – all in the same year, 2015 – has opened a significant opportunity to build coherence across DRR, sustainable development and the response to climate change. [7] Later during the COP26 (UNFCC 2021), agreement was sought to accelerate action on the goals set up during COP21.

The SDGs adopted by the UN on the theme "Transforming Our World: The 2030 Agenda for Sustainable Development" is a global transformative plan of action, keeping poverty eradication as the overarching aim. It has, at its core, the integration of the economic, social and environmental dimensions of sustainable development. The Paris Agreement on Climate Change points to the importance of averting, minimizing and addressing damage and loss associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of damage and loss.

DRR and resilience are the common recurring themes in the three global agreements mentioned. All three agreements share a common aim of making development sustainable. The most significant shift recognized in the SFDRR is a strong emphasis on DRM in contrast to DM. These three agreements recognize the desired outcomes in DRR as a product of complex and interconnected social and economic processes, which overlap across the agendas of the three agreements intrinsic to sustainable development in DRR and building resilience to disasters. Further, effective DRM contributes to sustainable development.

2.2 Sendai Framework for Disaster Risk Reduction (2015–2030)

The SFDRR (2015–2030) was adopted at the Third World Conference on Disaster Risk Reduction held in Sendai, Japan, in March 2015.

In order to imbibe the global frameworks and principles in achieving the global targets, the Government of Uttar Pradesh (UP) issued specific guidelines in line with Sendai Seven Targets Campaign in November 2015 to integrate these frameworks in the implementation activities of State and District-level line departments.

Table 2 gives an outline of the activities covered in various sections of the SDMP to achieve the targets of SFDRR.

[7] *National Disaster Management Plan, 2019*. [ebook] New Delhi: National Disaster Management Authority, Government of India. Available at: https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf

Table 2: SFDRR Targets and corresponding activities in SDMP

Targets	Indicators	SDMP
Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015	Reduce State disaster mortality by 2030 (per 100,000) compared to last decade (2011–2020)	The SDMP charts out specific measures for each disaster type in the State. These measures are covered in detail across all areas of preparedness, for example, vulnerability assessment, early warning systems, community engagement, communications, and resource mobilization, which promote better response to disasters, leading to better coping capacity among the communities, thus contributing to reduction in mortality across the State.
Substantially reduce the number of people affected globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015	Reduction in the number of people affected in the State by disasters compared to last decade (2011–2020)	The SDMP of UP is a comprehensive strategy document, wherein preparedness, response coordination, mitigation and early warning activities are provided for each line department with the objective of reducing the impact of various disasters.
Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030	Infrastructure and basic services	The SDMP details structural measures in Chapter 9 across different types of disasters for both private and public properties.
Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for the implementation of the present framework by 2030	International cooperation	India and Nepal established a three-tier bilateral mechanism in 2008, for issues relating to cooperation in water resources, flood management, inundation and hydropower between the two countries. However, SDMP suggests executing MoU between State of UP and Nepal.
Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030	Infrastructure and basic services	Multi-hazard early warning system for effective disaster risk information communication is proposed.
Reduce direct economic losses in relation to global domestic product by 2030	Reduce direct economic losses by 2030 compared to last decade (2011–2020)	SDMP addresses immediate relief in direct economic losses due to disasters in categories of livelihood, agriculture, sericulture, animal husbandry through the State Disaster Response Fund (SDRF).

Targets	Indicators	SDMP
		It also chalks out a plan in the chapter on recovery and restoration of livelihood, agriculture through wage employment and risk transfer mechanism by convergence of various Government programmes.

2.3 Sustainable Development Goals and Disaster Resilience

To achieve the SDGs, it is imperative that resilience of communities be built. The increasing magnitude of losses due to disasters over the past decades indicates an elevated risk to development projects from disasters. The inclusion of disaster risk reduction measures in development planning not only helps reduce the risk, but also strengthens the lead to long-lasting development gains. Hence, disaster resilience is an integral part of the 2030 Agenda for Sustainable Development.[8]

The SDMP has also attempted to integrate the SDGs in plans. The chapter on social inclusion addresses the aspects of differentiated vulnerabilities of women, socially and economically weaker section of society and elderly and also laid responsibility matrix. Aapda Mitra is gradually gaining larger participation of women. The NITI Aayog Indicators have been used to examine the social and structural vulnerability of the State, which when addressed will contribute achieving the SDGs. The plan aims to also bring the aspects of Climate Change, one of the goals of SDG being Climate Action, by including Climate Change Risk Management as one the thematic area under all applicable disasters.

The following figure shows how the SFDRR leads to direct impacts on multiple goals and targets of SDGs.

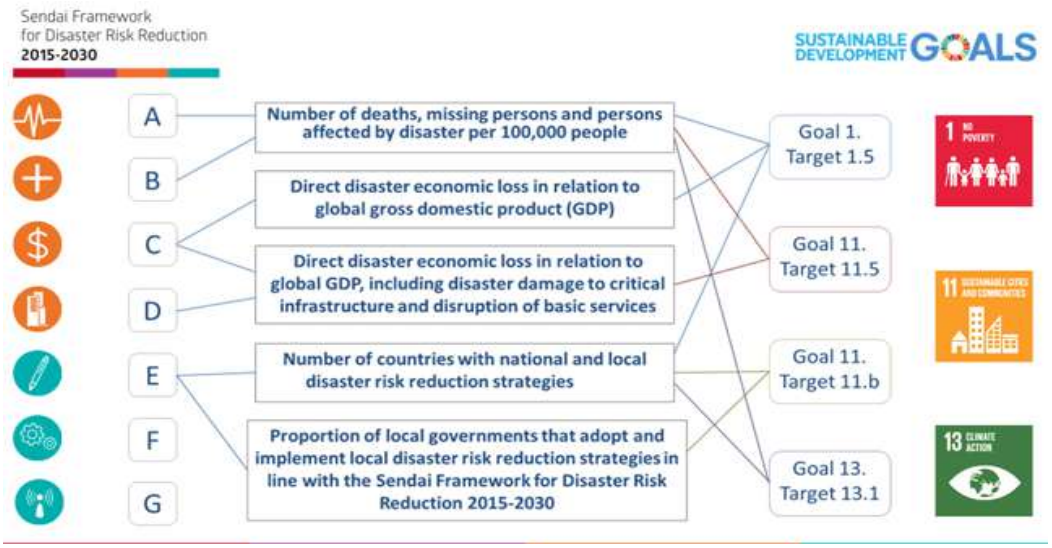


Figure 1: Coherence and mutual reinforcement of SDGs and SFDRR

Source: Integrated monitoring of the global targets of the Sendai Framework and the Sustainable Development Goals (https://www.preventionweb.net/sendai-framework/sendai-framework-monitor/common-indicators)

[8] UNDRR. (2015). *DISASTER RISK REDUCTION AND RESILIENCE IN THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT* [Ebook]. Retrieved from https://www.unisdr.org/files/46052_disasterriskreductioninthe2030agend.pdf

2.4 International Agreements on Climate Change and Disaster Risk Reduction

The Paris Agreement on Climate Change was adopted on 12 December 2015 at the twenty-first session of the Conference of the Parties (COP21).

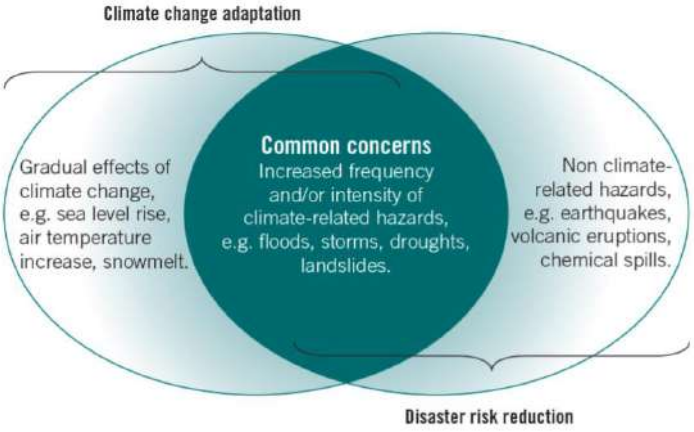


Figure 2: Common concerns of climate change adaptation and disaster risk reduction

Source: Turnbull, M., Sterrett, C., & Hilleboe, A. (2013). ***Common concerns of climate change adaptation and disaster risk reduction*** **[Image]. Retrieved from https://www.technicalconsortium.org/wp-content/uploads/2014/05/Towards-resilience.pdf**

Later in 2021, the COP26 summit held in Glasgow, United Kingdom, brought parties together to accelerate action towards the goals of the Paris Agreement (COP21) and the UN Framework Convention on Climate Change.[9] It set out the following goals:

i. To achieve global net-zero by the middle of the century and keep 1.5 degrees within reach;
ii. To adapt to protect communities as well as natural habitats from the impact of climate change;
iii. To mobilize finances for the stated goals; and
iv. To work together so that the rules could be listed out in detail and help in the fulfilment of the Paris Agreement.

India is a signatory to COP26 goals and had presented the following five nectar elements (*Panchamrit*) of India's climate action:[10]

i. Reach 500 gigawatts non-fossil energy capacity by 2030;
ii. 50 per cent of its energy requirements from renewable energy by 2030;
iii. Reduction of total projected carbon emissions by one billion tonnes from now to 2030;
iv. Reduction of the carbon intensity of the economy by 45 per cent by 2030, over 2005 levels; and
v. Achievement of the target of net zero emissions by 2070.

The Government of UP through its Directorate of Environment, Forest and Climate Change (DoEFCC) is working towards contributing to these goals. The SDMP lays out detailed institutional arrangements for the DoEFCC for taking preparedness and response measures during disasters.

[9] COP26 Goals - UN Climate Change Conference (COP26) at the SEC – Glasgow 2021. (2021). Retrieved from https://ukcop26.org/cop26-goals/
[10] India's Stand at COP-26. (2021). Retrieved from https://www.pib.gov.in/PressReleasePage.aspx?PRID=1795071

2.5 Prime Minister's Ten-Point Agenda and Uttar Pradesh State Disaster Management Plan

The Uttar Pradesh State Disaster Management Authority (UPSDMA) envisions imbibing the Prime Minister's Ten-Point Agenda into all parts of the prospective UP SDMP. Agenda-wise suggested actions as reflected in the SDMP are mentioned below.

Table 3: Prime Minister's 10-Point Agenda-wise suggested actions in SDMP

S. No.	Agenda	Suggested Actions	SDMP
1	All development sectors must imbibe the principles of DRM.	All stakeholders including relevant line departments to mainstream DRM in routine development programmes and schemes.	Part II
2	Work towards risk coverage for all – starting from poor households to Small and Medium-Sized Enterprises (SMEs) to multinational corporations to nation-States.	DM plans of departments and Districts to focus on all sectors of people and institutions, and implement according to the roles and responsibilities assigned in the SDMP. Involvement of SMEs, private sector, Public-Private Partnership (PPP), involvement of the corporate sector in capacity building and resource development and knowledge management should be focused on.	Part II
3	Encourage greater involvement and leadership of women in DRM.	Role of women during reconstruction and recovery programmes after disasters are to be given due consideration. Owner-Driven Reconstruction (ODR) is one method whereby women can take a leadership role in monitoring the implementation of safe housing technology. Women can also be empowered by creating their Self-Help Groups (SHGs) for livelihood opportunities. It needs to go beyond traditional income-generating activities and aim at enhancing skills as masons, carpenters, trading of local products, developing local shops for housing, sanitation and other materials, among others. Chapter on Social Inclusion in DRR addresses the differentiated vulnerability of women.	Part II & III
4	Invest in risk mapping globally to improve global understanding of nature and disaster risks.	Hazard, Risk, Vulnerability and Capacity Analysis (HRVCA) to be carried out in an intensive way by all Districts and relevant State-level line departments. Understanding risk is one of the six thematic areas in the SDMP for all disasters, which includes risk mapping/zonation.	Parts I and II
5	Leverage technology to enhance the efficiency of DRM efforts.	Deploying advanced technology and equipment to be included in the capacity building themes for DRR. Use of information and communications technologies and advanced technologies for early warning systems.	Part II
6	Develop a network of universities to work on disaster issues as they also have social responsibilities.	Ensure academic and technical institutions/universities are given the responsibilities of documentation, training and research in the field of DRR concerning various disasters. UPSDMA has executed MoU with five leading universities of the State.	Part II

S. No.	Agenda	Suggested Actions	SDMP
7	Utilize the opportunities provided by social media and mobile technologies, recognize the potential of social media, and develop applications for all aspects of DRM.	Extensive behaviour changes communication/ Information, Education and Communication (IEC) campaigns to create awareness through print, electronic and social media.	Part II
8	Build on local capacity and initiative.	Ensure strengthening of disaster risk governance at all levels from 'local to centre' and empower both local authorities and communities as partners to reduce and manage disaster risks. Emphasis on building and strengthening local capacities with a focus on local issues, resources, and people.	Part II
9	Ensure that the opportunity to learn from a disaster must not be wasted.	Documentation of lessons learnt, best practices and success stories as part of knowledge management.	Part III
10	Bring about greater cohesion in international response to disasters.	Ensure participation in international efforts and fostering partnerships.	Part I & II

3 State Profile

3.1 Background

UP is the fourth largest State in India covering an area of 2,40,928 sq. km, which is 7.33 per cent of the geographical area of the country.[11] It lies between 23°52'N and 31°28'N latitudes and 77°3' and 84°39'E longitudes.[12] It borders Nepal and Uttarakhand in the North; Himachal Pradesh in the North-west; Haryana, Delhi and Rajasthan in the West; Madhya Pradesh in the West and South-west; Chhattisgarh and Jharkhand in South and South-east, and Bihar in the East.

Figure 3: Administrative map of UP

Source: Maps of India. (2020). *Map of UP* [Image]. Retrieved from https://www.mapsofindia.com/maps/uttarpradesh/

Topographically, the State is divided into three regions, namely the Shivalik region in the north, Gangetic plains in the centre, and Vindhyan hills and plateau in the south. Many rivers – Ganga, Yamuna, Gandak, Gomti, Ghagra, Chambal, Betwa, Kosi, Son and Sharda – flow through the State. As per the India State of Forest Report,[13] UP has a forest cover spread across 14,805.65 sq. km,

[11] Forest Survey of India. (2019). *Indian State of Forest Report* [Ebook]. Dehradun. Retrieved from https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-uttar-pradesh.pdf

[12] About UP, Official Website of NRI Department, Government of UP, India. Retrieved from https://nri.up.gov.in/en/page/getting-to-up?brd=2

[13] Forest Survey of India. (2019). *Indian State of Forest Report* [Ebook]. Dehradun. Retrieved from https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-uttar-pradesh.pdf

which is 6.15 per cent of the State's geographical area.[14] The climate of UP is generally defined as a sub-tropical monsoon type. Three seasons are experienced in the State: summer (March–June), monsoon (June–September) and winter (October–February).

3.2 Administrative Structure

At present, UP is administratively divided into 18 divisions, 75 Districts and 822 development blocks. There are 915 urban bodies, 13 municipal corporations, 226 municipal boards, 59,163 gram sabhas, 8,135 nyaya panchayats, 1,07,040 villages and 650 cities and towns.[15]

3.3 Demographic Profile

Table 4: Demographic Profile of UP

Area	2,40,928 sq. km
Population	19,95,81,477
Males	10,45,96,415
Females	9,49,85,062
Child Population (0–6 years)	2,97,28,235
Child Sex Ratio (0–6 years)	899 per 1,000
Decennial Growth Rate (2001–2011)	20.09%
Sex Ratio	908 per 1,000
Density	828 persons per sq. km
Total Literacy Rate	69.72%
Male Literacy	79.24%
Female Literacy	59.26%
Districts	75
Cities and Towns	915
Development Blocks	82
Nagar Nigams	14
Members of Lok Sabha from UP	80
Members of Rajya Sabha from UP	30
Members of UP Legislative Assembly	404
Members of UP Legislative Council	100
Principal Crops	Paddy, wheat, barley, millet, maize, urad (black gram), moong (green gram), arhar
Principal Fruits	Mango, guava
Principal Minerals	Limestone, dolomite, soap stone, gypsum, bauxite, glass-sand, manganese, non-plastic fire clay
Principal Handicrafts	Chikan work, embroidery, wood work, wooden toys and furniture, clay toys, carpet weaving, silk and brassware work
Principal Folklores	Birha, Chitee, Kajri, Phaag, Rasia, Alha, Pooran Bhagat, Bhartrahari
Principal Rivers	Ganga, Yamuna, Gomti, Ram Ganga, Ghagra, Betwa, Ken
Principal Folk Dances	Charkula, Karma, Pandav, Pai-danda, Tharu, Dhobia, Raai, Shaira, etc.
Tourist and Historical Places	Piparhava, Kaushambi, Shravasti, Sarnath (Varanasi), Kushinagar, Chitrakoot, Lucknow, Agra, Jhansi, Meerut

Source: **Statistical Department, Government of UP and Directorate Census, Lucknow (2011)**

[14] Forest Survey of India. (2019). *Indian State of Forest Report* [Ebook]. Dehradun. Retrieved from https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-uttar-pradesh.pdf

[15] Social Demography, Official Web Site of Government of UP. Retrieved from https://up.gov.in/en/page/social-demography

3.4 Social Profile

Religion

Hinduism is the predominant religion in the State, with 79.73 per cent of the State's population adhering to it, followed by Islam (19.26 per cent), Sikhism (0.32 per cent), Christianity (0.18 per cent), Jainism (0.11 per cent), Buddhism (0.10 per cent) and others (0.30 per cent). [16]

Caste and Tribes

The population of UP is divided into multiple castes and sub-castes and the State is also home to many tribal communities. As per the Socio-Economic and Caste Census 2011, Scheduled Castes (SCs) constitute 23.80 per cent of the State's total rural households, while Scheduled Tribes (STs) form 0.68 per cent of the total rural population.[17]

Prominent tribes in the State include Agariya, Aheria, Baiga, Bind and Patari. Besides this, the Government of India has recognized five of the tribal communities as disadvantaged STs, namely the Harus, Boksas, Bhotias, Jaunswaris and Rajis.

3.5 Economic Profile

Main Occupation

UP is the second-largest economy in India after Maharashtra. The State is divided into four economic zones: Western, Central, Eastern and Bundelkhand regions. Agriculture is the main source of income followed by the services sector, industries and manufacturing and tourism.

Income Patterns

The Gross State Domestic Product (GSDP) of UP grew at a Compounded Annual Growth Rate (CAGR) of around 8.43 per cent between 2015–16 and 2021-22 to reach INR 21.74 trillion (US$ 294.90 billion).[18] The Net State Domestic Product grew at a CAGR of around 8.42 per cent between 2015–16 and 2020–21 to reach INR 15.12 trillion (US$ 208.34 billion). According to the Periodic Labour Force Survey 2017–18, UP has an unemployment rate of 6.4 per cent, which is higher than the all-India unemployment rate of 6.1 per cent.

3.6 Sectors of the Economy

Agriculture

UP's economy is predominantly based on agriculture. Several major efforts have been made to boost agriculture, including the extension of irrigation facilities, timely delivery of fertilizers, herbicides and high-yielding seeds, promotion of high-yielding kinds of seed use, and the provision of continual agricultural counselling services by experts.

Accounting for nearly 18 per cent share in the country's total food grain output in 2016–17, UP produces the largest amount of food grains (major being rice, wheat, maize, millet, gram, pea,

[16] UP Religion Census 2011. Retrieved from https://www.census2011.co.in/data/religion/state/9-uttar-pradesh.html
[17] Caste Tribe Status of Households (Rural). (2011). Retrieved from https://secc.gov.in/getCasteProfileRuralNationalReport.htm
[18] GSDP of UP, Economic Growth of UP | IBEF. (2022). Retrieved 1 August 2022, from https://www.ibef.org/states/uttar-pradesh-presentation

lentils); and is also the largest producer of vegetables (10,02,64,000 metric tonnes in 2018–19) in India. [19]

Industries

There are a number of industrial activities such as information technology, agro-processing, tourism, textiles, leather goods, carpets, cotton yarn, handloom and handicrafts, food processing, sports goods, dairy products, and glassware production.

According to data supplied by the Department for Promotion of Industry and Internal Trade, the State received US$ 560.74 million in foreign direct investment equity inflow between October 2019 and December 2020. In UP, 147 investment intentions of INR 16,799 crore (US$ 2.40 billion) were declared in 2019. As of October 2020, UP had 21 notified Special Economic Zones (SEZs), 13 operational SEZs and 24 formally approved SEZs.

Services

UP's economy is heavily reliant on the service sector. In 2017–18, it contributed about 49 per cent of the GSDP. UP remains North India's 'Information Technology (IT) hub', with a percentage of software exports second only to Karnataka. However, unlike South Indian States, IT businesses are restricted to specific locations, such as Noida, Greater Noida and Ghaziabad, all of which are located in the western region of the State.

Tourism

Taj Mahal, which is one of the famous tourist destinations, is located in Agra, UP[20]. In 2019, domestic tourist arrivals in the State reached 535.8 million. Foreign tourist arrivals crossed 4.74 million. The Government of UP has devised a new tourism policy to invite INR 5,000 crore worth of investments, which is expected to provide a further boost to the State's economy. Varanasi, Allahabad, Mathura-Vrindavan, Ayodhya, Lucknow and Sarnath are the other major cities attracting tourists.

[19] About UP: Tourism, Agriculture, Industries, Economy & Geography. Retrieved from https://www.ibef.org/states/uttar-pradesh
[20] About UP: Tourism, Agriculture, Industries, Economy & Geography. Retrieved from https://www.ibef.org/states/uttar-pradesh

4 Institutional Framework

4.1 Disaster Management: Basic Institutional Framework

As per the DM Act of 2005, each State in India shall have its own institutional framework for DRM. It mandates the setting up of a State Disaster Management Authority (SDMA). Each State shall prepare its own SDMP.

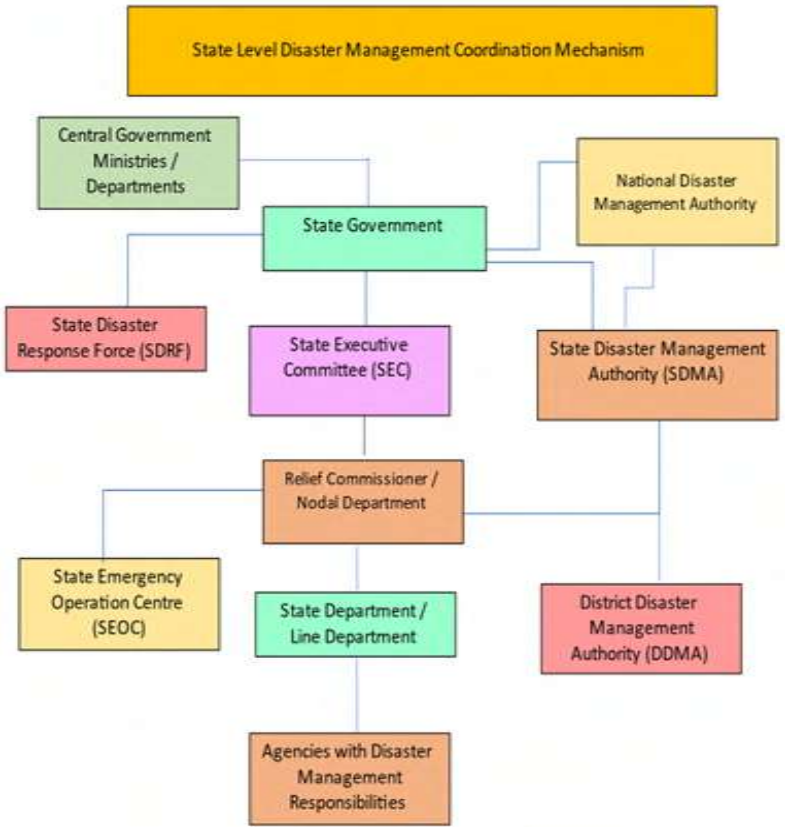


Figure 5: State Level Disaster Management Coordination Mechanism

4.2 State Disaster Management Authority

Section 14 of the DM Act 2005 mandates each State to establish a SDMA. At the State level, the SDMA headed by the Chief Minister lays down the policies and plans for DM. It is also responsible for coordinating the implementation of the State Plan, recommending the provision of funds (under State Disaster Mitigation Fund) for mitigation and preparedness measures and reviewing the developmental plans of the different departments of the State to ensure integration of prevention, preparedness and mitigation measures. The Chairperson of the State Authority shall, in the case of an emergency, have the power to exercise all or any of the powers of the State Authority, but the exercise of such powers shall be subject to *ex post facto* ratification of the State Authority.

For the State of UP, the establishment of UPSDMA was notified vide notification Order No. 628/1-11-2017-02(G)/2013 dated 18 July 2017 under Section-14 (1) of the DM Act. The constitution of the UPSDMA is as follows.

Table 5: UPSDMA Chairperson and Members

S. No.	Members	Designation
1	Hon. Chief Minister, UP	Chairperson
2	Designated by Chairperson	Vice Chairperson
3	Hon. Minister, Urban Development	Member
4	Hon. Minister, Agriculture	Member
5	Hon. Minister, Irrigation	Member
6	Hon. Minister, AYUSH	Member
7	Hon. Minister Flood Control	Member
8	Chief Secretary, UP	Member
9	Principal Secretary, Revenue	Member
10	Principal Secretary, Home	Member
Special Invitees		
11	Agriculture Production Commissioner	Member
12	Principal Secretary, Finance	Member

4.3 Roles and Responsibilities of Uttar Pradesh State Disaster Management Authority

Subject to the provisions of Section 18 of the DM Act 2005[21], the SDMA shall have the following key responsibilities:

1. Laying down policies and plans for DM in the State;
2. Without prejudice to generality of provisions contained in Sub-Section (1), the State Authority may:
    a. Lay down the State Disaster Management Policy;
    b. Approve the State Plan in accordance with the guidelines laid down by the National Authority;
    c. Approve the DM plans prepared by the departments of the State Government;
    d. Lay down guidelines to be followed by the departments of the State Government for the purpose of integration of measures for the prevention of disasters and mitigation in their development plans and projects, and provide necessary technical assistance therefore;
    e. Coordinate the implementation of the State Plan;
    f. Recommend provision of funds for mitigation and preparedness measures;
    g. Review the development plans of the different departments of the State Government and ensure that prevention and mitigation measures are integrated therein; and
    h. Review the measures being taken for mitigation, capacity building and preparedness by the departments of the State Government, and issue such guidelines as may be necessary.
3. The Chairperson of the State Authority shall, in the case of an emergency, have power to exercise all or any powers of the State Authority, but the exercise of such powers shall be subject to *ex post facto* ratification of the State Authority.

[21] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 8). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf

4.4 State Executive Committee

For the State of UP, the establishment of the SEC was notified vide notification Order No. 418/1-10-2016-14(15)/2009, dated 6 April 2016 under Section 20(1) of the DM Act[22]. The constitution of the SEC is as follows:

Table 6: SEC Chairperson and Members

S. No.	Members	Designation
1	Chief Secretary	Chairperson
2	Agriculture Production Commissioner	Member
3	Additional Chief Secretary (ACS) Finance	Member
4	ACS Home	Member
5	ACS Revenue	Member
6	ACS Medical Health and Family Welfare	Member
7	Relief Commissioner	Member Secretary

1. The SEC shall have the responsibility of implementing the State Plan and acting as the coordinating and monitoring body for the management of disasters in the State;
2. Without prejudice to the generality of the provisions of Sub-Section (1), the SEC may:
    a. Coordinate and monitor the implementation of the National Policy, National Plan and the State Plan; and
    b. Examine the vulnerabilities of different parts of the State to different forms of disasters and specify measures to be taken for their prevention or mitigation.
3. Lay down guidelines for the preparation of DM plans by the departments of State Government and District authorities;
4. Monitor the implementation of the DM plans prepared by the Departments of the State Governments and District authorities;
5. Monitor the implementation of guidelines laid down by the State Authority for integrating measures for the prevention of disasters and mitigation by the departments in their development plans and projects;
6. 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;
7. Coordinate response in the event of any threatening disaster situation or disaster;
8. Give directions to any Department of the State Government or any other authority or body in the State regarding action to be taken in response to any threatening disaster situation or disaster;
9. Promote general education, awareness and community training in regard to the forms of disasters to which different parts of the State are vulnerable, and the measures that may be taken by such community to prevent the disaster, mitigate and respond to it;
10. Advice, assist and coordinate the activities of the departments of the State Government, District authorities, statutory bodies and other governmental and NGOs engaged in DRM;
11. Provide necessary technical assistance or give advice to District authorities and local authorities for carrying out their functions effectively;
12. Advise the State Government regarding all financial matters in relation to DM;

[22] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 8). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf

13. Examine the construction, in any local area in the State and, if it is of the opinion that the standards laid for such construction for the prevention of disaster is not being or has not been followed, may direct the District Authority or the local authority, as the case may be, to take such action as may be necessary to secure compliance of such standards;
14. Provide information to the National Authority relating to different aspects of DM;
15. Lay down review and update State-level response plan and guidelines and ensure that the District-level plans are prepared, reviewed and updated;
16. Ensure that communication systems are in order and DM drills are carried out periodically; and
17. Perform such other functions as may be assigned to it by the State Authority or as it may consider necessary.

4.5 State Relief Commissioner

Section 11 of the UP DM Act 2005 mandates the appointment of the State Relief Commissioner for the whole of the State, not below the rank of Secretary to the Government.[23] Sections 21 and 22 outline the powers and functions of the Relief Commissioner[24], wherein the Commissioner may issue directions to the District Magistrate and local authority having jurisdiction over the affected area to provide emergency relief in accordance with DM plans, for the purpose of:

1. Assisting and protecting the community;
2. Providing relief to the community;
3. Preventing or combating disruption;
4. Dealing with the destructive or other effects of the disaster, the Commissioner may:
    a. Make arrangements for release and use of available resources;
    b. Control and restrict vehicular traffic to and from and within the affected area;
    c. Control and restrict the entry of any person into, movement within and departure from an affected area;
    d. Remove debris;
    e. Conduct search and rescue operations;
    f. Make arrangements for the disposal of the unclaimed dead bodies;
    g. Provide alternative shelter;
    h. Provide food, medicines and other essential goods;
    i. Require experts and consultants in the fields relevant to the disasters to provide relief under his/her direction and supervision;
    j. Procure exclusive or preferential use of amenities as and when required;
    k. Take possession and make use of any property, vehicles, equipment and means of communication on such terms and conditions as may be prescribed;
    l. Construct temporary bridges or other necessary structures;
    m. Abolish unsafe structures which may endanger the public;
    n. Ensure that NGOs carry out their activities in equitable manner;
    o. Disseminate information to the public to deal with the disasters;
    p. Evacuate any population from any affected area for the purpose of preservation of life and for such evacuation use such force as may be necessary;

[23] GoUP. (2022). *The UP Disaster Management Act 2005* [Ebook] (p. 30). Retrieved from https://lawsofindia.blinkvisa.com/pdf/uttar_pradesh/2005/2005UP20.pdf
[24] GoUP. (2022). *The UP Disaster Management Act 2005* [Ebook] (p. 32-33). Retrieved from https://lawsofindia.blinkvisa.com/pdf/uttar_pradesh/2005/2005UP20.pdf

q. Authorize any person to make entry into any place, to open or cause to be opened, any door, gate or other barrier, if he/she considers such action is necessary for the preservation of life and property, if the owner or occupier is absent or present, refuses to open such door, gate or barriers; and
r. Provide inputs to the authority relating to the various aspects of DM, such as early warnings and status of preparedness.

5. Preparing relief implementation strategy for the State in consultation with the Authority;
6. Preparing, reviewing and updating State-level emergency plans and guidelines; and
7. Supporting activities described in Sections 22 (2), 22 (3) and 22 (4) of the UP DM Act 2005.

4.6 State Advisory Committee

For the State of UP, the establishment of the State Advisory Committee was notified vide notification Order No. 469/1-11-2017-17(G)/2017, dated 21.06.2017 under Section 17(1) of DM Act 2005[25].

4.7 State Disaster Response Force

UP is a multi-hazard state, vulnerable to natural hazards such as floods, heat waves, earthquakes, drought, lightning and cold waves, as well as human-induced disasters such as fire or building collapse. The State Disaster Response Force has been constituted at the State level for effective response to such disasters.

4.7 State Emergency Operations Centre

The Emergency Operations Centre (EOC) has been set up at the State and District levels and acts as the coordination and communication hub during a disaster situation. This is, however, not to underestimate its normal-time activities.

4.8 District Disaster Management Authority

As per provisions in Chapter IV of the DM Act, each State Government shall set up a DDMA in every District headed by the District Magistrate, with the elected representative of the local authority as the co-chairperson. 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. The DDMA will prepare the DM Plan for the District and ensure that the guidelines for prevention, mitigation, preparedness, and response measures laid down by the UPSDMA are followed by all the District-level offices of the various departments of the State Government.

Table 7: DDMA Structure

S. No.	Members	Designation
1	District Magistrate	Chairperson (ex officio)
2	Zila Panchayat President	Co-Chairperson (ex officio)
3	Superintendent of Police/ Senior Superintendent of Police	Member (ex officio)
4	Additional District Magistrate (ADM) Finance and Revenue	CEO (ex officio)

[25] Government of India. (2005). *The Disaster Management Act 2005* [Ebook] (p. 7). Retrieved from https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf

5	Chief Medical Officer	Member (ex officio)
6	Executive Engineer, Irrigation Department	Member
7	Executive Engineer, Public Works Department	Member

5 Hazard, Risk, Vulnerability and Capacity Analysis

5.1 Uttar Pradesh at a Glance

The State of UP falls under three agro-climatic zones[26], which are as follows:

1. Agro-climatic Zone IV: This zone is further divided into three sub-zones:

(i) North-Eastern Plains covering the Districts of Bahraich, Gonda, Balrampur, Basti, Gorakhpur, Siddharthnagar, Maharajganj, Kushinagar and Deoria, receives an annual rainfall of 1,210 mm and the climate is moist sub-humid to dry sub-humid. About 73 per cent of the land area is cultivated and about half of the cultivated land is irrigated. Tube wells are the major source of irrigation.

(ii) Eastern Plains covering the Districts of Azamgarh, Mau, Ballia, Ayodhya, Ghazipur, Jaunpur, Sant Ravidas Nagar and Varanasi, receives an annual rainfall of 1,025 mm and the climate is dry sub-humid to moist sub-humid. Over 70 per cent of the land is cultivated and more than 80 per cent of the cultivated area is irrigated.

(iii) Vindhyan sub-zone in the Middle Gangetic Plain covering the Districts of Mirzapur and Sonbhadra in UP, receives an annual rainfall of 1,134 mm and the climate is similar to the other parts of the eastern plains of UP. However, the region has a high forest cover, about 40 per cent of the land. Less than one third of this land is cultivated and only a third of this is irrigated.

2. Agro-climatic zone-V: This zone covering 32 Districts of UP is among the larger and very thickly populated agro-climatic zones that is cultivated and well-irrigated. It is the most developed region in the State as over 70 per cent of the area is sown and nearly 65 per cent of it is irrigated. Characterized by semi-arid and sub-humid conditions, the mean annual rainfall in this zone varies between 700 and 1,000 mm. There are three sub-zones under this Agro-climatic Zone.

(i) Central Plains covering the Districts of Prayagraj, Fatehpur, Pratapgarh, Sultanpur, Raebareli, Unnao, Lucknow, Barabanki, Sitapur, Hardoi, Lakhimpur Kheri and Pilibhit, receives an average annual rainfall of 979 mm, the climate ranges from dry sub-humid to semi-arid, and the soil is alluvium calcareous sandy loam. About 62 per cent of the land is cultivated, of which 56 per cent is irrigated.

(ii) North-Western Plains covering the Districts of Shahjahanpur, Bareilly, Rampur, Moradabad, Bijnor, Saharanpur, Muzaffarnagar, Meerut, Baghpat, Ghaziabad and Bulandshahr, has the highest land productivity in the State. About 70 per cent of the land is under agriculture and another 5 per cent of the land is under forest cover. Around 76 per cent of the net sown area is irrigated with tube wells being the predominant source of irrigation. The zone receives an annual average rainfall of 907 mm, the climate is dry sub-humid to semi-arid, and the soil is loam to sandy loam.

(iii) South-Western Plains has low land productivity, despite a relatively high proportion of arable and irrigated cropped area. This is due to cultivation of low-value crops, principally wheat and bajra. Covering the Districts of Badaun, Aligarh, Mathura, Agra, Etah, Farrukhabad, Kannauj, Mainpuri, Firozabad, Etawah, Kanpur Dehat, and Kanpur Nagar, this region's climate is semi-arid

[26] Mechanization & Technology Division, Ministry of Agriculture and Farmers Welfare. 2022. *1.* [online] Available at: https://farmech.dac.gov.in/FarmerGuide/UP/UI.htm#:~:text=The%20State%20of%20Uttar%20Pradesh,Central%20Plateau%20and%20Hills%20region.

and the soil type is alluvium calcareous clay. The region receives annual rainfall of 721 mm. More than 74 per cent of the net sown area is irrigated and over 69 per cent land is cultivated.

3. Agro-climatic Zone-VIII: This zone includes five Districts from South-Central UP: Jalaun, Jhansi, Lalitpur, Hamirpur and Banda, collectively known as the Bundelkhand sub-zone, which receives annual rainfall of about 900 mm. Due to less developed irrigation facilities only 60 per cent of the area is cultivated, out of which 25 per cent is irrigated. Due to high soil erosion, land productivity is low.

In conclusion, the Central Plains are considered to be among the most fertile lands, although the concurrent floods in the Ghaghra and Rapti basin make agriculture vulnerable to floods from June to October. Agro-climatic zone-VIII is also vulnerable to recurrent droughts.

5.2 Hazard Profile of the State

"Hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation".[27]

Natural hazards that cause significant impact in UP are flood, drought, fire and earthquake. In addition, the State is also vulnerable to various human-induced hazards such as stampede, chemical, radiological and fire accidents.

The Government of UP has notified 10 State-specific major hazards as disasters, other than those notified by the Government of India. In UP so far, the following 19 disasters have been notified.

Table 8: Notified Disasters in the State

Government of India Notified Disaster	Government of UP Notified Disaster
Flood	Unseasonal heavy rainfall/excess rainfall
Drought	Lightning
Earthquake	Thunderstorm
Hailstorm	Heat wave
Cold wave	Boat accident
Cloud burst	Snake bite
Fire	Gas leakage/sewer
Landslide	Borewell death
Pest attack	Human and animal conflict
	Drowning death (recently notified)

Source: Relief Commissioner's Office, Government of UP (2022)

5.3 Hazard, Risk and Vulnerability Analysis

Flood is a major hazard across 40 of the 75 Districts. This is followed by drought, which affects Districts in the Vindhya and Bundelkhand regions. The disaster vulnerabilities are listed in Table 9. This is based on the Hazard, Risk and Vulnerability Analysis (HRVA) carried out for the SDMP. Details of the same are provided in the subsequent sections.

[27] Hazard. (2022). Retrieved 22 July 2022, from https://www.undrr.org/terminology/hazard

Table 9: Hazard Risk and Vulnerability Analysis of UP

S. No.	Hazard	Districts Under Maximum Risk (In Terms of Damage and Loss)	Number of Vulnerable Districts	Severity
1	Flood	Eastern and North-Western parts of UP	40	Moderate to high
2	Drought	All Districts	75	Low to high
		Bundelkhand Region	11	High to very high
3	Earthquake	North-East, East, Central, North, North-West and West	31	Low to high
4	Lightning	All Districts	75	Low to high
5	Thunderstorm	All Districts	75	Low to high
6	Heat wave	All Districts	75	Low to high
7	Cold wave	All Districts	75	Low to high

Source: **Data compiled from Relief Commissioner's Office, Government of UP (2021)**

Vulnerability Mapping by Building Materials and Technology Promotion Council (BMTPC)

The vulnerability mapping by BMTPC involves checking whether a building situated in a seismically active area has sufficient robustness to withstand a specific magnitude earthquake, flood or other natural disaster. BMTPC carried out a structural vulnerability assessment of UP in 2019 in which they found that around 50.7 per cent of rural houses are made up of burnt brick wall and stone packed with mortar, and 18 per cent of houses are made up of mud and unburnt brick wall. These houses are at high risk in earthquake and very high risk in flood-prone areas. Usually, the walls get washed away during heavy rainfall and severe flood situations. Houses built with burnt bricks and stones packed with mortar are less susceptible to earthquakes and have medium vulnerability to floods.

Wall / Roof		Census Houses		Level of Risk under								
				EQ Zone				Wind Velocity m/s				Flood Prone Area in %
		No. of Houses	%	V	IV	III	II	55 & 50	47	44 & 39	33	
				Area in %				Area in %				
STATE - UTTAR PRADESH					29.0	48.3	22.7	43.2	53.4	3.4		26.0
WALL												
A1 - Mud & Unburnt Brick Wall	Rural	7,671,487	18.0									
	Urban	557,829	1.3									
	Total	***8,229,316***	***19.3***		*H*	*M*	*L*	*VH*	*H*	*M*		*VH*
A2 - Stone Wall not packed with mortar	Rural	328,497	0.8									
	Urban	181,046	0.4									
	Total	***509,543***	***1.2***		*H*	*M*	*L*	*H*	*M*	*L*		*VH*
Total - Category - A		***8,738,859***	***20.5***									
B - Burnt Bricks Wall & Stone wall packed with mortar	Rural	21,620,426	50.7									
	Urban	8,140,057	19.1									
	Total	***29,760,483***	***69.8***		*M*	*L*	*VL*	*H*	*M*	*L*		*H/M*
Total - Category - B		***29,760,483***	***69.9***									
C1 - Concrete Wall	Rural	147,358	0.3									
	Urban	114,495	0.3									
	Total	***261,853***	***0.6***		*L*	*VL*	*VL*	*L*	*VL*	*VL*		*L/VL*
C2 - Wood wall	Rural	62,424	0.1									
	Urban	20,630	-									
	Total	***83,054***	***0.1***		*L*	*VL*	*VL*	*VH*	*H*	*M*		*H*
Total - Category - C		***344,907***	***0.8***									
X - Other Materials	Rural	3,365,434	7.9									
	Urban	392,676	0.9									
	Total	***3,758,110***	***8.8***		*VL*	*VL*	*VL*	*VH*	*H*	*M*		*VH*
Total - Category - X		***3,758,110***	***8.8***									
TOTAL HOUSES*		**42,602,359**										

Figure 4: Risk analysis of houses in UP

Source: BMTPC Vulnerability Atlas of India, 2019

From the perspective of structural vulnerability of wall and roofing of housing structures, 19.3 per cent of the housing structures (both rural and urban) that are made up of mud and unburnt brick wall are highly vulnerable to flood and wind velocity above 55 metres per second. Also, housing structures with stone wall not packed with mortar remain highly vulnerable to floods. This shows that the level of risk remains the same even when the structural quality gets better, which still poses a threat to life and property.

About 69.5 per cent of houses with burnt brick (both rural and urban) and stone packed walls are moderately vulnerable to floods and earthquakes as structural quality has improved. Houses with concrete walls are the least vulnerable to earthquakes, storms and floods. This shows that the higher the standards of structural quality of infrastructure, the less vulnerable these would be in case of any disaster.

Trends in Mortality across Various Disasters in UP

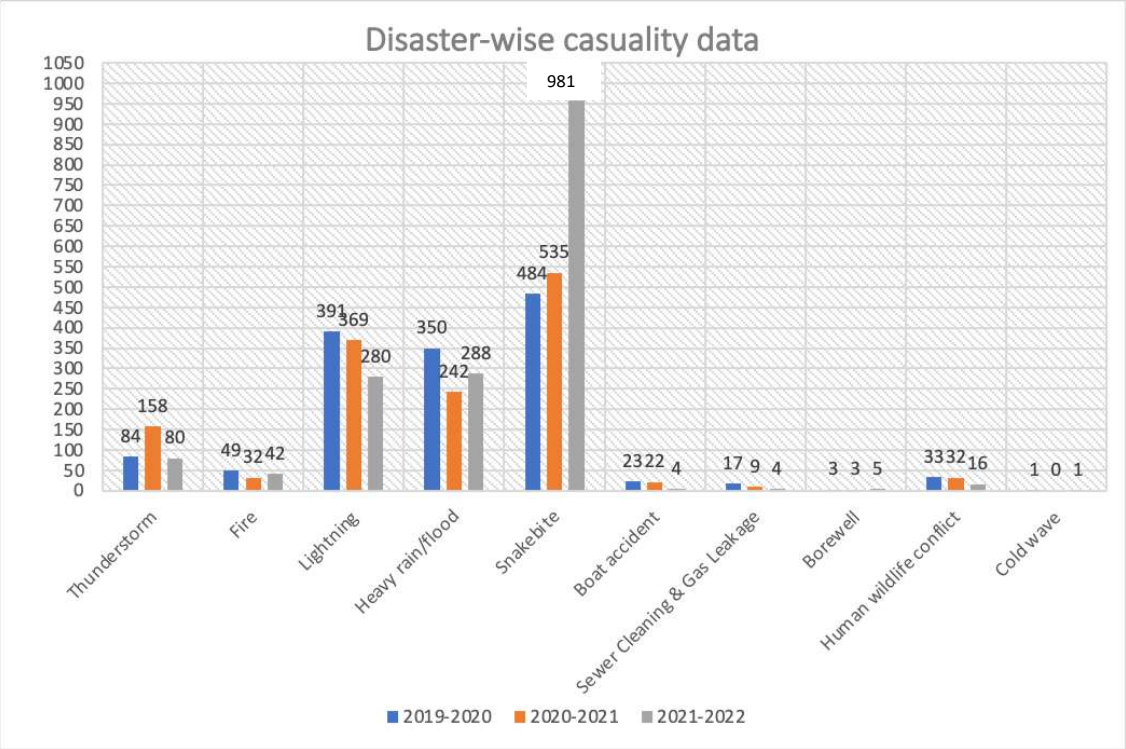


Figure 5: Trend of deaths in various disaster categories

Source: Relief Commissioner's Office, Government of UP (2022)

In 2021-22, the highest number of deaths were registered in the snakebite category. This was followed by heavy rainfall and floods. Deaths due to lightning and thunderstorms have also been substantially high.

5.3.1 Flood

Flood is a recurrent disaster in the State of UP. Some of the major rivers that cause floods in the State are the Ganga, Ghaghra, Yamuna, Ram Ganga, Gomti, Rapti, Sharda, and Gandak. The Eastern Districts of UP are the most vulnerable to floods in comparison to Western and Central Districts.

Table 10: Flood history in UP (1973-2019)

S. No.	Year	Number of Affected Districts	Affected Population (in Thousands)	Affected Villages	Total Affected Area (in Hectares)	Affected Agricultural Land (in Hectares)	Damaged Houses (in Lakhs)	Estimated Financial Loss (in Crores)
1	1973	40	141.5	30004	35	22.23	2.98	296.84
2	1974	39	73.9	14928	19.86	12.24	2.03	173.16
3	1975	36	92.14	18629	23.65	14.21	2.01	192.44
4	1976	36	31.95	32962	33.49	18.49	2.05	234.79
5	1977	31	37	7536	12.87	6.42	0.51	77.04
6	1978	55	225.87	48889	72.5	38.82	11.98	688.34
7	1979	16	21.04	3913	7.03	5.18	0.23	57.57
8	1980	46	303.47	44629	58.57	30.94	19.23	790.67
9	1981	33	146.27	20706	29.91	16.35	4.91	286.38
10	1982	44	232.91	32459	55.38	33.09	10.18	585.65
11	1983	56	155.34	24731	38.6	24.99	5.16	754.03
12	1984	39	65.75	11600	16.68	10.31	0.83	262.15
13	1985	55	195.59	27113	40.28	24.19	6.2	1216.26
14	1986	45	59.19	8925	10.34	6.45	0.51	268.14
15	1987	9	38.24	5807	5.81	3.16	1.8	186.14
16	1988	46	182.04	24721	31.76	17.14	3.71	834.6
17	1989	25	48.62	8281	10.3	6.52	0.78	NA
18	1990	51	85.34	15524	22.03	10.64	1.32	NA
19	1991	29	24.19	3372	8.1	2.1	0.78	NA
20	1992	20	29.24	4254	5.91	3.34	0.34	NA
21	1993	34	75.05	11765	15.11	7.91	1..37	NA
22	1994	45	39.07	9627	9.86	5.98	0.66	NA
23	1995	51	36.91	8874	12.79	7.98	0.88	NA
24	1996	44	72.2	8827	11.24	6.78	0.09	NA
25	1997	29	10.21	2284	3.49	1.55	0.03	NA
26	1998	55	121.91	15168	25.23	14.15	3.84	NA
27	1999	11	1.83	2.99	5.39	4.69	0.0049	NA
28	2000	40	63.86	5882	7.84	4.724	0.0089	NA
29	2001	21	27.15	3819	4.63	2.89	0.09	NA
30	2002	14	3.86	770	1.1	0.62	0.0061	NA
31	2003	54	134.8	17011	23.6	15.03	0.35	NA
32	2004	2	14.36	865	2.439	-	-	NA

S. No.	Year	Number of Affected Districts	Affected Population (in Thousands)	Affected Villages	Total Affected Area (in Hectares)	Affected Agricultural Land (in Hectares)	Damaged Houses (in Lakhs)	Estimated Financial Loss (in Crores)
33	2005	35	24.511	3652	3.597	3.835	0.7732	NA
34	2006	12	4.53	678	-	-	-	NA
35	2007	23	26.53	578	8.49	5.66	0.34	519.88
36	2008	32	41.75	6287	4.988	-	5.3	NA
37	2009	15	2038	1712	4.988	-	0.04	129.3
38	2010	44	53.76	6819	-	6.7	1.19	1013.784
39	2011	36	23.06	3587	5.25	3.96	0.0553	1438.44
40	2012	15	6.835	1118	-	1.241	0.796	117.87
41	2013	40	35.44	5785	5.646	3.49	0.7828	3259.53
42	2014	22	15.39	1895	4.72	4.72		754.3284
43	2015	No flood						
44	2016	31	22.34	3078	5.96	4.21	0.4679	812.53
45	2017	33	29.23	3147	4.37	2.28	0.2877	862.9
46	2018	24	5.918	947	NA	1.9	0.2806	556.43
47	2019	40	7.459	1297	NA	60.03	0.5664	842.33

Source: Flood Book 2019, Flood Management Information System, Department of Irrigation, Government of UP

Over time, the number of deaths reported due to floods has shown a declining trend. One reason could be better preparedness for floods as a result of strengthened systems in the State.

Flood-affected Regions of UP

A detailed analysis of the flood history of the State, supported by the collated data by the Department of Irrigation, Government of UP, shows that 40 Districts are most vulnerable to floods. Of these, 23 Districts are in the 'very severe' category, while 17 are in the 'severe' category. The severity is defined based on the frequency of floods in the Districts. Lakhimpur Kheri, Shravasti, Sitapur, Bahraich, Barabanki, Gonda, Basti, Siddharthnagar, Ayodhya, Balrampur, Maharajganj, Sant Kabir Nagar, Deoria, Kushinagar, Mau, Azamgarh, Ballia, Gorakhpur, Ambedkar Nagar, Bijnor, Pilibhit, Badaun, and Farrukhabad Districts are in the 'very severe' category. All the affected Districts are in Sharda, Rapti, and Ghaghra basin, where one of the major reasons for flooding is the release of water from Nepal.

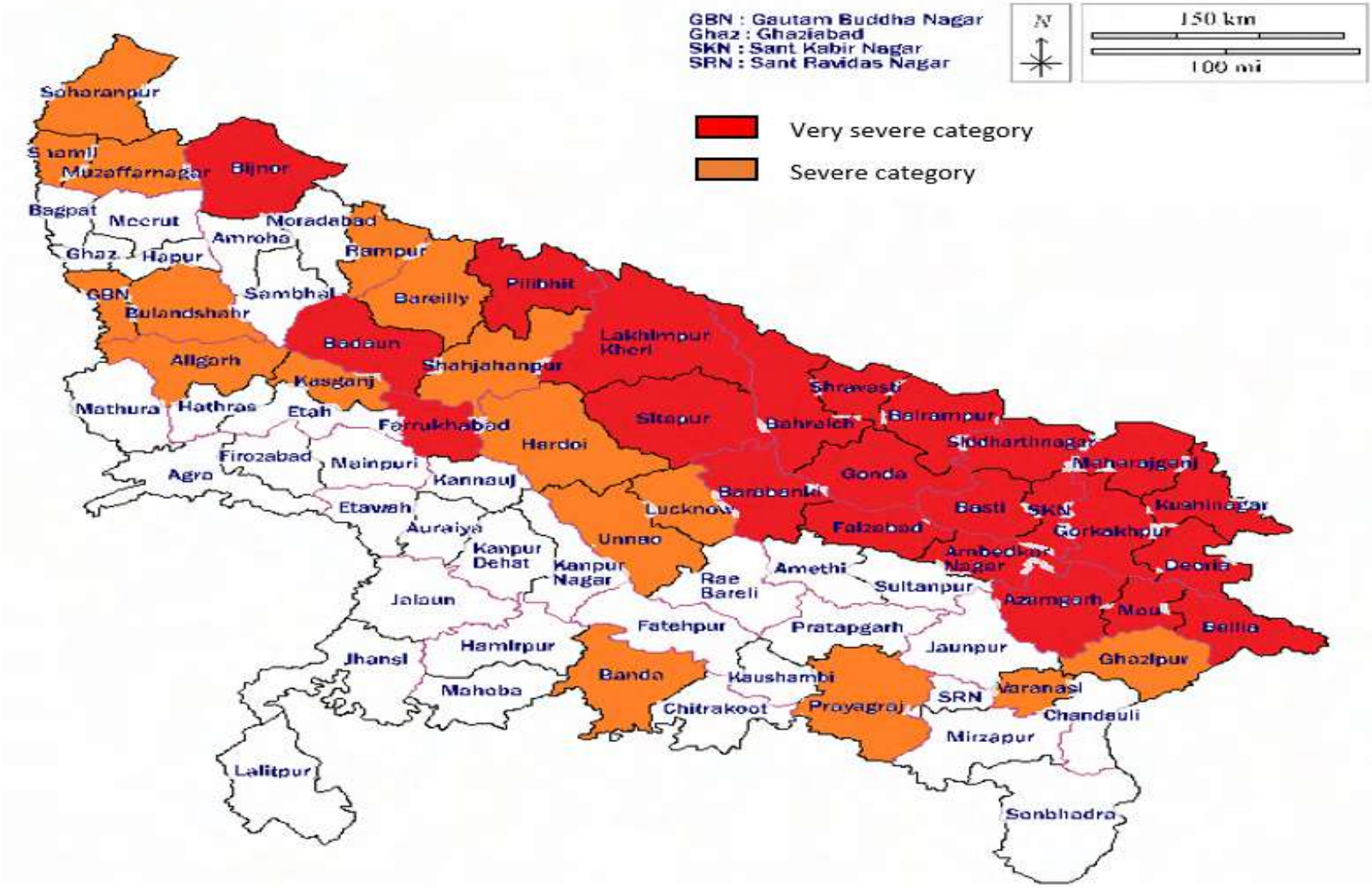


Figure 6: Very severe and severe flood-prone districts of UP

Source: Data Provided by Uttar Pradesh State Disaster Management Authority

About 17 Districts have been placed in the 'severe' category. These are mainly in the Ram Ganga and Ganga river basins. These are flooded once in two years due to perennial rainfall in the region. The Districts are Ghazipur, Saharanpur, Muzaffarnagar, Bulandshahr, Rampur, Aligarh, Gautam Buddha Nagar, Banda, Shamli, Bareilly, Kasganj, Shahjahanpur, Hardoi, Unnao, Lucknow, Prayagraj and Varanasi.

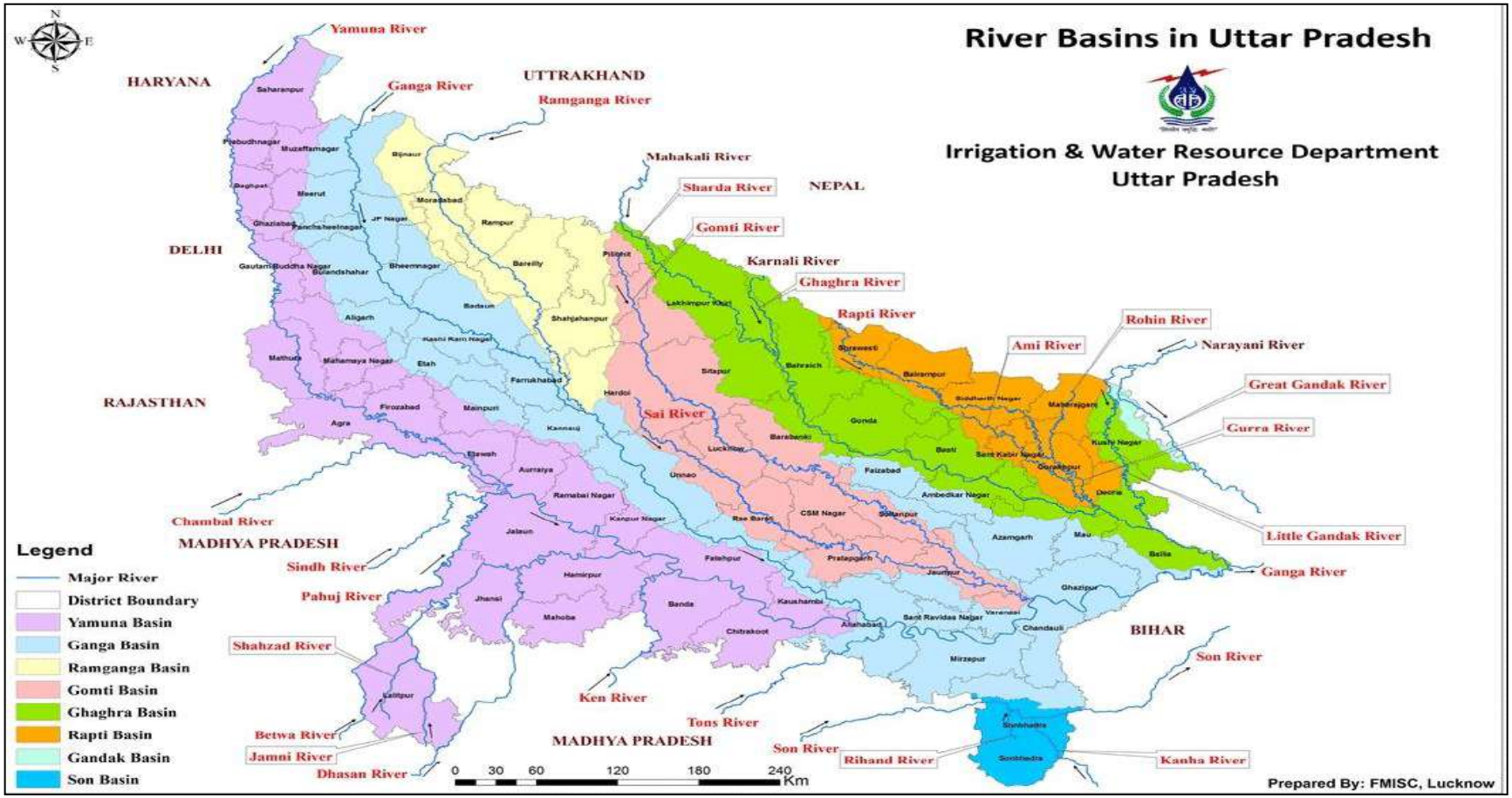


Figure 7: River Basins of UP

Source: Flood Book 2019, Flood Management Information System Centre, Department of Irrigation, Government of UP

Table 11: Flood-Affected Districts in UP

Region	Affected Districts
Western	Rampur, Gautam Buddha Nagar, Aligarh, Saharanpur, Bareilly, Bijnor, Pilibhit, Badaun, Shahjahanpur and Bulandshahr, Shamli
Eastern	Ayodhya, Balrampur, Gorakhpur, Ghazipur, Deoria, Basti, Mau, Ballia, Sant Kabir Nagar, Siddharthnagar, Maharajganj, Kushinagar, Azamgarh, Gonda, Shravasti, Bahraich, Lakhimpur Kheri, Ambedkar Nagar and Varanasi
Central	Lucknow, Farrukhabad, Sitapur, Hardoi, Kasganj, Barabanki, Raebareli, Unnao and Prayagraj
Bundelkhand	Banda

Source: Irrigation & Water Resource Department, Government of UP

Discharge from Perennial Rivers

Floods have been a commonly recurring phenomenon in the State, affecting almost half of the State almost every year. Yamuna and Ganga, 2 of the 10 perennial rivers of India, follows half its course through UP, which when precipitated with the extensive rainfall in the monsoon creates a flood situation starting from Bijnor, Farrukhabad, and Kasganj to Varanasi and Prayagraj. Additionally, extensive rainfall in the Terai region of Nepal leads to massive release of water from the Karnali, Mahakali and Narayani River basins (details of trans-boundary rivers are annexed) towards downstream in Ramganga, Gomti, Sharda, Ghaghra, Rapti and Gandak. This results in floods across Eastern UP. Details of the highest danger levels that have been recorded in the past are listed in Table 12.

Table 12: Main Rivers, Gauge Station and Highest Flood Level

S. No.	River	Gauge Site	District	Highest Flood Level (m)	Year	Danger Level (m)
1	Ganga	Bhim Gaura	Haridwar	296.23	1978	294.00
2	Ganga	Narora	Bulandshahr	180.01	2010	178.42
3	Ganga	CHCM Ganga Barrage	Bijnor	220.20	1997	220.00
4	Ram Ganga	Katghar Railway Bridge	Moradabad	193.94	1924	190.60
5	Yamuna	Okhla Barrage	Ghaziabad	201.35	1995	200.60
6	Yamuna	ISBT	Delhi	207.49	1978	204.83
7	Ken	Bariyapur Bandha	Madhya Pradesh	193.40	2005	189.74
8	Gomti	Hanuman Setu Gomti Barrage	Lucknow	110.85	1971	109.50
10	Sharada	Sharada Nagar	Lakhimpur Kheri	136.55	1993	135.49
11	Sharada	Paliakala	Lakhimpur Kheri	155.17	2008	153.62
12	Ghaghara	Kartania Ghat (Girija Barrage)	Bahraich	137.12	1975	136.78
13	Ghaghara	Elgin Bridge	Barabanki	107.40	2008	106.07
14	Ghaghara	Ayodhya	Ayodhya	93.84	2008	92.73
15	Ghaghara	Turtipar	Ballia	66.00	1998	64.01
16	Rapti	Rapti Barrage	Shravasti	129.55	2006	127.70
17	Rapti	Bardghat	Gorakhpur	77.54	1998	74.98
19	Saryu	Saryu Barrage	Bahraich	134.50	1995	133.50

Source: Department of Irrigation, UP

Dam/Barrage Flow Discharge

UP has a large network of dams and barrages. Some of the major dams are listed in Table 13. Over time, a large number of major barrages have been constructed above rivers such as Ram Ganga, Ghaghra, Rapti, Ganga and Yamuna. These are perennial rivers and receive glacial water along with rainfall during the period from June to September. Barrages above rivers in the lower Ganga basin ensure availability of water during the summer months and help in drought mitigation. On the other hand, rivers in the upper Ganga basin receive excessive rainfall during the said period. This situation is further exacerbated when Nepal releases water into India. This is contributing factor for floods in Eastern UP. A high level of siltation in the Rapti basin creates multiple drainage channels in the rivers. Because of this situation, when the water is released from Nepal, there is a change in the course of the rivers, resulting in floods in the upper Gangetic basin.

Table 13: Major Dams of UP

S. No.	Name of Dams	Main River	District
1	Parichha Dam	Betwa	Jhansi
2	Matatila Dam	Betwa	Lalitpur
3	Govind Ballabh Pant Sagar Dam	Rihand	Sonbhadra
4	Jamni Dam	Jamni	Lalitpur
5	Kalagarh Dam	Ram Ganga	Bijnor
6	Rohini Dam	Rohini	Lalitpur
7	Shahzad Dam	Shahzad	Lalitpur
8	Govind Sagar Dam	Shahzad	Lalitpur
9	Sajnam Dam	Sajnam	Lalitpur
10	Sukma-Dukma Dam	Betwa	Jhansi
11	Jirgo Reservoir	Jirgo	Mirzapur
12	Musa Kahand	Karmnasa	Chandauli and Varanasi

Source: UP State Disaster Management Plan 2018–19

Siltation

Siltation across the Ganga and Yamuna Rivers has been one of the challenges for change of flow from the normal course of the river. Downstream of the Rishikesh and Bhigauda Barrages, the Ganga flows through braided channels during the lean season. The width of the river changes from 1 to 3 km. The river forms chute channels and multiple channels in the upstream.

When the Ganga River reaches Prayagraj, it flows mostly in single channels, except at a few places, where siltation is present. The channels get distributed mainly at the Ram Ganga confluence, where a large part of sediment is received. Similarly, the confluence of the Ganga and Yamuna also creates congestion in discharge due to siltation in Prayagraj, which leads to floods in the region.

The UP Remote Sensing Application Centre (UPRSAC) has initiated the study of rejuvenation, desilting and storage capacity of the Manorama, Tamsa and Varuna rivers of UP. The analysis is to be used in the preparation of detailed integrated development plans for rejuvenation, desilting and increasing the flow of these rivers.

Table 14: Flood Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• Flood is the main disaster faced by the State each year. Historically, most of the districts experienced floods. However, since the 2000s, this climatic pattern has changed due to climate change, and the predominantly flood-prone Districts are also witnessing drought or drought-like conditions • Lakhimpur Kheri, Shravasti, Sitapur, Bahraich, Barabanki, Gonda, Basti, Siddharthnagar, Ayodhya, Balrampur, Maharajganj, Sant Kabir Nagar, Deoria, Kushinagar, Mau, Azamgarh, Ballia, Gorakhpur, Ghazipur, Ambedkar Nagar, Bijnor, Pilibhit, Badaun and Farrukhabad Districts are in the 'very severe' category • The 16 Districts Saharanpur, Muzaffarnagar, Bulandshahr, Rampur, Aligarh, Gautam Buddha Nagar, Moradabad, Bareilly, Shahjahanpur, Hardoi, Kannauj, Unnao, Lucknow, Hamirpur, Prayagraj and Varanasi on the Ram Ganga and Ganga River basins have been categorized in the 'severe' category • Since the past couple of years, Jalaun, Banda, Chitrakoot and Hamirpur Districts of the Bundelkhand region, which were known for drought, are experiencing sporadic floods
Vulnerability Indicators	Vulnerability is high due to the topography and geometry of water channels. The two main reasons for floods include high precipitation and water logging. • Eastern UP experiences 1,000–1,200 mm of rainfall annually. The main reasons for floods include heavy rainfall, low gradient, high subsoil water level, and silting of river beds. The Western parts of the State experience 600–1,000 mm of rainfall annually, and because of poor drainage systems, face flood like situations • The *bund* structures are quite vintage and need extensive maintenance • Heavy rainfall in Nepal and Uttarakhand cause downstream flooding in UP which is aggravated by lack of early warning and information sharing • Economically weaker section people form a large section of the population of UP and most live below the poverty line. When a disaster strikes, the resilience to 'Build Back Better' is lower in such population. • The elderly account for 7.7 per cent of the total State population. Of this, 80 per cent live in the rural areas and support their families in agricultural practices. Flood exacerbates livelihood conditions of the elderly.
Risk	**Health:** • Disruption of routine services including health infrastructure occur as the health facilities are submerged in water or damaged during floods • There is an increase in the number of cases and deaths from water-borne diseases such as cholera, dysentery, diarrhoea as a result of contaminated water • There is also an increase in the number of cases and deaths from vector-borne diseases such as dengue, chikungunya and malaria • Vulnerabilities are further exacerbated due to the ongoing COVID-19 pandemic **Nutrition:** • Crop damage results in reduced food availability. Food consumption of people may be compromised • There is a possibility of shortage in food supplies • Anganwadi Centres (AWCs) in the flood-affected areas may be either inaccessible or damaged, resulting in disruption of services that are provided through the AWCs **Education:** • Schools may be inaccessible due to water logging

	• Schools may be inundated resulting in closure • Schools may be used as relief shelters resulting in disruption of education • There may be a loss in the number of school days because of closure of schools • Absenteeism may occur due to the inability to reach schools, or the need for helping at home, or engaging in child labour or migration • There may be an increase in school dropout rates • Reading and learning materials may be damaged and result in children losing interest in studies **Water, Sanitation and Hygiene (WASH):** • Poor sanitary conditions may result in child morbidity and mortality • Water quality may be an issue due to which water-borne diseases may increase **Child Protection:** • Livelihoods of caregivers may be affected, resulting in an increase in child labour, child abuse and trafficking • There is a possibility of increased psychological stress among children • There is a possibility of children drowning and losing their lives **Livelihood:** • There could be a possibility of people losing their livelihood and being pushed into poverty • Daily wagers may not be able to work during floods as their time is spent in saving their own lives, property, household goods and livestock • Agricultural losses may occur due to crop damage • Loss of livestock affects the economy of rural communities
Gaps in Existing Capacities	• Flood Atlas for the State is required to be prepared. • Enhanced set-up for real-time monitoring system of water level of the rivers and reservoir levels is required. • Enhanced set-up for early warning systems in the State for flood risks and release of water from reservoirs to the people residing in low-lying areas needs to be established. • Studies on flood zonation and river migration change of the major rivers are lacking. • Set-up for digital risk mapping for public information and research purposes is required. • Documentation and lessons learnt from major floods in the State on management, prevention and mitigation measures needs upgradation. • Studies on flood-related problems such as river course changes, agriculture land and soil losses caused by flooding of rivers, and appropriate use of embankments should be taken up. • Studies on land use and hydrological changes relevant to flood management in river basins and reservoir command areas should be entrusted to academic institutions. • Network of flood gauge and rainfall gauge in un-gauged flood-prone areas that pose significant threat to at-risk communities needs to be set up. • Geographic Information System (GIS)-based mapping of all the essential services needed for rescue, response and relief phases viz. medical and health, civil supply, WASH, shelter and other emergency services requires upgradation. • Lack of Artificial Intelligence-based Decision Support Systems. The State Emergency Operation Centre (SEOC)/ District Emergency Centres (DEOCs) should integrate latest scientific/technological tools for Decision Support. • Lack of coordination between early warning agencies like Central Water

	Commission (CWC), Indian Meteorological Department (IMD), Irrigation Department and UPRSAC. • Strict enforcement regime for regulation on inhabitation of low-lying areas along the rivers, canal and drains. • Though, a HRVCA has been undertaken for the State, this is quite traditional, and the changing climate scenarios are not given due attention, nor are technological and scientific studies taken into consideration for comprehensive HRVCA.

5.3.2 Drought

"Drought is mainly caused due to variability of rainfall leading to rainfall deficiency and water shortage". [28] The impact, response, and interventions to such conditions would vary depending on the point of time in a crop calendar when there is acute water or soil moisture deficit. Generally, three situations are recognized:

i. Early season: delayed rainfall (delayed onset of monsoon), prolonged dry spells after onset;
ii. Mid-season: inadequate soil moisture between two rain events; and
iii. Late season: early cessation of rains or insufficient rains.

The Indian Meteorological Department recognizes five drought situations:

i. Drought Week, when the weekly rainfall is less than half of the normal;
ii. Agricultural Drought, when four drought weeks occur consecutively between mid-June and September;
iii. Seasonal Drought, when seasonal rainfall is deficient by more than the standard deviation from the normal;
iv. Drought Year, when annual rainfall is deficient by 20 per cent of the normal or more; and
v. Severe Drought Year, when annual rainfall is deficient by 25 to 40 per cent of the normal or more.

Drought can be devastating, as water supplies dry up, crops fail to grow, animals die, and malnutrition and ill health become widespread.

History of Drought in UP

Farming in UP is mainly rain-fed during the rainy season and irrigation-based during the post-rainy season. However, in the upland, during scanty rainfall, canals and tube wells supplement water needs.

UP faced droughts in 2002, 2004, 2006, 2007, 2009, 2014 and 2015. This resulted in loss of crops, livestock and property. The successive deficient rains in 2006 and 2007 caused calamitous conditions in the nine southern Districts of the State comprising the Bundelkhand and Vindhyan regions.

[28] NDMA. (2022). Retrieved 22 July 2022, from https://ndma.gov.in/kids/drought.html

In 2015, the State faced severe drought conditions, in which almost 50 Districts were affected. The State received 56 per cent less rainfall than normal during the monsoons. Due to scanty rainfall, drought was declared in 50 Districts of UP.

In 2016, eight Districts were affected: Lalitpur, Kanpur Nagar, Banda, Hamirpur, Chitrakoot, Mahoba, Jalaun and Jhansi.

In 2018, five Districts were affected by drought: Lalitpur, Mahoba, Jhansi, Sonbhadra and Mirzapur. The year-wise drought history is mentioned below.

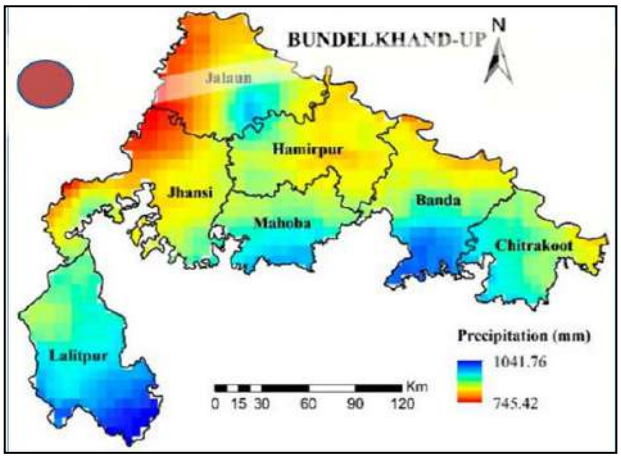


Figure 8: Precipitation variability in Bundelkhand

Source: Drought Identification and Trend Analysis Using Long-Term CHIRPS Satellite Precipitation Product in Bundelkhand, India (2021)

Table 15: History of drought in UP

Year	No. of Districts Affected	Names of Districts Affected
1979	9	Banda, Chitrakoot, Hamirpur, Jalaun, Jhansi, Lalitpur, Mahoba, Mirzapur, Sonbhadra
2002	68	Agra, Aligarh, Allahabad, Ambedkar Nagar, Azamgarh, Budaun, Baghpat, Bahraich, Ballia, Balrampur, Banda, Barabanki, Bareilly, Basti, Bijnor, Bulandshahr, Chandauli, Chitrakoot, Deoria, Etah, Etawah, Ayodhya, Farrukhabad, Fatehpur, Firozabad, Gautam Buddha Nagar, Ghaziabad, Ghazipur, Gonda, Gorakhpur, Hamirpur, Hardoi, Jalaun, Jaunpur, Jhansi, Amroha, Kannauj, Kanpur Nagar, Kanpur Dehat, Kaushambi, Lakhimpur Kheri, Kushinagar, Lalitpur, Lucknow, Maharajganj, Mahoba, Mainpuri, Mathura, Mau, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pilibhit, Pratapgarh, Raebareli, Rampur, Saharanpur, Sant Kabir Nagar, Sant Ravi Das Nagar, Shahjahanpur, Shravasti, Siddharthnagar, Sitapur, Sonbhadra, Sultanpur, Unnao, Varanasi
2004	60	Agra, Aligarh, Allahabad, Ambedkar Nagar, Auraiya, Azamgarh, Budaun, Baghpat, Bahraich, Ballia, Balrampur, Banda, Barabanki, Basti, Bulandshahr, Chandauli, Chitrakoot, Deoria, Etah, Etawah, Ayodhya, Farrukhabad, Fatehpur, Firozabad, Gautam Buddha Nagar, Ghaziabad, Ghazipur, Gonda, Hamirpur, Hardoi, Jalaun, Jaunpur, Jhansi, Kannauj, Kanpur Nagar, Kanpur Dehat, Kaushambi, Lucknow, Mahrajganj, Mahoba, Mainpuri, Mathura, Mau, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pratapgarh, Raebareli, Saharanpur, Sant Kabir Nagar, Sant RaviDas Nagar, Shahjahanpur, Shravasti, Siddharthnagar, Sitapur, Sonbhadra, Sultanpur, Unnao, Varanasi
2007	9	Banda, Chitrakoot, Hamirpur, Jalaun, Jhansi, Lalitpur, Mahoba, Mirzapur, Sonbhadra
2009	56	Agra, Aligarh, Allahabad, Ambedkar Nagar, Auraiya, Azamgarh, Budaun, Ballia, Balrampur, Banda, Bareilly, Basti, Bijnor, Bulandshahr, Chandauli, Chitrakoot, Deoria, Etah, Etawah, Ayodhya, Farrukhabad, Fatehpur, Firozabad, Gautam Buddha Nagar, Ghaziabad, Ghazipur, Jalaun, Jaunpur, Jhansi, Amorha, Kannauj, Kanpur Nagar, Hamirpur, Kaushambi, Kushinagar, Lucknow, Lalitpur, Mahoba, Mainpuri, Mathura, Mau, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Pilibhit, Raebareli, Rampur, Saharanpur, Sant Kabir Nagar, Shahjahanpur, Siddharthnagar, Sitapur, Sultanpur, Unnao, Varanasi
2014	43	Agra, Aligarh, Amethi, Auraiya, Azamgarh, Budaun, Banda, Bareilly, Bulandshahr, Chitrakoot, Deoria, Etah, Etawah, Ayodhya, Farrukhabad, Fatehpur, Firozabad, Gautam Buddha Nagar, Ghaziabad, Hamirpur, Hapur, Hardoi, Jalaun, Jaunpur,

Year	No. of Districts Affected	Names of Districts Affected
		Jhansi, Kannauj, Kanpur Nagar, Kanpur Dehat, Kaushambi, Kushinagar, Maharajganj, Mahoba, Mainpuri, Mathura, Mau, Meerut, Muzaffarnagar, Pilibhit, Rampur, Saharanpur, Shamli, Sonbhadra, Unnao
2015	50	Agra, Amethi, Allahabad, Ambedkar Nagar, Auraiya, Baghpat, Ballia, Balrampur, Banda, Barabanki, Basti, Chandauli, Chitrakoot, Deoria, Etah, Etawah, Firozabad, Ayodhya, Farrukhabad, Fatehpur, Ghaziabad, Gonda, Gorakhpur, Hamirpur, Jalaun, Jaunpur, Jhansi, Kannauj, Kanpur Nagar, Kanpur Dehat, Kaushambi, Kushinagar, Lalitpur, Lucknow, Mahoba, Maharajganj, Mainpuri, Mau, Mirzapur, Pilibhit, Pratapgarh, Raebareli, Rampur, Sant Kabir Nagar, Sant Ravidas Nagar, Shahjahanpur, Siddharthnagar, Sonbhadra, Sultanpur, Unnao
2016	8	Mahoba, Chitrakoot, Banda, Jalaun, Jhansi, Lalitpur, Hamirpur and Kanpur Nagar
2018	5	Mahoba, Lalitpur, Jhansi, Sonbhadra, Mirzapur

Source: UNICEF. (2019). *Child Risk and Impact Analysis: UP* (pp. 68-87); and Relief Commissioner's Office, UP

Severity of Drought in UP

Many of the Districts were affected in the years 1979, 2002, 2004, 2007, 2009, 2014, 2015, 2016 and 2018. The severity of drought in the Districts is reflected in Table 16.

Table 16: Districts Affected at least Five Times or more in the Period from 2002 to 2018

S. No.	District	Category	Number of times affected during 2002 to 2018	Year
1	Jhansi	Severe	8	2002, 2004, 2007, 2009, 2014, 2015, 2016, 2018
2	Lalitpur	Severe	8	2002, 2004, 2007, 2009, 2014, 2015, 2016, 2018
3	Mahoba	Severe	8	2002, 2004, 2007, 2009, 2014, 2015, 2016, 2018
4	Hamirpur	Severe	7	2002, 2004, 2007, 2009, 2014, 2015, 2016
5	Banda	Severe	7	2002, 2004, 2007, 2009, 2014, 2015, 2016
6	Chitrakoot	Severe	7	2002, 2004, 2007, 2009, 2014, 2015, 2016
7	Jalaun	Severe	7	2002, 2004, 2007, 2009, 2014, 2015, 2016
8	Agra	Moderate	5	2002, 2004, 2009, 2014, 2015
9	Mainpuri	Moderate	5	2002, 2004, 2009, 2014, 2015
10	Etah	Moderate	5	2002, 2004, 2009, 2014, 2015
11	Fatehpur	Moderate	5	2002, 2004, 2009, 2014, 2015
12	Kaushambi	Moderate	5	2002, 2004, 2009, 2014, 2015
13	Sonbhadra	Moderate	5	2002, 2004, 2009, 2015, 2018
14	Mirzapur	Moderate	5	2002, 2004, 2009, 2015, 2018
15	Etawah	Moderate	5	2002, 2004, 2009, 2014, 2015
16	Kanpur Dehat	Moderate	5	2002, 2004, 2009, 2014, 2015
17	Mathura	Moderate	5	2002, 2004, 2009, 2014, 2015
18	Prayagraj	Moderate	5	2002, 2004, 2009, 2014, 2015

Source: UNICEF. (2019). *Child Risk and Impact Analysis: UP* (pp. 87-91).

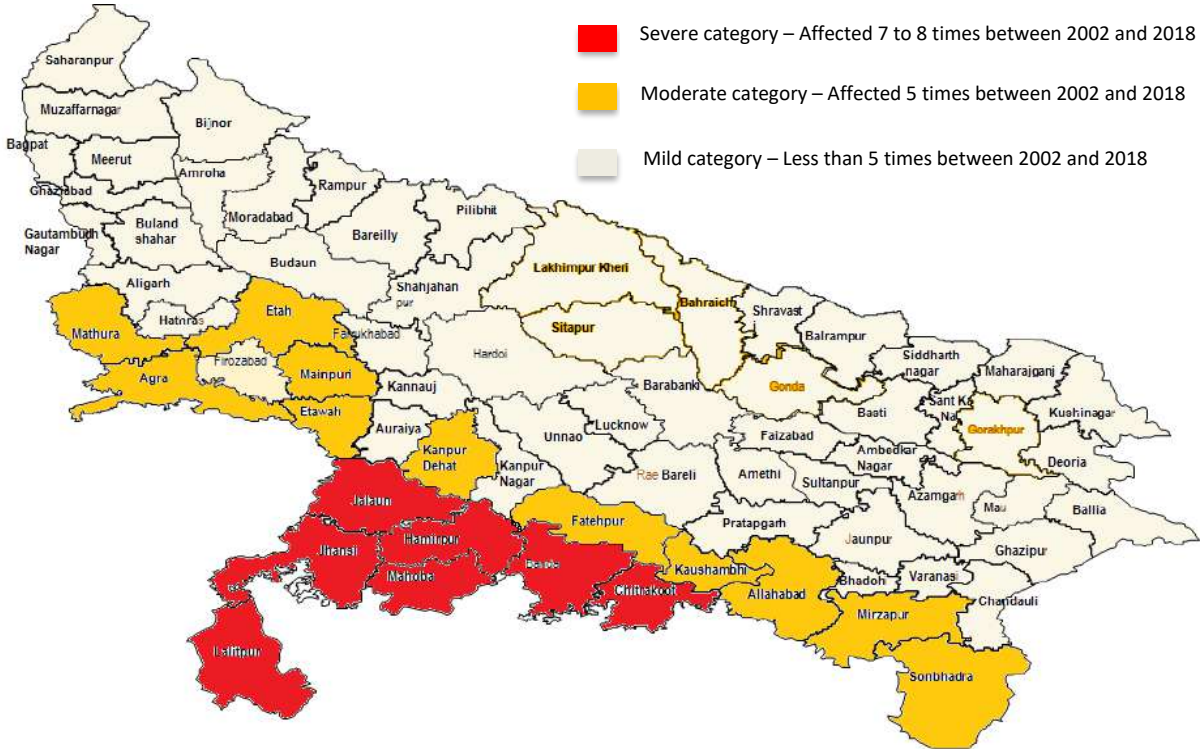


Figure 9: Drought-affected districts experiencing drought five to eight times between 2002 and 2018

Source: Based on data from Table 16

Primarily, the Bundelkhand region in UP is affected by drought or drought-like conditions. In this region, crops grown during the post-rainy season are usually based on residual moisture conserved during the rainy season. Rainfall occurs both from Bengal and South-West monsoons during the period from July to September each year.

Bundelkhand: Overview of Monsoons in 2018 Resulting in Drought

Bundelkhand is known as a drought-prone region. It comprises seven Districts of UP. Monsoon rains are of critical importance to this region. However, in the past several years, the region has faced deficit rains leading to water scarcity, particularly for agriculture-related activities. The situation of rainfall in 2018 is depicted in Table 17.

Table 17: Cumulative District-wise Rainfall Distribution in 2018

S. No.	District	Normal Rainfall (Jun–Sep)	Actual Rainfall (Jun–Sep)	Deficient %
1	Banda	840.4	772.7	- 8%
2	Chitrakoot	885.9	911.3	3%
3	Hamirpur	796.9	810.4	2%
4	Jalaun	774.9	600.4	-23%
5	Jhansi	837.9	775.0	-8%
6	Lalitpur	939.3	835.5	-11%
7	Mahoba	776.4	340.4	-56%

Source IMD, 2021

Following the deviation in rainfall and other indices such as availability of water, the Government of UP declared seven Bundelkhand Districts as drought-affected in the year 2018.

Socio-Economic Impact of Drought in UP

UP, with 29.43 per cent (one in four) of its population living below the poverty line, is an agrarian State. Drought and its effect on agricultural outputs makes the poor vulnerable to financial shocks, thereby leading to poverty traps. Inequality, a high in UP and is a major bottleneck to achieving national priorities. As per the NITI India Index 2020, UP was the poorest performer on Goal 11 (reduced inequalities). The State score was 41, while the national score was 67.

Table 18: Drought Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• UP is divided into two meteorological sub-divisions: UP East and UP West • Since 2000, climate variability has been witnessed with a higher number of Districts facing drought-like conditions • The recurrence period of highly deficient rainfall in Bundelkhand region is seven to eight times in 15 years • The recurrence for the Districts in Vindhya region is five– to six times between 2002 and 2018 • Chitrakoot, Banda, Hamirpur, Jhansi, Jalaun Lalitpur and Mahoba are severely vulnerable to drought • Agra, Etah, Etawah, Fatehpur, Kaushambi, Kanpur Dehat, Prayagraj, Mirzapur, Mathura, Mainpuri and Sonbhadra are moderately vulnerable to drought
Vulnerability	• Overpopulation (relative to current productivity, income and natural resources) in Bundelkhand and Vidhya region • Debilitated ecological base leading to land degradation and fragmentation due to excessive use of quarrying and mining • High dependence on climate-sensitive sectors: agriculture, forestry, fisheries • High number of dark zones for ground water
Risk	**Social:** • Damage to crops results in a greater number of farmers slipping below the poverty line • Population without access to (improved) sanitation and water supply • Low access to fodder for animals during drought • Loss of crop affects the livelihood of the farmers and leads to large-scale migration **Economic:** Loss of crops, leads to reduced purchasing power among the farmers, which leads to economic losses **Health and Nutrition:** • Crop damage and loss of livelihoods leads to food insecurity affecting nutritional status and health of children • Distance to health centres leads to difficulty of access during extreme weather conditions • Water contamination causes water-borne diseases such as jaundice and diarrhoea among children and other vulnerable groups • Shortage of food may lead to an increase in malnourishment and under-nourishment of people **Education**: • School education is affected and the percentage of dropouts increases. Either children migrate with their parents or they contribute to the household income as child labour • Mid-day meals are affected • Schools can be closed due to unavailability of safe drinking water

	• Poor sanitary conditions • Adolescent girls dropout of schools and participate in household work **WASH**: • Unavailability of safe drinking water affects people and livestock • Poor sanitary conditions • Children and women walk longer distances to draw water for household consumption **Child protection:** • Child trafficking and child abuse increase because of migration of parents or need for additional income
Gaps in Existing Capacities	• Low level of awareness among farmers on social protection schemes such as Pradhan Mantri Fasal Bima Yojana (PMFBY) • Lack of technical know-how on monitoring of rainfall and water resources at ground level • Lack of drought forecast, and assessment of water deficit, drought-prone, and dryland farming areas • Lack of awareness on water conservation methods such as rainwater harvesting • Limited resources for institution-building specific to drought mitigation and response • Lack of availability of less water-intensive seeds • Lack of awareness among farmers on crop rotation methods • Lack of proper repair of dysfunctional water sources • Inadequate Rapid Response Teams (RRTs) for managing any outbreak of water-borne diseases • Inadequate guidelines for hiring private tankers in case of inadequate availability of Government tankers • Inadequate establishment of fodder banks at strategic locations using improved fodder/feed storage methods for supply of fodder to deficit areas • Inadequate pilot studies in drought-prone areas for suggesting long-term mitigation measures • Lack of programme convergence on lessons learnt from studies carried out by various research institutions • Inadequate promotion and subsidy on water-efficient irrigation systems (sprinklers, drip, etc.) • Lack of tracking mechanism on village-level information systems for natural resource management • Inadequate coverage on credit and financing products relevant to the drought-prone areas

5.3.3 Earthquake

UP falls under the four seismic zones – II, III and IV – according to the maximum intensity of earthquake expected. A major part of the State falls under zones III and IV.

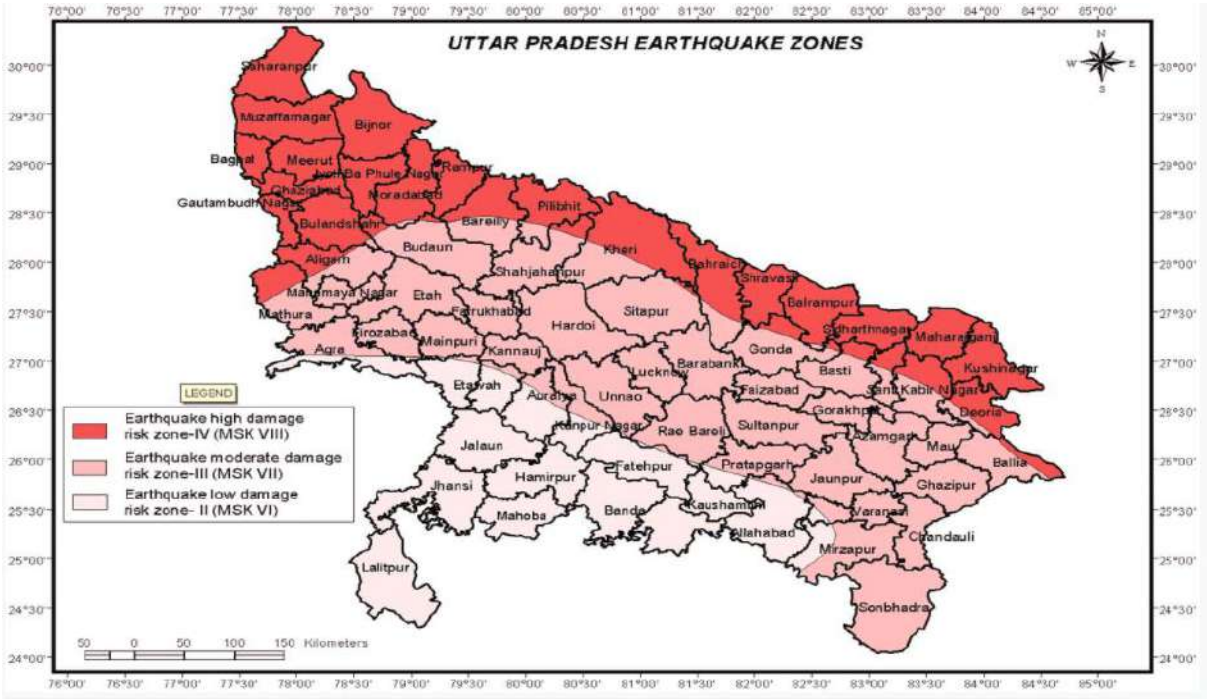


Figure 10: Earthquake zone map of UP

Source: BMTPC Vulnerability Atlas of India (2019)

Table 19: List of Districts of UP in Earthquake Seismic Zones II to IV

S. No.	Districts completely in Zone IV	Districts partly in Zones IV and III	Districts completely in Zone III	Districts partly in Zones II and III	Districts completely in Zone II
1	Amroha	Aligarh	Ambedkar Nagar	Agra	Banda
2	Baghpat	Bahraich	Ayodhya	Amethi	Chitrakoot
3	Balrampur	Ballia	Azamgarh	Auraiya	Hamirpur
4	Bijnor	Bareilly	Barabanki	Etawah	Jalaun
5	Bulandshahr	Basti	Chandauli	Fatehpur	Jhansi
6	Gautam Buddha Nagar	Budaun	Etah	Firozabad	Kaushambi
7	Ghaziabad	Deoria	Farrukhabad	Kanpur Dehat	Lalitpur
8	Hapur	Gonda	Ghazipur	Kanpur Nagar	Mahoba
9	Kushinagar	Gorakhpur	Hardoi	Mainpuri	
10	Maharajganj	Lakhimpur Kheri	Hathras	Mirzapur	
11	Meerut	Mathura	Jaunpur	Pratapgarh	
12	Moradabad	Pilibhit	Kannauj	Prayagraj	
13	Muzaffarnagar	Shahjahanpur	Kasganj	Raebareli	
14	Rampur	Sitapur	Lucknow	Sant Ravidas Nagar	

S. No.	Districts completely in Zone IV	Districts partly in Zones IV and III	Districts completely in Zone III	Districts partly in Zones II and III	Districts completely in Zone II
15	Saharanpur	Sant Kabir Nagar	Mau		
16	Sambhal		Sonbhadra		
17	Shamli		Sultanpur		
18	Shravasti		Unnao		
19	Siddharthnagar		Varanasi		

Source: BMTPC Vulnerability Atlas of India (2019)

History of Earthquakes in UP, Including Bordering States

The history of earthquakes in UP, including bordering States, is provided in Table 20. Uttarakhand was carved out of UP in 2000.

Table 20: History of earthquakes in UP

Year	Epicenter	Magnitude	No. of Districts Affected	Damage
1 Sep 1803	Chamoli	7.0	Chamoli and other districts	200–300 deaths
28 Aug 1916	Western Nepal	7.3	Dharchula	NA
6 Nov 1925	Raebareli-Sultanpur District Border	6.0	Raebareli and Sultanpur	NA
15 Jan 1934	India-Nepal Border Region	8.0	Eastern UP, Allahabad and Lucknow	10,500
8 Nov 1952	Nepal	6.0	Bahraich-Gonda	NA
10 Oct 1956	Jahangirpur	6.2	Bulandshahr	NA
27 Aug 1960	Ghagot, Haryana	6.0	Gurgaon-Faridabad	50 deaths
24 Dec 1961	Salkot, Nepal	6.0	Pilibhit and Lakhimpur Kheri	NA
1 Jun 1965	Sant Kabir Nagar	5.7	Gorakhpur and Basti	NA
15 Sep 1966	Raunda Mustahkam	5.8	Moradabad	NA
29 Jul 1980	Surma, Nepal	6.8	Pithoragarh	The quake also caused damage in Pithoragarh area, nearly 50 km away from the epicenter. About 13 persons were killed here and 40 were injured.
21 Oct 1991	Uttarkashi	6.8	Uttarkashi and UP	Reported number of deaths: 768 Number of people affected: 0.4 million
29 Mar 1999	Gopeshwar	5.8	Chamoli	NA

Year	Epicenter	Magnitude	No. of Districts Affected	Damage
18 Oct 2007	Gautam Buddha Nagar	3.8	Gautam Buddha Nagar	Nil
26 Apr 2015	Barpak, Nepal	7.3	Entire UP	Nil

Source: ASC, Seismicity of UP (http://asc-india.org/seismi/seis-uttar-pradesh.htm)

Many Districts of the State are in seismic zones IV and III. Although the Government of UP has amended its building bye-laws and codes to incorporate earthquake safety features in buildings, the compliance mechanisms for the implementation of these bye-laws needs stricter enforcement.

Table 21: Earthquake Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• Surrounded by various fault lines and ridges • Beneath UP, runs the Delhi-Haridwar ridge, North Jahangirpur East-South South-West along New Delhi to the Garhwal region. The Delhi-Muzaffarnagar ridge, which goes from East to West, runs from New Delhi to Kathgodam in Nepal • Amroha, Baghpat, Balrampur, Bijnor, Bulandshahr, G.B. Nagar, Ghaziabad, Hapur, Kushinagar, Maharajganj, Meerut, Moradabad, Muzaffarnagar, Rampur, Saharanpur, Sambhal, Shamli, Shravasti and Siddharthnagar lie in the high-damage risk zone IV
Vulnerabilities	• Dilapidated and un-retrofitted lifeline infrastructure • High-rise buildings are vulnerable based on their structural type, material used, maintenance, etc. • Elevated corridors and old flyovers/bridges remain vulnerable during an earthquake, unless their structural safety is ensured. • Major railway lines pass through the State and old railway bridges are more vulnerable.
Risks	• Houses made of mud, unburnt brick walls, burnt brick walls and stone walls are vulnerable to earthquake • Collapse of public infrastructure such as schools, hospitals, AWCs may result in disruption of services • Collapse of buildings will result in accidents and maybe deaths • Disruption of water and electricity supply • Fire outbreaks may occur • In case of damage in and around Narora nuclear reactor, possibility of death of people or long-term health risks among people living in areas close by • Oil refinery in Mathura lies in seismic zone IV. This area is highly vulnerable • There may be an increase in psychological stress and trauma for prolonged periods **Health:** • Disruption of routine services in case health centres/hospitals are damaged or inaccessible • Increase in number of cases and deaths from water-borne diseases such as cholera, dysentery or diarrhoea as a result of contaminated water • Increase in the number of cases and deaths from vector-borne diseases such as dengue, chikungunya, malaria, etc. • Supply systems for essential services may be affected **Nutrition:**

	• AWCs may be damaged or inaccessible • Food supplies may be short in a post-earthquake scenario **Education:** • Schools may be closed due to damage or inaccessibility • Closure of schools may lead to loss in number of school days • Inability to reach schools or need for helping at home or engaging in child labour or migration may lead to absenteeism **WASH:** • Poor sanitary conditions may result in child morbidity and mortality • Water supply and quality may be an issue in a post-earthquake scenario **Child Protection:** • Livelihood of caregivers may be affected • Child labour, child abuse and child trafficking may increase • Increased psychological stress among children may occur **Power supply:** • Damage in transmission lines and power sources may affect power supply • Short circuits may lead to major fire incidents **Gas pipeline:** • Gas pipeline may get damaged and create a major hazard to locals **Oil refinery:** • Oil refinery may be damaged and cause loss of lives or lifelong health effects **Nuclear reactor in Narora:** • Nuclear reactor may be damaged resulting in loss of lives or lifelong health effects
Gaps in Existing Capacities	• Lack of awareness of seismic knowledge and implications among the communities. • Inadequate data on disaster damage and loss. • Lack of studies on vulnerabilities and capacities covering social, physical, economic, ecological, gender, social inclusion and equity aspects • Remote sensing-based studies that can provide inputs for micro-seismic zonation should be taken up. • Inadequate capacities for implementing robust mechanisms for monitoring construction of earthquake-resilient houses. • Lower level of compliance to relevant building codes in high-rise buildings. • Moderate level of compliance to adoption of building bye-laws for rural and urban areas. • Lack of adequate number of trainings and orientation sessions of the State Government staff, and other direct stakeholders such as civil society, media persons, elected representatives and professionals on earthquake preparedness and response measures • Structured random audits needs to be carried out for high-rise multistoried buildings • Lack of knowledge related to earthquakes and seismicity among common people

5.3.4 Fire

Fire is the most frequent disaster in urban as well as rural areas. Rapid urbanization, overcrowding and unregulated commercial activities are frequently responsible for urban fires. Also, unplanned structures and improper electrical installations lead to fire events in urban areas.

In UP, a majority of the population lives in rural areas and many of them still live in thatched roof houses. During the summer season, fire incidents are very common because of the use of fossil fuel for cooking purposes and behaviours such as throwing of cigarette butts and bidis in the fields. Also, electrical short circuits during the summer season may result in fires in fields having crops that are ready to be harvested.

Table 22: Major fire incidents in UP

S. No.	Year	Place	Losses/Damages incurred
1	April 2006	Brand India Fair, Meerut	65 dead and 150 injured
2	December 2010	Wooden Seasoning Plant, Mathura	Property worth INR 2 crores damaged
3	April 2013	Dargah Fire, Bahraich	80 shops gutted in fire
4	June 2015	Goyal Residency, Pratapgarh	10 killed and 13 injured
5	June 2015	Sitapur	100 houses gutted in fire, 1 dead
6	October 2015	Sabzi Mandi, Banda	400 shops gutted in fire
7	May 2017	Bus Fire, Banda	4 killed and 20 injured
8	March 2017	Glass Factory Fire, Rasulpur, Firozabad	1 killed and 12 injured
9	May 2017	Pandav Nagar Chemical Factory, Ghaziabad	NA
10	November 2017	Thermal Power Plant Fire and Blast, Unchahar	43 dead and 100 injured
11	January 2018	BRD Hospital, Gorakhpur	-
12	May 2018	Anpara thermal Power Plant, Sonbhadra	-
13	May 2018	Godown Fire, Allahabad	-
14	October 2018	Obra Thermal Power Plant, Sonbhadra	-
15	September 2020	Chemical Factory, Agra	-
16	March 2021	Fire Godown, Colonelganj, Kanpur	Plastic godown gutted
17	April 2021	JJ Cluster, Gautam Buddha Nagar	2 killed and 50 shanties gutted

Source: Information collated from various media articles

Table 23: Fire Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• Industrial units, thatched houses, shopping malls, Liquid Petroleum Gas (LPG) godowns/petrol pumps, industries, chemical handling units
Vulnerability Indicators	• In the summer season, thatched houses are highly prone to fire • Loss of livestock in fire incidents makes the situation worse as it contributes to a large part of the rural economy • Usually, fire destroys the entire crop and causes massive economic loss as most of the rural economy is based on agriculture • Congested urban areas and unplanned urbanization has enhanced fire vulnerability in cities • Highly populous settlements living in thatched huts or huts made with plastic sheets • Non-adherence of building bye-laws in commercial and industrial units

	• Unauthorized electricity connections
Risks	• Community in the vicinity of the industrial units may be exposed to fire events • Hospitals, schools, business units, which work on electrical supply systems • Thatched houses, huts and mud houses with tin sheds could be damaged in fire • Infrastructure could be disrupted, such as electric power, water supply system, etc. • Structures such as glass and plastic could be damaged due to heat and temperature released during the chemical and industrial events • Agriculture land could be impacted due to fire events
Gaps in Existing Capacities	• Lack of penetration of Fire Stations across the State • Lack of trained Firemen, Sub Officers in all the Fire Stations • Lack of Systematic data management on disaster damage and loss assessments and reporting of relief granted in various cases • Lack of online information system on Hazardous Chemical (Codes) (HAZCHEM) conforming to national standards • Lack of State-specific Fire Incident Reporting System in Districts for fire events with specific features and response provided to understand the type of risk for other events • Lack of system of simulation of worst-case scenarios for industrial units • Lack of Action Plan for modernization and meeting future needs • Lack of equipment for firefighting, urban search and rescue as per the requirements • Lack of trained women staff in Government response task forces, volunteers and specialized division • Inadequate documentation of lessons learnt from major fire events in the State on management, prevention and mitigation measures • Inadequate number of training programmes on various aspects such as firefighting, managing collapsed structure, and search and rescue • Lack of GIS-based mapping of all the essential services needed for rescue, response and relief phases viz. medical and health, civil supply, WASH, shelter and other emergency services • Lack of proper mock drills on a regular basis • Low level of fire alarm systems coverage from various industrial and residential buildings • Low level of individual protection equipment in public buildings with • At almost all levels, inability to handle firefighting equipment • Lack of random audits for high-rise multistoried buildings

5.3.5 Lightning and Thunderstorm

Lightning and thunderstorm are other major hazards in the State of UP. Not only does lightning result in loss of human and animal lives, but it can also result in forest fires as well as local and large-scale power cuts that can damage the communication and electrical systems including computers other electrical appliances.

A thunderstorm is usually accompanied by lightning and squall, and causes heavy to very heavy disruption. Electrocution, wall/roof collapse, flying heavy objects due to high-speed wind and tree felling, etc. during a thunderstorm and lightning event are the main causes for human and animal life loss and property damage.

In the Annual Lightning Report 2021-22[29], the Climate Resilient Observing Systems Promotion Council counted over 3 lakh cloud-to-ground lightning strikes in UP. In UP lightning strikes are fewer as compared to other States, but mortality figures remain high among the affected States.

Lightning Vulnerability in UP

Though the data on zoning of lightning strikes is available at the State level, no micro-zonation data on lightning strikes is available at the District level. Therefore, vulnerability is defined using the lightning strike and number of causalities.

The graph given below shows a decline over the years in causalities reported. This in turn points towards better preparedness in the State for lightning hazard.

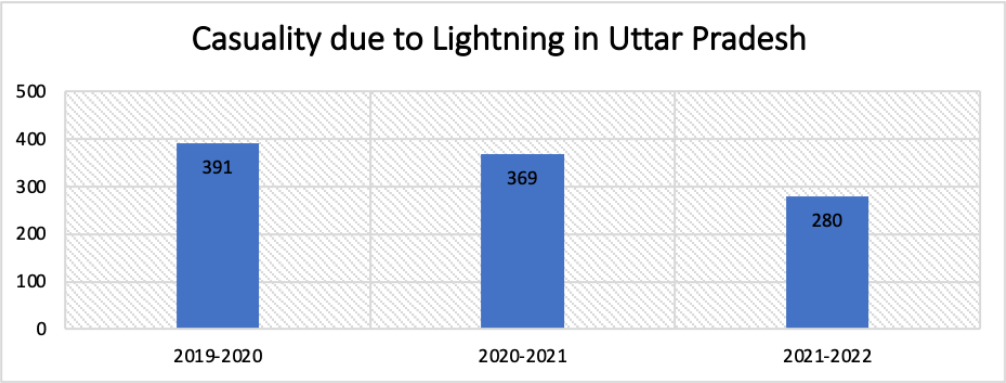


Figure 11: Trend in casualties due to lightning in UP

Source: Data compiled from Relief Commissioner's Office, Government of UP (2022)

Western UP

The number of deaths in Western UP is less than 10 per cent of the total deaths reported in the State (see Table 24). In 2019–2020, only 30 of 391 reported mortalities were in Western UP. Similarly, in 2020–2021, 33 of 369 and in 2021–2022, 19 of 280 deaths were reported in this region. A majority of those deaths were reported from the Agra, Aligarh and Bareilly Divisions of the State.

[29] CROPC. (2022). *Annual Lightning Report 2021-22 (Executive Summary)* [Ebook]. New Delhi. Retrieved from http://www.cropc.org/LR/Ex%20Summary,%20Annual%20Lightning%20Report%202021-2022%20(5).pdf

Table 24: Deaths due to lightning in western UP

S. No.	Division	District	Deaths (2019–2020)	Deaths (2020–2021)	Deaths (2021–2022)
1	Agra	Agra	2	4	0
2		Firozabad	3	3	7
3		Mainpuri	2	3	2
4		Mathura	3	2	1
5	Aligarh	Aligarh	0	4	1
6		Etah	0	0	2
7		Hathras	2	0	0
8		Kasganj	0	4	0
9	Bareilly	Bareilly	1	3	0
10		Badaun	3	1	0
11		Pilibhit	1	0	2
12		Shahjahanpur	7	1	2
13	Meerut	Meerut	2	0	0
14		Bulandshahr	0	2	0
15		G.B. Nagar	0	0	1
16		Ghaziabad	0	0	0
17		Hapur	0	0	0
18		Bagpat	0	0	0
19	Moradabad	Moradabad	0	0	0
20		Amroha	1	0	0
21		Bijnor	2	3	0
22		Sambhal	0	1	0
23		Rampur	0	0	0
24	Saharanpur	Saharanpur	0	0	0
25		Muzaffarnagar	1	1	0
26		Shamli	0	1	1
	Total		30	33	19

Source: **Data compiled from Relief Commissioner's Office, Government of UP (2022)**

Central UP

The number of deaths in Central UP is less than 20 per cent of the total deaths reported annually in the State. In 2019–2020, 79 of 391 reported mortalities were in Central UP. Similarly, in 2020–2021, 57 of 369 and in 2021–2022, 39 of 280 were reported in this region. A majority of these deaths were reported in the Kanpur Nagar, Kanpur Dehat, Lucknow, Hardoi, and Lakhimpur Kheri of the Kanpur and Lucknow Divisions of UP.

Table 25: Deaths due to lightning in central UP

S.no.	Division	District	Deaths (2019–2020)	Deaths (2020–2021)	Deaths (2021–2022)
1	Kanpur	Kanpur Nagar	11	0	0
2		Etawah	2	2	0
3		Farrukhabad	3	0	5
4		Kanpur Dehat	6	8	7

S.no.	Division	District	Deaths (2019–2020)	Deaths (2020–2021)	Deaths (2021–2022)
5		Auraiya	1	0	3
6		Kannauj	2	2	1
7	Lucknow	Lucknow	1	1	0
8		Hardoi	9	3	1
9		Lakhimpur Kheri	7	3	0
10		Raebareli	7	8	6
11		Sitapur	9	1	3
12		Unnao	2	9	4
13	Ayodhya	Ayodhya	1	1	1
14		Barabanki	4	2	1
15		Ambedkar Nagar	4	9	1
16		Sultanpur	7	6	2
17		Amethi	3	2	1
	Total		79	57	36

Source: Data compiled from Relief Commissioner's Office, Government of UP (2022)

North-Eastern UP

The number of deaths in North-Eastern UP is around 19 per cent of the total deaths reported in the State. In 2019–2020, 55 of 391 reported mortalities were in this region. Similarly, in 2020-21, 89 of 369 reported mortalities and in year 2021-22, 51 of 280 reported mortalities were in North-Eastern UP. A majority of these deaths were reported in the Azamgarh and Gorakhpur Divisions of UP.

Table 26: Deaths due to lightning in north-eastern UP

S. No.	Division	District	Deaths (2019–2020)	Deaths (2020–2021)	Deaths (2021–2022)
1	Azamgarh	Azamgarh	9	7	9
2		Ballia	7	22	6
3		Mau	6	2	2
4	Basti	Basti	0	6	10
5		Sant Kabir Nagar	2	3	5
6		Siddharthnagar	3	3	3
7	Gorakhpur	Gorakhpur	6	11	4
8		Deoria	11	16	4
9		Kushinagar	5	8	3
10		Maharajganj	1	1	0
11	Devipatan	Bahraich	2	1	2
12		Balrampur	3	5	2
13		Gonda	0	4	1
14		Shravasti	0	0	0
	Total		55	89	51

Source: Data compiled from Relief Commissioner's Office, Government of UP, (2022)

South-Eastern UP

South-Eastern UP is the hotspot of lightning hits in the State. The highest number of deaths were reported in 5 of 18 Divisions of UP. The number of deaths in South-Eastern UP is around 55 per cent of the total deaths reported in the State. In 2019–2022, 227 of 391 reported mortalities were in this region. Similarly, in 2020–2021, 148 of 369 reported mortalities and in 2021–2022, 174 of 280 reported mortalities were in this region. A majority of these deaths were reported in the Mirzapur, Chitrakoot and Prayagraj Divisions. Mirzapur Division itself accounts for around 20 per cent of the total deaths reported between 2019 and 2022.

Table 27: Deaths due to lightning in south-eastern UP

S.no.	Division	District	Deaths (2019–2020)	Deaths (2020–2021)	Deaths (2021–2022)
1	Prayagraj	Prayagraj	15	29	31
2		Fatehpur	17	14	7
3		Kaushambi	9	9	5
4		Pratapgarh	8	5	4
5	Mirzapur	Mirzapur	28	27	22
6		Sant Ravidas Nagar (Bhadohi)	3	6	2
7		Sonbhadra	37	35	37
8	Varanasi	Varanasi	4	2	1
9		Gazipur	7	16	11
10		Jaunpur	9	13	2
11		Chandauli	12	12	3
12	Chitrakoot	Chitrakoot	11	6	5
13		Banda	12	2	2
14		Hamirpur	13	1	7
15		Mahoba	6	3	8
16	Jhansi	Jhansi	7	1	11
17		Jalaun	10	2	0
18		Lalitpur	19	7	16
	Total		227	190	174

Source: Data compiled from Relief Commissioner's Office, Government of UP (2022)

Table 28: Lightning Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• Although all Districts of UP are prone to lightning strikes, but in the last few years the districts – Prayagraj, Mirzapur, Sonbhadra, Ghazipur and Lalitpur, have reported high number of lightning-related deaths.
Vulnerabilities	• Thatched/tin shed huts/houses. • Lack of impact based early warning system. • Open field where people take shelter under trees when it is raining. • Houses without lightning arresters surrounded by a number of trees • Houses surrounded by trees • Lack of awareness/knowledge, dos and don'ts, etc. in the context of lightning • Non-availability of covered structures/lightning shelters in the open fields • Farming activities during monsoons
Risks	• Mud houses with tin shed fire. • Shelters with galvanized roofs.

	• Farmers in fields. • Women working in open, children in open fields. • Critical facilities such as schools, Primary Health Centres (PHCs), Community Health Centres (CHCs), AWCs without lightning arrestors. • Fire as the secondary effect of lightning. • Animal grazing in open fields or taking shelter under tin sheds without lightning arrestor. • Disruption of electric power, water supply system, etc. • Structures such as glass and plastic which could be damaged. • Vehicles parked outside. • Fishing activity during rains. • Bathing and other domestic activities near ponds/water bodies during rains/rainy clouds/thunderstorms.
Existing Capacity Gaps	• Lack of lightning arrestors in houses especially in rural areas. • Lack of lightning arrestors in public/sensitive buildings. • Lack of common alert protocols for lightning warnings in the District/State. • Lack of knowledge among the population on do's and don'ts • Lack of knowledge/awareness about lightning arrestors among the common masses. • Lack of mechanism for real-time alerts to the last man. • Lack of lightning shelters in the State (particularly in and around agricultural fields)

5.3.6 Hailstorm

Hailstorms cause substantial damage to standing crops as well as to horticultural crops within a very short period of time. UP experiences unseasonal rains and hailstorms mostly from February to April. However, in the contemporary period hailstorms have occurred as early as in January and even in late period of May.[30]

In March 2015, heavy rains accompanied by a hailstorm damaged wheat, sugarcane and oilseed crops across thousands of hectares in the State. Hence, there is now a pressing need for hailstorm prediction followed by mitigation, recovery and risk reduction measures after a hailstorm strike.

Table 29: History of hailstorms in UP

Year	No. of Affected Districts	Names of Affected Districts
2014	15	Agra, Allahabad, Banda, Chitrakoot, Firozabad, Hamirpur, Jalaun, Jhansi, Kanpur Dehat, Kasganj, Kaushambi, Lalitpur, Mahoba, Mathura, Pratapgarh
2015	73	Agra, Aligarh, Allahabad, Ambedkar Nagar, Auraiya, Azamgarh, Badaun, Baghpat, Bahraich, Ballia, Banda, Barabanki, Bareilly, Sambhal, Bulandshahr, Chandauli, Amethi, Chitrakoot, Deoria, Etah, Etawah, Faizabad, Farrukhabad, Fatehpur, Firozabad, Gautam Buddha Nagar, Ghaziabad, Ghazipur, Gorakhpur, Hamirpur, Hardoi, Hathras, Jalaun, Jaunpur, Jhansi, Amroha, Kannauj, Kanpur Nagar, Kasganj, Kaushambi, Kushinagar, Lakhimpur Kheri, Lalitpur, Lucknow, Mahoba, Mainpuri, Mathura, Mau, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Hapur, Pilibhit, Shamli, Pratapgarh, Raebareli, Kanpur Dehat, Rampur, Saharanpur, Bhadohi, Shahjahanpur, Sitapur, Sonbhadra, Sultanpur, Unnao, Varanasi, Basti, Mahrajganj, Gonda, Siddharthnagar, Shravasti, Sant Kabir Nagar
2018	36	Agra, Azamgarh, Aligarh, Ballia, Banda, Barabanki, Bijnor, Faizabad, Firozabad, Gonda, Hapur, Hardoi, Jalaun, Jaunpur, Kushinagar, Kasganj, Lakhimpur Khiri, Lalitpur, Mathura, Mirzapur, Raebareli, Shahjahanpur, Sant Kabir Nagar, Sonbhadra, Unnao, Basti, Etawah, Jhansi, Kannauj, Kanpur Nagar, Lucknow, Sambhal, Sitapur, Varanasi, Mahoba, Bulandshahr
2020	60	Agra, Firozabad, Mathura, Aligarh, Etah, Kasganj, Prayagraj, Fatehpur, Kaushambi, Pratapgarh, Azamgarh, Ballia, Mau, Bareilly, Badaun, Pilibhit, Shahjahanpur, Sant Kabir Nagar, Siddharthnagar, Chitrakoot, Bahraich, Balrampur, Gonda, Ayodhya, Barabanki, Ambedkar Nagar, Sultanpur, Amethi, Gorakhpur, Deoria, Jhansi, Jalaun, Kanpur Nagar, Etawah,, Farrukhabad, Kanpur Dehat, Auraiya, Kannauj, Lucknow, Hardoi, Lakhimpur Kheri, Sitapur, Unnao, Meerut, Bulandshahr, Gautam Buddha Nagar, Hapur, Mirzapur, Sant Ravidas Nagar, Sonbhadra, Moradabad, Amroha, Sambhal, Saharanpur, Muzaffar Nagar, Shamli, Varanasi, Ghazipur, Jaunpur, Chandauli

Source: **Hailstorm memorandum (2014, 2015, 2018, 2020) Relief Commissioner Office, Government of UP**

District-wise analysis of the above data shows that the Mathura District is the most hailstorm-affected District, followed by Agra, Ballia, Banda, Barabanki Chitrakoot, Jalaun, Kanpur Dehat, Lalitpur, Mirzapur, Shahjahanpur. With an increase in the number of affected Districts and the

[30] CHATTOPADHYAY, N., DEVI, S., JOHN, G., & CHOUDHARI, V. (2017). Occurrence of hail storms and strategies to minimize its effect on crops. *MAUSAM*, *68*(1), 75-92. doi: 10.54302/mausam.v68i1.435

changing climatic conditions, there is a high possibility of more Districts getting affected due to hailstorms in the future.

Table 30: Hailstorm Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• Most Districts of UP
Vulnerabilities	• Due to high exposure and constrained access to resources, homeless, people living in kutcha houses, low-income population, farmers and farm labour are vulnerable.
Risks	• Damage to critical facilities such as schools, PHCs, CHCs, AWCs. • Warehouses. • Disruption of services such as electricity supply and water supply. • Glass structures. • Pre-fabricated structures. • Fire as the secondary effect of lightning. • Vehicles parked outside. • Agriculture including horticulture, poultry, dairy farms. • Fish ponds.
Gaps in Existing Capacities	• Lack of proper systems for data collection, maintenance, and monitoring of Hailstorm events. • Lack of systematic means for the dissemination of early warnings received from IMD to the public at large. • Lack of awareness among farmers on how to save crops from a Hailstorm. • Lack of awareness among farmers about crop and livestock insurance schemes and programmes. • Lack of training and community awareness campaigns for 'at-risk' communities. • Lack of research studies related to hailstorm models and techniques to improve storm forecasting among communities.

5.3.7 Industrial and Chemical Disasters

Being the second-largest economy in India, UP has a diverse industrial profile, ranging from mineral processing plants in Vindhyan region, bauxite-based aluminum plants in Bundelkhand region, cottage industries in Varanasi and Lucknow, leather industries in Agra and Kanpur, as well as the largest gold market of Asia in Meerut. Apart from this, the UP-Delhi National Capital Region (NCR) and Lucknow-Kanpur corridors have thriving electronics industries. The state also holds distinction in being the largest exporter of sports items and musical instruments.

A total of 2,456 hazardous factories are in 38 Districts of the State. As per the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules (1996), Districts Crisis Groups in all the 38 Districts have been constituted under the chairmanship of the District Magistrate of respective Districts. Of these, 118 are identified as Major Accident Hazard (MAH) units.[31]

Further, the State also has the largest nuclear power plant, the Narora Atomic Power Station, which can be hazardous if there is a release of radiation in the periphery of the power plant.

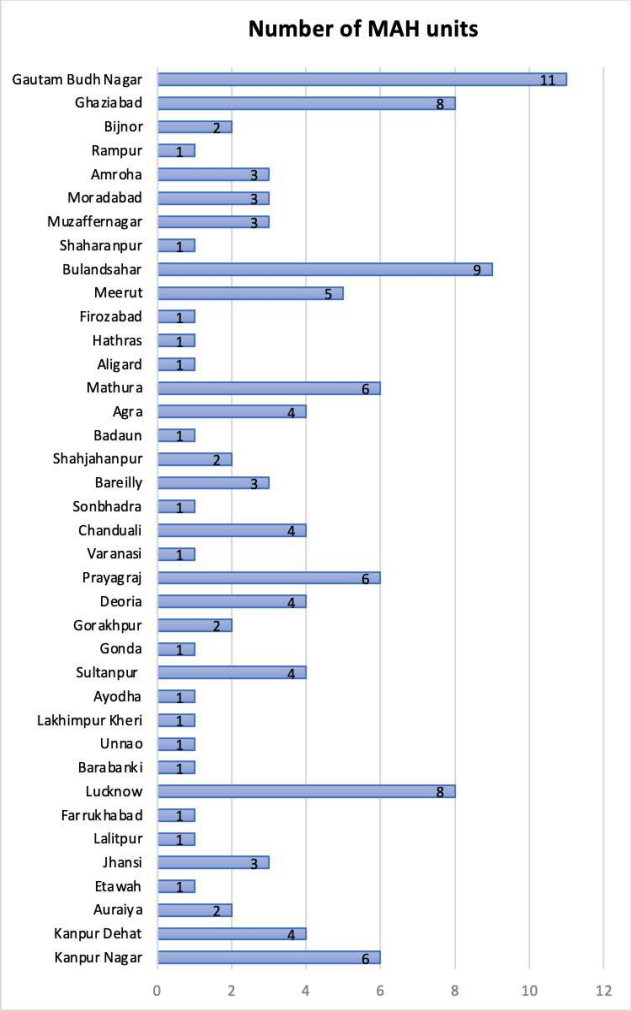


Figure 12: Number of MAH Units and Manufacturing in UP

Source: http://www.hrdp-idrm.in/live/hrdpmp/hrdpmaster/idrm/content/e5783/e26901/e26917/

Table 31: Industrial and Chemical Disasters Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/Location	Kanpur Nagar, Kanpur Dehat, Auraiya, Etawah, Jhansi, Lalitpur, Farrukhabad, Lucknow, Barabanki, Unnao, Lakhimpur Kheri, Ayodhya, Sultanpur, Gonda, Gorakhpur, Deoria, Prayagraj, Varanasi, Chandauli, Sonbhadra, Bareilly, Shahjahanpur, Badaun, Agra, Mathura, Aligarh, Hathras, Firozabad, Meerut, Bulandshahr, Saharanpur, Muzaffarnagar, Moradabad, Amroha, Rampur, Bijnor, Ghaziabad, Gautam Buddha Nagar
Vulnerabilities	• People residing near MAH units. • Those working in MAH units. • Unskilled labour on daily wages in the MAH units.
Risks	• Hazardous Materials (HAZMAT) stored in the MAH units. • Long-term health effects. • Flora and fauna may get affected (contamination of water bodies and fishing

[31] List of 118 MAH units in UP

	ponds). • Loss of life and property in case of a blast. • Fire can be a secondary hazard leading to loss of life and property. • Loss of livelihood for labour in case the plant(s) is closed.
Gaps in Existing Capacities	• Inadequate compliance with mandatory safety certification of industries. • Inadequate regulatory mechanism on land-use plan • Low level of training activities (exercises, simulations) on-site and off-site. • Low level of planning and execution of emergency drills by all the industries. • Lack of awareness on how to safeguard people in case of any gas release. • Inadequate number of community alert systems across various units. • Inadequate number of emergency shelters as compared to the number of people. • Inadequate provision of individual protection equipment to those working inside the plants. • Lack of on-site and off-site safety standards in MAH units. • Lack of proper understanding of HAZCHEM. • Lack of simulation systems for worst-case scenarios in all chemical and industrial units related to the release of various chemicals. • Lack of GIS-based emergency planning and response system for chemical accidents in major industrial clusters. • Lack of mechanisms for warning dissemination to public on do's and don'ts during chemical disasters. • Lack of coordination mechanisms with the line departments on the dissemination of warnings to all, down to the last mile. • Lack of private participation/NGOs in enhancing off-site disaster response and risk management • Need for strict enforcements such as audits and inspections.

5.3.8 Stampede

Stampedes have been identified as a major hazard that could occur during mass gathering events.

Table 32: History of Stampedes in UP (1954–2004)

S. No.	Year	Location Area Affected	Damage
1.	1954	Kumbh Mela, Allahabad	Reported number of deaths: 800
2.	2004	Chandrashekhar Park, Allahabad	Reported number of deaths: 21 Number of people injured: 21
3.	2007	Mughal Sarai Railway Station	Reported number of deaths: 16 Number injured: 40
4.	2010	Ram Janki Temple of the Kripalu Maharaj Ashram in Kunda, Pratapgarh	Reported number of deaths: 63 Number injured: 100
5.	2011	Radha Rani Temple of Barsana, Mathura, UP	Reported number of deaths: 02 Number injured: 12
6.	2012	Hanuman Temple in Panki, Kanpur, UP	Reported number of deaths: 01 Number injured: 12
7.	2013	Kumbh Mela, Allahabad	Reported number of deaths: 36
8.	2014	Chitrakoot	Reported number of deaths: 10
9.	2016	Varanasi	Reported number of deaths: 24 Number injured: 50

Source: UP SDMP 2018-19

Table 33: Stampede Hazard, Risk, Vulnerability and Capacities Analysis

Sectors	Vulnerabilities
Social	• Vulnerable groups and individuals viz. women, elderly, children, differently-abled, etc.
Physical	• Congested routes in social/religious gathering places, temples. • Lack of alternative routes in the areas. • Dilapidated religious structures. • Criss-cross pathways. • Crowded railway stations and religious places. • Mass gatherings such as rallies, celebrations, festivals. • Market places/weekend heavy rush markets.
Existing Capacity Gaps	• Lack of systematic risk assessment with understanding of crowd size, flow rate and flow capacity in crowded places. • Inefficient deployment of staff and resources. • Lack of proper planning and management. • Lack of adequate training and mock drills. • Lack of proper crowd management plan, including announcement system. • Lack of inter-agency coordination leading to unclear chain of command and supervision. • Improper communication plan for crowd size, flow capacity understanding, problems arising at the tail end of the crowd. • Lack of proper communication plan and inefficient use of available resources, such as aerial platforms. • No integration of community resources, NGOs and professionals in response effort.

5.3.9 Epidemics

UP is highly vulnerable to diseases such as Japanese Encephalitis (JE), Acute Encephalitis Syndrome (AES), dengue, swine flu (H1N1), malaria, measles, etc. Since 2020, the State has been experiencing waves of the COVID-19 pandemic. From the beginning of the pandemic in March 2020 till 9 August 2022, a total of 21.08 lakhs COVID-19 cases have been reported. About 23,576 deaths were reported during this period.[32]

Table 34: History of Epidemics in UP (2004–2020)

Year	Disease	No. of Districts Affected	Damage
2004	Dengue	Across UP	Reported number of cases: 7
	Malaria	Various Districts of UP	85,868 cases
	JE	21 Districts in Eastern UP	6,611 cases, 1821 deaths
	Dengue	Across UP	Reported number of deaths: 4
			Number of cases: 121
	Malaria	Various Districts of UP	1,05,302 cases
2006	JE	22 Districts in Eastern UP	Reported number of deaths: 476
			Number of cases: 2,075
	Dengue	Across UP	Reported number of deaths: 14
			Number of cases: 617
	Diarrhoeal Diseases	Across UP	Reported number of deaths: 67
	Malaria	Various Districts of UP	91,566 cases
	Gastro-enteritis	Various Districts of UP	612 cases, 6 deaths
2007	JE	17 Districts in Eastern UP	Reported number of deaths: 577
			Number of cases: 2,675
	Dengue	Across UP	Reported number of deaths: 2
			Number of cases: 130
	Diarrhoeal Diseases	Across UP	Reported number of deaths: 197
	Malaria	Various Districts of UP	81,580 cases
	Gastro-enteritis	Various Districts of UP	1,264 cases, 15 deaths
2008	Dengue	Across UP	Reported number of deaths: 2
			Number of cases: 51
	Acute Respiratory Infection	Across UP	Reported number of deaths: 137
	JE	16 Districts in Eastern UP	Reported number of deaths: 483
			Number of cases: 2,730
	Diarrhoeal Diseases	Across UP	Reported number of deaths: 326
2009	Acute Respiratory Infection	Across UP	Reported number of deaths: 180
	JE	13 Districts in Eastern UP	Reported number of deaths: 50
			Number of cases: 362
	Diarrhoeal Diseases	Across UP	Reported number of deaths: 159
	Malaria	21 Districts in Eastern UP and Bundelkhand	6,446 cases
2010	Dengue	Across UP	Reported number of deaths: 8
			Number of cases: 960

[32] COVID-19 STATEWISE STATUS. (2022). Retrieved 9 August 2022, from https://www.mygov.in/corona-data/covid19-statewise-status/

Year	Disease	No. of Districts Affected	Damage
	Acute Respiratory Infection	Across UP	Reported number of deaths: 166
	AES	Across UP	Reported number of deaths: 494
			Number of cases: 3,540
	JE	16 Districts in Eastern UP	Reported number of deaths: 59
			Number of cases: 325
	Diarrhoeal Diseases	Across UP	Reported number of deaths: 164
2011	JE	16 Districts in Eastern UP	Reported number of deaths: 27
			Number of cases: 224
	Dengue	Across UP	Reported number of deaths: 5
			Number of cases: 155
	Diarrhoeal Diseases	Across UP	Reported number of deaths: 26
	Acute Respiratory Infection	Across UP	Reported number of deaths: 196
	AES	Across UP	Reported number of deaths: 579
			Number of cases: 3,492
2012	Diarrhoeal Diseases	Across UP	Reported number of deaths: 254
	JE	16 Districts in Eastern UP	Reported number of deaths: 23
			Number of cases: 139
	Dengue	Across UP	Reported number of deaths: 4
			Number of cases: 342
	Acute Respiratory Infection	Across UP	Reported number of deaths: 226
	AES	Across UP	Reported number of deaths: 557
			Number of cases: 3,484
2013	Diarrhoeal Diseases	Across UP	Reported number of deaths: 272
	JE	21 Districts in Eastern UP	Reported number of deaths: 81
			Number of cases: 472
	Dengue	Across UP	Reported number of deaths: 5
			Number of cases: 1,614
	Acute Respiratory Infection	Across UP	Reported number of deaths: 377
	AES	Across UP	Reported number of deaths: 1,236
			Number of cases: 6,425
	H1N1	Western UP	Reported number of deaths: 8
			Number of cases: 98
2015	JE	16 Districts in Eastern UP	Reported number of deaths: 42
			Number of cases: 351
	Dengue	Across UP	Reported number of deaths: 9
			Number of cases: 2,892
	AES	Across UP	Reported number of deaths: 479
			Number of cases: 2,894
	Influenza (H1N1)	Various Districts of UP	Reported number of deaths: 50
			Number of cases: 1,578
2016	JE	16 Districts in Eastern UP	Reported number of deaths: 73
			Number of cases: 410
	Dengue	Across UP	Reported number of deaths: 42

Year	Disease	No. of Districts Affected	Damage
			Number of cases: 15,033
	AES	Across UP	Reported number of deaths: 621
			Number of cases: 3,919
	Stampede	Varanasi	Reported number of deaths: 24
			Number injured: 50
	H1N1	Various Districts of UP	Reported number of deaths: 16
			Number of cases: 122
2017	Dengue	Across UP	Reported number of deaths: 28
			Number of cases: 3,032
	AES	Across UP	Reported number of deaths: 590
			Number of cases: 4,693
	JE	16 Districts in Eastern UP	Reported number of deaths: 80
			Number of cases: 675
	H1N1	Various Districts of UP	Reported number of deaths: 132
			Number of cases: 3,858
2020 – till date[33]	COVID-19	All Districts of UP	Reported number of deaths: 23,576 Number of cases: 21,08,686

Source: National Centre for Disease Control, Disease Surveillance Program

Table 35: Epidemics Hazard, Risk, Vulnerability and Capacity Analysis

Hazard/ Location	• Districts of Eastern UP are highly affected by JE, AES, malaria and other vector-borne and water-borne diseases. • 16 Districts of Eastern UP (Gorakhpur, Kushinagar, Maharajganj, Siddharthnagar, Sant Kabir Nagar, Deoria, Azamgarh, Ghazipur, Bahraich, Ballia, Lakhimpur Kheri, Pilibhit, Balrampur, Gonda, Ayodhya, Mau) are most affected by JE/AES. • Dengue, malaria and chikungunya frequently affect NCR Districts and other Districts of Western UP. • COVID-19 affects both the urban and rural population of UP. The entire State is susceptible to COVID-19.
Vulnerabilities	• Many communicable diseases occurring in UP are capable of causing large-scale outbreaks and fall under the epidemic category. • High population density across the State. • Economically weaker section of population living in unhygienic conditions.
Risks	**Health:** • Probability of increase in neonatal and child morbidity and mortality. • Probability of poor immunity levels among children, women and the elderly, especially of the most vulnerable communities. **Nutrition:** • Probability of increase in the number of malnourished and severely malnourished children. • Probability of increase in anaemia among adolescent girls and women. **Education:** • Loss of school days due to closure of schools and absenteeism in case illness. • Possibility of children losing interest in studies due to periodic closure of

[33] COVID-19 STATEWISE STATUS. (2022). Retrieved 9 August 2022, from https://www.mygov.in/corona-data/covid19-statewise-status/

	schools during a pandemic. • Possibility of low attendance even when schools reopen during a pandemic. **WASH:** • Possibility of lack of availability of safe drinking water. • Possibility of poor sanitation conditions in the communities.
Gaps in Existing Capacities	• Inadequate level of awareness among communities on prevention and care in the context of various diseases. • Inadequate level of awareness among communities on social protection schemes including health insurance. • Increased burden on the health system resulting in disruption of some routine health services. • Inadequate level of awareness among community members on preventive practices related to health and hygiene. • Possibility of lack of skilled human resources during an epidemic.

COVID-19

For the first time in recent years, a pandemic has been considered as a disaster. The DM Act 2005 and Epidemic Disease Act 1897 were invoked.

As part of the COVID-19 response, the Relief Commissioner's Office (RCO) coordinated with various Government Departments, NGOs and the private sector to promptly manage the COVID-19 crisis. The RCO focused on managing the large influx of returning migrant workers. Shelters and transit camps manned by Home Guards in all 75 Districts ensured safe points of arrival and health check-ups. Many 15-day dry ration kits were given to returning migrants. Community kitchens across the State worked tirelessly to provide food packets and dry ration kits to the homeless and to those suffering a loss of livelihood.

The Government also provided direct benefit transfer of INR 1,000 each into the bank accounts of over 1.2 million daily wage earners and 1 million returning migrants. Incoming trains to major transit points and bus transfers to the Districts ensured that the migrants reached home safely. About INR 50,000/- was given to each child who had lost both their parents during COVID-19. The UPSDMA issued critical advisories and created awareness among communities on COVID-appropriate behaviour.

There was no prior framework for managing a pandemic of such a scale. The Government of UP adopted innovative measures for responding effectively to the pandemic.

As a consequence of COVID-19, the various departments have institutionalised mechanism for such eventualities in future such as, migration management, availability of oxygen cylinders/drugs/medicines etc. Hospitals need to gear up for surge in their capabilities, more essentially the isolation/quarantine wards. The plans for such eventuality require constant upgradation by the respective departments. SEOC/DEOCs will have to ensure adequate functional flexibility to adapt the concept of Integrated Covid Command Centre.

5.3.10 Snakebite

The Government of UP declared snakebite as a State disaster in 2018. Incidents of snakebite occur throughout the year, however, during monsoons, a sharp rise in cases has been observed. According to the report from UPSDMA, a total of 1,037 deaths due to snakebite occurred between 2018 and 2021. The details are as follows.

Table 36: Year-wise deaths due to snakebite in UP

S. No.	Year	No. of Deaths
1	2018–2019	21
2	2019–2020	484
3	2020–2021	532
4	2021-2022	981
Total Deaths		2,018

Source: UPSDMA, 2018–2021

Table 37: District-wise deaths due to snakebite in UP

S. No.	Name of District[34]	Number of Deaths				
		2018–2019	2019–2020	2020–2021	2021-2022	Total
1	Agra	01				1
2	Firozabad		09	06	15	30
3	Mainpuri			06	16	22
4	Mathura				01	1
5	Aligarh		04	01	05	10
6	Etah		01		04	5
7	Hathras		02			2
8	Kasganj				04	4
9	Prayagraj		05	01	13	19
10	Fatehpur		48	50	62	160
11	Kaushambi		13	10	08	31
12	Pratapgarh		12	09	18	39
13	Azamgarh		02	20	32	54
14	Ballia	01	07	03	20	31
15	Mau		01	02	03	6
16	Bareilly		05		02	7
17	Badaun		02	05	03	10
18	Pilibhit		25	14	16	55
19	Shahjahanpur			04	17	21
20	Basti		01		21	22
21	Sant Kabir Nagar		01		03	4
22	Siddharthnagar			02	10	12
23	Chitrakoot			04	12	16
24	Banda		02	15	17	34
25	Hamirpur	01	06	03	18	28
26	Mahoba	01	12	15	19	47
27	Bahraich		05	08		13
28	Balrampur	01		01	06	8
29	Gonda	05	04	11	28	48

[34] Italicised districts in Table 37 have the reported the highest number of deaths

S. No.	Name of District[34]	Number of Deaths				
		2018–2019	2019–2020	2020–2021	2021-2022	Total
30	Shravasti		01	02	02	5
31	Ayodhya	05	08	02	36	51
32	Barabanki		18	34	59	111
33	Ambedkar Nagar		29	10	03	42
34	Sultanpur		01	04	05	10
35	Amethi		02	20	08	30
36	Gorakhpur		14	05	09	28
37	Deoria				04	4
38	Kushinagar		11	07	06	24
39	Maharajganj			01		1
40	Jhansi		01		06	7
41	Jalaun		02		02	4
42	Lalitpur		10	04	41	55
43	Kanpur Nagar		06			6
44	Etawah		03	03	14	20
45	Farrukhabad		11	03	11	25
46	Kanpur Dehat				33	33
47	Auraiya		01		04	5
48	Kannauj		08	04	05	17
49	Lucknow				06	6
50	Hardoi		53	25	13	91
51	Lakhimpur Kheri		14	23	13	50
52	Raebareli		11	17	23	51
53	Sitapur	05	06	10	51	72
54	Unnao		31	48	38	117
55	Meerut		01			1
56	Bulandshahr		02		01	3
57	Gautam Buddha Nagar					0
58	Ghaziabad					0
59	Hapur		02			2
60	Baghpat					0
61	Mirzapur		07	29	45	81
62	Sant Ravidas Nagar		01			1
63	Sonbhadra		29	47	100	176
64	Moradabad		04		04	8
65	Amroha		01			1
66	Bijnor			03	03	6
67	Sambhal		01			1
68	Rampur					0
69	Saharanpur		02	02	02	6
70	Muzaffarnagar				03	3
71	Shamli					0
72	Varanasi		01		01	2
73	Ghazipur	01	14	14	49	78
74	Jaunpur		09	19	08	36
75	Chandauli		02	06		8
	Total Deaths	21	484	532	981	2018

Source: UPSDMA, 2018–2021

From Table 37, the hotspots for snakebite can be defined as:

1. Deaths above 100;
2. Deaths from 50 to 100; and
3. Deaths from 10 to 49.

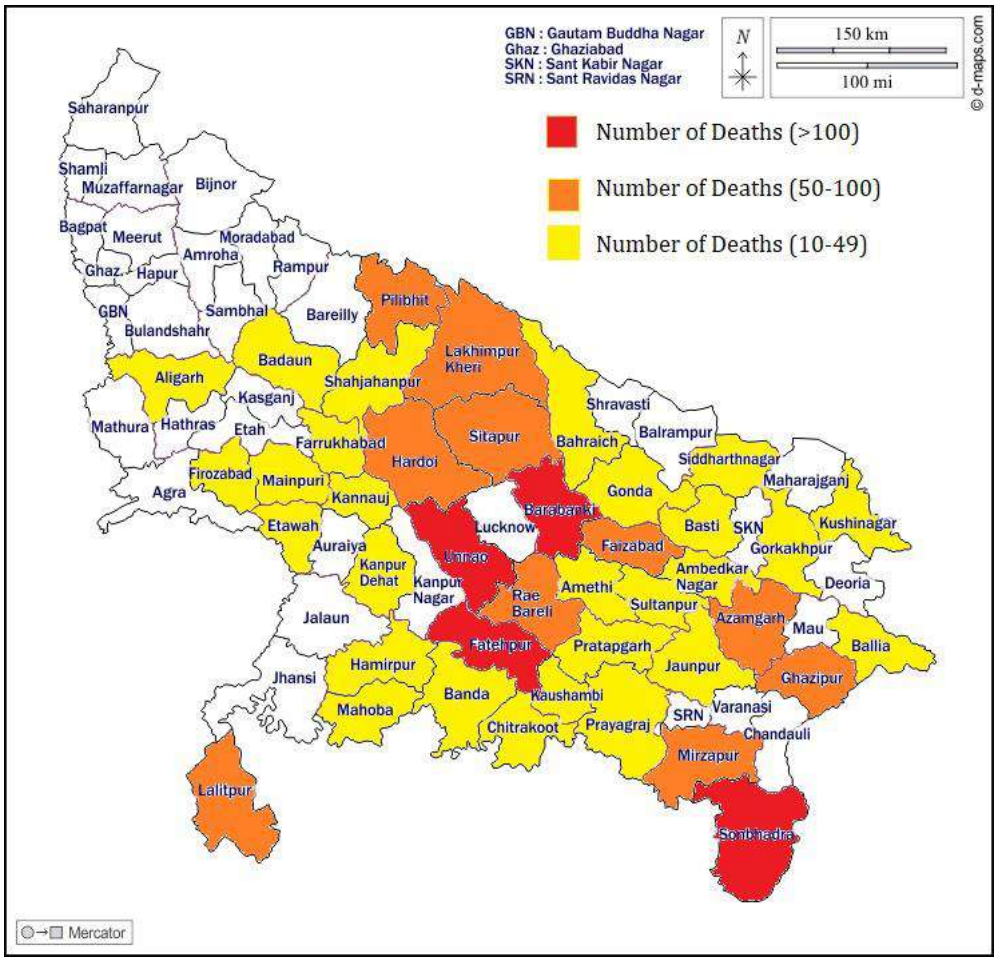


Figure 13: District-wise deaths due to snakebite in UP (2018–2022)

Source: Based on data from Table 37: District-wise deaths due to snakebite in UP

The Districts with deaths in the topmost category, i.e., above 100, are Sonbhadra (176), Fatehpur (160), Unnao (117) and Barabanki (111).

Table 38: Snakebite Hazard, Vulnerability, Risk and Capacity Assessment

Hazard/Location	• Fatehpur, Unnao, Hardoi, Sonbhadra and Barabanki are hotspots
Vulnerabilities	• Farmland, poultry farms, fishponds, animal sheds, etc. • Thatched houses, mud houses, farmhouses. • Abandoned buildings/spaces. • Forest areas. • Improper disposal of garbage/waste
Gaps in Existing Capacities	• Lack of adequate resources for the worst-affected regions to improve community education, access to timely health care, training of medical staff, and provision of appropriate anti-venom. • Inadequate availability of skilled human resources at the first point of care such as PHCs or CHCs. Snakebite is a medical emergency, requiring prompt and skilled clinical intervention to save the life of the victims.

	• Lack of adequate supply of anti-venom at PHCs/CHCs in rural areas. • Unavailability of adequate number of ambulances in remote rural areas for quick movement of victims to health centres. • Lack of awareness among community members on seeking urgent hospital care. • Lack of trainings on first aid and proper treatment for snakebite at the community level. • People resorting to local beliefs and superstitions for treating snakebite cases.

5.4 Social Vulnerability

The State of UP has people from various socio-economic strata, cultural and geographical areas. Social vulnerability creates multiple stressors and shocks, including abuse and social exclusion in various disasters. Social vulnerability refers to the inability of people, organizations, and societies to withstand adverse impacts from multiple stressors to which they are exposed. Variables such as household density, population density, literacy rate, homeless population, elderly population, SC/ST population, workforce participation rate (%), and the Public Health Infrastructure Index, which defines the influences of vulnerability of the various variable are given in Table 39: Social vulnerability variables in UP.

Table 39: Social vulnerability variables in UP

Index	Variables	Estimates	Influence	Sources
PD	Population Density (person/km^2)	829	The State of UP ranks 4th in terms of highest population density among all the States. The higher the density of the State, higher will be the vulnerability due to any disasters. The data on flood in 2019 shows 7,45,926 people and 1,296 villages were affected, which resulted in a haphazard lifestyle recovery of the affected families.	Census of India 2011
LITR	Literacy Rate	69.72	The State of UP has a low literacy rate and falls in the bottom five among States with low literacy. The literacy gap creates a low level of involvement/engagement in training and capacity building programmes, particularly for those involved in agriculture. This makes farmers more inefficient towards the adaptability of crops to droughts or seasonal pest attack, which makes them more vulnerable.	Census of India 2011
HLP	Houseless Population (person per thousand)	329125	The State accounts 37.17 per cent of the total houseless population of India. These families does not have roof above their heads, disasters like flood and drought create vulnerabilities for the household population as the families do not have proper documentation available for money transfer from various schemes and grants in case of any disaster.	Census of India 2011

Index	Variables	Estimates	Influence	Sources
EP	Elderly Population (%)	7.7%	The State accounts 7.7 per cent of the total elderly to the total State population, of which 80 per cent of the elderly persons stay back in the rural areas and support their families in agricultural practices. Flood and droughts exacerbate the condition of the elderly livelihood, etc.	Ministry of Statistics and Programme Implementation (MOSPI)
SC/ST	SC and ST Population (%)	21.10% and 0.57%	A large section of the population of UP accounts for SC population, most of them living below the poverty line. When a disaster strikes, the resilience to 'Build Back Better' would be very low in the SC population. Hence, a large chunk of population is directly or indirectly vulnerable to disasters.	Census of India 2011

5.5 Vulnerability Analysis Using SDGs Indicators from 2020 NITI India Index

The NITI Aayog SDG India Index helps in understanding vulnerabilities in a comprehensive manner. State-level progress and gaps across various sectors are identified to reduce the vulnerabilities. Aligned to the NITI India Index, the vulnerability analysis for UP is given below.

Table 40: Vulnerability analysis of UP

S. No.	NITI India Index	National Value	State Value	Analysis
1.1	Proportion of population living below the national poverty line	21.92	29.43	Poverty is a major driver of people's vulnerability towards disasters. The State's poverty index value is higher than the national value, which indicates that a large chunk of the State's population lives below the poverty line and is more likely to get affected by a disaster. Since the State is exposed to disasters throughout the year, a section of the population is highly vulnerable which in turn will increase poverty. Inclusion of such vulnerable sections into financial support and social protection schemes will help in reducing their vulnerability.
1.2	Proportion of the population (out of total eligible population) receiving social protection benefits under Pradhan Mantri Matru Vandana Yojana (PMMVY)	91.38	93.48	Under-nourishment and low birth weight significantly affect the health of the child. Economic and social distress created by disasters aggravates these conditions further. Although the State value is higher than the national value, 100 per cent coverage of the marginalized population should be the target to be achieved as soon as possible; special provision should be made for the population living in flood- and drought-prone areas of the State.

S. No.	NITI India Index	National Value	State Value	Analysis
1.3	Proportion of beneficiaries covered under the National Food Security Act (NFS) 2013	99.51	99.23	Damage to roads and bridges, failure of communication and disruption of essential services are common during and after a disaster. Since the coverage in the State is not 100 per cent in normal times, after a disaster strikes more people will be left out of the food security ambit due to the lack of access to fair price shops, non-supply of ration, malpractices of shopkeepers, etc. Apart from increasing the coverage of the vulnerable and marginal populations under the NFS, a well-developed disruption-safe transportation and distribution system of food/ration which involves the vulnerable community will help in reducing the vulnerability.
1.4	Percentage of children aged 0–4 years who are stunted	34.7	38.8	Pregnant and breastfeeding women, young girls and children are considered to be more vulnerable during disaster as their bodies need nutrients and are susceptible to harmful consequences of deficiencies such as anaemia, stillbirth, stunting, underweight birth, weak immunity, impairment, among other issues. Poshan Abhiyaan, Anemia Mukt Bharat, and PMMVY are schemes launched by the Central Government to address the health issue of women and children. However, the values at the national and State levels show that a large chunk of the targeted population is still not covered under these programmes. These numbers are of great concern for a State like UP where the Neonatal Mortality Rate and Maternal Mortality Rate stand at 35 and 285 per lakh live births respectively.
1.5	Percentage of pregnant women age 15–49 years who are anaemic	50.3	51	
1.6	Percentage of children aged under 0–4 years who are underweight	33.4	36.8	
1.7	Percentage of adolescents aged 10–19 years having anaemia (any)	28.4	31.6	
1.8	Percentage of fully immunized children in the age group 0–5 years	91	95	Immunization helps in preventing morbidity and mortality due to disease among children. Although the State value is better than the national value, it still lags in achieving the target of full immunization. Studies have shown that coverage of vaccination varies significantly across geographical, regional, rural-urban, poor-rich, and gender-related factors. Due to gender inequality and gender discrimination, girls receive fewer immunizations than boys, and lower vaccination coverage was also seen among higher birth order infants.[35] So, for a State such as UP, which has 40 Districts that are highly prone to floods, low immunization rate among children in these

[35] Kumar, P., Patel, N., Kartha, G., Jasani, P., & Koshiya, H. (2019). Assessment of immunization status among children aged 0-5 years at Surendranagar city, Gujarat. *International Journal Of Medical Science And Public Health*, *8*(4), 331. doi: 10.5455/ijmsph.2019.04130201812032019

S. No.	NITI India Index	National Value	State Value	Analysis
				areas will increase their vulnerability towards water-borne diseases and infections.
1.9	Percentage of families covered under Pradhan Mantri Jan Arogya Yojana (PMJAY)	58.46	38.97	In a developing country such as India, millions are trapped into poverty due to high out-of-pocket expenditure. Low coverage of the low-income population under PMJAY makes them more vulnerable to disasters.

The indicators (described in the table below) act as tools to understand which population groups and which locations in the State are more likely to face the negative impacts of a disaster and factors causing it. By addressing these social vulnerability indicators, the risk of damage to the community can be reduced and resilience can be improved. The actions linked to the above-mentioned indicators are outlined under prevention, mitigation, preparedness and response measures in Parts II and III of the SDMP.

Table 41: NITI Aayog's indicators for analysing structural vulnerability

S. No.	NITI India Index	National Value	State Value	Analysis
1.1	Percentage of population getting safe and adequate drinking water within premises through Piped Water Supply (PWS)	51.36	20.35	PWS helps in providing sustainable and adequate water supply which is crucial during disasters. Low State and National values of PWS show that a large part of the population may face safe drinking water crisis during a disaster.
1.2	Percentage of urban households having drainage facility	87.6	92.1	Improper and unplanned drainage makes the city population vulnerable to public health issues such as malaria, dengue and epidemics during normal times. During the rainy season, it increases the overall risk of the population to these diseases.
1.3	Percentage of households living in kutcha houses (rural + urban)	4.2	6.4	Flood and excess rainfall are the major disasters that occur every year in the State, and many people lose their houses during those disasters. With a high percentage of people living in kutcha houses in the State, the chances of them falling into poverty is very high. However, increasing the outreach of Pradhan Mantri Awas Yojana (PMAY), Pradhan Mantri Awas Yojana (Gramin), Rajeev Awas Yojana, and State-run housing schemes with disaster-resilient designs will not only provide sustainable housing, but also help in reducing vulnerability.

Source: SDG India Index 2020-21

The actions linked to the above-mentioned indicators are outlined under prevention, mitigation, preparedness and response measures in Parts II and III of the SDMP.

5.6 Environment Vulnerability

Environmental hazard has the potential to threaten the surrounding natural environment and adversely affect people's health. Due to rapid urbanization, air, water and soil are badly affected. In urban locations due to rapid growth of the population and urbanization, environmental

degradation is rapid. Air pollution is a growing concern in the State of UP. In November 2017, air quality in many cities of the State was reported to be worse than that of Delhi. The cities Kanpur, Varanasi, Ghaziabad and Muzaffarnagar reported a very poor Air Quality Index (AQI). Moradabad reported an AQI of 500, which is the highest level on the scale. Experts have reported finding traces of carbonic elements in the air in Moradabad. This was attributed to burning of electronic waste and operation of brass factories in the city.

Table 42: Environmental vulnerability in UP

Index	Variables	Concentration/ Estimates	Influence	Source
NO_2	NO_2	30 in µg/m3	Increases the risk of respiratory problems, coughing, and serious health problems	Central Pollution Control Board
PM_{10}	$PM_{2.5}$ PM_{10}	88.22 in µg/m3 194.75 in µg/m3	$PM_{2.5}$, affects visibility by altering the way light is absorbed and scattered in the atmosphere, leading to increased accidents	
SO_2	SO_2	13 in µg/m3	High concentrations of SO_2 leads to inflammation in the eyes, nose and lungs. The higher concentration may lead to acidic rainfall and can harm trees and plant by damaging foliage and decreasing growth	

As per the National Forest Policy, the national target for forest cover is 33 per cent. The Government of UP is committed to increasing its forest cover to 11 per cent of the State's total area by 2030. In recent years, massive plantation programmes have been taken up in the State to increase the forest and tree cover[36] with the aim of combating climate change.

5.7 Capacity Analysis

Capacity includes physical, institutional, social, or economic means as well as skilled personal or collective attributes such as leadership and management. The State of UP has a well-established institutional network to support DM activities.

5.7.1 Incident Management

The State Emergency Operation Centre (SEOC) aims to support individuals in crises and link them with the concerned emergency support department and Districts in case of a disaster. The SEOC is supported by the STD-enabled toll-free number, 1070, where anyone can call in during a crisis and request assistance on relief/relief queries from the SEOC.

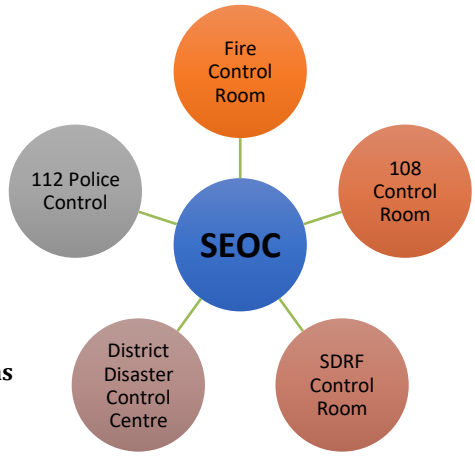


Figure 14: State Emergency Operations Centre in UP

[36] Forest Survey of India. (2019). *Indian State of Forest Report* [Ebook]. Dehradun. Retrieved from https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-uttar-pradesh.pdf

5.7.2 Disaster Response

The Government of UP, in accordance with the National Emergency Response System (NERS), has integrated 112 as its emergency response number with additional services such as fire, ambulance and women helpline.

The state-of-the-art 112 helpline is integrated with the location-based tracking system, emergency location service provided by Google Android phones, Radio Over Internet Protocol, Computer-Aided Design System, and Primary Rate Interface with Bharat Sanchar Nigam Limited (BSNL) for multiple calls, which are received on Avaya Systems for monitoring of incidents.

- The disaster distress call is transferred to the nearest police response vehicle of 112 UP to support the individual stuck in a disaster; at the same time, the response vehicles – 108 ambulances and 102 fire services – are called for support to the disaster site.
- The number of State Disaster Response Force (SDRF) has been raised from the State Reserve Police Force to support disaster response in the State of UP.

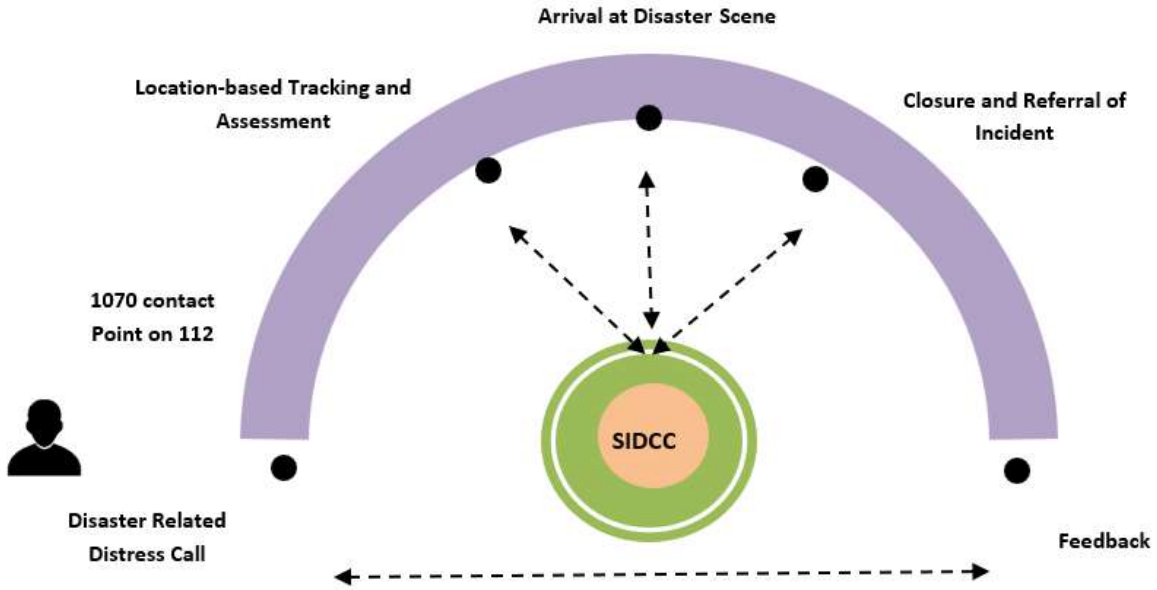


Figure 15: Functionality of State Integrated Disaster Control Centre in UP

5.7.3 Information Management and Data Analysis

The RCO and UPSDMA are supported by the UPRSAC in the State to provide information and data analysis of hazard and vulnerability assessment of various disasters, river course changes and migration for the GIS-based decision support system. The State Government has a robust system for reporting disaster-related events.

5.7.4 Early Warning and Dissemination

Early warning of floods is provided by the IMD rainfall advisories followed by real time actual rainfall at the various monitoring sites. The reservoirs and river danger levels are monitored by CWC. The Flood Management Information System Centre (FMISC) warns the Districts on the flow and discharge levels from various reservoirs in case of floods.

Early warning of lightning is provided by the Damini app integrated with the National Informatics Centre's (NIC's) mass messaging system, which forecasts the probable lightning-specific flash points in an area; a mass message is shared on the mobile numbers of the population as an advisory on lightning.

5.7.5 Equipment Inventory

The details of the all the resources available in the fire station, DDMA, and tehsil-level inventories have been updated on the India Disaster Resources Network (IDRN) to strengthen the mutual sharing of resources during a disaster among the Districts.

Part II

6 Social Inclusion in Disaster Risk Reduction

The DM Act 2005 (Chapter 11, Section 61) prohibits all forms of discrimination – be it based on sex, caste, community, descent or religion – in any activities related to DRR, disaster relief or humanitarian assistance to the affected people. The Prime Minister's 10 Point Agenda also emphasizes the role of women in DRM. Further in 2019, the National Disaster Management Authority (NDMA) published comprehensive guidelines 'National Disaster Management Guidelines on Disability-Inclusive Disaster Risk Reduction, 2019', marking the responsibilities of ministries/line departments from national to local level.

People suffering from intersectional discrimination and power imbalance, are the ones most excluded. They are "left behind" in developmental planning including DRR and humanitarian response. Their needs which are often specific to context and varies through phases of disaster, remain absent in DM plans. To ensure social inclusion of such marginalized groups in UP, the SDMP focuses on specific vulnerabilities of the following groups.

Gender Perspective and DRR

UP, India's most populous State, has a sex ratio at birth for children born in the last 5 years, of 941. Female literacy is at 66.1 per cent. About 15.8 per cent girls are married before the age of 18 years.[37]

A gender perspective to DRR helps focusing attention on the distinct gender-specific capacities and vulnerabilities to prevent, prepare, confront, and recover from disasters (WCDRR 2015). In the aftermath of a disaster, there could be a possibility of an increase in violence against women. There could be a possibility of them facing difficulties such as access to proper sanitation facilities, to privacy, risk of sexual harassment, child marriage and in some situations trafficking. It may be difficult at times for women especially those heading households or single or widows to access relief material given that they could be engaged in family care or engaged in work, meeting their daily needs.

Scheduled Castes and Scheduled Tribes

There are many tribes and castes in UP i.e., about 20.7 per cent SCs[38] and 0.57 per cent STs[39]. These communities mostly reside on marginal lands which are hazard-prone, in both urban and rural areas. Due to lack of access to basic amenities, accurate information and adequate resilient infrastructure, combined with their poor socio-economic status, they are prone to suffer from severe negative impacts during disasters. Women belonging to SC and ST communities also face greater gender-based discrimination and violence. Hence, it is of utmost importance to ensure that social inclusion practices be followed in all phases of disaster, ranging from early warning, evacuation, relief support, rehabilitation, to risk-informed developmental planning, so that deep-rooted systemic prejudices do not compromise their safety.

There is a close symbiotic relationship between tribal communities, natural resources and environment. As there are many tribes who still live in the natural forest habitat, it is important

[37] MoHFW. (2021). *National Family Health Survey-5* (p. 3). MoHFW. Retrieved from http://rchiips.org/nfhs/NFHS-5_FCTS/Uttar_Pradesh.pdf
[38] Office of the Registrar General & Census Commissioner. (2011). *A-10 Appendix: District wise scheduled caste population*.
[39] Office of the Registrar General & Census Commissioner. (2011). *A-11 Appendix: District wise scheduled tribe population.*

to protect them from the increasing number of climate change-induced disasters, keeping in mind their traditional way of life. A two-fold thrust of mitigation should be planned: a) restoring the natural resource base to make the tribal communities self-reliant, and b) in the post-disaster period, provide timely and appropriate relief and rehabilitation packages. These interventions should be community-led and owned and tribal villages should customize their plans as per the Panchayat Act 1996.

Children

When a disaster strikes, children are at risk of facing isolation, anxiety, trauma, and may get separated from their families, lose one or both parent(s), gender violence, trafficking, etc. In a post-disaster situation, they are also at high risk of being school drop outs and being pushed into child labour. Even otherwise, due to services being impacted by the disaster, they are likely to experience delayed return to schools and have poor access to food and nutrition.

As per the provisions of the Juvenile Justice (JJ) Act 2000, Child Protection Units (CPUs) should be set up at the village and block level for care, protection, and rehabilitation of children. This will ensure that children have access to continued food and nutrition, child-friendly spaces for recreation, protection against violence and trafficking, restoration of children to their biological families, promote community-based rehabilitation of the orphan and children of single-parent not in a position to provide care and protection making use of State-specific foster parent support services/schemes.[40]

Elderly

According to the Census 2011, the share of elderly population in UP (age 60 and above) is nearly 8 per cent. As the elderly often live alone, they are at high risk to be impacted worse in times of disaster. This is more likely in urban areas as there are weakened social bonds among the community. Hence, the needs of the elderly should be considered separately, while planning for DRM.

Persons with Disabilities (PwD)

The PwD constitute 2.08 per cent of the total population in UP. Their specific vulnerabilities need to be addressed in DRR efforts to ensure that they are not excluded in the development planning.

[40] Government of India. (2000). *Juvenile Justice Act* [Ebook]. Retrieved from https://wcd.nic.in/juvenile-justice-care-and-protection-children-act-2000-56-2000

6.1 Responsibility Framework (Social Inclusion)

Social inclusion is a cross-cutting theme in all aspects of DRR. In addition, it is added as a distinct thematic area for DRR in the responsibility framework along with indicative sub-thematic areas. The responsibilities of the state and district authorities are outlined below.

Table 43: Responsibility framework for social inclusion

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
Gender	• Guidance and support for gender-sensitive DRR approaches • Support for review and changes in existing regulations, norms and directives to make them gender-sensitive • Provide guidance in recognizing additional vulnerabilities and risks of sexual and gender minorities such as transgenders • Training, IEC, mass campaign on gender-sensitive approach in DRR • Include gender concerns of DRR in curriculum development and training modules • Establish and review the provision for specific needs at shelters/ temporary shelters/ relief camps • Promote insurance and specific knowledge products for risk reduction especially of sexual and gender-vulnerable groups	Department of Women and Child Development (DWCD) and Department of Social Welfare with other relevant line departments	• Ensure compliance of State guidelines to make DRR gender-inclusive and to ensure participation of women • While doing HRVCA, follow the State guideline to recognize the additional vulnerabilities of sexual and gender minorities such as transgenders • Use of information and data management to support gender-sensitive approach in early warning dissemination, situation reporting and updating, response, capacity building, rehabilitation and skill development • Ensure convergence of concerned departments for gender-sensitive DRR • Shelters/temporary shelters/relief camps – ensure compliance of State guideline – for specific needs of vulnerable and minority groups • Organize campaign for creating awareness generation on risk insurance and specific knowledge products to manage the existing risk (agricultural, livelihood and finance-related) with a special focus on vulnerable and minority groups • Ensure enabling environment for participation of gender-vulnerable groups in DRR • Ensure joint ownership in the name of husband and wife of houses reconstructed and assets	Samaj Kalyan Vibhag and DDMA

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
	• Gender audit of DRR measures with the assistance of the State Women's Commission		provided under post-disaster recovery assistance	
Scheduled Castes and Scheduled Tribes	• Promote studies and research on DRR challenge for SC/ST communities • Provide guidelines to specifically include SC/ST vulnerabilities (locational, existing discriminatory practices, if any, creating hindrances in DRR, access to information, access to risk reduction resources) in HRVCA • Provide guidelines on protection of social, cultural (customs and ideological belief), traditional values and habitat and ecosystem in all phases of DRR • Convergence between concerned departments in schemes meant for SC/ST for DRR • Provide guideline on shelters/ temporary shelters/relief camps management to ensure no discrimination on the basis of caste and culture • Revise and update curriculum and training modules for inclusion of SC/ST communities in DRR • Review and amendment of existing regulations, norms and	Minority Welfare and Waqf Department and Social Welfare Department with UPSDMA and RCO	• Ensure compliance of State guidelines while conducting HRVCA issued specifically to include SC/ST vulnerabilities • Identify and protect the tribal identity, traditions and customs in different phases of DRR • Ensure steps taken for DRR do not cause irreversible damage to the community's culture, tradition, habitat and ecosystem • Ensure enabling environment for participation of SC/ST in DRR planning • Conduct training, mock drills and capacity development for SC/ST community as per the State guidelines	Samaj Kalyan Vibhag and DDMA

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
	directives to address requirements of implementing DRR in SC/ST settlements (e.g., retrofitting, social housing, hazard-resistant construction) • Include non-discriminatory implementation of DRR in social audit			
Children	• Promote studies and research on DRR and children • Issue guidelines and support in various DRR initiatives for children • Review regulatory and institutional needs for the protection and safety of children • Supervise and monitor DRR initiative for children – pre-school, school-going and children not in school • Issue guidelines on measures for proper protection and care (physical and mental) of disaster-affected children • Establish a mechanism to mobilize support for disaster-affected children from State, national and international agencies working for children's welfare • Guidance and support from the National Commission for Protection of Child Rights for the care and protection of children	DWCD and Department of Social Welfare with Education Department, SCPS, UPSDMA and RCO	• Ensure compliance of regulatory measures for ensuring school safety and disaster preparedness in schools • Regular mock drills and other preparedness measures in all schools and children's institutions • Identify and pay special attention to children's institutions after early warning and post-disaster • District Child Protection Committee (DCPC) and DDMA should ensure that in post-disaster situations children do not face isolation, anxiety, trauma or separation from their families or parent(s) • DCPC and DDMA should take adequate measures to prevent and stop child abuse, maintain strict vigil against child trafficking, prevent and stop child labour in a post-disaster situation and sensitize all agencies and key personnel associated with the protection of child rights and safety, including those connected with JJ such as police, CWC, Juvenile Justice Board, Central Adoption Resource Authority and DCPU • Promote and spread awareness on community-based care and protection of the affected children	DDMA, DWCD and District Child Protection Unit (DCPU) with Education Department and all other relevant line departments

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
	immediately after a disaster and during rehabilitation • The State Child Protection Society (SCPS) and UPSDMA should initiate steps to monitor post-disaster threats to children and take counter measures along with the nodal agency at the State for child rights and protection			
Elderly	• Promote awareness of the challenges faced by the elderly in disasters thorough short films and IEC outreach • Promote and collaborate with agencies and organizations working for the welfare of the elderly to develop expertise for supporting DRR efforts for the elderly • Mobilizing support to the elderly in disaster-affected areas from State, national and international agencies working for the well-being of the elderly	Social Welfare Department and Police Department with UPSDMA, RCO and other relevant line departments	• Sensitize local communities about additional vulnerabilities of the elderly persons in the communities and promote community-based senior-citizen support mechanisms • Make special arrangements for disaster preparedness and safety of various institutions for the elderly such as old age homes, retirement homes and shelter homes for the elderly • Prepare a list of all the elderly persons living without adequate support, periodically reviewing their situation and check the status of social network and other arrangements for their support • In the risk season or after early warnings, take measures to ensure that the elderly is informed and prepared • Involve elderly in disaster preparedness and planning to the extent that they can contribute • Assess medical and health support needs of the elderly in each area and maintain stocks of crucial items in relief shelter or nearby health facilities	DDMA and Samaj Kalyan Adhikari with Police Department and other relevant line departments

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
			• Ensure no atrocities and discrimination of any kind are experienced by elderly persons during and post disaster • Special attention to the protection of property and assets of the elderly after evacuation or post-disaster situations	
Persons with Disability	• Promote agencies and organizations working for the welfare of PwD to develop expertise in DRR • Mobilizing support to the PwD in disaster-affected areas from State, national and international agencies working for the well-being of the PwD • Encourage technological support and innovations for the benefit of the PwD in DRR • Establish helpline to cater to the needs of PwD and to check any discrimination against them during and post-disaster situation • Establish a State-level Committee or a Research and Development (R&D) group	Empowerment of Persons with Disabilities Department with UPSDMA and RCO	• Sensitize local communities about the PwD living in the community and their special needs, particularly during disasters • Promote neighbourhood groups to assist PwD or ensure a personal support network consisting of persons who are trusted for each PwD • Make special arrangements for disaster preparedness and safety of various institutions for the PwD such as school for the blind, hostels for PwD and any facilities dedicated to PwD • Link organizations working for the welfare of PwD with community initiatives for DRR • Prepare lists of all PwD, periodically reviewing their situation and check the status of social network and other arrangements for their support • In case of early warnings, take measures to ensure that all PwD are properly informed and prepared • Involve PwD in disaster preparedness and planning • Pay special attention for safe evacuation and protection of property and assets of the PwD after evacuation or post-disaster situations	District Persons with Disabilities Empowerment Officer and DDMA with Police, SDRF and other relevant line departments

7 Mainstreaming Disaster Risk Reduction

Disasters can erode the development gains made over many decades, reversing the progress achieved in the economic, social and environmental aspects. The resources earmarked for development pursuits are diverted to humanitarian assistance, reconstruction and recovery works, which can impede the attainment of development goals within a set timeline. A classic example of this is the COVID-19 pandemic. Incorporating DRR measures in development planning can substantially reduce losses and enhance disaster resilience. Planning and channelizing resources towards DRR measures can protect economies, safeguard education and health facilities, minimize damage to public infrastructure and cultural heritage and aid in human development. To achieve the same, one of the priority areas of SFDRR is public and private investment in disaster risk prevention and reduction through structural and non-structural measures.[41]

The GoI has emphasized on an integrated, multi-sectoral approach to DRR mainstreaming by strengthening risk reduction in key sectors such as education, agriculture, urban development, environment and health. Alongside this, the GoI has launched flagship programmes focused on creating social infrastructure for the most disadvantaged and vulnerable groups, as the DRR objectives are aligned to the vision, objectives and provisions of the Centrally Sponsored Schemes (CSS).

7.1 Thematic Areas

Global discussions have clearly articulated some of the key thematic areas for mainstreaming DRR within ongoing development and creating an enabling environment for this initiative. Some of the areas that have emerged from the discussions are mentioned below:

- Improving awareness and understanding of disaster risks;
- Enhancing legal support and better disaster governance;
- Effective disaster risk transfer and risk management;
- Ensuring social inclusiveness in DRM;
- Maximizing existing cooperation mechanisms within the Government and between Government and other stakeholders;
- Adopting an integrated, multi-sectoral approach for mainstreaming DRR in critical sectors such as education, health, environment, urban development and agriculture;
- Creating appropriate institutional arrangements for risk management and enhancing capacity development;
- Facilitating coherence with major global frameworks for enhancing disaster resilience;
- Allocating adequate budgets for mainstreaming DRR in development programmes;
- Promote compliance to safety standards of DRR in existing and new projects, programmes and activities through project appraisals and scrutiny of development plans; and
- Establish monitoring and evaluation mechanisms to ensure compliance with the DRR.

[41] What is the Sendai Framework? (2022). Retrieved 25 July 2022, from https://www.undrr.org/implementing-sendai-framework/what-sendai-framework

UPSDMA suggests the incorporation of these themes into all levels of State Government's policies, strategies and programmes as an intrinsic component of their overall plans, while SDMPs will provide an overview or broad indication of how it will be done. Government agencies need to operationalize these concepts and explore ways to incorporate the idea of mainstreaming DRR in programme planning and implementation.

A number of Government flagship schemes have been developed imbibing the approach of mainstreaming DRR and contribute to social inclusion such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which aims to enhance their livelihood security through guaranteed wage employment for 100 days. It also lays emphasis on mitigating risks, resulting from lack of access to structural measures by provisions of creating ponds, embankments and roads among others.

7.2 Improving Awareness

The SFDRR 2015–2030 emphasizes on the importance of understanding and awareness of disaster risks. Improving awareness of disaster risk, along with knowledge on risk reduction and risk management strategies, is an important part of mainstreaming DRR. Priority 1 of the SFDRR emphasizes on the understanding of disaster risks in all its dimensions of vulnerability, capacity, exposure and hazard characteristics, as it would help the community and concerned stakeholders in proactively taking up preventive actions. Awareness and knowledge of contextualized disaster risks among decision makers will help in formulating sound policies and practices, prioritizing risk reduction through prevention, mitigation and preparedness. In order to ensure uniformity in risk-informed decision making and prevent adverse actions, it is essential for decision makers from across the Government and private sector to consider disaster risk in its programming and other activities.

7.3 Legal Support and Disaster Governance

One of the key components of mainstreaming disaster risks into development includes adequate and appropriate institutional mechanisms for risk management. This is where the role of disaster risk governance comes into play. Disaster risk governance refers to the way in which the public authorities, civil servants, media, private sector and civil society coordinate at community, national and regional levels in order to manage and reduce disaster and climate-related risks.

Disaster risk governance also includes land-use planning and building code regulations; tools for assessing disaster risk; and helping Government institutions to take on the responsibility of managing disaster risk and recovery by helping to mandate institutional responsibilities; as well as involving vulnerable populations in the planning and implementation of community-based programmes. Disaster risk governance at the national, regional and global levels is of great importance for an effective and efficient management of disaster risk.

Strengthening risk governance would involve encouraging the establishment of necessary mechanisms and incentives to ensure high levels of compliance with the existing safety-enhancing provisions of sectoral laws and regulations, including those addressing land use and urban planning, building codes, environmental and resource management and health and safety standards, and update them, where needed, to ensure an adequate focus on DRM.

7.4 Disaster Risk Transfer

Disaster risk transfer is part of a comprehensive DRM strategy involving stakeholders from the Government and private sector along with civil society and local communities. Risk transfer implies the process of formally or informally shifting the financial repercussions of risks from one party to another. Insurance is a well-known kind of risk transfer in which a risk is covered by an insurer in exchange for recurring premium payments to compensate damages following significant disasters.

Risk transfer has gained an international recognition as a critical tool for DRM, as it enhances access to fast and cost-effective liquidity for disaster-affected people, especially the poor and vulnerable populations. The SFDRR highlights risk financing, insurance and risk transfer under Priority 3 on investing in DRR for resilience. Apart from SFDRR, both the SDGs and the Paris Agreement underscore the value of risk transfer and financing for DRM.

Both the Central and the State Governments are putting in considerable efforts in financing for DRR. However, there is a need to scale-up data collection and standardize hazard risk assessment, which would help in shaping innovative risk transfer solutions. The UPSDMA also suggests the key actors in the Government and private sector to generate awareness among them on the various risk transfer facilities in order to address the mistrust rampant among local communities, and increase its uptake. Also, Government agencies need to address the constraints in delivering risk financing/risk insurance facilities by expanding its delivery channels and ramping up their technical capacity.

7.5 Enabling Coherence and Mutual Reinforcement of Initiatives under the Major Global Frameworks for Enhancing Disaster Resilience

The concept of coherence and mutual reinforcement refers to rigorous and mutually supporting efforts cutting across ministries and sectors. The current trends in development have inadvertently created risk multipliers, which increase our exposure to hazards, as a result of which the need to have coherence and coordination among major global agreements on risk reduction and resilience becomes more significant. Efforts to promote initiatives and ensure mechanism for mutual reinforcement under three landmark global agreements – SFDRR (Sendai, March 2015), SDGs (UN General Assembly, New York, September 2015) and the Climate Change Agreement (COP21, Paris, December 2015) – need to be scaled up.

Given the complementarities between the post-2015 agendas, leveraging the total impact of these instruments creates shared value. Efforts must be deployed to ensure that State-level initiatives (schemes and flagship programmes) under each of these frameworks do not build in 'policy risks' or, contradictory policies, that generate more – rather than less – risk in development. The State Government should enhance the synchronization of DRR activities with the steps to achieve targets under the SDGs and address climate change, while these should be reflected in the development agenda of the State.

Some of the entry point activities under this thematic would be an assessment of existing schemes and programmes to identify gaps and recommend remedial measures to address those gaps from the perspective of each of these global frameworks, establishing a timeframe within which the schemes and programmes are revamped and ensuring measures for proper checks through timely monitoring and evaluation.

7.6 Institutional Arrangements and Capacity Development for Disaster Risk Management

Given the cross-cutting nature of DRR, it is important that each and every Government agency is responsible for its implementation. The institutional mechanisms for mainstreaming DRR within development cannot remain limited to the nodal agency responsible for DM. It must encompass whole-of-government, covering all sectors of development in the public and private sectors. Each of the Government institutions and agencies should plan and implement programmes, keeping DRR as a key consideration along with making arrangements to spell out their responsibilities and accountabilities. The UPSDMA will provide leadership and policy guidelines, handhold all the Government institutions and advocate for inclusion of DRR strategies in the broader development agenda of the State. The UPSDMA will also build the capacity of relevant stakeholders on the concepts and working knowledge of DRM.

7.7 Inter-Government Coordination and Integration

The whole-of-government approach to DRM makes it imperative that the business of DRR does not remain centralized but becomes the joint responsibility of Government at all levels, encompassing all departments from State to sub-District level, with engagement and participation of all stakeholders and communities. The inter-agency coordination and integration would ensure the recognition of grassroot needs at the State level plans and strategies. Besides, inter-agency coordination would also address and contain cross-sectoral risks.

7.8 Budget Allocations

The SFDRR underscores the importance of allocating necessary financial resources, at all levels of administration for the development and the implementation of DRR strategies, policies, plans, laws and regulations in all relevant sectors.

The State Budget should accommodate disaster risk concerns by allocating sufficient funds for risk reduction, while also ensuring adequate funds for managing residual risks. Apart from managing funds for relief through State Disaster Response Fund, there is a need for each ministry, department and agencies at the District and sub-District levels to keep adequate funds for DRR. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses, and ensure effective recovery and rehabilitation.

7.9 Changes in Project Appraisal

Development projects should undergo regular appraisals to ensure that they have sustainable outcomes and don't contribute to additional risk creation. Periodic appraisals and scrutiny of development programmes would help in alleviating disaster risks and reduce losses incurred due to hazards. All the programmes, activities and projects should be adequately informed of the likelihood of hazard right from the inception to implementation. The State Government should incorporate DRR and climate change concerns in a more systematic way in its project appraisals and environment impact assessments. All the development projects should undergo DRR

evaluation and fulfil the safety standards and other statutory requirements prior to its commencement.

7.10 Setting Targets, Timeframes and Indicators

Monitoring and evaluation of DRR initiatives along with generating evidence on the results of DRR initiatives creates an enabling environment for mainstreaming DRR. The State Government should set targets to achieve DRR outcomes along with appropriate timeframe, responsibility matrix and indicators to measure the progress along DRR parameters. The SDMP guides State, District and sub-District level functionaries in setting short-, medium- and long-term goals for DRR mainstreaming, along with outlining the responsibility matrix.

7.11 Implementation

All the State ministries, departments and agencies must incorporate DRR elements to its existing programmes within their budget and ensure comprehensive appraisal of new initiatives based on the perspective provided by the SDMP. The implementation of mainstreaming should be in coherence with the global frameworks, which prioritize the importance of DRR, and should also take into consideration all the factors that contribute to sustainable development.

8 Building Disaster Resilience: Part A – Background

Building disaster resilience ecosystem is essential in the state which includes almost all aspects of pre-disaster risk management.[42] The nature of building disaster risk resilience ecosystem is summarized in this chapter and the detailed responsibility framework described in the next chapter.

The responsibility framework provides a brief description of actions, list of key agencies responsible from the State and relevant time frames.

The four categories of time frames, running concurrently in most cases, are:

1. Recurring/Regular (day-to-day);
2. Short term (T1, ending 2024);
3. Medium term (T2, ending 2027); and
4. Long term (T3, ending 2030).

The SDMP incorporates key principles as inscribed in the DM Act 2005, National Policy 2009, the three major post-2015 global frameworks and the Prime Minister's 10 Point Agenda. Social inclusion has also been added for mainstreaming in disaster management ecosystem of the state. These are grouped under the following six thematic areas for DRR:

1. Understanding risk;
2. Inter-agency coordination;
3. Investing in DRR: Structural measures; and
4. Investing in DRR: Non-structural measures;
5. Capacity Development and Knowledge Management; and
6. Climate change risk management.

Given in the next chapter are some of the operating procedures UPSDMA and other state agencies should follow while collaborating with other state and district-level stakeholders for building resilience in the state. The roles and responsibilities, though comprehensive, are not exhaustive and departments can modify these depending on their functional dynamics and specific requirements, while formulating their departmental plans. Districts will also evolve their own plans and lay down specific roles and responsibilities for their line departments, depending upon the local dynamics.

[42] National Disaster Management Authority, Government of India. (2022). *National Disaster Management Plan, 2019* [Ebook]. New Delhi. Retrieved from https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf

9 Building Disaster Resilience: Part B – Responsibility Framework[43]

9.1 Floods

9.1.1 Understanding Disaster Risk

Following are some of the major activities that shall be covered while understanding flood risk in order to build resilience in the State of UP:

- Information systems, monitoring, forecasting and early warning;
- Zoning, mapping and classification of flood-prone areas;
- Zoning, mappingand classification flood-prone areas;
- Research and Development (R&D);
- Hazard Risk Vulnerability and Capacity Analysis (HRVCA);
- Dissemination of warnings, data and information; and
- Disaster data collection andmanagement.

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Information Systems, Monitoring, Forecasting and Early Warning	RCO in collaboration with FMISC	Coordinate with IMD, CWC, National Remote Sensing Centre (NRSC), NDMA, UPRSAC towards monitoring and forecasting of heavy rain and flood	DDMA	Develop early warning protocols for dissemination of information at the village level
		Conduct pre-monsoon meeting to review preparedness and response planning		Conduct pre-monsoon meeting to review preparedness and response planning at District, Tehsil and Block levels
	Irrigation and Water Resources Department (IWRD) in	On receiving heavy rainfall, the IWRD to assess the situation and issue flood warning, if necessary		Formation of flood monitoring Committee at the Tehsil and Block levels
		IWRD to alert the Nodal Officers of every irrigation division and control		

[43] Symbol * marked next to the agency/department denotes the nodal agency/department in the corresponding activity.

	collaboration with CWC and IMD	Keep information updates on water level of the rivers and reservoirs		
		Dissemination of weather reports and flood bulletins issued by the Meteorological Department, CWC, and Flood Forecasting Organization, to the State departments and concerned District authorities	IWRD	Establish Flood Control Rooms at Tehsil and Block levels with adequate equipment and human resources
		Short Term (T1)		
	RCO	Develop early warning protocols and mechanisms for the State and develop a Standard Operating Procedure (SOP) for the early warning information flow from SEOCs to Districts		Appoint Nodal Officers for coordination and closely monitor the water level and discharge from dams along with rainfall during emergency situation
		Execute MoU with Nepal government and state of Bihar, Uttarakhand and Madhya Pradesh for early warning and sharing of information		Ensure regular monitoring of breach from embankments
	IWRD (FMISC) with UPSDMA and UPRSAC	Establish early warning systems in the State for flood risks		
	IWRD (FMISC) with CWC and IMD	Install automated river flow gauging and reservoir monitoring systems (inflow, outflow levels)		
	IWRD (FMISC) with CWC	Develop forecasting models for discharge of water from dams		
		Implement and monitor flood preparedness, river basin and reservoir management plans including updating rule curves, improve system of water release from reservoirs		
		Regular/Recurring		**Regular/Recurring**
Zoning, Mapping, and Classification of Food Prone Areas	RCO with IWRD and UPRSAC	Prepare flood plain zoning mapping using remote sensing, GIS and Global Positioning System (GPS) Tool	DDMA	Collaboration with concerned departments/agencies to carry out survey of flood-prone areas and to generate/update flood zonation maps
		Prepare flood vulnerable maps at District, Tehsil, Block and Gram Panchayat (GP) levels using remote sensing, GIS and GPS tools		
	UPRSAC	Providing support in remote sensing and GIS activities in the State as a Nodal Agency		

		Update and maintain a library of spatial database on flood for the State	DDMA with UPRSAC, UPSDMA	Prepare flood vulnerable maps at District, Tehsil, Block and GP levels using remote sensing, GIS and GPS Tools
		Short Term Activities (T1)		
	UPRSAC	Digital risk mapping in public domain		
		Review and update hazard maps of flood-prone areas with high vulnerability	IWRD	Prepare a list of flood-affected village in most severe, severe and moderate categories in the districts
	Revenue Department*, IWRD and Rural Development	Enforcement of laws regulating construction and developmental activities in flood-prone areas		
	CWC*, IWRD and FMISC	Set up coordination mechanism with Nepal and neighbouring States to monitor, coordinate and advise the release of water from the dams/reservoirs to avert any possible floods in the districts		
		Regular/Recurring		**Regular/Recurring**
Research and Development	UPSDMA with IWRD and UPRSAC	Documentation of lessons learnt due to major floods in the State, especially focusing on management, prevention and mitigation measures, etc.	DDMA with universities/ colleges/ research institutes and line departments	Conduct research studies on past flood history and its impact on various sectors i.e., housing, health, livelihood, education, agriculture, water and sanitation, forest and environment
	IWRD with UPRSAC	Use river studies for flood management		
	UPRSAC	Studies on flood-related problems such as river course changes, agricultural land and soil losses caused by flooding of rivers, and appropriate use of embankments		
		Short Term (T1)	IWRD	Keep updated information on rivers, embankments and dams and discharge of water at regular intervals
	RCO, UPSDMA with IWRD and UPRSAC	Study and review new opportunities arising through advancement in technology (e.g., institutionalization of modern communication mechanism, GIS monitoring and control, etc.)		
		Medium Term (T2)		
	RCO, UPSDMA with IWRD and UPRSAC	Studies on land use and hydrological changes relevant to flood management in river basins and reservoir command areas		

		Regular/Recurring		**Regular/Recurring**
Hazard Risk Vulnerability and Capacity Analysis (HRVCA)	UPSDMA/RCO with IWRD	Establish a State Level Flood Hazard Advisory Committee	DDMA	Conduct HRVCA at District level covering physical, social, economic, environmental and community specific aspects
	UPSDMA in collaboration with IWRD and UPRSAC, CWC, NRSC	Conduct floodplain mapping of the State through partnership with key national and State-level institutions		
	UPSDMA with UPRSAC and line departments	Map all infrastructure at risk due to flood	DDMA	Conduct risk analysis and identify flood-prone areas
		Short Term (T1)	DDMA with local universities, colleges and research institutes	Conduct risk ranking based on vulnerabilities and capacities of population, infrastructure and services
	UPSDMA with line departments	Undertake HRVCA in association with Remote Sensing Department, CWC, IMD, IWRD, universities, research institutes and other agencies		
		Medium Term (T2)	DDMA	Use HRVCA as part of preparing and periodic revision of DDMPs
	UPSDMA with UPRSAC and line departments	Vulnerability profiling and mapping	DDMA with local universities, colleges and research institutes	Identification of key risks to people's lives, well-being, infrastructure and services
	IWRD with IMD and UPRSAC	Create dense network of flood gauges and install gauges in un-gauged flood-prone areas that pose significant threat to at-risk communities		
	UPSDMA/ RCO and line departments	Issue guidelines for identification of hospitals and health facilities, schools, AWCs, that are located in flood-prone areas, analyse their internal and external vulnerability during emergencies, and increase the flood resilience of these public infrastructure	All sectoral line department	Conduct a rapid visual survey and safety audit of old/existing public and community buildings i.e., embankments, roads, bridges, power stations, cemented water tanks, PHCs, CHCs, schools, AWCs, WASH facilities
		Long Term (T3)		
	UPSDMA/ RCO with IMD,	Carry out HRVCA and generate micro and macro-level flood hazard vulnerability maps for different river basins in the State		

	Irrigation and UPRSAC			
		Regular/Recurring		**Regular/Recurring**
Dissemination of Warnings, Data and Information	RCO with FMISC IWRD	Integrate flood alert and warning system in all functional departments of the State, especially ones located in high flood-prone areas	DDMA	Maintain contact with forecasting agencies and gather all possible information regarding flood alerts
	RCO with Information and Public Relation Department	Issue rainfall and flood warning forecast through print, electronic and social media	DDMA with IWRD	Daily monitoring of rains, water level of main rivers and discharge of water at regular basis during monsoon period
	RCO	Disseminate alerts, warning and information to line departments and DDMAs to reduce loss of life and property	DDMA	Disseminate early warnings to people through newspaper, radio, television, and internet-based media (use of available media)
	RCO	Information dissemination among the departments and agencies responsible for managing flood situation		
		Short Term (T1)	DDMA	To engage community radio and HAM radio operators for the dissemination of early warning forecast and related advisories for flood risk mitigation
	UPSDMA/ RCO	Develop a network between SEOC and DEOCs for dissemination of information and early warnings		
	UPSDMA/ RCO	Support, cooperation for data collection and updates	DDMA	Information dissemination among the departments and agencies responsible for managing flood situation
	UPSDMA/ RCO	Establish and maintain advance information systems, with specialized control rooms, for improved forecasting and prompt warning dissemination		
		Medium Term (T2)	DDMA	Develop a network and coordination system with Government line departments, GPs and NGOs for dissemination of information and early warnings
	UPSDMA/ RCO	Develop a dash-board on the districts' official website to disseminate flood warnings		
		Regular/Recurring		**Regular/Recurring**
Disaster Data Collection and Management	RCO with line departments	Maintain GIS-based essential services needed for rescue, response and relief phases viz. medical and health, civil supplies, shelter and other emergency services	DDMA	Update IDRN

	UPSDMA/ RCO	Create and disseminate database of contact details, resources, response agencies, NGOs, trained personnel, most vulnerable groups, evacuation routes, available shelters, relief centres, critical infrastructure, storage godowns, etc.	DDMA with line departments	Support, cooperation for data collection and updates
	RCO	Update IDRN on a regular basis	DDMA with Panchayati Raj Department (PRD)	Inclusion of age and gender disaggregated data in flood damage and need assessments
	RCO	Inclusion of age and gender disaggregated data in flood damage and need assessments		
		Short Term (T1)		
	RCO with line departments	Resource management of human resources, logistics, search and rescue equipment, medical equipment, medicines, anti-venom, personnel protective equipment, disinfectants, vaccines, etc.	DDMA	Coordination and cooperation with the State agencies
			DDMA	Quick, clear, effective dissemination among State and District agencies
	UPSDMA	Develop a database of NGOs at all levels working on DM focusing on geographic outreach and thematic capacities of the organizations	DDMA	Develop database of NGOs, trained personnel, relief shelters, boats, swimmers, critical infrastructure, search and rescue equipment, medical supplies, storage, transport facilities, etc.
			DDMA	Procurement (food supply, tarpaulins, medical supplies, chlorine tablets, bleaching powder, anti-venom, search and rescue equipment, boats, etc.)

9.1.2 Inter-Agency Coordination

To achieve resilience, convergence between numerous stakeholders plays a key role. Thus, SDMP puts inter-agency coordination at the heart of the UP's resilience building efforts. The UPSDMA needs to play the pivotal role of initiating convergence efforts among the numerous stakeholders involved in the process of DRR.

Efficient inter-agency coordination can be achieved at the State level through the following:

- Mainstreaming DRR through the development of plans, policies, and capacity enhancement of stakeholders;
- Ensuring coherence and mutual reinforcement of DRR, Climate Change Adaptation (CCA) and development;
- Coordinate with central agencies; and

- Coordination among State agencies for ensuring updated norms/codes and their implementation, enforcement, and monitoring.

Simultaneously, the following activities also need to be taken up by State and District-level stakeholders to ensure efficient inter-agency coordination.

Thematic Area: Inter-Agency Coordination				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Overall Disaster Governance	UPSDMA and Housing and Urban Planning Department (HUPD)	Issue guidelines to relevant departments to revise design standards of buildings and other infrastructure in areas prone to high or moderate flood risk	DDMA	Prepare and implement DM plans and ensure the functioning of agencies with DM tasks
	UPRSAC and IWRD with UPSDMA and RCO	Disseminate flood hazard zoning/mapping information to all key stakeholders		
	RCO	Strengthen and build capacity of State Disaster Response Force with all equipment	DDMA	Periodically review and upgrade the DDMP, resources, and build capacities for all stakeholders
	RCO and all line departments	Prepare and update multi-hazard disaster preparedness, response, relief and recovery SOPs		
	RCO and all line departments	Strengthen inter-sectoral, inter-departmental coordination besides strengthening coordination with central agencies	DDMA	Set up DEOC
	UPSDMA* and RCO	Establish inter-agency mechanisms for coordination and networking activities (information and knowledge management, training and capacity building, collaborative advocacy, quality and accountability) at all levels		
		Short Term (T1)	DDMA	Incident Response System (IRS) in the District
	UPSDMA/ RCO	Emergency support functions are notified and made operational with fully functional EOCs at State and District levels		
	RCO and all line departments	Comprehensive flood risk reduction in highly vulnerable Districts	DDMA	Coordinate with all line departments and mainstream the DRR into the departmental programmes and schemes
	UPRSAC	Develop flood hazard atlas for the State		

		Medium Term (T2)		
	UPSDMA and all line departments	Issue guidelines to departments to develop hazard-wise departmental action plans and SOPs	All line departments	Prepare and implement departmental SOPs for effective flood preparedness
	UPSDMA and all line departments	Issue guidelines to departments to mainstream disaster risk concerns into developmental plans		
	RCO	Protocol for seeking help from other agencies such as Government of India, National Disaster Response Force (NDRF), SDRF, Army, Navy and Air Force, Central Para Military Forces	DDMA with line departments	Establish District-level Task Force on early warning, search and rescue, evacuation and damage and loss assessment
	All concerned departments and UPSDMA	Prepare departmental flood management and response plan by the concerned departments to be submitted to the UPSDMA for incorporation in the State Disaster Flood Contingency/Response Plan		
Response		**Regular/Recurring**		**Regular/Recurring**
	RCO	Coordinate and manage response actions (incident/disaster)	DDMA	Activate Incident Response Teams (IRTs) at District level and seek assistance of State and Central agencies
	RCO	Coordinate Disaster Response Forces (SDRF/NDRF) to the affected areas	DDMA	Provide necessary resources in terms of material, human resource and monetary support
	RCO	Provide resource support to conduct search and rescue operations	DDMA	Set up relief camps and designate camp in-charge
	RCO and UPRSAC	Take support from agencies equipped with disaster information systems to share satellite data and related analysis indicating the level of hazard or vulnerability or potential threat/risk	DDMA	Coordinate with State agencies for the necessary support process, mobilization of necessary resources during and after the flood
	RCO	Prepare flood situation report		
	RCO	Monitor rescue and relief operations		
	RCO	Multi-sectoral need assessment for the flood-affected people		
		Short Term (T1)	DDMA with SDRF, NDRF	Organize and coordinate the immediate response towards rescue, relief and rehabilitation
	RCO	Distribute relief material and direct restoration of basic services to the affected community/region	DDMA	

	RCO/ UPSDMA	Coordinate with all possible stakeholders including the donors, NGOs, INGOs, media, private and voluntary sector		Start relief works and ensure fare distribution of relief materials to the affected people as per SDRF norms
	RCO with line departments	Prepare detailed damage reports and determine the package for rehabilitation and reconstruction programme	DDMA	DDMA to coordinate, guide and command the rescue, relief and rehabilitation
	RCO/ UPSDMA	Coordinate with agencies and institutions extended support (technical/financial/volunteer)	DDMA	Conduct detailed damage, loss and needs assessment
		Medium Term (T2)		
	RCO	Develop responsibility matrix evolved for each response measures with time frame and responsibility matrix for major stakeholders		
	RCO and concerned departments	Humanitarian relief and assistance viz. food, drinking water, sanitation, health, shelter, psychosocial social care, livestock care, etc.		
	RCO and UPRSAC*	State UPRSAC to engage Unmanned Aerial Vehicles (UAVs)/drones to map the flood-affected areas and to assess the extent of damage		
		Regular/Recurring		**Regular/Recurring**
Early Warnings, Information, Data	IWRD	Provide flood alert and early warning to all concerned departments	DDMA	Establish early warning systems in the District for flood risks
	RCO	Coordinate the dissemination of warnings to all, down to the last mile	DDMA	Quick, clear, effective dissemination of early warnings
	RCO	Establish working relationship with warning agencies in the District, State and the National levels		
		Short Term (T1)	DDMA	Regular updates of flood warning to people in areas at risk
	RCO and IWRD*	Develop flood early warning systems in the State		
	RCO	Support development of Information and Communications Technology (ICT) intervention in flood management		
		Medium Term (T2)	DDMA	Establish working relationships with warning agencies in the District and State
	RCO and IWRD	Preparation of the action plan for flood forecasting and warning in the State		

		Regular/Recurring		**Regular/Recurring**
Non-Structural Measures	RCO	Prepare situation reports and update SEC members and all line departments, administration units	DDMA	Ensure that District Agencies follow norms/ codes and their implementation, enforcement and monitoring
			DDMA	IWRD in coordination with concerned departments to take up non-structural measures to minimize the flood and its impacts

9.1.3 Investing in Disaster Risk Reduction (Structural Measures)

Every stakeholder involved in the State's DRR efforts need to aggressively promote investments in DRR measures. The UPSDMA, DDMAs, RDD, Urban Development Department (UDD), Urban Local Bodies (ULBs), etc. should improve investments in following activities to build resilience against flood.

Thematic Area: Investing in DRR – Structural Measures				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Flood Control Measures such as Construction of Embankments and Levees	UDD and State Urban Development Authority (SUDA)	Redesign existing stormwater and drainage systems in urban settlements for flood control	IWRD	Develop the flood plain by afforestation, land sloping, construction of small reservoirs/check dams, etc.
	IWRD	Undertake embankment strengthening activities	DDMA	Identify suitable sites for temporary shelters for people and livestock
	All concerned departments	Undertake flood-proofing of critical and vulnerable infrastructure (elevate important structures vulnerable to flooding)	DDMA and PRD	Construct multi-purpose shelters in villages/ habitations prone to floods
	IWRD	Enhance embankment/dam safety measures and integrate end to-end early warning system	IWRD	Proper monitoring and maintenance of river embankments
	IWRD and Jal Nigam with Revenue Department	IWRD, Jal Nigam to identify suitable sites for construction of check dams/barrages/diversion canals and water harvesting structures		
		Short Term (T1)	PRD and Revenue Department	Identify sites for flood-resistant constructions through MGNREGA, etc., programmes
	IWRD* and Revenue Department	Undertake construction of embankments where necessary as well as maintenance and repair of existing embankments		

		Medium Term (T2)		
	UDD and Revenue Department	Enact and enforce laws regulating developmental activities in the flood plain as well as prevent encroachment of natural drainage system and wet lands		
		Regular/Recurring		**Regular/Recurring**
Social Housing Schemes	Rural Development Department (RDD)	Promote low-cost flood-resistant technology in rural housing		
	Public Works Department (PWD), RDD and PRD	Build capacity of rural masons on safe construction		
		Medium Term (T2)		
	HUPD and PRD	Include measures such as application of hazard-resistant design in construction of Pradhan Mantri Gramin Awas Yojana (PMGAY) houses, appropriate site of housing as per guideline of PMGAY	DDMA	Build capacity of rural masons on safe construction
	PRD and UDD	Promote cost-effective and flood-resistant building technologies		
		Regular/Recurring		**Regular/Recurring**
Multi-purpose Flood Shelters	Revenue Department* and RDD	Construct relief shelters in flood-prone areas	DDMA	Ensure availability of shelters, undertake proper maintenance and make arrangements to support the people shifted to temporary shelter
	Revenue Department and concerned departments	Relocate critical facilities prone to regular flooding and create open spaces for multi-purpose flood shelter so as to minimize/reduce future flood impact	DDMA	Identify safe places for erecting temporary shelters for the affected community and livestock with necessary basic amenities and resources
		Regular/Recurring		**Regular/Recurring**
Waterways and Drainage Systems for Roads,	Concerned departments	Protect all critical infrastructure from flood damage	DDMA	Ensure trouble free road communication
	PWD and concerned departments	Construct and repair roads, bridges, culverts in the State, including construction and repair of public buildings of the State		

Highways, and Expressways	PWD and concerned departments	Keep infrastructure in operational condition, facilitate the movement of goods and services, emergency supply, etc.		
	RCO and concerned departments	Provide regular capacity building/training for staff to undertake vulnerability assessment of critical lifelines structure, develop mitigation options in this regard		
	PWD, UDD and RDD	Ensure design and construction of buildings are incompliance to the Indian Construction Codes of Practice	PWD and concerned departments	Ensure repair and maintenance in the urban areas and implementation of disaster-resistant building codes and designs
	PWD, UDD, PRD and RDD	PWD, UDD, RDD and PRD to assess the vulnerability and take up necessary action for strengthening the roads, highways, schools, PHCs, CHCs, AWCs, power station and bridges by implementing the DRR measures as per the DM Plan		
		Regular/Recurring		**Regular/Recurring**
Enhancing the Safety of Bridges, Dams and Reservoirs	All concerned departments	Improve safety of span structures, bridges, dams, roads, reservoirs, etc.	DDMA	Carry out measures to increase safety, reduce risks from flooding
	IWRD and Agriculture Department	Undertake river bank protection and anti-erosion works	IWRD and DDMA	Undertake pre- and post-monsoon inspections of dams and reservoirs
	IWRD	Conduct regular inspection and strengthen flood protection embankment ring and other bunds using modern technology	IWRD	IWRD to coordinate periodical review and updation of structural and non-structural measures towards the embankment/dam/check dam safety
			DDMA	Monitor the implementation of safety enhancements in accordance with norms
		Regular/Recurring		**Regular/Recurring**
Desilting/ Dredging of Rivers to Improve Flow; Drainage Improvement; Food Water Diversion through	IWRD	Clean/de-silt channels/creeks to undertake improvement of drainage system	IWRD	De-silt rivers in flood-prone areas
	IWRD	Take necessary steps to repair/improve the channels to ensure free flow of flood waters	IWRD, Agriculture, UDD	De-silt storm water drains and tanks periodically
	IWRD, PRD and ULBs	Improve drainage in flood-prone areas and across	DDMA	Clear the encroachments to minimize the flood events

Existing or New Channels				
		Regular/Recurring		**Regular/Recurring**
Hazard-Resistant Construction, Strengthening and Retrofitting of all Lifeline Structures and Critical Infrastructure	UDD, PWD, RDD and other concerned departments	Carry out structural safety audit of all critical lifeline structures	DDMA and all line departments	Take precautionary steps for the protection of lifeline structures against possible loss and damage during flood
	IWRD	Construct embankments	DDMA and all line departments	Assess the high flood levels, flood frequency and accordingly design the critical infrastructure (school buildings/PHCs/CHCs/AWCs) and also while strengthening the existing critical infrastructure through retrofitting
	UPSDMA/ RCO	Collaborate with technical agencies and implementation	DDMA and all line departments	Based on HRVA analysis, develop department's specific contingency action plan
	PWD and UDD	Formulate guidelines for safe construction of public works		
	IWRD	Procure/prepare HRVA for water resource management and flood protection		

9.1.4 Investing in Disaster Risk Reduction (Non-Structural Measures)

Thematic Area: Investing in DRR – Non-Structural Measures				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Regulation and Enforcement of Laws, Norms, Regulations, Guidelines including, Regulation for Reservoir Management, Integrated Water	IWRD	Undertake watershed management programmes and encourage rain harvesting technology	DDMA	Adapt the norms/codes as per District's requirement, enforcement, monitoring
	Revenue Department, ULBs and PRD	Implement land-use regulation for low-lying areas as per flood control norms	IWRD	Review and modify operation manuals for all major dams/reservoirs
	UPSDMA and RCO	Implement flood management action plan	DDMA and line departments	Support and cooperate with central agencies; sponsor State-specific efforts
			IWRD and Revenue Department	Prevent and remove encroachment in to the waterways and natural drainage systems

Resources Management		**Short Term (T1)**		
	IWRD and Revenue Department	Regulate inhabitation of low-lying areas along the rivers, canals and drains		
	RCO with UPSDMA	Promote institutional mechanisms for sharing forecasts, warnings, data, and information		
		Medium Term (T2)		
	IWRD and Revenue Department	Regulatory framework for flood plain zoning and flood inundation management		
		Regular/Recurring		**Regular/Recurring**
Regulations to promote flood-resilient buildings and infrastructure	IWRD	Adequate budget needs to be allocated to improve the operations and maintenance processes of the drainage systems		
	IWRD/ Revenue Department/ Department of Environment, Forest and Climate Change (DoEFCC)	Ensure strict compliance with the guidelines and land-use planning consistent with sound storm water management plan through development of holistic environment impact assessment guidelines		
		Short Term (T1)	DDMA	DDMA to develop regulation mechanism based on the policy plans to ensure the implementation of building codes
	UP Wetland Authority with Revenue Department	Discourage reclamation of wetlands and natural depressions by laying down strict norms		
		Medium Term (T2)	PWD and line departments	Formulate guidelines for safe construction of public work in flood-affected areas
	UP Wetland Authority with Revenue Department	Action plan managing wetlands and natural drainage systems for flood moderation		
		Long Term (T3)		
	DoEFCC and IWRD	Implement watershed management, including catchment area treatment and afforestation programmes		
		Regular/Recurring		**Regular/Recurring**

Wetland Conservation and Restoration of Catchment Area Treatment/ Afforestation	DoEFCC and IWRD	Implement watershed management including catchment area treatment and afforestation programmes	DDMA	Discourage reclamation of wetlands, natural depressions
		Medium Term (T2)	IWRD and line departments	Implement watershed management including catchment area treatment and afforestation programmes
	DoEFCC and IWRD	Forest and ecology department to take up special drive for afforestation along the river course for the breach/erosion of river banks		
		Regular/ Recurring		**Regular/Recurring**
Public-Private Partnership (PPP)	UPSDMA with line departments	Promote private participation in DM projects	DDMA	Implement flood warning system through PPP model

9.1.5 Capacity Development and Knowledge Management

Thematic Area: Investing in DRR – Capacity Development				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Training	State Institute of Rural Development (SIRD)* and UPSDMA	Training Government Officials on flood preparedness and response planning	DDMA	Train and orient programmes for Government staff, professionals for veterinary care and support to disaster-affected animals
	Police and Home Guard Training Institute* with SIRD and UPSDMA	Practical training of Home Guards personnel and police in various aspects of DM, including search and rescue techniques	DDMA	Incorporate disaster response, search and rescue in the training programmes of youth such as village volunteers, and for protection of disaster-affected animals
	SIRD* and UPSDMA	Conduct and coordinate training of all Government Officials involved in the planning and implementation of preparedness, mitigation, response and relief work	DDMA with concerned authorities	Train National Cadet Corps (NCC) and National Service Scheme (NSS) personnel in various aspects of DM
	Police and Home Guard Training Institute with SIRD* and UPSDMA	Conduct training of Police Officers in DM- crowd management, evacuation, rescue and relief operations		

	SDRF and NDRF	Conduct training of SDRF and NDRF personnel in DM- evacuation and rescue operations	DDMA, District Institute of Rural Development, District Training Institute	Conduct training programmes for the elected representatives, Officers, staff of Panchayati Raj Institutions (PRIs) and NGOs
	SIRD* and Department of Medical Health and Family Welfare (DoMHFW)	Conduct training and awareness camps for Health Officials and community members in DM	DDMA, Fire Department and Civil Defence	Conduct search and rescue training to local volunteers
	SIRD* and Basic Education Department and Secondary Education Department	Train educational and training institutions' personnel in various aspects of DM	DDMA, Fire Department	Conduct training to Fire Officers in DM evacuation and rescue operations
	SIRD* and UPSDMA	Train civil society, Community Based Organizations (CBOs) and corporate entities in various aspects of DM	DDMA with PRD	Community training programmes to prepare volunteers for rescue, relief, first aid response
	Fire Department with UPSDMA	Train fire and emergency service personnel in various aspects of DM	DDMA with PRD	Identify and prepare a list of ex-service men, swimmers and divers in the local community to be engaged during floods
	Police and Home Guard Training Institute with SIRD* and UPSDMA	Train Police and traffic personnel in various aspects of DM	Animal Husbandry Department, Veterinary Training Institute	Train and orient programmes for State Government staff, professionals for veterinary care, and support to disaster-affected animals
	UPSDMA with SIRD	Train personnel working for DM in the UPSDMA	DDMA, DoMHFW with Red Cross Society	Train volunteers on emergency preparedness programmes such as first aid and preventive measures against diseases in disaster-prone areas
	Civil Defence Training Institute* and UPSDMA	Train civil defence personnel in various aspects of DM	DDMA, PRD	Train PRI members and community volunteers on embankment protection-related watch (for breach signs), communication and immediate actions

	UDD	Train engineers, architects, structural engineers, builders and masons in various aspects of DM		
	PRD and DoMHFW*	Conduct hands-on training of the Accredited Social Health Activists (ASHAs), Auxiliary Nurse Midwives (ANMs), and Anganwadi Workers (AWWs) on delivering services during disasters		
	DoMHFW with UPSDMA	Incorporate crisis management, Emergency Medical Response (EMR)/recovery and trauma management at the diploma /UG/PG levels for health professionals		
		Regular/Recurring		**Regular/Recurring**
Curriculum Development	SIRD* and UPSDMA with concerned line departments	Conduct training needs analysis		
	SIRD* and UPSDMA	Develop training manual as per the training need analysis on flood preparedness and response for Government stakeholders, PRIs, CBOs, volunteers and other key stakeholders		
	SIRD* and UPSDMA with SDRF, Home Guards	Build capacity of multi-sectoral departments, SDRF, Home Guards and first responders, etc.		
	Higher Education Department* and UPSDMA	Update curriculum for undergraduate engineering courses to include topics relevant for flood risk management		
	UPSDMA* and Basic, Secondary and Higher Education Departments	SDMA to constitute an Expert Committee to include flood risk management/DRR component in school and college curriculum		
		Regular/Recurring		**Regular/Recurring**
Awareness Generation	UPSDMA* and RCO	Plan, design, execute and disseminate flyers, hoardings, booklets, leaflets, banners, safety tips and checklists in local languages (Hindi) for coping with flood hazard	DDMA	Carry out mass media campaigns on flood preparedness in most vulnerable flood areas
	DoMHFW* and UPSDMA	Creating awareness on water-borne diseases	DDMA	Promote attitude and behaviour change in the awareness campaigns/IEC

	UPSDMA with RCO and PRD	Extensively conduct community awareness programmes in flood-prone areas towards flood DRR through mass media (print and electronic, FM, community radio) audio visual jingles, street plays, pamphlets/booklets	DDMA	Promote community radio
		Short Term (T1)	DDMA	Strengthen network of Civil Society Organizations for awareness generation about DRR and DM
	UPSDMA	Promote culture of disaster risk prevention, mitigation, and better risk management through DDMAs	DDMA, Animal Husbandry Department	Provide information on care and protection of disaster-affected animals
	DoMHFW, Agriculture Department, Animal Husbandry Department with UPSDMA	Promote use of insurance/risk transfer viz. Ayushman Bharat, PMFBY, Pradhan Mantri Jeevan Jyoti Yojana (PMJJY), livestock insurance schemes		
		Regular/Recurring		**Regular/Recurring**
Mock Drills/ Exercises	UPSDMA*, RCO, Police, DoMHFW and Civil Defence	Conduct mock drills periodically	DDMA	Jointly plan and execute mock drills in flood-prone areas
	UPSDMA with line departments	Promote and initiate planning and execution of mock drills by all line departments in flood-prone Districts		
	SIRD* and UPSDMA	Develop training programmes for volunteers to conduct mock drills		
	UPSDMA* and line departments	Develop a mock drill calendar and execute mock drills in flood-prone Districts at regular intervals	Fire Department	Arrange advance preparatory periodic mock drills on DM
		Regular/Recurring		**Regular/Recurring**
Vocational Training/ Skill Development	UPSDMA*, PRD and UP Skill Development Mission	Promote community education, awareness and training		
	SIRD*, UPSDMA and RCO	Capacity building programmes for officers and community volunteers in flood-prone areas	DDMA	Ex-service men, swimmers and divers in the local community to be engaged in the mock drill prior to the flood season
	DoMHFW* and PRD	Training on use of disinfectants (halogen tablets, bleaching powder, etc.)		

	RDD* and PRD	Train rural volunteers on repairing of hand pumps/ and damaged drinking water sources		
		Short Term (T1)	DDMA in co-ordination with UPSDMA, RDD and SDRF	Periodically conduct sector specific mock drills/capacity building programmes for officers and community volunteers in flood-prone areas
	UPSDMA with concerned line departments/ agencies*	First aid, Search and Rescue, hand pump repairs, treatment of water, search and rescue equipment and materials in flood preparedness and response		
		Regular/Recurring		**Regular/Recurring**
Empowering Women, Marginalized Groups, and PwD	RCO and Social Welfare Department*	Issue guidelines for basic provisions for PwD in safe shelters with light, toilets, sanitation, accessibility of the safe shelters through ramps for them		
	Home Department	Provision of women staff in the response task force, volunteers and specialized divisions of Government	DDMA	Engage and train women volunteers for proactive response
	Agriculture Department and Social Welfare Department	Risk transfer with special focus on at-risk populations such as farmers, women, and weaker sections	DDMA with all line departments	DDMA in coordination with concerned departments/agencies to incorporate gender/community specific DRR measures in planning and implementing the programmes/schemes
	PRD and RDD*	Train rural masons/ helpers/carpenters/plumbers on construction of safe houses	DDMA	SHGs/NGOs to be engaged in creating awareness about gender/community specific DRR measures
		Regular/Recurring		**Regular/Recurring**
Community-Based Disaster Management	RCO*, UPSDMA and PRD	Develop community-based early warning systems	DDMA	Build capacities of communities to be better prepared to deal with and respond to disasters
	UPSDMA* and PRD	Promote community education, awareness and training programmes through DDMAs		
	SIRD*, UPSDMA, PRD, RDD	Build capacity of PRIs, village-level frontline workers of line departments, CSOs, and volunteers on risk analysis, and implement initiatives based on resilient village checklist	DDMA and PRD	Train Panchayat members, SHGs, NCC, NSS, youth, and local community organizations on various aspects of DRM
	UPSDMA* and PRD	Promote community radio for enhancing resilience of villages, including targeted programmes for different social groups, including women, children, and the elderly amongst others		

	Agriculture Department	Promote community-based grain banks, seed banks and revive traditional seed varieties in partnership with PRIs		

9.1.6 Climate Change Risk Management

Thematic Area: Climate Change Risk Management				
Area of Intervention	**State**	**Regular/ Recurring**	**District**	**Regular/ Recurring**
Research, Forecasting/ Early Warning, Data Management, Zoning, Mapping	DoEFCC	Plan activities to support climate change risk reduction efforts pertaining to the Global Agreement on Climate Change (GACC)		
		Medium Term (T2)		
	DoEFCC with line departments	Document State-specific initiatives pertaining to GACC impacts and coping mechanisms		
		Long Term (T3)		
	UPSDMA with DoEFCC and line departments	Promote research studies with State-specific contexts on GACC and consequent changes in hazards		
		Regular/Recurring		**Regular/Recurring**
HRVCA	UPSDMA* and DoEFCC	Undertake HRVCA as part of preparing and periodic revision of DM plans	DDMA	Conduct HRVCA as part of preparing and periodic revision of DDMPs on GACC risks
		Regular/Recurring		**Regular/Recurring**
CCA	DoEFCC	Sensitize and generate awareness of key stakeholders on CCA	DDMA	DDMA in co-ordination with other concerned agencies to take up sector specific CCA programmes
	DoEFCC with all line departments	Plan initiatives for CCA		
		Medium Term (T2)	DDMA with line departments	Sensitize and generate awareness on CCA measures in various sectors viz. agriculture, health, livelihood, water, food and nutrition, education
	DoEFCC with line departments	Develop local adaptation strategies and pilot projects		
		Long Term (T3)	DDMA, Social Welfare Department* and other departmental schemes	Integrate adaptive measures in social protection programmes for the vulnerable groups
	All line departments	Implementation of GACC adaptation programmes		

9.2 Drought

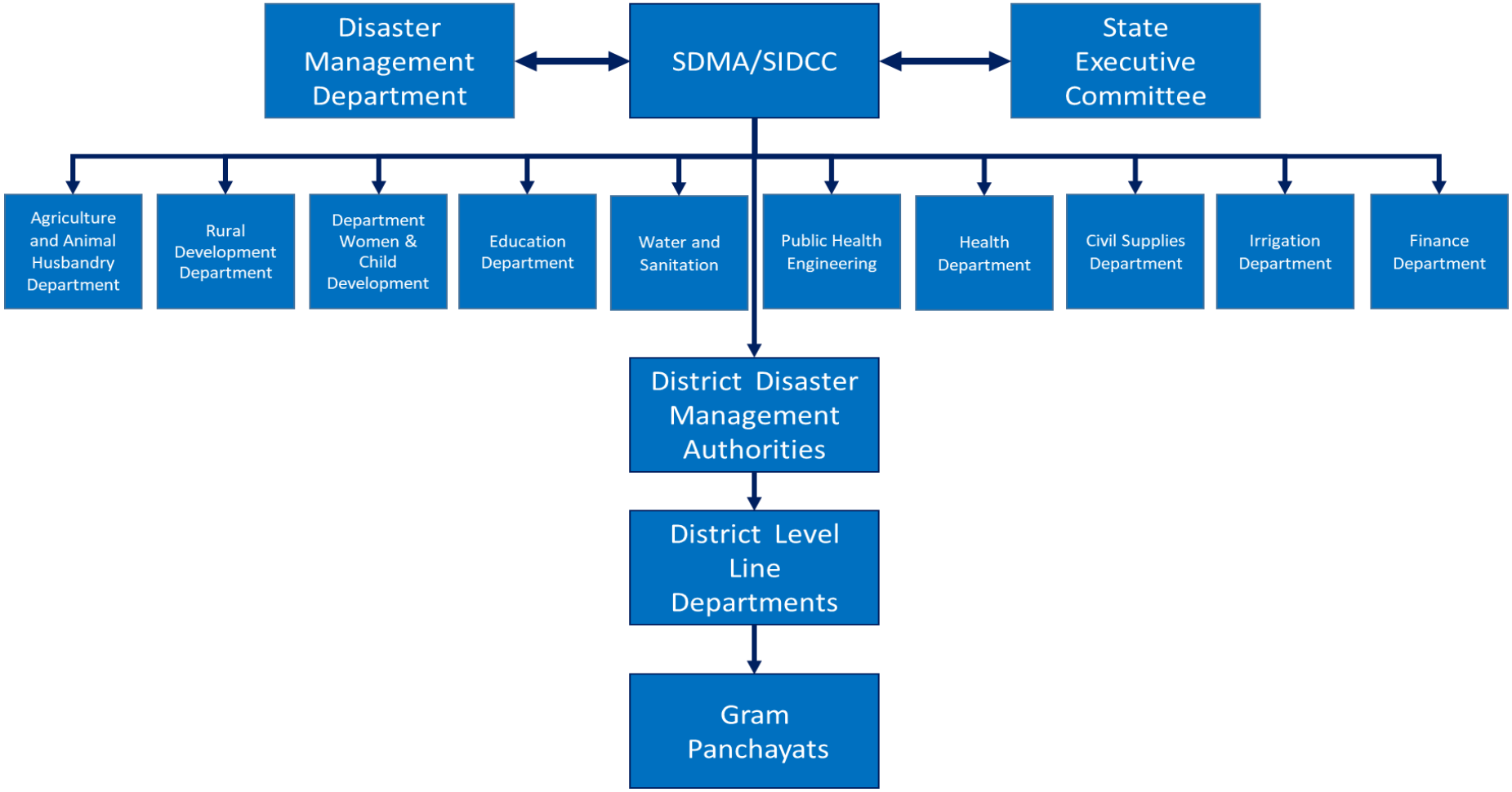


Figure 16: Coordination Mechanism for Drought Management

9.2.1 Understanding Disaster Risk

Following are some of the major activities that shall be covered while understanding drought risk in order to build resilience in the State of UP:

- Development of vulnerability maps;
- Development of assessment, monitoring, forecasting and early warning frameworks;
- Scientifically defining and universalizing drought declaration methods; and
- Investing in scientific research.

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Recurring/Regular Responsibilities**	**District**	**Recurring/Regular Responsibilities**
Vulnerability Mapping	Agriculture Department*, Planning Department, IMD, IWRD	Notify guidelines on block-wise rainfall deficit mapping in the drought-prone and water scare region	DDMA, Agriculture Department*, IWRD	Prepare maps of areas likely to face water deficit before onset of next monsoon (demarcate blocks and preferably villages)
	Agriculture Department*, IWRD	Notify guidelines on comprehensive assessment of water deficit in dry land farming, rain-fed, and drought-prone areas' stream flow (surface and groundwater)	IWRD, DDMA*	Undertake village-wise assessment of water safety and security in the vulnerable blocks
		Notify agro-climate region wise water deficit assessment reports for relevant regions separately	DDMA*, Agriculture Department, IWRD	Undertake HRVCA as part of preparation/revision of DM Plan
	UPSDMA*, RCO, UPRSAC, IWRD	Provide technical assistance to the DDMA to prepare vulnerability maps	Agriculture Department	Estimate loss of crops in the context of uncertainty in rainfall patterns
		Short Term (T1)		**Recurring/Regular**
Assessment, Monitoring, Forecasting, Early Warning	RCO with Agriculture Department, IWRD and	Develop drought forecast, and assessment of water deficit, drought-prone, and dry land farming areas	DDMA with Agriculture Department and IWRD	Coordinate with District-level agencies in the compilation, for refining forecast accuracy for the region, and analysis of all the drought, water deficit, and crop related data

	concerned line departments,	Prepare a detailed advisory on water conservation and crop management measures based on drought and water deficit in consultation with experts for Central Research Institute for Dryland Agriculture (CRIDA) and Agriculture Department	DDMA*, Agriculture Department and IWRD	Ensure functioning of drought monitoring cells with requisite facilities and staff to continuously monitor water availability in the drought-prone blocks
	Agriculture Department	Monitor key drought indices at State and District levels as per latest national manual for drought management	IWRD and Agriculture Department with DDMA	Prepare and update a robust database of micro level details on rainfall, reservoirs/lake water levels, surface water/ground water, soil moisture, sowing/crop
	Agriculture and concerned line departments	Develop a multi-criteria method based on various indices (vegetation, soil, water availability, etc.) as standardized framework for drought forecast	DDMA in consultation with Agriculture Department	Issue crop advisory for blocks that are likely to face water deficit
		Medium Term (T2)		**Recurring/Regular**
Research	Agriculture Department*, UPSDMA, Chandra Shekhar Azad University of Agriculture & Technology Kanpur	Conduct research through the university system to cope with water deficit, manage crops with less water, improve water conservation programmes, and for rainfed farming	Agriculture Department*, DDMA, Krishi Vigyan Kendras (KVKs) and universities, colleges and research institutes	Promote crops that are less water-intensive
		Agricultural research focused on drought-prone areas, arid/semi-arid tracts, and dryland farming areas		

9.2.2 Inter-Agency Coordination

To achieve resilience, the convergence between numerous stakeholders plays a key role. The UPSDMA shall play a pivotal role of initiating convergence efforts among the numerous stakeholders involved in the process of DRR.

Efficient inter-agency coordination for building drought resilience can be achieved through the following:

- Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks;
- All aspects of DRM and mainstreaming DRR;

- Ensuring coherence and mutual reinforcement of DRR, CCA and development;
- Organizing and coordinating the immediate response plans;
- Coordinating with central agencies; and
- Coordination among State agencies for ensuring updated norms/codes and their implementation, enforcement and monitoring.

Simultaneously, the following activities also need to be taken up by District-level stakeholders to ensure efficient District-level inter-agency coordination.

Thematic Area: Inter-Agency Coordination				
Area of Intervention	**State**	**Recurring/Regular**	**District**	**Recurring/Regular**
Disaster Governance	UPSDMA	Guidelines on preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks	DDMA and Agriculture Department*	Provide timely drought warnings to line departments and communities to take up preparedness measures and activate drought contingency plans
	UPSDMA	Issue guidelines to various departments on DRM and mainstreaming DRR		
	UPSDMA* and Agriculture Department	Issue guidelines on development and updation of the District agriculture contingency plan		
		Recurring/Regular		**Recurring/Regular**
Response	PRD with Jal Nigam and Ground Water Department	Identify private wells in the drought-prone area that can be made available on rent during the dry season	DDMA	Hire private tankers in case of inadequate availability of Government tankers
	DoMHFW	If drought is long standing, health authorities to undertake nutritional surveillance among vulnerable populations (children, pregnant women, etc.) and manage nutritional deficiencies	Jal Nigam with DDMA	Deploy department-owned tankers for transporting water
	Jal Nigam*, PRD, IWRD and RCO	Notify for provision of necessary technical, administrative and logistical assistance for the provision of water tankers as per the guidelines		
	RDD	Issue guidelines to ensure provision of work for the labour in 15 days of receipt of applications of demand for work (MGNREGA)		

		Recurring/Regular		**Recurring/Regular**
Warnings, Information and Data	RCO with UPSDMA	Coordinating the dissemination of warnings to all	DDMA	Coordinate the dissemination of warnings to all

9.2.3 Investing in Disaster Risk Reduction (Structural Measures)

Thematic Area: Investing in DRR – Structural Measures				
Area of Intervention	**State**	**Recurring/Regular**	**District**	**Recurring/Regular**
Storage Facilities	Jal Nigam*, PRD, IWRD	Provide technical support for water conservation structures, integrated water resource management infrastructure needs (surface and ground water)	DDMA, Animal Husbandry Department*	Ensure that fodder depots have been set up, and the prices are set up at levels which are affordable for the farmers
	Jal Nigam*, PRD, IWRD	Promote drinking water storage and distribution facilities	PRD, Animal Husbandry Department*	Ensure establishment of fodder banks at strategic locations using improved fodder/feed storage methods for supply of fodder to deficit areas
	IWRD	Promote rainwater harvesting systems at individual and community levels		
	Animal Husbandry Department	Fodder storage facilities to maintain fodder banks		
		Recurring/Regular		**Recurring/Regular**
Water Conservation Structures	RDD, Agriculture Department*	Promote prime minister's agricultural irrigation scheme and watershed scheme	Agriculture Department	Ensure micro irrigation equipment are made available to the farmers for using water optimally
	IWRD*, HUPD and RDD	Promote water harvesting and storage structures		
	IWRD	Promote check dams, reservoirs with excess capacity		
		Recurring/Regular		**Recurring Regular**
Social Housing Schemes	HUPD and PRD	Ensure rainwater harvesting and storage in the social housing schemes in drought-prone areas	HUPD and PRD	Ensure rainwater harvesting and storage in the social housing schemes in drought-prone areas

9.2.4 Investing in Disaster Risk Reduction (Non-Structural Measures)

Along with investing in the structural measures, UPSDMA should promote numerous State and District-level stakeholders to invest in the following non-structural measures of DRR.

Thematic Area: Investing in DRR – Non-Structural Measures				
Area of Intervention	**State**	**Short Term (T1)**	**District**	**Recurring/Regular**
Mitigation Measures	Agriculture Department and UPSDMA*	Conduct pilot studies in drought-prone areas for suggesting long-term mitigation measures	DDMA, Minor Irrigation Department*	Enforce a ban on digging deep bore-wells in the District in drought-prone areas
	IWRD* and RDD	Promote watershed development projects		
		Medium Term (T2)		**Short Term (T1)**
	Agriculture Department, concerned agencies and the UPSDMA*	Convergence of lessons learnt from studies carried out by various research institutions	DDMA, PRD, IWRD*, Jal Nigam*	Deploy drilling machines and technical assistance for borewell programme in the villages, facing or is likely to face drinking water scarcity as per the instruction by the District Collector
		Technical inputs on better crop management (especially for dryland/ rainfed farming)	Agriculture Department, KVKs, IWRD	Establish custom hiring centres of agriculture machinery ensuring moisture conservation practices, water lifting with energy efficient pumps, and micro irrigation systems for small farmers
	Agriculture Department*, UPSDMA, National Bank for Agriculture and Rural Development (NABARD)	Risk management for dryland/rainfed farmers through agricultural extension, and financial institutions based on assessments		
Promote Water Conservation, Water Harvesting, Efficient		**Recurring/Regular**		**Recurring/Regular**
	Agriculture Department	Promote water-efficient irrigation systems (sprinklers, drip, etc.)	Animal Husbandry Department	Promote cattle breed improvement for resilient animal husbandry
		Promote protection irrigation through micro irrigation systems	Agriculture Department	Promote water-efficient irrigation systems (sprinklers, drip, etc.)

Irrigation, Afforestation, Resilient Animal Husbandry	Agriculture Department	Provide advice to farmers to cope with drought, crop management under drought conditions, and efficient water management	Animal Husbandry Department	Promote goat rearing in drought-prone areas
	Agriculture Department	Promote village-level information systems for natural resource management		
Agricultural Credit, Agricultural Inputs, Finance, Marketing, and Crop Insurance		**Recurring/Regular**		**Recurring/Regular**
	Agriculture Department*, RDD and, PRD	Provide credit and financing products relevant to the drought-prone areas	DDMA. Agriculture Credit Bank, PRD, RDD, Agriculture Department	Monitor the availability of credit and other financial support from banks and other financial institutions to farmers in drought-prone areas
		Promote agricultural insurance programmes and ensure that farmers are informed about the availability of insurance products		Ensure the insurance programmes reach the targeted farmers (especially dryland/rainfed farmers) and dependent agricultural labour
		Ensure risk cover for dryland rainfed farmers who face very high rainfall uncertainty and dependent agricultural workers		Provide marketing support to ensure timely availability of quality agricultural inputs
Risk Transfer		**Short Term (T1)**		**Recurring/Regular**
	Revenue Department, Agriculture Department and Animal Husbandry Department	Implement risk transfer arrangements including multi-hazard insurance for life and property	Agriculture Department, Agriculture Credit Bank	Enrol farmers in services of kisan credit card
	Agriculture Department	Introduce consumptions loan in order to prevent diverting of crop loans for other purposes	Agriculture Department	Enrol farmers in services weather-based insurance (Barsha Bima) may take away some drawbacks of existing insurance system
	Agriculture Department	Make plans for switching credit cycle in rainfed region automatically over to two or three years under specified failures of rains		**Medium Term (T2)**
			Revenue Dept., Agriculture Department and Animal Husbandry Department, Agriculture Credit Bank	Make plans for waving off interest, a part or whole of principal, or deferred re-payment into the loaning process in order to maintain credit eligibility of the farmers

9.2.5 Capacity Building and Knowledge Management

Thematic Area: **Capacity Building and Knowledge Management**				
Area of Intervention	**State**	**Short Term (T1)**	**District**	**Medium Term (T2)**
Training	UPSDMA, RCO, Agriculture Department*, SIRD	Formulate and implement State level training and capacity building programmes for drought management through better water conservation, integrated water management (surface and ground water), and cropping systems	Agriculture Department, KVKs	Conduct farmer field schools and impart knowledge of water management techniques, drought-resistant crops and varieties, conservation of ground water cropping systems
		Implement different training programmes for officials at various levels, elected representatives, community leaders, CSOs, and animal welfare organizations		Conduct different training programmes for officials at various levels, elected representatives, community leaders, CSOs, and animal welfare organizations
		Medium Term (T2)		
	Agriculture Department	Ensure availability of qualified and experienced trainers trained by CRIDA, Indian Council of Agricultural Research (ICAR) and other state agricultural institutes who are conversant with drought mitigation and management techniques		
	Animal Husbandry Department	Assign professionals for veterinary care and support to drought-affected animals		
		Recurring/Regular		**Recurring/Regular**
Curriculum Development	UP Council of Agricultural Research* and Higher Education Department	Include basic aspects of DM including drought in graduate and post-graduate courses in agriculture offered by agriculture institutes and agriculture departments of universities and colleges		
	UP Council of Agricultural Research* and Secondary Education Department	Include drought migration activities in secondary and higher secondary school curriculum		
		Recurring/Regular		**Recurring/Regular**
Awareness Generation	UPSDMA*, Agriculture Department, RCO	Carry out mass media campaigns	DDMA, Agriculture Department	Create awareness among local people through various mediums of media
		Promote culture of disaster risk prevention, mitigation, and better risk management covering		Promote attitude and behaviour change in the awareness campaigns IEC

		crop and water management (including conservation of surface and ground water)		
		Promote attitude and behaviour change in the awareness campaigns/IEC		Promote use of insurance/risk transfer mechanisms like PMFBY, SDRF norms, Pradhan Mantri Krishi Sinchai Yojana, etc.
		Promote use of insurance/risk transfer		Promote community radio for promoting knowledge on best practices in farming and agriculture
		Promote community radio		
	UPSDMA and Animal Husbandry Department*	Inform people about care and protection of disaster-affected animals		
		Recurring/Regular		**Recurring/Regular**
Empowering Women, Marginalized Communities, and Differently-Abled persons	UPSDMA*, Agriculture Department, PRD, RDD, DWCD	Incorporate gender-sensitive and equitable approaches in capacity development covering all aspects of DM	DDMA, Agriculture Department, PRD, RDD	Involve women in locally organized SHGs in Pani Panchayats and Jal Saheli like programmes in drought-prone areas

9.2.6 Climate Change Risk Management

Thematic Area: Climate Change Risk Management				
Area of Intervention	**State**	**Short Term (T1)**	**District**	**Short Term (T1)**
Research, Zoning, Mapping	Agriculture Department and DoEFCC*	Document State-specific GACC impacts and coping mechanisms	Agriculture Department, RDD	Take initiatives to promote drought-resistant crops for normal, medium, short and extra short durations. Crops and varieties to be listed to match with the length of growing period and amount of rainfall while preparing crop contingency plans
	Agriculture Department*, RDD, PRD	Take initiatives to promote drought-resistant crops	Agriculture Department	Promote extra short duration crops and varieties to reduce vulnerability to drought and make arrangements for their seed bank

	Agriculture Department	Promote local weather-based insurance mechanisms and agricultural practices		
		Medium and Long Term (T2, T3)		
	Agriculture Department, DoEFCC*	Promote State-specific studies on enhanced risks (economic, social, etc.) under different GACC impact scenarios		
	Agriculture Department, DoEFCC*	Promote research studies with State-specific contexts on GACC and consequent changes hazards		
		Recurring/Regular		**Medium Term (T2)**
CCA	UPSDMA, Agriculture Department, DoEFCC*	Sensitization and public awareness on CCA mechanisms	Agriculture Department	Promote extra short duration crops and varieties to reduce vulnerability to drought and make arrangements for their seed bank through KVKs
		Capacity building and traditional knowledge to build ecosystem	Agriculture Department, Horticulture Department	Promote top-working of naturally growing traditional drought hardy land races of Ber, Amla, Karounda and custard apple, with improved varieties to enhance their value
		Medium Term (T2)	Horticulture Department	Promote early bearing grafted tamarind, pomegranate, fig (Anjeer), guava and mango, as they are quite hardy after their initial establishment
	Agriculture Department*, DoEFCC and IWRD	Implement various water and soil conservation programmes	Agriculture Department, Forest Department	Drought-tolerant tomatoes (Arka Vikas), rainfed onion, coriander, turmeric, ginger, beetle leaves have specific niche or micro region in the Bundelkhand
		Develop adaptation and mitigation strategies under the DM Plan to support local efforts		
		Long Term (T3)		
	Agriculture Department*, DoEFCC	Develop guidelines for local adaptation strategies		
	UPSDMA, Agriculture Department, DoEFCC*	Develop guidelines for climate-resilient infrastructure		
	Agriculture Department*, IWRD	Implement efficient water management and monitoring systems as part of CCA in the drought-prone areas		

9.3 Earthquake

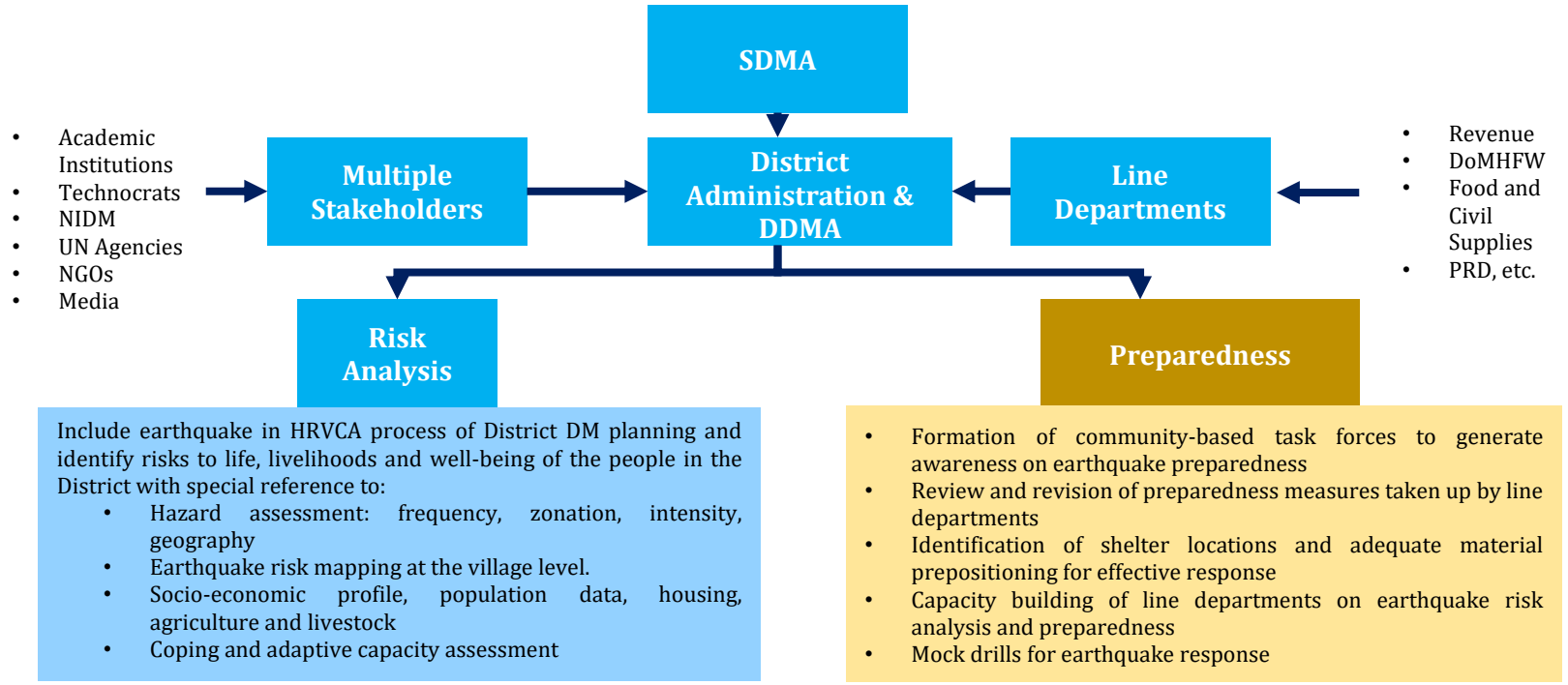


Figure 17: State-level key functions in earthquake disaster preparedness

9.3.1 Understanding Disaster Risk

Following are some of the major activities that shall be covered while understanding earthquake risk in order to build resilience in the State of UP:

- Development of earthquake monitoring services;
- Development of Real-Time Seismic Monitoring Network (RTSMN);
- Ensuring earthquake hazard and risk assessments are made mandatory;
- Ensuring implementation of scientific seismiczonation;

- Ensuring seismic micro-zonation by carrying out need assessment from end-users, conducting micro-zonation studies, and prioritizing urban areas for micro-zonation;
- Undertaking inclusive HRVCA; and
- Development of disaster data collection and management systems.

Thematic Area: Understanding Disaster Risk				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
•Earthquake Monitoring Services • National Seismological Network • RTSMN • Earthquake Hazard and Risk Assessment • Scientific Seismic Zonation and Micro Zonation	RCO	Systematic data management on disaster damage and loss assessments	DDMA with line department	Develop District profile: socio-economic data, population data, housing typology, vulnerable occupation pattern, chronic disease, health facility, heavy and small infrastructure, accessibility, past seismic event history, etc.
	RCO	Develop application for end-to-end early warning system based on shake alert for UP	DDMA	Train DDMA official on interpretation of shake alert and dissemination to public
		Medium Term(T2)		
	UPSDMA*, Geological Survey of India (GSI)	Technical group for undertaking earthquake risk analysis for the State of UP		
		Micro-zonation of major cities of UP		
	UPSDMA	Conduct earthquake risk assessment which should include vulnerability/capacity, past earthquake history, data and impact projections for urban and rural geographies		
		Short Term (T1)		**Regular/Recurring/Short Term (T1)**
HRVCA	UPSDMA with line department	Studies on vulnerabilities and capacities covering social, physical, economic, ecological, gender, social inclusion, and equity aspects	DDMA with line department	Map the locations (villages/town) vulnerable to seismicity in the Districts
	UPSDMA with line department	Provide technical support and guidance for comprehensive HRVCA	DDMA	Identify existing capacity at District level
	RCO	Review stock and repositioning plan of relief items for earthquake response	DDMA	Develop and update District earthquake response plans
	UPSDMA	Review preparedness of SEOC on coordination of earthquake response	DDMA	Review preparedness of DEOC on coordination of earthquake response

		Medium Term (T2)		**Mid Term (T2)**
	UPSDMA	Organize a lesson learnt workshop on earthquake response and preparedness, as emergent, to guide updating of State plans	DDMA	Provide training on regulation on by-laws, for officials sanctioning development projects in vulnerable areas
	UPSDMA	Document good practices on earthquake preparedness and response. The learning's shall be widely shared including with National Institute of Disaster Management (NIDM) and NDMA		
		Long Term (T2)	DDMA	Train town and country planning department officials in mechanism for structural audit of buildings in Zone III and Zone IV of UP
	HUPD	Set up regulation for land use and building construction bye-laws in zone III and Zone IV of UP		
	UPSDMA with UPRSAC and GSI	Set training programme on remote sensing-based studies which can provide inputs for seismic zonation work for UP	DDMA	Promote strict building codes and strong enforcement regimes
		Regular/Recurring		**Regular/Recurring**
End-to-End Early Warning Systematic Data Collection and Database Management	UPSDMA, RCO*	Ensure systematic data collection and analysis from all Districts and share it with national and regional agencies	DDMA	District-level control room actively collecting, coordinating and disseminating information about disaster impact and access, affected areas, nature of damage, needs for evacuation and temporary camps

9.3.2 Inter-Agency Coordination

To achieve resilience, convergence between numerous stakeholders play a key role. Thus, this SDMP puts inter-agency coordination at the heart of UP's resilience building efforts. The UPSDMA needs to play the pivotal role of initiating convergence efforts among the numerous stakeholders involved in the process of DRR.

Efficient inter-agency coordination can be achieved at the State level through the following:

- Mainstreaming DRR through the development of plans, policies and capacity enhancement of stakeholders;
- Ensuring coherence and mutual reinforcement of DRR, CCA, and development;
- Coordinate with central line agencies; and
- Coordination among State agencies to ensure updated norms/codes and their implementation, enforcement and monitoring.

Simultaneously, the following activities also need to be taken up by State and District-level stakeholders to ensure efficient inter-agency coordination.

Thematic Area: Inter-Agency Coordination				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring/Short Term(T1)**
Disaster Risk Governance	UPSDMA	Strengthen inter-agency coordination for preparedness and response for earthquake	DDMA with line departments	Periodic orientation of line departments, agencies and NGOs in their role and responsibilities
	UPSDMA	Sharing risk and vulnerability atlas with stakeholders		
		Short Term (T1)	DDMA	Collaborate with NGOs, CSOs for grass root-level intervention
	HUPD	Develop safe building practices	DDMA, ULBs, and Police and Fire Services	Ensure the functioning of agencies to ensure proper compliance of fire safety norms
	UPSDMA	Update and share best practices	DDMA	Document best practices and learning's
		Medium Term (T2)		
	UPSDMA	Consult subject matter experts and technical experts for diversification of knowledge pool		**Regular/Recurring**
	UPSDMA	Ensure coherence and mutual reinforcement of DRR, CCA and development	DDMA	Follow the response and communication guideline of State on earthquake response
		Short Term (T1)		**Short Term (T1)**
Response	UPSDMA	Develop guidelines on immediate response plan for line departments and agencies	DDMA	Set up VSAT communication line in failure of main communication line in earthquake scenarios
	UPSDMA	Develop coordination and communication plans/guidelines for State and Central agencies and departments involved in response		

9.3.3 Investing in DRR: Structural Measures

Every stakeholder involved in the State's DRM efforts needs to aggressively promote investments in DRR measures.

Thematic Area: Investing in DRR – Structural Measures				
Area of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Social Housing Schemes	HUPD and PRD	Ensure earthquake-resistant features are incorporated in planning and execution of social housing schemes	DDMA, PRD, ULBs and Police and Fire Services	Ensure promotion and implementation of norms and issued by State for earthquake-resistant structure buildings
		Ensure compliance with relevant building codes		
		Medium Term (T2)		**Regular/Recurring/Short Term (T1)**
Strengthening and Seismic Retrofitting of Prioritized Lifeline Structures and Buildings	PWD, UP Rajkiya Nirman Nigam	Implementation of strengthening and seismic retrofitting as per recommendations of safety audits in all govt. departments, agencies, public utilities, schools, colleges, community halls, etc.	DDMA with PWD, ULBs, and line Department	Identify the critical structure and conduct safety audit. Based on the recommendation of the auditor, retrofitting measures should be taken
		Collaboration with technical agencies planning and implementation of retrofitting measures		
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Hazard-Resistant Construction, strengthening and Retrofitting of all Lifeline Structures and Critical Infrastructure	PRD, RDD and SUDA	Invest in hazard-resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure through collaboration with technical agencies	DDMA, PRD	Orient the departments, agencies and community on investing in hazard-resistant structure and assistance them in practicing the same

9.3.4 Investing in DRR: Non-Structural Measures

Along with investing in the structural measures, UPSDMA should promote numerous State- and District-level stakeholders to invest in following non-structural measures of DRR.

Thematic Area: Investing in DRR – Non-Structural Measures				
Area of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Regulations and Model Codes for Town Planning, Civil Works and Public Infrastructure	HUPD	Adopt suitable bye-laws for rural and urban areas, put model codes (e.g., National Building Code 2016) into practice and ensure proper compliance	DDMA	Ensure implementation of bye-laws in rural and urban area
	UPSDMA with GSI	Micro-zonation for seismic risk reduction in major cities		
	HUPD and PRD	Ensure strict compliance with code implementation through relevant departments and agencies		
		Regular/Recurring		**Regular/Recurring**
Structural Safety Audit of Lifeline Structures and Buildings	Fire Department	Carry out a regular structural safety audit of lifeline structures and buildings	DDMA	Identify the lifeline structure and buildings and carry out annual/biannual safety audits
		Medium Term (T2)		**Regular/Recurring/Short Term (T1)**
Prioritization of Lifeline Structures and Buildings for Strengthening and Seismic Retrofitting	Housing and Urban Development Department, PWD, UP Rajkiya Nirman Nigam	Ensure implementation, monitoring, enforcement and proper compliance of bye law within the State by public, private and individuals		
		Medium Term (T2)		**Medium Term (T2)**
Licensing and Certification of Professionals	SUDA, HUPD, PWD	Implement licensing of engineers through appropriate legal framework and institutional mechanism		
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Public-Private Partnership	UPSDMA with Federation of Indian Chambers of Commerce, Industry and Private Industries	Promote private participation in DM facilities	DDMA	Document the best practices
		Regular/Recurring/Short Term (T1)		**Medium Term (T2)**
Risk Transfer	HUPD with Insurance agencies	Implement risk transfer arrangements, including multi-hazard insurance for life and property	DDMA	Facilitate promotion and implementation of risk transfer arrangement by conduction awareness/orientation

9.3.5 Capacity Development and Knowledge Management

Thematic Area: Capacity Development and Knowledge Management				
Area of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Training	UPSDMA with all line departments	Train and orient programmes for State Government staff, and other direct stakeholders such as: civil society, media persons, elected representatives, professionals for veterinary care and support to disaster-affected animals	DDMA	Conduct training programmes
	UPSDMA with NSS and Nehru Yuva Kendra Sangathan (NYKS)	Incorporate disaster response, search and rescue in the training programmes of youth such as village volunteers, protection of disaster-affected animals	DDMA	Create ToT teams for different trades relevant to earthquake-resistant construction
	UPSDMA with NSS and NYKS	Train community and volunteers		
	HUPD	Guidelines for training and empanelment structural and fire safety auditors	DDMA	Empanel structural and fire safety auditors with ULBs
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Curriculum Development	Basic, Secondary and Higher Education Departments and UP Council of Science and Technology	Improve curriculum periodically to include earthquake awareness and do and don'ts of earthquake in school and college	DDMA	Promote IEC material through social media, hoardings and news papers
		Medium Term (T2)		
	Higher Education Department and UP Council of Science and Technology	Update curriculum for undergraduate engineering courses to include topics relevant for earthquake risk management	Basic Education department	Promote e-learning in school
	DoMHFW	Introduce crisis management, EMR/recovery and trauma management at the Diploma/UG/PG levels for health professionals		
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Awareness Generation	UPSDMA, RCO	Carry out mass media campaigns	DDMA	Carry out mass media campaigns
	UPSDMA, RCO	Promote attitude and behaviour change in the awareness campaigns/IEC	DDMA	Promote attitude and behaviour change in the awareness campaigns/IEC

		Long Term (T3)		
	UPSDMA, RCO	Promote culture of disaster risk prevention, mitigation, and better risk management	DDMA	Train DDMA officials on data analysis, data feeding on the call centre of SEOC
	UPSDMA, RCO	Promote use of insurance/risk transfer		
	UPSDMA, RCO	Promote community radio		
	UPSDMA, RCO	Strengthen network of civil society organizations for awareness generation about DRR and DM		
	UPSDMA, RCO, Animal Husbandry Department*	Information on care and protection of disaster-affected animals		
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Mock Drills/ Exercises	UPSDMA and RCO with concerned departments	Promote and initiative-planning and execution of emergency drills by all line departments	DDMA	Organize table top with line departments and agencies as per the State annual calendar
			DDMA	Plan a stimulation mock drill for earthquake scenarios
			DDMA	Submit a detail report on learnings
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Empowering Women, Marginalized, and PWD	UPSDMA	Incorporate gender-sensitive and equitable approaches in capacity development covering all aspects of DM at the State, District, and local levels	DDMA	Incorporate women trainer of trainers in various trainings
			DDMA	To train response forces on handling and gender sensitization during response
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Community-Based Disaster Management	UPSDMA	Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach	DDMA	To train mason on resilient housing practices
	UPSDMA with SIRD	Training for PRI, SHG, NCC, NSS, youth, local community organizations	DDMA	Create a roster of experts trained through town and country planning department for audit for critical infrastructure and buildings
			DDMA	Train teachers as trainer of trainers on school safety, especially in life savings skills in earthquake

9.4 Heat Wave

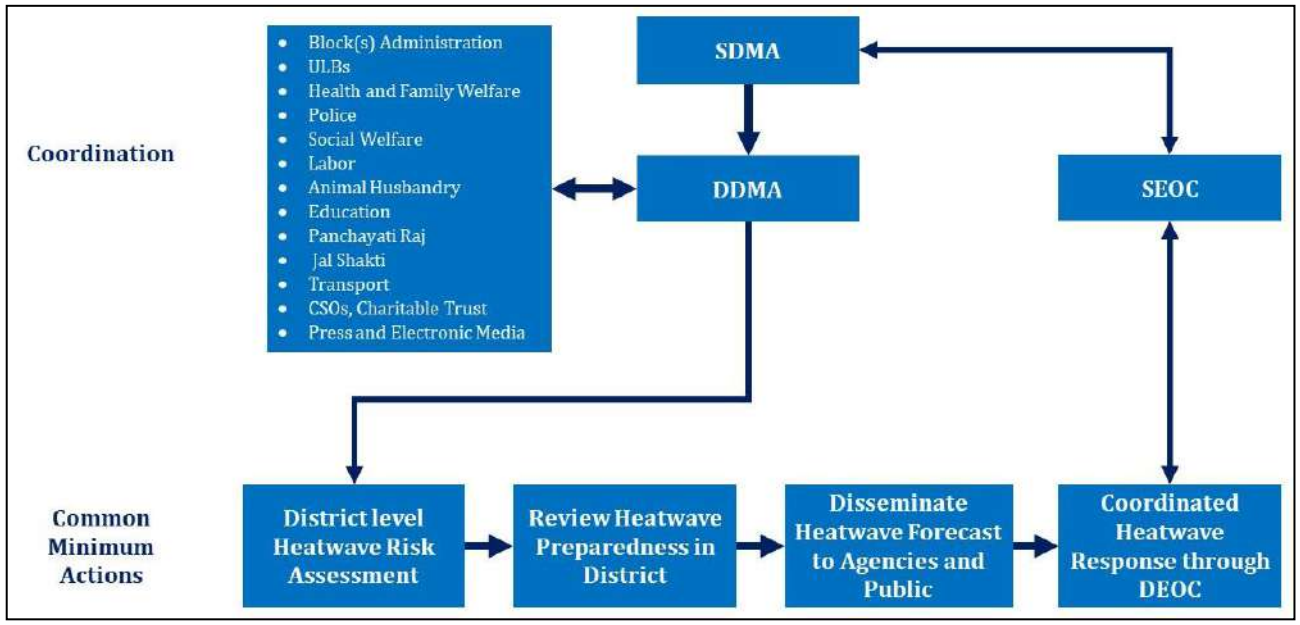


Figure 18: Common minimum actions and coordination for heat wave management

9.4.1 Understanding Disaster Risk

Following are some of the major activities that shall be covered while understanding heat wave risk in order to build resilience in the State of UP:

- Observation networks, information systems, monitoring, research, forecasting, and early warning;
- Zoning, mapping, and classification of heat wave-prone areas;
- Information and risk communication;
- HRVCA; and
- Disaster data collection and management.

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Observation Networks, Information Systems, Monitoring, Research, Forecasting, and Early Warning	DoMHFW*, UPSDMA, RCO	Form technical group to define/contextualize heat waves in UP and evaluate the actual risk assessment	DDMA	Identify hotspots, vulnerable communities, population groups, and settlements
	DoMHFW*, UPSDMA, RCO	Organize training and extend technical support	DDMA	Compile and systematically manage data on events and casualties in Districts
		Medium Term (T2)	DDMA	Establish mechanisms for early warning dissemination of temperature to the public
	UPSDMA with Animal Husbandry Department, Agriculture Department and other concerned line departments	Establish research on understanding risk exposure in individual, community, animal husbandry, agriculture, and other relevant sectors		
		Regular/Recurring		**Regular/Recurring**
HRVCA	UPSDMA*, concerned line departments	Issue guidelines to department to develop department-wise heat wave action plan	DDMA	Identify/update hotspots
	UPSDMA	Set up guidelines for conducting HRVCA for State	DDMA	Update the HRVCA
	UPSDMA, RCO	Provide training and technical support	DDMA	Conduct vulnerability assessment of Districts with special reference to socio-economic profile, and population data housing typology, vulnerable occupation pattern, chronic disease, and past cases of heat waves
	UPSDMA, RCO	Monitor and audit existing capacities		
		Medium Term (T2)		
	UPSDMA*, RCO	Promote studies, documentation and research	DDMA	Conduct urban heat wave assessment with special reference to Urban Heat Island (UHI) phenomenon
	UPSDMA*, RCO	Set up studies on UHI which can provide inputs on heat wave vulnerability in UP	DDMA	Identify existing capacity to manage heat wave impact
	UPSDMA	Constitute and strengthen the mechanism for consultation with experts and stakeholders		

		Regular/Recurring		**Regular/Recurring**
Information and Risk Communication	UPSDMA, RCO, DoMHFW*	Prepare specific warning messages and dos and don'ts for high-risk groups such as children, elderly and pregnant women, etc.	DDMA	Create awareness on heat wave preventive measures
	UPSDMA, RCO, DoMHFW*	Issue public information, alerts, warnings, and notifications through print and electric media	DDMA with DoMHFW	Conduct extensive IEC campaigns to create awareness through print, electronic, and social media
		Medium Term (T2)	DDMA	Develop information dissemination system
	RCO	Establish bulk messaging system for community-level warning dissemination	DDMA, DoMHFW	Train ASHA/ANM/health workers on mobile-based alert system for effective and immediate assessment of heat stroke cases
			DDMA, DoMHFW	Display heat alerts and precautionary measures at strategic public locations in urban areas
		Regular/Recurring		**Regular/Recurring**
Systematic data Collection and Database Management	RCO	Develop real-time, end-to-end temperature and humidity monitoring system for early warning	DDMA	Collect data systematically and share with stakeholders
	UPSDMA, RCO*	Collect data systematically and analyse the damage and loss occurred	DDMA	Establish mass messaging system for the general public for heat wave temperature rise in areas based on GIS mapping
		Medium Term (T2)		
	RCO	Establish centralized data collection mechanism		

9.4.2 Inter-Agency Coordination

To achieve resilience, convergence between numerus stakeholders plays a key role. Thus, this SDMP puts inter-agency coordination at the heart of UP's resilience building efforts.

Efficient inter-agency coordination for building resilience against heat wave can be achieved by the following:

- Coordination with IMD regarding the forecasts, early warning, and alert systems, based on drought severity;
- Appointing a State Nodal Agency and Officer for heat wave;
- Preparing/adapting heat wave action plan;
- Developing a clearly defined inter-agency emergency response plan with roles and information flows clearly marked out;
- Ensuring coherence and mutual reinforcement of DRR, CCA and development; and
- Partnering local institutions with national institutions/experts.

Thematic Area: Inter-Agency Coordination				
Area of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Disaster Risk Governance	DoMHFW	Orient local administration on heat wave-related terminologies, concepts and on utilization of information from various agencies and health authorities – Central and State	DDMA	Mark the role and responsibility of various departments and agencies
	UPSDMA*, RCO	Strengthen inter-agency coordination at different levels	DDMA	Orient local administration/departments, agencies on heat wave-related terminologies, concepts and on utilization of information from various agencies
	UPSDMA	Strengthen the institutional framework at State level	DDMA	Review the heat wave preparedness plan of various departments and agencies
	UPSDMA*, RCO	Issue guidelines for preparation of State, regional, and departmental heat wave action plans	DDMA	Appoint Nodal Officers for heat wave
	RCO/SEC with DoMHFW	Appoint a State Nodal Agency and Officer for heat wave		
		Medium Term (T2)		**Medium Term (T2)**
	UPSDMA	Collaborate with NGO, CSO for grass root-level intervention	DDMA	Collaborate with NGO, CSO for grass root-level intervention
	UPSDMA	Consult subject matter experts and technical experts for diversification of knowledge pool		
		Long Term (T3)		
	UPSDMA	Ensure coherence and mutual reinforcement of DRR, CCA and development		
		Recurring Regular/Short term (T1)		**Recurring Regular/Short term (T1)**
Preparation and Response	UPSDMA and IMD	Review and implement heat wave action plan	DDMA	Coordinate response with line departments
	Animal Husbandry Department	Implement livestock disaster preparedness plan during heat wave	DDMA	Conduct awareness campaign
	DoMHFW	Issue advisory on working hour and health measures	DDMA	Implement guideline and advisories issued by State and Central agencies
	UPSDMA	Identify role of agencies in response and train them	DDMA	Make provision for cool roofs, drinking water, shelter, etc. on vulnerable locations

	UPSDMA	Run awareness programmes in coordination with departments and agencies		
	UPSDMA	Identify capacities at regional and State level		
	UPSDMA, with concerned departments	Update hotspot at State level and make required interventions		
		Medium Term (T2)		
	DoMHFW with concerned departments	Implement a system of heat alerts to trigger early morning shifts for schools and offices/reschedule school and office timings during heat wave season		
	HUPD and concerned departments	Construct cool shelters, bus stands, etc. that offer shelter from heat wave		
		Recurring Regular/Short term (T1)		**Recurring Regular/Short term (T1)**
Warnings, Forecast and Information Management	IMD with RCO and DoMHFW	Issue heat wave alerts and weather forecasts on short/medium/long range duration	DDMA	Establish mechanism for dissemination of early warning on daily bases
	UPSDMA, RCO	Public awareness and community outreach	DDMA	Monitor hourly/daily situation and report temperature variations and hotspots
			DDMA	Report damage and loss - human, animal, crop and water bodies
		Medium Term (T2)		**Medium Term (T2)**
	UPSDMA, RCO	Establish dedicated website, portal, and helpline for information gathering and dissemination	DDMA	Develop channels for gathering day-to-day incidents in a centralized manner with a bottom-up approach

9.4.3 Investing in Disaster Risk Reduction (Structural Measures)

Thematic Area: Investing in DRR- Structural Measures				
Area of Intervention	**State**	**Short term (T1)**	**District**	**Regular / Recurring**
Heat wave shelters and	RCO and UPSDMA	Guideline for identification and maintenance of shelter home (permanent and temporary)	DDMA, ULB	Identify shelter homes/safe location against heat wave at block and village level

other measures	HUPD	Directive to promote cool roofs and heat reducing integrated development	Jal Nigam, ULB	Maintenance and regulation use of water and community water resources
	Transport Department	Directives for effective transportation	Transport Department	Make arrangements for effective transportation and traffic management in vulnerable areas
	DoMHFW	Monitoring of first aid kit distribution and emergency treatment facilities	Animal Husbandry Department	Make arrangements for animal shelter and fodder
	Jal Nigam	Guideline for monitoring and utilization of water, water bodies (tanks, handpump, ponds, portable water machines, etc.)		
		Short term (T1)		**Regular / Recurring**
Social Housing Schemes	UPSDMA, HUPD*	Guidelines and technical support for incorporation of protection from heat wave in multi-hazard resistant housing schemes	DDMA, ULBs, RDD	Ensure implementation of protection from heat wave multi-hazard resistant housing schemes ex: Cool Roof structures.

9.4.4 Investing in Disaster Risk Reduction (Non-Structural Measures)

Thematic Area: Investing in DRR- Non-Structural				
Area of Intervention	**State**	**Short term (T1)**	**District**	**Regular /Recurring**
Awareness Generation	UPSDMA	Develop IEC material (generic and specific)	DDMA	Ensure distribution of IEC material
	UPSDMA, RCO	Public awareness and education for early warning response	DDMA	Conduct campaigns on public awareness and education for early warning response
		Medium Term (T2)		
	UPSDMA	Organise seminars and conference		
		Short term (T1)		**Regular/ Recurring**
Techno-Legal regimes	DoEFCC	Laws and regulation to improve forest cover and green area	DDMA	Ensure implementation of laws and regulated developed at state level for heat wave management in coordination with line departments
		Medium term (T2)		
	UPSDMA	Research on design to minimize the effects of heat wave		

9.4.5 Capacity Development and Knowledge Management

Thematic Area: Capacity Development and Knowledge Management				
Area of Intervention	**State**	**Recurring Regular/Short term (T1)**	**District**	**Recurring Regular /Short term (T1)**
Community-based Disaster Risk Management	UPSDMA	Set up guidelines for community-based disaster preparedness	DDMA	Sensitize all health personnel in the District on heat stress disorders, prevention and management
	Labour Department*, RDD	Set up guidelines for workers to protect from heat exposure, and provide first aid, drinking water and cooling space at work sites	DDMA	Form task forces at village level for the awareness generation, identification of symptoms of heat illnesses, and first aid
			Labour Department	Conduct awareness activities for construction workers, factory labourers, manual labourers and workers whose occupations require intensive outdoor work during extreme heat about the risks, signs, and symptoms of heat stress conducted
		Recurring Regular/Short term (T1)		**Recurring Regular/Short term (T1)**
Mock Drills/ Exercises	UPSDMA	Prepare an annual calendar for mock drills with line departments and agencies	DDMA	Organize table top with line departments and agencies as per the State annual calendar
			DDMA	Document good practices and learnings
		Short term (T1)		**Regular/Recurring**
Empowering Women, Marginalized Communities, SC/ST, and PWD	UPSDMA	Lay guidelines for gender-sensitive and equitable approaches for awareness generation	DDMA	Promote gender-sensitive and equitable approaches for awareness generation

9.4.6 Climate Change Risk Management

Thematic Area: Climate Change Risk Management				
Area of Intervention	**State**	**Recurring Regular/Short term (T1)**	**District**	**Recurring Regular/Short term (T1)**
Research	DoEFCC	Sponsor and promote State-specific efforts and local efforts for GACC mitigation and adaptation	DDMA, Department of Agriculture	Promote training of farmers on vulnerability and adaptation mechanism for crops in heat wave

	RCO, UPSDMA	Develop local adaptation strategies and pilot projects	DDMA, Department of Agriculture	Promote extensive resistant varieties through KVKs
	UPSDMA with concerned departments	Promote guidelines on adaptive measures in social protection programmes for the vulnerable groups	DDMA, Department of Agriculture, KVKs	Train and pilot fields to showcase mitigating heat wave effect in agriculture farms
Sensitization on Capacity Building		**Short Term (T1)**		**Short Term (T1)**
	Agriculture Department	Develop adaptation guidelines on agricultural practices	Department of Agriculture	Promote sensitization and awareness creation on the use of climate-resilient varieties of seeds from KVKs
	UPSDMA with concerned departments	SOP on integrating adaptive measures in social protection programmes for the vulnerable groups		
		Long Term (T3)		
	Agriculture Department	Develop local adaptation strategies and pilot projects		

9.5 Cold Wave

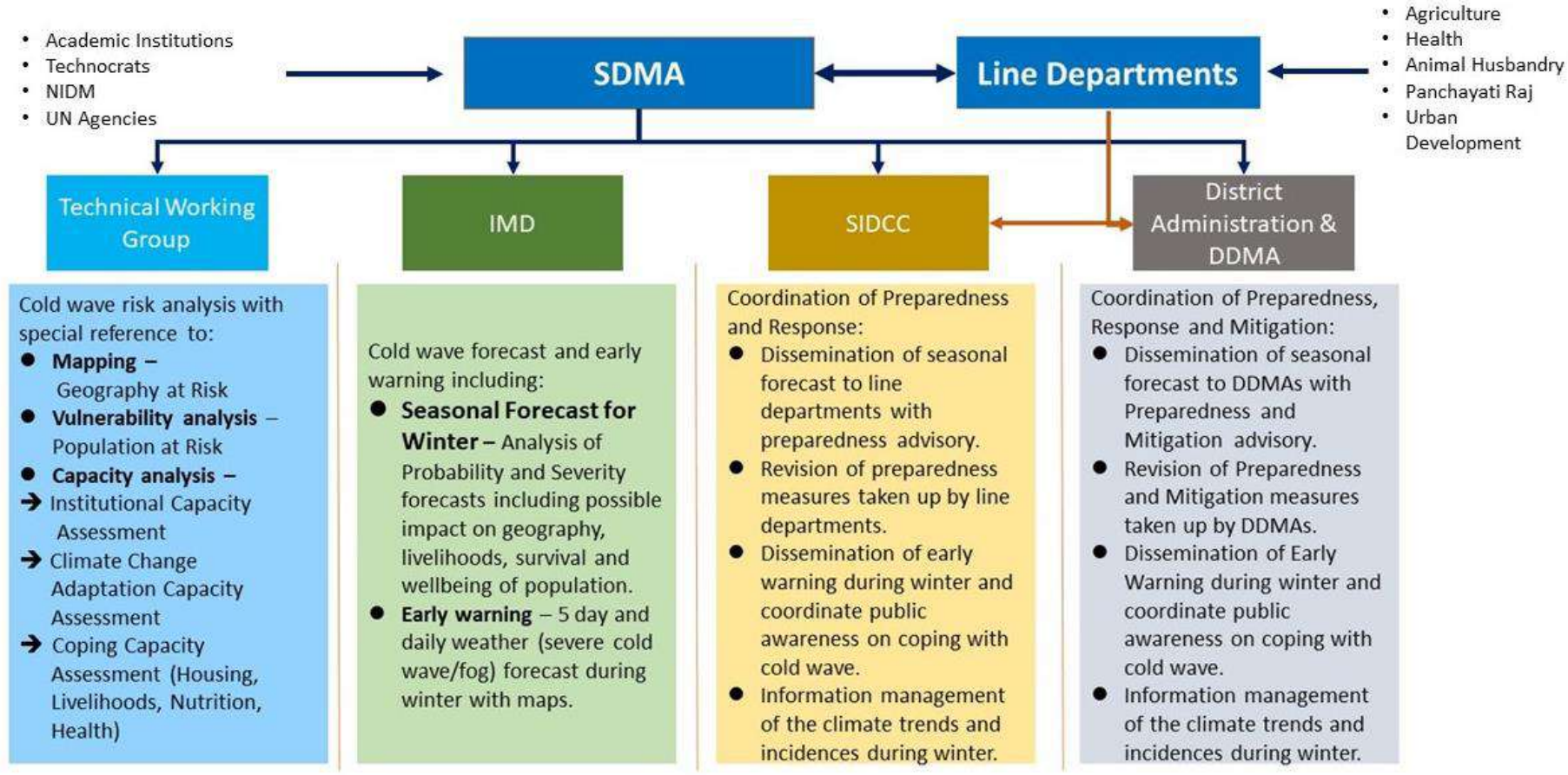


Figure 19: Role of SDMA in cold wave management

9.5.1 Understanding Disaster Risk

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Medium Term and Long term**	**District**	**Regular/ Recurring**
Research	UPSDMA	To set up studies on shifting pattern of cold wave months and vulnerable areas, which can provide input on cold wave vulnerability in UP.	DDMA with Agriculture Department	To maintain the records of areas, temperature, crop pattern, of vulnerable pockets for research on cold waves.
	UPSDMA with IMD	To set up studies on impact of El' Nino effects jointly with the neighbouring states		
	UPSDMA	To set up guidelines and SOP on HRVA methods		
		Regular /Recurring		**Regular /Recurring**
Establishing Health Risk Information Management System (HRIMS)	RCO, DoMHFW*	Monitoring compliance with District Hospital (DH), CHC, PHC on reporting of hospitalization in various cases of cold waves	DDMA	To report the temperature, humidity and wind speed for cold wave monitoring on online portal.
		Short Term (T1)	DDMA	To ensure that the deaths reported due to the cold waves has been declared by competent authorities on the reporting portal
	UPSDMA with RCO	Development of Online information management system to measure climate condition (Relative Humidity, Temp, wind, and its tendency & departure from normal)		
	UPSDMA, RCO and DoMHFW*	Establishing reporting system on hospitalization, symptoms and deaths in cases of cold wave in UP		

9.5.2 Inter-Agency Coordination

Thematic Area: Inter Agency Coordination				
Areas of Intervention	**State**	**Short Term(T1)**	**District**	**Regular /Recurring**
Institutional Disaster Risk Governance Framework and Coordination	UPSDMA with RCO	Set up a State Level Committee with clear roles and responsibilities, spearheaded by DoMHFW for monitoring of cold wave deaths	DDMA	Ensure all administrative measures required for effective and timely relief and response.
	DoMHFW*, UPSDMA	Develop Standard Operating Procedures and establishment of mechanisms to deal cold wave by establishing temporary shelters for homeless people in line with COVID guidelines across the state		Identify and establish Relief Centres/camps.
				Arrange relief material and supplies.
	HUPD and PRD	Develop guidelines for ULBs and Panchayats for cold wave management by providing bonfire at strategic location across the district.		DDMA to coordinate with all stakeholders.
				Initiate counter measures, such as shelter and other logistics necessary at relief centres
		Short Term(T1)		**Regular /Recurring**
End to End Warning, Data Dissemination System	RCO	Set up real time end to end automatic weather monitoring system for early warning	DDMA	Disseminate early warning received from SEOC through DEOC to all the Municipal council and villages.
	RCO	Create a risk information portal for temperature, humidity and wind speed for cold wave monitoring		
		Short Term(T1)		**Regular /Recurring**
Record of data and Documentation	UPSDMA	Develop a mechanism for documentation and best practices.	DDMA	Collecting pre, during and post cold wave death data from field and reporting to State authority
	RCO	Develop a data sharing strategy among all stakeholder		
	UPSDMA	Prepare and share lesson learnt and best practices		

9.5.3 Investing in Disaster Risk Reduction (Structural Measures)

Thematic Area: Investing in DRR- Structural				
Areas of Intervention	**State**	**Long Term (T3)**	**District**	**Regular /Recurring**
Techno-Legal Structural Changes	HUPD	Promote Hazard resistant protective structures to meet the challenges posed by cold wave.	DDMA	Identification of roads where the extensive fog creates regular accidents, and install mechanism for fog reflection/removal
		Guidelines on strengthening techno-legal systems and hazard resistant practices	Health Department	Build capacity at PHC and block-level health facilities for treatment of cold wave related illness patients such as hypothermia

9.5.4 Investing in Disaster Risk Reduction (Non-Structural Measures)

Thematic Area: Investing in DRR- Non-Structural				
Areas of Intervention	**State**	**Regular/ Recurring**	**District**	**Regular /Recurring**
Disaster Risk Governance	UPSDMA	Inter-agency coordination, review and update precautionary measures and procedures to be followed	DDMA	Identify vulnerable places of cold waves in the districts
	UPSDMA	Guidelines to follow alerts/warning, advisory	DDMA	Public awareness and education for early warning dissemination
	UPSDMA, RCO and DoMHFW*	Disseminate Do's and Don'ts for general public and enable access to safe places	DDMA, Health Department*	Ensure appropriate medical staff, and facilities at place of incident
		Short Term(T1) and Mid Term(T2)	DDMA, Health Department*	Strengthen health centres with a network of paramedical professionals
	Agriculture Department	Necessary modification and implementation of crop contingency plan with respective States	Health Department*, DDMA	Ensure stock piling of life-saving drugs, de-toxicants, anaesthesia, availability of Halogen tablets in vulnerable areas
	DoMHFW	Strengthen health centres with a network of paramedical professionals	DDMA	Ensure provision of basic food items at Relief Camps and in affected communities.

9.5.5 Capacity Development and Knowledge Management

Thematic Area: Capacity Building and Knowledge Management				
Areas of Intervention	**State**	**Short Term(T1) and Mid Term(T2)**	**District**	**Regular/ Recurring**
Training & Knowledge Management	HUPD* and PRD	Promoting skill development for hazard resistant construction with emphasis on protection from cold in cold wave prone areas for different types of housing and infrastructure	DDMA	To conduct training programme for all concerned department officials/ volunteers
	UPSDMA, HUPD*	Creating ToT teams for different trades relevant to cold wave protection in the construction of different types of housing and infrastructure	DDMA	Conduct training programmes specific to health care, livestock, traffic police etc.
	Basic and Secondary Education Departments	Inclusion of cold wave/frost and similar issue management school curriculum.		
		Regular/ Recurring		**Regular /Recurring**
Public awareness, and Outreach and IEC activities	UPSDMA	Promotion of extensive IEC campaigns to create awareness through print, electronic and social media.	DDMA	Promotion of public awareness on dos and don'ts during cold wave.
			DDMA	Extensive IEC campaigns to generate public awareness through print, electronic and social media, FM channels, and local television channels.

9.5.6 Climate Change Risk Management

Thematic Area: Climate Change Risk Management				
Area of Intervention	**State**	**Recurring Regular/Short term (T1)**	**District**	**Recurring Regular/Short term (T1)**
Research	UPSDMA, DoEFCC*	Undertake research on climate modelling for cropping patterns	DDMA, Department of Agriculture	Promote extensive resistant varieties through KVKs
	RCO	Sponsor and promote State-specific efforts and local efforts for GACC mitigation and adaptation		Promote training of farmers on vulnerability and adaptation mechanism for crops in heat wave
	RCO, UPSDMA, DoEFCC*	Develop local adaptation strategies and pilot projects	DDMA, Department of Agriculture, KVK's	Train and pilot fields to showcase mitigating heat wave effect in agriculture farms
	UPSDMA and RCO with concerned departments	Promote guidelines on adaptive measures in social protection programmes for the vulnerable groups		
Sensitization on Capacity Building		**Short Term (T1)**		**Short Term (T1)**
	Department of Agriculture*, DoEFCC	Develop adaptation guidelines on agricultural practices	Department of Agriculture	Promote sensitization and awareness creation on use of climate-resilient varieties of seeds from KVKs
	UPSDMA*, PRD	SOP on integrating adaptive measures in social protection programmes for the vulnerable groups		
		Long Term (T3)		
	Department of Agriculture, DoEFCC*	Develop local adaptation strategies and pilot projects		
	Agriculture Department and Animal Husbandry, Department of Social Welfare	Promote adaptive measures in social protection programmes for the vulnerable groups		

9.6 Epidemic and Pandemic

9.6.1 Understanding Disaster Risk

Understanding Disaster Risk				
Areas of Intervention	**State**	**Regular/ Recurring/ Short Term (T1)**	**District**	**Regular/ Recurring / Short Term (T1)**
Epidemiological Research	DoMHFW*, Department of Animal Husbandry with Centre for Bio-Medical Research, ICAR-Indian Veterinary Research Institute (IVRI) Bareilly, UPSDMA	Conduct research on potential hazards and existing vulnerabilities applicable to the State to evaluate the actual risk assessment	DDMA	Identify vulnerable communities, population groups and settlements
		Conduct mapping exercise of epidemiological diseases on JE, COVID-19, Tuberculosis and others viral infections, biological contagious infections	DDMA, Health Department	Compile and systematically manage data on pandemic and epidemic casualties in Districts
				Periodically audit/research cases from various laboratories to understand exposure of the various diseases
		Medium Term (T2)		
	DoMHFW*, Department of Animal Husbandry with Centre for Bio-Medical Research, ICAR-IVRI	Establish research on understanding risk exposure in individual groups leading to risk factors		
		Constitute and strengthen the mechanism for consultation with experts and stakeholders sero-surveys, detection and investigation of any disease outbreak		
		Long Term (T3)		
	DoMHFW*, UPSDMA	Establish studies on vulnerabilities and capacities covering social, physical, economic, ecological, gender, social inclusion and equity aspects		
		Establish public health strategic plans or strategic priorities for UP		
		Establish epidemiological research centres to monitor communicable diseases		

		Regular/Recurring		**Short Term (T1)**
Establishing Health Risk Information Management System (HRIMS)	DoMHFW*, RCO, UPSDMA	Monitor compliance with medical colleges on reporting of hospitalization in various cases of importance epidemic	Health Department, DDMA	Establish HRIMS portal to coordinate with State health laboratory plans for detection, characterization, confirmation, and reporting of public health threats in the hotspots identified during detection, characterization, confirmation
		Create monitoring system for data management on disaster deaths, damage and loss assessments		Establish syndrome surveillance and collect data to improve situational awareness and responsiveness to disease outbreaks through ASHAs and PHCs, CHCs
		Short Term (T1)		Regularly update cases on online information management and reporting system
	DoMHFW	Develop online information management system on conforming to national standards on epidemics and risk information		
		Establish reporting system on hospitalization, symptoms and deaths in cases of epidemics of importance for UP		
		Regular/Recurring		**Regular/Recurring**
Information and Risk Communication	DoMHFW*, UPSDMA, RCO	Prepare specific messages for high-risk groups such as children, elderly and pregnant women, etc.	Health Department, DDMA	Establish and participate in information system operations with Department of Family Welfare
	DoMHFW*, UPSDMA, RCO	Issue public information, alerts, warnings, and notifications		Establish avenues for public interaction and information exchange
				Broadcast public information, alerts, warnings, and notifications at District levels
			Health Department	Contact and notify family members on adversities to families in case of communicable diseases, with the help of HRIMS
			Health Department, DDMA	Establish consultation mechanisms in coordination with the registered medical counsellors and psychosocial experts through District command control centres

9.6.2 Inter-Agency Coordination

Inter-Agency Coordination				
Areas of Intervention	**State**	**Short Term (T1)**	**District**	**Regular/Recurring /Short Term (T1)**
Institutional Disaster Risk Governance Framework and Coordination	DoMHFW, UPSDMA*, RCO	Develop inter-agency emergency response SOPs with clear roles and responsibilities	Health Department	Conduct preliminary assessment to determine the need for activation of public health emergency operations
	DoMHFW, UPSDMA*, RCO	Develop SOPs and establish mechanisms to deal with secondary emergencies as a result of biological emergencies	Health Department, DDMA	Develop and maintain an incident response strategy
	DoMHFW*, UPSDMA, RCO	Develop guidelines for specialized response capabilities in response to epidemics and pandemics	Health Department, DDMA	Identify and clarify the jurisdictional Emergency Support Function (ESF) response teams' role based on the incident type and characteristics
	DoMHFW	Notify guidelines for prioritization cooperation, coordination, and information sharing with private, Central and State laboratories, other public laboratories, and jurisdictional sentinel laboratories of Armed Forces Medical College, Railways, and the Forensics Department	Health Department, DDMA	Conduct public health and epidemiological investigations and sero-survey in line State and national guidelines
				Long Term (T3)
			Health Department, DDMA	Mainstream DRR and DRR and public programme of National Health Mission (NHM), Ayushman Bharat, etc.
		Regular/Recurring		**Short Term (T1)**
Medical Material Management and Distribution	DoMHFW*, UPSDMA, RCO	Develop guidelines on quarantine facilities and ensure periodical decontamination drives	Health Department	Equip PHCs and CHCs with adequate health personnel, equipment and beds
		Short Term (T1)	Health Department with ULB and PRI	Direct and activate medical material management and distribution from medicine, from District and divisional cold chain management
	DoMHFW*, UPSDMA, ULBs	Notify guidelines for extension of adequate Intensive Care Units (ICUs) and isolation facilities	Health Department	Acquire medical material from national stockpiles or other supply sources and update it on IDRN and the Medical Department's UP Health Management Information System (HMIS) portal

		Notify guidelines for the availability of adequate Personal Protective Equipment (PPE) for health workers and frontline workers associated with responding to the epidemic/pandemic	Health Department	Monitor medical material inventories and medical material distribution operations at DH, PHCs and CHCs
		Equip medical first responders with all material logistics	DDMA, Health Department, ULB, PRI	Strengthen quarantine facilities and ensure periodical decontamination drives
		Long Term (T3)		
	DoMHFW	Upgrade or constitute specialized healthcare and laboratory facilities to address biological emergencies		
	DoMHFW	Establish network of mobile health services and testing facilities		
		Short Term (T1) and Mid Term (T2)		**Short Term (T1)**
Medical Counter measure	DoMHFW	Strengthen integrated surveillance system based on sero-surveys, detection and investigation of any disease outbreak	Health Department, DDMA	Assess the nature and scope of the incident surveillance teams with ASHAs and PHCs
	DoMHFW, Home Department*	Notify guidelines on black marketing of vaccines, antidotes, and antitoxins in the State	Department of Health	Activate medical teams for dispensing medical countermeasures such as vaccines, antidotes, and antitoxins
	DoMHFW, Home Department*	Develop guidelines and enlist the pharmaceuticals distributor for distribution of medical equipment and medicine of importance in various cases to the Government and private hospitals	Health Department, DDMA, Transport Department	Direct and activate Airport Authority of India, railways, local police to support the mobilization of medical surge equipment at the District level
		Regular/Recurring		**Short Term (T1)**
End-to-End Warning and Data Dissemination System	DoMHFW, UPSDMA*, RCO	Disseminate warnings and dos and don'ts to the last mile population in Hindi through print, electronic and social media	Health Department, DDMA	Establish mass messaging system for warning dissemination of dos and don'ts in Districts
	DoMHFW, UPSDMA*, RCO	Promote the need to leverage social media platforms for issuing emergency public information and warning	Health Department DDMA,	Announce restrictions on movement and travel advisories or warnings through All India Radio, and Doordarshan and FM channels
	DoMHFW*, RCO with Home Department	Develop operational guidelines for clarification of various queries by the general public from the command control centre		

9.6.3 Investing in Disaster Risk Reductions: Structural Measures

Investing in DRR – Structural Measures				
Areas of Intervention	**State**	**Short Term (T1)**	**District**	**Short Term (T1) and Mid Term (T2)**
Establishing Temporary Camps for Surge (Mass Care, Fatality, Medical care) Management	DoMHFW	Develop guidelines on scaling up capacity of service delivery to meet increased health needs (e.g., through increasing bed capacity, establishing temporary facilities or mobile clinics, vaccination campaigns) and to take specific measures related to certain hazards (e.g., isolation of infectious cases)	Health Department	Establish adequate ICUs and isolation facilities
		Develop guidelines and SOPs on medical care management in L1, L2 and L3 hospitalization, based on the seriousness of patients		Ensure availability of adequate PPE for health workers and frontline workers associated with responding to the epidemic/pandemic
		Develop SOPs on Nodal Officers in management of hospitals and coordination with the Chief Medical Officers		Equip medical first responders with all material logistics
	DoMHFW*, RCO, UPSDMA	Develop guidelines on hospital IRS		Upgrade or constitute specialized health care and laboratory facilities to address biological emergencies
				Establish network of mobile health services and testing facilities
				Equip PHCs and CHCs with adequate health personnel, equipment and beds
				Designate a hospital management and coordination centre
		Short Term (T1)		**Short Term (T1)**
Decontamination of Areas and Wards	DoMHFW	Develop guidelines on decontamination and usage of bleaching powder, any other chemicals for decontamination	Health Department and DDMA	Train municipal corporation, council and PRD officials on decontamination management
				Develop IRTs for decontamination
				Set up District-level control room toll-free number of decontaminations for public
		Short Term (T1)		**Short Term (T1)**
Medical Transportation during Pandemic	DoMHFW with Transport Department	Set up guidelines on provision of facilities, services, and materials, including transportation and fuel, etc.	Health Department, DDMA	Enhance capacity of District-level control room toll-free number of in case of surge of pandemic cases

	DoMHFW with Transport Department, RCO	Establish coordination for a contingency transport strategy for patient transfer	Health Department and DDMA	Verify availability of vehicles and resources for patient transportation
	DoMHFW with Transport Department	Determine guidelines on the mode of transport to be used according to the patient's needs and the available resources	Health Department and DDMA, transport Department	Ensure that the transportation of casualties is undertaken as per the provisions laid down in the Hospital Disaster Management Plan or as per the appropriately modified provisions

9.6.4 Investing in Disaster Risk Reduction: Non-Structural Measures

Investing in DRR- Non-Structural Measures				
Areas of Intervention	**State**	**Long Term (T3)**	**District**	**Short Term (T1)**
Imposition Law and Regulation	DoMHFW*, RCO	Enact or amend any rules and regulations for better implementation of biological and public health emergencies	Police Department, DDMA	Impose lockdown measures as per the guidelines of State and Central Government in various public health emergencies
	DoMHFW	Enact guidelines for bio-medical waste management in hospital medical colleges and clinics		
		Develop SOPs on creation of cremation of dead bodies in case of epidemics		
	DoMHFW, UPSDMA, RCO, Home Department*	Notify rules and legal mandate under the Indian Penal Code and Epidemic Act to reduce black marketing of medicine and equipment in pandemic situation		
		Short Term (T1)		**Regular/Recurring**
Public-Private Partnership and Involving Corporate Social Responsibility (CSR)	UPSDMA*, RCO	Develop guidelines to promote private participation (with CSOs, NGOs, etc.) in off-site DM response	Health Department, DDMA, ULB, PRI	Coordinate with local health authorities, neighbouring hospitals and private medical practitioners to ensure continuous provision of essential medical services to the community
	DoMHFW	Develop guidelines to promote PPP in field hospital management and procure essentials as required	Health Department, DDMA	Coordinate with the Red Cross Society to enhance and upgrade medical surveillance in public health crisis

		Regular/Recurring		**Regular/Recurring**
Disaster Risk Transfer Through Public Health Initiative Convergence	DoMHFW, RCO*	Implement risk transfer arrangements and ex-gratia payments for loss of life or property	Health Department, DDMA	Promote risk transfer arrangements and ex-gratia payments for loss of life or property such as the Ayushman Bharat programme in the State

9.6.5 Capacity Building and Knowledge Management

Capacity Building and Knowledge Management				
Areas of Intervention	**State**	**Long Term (T3)**	**District**	**Long Term (T3)**
Training/ Skill Development	DoMHFW*, UPSDMA, RCO, Higher Education Department	Introduce crisis management, emergency medical/response/recovery and trauma management at Diploma/UG/PG levels for health professionals by the DoMHFW	Health Department, DDMA	Train and orient specific epidemic programmes for State Government staff, and other stakeholders such as ASHAs, CHWs, and volunteers
		Introduce crisis management and EMR in nursing programme		Training programmes of youth such as NSS, NYKS, scouts and guides, and NSS in logistics and cold chain management
				Train GP officials, Village Health, Sanitation and Nutrition Committee on case tracking and reporting, decontamination in various cases of pandemic and epidemic
		Short Term (T1)		**Regular/ Recurring**
Community-based Awareness/ Recovery	DoMHFW*, UPSDMA, RCO	Empower communities to effectively prevent and respond to the health risks posed by viral infections and extreme weathers	Health Department, DDMA	Train communities on isolation, quarantine, social distancing and external decontamination
	UPSDMA*, RCO and DoMHFW	Promote methods of disaster risk prevention, mitigation, and preparedness		Train CBOs on appropriate behaviours
				Carry out mass media campaigns
			DDMA	Engage partner's CSOs and identify factors that impact interventions
			Health Department, DDMA, Animal Husbandry Department	Provide training on safety, care and protection of epidemic and pandemic of animals

9.7 Industrial and Chemical Disasters

9.7.1 Understanding Disaster Risk

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Long Term (T3)**	**District**	**Recurring/ Regular**
Research	Department of Infrastructure and Industrial Development with Labour Department, UP Pollution Control Board, UPSDMA, NDRF, SDRF, Federation of Indian Chambers of Commerce, Ministry of Petroleum and Natural Gas, Ministry of Environment, Forests and Climate Change	Promote research and studies –both in-house and extra-mural on various dimensions of handling chemicals in hazardous industries	DDMA, Factories/ Labour Department	Identify hazardous industries in the Districts
		Promote R&D for indigenous manufacture of quality PPE and ensure production in the State		
		Studies on improving occupational safety and off-site safety		
		Studies on vulnerabilities and capacities covering social, physical, economic, ecological, gender, social inclusion and equity aspects		
		Recurring/Regular		**Recurring/Regular**
Information Systems Monitoring	Labour Commissioner Organization (LCO)	Notify guidelines to integrate the factory with establishment and initial operations of MAH control system developed by Directorate General, Factory Advice and Labour Institutes (DGFASLI)	Factories/ Labour Department	Monitor the industries in updating the online information system on HAZCHEM
		Develop online information system on HAZCHEM conforming to the national standards	Factories/ Labour Department, DDMA	Monitor the industries in updating the chemical accident in various industrial units on chemical accident information
		Develop a chemical accident information reporting system		

		Mid Term (T2)		**Recurring/Regular**
Vulnerability Mapping	LCO, UP Pollution Control Board*, UPSDMA	Develop a system of stimulation of worst-case scenarios for MAH units in release of various chemicals	Factories/ Labour Department, UP Pollution Control Board (UPPCB)	Create vulnerable scenario stimulations in various chemical industries based on various likelihoods of chemical releases
		Zonation of various industries and transportation areas on risk assessment and vulnerabilities stretches along the national highways in high density areas with HAZMAT transportation	Factories/ Labour Department, UPPCB	Identify the areas in the Districts which are vulnerable to chemical release due to HAZMAT transportation
			Factories/ Labour Department, UPPCB, DDMA	Initiate HRVCA analysis in industries to assess the coping capacities of the industries

9.7.2 Inter-Agency Coordination

Thematic area: Inter-Agency Coordination				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Disaster Risk Governance	LCO* and UPSDMA	Notify preparation and implementation of emergency and DM plans and ensure the compliance for all the industries	Factories/ Labour Department, DDMA, Directorate of Industrial Safety and Health (DISH)	Monitor if all the MAH units have prepared emergency and DM plans in their District
		Notify guidelines of DRM and mainstreaming in Hazard and Operability Study and response plan for industries across the States	Factories/ Labour Department, DDMA, DISH	Monitor that all the emergency and DM plans imbibe the principles of DM
		Long Term (T3)		**Regular/Recurring**
Response	LCO*, DGFASLI	Establish GIS-based emergency planning and response system for chemical accidents in MAH installations in major industrial clusters	Factories/ Labour Department, DDMA, DISH	Identify the emergency response functions in various chemical releases as per the guidelines
		Regular/Recurring		**Regular/Recurring**
Warnings, Information, Data dissemination	LCO, UPSDMA*, RCO, DGFASLI	Establish mechanisms for warning dissemination to the public on the dos and don'ts during chemical disasters	Factories/ Labour Department, DDMA, DISH	Establish an announcement system to warn communities in case of chemical and industrial accidents
		Coordinate with the line department on dissemination of warnings to all, down to the last mile		Establish mechanism for proper data dissemination to various control rooms for effective response

9.7.3 Investing in Disaster Risk Reduction: Structural Measures

Thematic area: Investing in DRR - Structural				
Areas of Intervention	**State**	**Short Term (T1)**	**District**	**Short Term (T1)**
Institutional Changes	Director of Factories, UPSDMA*, RCO, DGFASLI	Notify guidelines on shelters, evacuation, and support facilities in chemical and industrial disasters	Factories/ Labour Department, DDMA, DISH, ULBs, PRD	Identify shelters with basic facilities like drinking water and first aid for chemical exposure
				Ensure water storage facilities and sources for water for accident containment and firefighting operations
		Medium Term (T2)		**Medium Term (T2)**
	LCO*, UPSDMA, SDRF	Procure decontamination suits, HAZMAT specials equipment for response	Factories/ Labour Department, DISH, PWD, DDMA	Construct wide roads and multiple routes in the industrial area to allow quick access by first responders and to ensure escape pathways
		Procure HAZMAT emergency response vans		
		Establish HAZMAT teams/emergency response centres for effective response	Factories/ Labour Department, DISH, DoMHFW	Establish teams for decontamination of facilities for off-site emergencies

9.7.4 Investing in Disaster Risk Reduction: Non-Structural Measures

Thematic area: Investing in DRR – Non-structural				
Areas of Intervention	**State**	**Medium Term (T2)**	**District**	**Regular/Recurring**
Techno-Legal Changes	LCO*, DGFASLI	Formulate/strengthen rules, norms, and laws such as factories' rules consistent with that of ensuring greater safety in hazardous industries and to reduce likelihood of disasters	Factories/ Labour Department, DISH	Implement Manufacture, Storage, and Import of Hazardous Chemicals (MSIHC) rules in the industries of the Districts
		Review land-use norms for hazardous industries		Monitor the land use allocation of MAH units and check if the guidelines are followed buffer zones are maintained from populous areas
		Empower factory inspectorates to take legal action for non-compliance of MSIHC rules		

		Review rules to grant compensation to chemical accident victims to improve them in favour of victims		Ensure that the third-party safety audits and enforcement of disaster prevention are in place as per the norms
		Amend land-use norms to ensure greater safety and ensure buffer zones without human settlements in close proximity of hazardous industries		
		Recurring/Regular		**Recurring/Regular**
Public-Private Partnership	LCO	Develop guidelines for formulation of mutual aid groups in industrial zones	Factories/ Labour Department, DISH	Identify the local mutual aid agencies of the Districts
				Share equipment and resources in the response crisis of chemical accidents
		Medium Term (T2)		
	LCO*, DGFASLI	Promote private participation in off-site DM facilities		
		Provide legal support for mutual assistance groups among industries within clusters		
		Encourage private participation in enhancing off-site disaster response and risk management		
		Short Term (T1)		**Short Term (T1)**
Risk Transfer	LCO, UPSDMA*, RCO	Notify guidelines for the implementation of risk transfer arrangements, including multi-hazard insurance for life and property	Factories/ Labour Dept., DDMA	Identify houses/areas which are vulnerable to the multiple hazards of chemical and industrial disaster and are covered under life and property insurance of the company

9.7.5 Capacity Building and Knowledge Management

Thematic area: Capacity Building				
Areas of Intervention	**State**	**Short Term (T1)**	**District**	**Recurring/Regular**
Training	LCO, DGFASLI, Home Department, RCO, UPSDMA, NDRF*	Training and orientation programmes on management and disposal of HAZCHEM to SDRF	Factories/ Labour Department, DDMA	Train and orient programmes for State Government staff, civil defence community, and volunteers
	UPSDMA*, RCO	Develop guidelines for incorporating disaster response, search and rescue in the training programmes of youth such as NSS, NYKS, and scouts and guides		Training programmes of youth such as NSS, NYKS, scouts and guides, and NSS in DRR
		Short Term (T1)		**Short Term (T1)**
	LCO, DGFASLI, UPSDMA*, RCO	Carry out mass media campaigns	Factories/ Labour Department, DDMA	Carry out mass media campaigns
		Promote culture of disaster risk prevention, mitigation, and better risk management	DDMA	Incorporate disaster response, search and rescue in in the training programmes of youth such as village volunteers, civil society, village/ward level leaders
		Promote attitude and behaviour change in the awareness campaigns/IEC		
		Medium Term (T2)		**Medium Term (T2)**
	LCO, RCO*	Promote use of insurance risk transfer	DDMA, Civil Defence, NCC, SDRF	Generate awareness on attitude and behaviour change in the awareness campaigns/ IEC
	LCO, DGFASLI, UPSDMA*	Promote community radio strengthening network of CSOs for awareness generation about DRR and DM	Factories/ Labour Department, DDMA	Strengthen network of CSOs for awareness generation about DRR and DM
	LCO*, DGFASLI, UPSDMA	Focus on safety and compliance with SOPs at workplace for workers	Factories/ Labour Department, DDMA	Focus on safety and compliance with SOPs at workplace for workers
				Provide information on safety, care and protection of disaster-affected animals
		Short Term (T1)		**Short Term (T1)**
Mock Drills	LCO*, DGFASLI, UPSDMA, SDRF	Promote SOPs on planning and execution of emergency drills by all the industries	Factories/ Labour	Organize planning and execution of emergency drills on hazardous chemical release in a plant

			Department, SDRF, DDMA	Generate awareness of the dos and don'ts upon hazardous chemical release in an area
		Recurring/Regular		**Recurring/Regular**
Community-based Disaster Management	LCO, DGFASLI, UPSDMA*, SDRF	Initiate community DRM projects to train and make people aware on various aspects of community-based response in chemical and industrial disasters	Factories/ Labour Department, SDRF, DDMA, Civil Defence	Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach
			SDRF, DDMA, Civil Defence,	Train people from PRIs, SHGs, NCC, NSS, youth, local community organizations

9.8 Fire

9.8.1 Understanding Disaster Risk

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring/Short Term(T1)**
Systematic Data Collection and Database Management	Police Department – Fire Services	Develop a State-specific fire incident reporting system for Districts for fire events with specific features and response provided to understand the type of risk for other events	Police Department – Fire Services, DDMA	Daily monitoring and detailed reporting of events
	Police Department – Fire Services with RCO	Manage data systematically on disaster damage and loss assessments, and reporting of relief granted in various cases		
HRVCA		**Regular /Recurring/Short Term(T1)**		**Regular/Recurring/Short Term(T1)**
	Police Department – Fire Services with Forest Department	Classification of fire	Police Department – Fire Services with ULBs	Map hazardous sites that pose fire and explosion risks at District level
	Police Department – Fire Services*, ULBs, UPSDMA	Vulnerability analysis of densely populated clusters prone to high risk of fire	Police Department – Fire services	Identify existing capacity at District level
	Police Department – Fire Services with LCO	Vulnerability analysis of various industrial clusters and capacity available with the mutual aid groups		**Medium Term (T2)**
			Police Department – Fire Services with Forest Department	Assess and fix the requirement of equipment and manpower

9.8.2 Inter-Agency Coordination

Thematic Area: Inter-Agency Coordination				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Disaster Risk Governance	UPSDMA*, RCO	Strengthen inter-agency coordination for fire safety and prevention plan of the built environment	DDMA, Police Department – Fire Services	Periodically orient the line departments, agencies and NGOs in their roles and responsibilities
				Maintain the functioning of agencies to ensure proper compliance of fire safety norms
		Medium Term (T2)		
	UPSDMA	Consult subject matter experts and technical experts for diversification of knowledge pool		

9.8.3 Investing in Disaster Risk Reduction: Structural Measures

Thematic Area: Investing in DRR- Structural Measures				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Technical Support	Police Department - Fire Services	Give directives to promote norms and guidelines for fire safety and prevention methods	Police Department - Fire Services, DDMA	Ensure promotion and implementation of norms and guidelines for fire safety and prevention methods
		Monitor emergency treatment facilities at hospitals	Police Department - Fire Services	Maintain and test the equipment and resources available with fire services
		Medium Term (T2)		
	Police Department - Fire Services	Identify the gaps in existing capabilities – equipment and infrastructure		
		Address gaps in infrastructure and equipment needs, and upgrade equipment including PPE	Police Department - Fire Services	Monitor resources available at hospitals
		Develop action plan for modernization and to meet future needs		
		Strengthen and standardize response mechanisms		
		Long Term (T3)		
	Police Department - Fire Services	Procure equipment for firefighting, urban search and rescue as per the requirements		

		Establish fire stations/posts up to the sub-divisional level to the Block level		
		Enhance the multi-hazard response capabilities considering local hazards and vulnerabilities		

9.8.4 Investing in Disaster Risk Reduction: Non-Structural Measures

Thematic Area: Investing in DRR – Non-Structural Measures				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Awareness Generation	UPSDMA*, RCO, Police Department - Fire Services	Develop IEC material on fire safety	DDMA Police Department - Fire Services and ULBs	Ensure distribution of IEC material
	Police Department - Fire Services with RCO and UPSDMA	Spread public awareness and education on fire safety		Conduct campaigns on public awareness and education for early warning response
		Medium Term (T2)		
	Police Department - Fire Services*, RCO, UPSDMA	Strict implementation and strengthening of fire safety rules		
		Strict procedures for fire safety certification should be followed before issuing building use permissions		
		Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Techno-Legal regimes	Police Department - Fire Services	Directives on inspection of fire safety system and equipment in public utilities	Police Department - Fire Services, DDMA	Ensure implementation of laws and regulations developed for fire safety and prevention in coordination with line departments
	Police Department - Fire Services with RCO	Implement risk transfer arrangements, including multi-hazard insurance for life and property	Police Department - Fire Services	Ensure frequent inspection of fire safety system and equipment in public utilities
	Police Department - Fire Services with HUPD	Legal regime for mandatory fire clearance from Fire and Emergency Services (F&ES) for different types of buildings, colonies, industries, and other installations	Police Department - Fire Services	Promote multi-hazard insurance for life and property

9.8.5 Capacity Development and Knowledge Management

Thematic Area: Capacity Development and Knowledge Management				
Areas of Intervention	**State**	**Regular/ Recurring/Short Term (T1)**	**District**	**Regular Recurring/Short Term (T1)**
Training	Police Department - Fire Services, UPSDMA, SIRD*	Provide advanced training on DM to community workers and volunteers	Police Department - Fire Services, DDMA	Organize training for community workers, volunteers, fire fighters and other agencies involved in fire response
	Police Department - Fire Services with SDRF and NDRF	Training of Trainer (ToT) programmes on various aspects such as firefighting, managing collapsed structures, and search and rescue	Police Department - Fire Services	Conduct capacity assessment of existing human resources and equipment
		Medium Term (T2)		
	Police Department - Fire Services	Address the capability gaps – human and institutional		
		Strengthen and standardize response mechanisms		
		Regular/Recurring/Short Term (T1)		**Regular/Recurring/Short Term (T1)**
Mock Drills/ Exercises	Police Department - Fire Services with UPSDMA, SDRF, Civil Defence	Prepare annual calendar for mock drills with the line departments and agencies	DDMA, Police Department - Fire Services	Organize table top with line departments and agencies as per the State annual calendar
				Submit a detailed report on learning

9.9 Lightning

9.9.1 Understanding Disaster Risk

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	State	**Regular/Recurring**	**District**	**Regular/Recurring**
Risk and Vulnerability Assessment	UPSDMA with RCO	Prepare State action plan and implement it	DDMA	Implement the action plan in the District
	Line departments in consultation with UPSDMA	Prepare detailed departmental SOPs by concerned departments	DDMA	Collect data on deaths in various Districts
	UPSDMA with IMD	Collect data on lightning strikes in the various Districts		
	UPSDMA with RCO	Micro-zonation of lightning-prone areas of State		
	UPSDMA, RCO*	Collect data on deaths in various Districts and ensure pilot project run in most affected districts and thereafter proliferate to other districts.		

9.9.2 Inter-Agency Coordination

Thematic Area: Inter-Agency Coordination				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Coordination and Communication	UPSDMA, RCO*	Disseminate the information received from IMD to the public at large	DoMHFW, DDMA	Deploy ambulances for the timely treatment of the injured people due to thunderstorm and lightning
	UPSDMA*, RCO	Promote installations of lightning arresters and Doppler Radar	UP Power Corporation Limited (UPPCL)	Shut down power in the areas of heavy thunderstorm and lightning
	UPSDMA*, RCO	Create a network of community-based early warning systems	DDMA	Collect information on the casualties, damage and loss in prescribed format and send it to State Government in due course
	RCO	Ensure specific message and information dissemination to the public at large through print/electronic/social/hooter system and other mass media at the local level	DDMA	Coordinate with SDRF and District Administration for the clearance of roads to provide access to emergency services in areas of the incidences reported

			DDMA	Coordinate with SDRF, Home Guards for the rescue of the people if stuck on the site of thunderstorms and lightning strikes
			DDMA	Continuously disseminate alerts as per SEOC early warning to ULBs and GPs along with the advisory about the actions to be taken by the concerned ULBs and GPs to evacuate people from vulnerable areas

9.9.3 Investing in Disaster Risk Reduction: Structural Measures

Thematic Area: Investing in DRR – Structural Measures				
Areas of Intervention	**State**	**Regular/Recurring**	**District**	**Regular/Recurring**
Investing in DRR – Structural Measures	UPSDMA*, RCO	Ensure inter-agency coordination, and review and update precautionary measures and procedures		
	HUPD	Ensure building by-laws and make it mandatory for all ground floor plus two and taller buildings to install lightning conductors /arresters		
	UPSDMA*, RCO, HUPD and PWD	Promote installation of lightning conductors/arresters in schools, industries, and Government and private-owned buildings	PRD and Revenue Department	Identify Tehsils/Blocks vulnerable to lightning and install lightning conductors/arresters in schools, industries, and Government and private-owned buildings

9.9.4 Investing in Disaster Risk Reduction: Non-Structural Measures

Thematic Area: Investing in DRR – Non-Structural Measures				
Areas of Intervention	**State**	**Regular/ Recurring**	**District**	**Regular /Recurring**
Investing in DRR – Non-Structural Measures	UPSDMA	Inter-agency coordination and implementation	UPPCL	Shut down power in the areas where warning of heavy thunderstorm and lightning has been issued
	UPSDMA*, RCO	Prepare report on assessment, preparedness, and mitigation measures and implement the measures	DDMA	Ensure that the DEOC is equipped with all essential equipment and adequately trained human resources are available for ensuring preparedness as per the UPSDMA advisory, with special reference to thunderstorm and lightning
	UPSDMA, RCO*	Set up alternative or emergency communication systems	DDMA and ULBs	Form urban task forces at ULB level for ensuring preparedness as per the UPSDMA advisory, with special reference to thunderstorm and lightning
	PRD and HUPD	Ensure that all new private and public buildings are resilient, with special reference to lightning	DDMA	Form District-level inter-agency groups and task forces for ensuring preparedness as per the UPSDMA advisory, with special reference to thunderstorm and lightning
	UPPCL	Ensure functional state of all electrical equipment and maintain the service, or replace equipment from time to time	PRD and Revenue Department	Form GP-level task forces for ensuring preparedness as per the UPSDMA advisory, with special reference to thunderstorm and lightning
		Short Term (T1)		
	PRD and HUPD	Ensure adherence to fire safety norms in public buildings		
	RCO with Agriculture and Animal Husbandry	Promote risk transfer agreements – implementation including crop and animal insurance		

9.9.5 Capacity Building and Knowledge Management

Thematic Area: Capacity Building and Knowledge Management				
Areas of Intervention	**State**	**Regular/Recurring/Short Term(T1)**	**District**	**Regular/Recurring/Short Term(T1)**
Capacity Building	SIRD* with UPSDMA	Conduct training programmes for all concerned functionaries, SDRF, community workers and volunteers	DDMA	Conduct training programmes for all concerned department officials/volunteers, community workers, and volunteers
	UPSDMA*, RCO	Conduct extensive IEC campaigns to create awareness through print, electronic and social media	DDMA with Fire Department	Conduct training programmes and drills on usage of various fire protection equipment and preventive systems
			DDMA	Conduct extensive IEC campaigns to generate public awareness through print, electronic and social media
			DDMA	Build capacity of community-level workers and volunteers (AWWs) on lightning, thunderstorms and squalls at the District, block and village levels
			DDMA with NCC and NSS	Build awareness of school children and teachers (NCC, NSS) on lightning, thunderstorms, and squalls

9.10 Boat Accident

9.10.1 Understanding Disaster Risk

Thematic Area: Understanding Disaster Risk				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Hazard Vulnerability Analysis	RCO	Classify different types of boats as per the Inland Vessel Act 1917	DDMA	Register all the ferry boats as per the classification in the District
	IWRD	Vulnerability analysis of routes along the river and course of ferry movement	DDMA, UPSTDC	Code, colour boats, and ferry boats as per the guidelines of the State
	UP State Tourism Development Corporation (UPSTDC)*, Fisheries Department	Vulnerability analysis of various ferry points and inland vessels	DDMA	Collate data on accidents/incidents happening in the District
	UPSDMA	Develop guidelines for data collection of passenger boat operations, including details of accidents/incidents happening in the State	DDMA, UPSTDC	Operationalize and tag vessels/boats as per guidelines of the State Government
Information and Tracking	UPSTDC	Employ Management Information System (MIS) for tracking of vessels/ boats alert system with the use of radio frequency identification for heavy passenger boats		

9.10.2 Inter-Agency Coordination

Thematic Area: Inter-Agency Coordination				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Disaster Risk Governance	UPSTDC*, Fisheries Department, UPSDMA, RCO	Develop guidelines for communication and the provision of necessary information, including weather forecasts, to support boat masters and ferry points	DDMA with Revenue and UPSTDC ferry points	Install announcement systems at ferry points for weather forecast and advisories

	UPSDMA with UPSTDC	Develop guidelines for implementation of the effective passenger control and accountability mechanisms	Revenue with UPSTDC ferry points, and Boat Owners Association	Ensure compliance to ensure proper passenger control, seating capacity, and accountability
	UPSDMA with UPSTDC	Develop guidelines for establishment of control room and IRTs at all ferry points	Revenue with UPSTDC ferry points, and Boat Owners Association	Ensure control room IRTs are constituted at all ferry points, with effective safety equipment available to them
	UPSDMA	Develop guidelines for regular inspection of the boats and ensure availability of necessary communication equipment, GPS, lifesaving jackets and other materials	DDMA and UPSTDC	Ensure quarterly inspection of ferry points to check boats and ensure availability of necessary communication equipment, GPS, lifesaving jackets, first aid box and other materials
	UPSDMA	Develop guidelines for fire safety extinguisher prohibition of liquid fuel, solid fuel, solid fuel heaters, and liquefied gas devices	DDMA and UPSTDC	Ensure monitoring of fire safety extinguisher prohibition of liquid fuel, solid fuel, solid fuel heaters, and liquefied gas devices at ferry points

9.10.3 Investing in Disaster Risk Reduction: Structural Measures

Thematic Area: Investing in DRR – Structural Measures				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Navigation and Communication	UPSTDC*, Fisheries Department	Develop guidelines for floating or fixed jetties are to be provided with appropriate fenders at all ferry points in the State	DDMA UPSTDC	Establish floating or fixed jetties at all ferry points
	UPSTDC*, Fisheries Department	Develop guidelines for operating at night with navigation lights	DDMA, UPSTDC	Enforce navigation lights and communication distress lights at the ferry points
			DDMA, UPSTDC	Provide proper landing facilities for boats at various ghats, illuminate these facilities where operations take place after sunset or dusk

9.10.4 Investing in Disaster Risk Reduction: Non-Structural Measures

Thematic Area: Investing in DRR – Non-Structural Measures				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Monitoring and Compliance	UPSTDC	Develop guidelines for a penalty for the boat operator for not adhering to the above-mentioned guidelines	UPSTDC, DDMA	Inspect and impose penalties of boats with more passengers than the seating capacity
	UPSDMA, PRD*	Develop guidelines for GPs for monitoring the ghats and ferry points under their jurisdiction	DDMA	Local marking of channels, for safe boating from one end to another to enable the boatmen to stay on course, may be provided by the Panchayats. Generally, the locals already have this knowledge
			PRD, ULBs, DDMA	GP/ULB/ District Administration to periodically have surprise checks to ensure that the passengers are not being carried in excess of the prescribed capacity
			DDMA	GP/ULB/District Administration may be empowered to check river worthiness of boats, and issue directions for not plying till it is made river-worthy
		Regular/Recurring/Short Term (T1)		**Regular/ Recurring/Short Term (T1)**
Awareness Generation	UPSTDC* UPSDMA	Develop guidelines on safety awareness for the public for ferry points and ghats	DDMA, UPSTDC	Conduct safety awareness campaigns at GPs, both for boatmen as well as for passengers, to be carried out at least once in three months through NGOs
	UPSDMA*, RCO	Develop IEC materials to outline the do's and don'ts on safety measures	DDMA and UPSTDC	Generate knowledge and awareness (importance of safety measures while boating, do's and don'ts) for all operators and boatmen at the ferry points and ghats
			DDMA, UPSTDC	Conduct safety awareness programmes and pre-departure safety briefs for passengers at ferry points

9.10.5 Capacity Development and Knowledge Management

Thematic Area: Capacity Development and Knowledge Management				
Areas of Intervention	**State**	**Regular/Recurring/Short Term (T1)**	**District**	**Regular/Recurring/Short Term (T1)**
Training	UPSTDC*, UPSDMA	Notify guidelines and SOPs for training Inspectors/Revenue Officials, and Auditors	DDMA	Train Inspectors/Auditors/Revenue Officials on monitoring Compliance of Ferries Act, safety measures, etc.
	UPSTDC	Develop a training manual for training Inspectors/ Auditors/Revenue Officials	DDMA	Train and strengthen the capacity of the under mentioned frontline manpower/groups on advance 'rescue techniques'
	UPSDMA	Develop guidelines for registration of SHGs and community based on boat safety under Community Based Disaster Risk Reduction programmes	DDMA	Train registered local SHGs in the nearby village clusters on response and rescue in boat-capsizing cases
	UPSDMA	Notify guidelines for police personnel/law risk communication along the river bank	DDMA, Police Department	Train police personnel/law and order machinery stationed along the river bank
			DDMA	Instruct boat operators /other staff to undergo training in water rescue and other distress response skills before undertaking jobs of boat handling

Part III

10 Disaster Preparedness

"Preparedness is the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions-UNDRR"[44].

10.1 Preparedness Measures

Preparedness is "actions taken directly before during or immediately after a disaster in order save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected"[45]. Building the skills necessary to effectively handle of emergencies and ensure a smooth transition from response to sustained recovery are the goals of preparedness. Preparedness is based on a thorough analysis of the risks of disasters and strong connections to early warning systems, and it includes things like contingency planning, stockpiling supplies and equipment, creating plans for coordination and evacuation, disseminating information to the public, and training and mock drills. The DM activities illustrated below in may be taken into consideration while undertaking preparedness measures.

Figure 20: Disaster management activities in preparedness phase

[44] *UN Office for Disaster Risk Reduction. n.d. [online] Available at: <https://www.undrr.org/terminology/preparedness>.*
[45] National Disaster Management Authority, Government of India. (2022). *National Disaster Management Plan, 2019* [Ebook]. New Delhi. Retrieved from https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf

10.2 Resource Inventory

The State of UP follows the Government of India's IDRN, a web-based information system to keep track of the emergency response equipment, skilled personnel, and essential supplies. Inventory management aims to support the decision-maker in an effective availability of equipment and human resources and provides assistance for a coordinated response at various levels in the State to combat any emergent situations.

Figure 21: India Disaster Resource Network website for resource inventory

Source: India Disaster Resource Network. Retrieved from https://idrn.nidm.gov.in/

This database will assist the administration to assess the level of preparedness for specific risk. A total of 293 technical items are listed in the resource inventory. It is a nationwide District-level resource database. Each user has been given a unique username and password through which they can perform data entry and updation resources of their District on the IDRN.

10.3 Community-based Disaster Risk Management

Since community is the first responder to any disaster, the community level is essential for DM. Community participation in any disaster-related activities is extremely inevitable. The State of UP has initiated various activities to enhance community preparedness towards multiple disasters. These are given below.

10.3.1 Chief Minister's School Safety Programme

The UPSDMA has initiated the Chief Minister's School Safety Programme in all 75 Districts of the State, covering 3,750 schools and a minimum of 1,87,500 students. A *Training of Trainer (ToT) School Safety Manual* was created for teachers to strengthen the approach to school safety at school, especially in disaster-prone areas. The initiative aimed to enhance preparedness by strengthening the approach of disaster preparedness among the students. The IEC materials created under the programme are:

- *School Safety Guidelines Cartoon Book* for students up to Class V;
- *School Safety Guideline Book* for students up to Class XII;
- *School Safety Audit Book*s for all schools to enhance school safety preparedness during disasters; and
- An UP School Safety mobile app to sensitize and train students in the school.

10.3.2 Community-based Disaster Management Training

The UPSDMA has initiated community-based DM training programmes with an aim to engage various stakeholders in the identification, analysis, monitoring, and evaluation of disaster risks, in order to reduce their vulnerabilities and enhance their capacity.

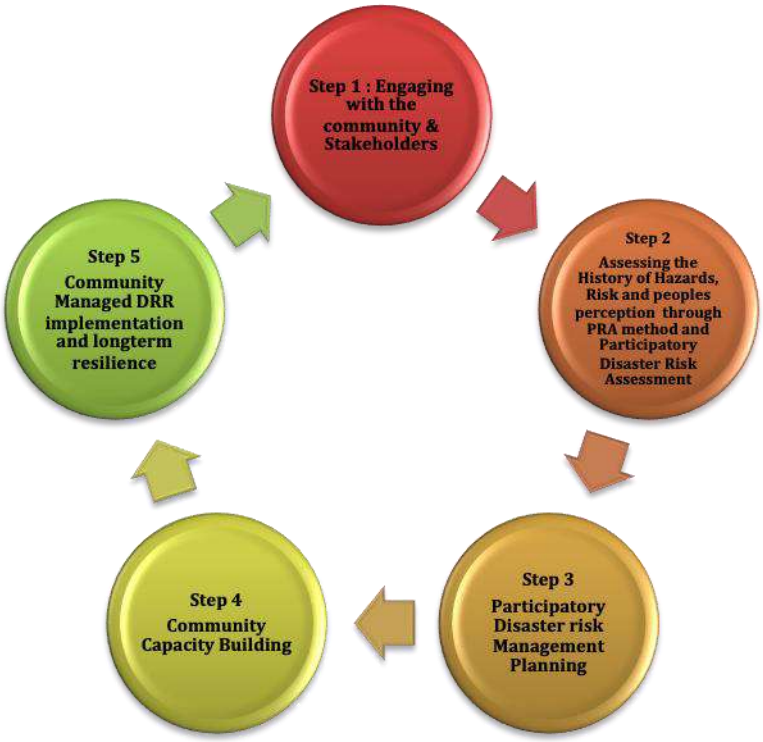


Figure 22: Steps of community-based disaster management training

Under this programme, at the State level, 452 officials from the Revenue, Health, Agriculture, Fire, Police, Irrigation, and Public Works departments across the 75 Districts have been trained. At the District level, 1,481 District officials from 19 Districts have been trained and sensitized on preparedness and response in flood, fire, drought, lightning and thunderstorm and earthquake. At the village level, across 950 GPs, 40,000 villagers have been trained.

10.3.3 Aapda Mitras

The UPSDMA has initiated the NDMA's project in the Gorakhpur and Ballia Districts of UP, where 200 volunteers from each District were trained on disaster response, and basic search and rescue by NDRF. To address the needs of women and children during a disaster, a group of female volunteers

have also been trained under this initiative. Trained volunteers were provided with first responder kits to respond to any disaster situation. The State Government has extended the Aapda Mitra Project to 25 more Districts of UP.

10.4 Disaster-specific Action Plan and Standard Operating Procedures

The RCO has prepared SOPs for thunderstorm and lightning, drought, heat wave, cold wave, flood and earthquake. The SOPs provide preparedness, response, and mitigation actions at the District level in the event of various disasters. They describe actions to be performed by the departments and the lead and support agencies responsible for the response in a disaster situation. They also provide references (legislations, standards and guidelines) for the tasks identified.

Figure 23: SOPs published by Relief Commissioner's Office, Government of UP
Source: Rahat UP. (2022). Retrieved from https://rahat.up.nic.in

10.4.1 Lightning Action Plan

The RCO has integrated the 'Damini app' with the NIC's mass messaging system, which identifies the lightning events in an area. The app provides a warning 30–40 minutes prior to a lightning event and also gives information on actions for its prevention. The RCO uses the mass messaging system of NIC to forward video and text messages in areas where lightning is likely to be experienced during the period.

UPSDMA has prepared and disseminated a SOP on lightning with sequential actions by all stakeholders including dos and don'ts.

Figure 24: Dos and don'ts in SOP for lightning
Source: UPSDMA. (2022). *SOP of Lightning* [Ebook] (p. 22). Retrieved from upsdma.up.nic.in/Letter2022/SOP%20of%20Lightning%202.pdf

10.4.2 Flood Action Plan

The RCO has developed an online Flood Action Plan (FAP) which provides a platform to manage preparedness and response planning. The FAP encompasses details on: history of floods (five years), danger levels of river flowing through the District, vulnerable check dams and dams, flood-prone villages, department-wise Nodal Officers' contact inventory for each District, details of EOC, flood post, relief shelter, District-wise rivers inventory, and boat and boatmen details for effective flood response during the monsoon season.

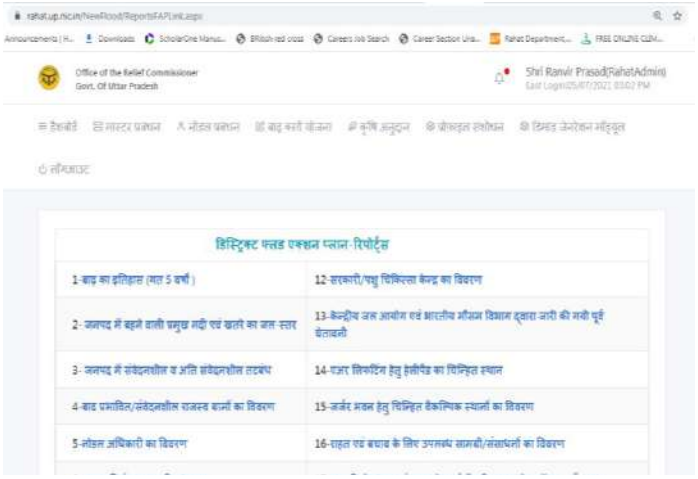


Figure 25: UP Flood Action Plan online platform

Source: District Flood Action Plan Reports. Retrieved from https://rahat.up.nic.in/NewFlood/ReportsFAPLink.aspx

The UPSDMA has prepared and disseminated 'An Advisory on Flood Management' with streamlined roles and responsibilities of departments.

10.4.3 Heat Wave Action Plan

UPSDMA has prepared Heat Wave Management Action Plan 2022, which imbibes the principles of identification of heat wave-vulnerable locations/hotspots and vulnerable populations, developing effective strategies for heat wave management, defining the roles and responsibilities of stakeholders, promoting agency coordination to address heat-related health risks, early warning/heat alerts, documentation, and reporting of deaths due to heat wave in the State of UP.

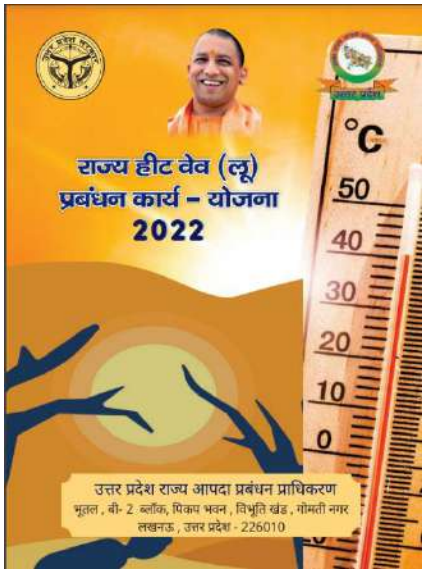


Figure 26: Heat wave action plan 2022

Source: UPSDMA. (2022). *State Heat Wave Management Action Plan* [Ebook] (p. 1). Retrieved from http://upsdma.up.nic.in/Heat-wave-action-plan-2022.pdf

10.4.4 Court Disaster Management Plan

The District Court Disaster Management Plan aims to identify the hazards and vulnerabilities within the court premises, create measures to be taken for prevention, mitigation, preparedness and response to various hazards, define the roles and responsibilities of various stakeholders, and enhance the capacities of stakeholders to deal with any emergency.

10.5 Inclusive Policy Changes

10.5.1 Uttar Pradesh Disaster Management Policy

The UPSDMA has also drafted the UP Disaster Management Policy. The main aim of this strategic document is to provide guidance in the development of a DM Plan at the District and State levels, articulate the State DM strategy in synchronization with the national objective and priorities, provide strategic direction for DRR in line with the national directive and policy, and mainstream disaster mitigation into various schemes and activities related to DM in the State.

10.5.2 Uttar Pradesh Boat Safety and Boatmen Welfare Policy

The Government of UP has approved the UP-Boat Safety and Boatmen Welfare Policy, which incorporates the importance of boat and navigational safety along waterways, and the precautionary measures and actions to be taken by stakeholders such as State Governments, boat owners/operators, training providers and boat industry associations. These measures are as follows:

1. Implement and enforce the provisions of applicable conventions/regulations with a view to ensuring harmonization of national ferry legislation;
2. Regular review and update of relevant policy provisions.
3. Develop and implement effective passenger management and accountability mechanisms;
4. Encourage stakeholders to develop domestic ferry and passenger vessel safety management systems.

10.6 Risk Communication

Hon'ble Chief Minister inaugurated the enhanced SEOC at the RCO on 6 April 2020. The SEOC coordinates with all the State departments, 18 divisions and 75 District control rooms, Central Government departments, voluntary agencies, and private sector partners to share information on a real-time basis, including daily reports with the Chief Minister's Office, Ministry of Home Affairs (MHA) and NDMA. The SEOC is equipped with a state-of-the-art video conferencing system, which enables live monitoring of the situation on the ground and coordination with the District officials. The SEOC also monitors active relief shelters, community kitchens, and transit camps during floods, cold wave and other emergencies.

The *Aapda Mitra* portal is a grievance redressal and incident monitoring system at SEOC, wherein grievances and incidents reported to the 1070 helpline in news channels and newspapers are registered on the portal and shared with the concerned departments/offices for response and relief distribution. It acts as a grievance redressal platform for disaster-affected people and for monitoring actions taken against registeredgrievances and other relief related issues. This portal also helps in tracking and validation of information received from the Districts.

The SEOC is also equipped with an in-house MIS for monitoring daily actions taken up by the District under provision of supplies before, during, and post a disaster, distribution of ration (raw and

cooked), establishment of relief shelters and animal shelters, and the health status of people living in quarantine facilities across both rural and urban areas.

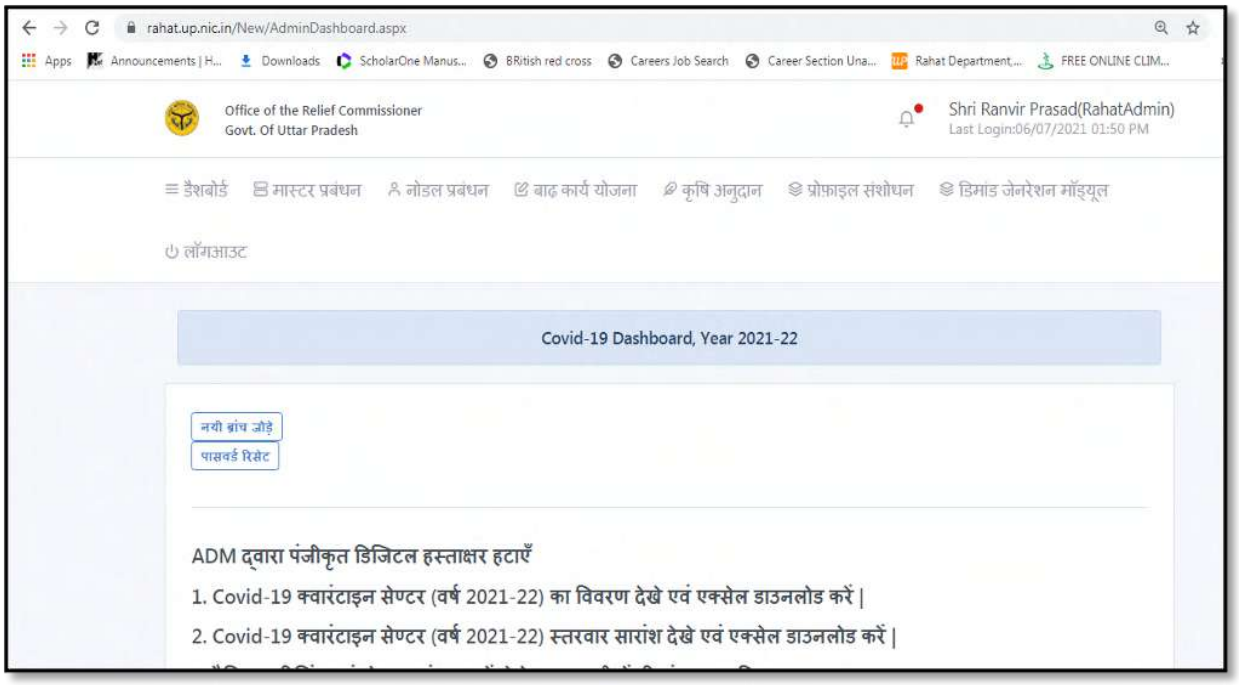


Figure 27: Disaster Management Information System of UP
Source: COVID-19 Dashboard Year 2021-22. (2022). Retrieved from rahat.up.nic.in/New/AdminDashboard.aspx

10.7 Response Preparedness: State Disaster Response Force

In 2016, the Government of UP constituted the State Disaster Response Force with a strength of 1029 sanctioned posts. The Vahini Control Room established in the headquarters of the State Disaster Response Force, UP, Lucknow operates round the clock and in case of any reported incident informs the Director General/Deputy Commander (Operational). Keeping in view the nature of the incident and the utility of the force, the nearest alert team of the State Disaster Response Force, is dispatched, while the second team is kept on stand-by.

10.8 Provision of Fund for Disaster Preparedness

The SEC is empowered to sanction the State Disaster Response Fund for carrying out operations during disasters. These funds can be utilized to build the capacity of departments and communities, and to procure search, rescue and evacuation equipment. Through this funding window, the State of UP has proposed and programmed the following activities:

(1) Improving capacities for multi-hazard early warning systems:

(i) Detection, monitoring, analysis, forecasting, and warning of the hazards and their possible consequences;

(ii) Dissemination and communication for timely, accurate, and actionable warnings and associated information; and

(iii) Mechanisms and capacities at all levels to respond to the warnings received.

(2) Preparedness for Response:

(i) Search and Rescue Capacities

a) Training and equipping the responding teams to respond to various hazards and emergencies, as well as to serve the at-risk communities, people with special needs, and livestock;

b) Arranging resources and essential equipment for mobility and protection of the responding teams in saving lives and properties;

c) Resource-sharing arrangements with volunteer networks and private entities; and

d) Maintaining a digital inventory of equipment and resources.

(ii) Specialized Response Teams

(a) Strengthening the National Disaster Response Force and State Disaster Response Force;

(b) Training and equipping fire services, civil defence, and community volunteers at all levels, including specialized training to first responders;

(c) Setting up, training, and equipping the Village Task Force for dissemination of early warnings, first aid, evacuation, shelter management, etc.; and

(d) Strengthening EOC.

11 Capacity Building and Knowledge Management

"Capacity building is the process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals. It is a concept that extends the term of capacity-building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems and the wider enabling environment" (UNDRR, 2016)[46]

11.1 Background

The UPSDMA through State Institute of Rural Development in the State incorporate the training programme on leadership management, institutional strengthening and development for various departments as listed below.

Table 44: List of disaster management trainings by State Institute of Rural Development, UP

S. No.	Title of the Training	Participants
1.	Programme on heat wave response and preparation	ADM, SDM, Medical department, Medical Officers
2.	Fire prevention and mitigation	ADM, Sub-Divisional Magistrate (SDM) Safety Officers, Fire Officers, Police, Civil Defence
3.	Management of drought	Agriculture Department, Department of Climate Change and Forest Environment
4.	Chemical and industrial DM	Safety Officers, Fire Officers, Police, Civil Defence and Industrial Directorate
5.	Flood DM	ADM, SDM and District Panchayat Officer
6.	Training on early warning mechanism in flood	SDM, Irrigation Department, Agriculture Department and Municipal Corporation
7.	Livestock management in disaster	Veterinary, Animal Husbandry Department
8.	Management of emergency operation centre in a disaster	ADM, SDM, Revenue, Tahsildar
9.	Post-disaster need assessment	Revenue Department, Health Department and Police
10.	GIS application and DM	ADM, SDM, Revenue Department, Agriculture Department
11.	Role of police department in DM	Police Inspector and Sub-inspectors
12.	Role of PRI in DM	ADM, SDM, PRD Officers
13.	Preparation of DM plans	Police, Fire Services, Animal Husbandry Department, Revenue Department and Agriculture Department
14.	Role of youth and voluntary organization in DM	NCC, NSS, NYKS, Scouts and Guides
15.	Training programme on general DM	Forest, Agriculture and Animal Husbandry, NCC/NSS/NYKS
16.	Ecosystem for conservation for basic DM	Forest, Agriculture and Animal Husbandry Departments

[46] *UN Office for Disaster Risk Reduction. n.d. [online] Available at: < https://www.undrr.org/terminology/capacity#:~:text=Capacity%20development%20is%20the%20process,sustaining%20capacity%20growth%20over%20time. >.*

S. No.	Title of the Training	Participants
17.	Awareness programme for basic first aid	ADM, SDM, Revenue Department, Agriculture Department and Fire Services
18.	Management of drought	Agriculture Department, Remote Sensing and Irrigation Department
19.	Hospital emergency preparation, response and role of Medical Officers	Medical Officers
20.	Sensitization programme on disaster response and relief	Basic Shiksha Adhikari (BSA), Deputy Director of Secondary Education
21.	School safety and security programme	BSA, Deputy Director of Secondary Education
22.	Search and rescue training for schools	BSA, Deputy Director of Secondary Education
23.	Preparation of school DM Plan	BSA, Deputy Director of Secondary Education
24.	Structural and non-structural mitigation for schools	Rural Engineering Department (RED), PWD, Engineers of Department
25.	Preparation of departmental DM Plan	ADM, SDM, Tahsildar, Agriculture Department, Fire services, Irrigation Department
26.	Earthquake risk management	Road Building Department and ULBs
27.	Disaster-resilient construction and technologies	Engineering road and building, Irrigation Department
28.	Prime Minister's Ten-Point Agenda	ADM, SDM, Tahsildar and Revenue Department
29.	Environment health in emergencies	ADM, SDM, Forest Department, Health Department
30.	Mainstreaming of DRR	ADM, SDM, Town Planner, Municipalities
31.	Preparation of departmental plans	ADM, SDM and Forest, Agriculture, Irrigation Departments
32.	Crowd management at different places	SDM, Tahsildar Tourism Department, Police, Fire Services
33.	Training programme on road safety	Traffic police and Police
34.	Training of Public Relations (PR) members on DM	ADM, SDM, PR members
35.	Psychosocial care on DM	ADM/SDM/Medical Officers
36.	Incident Response System	ADM/SDM/Police
37.	SFDRR	ADM, SDM and Health Department
38.	Preparation of Village DM Plan	ToT for PR Officials
39.	DM for legal services	ADM and SDMs
40.	Early warning and communication	RED, PWD, Engineers of departments

Source: Data collated from State Institute of Rural Development, UP

11.2 Uttar Pradesh State Institute of Rural Development and Other Agencies

The UPSDMA, in partnership with research and training institutions, is working on capacity development, along with training, research, documentation, and development of DM plans in line with the national agenda and global frameworks. The UPSDMA has signed a Memorandum of Understanding (MoU) with University of Lucknow, Lucknow; Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur; Madan Mohan Malaviya University of Technology, Gorakhpur; Shri Ramswaroop Memorial University, Lucknow; and UP Rajarshi Tandon Open University, Prayagraj on actualization of the Ten-Point Agenda on Disaster Risk Management. The UPSDMA, in collaboration with above universities, would work towards integration of DM issues into the curriculum, and ensure that the subject of disaster safety and disaster preparedness is introduced in their curriculum. Some of the critical areas that require specific interventions in various sectors and State institutes

such as District Institute of Education and Training (DIET), State Council of Educational Research and Training (SCERT), State Institute of Health and Family Welfare (SIHFW) and NIDM, are listed below.

Table 45: List of proposed trainings in various sectors and State institutes

S. No.	Sector	Themes	Area of Intervention/ Training	Department
1.	Education	School safety	ToT on school safety	Department of Basic Education, Secondary Education, Higher Education and UPSDMA, SCERT, DIET, Block Resource Centres, Cluster Resource Centres
			ToT on First Aid Response in schools	
			ToT on Rapid visual Screening of schools	
2.	Health	Public health in disasters	Training Programme on disaster morbidity and mortality surveillance	Department of Health and Family Welfare, SIHFW, UPSDMA, Medical Colleges, NDRF
			Training Programme on public health impacts of disaster and disaster epidemiology	
			Training Programme Community Assessment for Public Health Emergency Response (CASPER)	
			Training Programme on emergency radiation preparedness	
3.	Development	Mainstreaming in Government programmes	Training on Risk Informed Programming in GP development plans	PRD, PRIs, ULBs, UPSDMA, and the line departments
			ToT Programme on mason certification on resilient structure	
			Training on Department Disaster Management Plans at different levels of State and District departments	
			ToT on DM plans preparation	
4.	Technological intervention	DM information system	Training Programme on maintaining the resource network and monitoring and maintaining resource data	UPSDMA/DDMA, NIC, NIDM, MHA, FMISC

11.3 Mock Drills

It is important that the SDRF, NDRF and other agencies be involved so that the level of preparedness can be checked through mock drills and simulations. The various mock drills that should be planned in order to achieve maximum preparedness in the State are listed in the table below.

Table 46: List of mock drills to be organised by various department in UP

S. No.	Mock Drills	Departments
1.	Planning for mock drills and DM at school level	Department of Basic Education, Secondary Education, Higher Education, Fire, SDRF, 112 UP, UPSDMA, NDRF, SEOC, DEOC
2.	Plan for mock drills on search and rescue in earthquakes	Transport Department, Fire Services, SDRF, 112 UP, UPSDMA, NDRF, SEOC, DEOC, ULBs
3.	Plan for search and rescue in floods and urban floods	Fire Services, SDRF, 112 UP, UPSDMA, NDRF, SEOC, DEOC, ULBs
4.	Plan for mock drills on mass casualty management	Revenue, SDRF, NDRF, UPSDMA, Health Department, ULBs
5.	Plan for mock drills in tourist places and religious places for ensuring security procedures	Temple boards, Revenue Department, SDRF, NDRF, UPSDMA, Police, 112 UP, ULBs
6.	Plan for mock drills on crowd management and security in religious shrines and mosque	Temple boards, Revenue Department, SDRF, NDRF, UPSDMA, Police, 112 UP, ULBs
7.	Plan for mock drills at public places and buildings such as railway stations, airports, bus depots, cinema halls, malls, markets, tourist places, stadiums, sports complexes, auditoriums, convention centres and Government offices	Airport Authority, Revenue, SDRF, NDRF, UPSDMA, Police, 112 UP, ULBs, Home Department
8.	Simulation exercises to test effectiveness of SEOC and communication channels	Revenue Department, Transport Department, Fire Services, SDRF, 112 UP, UPSDMA, NDRF, SEOC, DEOC, ULBs, Department of Telecommunication (DOT), BSNL
9.	Plan to check inter-agency coordination and compatibility	All line departments in the District
10.	Plan to mock drills on chemical and industrial disaster preparedness	Director of Factories, UPPCB, Revenue Department, SDRF, NDRF, UPSDMA, Police, 112 UP, ULBs, Health Department

11.4 Capacity Building at Community Level

Community DM planning is crucial component of community preparedness.[47] The Government of UP has initiated community-based DM trainings in 19 Districts and 950 GPs. This initiative aims to engage various stakeholders in disaster risk identification, analysis, treatment, monitoring and assessment to reduce vulnerability and improve capacity.

Preparation of community plans necessitates preparedness planning at the community level. Thus the volunteers of Home Guards, NYKS, NGOs, and SHGs are trained regularly by district administration to include them in community planning. [48] Hazard exposure of a district indicates the vital need of awareness among community through public awareness programmes on the following themes of disaster:

- Types of hazards and basic dos and don'ts for them;
- Post-disaster issues;
- Mitigation measures for hazard-resistant building construction; and

[47] Bhagat, S. N. (2016). Community-based disaster management strategy in India: an experience sharing. PDPU Journal of Energy and Management, 1(1), 11-17.

[48] Disaster Preparedness and Mitigation Plan, Directorate of Civil Defence and Home Guard. https://meghomeguards.gov.in/sites/default/files/disaster-preparedness.pdf

- Communication of information of all possible risks based on vulnerable areas, groups, and structures.

Community members are likely to be the first responders, particularly in remote areas, and are therefore critical to achieving successful outcomes in DM. The capacity building plan should cater to the 'differential capacity building needs' based on the functional responsibilities assigned to stakeholders.[49] Volunteer and social organizations play an important role in spreading community awareness on a large scale. Media can also play an important role in raising awareness and educating people.

11.5 Strengthening Disaster Response of State Disaster Response Force and Civil Defence Volunteers

The SDRF and Civil Defence Volunteers require specialized and specific trainings in order to attain a high level of skill and knowledge pertaining to response involved at various stages of disasters. It is important that the UPSDMA builds teams of highly skilled personnel to combat hazard-specific threats, with the help of national and international training institutes and experts such as NDRF in the specialized areas given below.

Table 47: List of specialized trainings to be organised by UPSDMA

S. No.	Name of the Course
1	Training programme on vertical rope rescue
2	Training programme on biological incident response to SDRF personnel
3	Training programme on Emergency Operation Centre Management
4	ToT on radiological and nuclear emergencies
5	Training on unexploded bombs and explosive safety
6	Flood disaster responders
7	ToT in disaster psychosocial intervention
8	Emergency trauma management for Medical Officers
9	Management of the deceased
10	Advance HAZMAT life support for Medical Officers
11	Chemical disaster: First responders
12	Industrial DM
13	Auxiliary firefighting
14	Medical life support
15	Emergency response to rail transport accidents
16	Collapse structure: Search and rescue techniques (CSSR)

[49] Disaster Preparedness and Mitigation Plan, Directorate of Civil Defence and Home Guard. https://meghomeguards.gov.in/sites/default/files/disaster-preparedness.pdf

12 Disaster Response and Relief

"Disaster Response is a provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected" (UNDRR)[50]

12.1 Level of Disasters

The High-Power Committee on Disaster Management, in its 2001 report, categorized disaster situations into three levels (L1, L2 and L3) in order to facilitate the responses and assistance to States and Districts.

Table 48: Levels of disasters

S.no.	Level	Description	Main Responder	Activities
1	L0	No-disaster situation	RCO, UPSDMA and SEOC DDMA and DEOC	Surveillance, preparedness and mitigation activities must be focused Prevention, preparation and capacity building activities such as trainings, preparation and updation of plans, mock drills, and procurement of equipment
2	L1	A District-level disaster within the capabilities of the District Administration to deal with	DDMA, DEOC	State and Centre remain ready to assist if need arises
3	L2	A State-level disaster within the capabilities of the State Government to deal with	SDMA, SEOC, SDRF and NDRF	Require active participation and mobilization of resources from the State Government
4	L3	A national-level disaster, requiring major direct intervention of the Central Government	NDMA, NDRF, Defence Ministry, Home Ministry and other Central Government Ministries	Require Central Government for reinstating the State and District machinery as well as for rescue, relief, and other response and recovery measures

12.2 Emergency Operation Centre

An EOC is an off-site facility with a comprehensive network for effective disaster communication, operation, and response management. It acts as the nerve centre for support, coordination, communication, and monitoring of DM activities at the State and District levels. The EOC facilities consist of communication, collaboration, coordination with victims, first responders, stakeholders, State and District agencies, local NGOs and CSOs, cooperatives, and volunteers during incident response. The network provides an online real-time emergency information management system efficient and seamless gathering and dissemination of information from within and outside the State. The structure of the SEOC is designed in such a manner that it can be extended as per the need of the hour and contracted when the situation normalizes.

[50] *UN Office for Disaster Risk Reduction. n.d. [online] Available at: < https://www.undrr.org/terminology/response>*

Currently, the SEOC, also known as the State Integrated Disaster Control Centre (SIDCC), is fully functional at the RCO. There are 75 functional DEOCs at the District headquarters. The SEOC functions as per the SOPs.

The SEOC functions as the hub centre, more importantly during response phase of disaster continuum. It is important that the centre remains abreast with response activities and through Project Director (Emergency Operations) keeps UPSDMA updated for any command decision.

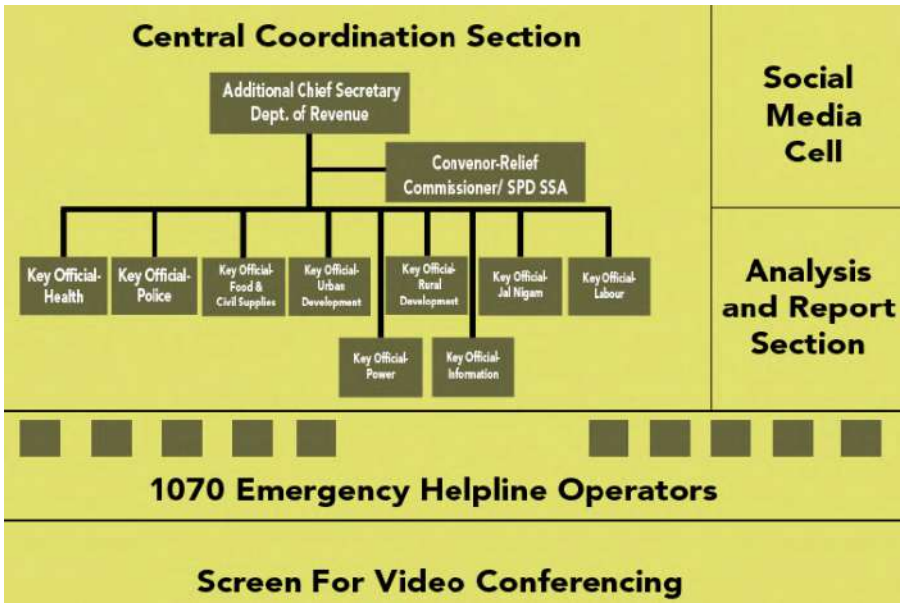


Figure 28: State Emergency Operations Centre setup at Relief Commissioner Officer, UP
Source: State Integrated Disaster Control Centre, UP. (2020). *SOP for COVID-19: Layout, Organizational Structure and Functions* [Ebook] (p. 5). Retrieved from http://www.redr.org.in/wp-content/uploads/2022/01/COVID-19-SOP-Government-of-Uttar-Pradesh.pdf

12.3 Incident Response System

The Incident Response System (IRS) is a coordination tool for response. This system pre-establishes roles and responsibilities and ensures that staff are identified and trained in specific roles and responsibilities. Avoid duplication of effort by defining dedicated personnel responsibilities and clearly delineating area-specific task force teams. In case of change in command, this will help in understanding the response planning, departments to be involved, and in developing an effective response mechanism to deal with disasters.

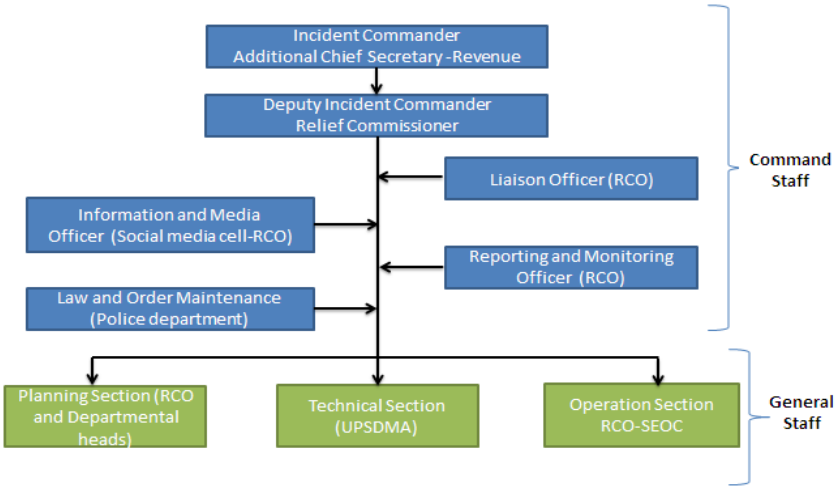


Figure 29: Incident Response System in UP

12.4 Responsibility Framework for Preparedness and Response for Emergency Support Functions

Emergency Support Functions (ESFs) are critical services that are performed in a post-disaster scenario to minimize the loss of life and address the various issues in a post-disaster situation. They provide coordination mechanisms specific to the response and preparedness activities among the various agencies. The ESFs should follow the IRS guidelines and form IRTs for prompt response in any disaster. The key ESFs are listed in Table 49 below. The major ESFs have to be managed by the primary department/leading agencies with support from the line agencies/secondary department during and post the disaster situation. The details on the role and responsibility of each department/agency is discussed detail in the individual ESF SOPs.

Table 49: Primary and secondary departments of Emergency Support Functions

ESF	Primary Department	Secondary Department/ Agency
Communication[51] and Early warning	RCO	SEOC, UPSDMA, CWC, IMD, IWRD, DEOC, NIC
Power[52]	UPPCL	Pashchimanchal Vidhyut Vitran Nigam, Madhyanchal Vidhyut Vitran Nigam, Dakshinanchal Vidhyut Vitran Nigam, Purvanchal Vidhyut Vitran Nigam, Kanpur Electricity Supply Company
Transport[53]	Transport Department	PWD, Armed Forces, NDRF, SDRF, UPSTDC, PRD
Donation[54]	Revenue Department and CM Relief Fund	District Urban Development Agency (DUDA), Commercial Taxes department, District Administration, ULBs
Search and Rescue[55]	RCO and Police Department – Fire Services	Armed Forces, NDRF, SDRF, Civil Defence, Home Guards
Public health and Sanitation	DoMHFW and RDD	DWCD
Public Works[56]	PWD	Armed Forces, NDRF, SDRF
Food[57]	Department of Food and Civil Supply	RCO, DWCD
Relief Supplies[58]	RCO	Department of Food and Civil Supply, District Administration, Transport Department
Drinking water[59]	Jal Nigam	RDD/PRD
Shelter[60]	Revenue Department	District Administration
Media[61]	Directorate of Information and PR	RCO, DOT

[51] UPSDMA. (2010). *SOP for Communication for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP%20for%20ESF%201%20Communication.pdf
[52] UPSDMA. (2010). *SOP for Power for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP%20-%20Power.pdf
[53] UPSDMA. (2010). *SOP for Transport for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/TransportSOP.pdf
[54] UPSDMA. (2010). *SOP for Donation for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP%20for%20EFS%20Donations.pdf
[55] UPSDMA. (2010). *SOP for Search and Rescue for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/sop_search_rescue.pdf
[56] UPSDMA. (2010). *SOP for Public Works for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP-Public%20Works%20%20Engg%20English.pdf
[57] UPSDMA. (2010). *SOP for Food for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/Food%20SOP.pdf
[58] UPSDMA. (2010). *SOP for Relief Supplies for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP-Relief%20Supply.pdf
[59] UPSDMA. (2010). *SOP for Relief Supplies for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP%20for%20drinking%20water-latest.pdf
[60] UPSDMA. (2010). *SOP for Shelter for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP-Shelter%20English.pdf
[61] UPSDMA. (2010). *SOP for Media for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/SOP%20-%20Media.pdf

ESF	Primary Department	Secondary Department/ Agency
Helplines[62]	RCO	District Administration
Animal carcass disposal [63]	Department of Animal Husbandry	DoMHFW, District Administration, Municipal Corporations
Dead body Management	Revenue Department, Police Department	SEOC, Health Department
Relief Employment	Revenue Department	Department of Labour

12.5 Disaster Reporting and Assessment

Disaster reporting and information collection happens via four modes: (i) 1070 helpline, (ii) DEOC, (iii) news channels and (iv) social media (Twitter, Facebook and other social media sites). The information gathered is classified into three categories:

1. Life loss and rescue call;
2. Post-disaster damage and loss reporting; and
3. Need for emergency food, water, shelter and medical assistance.

The cases registered under the first and third categories are marked under highest priority and the shift in-charge at SEOC takes immediate action and regular follow-up on them. The information gathered is registered on the Rahat Portal in case form, and is shared with the concerned Districts in a transparent manner for the verification and distribution of relief material.

The reporting format is mentioned in Annexure 4: Incident Reporting Format: State Emergency Operations C.

Rapid Report/Incident Report

It is a two-hourly report generated daily under the supervision of the shift in-charge at SEOC, and is submitted to the Relief Commissioner. This report aims to capture every disaster-related event that happens in the State on a daily basis.

Preliminary Report

It is aimed at obtaining a clearer and more detailed picture of the extent of the damage and loss. It is ideally generated within four to eight hours of the incident getting reported in Rapid Report/Incident Report. It helps in identifying the immediate actions necessary at the event site and in providing relief to the affected individuals. Information made available in the report is registered on the Rahat Portal for track keeping.

Detailed Report

This report is submitted once the investigation is complete, relief assistance has been provided/sanctioned to the affected individual/family, and the case is closed by the District. It is submitted online on the Rahat Portal approximately 10–15 days after the incident has been reported.

[62] UPSDMA. (2010). *SOP for Help Line for ESF* [Ebook]. Retrieved from http://upsdma.up.nic.in/undp/UP_SOP_Helplines.pdf
[63]UPSDMA.(2010). *State Disaster Management Working Action Plan For Animal Epidemics* [Ebook]. Retrieved from http://upsdma.up.nic.in/sdmplan/Animal%20Epidemics.pdf

12.6 Relief and Compensation

To carry out emergency response and relief activities after the disaster, the National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) are made available to the Relief Commissioner as per the recommendation of the 14th Finance Commission.

The Government of UP has identified 19 disasters under which relief is provided to the affected individuals/families: flood, lightning, thunderstorm, unseasonal heavy rainfall/excess rain, hailstorms, snakebites, drought, heat wave, cold wave, fire, earthquake, boat accident, falling in borewell, sewer cleaning / gas leakage, wildlife conflict, cloud burst, pest attack, drowning, and landslide. The summary of relief assistance provided under the above-mentioned disasters is given in Annexure 8: Relief and Response Assistance under State Disaster Response Fund and National Disaster Response Fund Norms.

13 Rehabilitation and Reconstruction

"The medium- and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and 'build back better', to avoid or reduce future disaster risk" (United Nations General Assembly, 2016)[64]

Activities related to rehabilitation and reconstruction are primarily carried out by the SOPs and responsibility framework laid down in SDMP. When the disaster period is over, the Authority shall, where necessary, act as an agency for facilitating and coordinating the rehabilitation and reconstruction activities conducted by various departments of the Government. Reconstruction and rehabilitation plans are designed specifically for worst-case scenarios.

The following considerations are essential for an effective recovery and restoration process:

1. Families and communities drive their own recovery and should be given enough time to complete the recovery process;
2. Disaster recovery must promote fairness and equity, thus ensuring that the vulnerable sections within the community (women-headed households, people with disabilities, and displaced persons) are fully included;
3. Local governments must be empowered to manage recovery efforts, and both the Central and State Governments must allocate more resources to strengthen Government recovery institutions, especially at the local level;
4. Good recovery planning and effective coordination is contingent on a comprehensive assessment of damage, loss, and needs;
5. Developing key and well-functioning partnerships with NGOs and the private sector is critical, given their expanding and effective role in recovery from disasters. These partnerships and associated resources are fundamental to the quality and effectiveness of recovery;
6. Reviving and expanding private economic activity and employment, and securing diverse livelihood opportunities for the affected populations, is necessary for sustainable recovery;
7. Successful recovery must leave communities safer by reducing risks and building resilience. This underscores the importance of identifying mechanisms in order to reduce risk and create operable plans at the outset; and
8. As international agencies such as multilateral development banks and UN agencies play an important role in recovery, seeking their support on planning and formulation of recovery and reconstruction programmes can be advantageous.

13.1 Detailed Damage and Needs Assessment

The preliminary damage assessment is usually carried out during the disaster phase. It is essentially for disaster management authorities depending on the level of disaster to carry out detailed assessment before commencing reconstruction and rehabilitation activities. The objective of any post-disaster damage assessment and need analysis is to provide a clear, concise picture of the post-disaster situation, to identify the damage caused to different sectors, and to

[64] *UN Office for Disaster Risk Reduction. n.d. [online] Available at: < https://www.undrr.org/terminology/reconstruction>*

develop strategies for rehabilitation, reconstruction, and recovery. This will also help as case studies for future disaster mitigation and adaptation plans.

13.2 Reconstruction Strategy

A comprehensive recovery strategy includes short-term and long-term reconstruction strategies. A short-term strategy must be coupled with repair, restoration and strengthening of affected structure, while a long-term strategy must include reconstruction and relocation.

13.2.1 Repair and Restoration and Recovery

The Government may formulate a policy for affected community to repair and restore damaged houses and dwellings. This must not be considered compensation or entitlement. State government or UPSDMA may shall coordinate with national and international NGOs, donor agencies and other government bodies to priorities restoration of critical infrastructure including health institutions, temporary housing, lifesaving facilities, critical government infrastructure, etc. Respective state government departments should also carry out timely repair and restoration of the related infrastructure, facilities, services, etc.

13.2.2 Approach to Recovery and Restoration

The Guiding Principle of This Phase Would Be to 'Build Back Better'

The Department of Revenue through SEOC will coordinate the recovery, rehabilitation and reconstruction activities in the disaster-affected areas by undertaking the following activities:

- Declaration of the end of disaster situation by the SEC under the directions of UPSDMA
- Submission of the recovery and rehabilitation plan by the SEC as per the disaster-specific emergent situational needs, to UPSDMA
- Declaration of compensation, which will be done by Department of Revenue under the directions of the State Government as per the State Disaster Response Fund and Relief Manual
- Declaration of rehabilitation schemes by UPSDMA under the directions of the State Government
- Coordination with the respective departments for the implementation of rehabilitation and reconstruction programmes
- Pooling of resources and funds, if required
- Implementation of the recovery and rehabilitation activities in the affected areas through the existing mechanisms and lessons with the administration control by DDMA
- Documentation of the disaster based on the experiences and lessons learnt of all the involved departments/agencies by DDMA, and submission of the report to the SEC for review and revision of the SDMP based on the findings

Table 50: Action points for reconstruction

S. No.	Action Point	Responsible Agency
1.	State Government shall consider designing a separate programme in relevant sectors for disaster reconstruction and appropriate guidelines shall be developed for implementation of programme	RCO with concerned departments
2.	A template for Post Disaster Needs Assessment (PDNA) and post-disaster reconstruction projects shall be developed and shared with DDMAs and concerned departments	RCO with relevant departments

3.	In case of devastating disasters, the State Government shall ask for support from World bank, UN agencies and corporate agencies	RCO
4.	Special agency for reconstruction shall be created for coordinating implementation of reconstruction projects	RCO with concerned departments
5.	Reconstructed assets shall be 'Build Back Better' for resilience from future disasters	RCO with concerned departments

13.2.3 Immediate/Short-term Recovery and Restoration

Damage and loss assessment is the essential to identify the extent to which recovery is required to be done. This component lays the foundation for setting up the priorities of the recovery stage. For effective recovery and restoration of the households and communities affected by disasters, the following three broad aspects need to be considered:

1. Physical aspects of recovery, i.e., restoration and reconstruction of damaged community infrastructure, critical infrastructure, private houses and cultural heritage buildings;
2. Social recovery, i.e., social and psychological aspects of personal, family and community functioning and well-being; and
3. Economic aspects of recovery, i.e., livelihoods, productive activities and market services.

Then, based on the above three aspects, the following actions are required for recovery and restoration.

Table 51: Physical infrastructure recovery and restoration

Area of Work	Activity	Department
Water Supply	Joint rapid needs assessment of the affected water supply points, tube wells, submerged and dried wells to restore the water supply units that were identified as dysfunctional during the damage and loss assessment exercise	UP Jal Nigam, PRD and RDD
Power	The UPPCL has to restore the power lines in areas where damage was reported. The restoration of critical buildings such as hospitals, health centres and administrative buildings is to be prioritized	UPPCL
Telecommunication	Disrupted lines of telecommunication links are to be repaired on a priority basis by BSNL and other private telecom agencies to restore the connectivity of the District/area affected	BSNL, DOT
Roads and Bridges	The Public Works Department (Road Construction Department) and the National Highways Authority of India should list down the roads and bridges that need repair and those requiring complete reconstruction. Based on that, the priority projects are appointed to guide the recovery plan. Critical roads and bridges open access to health centres in rural areas, vulnerable groups in remote areas, police stations and outposts	Public Works Department, National Highways Authority of India, UP Expressways Industrial Development Authority, UP Bridge Corporation, UP Nirman Nigam
Households	It involves the identification of houses that were damaged by the disaster or that are vulnerable to secondary incidents associated with the major impact. It is essential that measures be taken accordingly, whether it is relocation, retrofitting or reconstruction	PRD and RDD
Schools	Cleaning and repairing of damaged infrastructure, replacing damaged education materials, furniture and infrastructure. Making provisions for safe drinking water and construction of toilets. Detailed	Basic and Secondary Education Departments, PRD, UP Jal Nigam, RDD

Area of Work	Activity	Department
	assessment of schools for repair and reconstruction based on safe construction practices. Carrying out retrofitting of existing undamaged old schools building to incorporate safe building standards and norms particularly in hazard-prone areas	
Hospitals/ PHCs/ CHCs	Detailed damage and need assessment of the health facilities including infrastructure needs to be done by the concerned department. As per the need, health services can be relocated and run in shelter accommodation by the time new construction is complete. Ambulance services and mobile medical units may be pushed into action for immediate health care, i.e., institutional delivery of pregnant women, routine immunization. The construction department will be persuaded to include disaster-resilient features in new constructions of PHCs/CHCs or new hospitals. Post-disaster construction provides an opportunity for 'building back better' so that the reconstructed assets can withstand similar or worse disasters in the future	Medical Health and Family Welfare Department
AWCs	Detailed damage and need assessment of the Integrated Child Development Scheme (ICDS) facilities, including infrastructure, needs to be done by the concerned departments. As per the need, ICDS services can be relocated and run in a sheltered accommodation by the time new construction is complete. The construction department will be persuaded to include disaster-resilient features in new constructions of Anganwadi Centres	Women and Child Development Department

Table 52: Social Recovery

Area of Work	Activity	Programme For Convergence	Department
Physical Health	The management of relief shelters is continued from the response phase to the immediate recovery phase. Temporary rehabilitation or relocation of people has to be done for those damaged houses, either completely or partially destructed	SDRF grant for the establishment of temporary shelters	PRD and RDD
Psychosocial Support and Mental Health	The Women and Child Welfare Department is responsible to coordinate with psychologists and connect them to the District Administration for providing guidelines on psychosocial support to people highly affected by the disaster, who faced major economic losses or losses in the family, especially to the most vulnerable groups like children, women and elderly to reduce the psychological trauma at the community level	National Mental Health Programme through District Mental Health Programme by District Counselling Centres	Women and Child Development Department in association with Child Line
Physical health	First aid and emergency health care have to be provided at the earliest. In case health care centres are affected by the disaster, temporary medical relief camps	Ayushman Bharat Scheme	Health and Family Welfare Department

Area of Work	Activity	Programme For Convergence	Department
	have to be organized while the building is retrofitted or reconstructed. Mobile medical units may be called into action for immediate health care needs close to the community		
Animal/Cattle Care and Health	Injuries and diseases to animals must be addressed through necessary veterinary support at the village or panchayat level. The losses to cattle under SDRF should be awarded to the affected families or immediate recovery. The animal injured in the disaster should be given appropriate treatment under the National Animal Disease Control Programme (NADCP)	SDRF grants for cattle and NADCP, Livestock Insurance Scheme	UPSDMA and Animal Husbandry Department

Table 53: Economic Restoration and Recovery

Area of Work	Activity	Programme For Convergence	Department
Wage Employment	The damage assessment should identify people of affected areas to give access to money soon after disaster response when the withdrawal of relief supplies generally takes effect. MGNREGA shall be implemented to provide temporary wages while using this to build assets that could be beneficial for their long-term recovery	MGNREGA	PRD and RDD
Risk Transfer	Crop and livestock insurance beneficiaries need to be identified during the early recovery stage to provide the affected people with money for meeting their immediate expenditures and necessities	PMFBY, Weather Based Crop Insurance Scheme, National Agriculture Insurance Scheme, Livestock Insurance Scheme	Department of Agriculture/ Department of Animal Husbandry

13.2.4 Reconstruction

The 'Build Back Better' framework incorporates the following:

1. DRR: Improving disaster resilience in a community by minimizing/eliminating disaster risks through:
    a. Improving the resilience of the built environment and physical assets;
    b. Multi hazard-based land-use planning; and
    c. Creating awareness among communities on early warning, disaster preparedness, and evacuation and management plans in order to improve their coping capacities.
2. Community Recovery: Supporting the overall recovery of the community through:
    a. Implementing programmes for psychological and social recovery to assist the community with re-establishing their lives through advisory services, counselling, and methods of empowerment; and

b. Regenerating and rejuvenating the community's economy by helping businesses recover, facilitating the return to traditional livelihoods, and introducing new economic opportunities.

3. Effective Implementation: Enabling reconstruction and recovery to progress effectively and efficiently through:
    a. Establishing an institutional mechanism that is fitting of the local community and coordinating the recovery process;
    b. Using appropriate legislation and regulation to enforce 'Build Back Better'-based practices and to improve efficiency by fast-tracking processes; and
    c. Putting in place monitoring and evaluation mechanisms to improve the recovery process and extract lessons for future interventions.

The Government of UP and UPSDMA shall orient all relevant stakeholders and advise them to indulge in more projects that align with the above-mentioned 'Build Back Better' framework.

Long-Term Recovery and Reconstruction

Table 54: Reconstruction activities, programmes for convergence and departments

Area of Work	Activity	Programme For Convergence	Department
Flood-resistant housing	The State shall identify the houses in the catchment areas, based on the zonation done by the competent authorities, i.e., UPRSAC; Promotion of flood-resistant housing should be promoted in the severe flood-prone Districts of Eastern UP	MGNREGA, Indira Awas Yojana, Pradhan Mantri Awas Yojana	PRD and Rural Development Department
Water conservation structures	The State shall identify dried up structures in semi-arid areas of Bundelkhand region	MGNREGA, Gram Panchayat Development Plan (GPDP), Jal Jeevan Mission, Integrated Watershed Development Programme (IWDP), Atal Bhujal Yojana, Harghar Nal	PRD, Rural Development and Groundwater Departments
Community roads	The State shall identify roads that are damaged repeatedly, build roads that are not damaged during any disaster ensuring all areas remain connected	MGNREGA, GPDP, Pradhan Mantri Gram Sadak Yojana	PRD and Rural Development Departments
Street lighting	The State shall identify villages in areas that require electrification and consecutively get damaged during floods and other hazards. The departments should focus on the guidelines of Bureau of Energy Efficiency for effective and sustainable distribution of street lightning	GPDP, Village Electrification Programme, Kusum Yojana, Deen Dayal Upadhyay Gram Jyoti Yojana	UP New and Renewable Energy Development Agency, UPPCL
Drainage system development	Sustainable development requires an effective drainage system and drainage disposal system in the State for sustainable recovery from flood	GPDP	PRD and Rural Development Departments

13.2.5 Relocation

Relocation needs will be identified based on discussions with experts and on-ground review of the situation. Some of the activities would be acquisition of land, proper planning for land use, ensuring legal clearances, necessary authorization and implementing livelihood measures for relocated families.

13.3 Rehabilitation

Activities in the context of rehabilitation have been defined in the table given below. The needs of the population affected need to be given due consideration for ensuring early and inclusive recovery.

Table 55: Rehabilitation activities, programmes for convergence and department

Area of Work	Activity	Programme for Convergence	Department
Disability Rehabilitation	o Ensure artificial limbs are fitted to affected persons o Provide modern wheelchairs and supportive devices to needy persons o Pension provision	Divyang Pension, Leprosy Pension, Artificial Limb/Assistive Equipment Scheme	Department of Social Welfare and Empowering of Persons with Disability Department
Child Care Rehabilitation	o Ensure that the orphaned children are fostered o Set up day centres to take care of children o Establish orphanages o Set up childcare helpline o Ensure pensions given to aged persons		Department of Social Welfare and Women and Child Development Department
Women Empowerment	o Establish old age homes o Arrange physiotherapy under the continuous supervision of doctors o Start women' Livelihood Restoration Project o Link women with Government self-employment schemes	Mukhya Mantri Kanya Sumangala Yojana State Women Empowerment Mission Assistance grants for widows	Women and Child Development Department and Social Welfare Department
Forest Cover Rejuvenation	o Plantation of green cover in the school areas o Development of an approach for the conservation of ecosystem in children for rejuvenation of forest cover	National Green Corp (Paryavaran Mitra) Programme	Environment, Forest and Climate Change Department
Wetland Rejuvenation	o Identification of wetlands, especially in Bahraich, Ballia, Lakhimpur Kheri Districts o Conservation of water system through water tanks o Command Area Development	MGNREGA, National Wetland Conservation Programme	UPPCB and Directorate of Environment

14 Partnership with Other Stakeholders

For proper implementation of activities under all phases of disaster management, the State Government has partnered with various stakeholders as listed below.

Table 56: Details of disaster management stakeholders with UP state government

National Disaster Management Authority (NDMA)	It is the apex body for disaster management in India.[65] Its primary role is to develop policies, guideline and standard operation procedures for disaster prevention, coordinate with the states on issues related to disaster management time to time and to promote cross learning within states and at national level, undertake capacity building activities and promote inter agency coordination between national agencies and states.
National Institute of Disaster Management (NIDM)	It is the nodal agency for capacity building, policy advocacy, research and documentation. Through its team of multi-disciplinary professionals, it supports the national agencies and state governments to build a disaster resilient India.[66]
National Disaster Response Force (NDRF)	It is a dedicated force created for response to natural and man-made disaster to reduce life and property loss. For timely and prompt action, its battalions are pre-positioned at vulnerable locations.[67] During normal times, these battalions undertake capacity building of state agencies/forces and conducted community level awareness generation programmes and disaster preparedness trainings
UP State Disaster Response Force (UP SDRF)	It is the force created by the state and strategically located at or near vulnerable locations for immediate response. During normal time, they also engage in activities like capacity building of community residing at vulnerable locations, identify and train volunteers etc.
Armed Forces	Armed forces play an active role during and post-disaster phases. Apart from being the responder and conducting rescue operation, they assist the state government in immediate relief distribution, providing medical care to the affected population and in reconstruction and restoration of critical infrastructure. [68]
National Remote Sensing Centre (NRSC)	It monitors the natural disasters in real time through its decision support centre. NRSC conduct mapping of hazards, risk zonation, spatial early warning and hazard inventory development. National Database for Emergency Management (NDEM) is a GIS based national repository developed to support the national and state level authority to take decision during emergency. [69]
UP Remote Sensing Application Centre (UPRSAC)	It assists the state government in disaster preparedness and planning by identifying hotspots for disasters and conducting micro level hazard specific studies and mitigation plans.
Airport Authority of India	It is responsible for managing all relief material sent or received by state. It prepares an advance plan and appoints a Senior Officer at the airport for the proper handling and distribution of relief material during a disaster situation.
Indian Railways	With its massive network, low fare and high carry capacity, the Indian Railways plays a critical role in disaster response.
Indian Meteorological Department (IMD)	It plays a critical role in predicting hydro-metrological disaster and issues warning against them. It also helps in studying the change patterns of rainfall, temperature and moisture which in turn helps the state authorities in planning preventive/preparedness measures.
Institute of Seismological Research (ISR)	It studies the seismic activities which are the primary cause of earthquake. Their studies assist the state authorities in developing/amending the construction by laws and identifying vulnerable location.

[65] NDMA. 2022. *Home | NDMA, GoI*. [online] Available at: https://ndma.gov.in/ .
[66] NDMA. 2022. *Home | NDMA, GoI*. [online] Available at: https://ndma.gov.in/
[67] NDRF. 2022. *About Us | NDRF - National Disaster Response Force*. [online] Available at: https://ndrf.gov.in/about-us
[68] Indian Army. 2022. *The Official Home Page of the Indian Army*. [online] Available at: https://indianarmy.nic.in/Site/FormTemplete/frmTempSimple.aspx?MnId=S2r9MCBeh3hp8rQzZTAjHw==&ParentID=fvBiax0FCnn7812LS689HA==
[69] NRSC. 2022. *EO Objective | NRSC Web Site.* [online] Available at: https://www.nrsc.gov.in/EO_Objective

Flood Management Information System Centre (FMISC)	It is a comprehensive flood knowledge database which helps the states authority in managing flood risk efficiently. It provides details on vulnerable locations, dams/check dams, and villages affected in past. The information collated at FMISC help in planning flood mitigation.
Police	Police has a critical role in management of any emergency. Due to their presence at local administrative units (i.e. village) they play important role in early warning dissemination, curbing violence against vulnerable section during emergencies, relief distribution, rescue etc.
Media	Media plays a significant role in all the four phases of disaster management. Its massive outreach helps in educating people, make them aware of what to do, in last mile dissemination of early warning, relief strategy and compensation norm decided by the government and addressing rumours during an events.

15 Funding Arrangements

15.1 Funding Mechanism of Various Levels

Over the years, Finance Commissions have made their way into financing disaster relief and response to assist the disaster-affected communities in coping and assisting the states during an emergency. The margin money prescription of the Second Finance Commission morphed into the National Calamity Relief Fund by the Ninth Finance Commission, which subsequently evolved to the current National and State Disaster Response Fund in the Thirteenth Finance Commission report. The Fifteenth Finance Commission marks a shift by recommending setting up National and State Disaster Mitigation Funds (NDMF and SDMF) for the promotion of local-level mitigation activities.

The funding and financing mechanism is already in place at the national, State and District levels as per the recommendation of the Finance Commission. Apart from this, Section 49 of the DM Act 2005 mandates the Government to ensure that the ministries and the department make definite budgetary arrangements to mainstream DRM.

15.2 Central Level

The National Disaster Response Fund (NDRF): This fund was stipulated under Section 46 (I) of the DM Act 2005. It came into existence in 2010 after the recommendation of the Thirteenth Finance Commission on scraping the National Calamity Relief Fund and formation of the National Disaster Response Fund (NDRF). It is operated by the Government of India to provide immediate relief to people affected by the calamity considered to be of severe nature by the Central Government and when the State Disaster Response Fund is insufficient to meet the relief requirements. Apart from the Government's annual allocation, any voluntary contribution made by an individual or organization for DM purposes also goes into it.

The Fifteenth Finance Commission has recommended that NDRF should get 80 per cent of the total allocation for the National Disaster Risk Management Fund (NDRMF), with further division into 40 per cent for response and relief, 30 per cent for recovery and reconstruction, and 10 per cent for preparedness and capacity building.

National Disaster Mitigation Fund

This fund has been constituted under Section 47 of DM Act 2005 for projects exclusively for purpose of mitigation. The Fifteenth Finance Commission has recommended that NDRF should get 80 per cent of the total allocation for the NDRMF and balance 20 per cent of National Disaster Mitigation Fund (NDMF).

Prime Minister National Relief Fund

It provides immediate relief to families of those killed in natural calamities like floods, cyclones and earthquakes and to the victims of the major accidents and riots. It accepts only voluntary donations by individuals and institutions.

15.3 State Level

State Disaster Response Fund

This fund has been stipulated under Section 48 (I) of DM Act, 2005. The purpose of this fund is to provide immediate relief and carry out response during a disaster. This fund is made available to

the Relief Commissioner, in which the contribution of the Central and State Governments is 75 and 25 per cent, respectively. The fund has provisions for the following:

- Gratuitous relief;
- Search and rescue operations, as per actual cost incurred;
- Relief measures;
- Air dropping of essential supplies;
- Emergency supply of drinking water;
- Clearance of affected area, including management of debris;
- Agriculture, animal husbandry, fishery, handicraft, artisans;
- Repair/ restoration (of immediate nature) of damaged infrastructure; and
- Capacity development.

Apart from the Central-notified disaster, State-specific disasters within the local context of a State are also eligible for assistance under the SDRF. In UP, a total of 19 disasters[70] are eligible for assistance under SDRF.

The Fifteenth Finance Commission has recommended that the SDRF should get 80 per cent and the SDMF should get 20 per cent of the total State Disaster Risk Management Fund (SDRMF) allocated to the State of UP.

As per the guidelines issued by MHA, the States, by way of special one-time dispensation, can utilize up to 50 per cent of their annual allocation of SDRF for containment measures of COVID-19 in conformity with the approved items and norms during the financial year 2021–22.

State Budget

The UPSDMA submits a budget to the State Government in the prescribed form for the next financial year for approval, showing the estimated receipts and expenditure required for carrying out various activities planned for the year, and the sums that would be required from the State Government during that financial year.

State Disaster Mitigation Fund

The DM Act (2005) under Section 48 directs the State Government to establish the State Disaster Mitigation Fund to carry out mitigation activities not covered under any existing plan or schemes. The UPSDMA is empowered to sanction funds under SDMF for Mitigation activities. Out of the total SDRMF allocated to UP, 20 per cent is reserved for SDMF.

Chief Minister's Relief Fund

It provides immediate relief to families of those killed in natural calamities like floods, cyclones and earthquakes and to the victims of major accidents and chronic diseases. It accepts voluntary donations by individuals and institutions.

Departmental Budget

The departments of the State Government shall keep at least 10 per cent of their Plan budget for each, as flexi-fund (except for schemes that emanate from a legislation or schemes where the whole or a substantial proportion of the budgetary allocation is flexible). Departments may use the flexi-funds to meet the following objectives:

1. Provide flexibility to departments to meet local needs and requirements within the overall objective of each programme or scheme;

[70] Disasters eligible for NDRF/SDRF assistance in UP are: flood, lightning, thunderstorm, unseasonal heavy rainfall/excess rain, hailstorms, snakebites, drought, heat wave, cold-wave, fire, earthquake, boat accident, falling in borewell, sewer cleaning / gas leakage, wildlife conflict, cloud burst, pest attack, drowning and landslide.

2. Pilot innovations and improve efficiency within the overall objective of the scheme and its expected outcomes; and
3. Undertake mitigation/restoration activities in case of natural calamities in the sector covered by the State-sponsored schemes and centrally sponsored schemes, for example: use of MGNREGA for road construction, Pradhan Mantri Gram Sadak Yojana (PMGSY) for road construction.

15.4 Other Sources of Fund

Grant-in-Aid

Further, the State Government receives grant-in aid from the Central Government to carry out specific projects/schemes related to DM/mitigation/capacity building under Article 275 of the Constitution of India.

Treasury Code 27

The Collector under this rule has the special powers to make payment in circumstances of urgency without complying with the provisions.

Members of Parliament Local Area Development Scheme (MPLADS)

It is an area development scheme where a Member of Parliament can spend up to Rs. 5 crore per annum in his/her constituency. It can be implemented in areas prone to affected by natural disasters like flood, hailstorm, drought, earthquake, tsunami, pest attack, cloud burst, biological and radiological hazards.

As of now, the Government of India has diverted the funds under MPLADS scheme to strengthen the Government's efforts in managing the challenges and adverse impact of COVID-19 in the country for year 2020–21 to 2021–22.

PM-CARES Fund

It is a public charitable trust. It has been set up keeping in mind the need for having a dedicated fund with the primary objective of dealing with any kind of emergency or distress situation, like the one posed by the COVID-19 pandemic, and to provide relief to the affected. It accepts voluntary contributions by individuals/organizations as well as contributions as part of CSR from companies and Public Sector Undertakings (PSUs).

Corporate Social Responsibility (CSR)

Amidst the COVID-19 pandemic, the Government of India has expanded the scope of CSR spending to provide relief to the distressed. The CSR expenditures cover donations to PM-CARES Fund and UPSDMA to combat COVID-19. Ex-gratia payment made to temporary/casual workers/ daily wage workers over and above the disbursement of wages, specifically for the purpose of fighting COVID-19, shall be admissible towards CSR expenditure as a one-time exception.

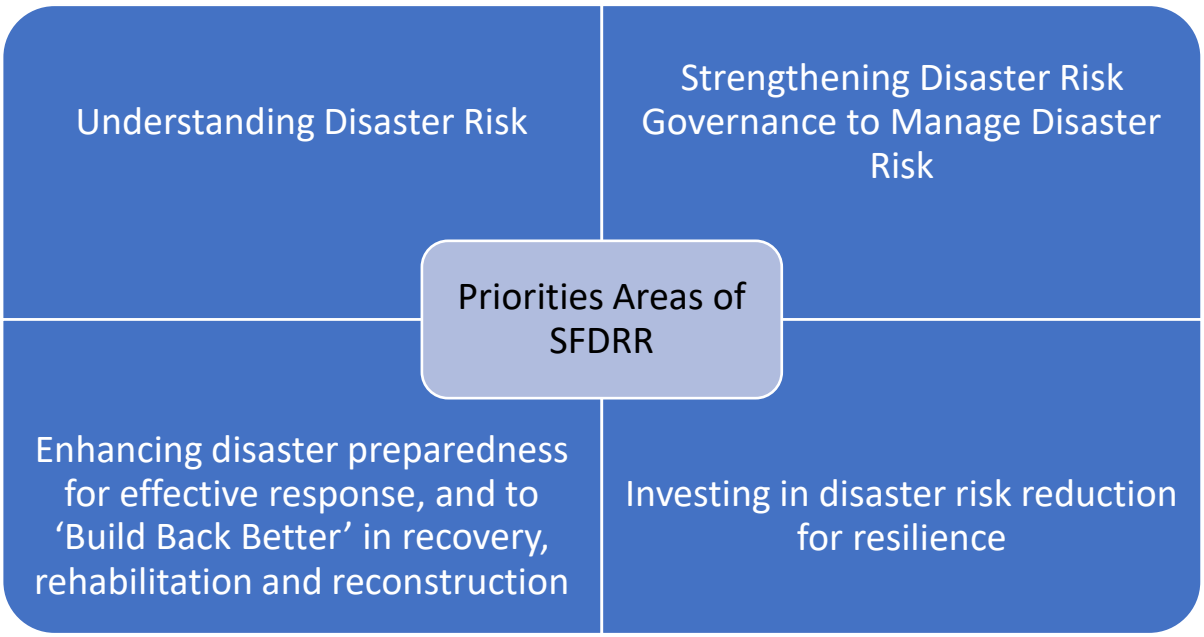
16 State Disaster Management Plan Updation

The UPSDMA and RCO shall review and update the SDMP on an annual basis. The updation shall be based on the following:

a. Recommendations from all departments in their Annual DM Report;
b. Lessons learnt from any disaster event in other States and countries; and
c. Directions from the MHA, NDMA and the Government of India.

Annexures

Annexure 1: Sendai Framework for Disaster Risk Reduction – Priority Areas



Priority 1: Understanding Disaster Risk

DRM should be based on the understanding of disaster risk in all dimensions. Dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics, and the environment. Such knowledge can be used for risk assessment, prevention, mitigation, preparedness and response.

Priority 2: Strengthening Disaster Risk Governance to Manage Disaster Risk

Disaster risk governance should be encouraged at the national, State and District level. This is very important for prevention, mitigation, preparedness, response, recovery and rehabilitation.

Priority 3: Investing in disaster risk reduction for resilience

Public and private investment should be encouraged in DRR through structural and non-structural mitigation measures. These are essential to enhance the economic, physical, social, health, environment and cultural resilience of the communities and their assets.

Priority 4: Enhancing disaster preparedness for effective response, and to 'Build Back Better' in recovery, rehabilitation and reconstruction

It identifies the need to strengthen disaster preparedness for effective response, take an action in anticipation of such events, and ensure that capacities are in place for effective response and recovery at all levels.

Annexure 2: Prime Minister's Ten-Point Agenda for Disaster Risk Reduction[71]

1. All development sectors must imbibe the principles of DRM. This will ensure that all development projects – airports, roads, canals, hospitals, schools, bridges – are built to appropriate standards and contribute to the resilience of communities they seek to serve. Over the next couple of decades, most of the new infrastructure in the world will come up in Asia. This points to the need for ensuring that all the infrastructure development conforms to the best available standards of disaster safety. Such an approach is a smart strategy, which will pay off in the long term. It is necessary that all the public investments must incorporate disaster risk considerations. In India, the 'housing for all' programme and 'smart cities' initiatives represent such opportunities. India will work with other partner countries and stakeholders to build a coalition or mechanism for promoting disaster-resilient infrastructure in the region. This will help generate new knowledge for hazard risk assessment, disaster-resilient technologies and mechanisms for integrating risk reduction in infrastructure financing.
2. It is necessary to work towards risk coverage for all – starting from poor households, it must cover small and medium enterprises as well as large multinational corporations. Currently, in most countries of the region, penetration of insurance is limited only to a narrow section, mostly in the middle- and upper-middle-income groups. It is necessary to think big and innovatively to widen the risk insurance cover. States have an important role in not just regulating but also encouraging coverage for those who need it the most. Some bold steps have been taken to ensure financial inclusion and risk insurance for the poorest. The Jan Dhan Yojana has brought millions of people into the banking system. The Suraksha Bima Yojana provides risk insurance to millions who need it the most. The newly launched Fasal Bima Yojana (crop insurance) will provide risk cover to millions of farmers. These are the basic building blocks of resilience at the household level.
3. It is necessary to encourage greater involvement and leadership of women in DRM. Women are disproportionately affected by disasters. They also have unique strengths and insights. India must train a large number of women volunteers to support special needs of women affected by disasters. There is also need for women engineers, masons and building artisans to participate in post-disaster reconstruction and promote women SHGs who can assist in livelihood recovery.
4. It is necessary to invest in mapping risks globally. For mapping risks related to hazards such as earthquakes, there are widely accepted standards and parameters. Based on these, India has mapped seismic zones, with five as highest seismic risk and two as low risk. For disaster risk related to other hazards such as chemical hazards, forest fires, cyclones and different types of floods, India needs to adopt globally accepted standards and categories. This will help India to ensure that there is a shared understanding of the nature and severity of disaster risks and compare them with disaster risks in other parts of the world.
5. Efforts must be made to leverage technology to enhance the efficiency of our DRM efforts. An e-platform that brings together organizations and individuals and helps them map and exchange expertise, technology and resources would go a long way in maximizing the collective impact.
6. It will be helpful to develop a network of universities to work on disaster-related aspects since universities have social responsibilities too. Over the first five years of the SFDRR,

[71] National Disaster Management Plan 2019

an effort can be made to develop a global network of universities working together on problems of DRM. As part of this network, different universities could specialize in multidisciplinary research on disaster issues most relevant to them. Universities located in coastal areas could specialize in managing risks from coastal hazards, and the ones located in the hill cities could focus on mountain hazards.

7. Utilize the opportunities provided by social media and mobile technologies. Social media is transforming disaster response. It is helping response agencies in quickly organizing themselves and enabling citizens to connect more easily with authorities. In disaster after disaster, affected people are using social media to help each other. Those responsible for DM must recognize the potential of social media and develop applications relevant to various aspects of DRM.
8. DM must build on local capabilities and initiatives. The task of DRM, particularly in rapidly growing economies, is so huge that formal institutions of the State can at best be instrumental in creating the enabling conditions. Specific actions have to be designed and implemented locally. Over the last two decades, most community-based efforts have been confined to disaster preparedness and contingency planning for the short term. It is necessary to expand the scope of community-based efforts and support communities to identify local risk reduction measures and implement them. Such efforts reduce risk and create opportunities for local development and sustainable livelihoods. Localization of DRR will also ensure that good use is made of the traditional best practices and indigenous knowledge. Response agencies need to interact with their communities and make them familiar with the essential drill of disaster response. For example, if a local fire service visits one school in its area every week, it would sensitize thousands of children over the period of one year.
9. Ensure that the opportunity to learn from a disaster is not wasted. After every disaster, there are studies and reports on lessons learnt that are rarely applied. Often the same mistakes are repeated. It is necessary to have a vibrant and visual system of learning. United Nations could start an international competition of documentary films that record disaster events, their scale, and relief, rehabilitation, reconstruction and recovery afterwards. Post-disaster recovery is an opportunity to not just 'Build Back Better' in terms of physical infrastructure, but also in terms of improved institutional systems for managing risk. For this, it is necessary to put in place systems that can quickly provide risk assessments. India must work with partner countries and multilateral development agencies to establish a facility for technical support to post-disaster reconstruction of houses.
10. It is necessary to bring about greater cohesion in international response to disasters. In the aftermath of a disaster, disaster responders pour in from all over the world. This collective strength and solidarity could be enhanced further if the activities are organized under a common umbrella. United Nations could think of a common logo and branding under which all those who are helping with relief, rehabilitation and reconstruction operate.

Annexure 3: Multipurpose Equipment List of State Disaster Response Force

S. No.	Name of Item	Quantity
1	High Pressure Breathing Air Compressor	18
2	Inflatable Lighting Tower	9
3	Walkie Talkie Set	90
4	Portable Shelters 10×14 Feet	17
5	Breathing Apparatus Set with Spare Cylinders	18
6	Portable Generator Set 10.5 kVA	6
7	Communication equipment (VHF Set)	24
8	Communication equipment (Mobile Satellite Services System)	4
9	Base Station with Essential Accessories (25 W)	24
10	PVC Suit	18
11	Safety Torches	417
12	Megaphone	36
13	Extension Cord	36
14	Video Camera with Accessories	3
15	Fire Extinguisher 20 lb	36
16	Traffic Cones	45
17	Fire Axe Large Size 12 Inches and Rod Length 2.5 Feet	36
18	Safety Vest	36
19	Scene Tape 100 m Rolls	36
20	Fuel Container (20 litres capacity)	72
21	Disposable Bed Sheet (Medical)	500
22	Tarpaulin 6*6	36
23	Rope Nylon (100 m)	9
24	Tarpaulin (4 m*4 m)	36
25	Rope Manila (100 m)	2
26	Portable Radio Set	18
27	Water Bottle (light weight with protective carrier element)	417
28	Portable Shelters 10'*23'	18
29	Satellite Phone	17
30	Megaphone	36
31	Aerial Ladder with Platform	2
32	Battery Charger	19
33	Fire Extinguisher (Liquid, Foam, CO_2 based)	45
34	Fire Ball	53
35	Projector with Screen	3
36	Toolkit with Box (Taparia)	18
37	Dead Body Bag	500
38	Portable Stage	15
39	Binocular	20

Annexure 4: Incident Reporting Format: State Emergency Operations Centre

राहत आयुक्त कार्यालय, एकीकृत आपदा नियंत्रण केन्द्र

घटना (इंसीडेंट) संबंधी तत्काल प्रेषित की जाने वाली रिपोर्ट

नाम:			समय:–				दिनांक:				
			सूचना किस जगह से सम्बंधित है								
क्र0सं0	समय	सूचना प्राप्त होने का माध्यम(टी0 वी0 चैनल, टेलीफोन, व्यक्तिगत तौर पर, व्हाट्सअप/ट्वीटर/फेसबुक ई–मेल आदि)	ग्राम/मुहल्ला	तहसील	जिला	प्राप्त सूचना का विवरण (घटना का प्रकार, प्रभावित लोगों की संख्या, घटना मे घायल/क्षति/मृत्यु का विवरण)	कार्यालय द्वारा कृत कार्यवाही का विवरण	फॉलोअप कब किया गया	अन्तिम रूप से कृत कार्यवाही/परिणाम का विवरण	अन्य विवरण	
1	2	3	4	5	6	7	8	9	10	11	
					–		–				

रिपोर्टिंग टाइम				
8:00 AM	10:00 AM	12:00 PM		रिपोर्ट इन्चार्ज
2:00 PM	4:00 PM	6:00 PM		
8:00 PM	10:00 PM	6:00 AM		

नोट– किसी घटना की सूचना मिलने पर उसकी रिपोर्ट तत्काल प्रेषित की जाएगी। यदि कोई घटना नही होती है तो प्रत्येक 02 घण्टे पर रिपोर्ट निल (Nil) करके प्रेषित की जायेगी।

Annexure 5: River Gauge Points in Uttar Pradesh

S. No.	Station	District	Basin	River	Division	Warning Level	Danger Level	Highest Flood Level (HFL)	HFL Attained Date
1	Agra (J.B.)	Agra	Ganga	Yamuna	Lower Yamuna Division (LYD), Agra	151.4	152.4	154.76	09-09-1978
2	Agra (Poiyaghat)	Agra	Ganga	Yamuna	LYD, Agra	N/A	N/A	156.45	09-09-1978
3	Akbarpur	Ambedkar Nagar	Ganga	Chhoti Saryu	Middle Ganga Division (MGD)-III, Varanasi	N/A	N/A	86.35	15-09-2000
4	Allahabad	Prayagraj	Ganga	Ganga	MGD-III, Varanasi	83.734	84.734	88.03	09-08-1978
5	Ankinghat	Kanpur Nagar	Ganga	Ganga	MGD-II, Lucknow	134	124	124.49	28-09-2010
6	Anupshahar	Buland Shahar	Ganga	Ganga	MGD-II, Lucknow	N/A	N/A	180.85	17-02-2000
7	Atrauli	Aligarh	Ganga	Kali	MGD-II, Lucknow	N/A	N/A	175.91	28-09-2019
8	Auraiya	Auraiya	Ganga	Yamuna	LYD, Agra	112	113	118.51	08-06-2021
9	Ayodhya	Ayodhya	Ganga	Ghagra	MGD-I, Lucknow	91.73	92.73	94.01	10-11-2009
10	Azamgarh	Azamgarh	Ganga	Chhoti Saryu	MGD-III, Varanasi	N/A	N/A	75	25-08-2005
11	Baghpat	Baghpat	Ganga	Yamuna	Upper Yamuna Division (UYD), New Delhi	N/A	N/A	217.18	27-09-1988
12	Baleni	Baghpat	Ganga	Hindon	UYD, New Delhi	N/A	N/A	210.78	21-10-2019
13	Ballia	Ballia	Ganga	Ganga	MGD-III, Varanasi	56.615	57.615	60.39	25-05-2016
14	Balrampur	Balrampur	Ganga	Rapti	MGD-I, Lucknow	103.62	104.62	105.54	15-08-2017
15	Banda	Banda	Ganga	Ken	LYD, Agra	103	104	113.29	07-07-2005
16	Bani	Lucknow	Ganga	Sai	MGD-II, Lucknow	114.5	115.5	116.5	26-09-1985
17	Bansi	Siddharthnagar	Ganga	Rapti	MGD-I, Lucknow	83.9	84.9	85.88	20-08-2017
18	Bareilly	Bareilly	Ganga	Ram Ganga	MGD-II, Lucknow	162.07	163.07	162.881	08-06-1978
19	Basti	Basti	Ganga	Kwano	MGD-I, Lucknow	82.64	83.64	84.62	23-08-1998
20	Bewar	Mainpuri	Ganga	Kali	MGD-II, Lucknow	N/A	N/A	143.57	16-09-2003
21	Bhatpura	Rampur	Ganga	Ram Ganga	MGD-II, Lucknow	N/A	N/A	180.12	09-06-2019
22	Bhatpurwaghat	Sitapur	Ganga	Gomti	MGD-II, Lucknow	113.3	114.3	115.55	20-09-1960
23	Bhinga	Shrawasti	Ganga	Rapti	MGD-I, Lucknow	118.5	119.5	120.3	15-08-2014
24	Bhitaura	Fatehpur	Ganga	Ganga	MGD-II, Lucknow	N/A	N/A	101.98	10-01-2010
25	Bhojpur	Moradabad	Ganga	Dehla	MGD-II, Lucknow	N/A	N/A	199.1	13-09-2019
26	Birdghat	Gorakhpur	Ganga	Rapti	MGD-I, Lucknow	73.98	74.98	77.54	08-02-1998
27	B.K. Ghat	Bahraich	Ganga	Ghagra	MGD-I, Lucknow	135.78	136.78	137.44	22-08-1963
28	Chandradeepghat	Gonda	Ganga	Kwano	MGD-I, Lucknow	87.84	88.84	92.02	16-07-1989

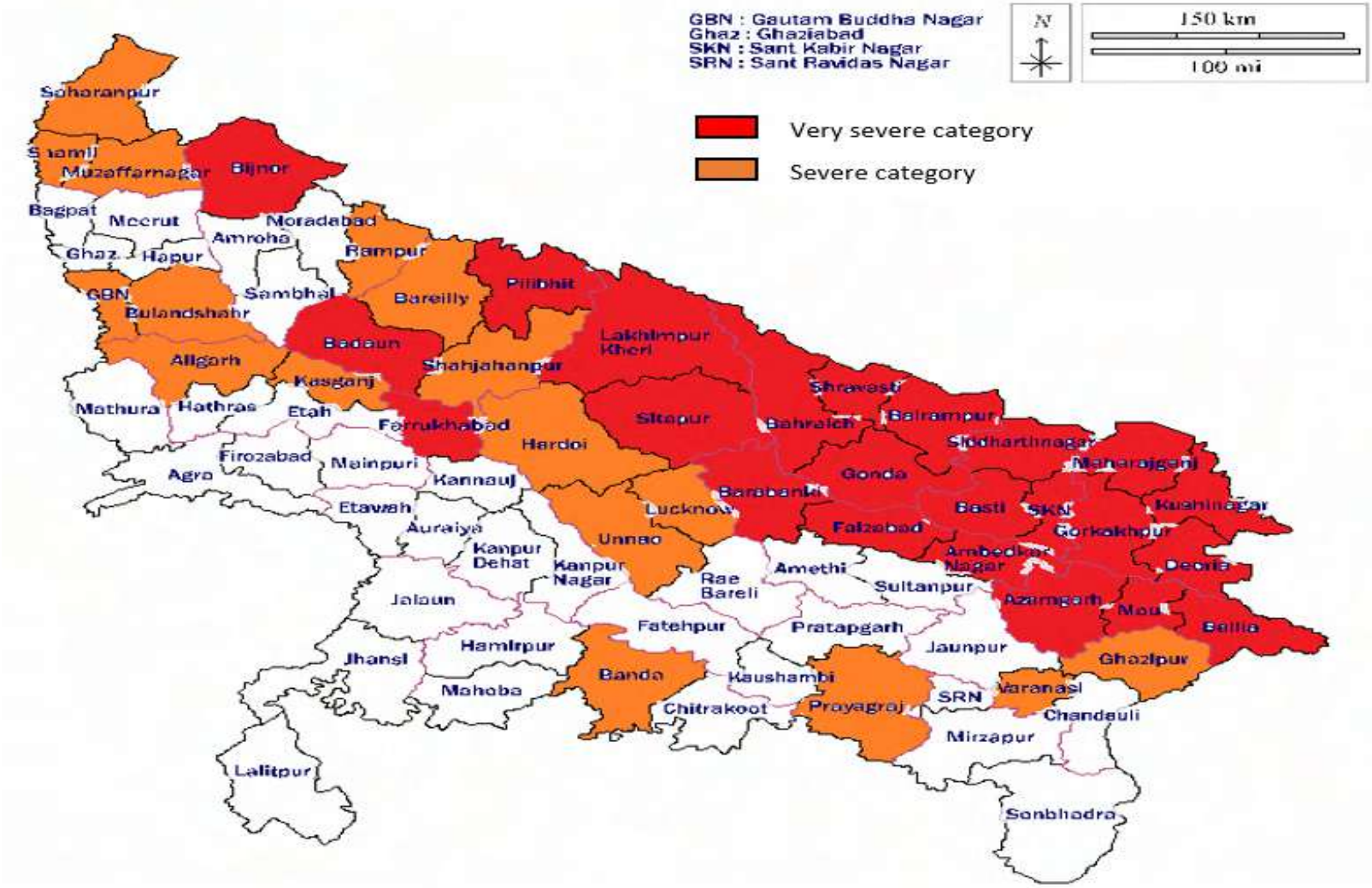
S. No.	Station	District	Basin	River	Division	Warning Level	Danger Level	Highest Flood Level (HFL)	HFL Attained Date
29	Chauhaan Patti	Deoria	Ganga	Little Gandak	MGD-I, Lucknow	N/A	N/A	73.4	16-07-2019
30	Chillaghat	Banda	Ganga	Yamuna	LYD, Agra	99	100	105.16	09-06-1978
31	Chopan	Sonbhadra	Ganga	Sone	MGD-III, Varanasi	170	171	175.61	22-08-1975
32	Chupkoli	Ghaziabad	Ganga	Kali	MGD-II, Lucknow	N/A	N/A	204.58	20-07-2020
33	Colonelganj	Gonda	Ganga	Sarju (Babal)	MGD-I, Lucknow	104	105	105.28	15-09-1982
34	Dabri	Shahjhanpur	Ganga	Ram Ganga	MGD-II, Lucknow	136.3	137.3	169.695	28-09-1983
35	Dalmau	Raebareli	Ganga	Ganga	MGD-II, Lucknow	98.36	99.36	99.84	08-03-1973
36	Dhaneta	Bareilly	Ganga	Kichha	MGD-II, Lucknow	N/A	N/A	167.92	22-06-2019
37	Dharamnagari Barrage	Bijnor	Ganga	Ganga	Himalayan Ganga Division, Haridwar	N/A	N/A	220.45	29-09-2010
38	Dulha Dhakia	Shahjhanpur	Ganga	Deoha	MGD-II, Lucknow	N/A	N/A	149.77	19-08-2020
39	Elginbridge	Barabanki	Ganga	Ghagra	MGD-I, Lucknow	105.7	106.7	107.616	18-08-2014
40	Etawah	Etawah	Ganga	Yamuna	LYD, Agra	120.92	121.92	126.13	09-11-1978
41	Fatehganj (E)	Bareilly	Ganga	Begul	MGD-II, Lucknow	N/A	N/A	153.56	18-08-2020
42	Fatehgarh	Farrukhabad	Ganga	Ganga	MGD-II, Lucknow	136.6	137.6	138.14	26-09-2010
43	Gagan Moradabad	Moradabad	Ganga	Gangan	MGD-II, Lucknow	N/A	N/A	191.202	29-07-1973
44	Gaighat	Bahraich	Ganga	Sarju (Babal)	MGD-I, Lucknow	129.54	130.54	132.45	15-08-2014
45	Galeta	Baghpat	Ganga	Hindon	UYD, New Delhi	N/A	N/A	217.72	09-04-1978
46	Garhmukteshwar	Hapur	Ganga	Ganga	MGD-II, Lucknow	198.33	199.33	199.9	23-09-2010
47	Ghazipur	Ghazipur	Ganga	Ganga	MGD-III, Varanasi	62.105	63.105	65.22	09-09-1978
48	Hamirpur	Hamirpur	Ganga	Yamuna	LYD, Agra	102.63	103.63	108.59	09-12-1983
49	Hetimpur	Deoria	Ganga	Little Gandak	MGD-I, Lucknow	77.42	78.42	79.64	09-06-2001
50	Jalalpur	Jaunpur	Ganga	Sai	MGD-III, Varanasi	N/A	N/A	76.23	31-08-1980
51	Jaunpur	Jaunpur	Ganga	Gomti	MGD-III, Varanasi	73.066	74.066	77.738	22-09-1971
52	Jyoti Jagir	Bareilly	Ganga	Ram Ganga	MGD-II, Lucknow	N/A	N/A	166.71	18-10-2018
53	Kachhlabridge	Budaun	Ganga	Ganga	MGD-II, Lucknow	161	162	162.79	24-09-2010
54	Kaimaha	Mahoba	Ganga	Urmil	LYD, Agra	N/A	N/A	215.2	16-08-2008
55	Kakardhari	Shrawasti	Ganga	Rapti	MGD-I, Lucknow	130	131	132.37	15-08-2014
56	Kakrahi	Siddharthnagar	Ganga	Burhi Rapti	MGD-I, Lucknow	84.65	86.65	88.97	22-08-1998
57	Kalanaur	Saharanpur	Ganga	Yamuna	UYD, New Delhi	N/A	N/A	268.66	09-09-2010
58	Kalpi	Jalaun	Ganga	Yamuna	LYD, Agra	107	108	112.98	25-08-1996

S. No.	Station	District	Basin	River	Division	Warning Level	Danger Level	Highest Flood Level (HFL)	HFL Attained Date
59	Kannauj	Kannauj	Ganga	Ganga	MGD-II, Lucknow	124.97	125.97	126.78	27-09-2010
60	Kanpur	Kanpur Nagar	Ganga	Ganga	MGD-II, Lucknow	112	113	114.075	29-09-2010
61	Kasganj	Etah	Ganga	Kali	MGD-II, Lucknow	N/A	N/A	164.42	10-11-2019
62	Kasmabad	Ghazipur	Ganga	Chhoti Saryu	MGD-III, Varanasi	N/A	N/A	N/A	N/A
63	Kasmara	Mainpuri	Ganga	Ishan	MGD-II, Lucknow	N/A	N/A	143.98	09-11-2018
64	Katerniaghat Barrage	Bahraich	Ganga	Ghagra	MGD-I, Lucknow	136	138	N/A	N/A
65	Khadda	Kushinagar	Ganga	Gandak	Lower Ganga Division-I, Patna	95	96	97.5	23-07-2002
66	Lalganj	Mirzapur	Ganga	Ganga	MGD-III, Varanasi	N/A	N/A	97.65	13-08-2020
67	Lucknow (Hanuman Setu)	Lucknow	Ganga	Gomti	MGD-II, Lucknow	108.5	109.5	110.85	09-11-1971
68	Madhwapur	Shrawasti	Ganga	Rapti	MGD-I, Lucknow	N/A	N/A	126.26	30-07-2019
69	Maholi	Sitapur	Ganga	Gomti	MGD-II, Lucknow	N/A	N/A	132.7	07-08-2019
70	Maigalganj	Hardoi	Ganga	Gomti	MGD-II, Lucknow	N/A	N/A	135.49	24-08-2020
71	Maighat	Jaunpur	Ganga	Gomti	MGD-III, Varanasi	N/A	N/A	74.96	09-01-1980
72	Maniram	Gorakhpur	Ganga	Rohin	MGD-I, Lucknow	77.16	78.16	78.65	19-08-2017
73	Marka	Banda	Ganga	Yamuna	LYD, Agra				
74	Matatila Reservoir	Lalitpur	Ganga	Betwa	LYD, Agra	308.46	310.04	N/A	N/A
75	Mathura (Gokul Barrage)	Mathura	Ganga	Yamuna	UYD, New Delhi	N/A	N/A	166.17	26-09-2010
76	Mathura (Prayag ghat)	Mathura	Ganga	Yamuna	UYD, New Delhi	165.2	166	169.13	09-08-1978
77	Mawi	Muzaffarnagar	Ganga	Yamuna	UYD, New Delhi	231	231.5	232.75	18-06-2013
78	Meja Road	Praygraj	Ganga	Tons	MGD-III, Varanasi	N/A	N/A	87.18	09-07-1978
79	Mirzapur	Mirzapur	Ganga	Ganga	MGD-III, Varanasi	76.724	77.724	80.34	09-09-1978
80	Mohana	Jalaun	Ganga	Betwa	LYD, Agra	121.66	122.66	133.35	09-11-1983
81	Moradabad	Moradabad	Ganga	Ram Ganga	MGD-II, Lucknow	189.6	190.6	192.88	21-09-2010
82	Motipur	Kheri	Ganga	Sarda	MGD-I, Lucknow	N/A	N/A	141.42	29-07-1984
83	Mukhlispur	Sant Kabir Nagar	Ganga	Kwano	MGD-I, Lucknow	77.65	78.65	79.84	27-08-1998
84	Nagina	Bijnor	Ganga	Khoh	MGD-II, Lucknow	N/A	N/A	236.75	08-06-2019
85	Naini	Prayagraj	Ganga	Yamuna	LYD, Agra	83.74	84.74	87.99	09-08-1978
86	Narayanpur	Mirzapur	Ganga	Ganga	MGD-III, Varanasi	N/A	N/A	75.73	25-09-2011
87	Narhan	Chandauli	Ganga	Karamnasa	MGD-III, Varanasi	N/A	N/A	75.73	25-09-2011

S. No.	Station	District	Basin	River	Division	Warning Level	Danger Level	Highest Flood Level (HFL)	HFL Attained Date
88	Narora Barrage	Buland Shahar	Ganga	Ganga	MGD-II, Lucknow	179.07	N/A	180.61	23-09-2010
89	Narora Down Stream	Buland Shahar	Ganga	Ganga	MGD-II, Lucknow	177.65	178.65	180.1	23-09-2010
90	Nautghat	Jhansi	Ganga	Betwa	LYD, Agra	204	205	207.99	09-01-1983
91	Neemsar	Sitapur	Ganga	Gomti	MGD-II, Lucknow	125.8	126.8	129.08	21-09-1958
92	Paliakalan	Kheri	Ganga	Sarda	MGD-I, Lucknow	153.1	154.1	155.32	21-07-2014
93	Phaphamau	Praygraj	Ganga	Ganga	MGD-III, Varanasi	83.734	84.734	87.98	09-08-1978
94	Pilibhit	Pilibhit	Ganga	-	MGD-II, Lucknow	N/A	N/A	181.95	16-08-2020
95	Pratapgarh	Pratapgarh	Ganga	Sai	MGD-III, Varanasi	N/A	N/A	85.23	16-09-1986
96	Pratappur	Praygraj	Ganga	Yamuna	LYD, Agra	N/A	N/A	90.1	09-08-1978
97	Raebareli	Raebareli	Ganga	Sai	MGD-II, Lucknow	101	104	104.81	17-09-1982
98	Rampur	Rampur	Ganga	Kosi	MGD-II, Lucknow	N/A	N/A	188.32	20-09-2010
99	Regauli	Gorakhpur	Ganga	Rapti	MGD-I, Lucknow	79.3	80.3	82.12	16-09-2000
100	Sahijina	Hamirpur	Ganga	Betwa	LYD, Agra	103.54	104.54	108.67	12-09-1983
101	Salempur	Deoria	Ganga	Little Gandak	MGD-I, Lucknow	66.12	67.12	67.55	23-09-1994
102	Sandi	Hardoi	Ganga	Deoha	MGD-II, Lucknow	N/A	N/A	129.35	21-08-2020
103	Sehramau (South)	Shahjhanpur	Ganga	Deoha	MGD-II, Lucknow	N/A	N/A	142.87	20-08-2020
104	Seohara	Bijnor	Ganga	Ram Ganga	MGD-II, Lucknow	N/A	N/A	215.54	22-08-2020
105	Shahjadpur	Kaushambi	Ganga	Ganga	MGD-III, Varanasi	N/A	N/A	90.42	09-09-1978
106	Shahjahanpur	Shahjahanpur	Ganga	Gomti	MGD-II, Lucknow	N/A	N/A	143.75	19-08-2020
107	Shardanagar	Kheri	Ganga	Sarda	MGD-I, Lucknow	134.49	135.49	136.65	N/A
108	Sitamarhi	Sant Ravidas Nagar	Ganga	Ganga	MGD-III, Varanasi	80.2	81.2	81.2	26-08-2013
109	Sitapur	Sitapur	Ganga	Gomti	MGD-II, Lucknow	N/A	N/A	129.38	20-06-2019
110	Sukratal	Muzaffar Nagar	Ganga	Solani	Himalayan Ganga Division, Haridwar	226	226.5	227.4	N/A
111	Sultanpur	Sultanpur	Ganga	Gomti	MGD-III, Varanasi	83.73	84.73	89.45	18-09-1971
112	Todarpur	Hardoi	Ganga	Gomti	MGD-II, Lucknow	N/A	N/A	141.36	04-08-2020
113	Trimohinighat	Maharajganj	Ganga	Rohin	MGD-I, Lucknow	81.44	82.44	85.48	15-08-2017
114	Turtipar	Ballia	Ganga	Ghagra	MGD-I, Lucknow	63.01	64.01	66	28-08-1998
115	Udi	Etawah	Ganga	Chambal	LYD, Agra	N/A	N/A	128.53	18-09-2019
116	Uskabazar	Siddharthnagar	Ganga	Burhi Rapti	MGD-I, Lucknow	82.52	83.52	85.62	21-08-1998
117	Varanasi	Varanasi	Ganga	Ganga	MGD-III, Varanasi	70.262	71.262	73.901	09-09-1978

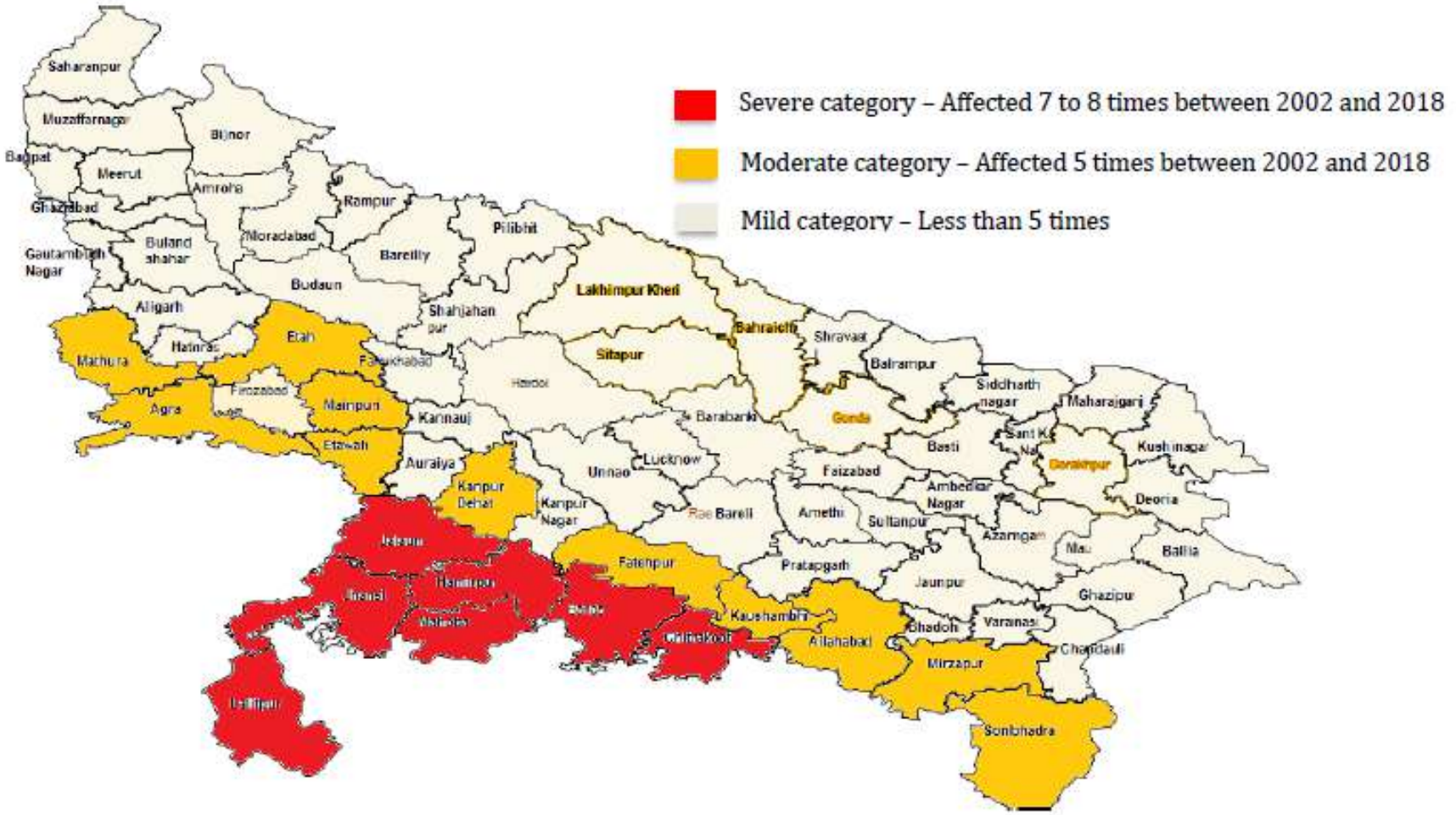
Annexure 6: Hazard Risk Maps of Uttar Pradesh

1. Flood Hazard Map



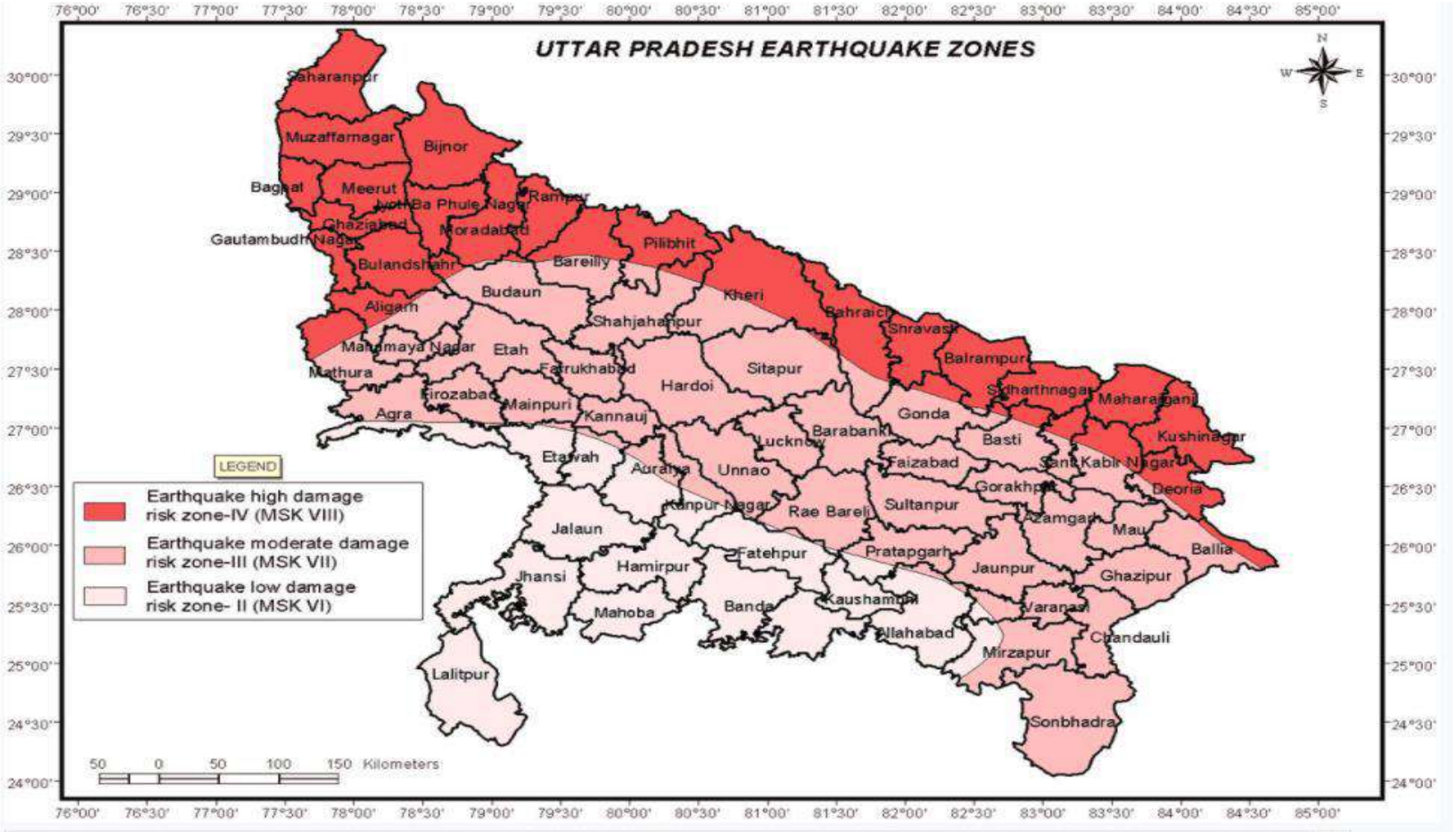
Source: Data provided by Uttar Pradesh State Disaster Management Authority.

2. Drought Hazard Map



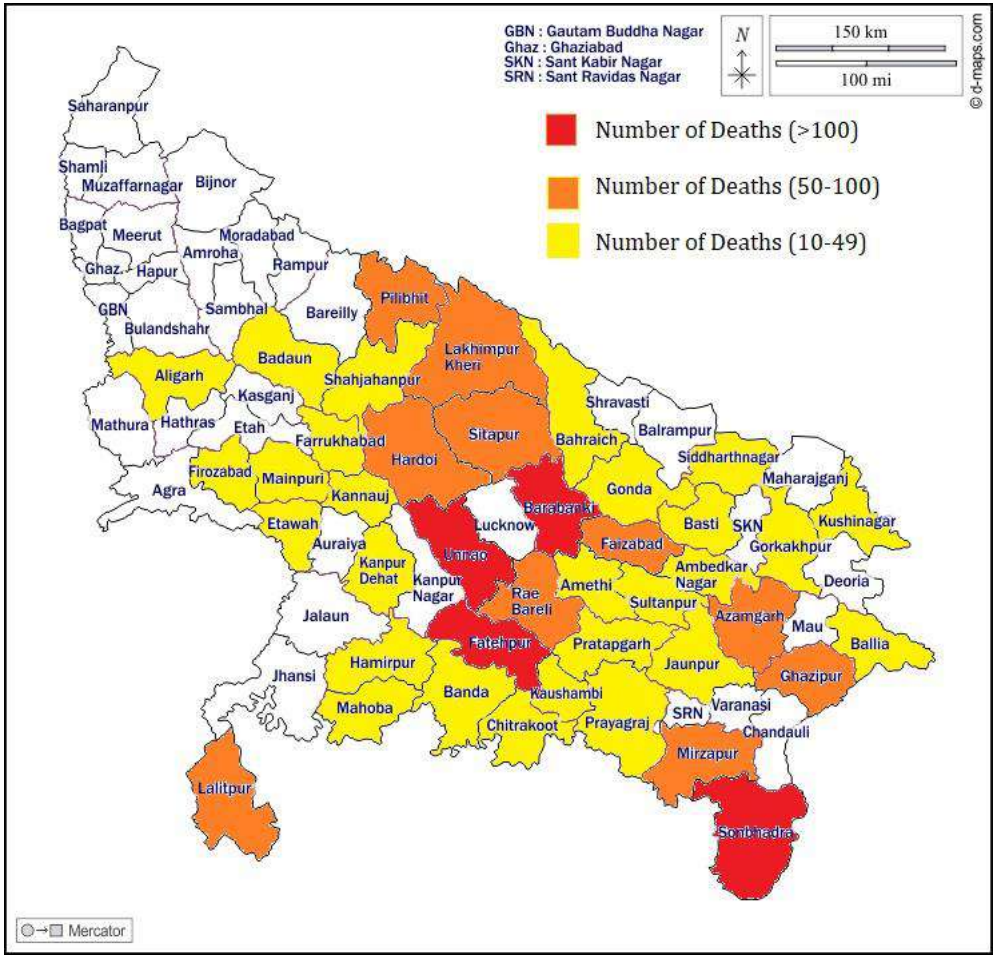
Source: Map based on data from Child Risk and Impact Analysis: UP (2019)

3. Earthquake Hazard Map



Source: BMPTC Vulnerability Atlas of India (2019)

4. Snakebite Hazard Map



Source: Map based on data collected from Relief Commissioner's Office, Government of UP

Annexure 7: Government Order for Mukhya Mantri Krishi Kalyankari Yojana

राज्य कृषि उत्पादन मण्डी परिषद, उ0प्र0,

किसान मण्डी भवन, विभूति खण्ड, गोमती नगर, लखनऊ

दूरभाष सं0 0522–2720387, फैक्स : 2720766

सं० 2664/090/Kanu/18

पत्रांक: विप–3/2743/2018– 538 दिनांक: 26.9. 2018

1. समस्त उप निदेशक(प्रशा0/वि0प0)
   मण्डी परिषद, उ0प्र0।
2. समस्त सचिव,
   कृषि उत्पादन मण्डी समितियाँ,
   उ0प्र0।

विषयः– मण्डी परिषद द्वारा मण्डी समितियों के माध्यम से संचालित कल्याणकारी योजनाओं का नाम "मुख्यमंत्री कृषक कल्याणकारी योजना" रखने एवं उसमें संशोधन किये जाने के सम्बन्ध में।

मण्डी परिषद द्वारा मण्डी समितियो के माध्यम से संचालित कल्याणकारी योजनओं के स्वरूप एवं संबंधित बिन्दुओं पर कतिपय परिवर्तन मा0 संचालक मण्डल की 154वीं बैठक दिनांक 18.01.2018 के निर्णय एवं शासन के अनुमोदन दिनांक 10.09.2018 के माध्यम से किये गये हैं। तदनुसार मण्डी परिषद द्वारा संचालित कल्याणकारी योजनाओं के संबंध में निम्नलिखित प्रविधान एवं संबधित बिन्दु दिनांक 01 अप्रैल, 2018 से प्रभावी होगें :–

1. "मुख्यमंत्री कृषक दुर्घटना सहायता योजना"

उत्तर प्रदेश की अधिसूचित मण्डी क्षेत्रों के कृषकों, खेतिहर मजदूरों तथा मण्डी स्थल में कार्यरत पल्लेदारों, जो कृषि कार्य अथवा कृषि उपकरणों के संचालन में संलग्न है अथवा कृषि संबंधी बिजली उपकरणों अथवा कुँओं की खुदाई अथवा गहराई बढ़ाने हेतु कार्यरत हैं अथवा ट्रैक्टर का उपयोग कृषि उत्पादन की दुलाई/थ्रेसिंग करते समय तथा अन्य कृषि कार्य करते समय दुर्घटनाग्रस्त होने पर और उसके फलस्वरूप शारीरिक क्षति/अपंगता/मृत्यु होने पर आर्थिक सहायता हेतु मण्डी परिषद द्वारा मण्डी समितियों के माध्यम से "समूह कृषक व्यक्तिगत दुर्घटना सहायता योजना संचालित की जा रही है, इस योजना के अन्तर्गत दुर्घटनाग्रस्त व्यक्तियों एवं मृत्यु की दशा में उनके वैध वारिसों को आर्थिक सहायता प्रदान की जाती है। इस योजना को और अधिक उपयोगी, व्यापक एवं पारदर्शी बनाने हेतु वर्तमान में प्रभावी योजना के स्थान पर संशोधित **"मुख्यमंत्री कृषक दुर्घटना सहायता योजना"** के प्राविधान निम्नवत् होंगे–

1–योजना आवरण का कार्यक्षेत्र

इस योजना का कार्यक्षेत्र सम्पूर्ण उत्तर प्रदेश होगा। इस योजना के अन्तर्गत क्षतिपूर्ति हेतु दुर्घटना से मृत्यु अथवा विकलांगता, जिसमें अंग से हानि शामिल है (शरीर से अलग होने पर) एवं ऑखों की क्षति, कृषि एवं कृषि से सम्बन्धित कार्य करते समय हुए दुर्घटनाग्रस्त होने पर इस योजना की परिधि के अन्तर्गत आयेंगे। उत्तर प्रदेश के समस्त कृषक, खेतिहर मजदूर एवं मण्डी पल्लेदार जो केवल कृषि अथवा कृषि से सम्बन्धित कार्य में संलग्न हो, इस योजना के अन्तर्गत आच्छादित होंगे। यदि कोई व्यक्ति या मजदूर किसी ठेकेदार अथवा व्यवसायिक प्रतिष्ठान/निमित्त अथवा स्वयं एक व्यवसायी की भाँति कोई कार्य कर रहा है, तो वह इस योजना के अन्तर्गत संरक्षित नहीं होगा और उसको कोई आर्थिक सहायता नहीं दी जायेगी।

2–शारीरिक दुर्घटना का तात्पर्य

इस योजना के अन्तर्गत सहायता हेतु व्यक्तिगत/शारीरिक दुर्घटना का अर्थ वाह्य हिंसक एवं दृष्टिगत कारणों से जिसके द्वारा दुर्घटना घटित हुई तथा वह स्पष्ट रूप से शरीर पर दृष्टिगोचर हो रही हो, जिसके फलस्वरूप प्रत्यक्ष सम्पूर्ण रूप से मृत्यु अथवा शारीरिक क्षति का कारण हो तथा वह बाह्य दुर्घटना कृषि तथा कृषि सम्बन्धी कार्य करते समय ही हुई हो, तभी स्वीकार करने के उपयुक्त होगी।

3–योजना की शर्तें व नियम–

(1) योजना के अन्तर्गत सहायता प्राप्ति हेतु दावा स्वीकार करने के लिए पात्रता की आयु सीमा केवल 18 से 70 वर्ष के मध्य ही होगी।

(2) यह योजना केवल उत्तर प्रदेश के निवासी कृषकों, खेतिहर या मण्डी मजदूरों पर ही लागू होगी। दुर्घटना केवल उत्तर प्रदेश की भौगोलिक सीमा में ही घटित हुई हो, परन्तु यदि किसी दूसरे प्रान्त का कृषक/ मजदूर 02 वर्ष से उत्तर प्रदेश का स्थायी निवासी है, इसकी पुष्टि तहसीलदार द्वारा की गयी है तो वह इस योजना के अन्तर्गत संरक्षित माना जायेगा।

4– योजना के अन्तर्गत निम्न प्रकार की दुर्घटनाएं आच्छादित होंगी :–

(1) कृषि उपकरणों एवं कीट–रोग नाशक रसायनों के प्रयोग के समय घटित दुर्घटनाएं ।

(2) बैल/भैंसा गाड़ी, ट्रैक्टर –ट्राली व अन्य वाहनों का उपयोग कृषि कार्य व ढुलाई आदि के समय घटित होने वाली दुर्घटनाएं ।

(3) कुओं/नलकूपों की खुदाई अथवा उनकी गहराई बढ़ाते समय घटित दुर्घटनाएं ।

(4) गाय/बैल आदि पशुओं द्वारा सींग मारने से अथवा विषैले जन्तुओं अथवा हिंसक जानवरों के काटने/हमला करने से घटित दुर्घटनाएं।

(5) कृषि कार्य करते समय घटित होने वाली उपरोक्त व अन्य दुर्घटनाएं बाह्य हिंसक दृष्टिगत कारणों के द्वारा हुई समझी जायेंगी और वह इस योजना के अन्तर्गत संरक्षित मानी जायेंगी।

5– किसी भी दुर्घटना में किसी अंग के विच्छेद के होने की दशा में कम से कम निकटतम प्राथमिक स्वास्थ्य केन्द्र के चिकित्सक से अथवा किसी भी सरकारी अस्पताल से चिकित्सा प्रमाण–पत्र प्राप्त करना आवश्यक है। क्षतिग्रस्त अंग का फोटोग्राफ एवं पूर्ण विवरण सहित आवेदन–पत्र, आवेदक के निकटतम दो रिश्तेदारों अथवा दो प्रतिष्ठित व्यक्तियों (ग्राम प्रधान/पंचायत सदस्य आदि) द्वारा सत्यापित होना चाहिए। मृत्यु होने पर शव–विच्छेदन का प्रमाण–पत्र आवश्यक है।

6– योजनान्तर्गत कृषि कार्य करते समय सर्पदंश अथवा विषैले जन्तुओं के काटने के फलस्वरूप हुई मृत्यु के सम्बन्ध में शव विच्छेदन (पोस्टमार्टम) रिपोर्ट के स्थान पर पंचनामा अथवा ग्राम प्रधान का प्रमाण–पत्र प्रस्तुत किया जाना अनिवार्य होगा।

7– जान बूझकर शरीर को पहुँचाई गयी चोट, आत्महत्या/नशे की हालत में हुई दुर्घटना, किसी भी हिंसक कार्य में भाग लेने पर हुई शारीरिक क्षति अथवा मृत्यु या असंवैधानिक/असामाजिक / उग्रवाद/आतंकवाद या दंगा–फसाद अथवा बाढ़/भूकम्प/युद्ध/आणविक/ रेडिएशन (विकरण) आदि घटनाओं से अथवा शत्रुता द्वारा की गयी मार–पीट/झगड़ा/कानूनी कार्यवाही हेतु किसी न्यायिक दण्डाधिकारी द्वारा विधि के अन्तर्गत दी गयी सजा द्वारा मृत्यु अथवा शारीरिक क्षति अथवा स्वाभाविक मृत्यु इस योजना के अन्तर्गत संरक्षित नहीं है, उनकी क्षतिपूर्ति किसी भी दशा में नहीं की जा सकती है।

उपर्युक्त शर्तों के अन्तर्गत उपयुक्त पात्र, जिनको उपरोक्त वर्णित दुर्घटनाओं द्वारा मृत्यु अथवा शारीरिक क्षति हुई हो, तो निम्न विवरणिका की सीमा के अनुसार आर्थिक सहायता दी जायेगी:–

क्र0सं0	दुर्घटना का प्रकार	देय सहायता धनराशि
1	दुर्घटना द्वारा मृत्यु होने पर	रू0 2,00,000/–
2	दुर्घटना द्वारा दोनों पैर, दोनों हाथ या दोनों आँखे या उपरोक्त में से कोई दो की क्षति होने पर	रू0 75,000/–
3	दुर्घटना द्वारा एक हाथ, एक पैर अथवा एक आँख की क्षति होने पर	रू0 40,000/–

4	दुर्घटना द्वारा एक हाथ की एक साथ चार अँगुलियों क	रू0 30,000/–
5	दुर्घटना द्वारा एक हाथ की एक साथ तीन अँगुली की क्षति होने पर	रू0 25,000/–
6	अँगूठे की क्षति होने पर	रू0 20,000/–
7	दुर्घटना द्वारा एक हाथ की दो अँगुलियों की क्षति होने पर	रू0 15,000/–
8	किसी एक अँगुली की क्षति होने पर	रू0 5,000/–

8–क्षतिपूर्ति हेतु दावों की प्रमाणिकता एवं नियंत्रण

इस योजना के अन्तर्गत मण्डी समिति का दायित्व है कि स्वार्थी व्यक्ति/तत्व इस सुविधा का दुरूपयोग न कर पाये, इस हेतु समिति का सचिव सम्बन्धित पीड़ित के सम्बन्ध में अलग से जॉच कर यह पुष्टि करेंगें कि आवेदनकर्ता द्वारा उसकी शारीरिक क्षति अथवा मृतक के बालिग बच्चे/वैध उत्तराधिकारी द्वारा क्षतिपूर्ति किया गया आवेदन पत्र देय मानदण्डों/प्राविधानों के अनुसार प्रमाणित है तथा हर प्रकार से सही है। मण्डी समिति को छल–कपट, धोखा आदि की जानकारी किसी स्तर पर प्राप्त होती है तो इसकी पुष्टि होने पर दी गयी धनराशि ब्याज सहित दोषी व्यक्तियों/लाभार्थियों से वसूल कर ली जायेगी।

9–दावा निस्पादन/निस्तारण हेतु प्रकिया

(1)– दुर्घटना में प्रभावित कृषक अथवा मजदूर द्वारा 90 दिन के अन्दर दुर्घटना की सूचना क्षेत्र के मण्डी समिति के सचिव अथवा उप जिलाधिकारी को देनी होगी। विशेष परिस्थितियों में समय सीमा सचिव की संस्तुति पर सभापति की अनुमति से 90 दिन तक और बढाया जा सकता है। दुर्घटना का संज्ञान होने पर सम्बन्धित मण्डी समिति के सचिव स्वयं अथवा अपने अधीनस्थ मण्डी सहायक से अन्यून किसी कर्मचारी से अनिवार्य रूप से स्थलीय जॉच करायेंगे और लाभार्थी के दावा प्रपत्र को तैयार कराने में सहयोग करेंगे।

(2)– दुर्घटनाग्रस्त व्यक्ति की मृत्यु हो जाने की स्थिति में उसके वैध प्रतिनिधि अथवा उत्तराधिकारी के अतिरिक्त दावा प्रपत्र पर उसके निकटस्थ दो रिश्तेदारों अथवा दो प्रतिष्ठित व्यक्तियों के गवाह के रूप में सत्यापन हेतु हस्ताक्षर होने चाहिए। प्रार्थना–पत्र ग्राम प्रधान अथवा पंचायत के दो सदस्यों द्वारा सत्यापित होने चाहिए। नगर महापालिका अथवा कस्बा क्षेत्र/टाउन एरिया होने की स्थिति में आवेदन पत्र की सभी प्रविष्टियां/हस्ताक्षर/ अगूँठे कटे हाथों के निशान, वहाँ के प्रशासक/अध्यक्ष (चेयरमैन) द्वारा प्रमाणित/ सत्यापित होना चाहिए।

(3)– दुर्घटना द्वारा मृत्यु की दशा में प्राथमिक चिकित्सा केन्द्र/जिला अस्पताल के चिकित्सक द्वारा मृत्यु प्रमाण पत्र/शव विच्छेदन रिपोर्ट, प्रथम सूचना रिपोर्ट (एफ0आई0आर0) आवश्यक है।

(4)– दुर्घटनाग्रस्त स्थिति में चिकित्सा प्रमाण पत्र कटे या अलग हुए तथा क्षतिग्रस्त अंगों के फोटोग्राफ एवं निकटस्थ दो रिश्तेदारों अथवा दो प्रतिष्ठित व्यक्तियों द्वारा सत्यापित प्रमाण पत्र संलग्न करना अनिवार्य है।

(5)– दावा आवेदन पत्र सम्पूर्ण रूप से भरा होना चाहिए मण्डी समिति द्वारा दुर्घटना की पुष्टि की जानी आवश्यक है।

(6)– दावा आवेदन पत्र पर आवेदक की तरफ से हस्ताक्षर/बॉये/दॅये हाथ अंगूठे के निशान सहित दावा प्रपत्र भरा होना चाहिए। यदि बॉया अँगूठा कटा हो, तो दांये अँगूठे के निशान और यदि दोनों अँगूठे कटे हों, तो कियाशील हाथ की अँगुलियों के निशान लगाये जा सकते हैं। यदि दोनों हाथ कट गये हों, तो कटे हुए हाथ के आगे के भाग का निशान लगाना होगा। यह महिलाओं तथा पुरूषों दोनों के लिए मान्य होगा।

(7)– योजना में परिभाषित दुर्घटना का संज्ञान होने पर सम्बन्धित मण्डी समिति सचिव स्वयं अथवा अपने अधीनस्थ मण्डी सहायक से अन्यून किसी कर्मचारी से अनिवार्य रूप से स्थलीय जॉच करायेंगे और लाभार्थी के दावा आवेदन पत्र को तैयार कराने में सहयोग करेंगे। दावा यथा सम्भव एक माह में स्वीकृत किया जावेगा, लेकिन विशेष परिस्थितियों में उक्त समयावधि सचिव की संस्तुति पर सभापति द्वारा एक माह तक बढायी जा सकती है।

10– (1) सचिव, मण्डी समिति द्वारा जॉचोपरान्त सम्पूर्ण दावा आवेदन पत्र अपनी संस्तुति सहित भुगतान हेतु सभापति के माध्यम से सम्बन्धित उपजिलाधिकारी को अनुमोदन/स्वीकृति हेतु भेजा जायेगा तथा दावा आवेदन पत्र यथा सम्भव

एक माह में स्वीकृत किया जायेगा, लेकिन विशेष परिस्थितियों में स्वीकर्ता अधिकारी द्वारा उक्त समयावधि बढ़ाई जा सकती है। दावा आवेदन पत्र स्वीकृत करने के उपरान्त सभापति द्वारा लाभार्थियों को रेखांकित चेक अथवा ड्राफ्ट द्वारा भुगतान कराया जायेगा। इस योजना हेतु प्राप्त धनराशि का उपयोग लाभार्थियों की सहायता किये जाने के अतिरिक्त अन्य किसी प्रयोजन में नहीं किया जायेगा।

(2) दावों का भुगतान विकलांग या मृतक व्यक्ति के कानूनी उत्तराधिकारी को मण्डी समिति की संस्तुति के आधार पर किया जायेगा। मृत्यु की स्थिति में मण्डी समिति मृतक के वैध उत्तराधिकारी के नाम 50 प्रतिशत धनराशि अर्थात रू0 1.00 लाख की धनराशि रेखांकित चेक अथवा बैंक ड्राफ्ट द्वारा एवं शेष 50 प्रतिशत धनराशि अर्थात रू0 1.00 लाख तीन वर्षीय बैंक सावधि जमा (एफ.डी.आर.) के रूप में दिया जायेगा।

2– "मुख्यमंत्री खेत–खलिहान अग्निकाण्ड दुर्घटना सहायता योजना"

उत्तर प्रदेश के अधिसूचित मण्डी क्षेत्रों में स्थित खलिहानों में मड़ाई हेतु रखी फसल/ उपज/अवशेष अंश एवं खड़ी फसल की अग्नि दुर्घटना से हुई क्षति हेतु वित्तीय सहायता, मण्डी परिषद द्वारा मण्डी समितियों के माध्यम से योजना संचालित की जा रही है। इस सहायता योजना के अन्तर्गत प्रभावी प्राविधानों एवं नियमों के अनुसार वित्तीय सहायता प्रदान की जाती है। इस योजना को अधिक उपयोगी, व्यापक एवं पारदर्शी बनाने हेतु वर्तमान में प्रभावी योजना के स्थान पर संशोधित "**मुख्यमंत्री खेत–खलिहान अग्निकाण्ड दुर्घटना सहायता योजना**" के प्राविधान निम्नवत् होंगे :–

1– योजना का क्षेत्र एवं कार्यक्षेत्र

इस योजना का कार्य क्षेत्र सम्पूर्ण उत्तर प्रदेश होगा। इस योजना में उत्तर प्रदेश शासन द्वारा अधिसूचित समस्त मण्डी समितियों के क्षेत्रान्तर्गत खलिहान में एकत्रित फसल एवं खेत में खड़ी फसल में अग्निकाण्ड दुर्घटना में हुई क्षति आच्छादित होगी।

2– योजना में देय सहायता धनराशि (अधिकतम् दायित्व)

कृषक के सम्बन्ध में नीचे दिये गये विवरण की सीमा के आधार पर उनको देय सहायता धनराशि का विवरण निम्न प्रकार है:–

क्र0सं0	अग्निकाण्ड में क्षतिग्रस्त फसल/क्षेत्रफल	देय सहायता धनराशि
(अ)	एक हेक्टेयर अर्थात 2.5 एकड़ तक क्षतिग्रस्त होने की दशा में	अधिकतम् रू030,000/– अथवा वास्तविक ऑकलित क्षति जो भी कम हो।
(ब)	एक हेक्टेयर से 2 हेक्टेयर अर्थात् 2.5 एकड़ से 5 एकड तक क्षतिग्रस्त होने की दशा में	अधिकतम् रू0 40,000/– अथवा वास्तविक ऑकलित क्षति जो भी कम हो।
(स)	02 हेक्टेयर या 05 एकड़ से अधिक क्षतिग्रस्त होने की दशा में	अधिकतम् रू0 50,000/– अथवा वास्तविक ऑकलित क्षति जो भी कम हो।

किसी एक स्थान में घटित अग्निकाण्ड दुर्घटना में सामूहिक क्षति की धनराशि रू0 2.00 लाख (दो लाख) अथवा अधिक आंकलित हो रही हो, तो इन प्रार्थना–पत्रों के निस्तारण हेतु निर्णय जनपद के जिलाधिकारी द्वारा लिया जायेगा।

3– अग्नि दुर्घटना का तात्पर्य

अग्नि दुघर्टना का तात्पर्य यह है कि बाह्य दृष्टिगत कारणों से अग्निकाण्ड हुआ हो अथवा तड़ित (लाईटिनिंग) प्राकृतिक बिजली गिरने से आग लगी हो। इसी दशा में सहायता धनराशि दी जायेगी। किसी सार्वजनिक दंगे अथवा सार्वजनिक प्राधिकरण के आदेश पर फसल अथवा उपज आदि जलाई गयी हो या स्वयं कृषक के द्वारा दुर्भावना से जलाई गयी हो, तो वह इस योजना की परिधि में आच्छादित नहीं होगी।

4– क्षतिपूर्ति के आधार एवं निस्पादन प्रकिया

(1) किसी कृषक की खलिहान में रखी फसल/उपज/अवशेष अंश अथवा खड़ी फसल की प्रस्तर–3 में उल्लिखित दशा मे अग्नि दुर्घटना द्वारा क्षति हो गयी है, उसी दशा में सहायता दी जायेगी।

(2) खलिहान में रखी फसल/उपज की अग्निकाण्ड में हुई क्षति हेतु सहायता उपज पर वास्तविक स्वामित्व रखने वाले कृषकों को दी जायेगी। यदि स्वामित्व का कोई विवाद न्यायालय मे विचाराधीन है अथवा संदिग्धतापूर्ण है, तो उसका निर्धारण मण्डी समिति के सचिव को करना होगा अथवा न्यायालय के निर्णय पर निर्भर होगा।

(3) खड़ी फसल अथवा खलिहान में रखी फसल की क्षति के लिए सम्बन्धित कृषक की जोत की जितनी फसल अग्निकाण्ड मे क्षतिग्रस्त हुई है, उसी भूमि के क्षेत्रफल को आधार मानकर देय सहायता धनराशि का निर्धारण किया जायेगा।

(4) मण्डी समिति को दावा निरस्त करने का अधिकार सुरक्षित है।

5–दावा निपटान (निष्पादन/निस्तारण) हेतु प्रकिया

(1)– अग्नि दुर्घटना की सूचना प्रभावित कृषक/उत्पादक को निर्धारित प्रारूप पर आवेदन 90 दिन के अन्दर क्षेत्र के मण्डी समिति के सचिव अथवा उप जिलाधिकारी को देनी होगी। विशेष परिस्थितियों में सचिव की संस्तुति पर सभापति की अनुमति पर 90 दिन अतिरिक्त समय सीमा बढाई जा सकेगी।

(2)– आवेदन पत्र की जॉच मण्डी समिति के सचिव स्वयं अथवा अपने अधीनस्थ मण्डी सहायक से अन्यून किसी कर्मचारी से स्थलीय जॉच अनिवार्य रूप से करायेंगे तथा जॉच कार्य पूर्ण कर सम्बन्धित मण्डी समिति क्षेत्र के उप जिलाधिकारी को दावा आवेदन पत्र स्वीकृति हेतु प्रस्तुत किया जायेगा।

(3)– मण्डी समिति कार्यालय द्वारा आवेदन पत्र का विधिवत परीक्षणोपरान्त सम्बन्धित उप जिलाधिकारी से स्वीकृत उपरान्त लाभार्थी को भुगतान रेखांकित चेक द्वारा सचिव, मण्डी समिति के माध्यम से किया जायेगा।

(4)–योजना के अन्तर्गत आवेदन पत्र प्राप्त होने के पश्चात समस्त कार्यवाही प्राथमिकता के आधार पर करके दावा निस्तारण एक सप्ताह में कराया जायेगा। विशेष परिस्थितियों में सचिव की संस्तुति पर सभापति द्वारा दो सप्ताह तक का अतिरिक्त समय बढ़ाया जा सकता है।"

3–"मुख्यमंत्री कृषक उपहार योजना "

कृषि उत्पादन मण्डी अधिनियम, 1964 की धारा–19 के अन्तर्गत मण्डी समिति की निधि एवं उसका उपयोग की व्यवस्था तथा अधिनियम की धारा–26 एम के अन्तर्गत राज्य सरकार द्वारा नियत की जाने वाली योजनाओं के प्राविधानान्तर्गत वर्तमान में मण्डी आवक किसान उपहार योजना संचालित है। इस योजना के अन्तर्गत कृषक उत्पादकों की सहभागिता बढ़ाये जाने के लिए नवीन मण्डी स्थलों में कृषि उपज का विक्रय करने की दशा में प्रवेश पर्ची एवं प्रपत्र संख्या–6 के आधार पर कृषकों को रू0 5,000.00 मूल्य पर ईनामी कूपन निर्गत कर मासिक, त्रैमासिक एव छःमाही ड्रा द्वारा उपहार दिये जाने की व्यवस्था लागू है।

नवीन मण्डी स्थलों तक ही इस योजना को लागू किये जाने में यह देखा गया है कि जिन कृषकों द्वारा नवीन मण्डी स्थल के बाहर मण्डी क्षेत्र में व्यापारियों अथवा सरकारी क्रय केन्द्रों पर कृषि उत्पाद विक्रय करते है। ऐसे बड़ी संख्या में कृषक योजना के लाभ से वंचित रह जाते हैं इसलिए अधिकाधिक कृषकों को योजनान्तर्गत जोड़े जाने के उद्देश्य से मण्डी आवक कृषक उपहार योजना का क्षेत्र सम्पूर्ण मण्डी क्षेत्र में निर्दिष्ट कृषि उत्पाद बिक्री करने वाले कृषकों को सम्मिलित किया जाना औचित्यपूर्ण है। कृषकों को उपहार देने वाली योजना के अन्तर्गत मासिक ड्रा की व्यवस्था को समाप्त करते हुए त्रैमासिक व छःमाही ड्रा की व्यवस्था को बनाये रखते हुए वर्तमान में प्रभावी योजना के स्थान पर "मुख्यमंत्री कृषक उपहार योजना" के प्राविधान निम्नवत् होगें:–

1–योजना का उद्देश्य

कृषि विपणन कार्य में कृषक उत्पादकों की सहभागिता बढ़ाने, नवीन मण्डी स्थलों अथवा मण्डी क्षेत्र के क्रय केन्द्रों पर अपनी उपज लाकर बेचने हेतु उन्हें अभिप्रेरित करना तथा उनकी रूचि प्रवेश पर्ची एवं प्रपत्र (विक्रेता बाउचर) प्राप्त करने की ओर बढ़ाने के उद्देश्य से इस योजना का संचालन मण्डी परिषद द्वारा समितियों के माध्यम से किया जाएगा।

2–योजना हेतु पात्रता

(1) प्रदेश के ऐसे समस्त कृषक–उत्पादक जो अपनी स्वयं की भूमि पर कृषि कार्य करते हुए स्वयं द्वारा उत्पादित की उपज को नवीन मण्डी स्थल अथवा मण्डी क्षेत्र में बेचते हैं।

(2) ऐसे उत्पादक विक्रेता जो वैधानिक रूप से जमीन विधिवत् पट्टे पर लेकर कृषि कार्य करते है तथा अपने उत्पाद को नवीन मण्डी स्थल अथवा मण्डी क्षेत्र में लाकर बेचते है।

(3) योजना का लाभ उन्हीं व्यक्तियों को दिया जायेगा जो उत्तर प्रदेश की किसी भी मण्डी क्षेत्र के स्थाई निवासी होगें, परन्तु प्रश्नगत योजना का लाभ किसानों को ही प्राप्त हो इस हेतु किसान बही/अन्य प्रासंगिक अभिलेखों की अनिवार्यता होगी।

(4) योजना के तहत केवल उन्हीं कृषक–उत्पादकों को लाभ अनुमन्य होगा जिनके द्वारा एक ही त्रैमास में /पूरे वर्ष की प्रत्येक छःमाही अवधि में किसी एक मण्डी स्थल अथवा मण्डी क्षेत्र में कम से कम रू0 5000/– के मूल्य की निर्दिष्ट कृषि उत्पादों की बिक्री की गयी हो।

3–योजना संचालन की प्रकिया

(1) सर्वप्रथम कृषक उत्पादक द्वारा नवीन मण्डी स्थल अथवा मण्डी क्षेत्र/सरकारी क्रय केन्द्रों पर बेचे गये कृषि उत्पादों से सम्बन्धित प्रवेश पर्ची, प्रपत्र संख्या–6/भुगतान स्लिप की मूलप्रतियां सम्बन्धित मण्डी समिति कार्यालय में प्रस्तुत करके उपहार कूपन प्राप्त किये जायेंगे। प्रत्येक रू0 5000/– के गुणांक पर एक कूपन देय होगा।

(2) सम्भाग के उप निदेशक (प्रशासन/विपणन) द्वारा प्रत्येक त्रैमास की समाप्ति पर त्रैमास की अवधि में सम्भाग की मण्डियों के स्तर से निर्गत कूपनों के आधार पर निर्धारित प्रकिया के अनुरूप उपहार हेतु त्रैमासिक ड्रा निकलवाये जायेंगे।

(3) सम्भाग के उप निदेशक (प्रशासन/विपणन) द्वारा प्रत्येक छःमाही की समाप्ति पर छःमाही अवधि में सम्भाग की मण्डियों के स्तर से निर्गत कूपनों के आधार पर निर्धारित प्रकिया के अनुरूप उपहार हेतु छःमाही बम्पर ड्रा निकलवाये जायेंगे।

(4) प्रत्येक सम्भाग स्तर पर निम्न अधिकारियों की समिति द्वारा ड्रा निकाले जायेंगे:–

(1) – मण्डलायुक्त अथवा उनके द्वारा नामित प्रतिनिधि – अध्यक्ष
(2) – सम्भाग के उप निदेशक (प्रशासन/विपणन), मण्डी परिषद– सदस्य/सचिव
(3) – मण्डल मुख्यालय पर तैनात अपर जिलाधिकारी वित्त एवं राजस्व– सदस्य
(4) – सम्भागीय मुख्यालय पर तैनात मण्डी सचिव– सदस्य
(5) – सम्भागीय लेखा एवं सम्प्रेक्षाधिकारी,मण्डी परिषद– सदस्य

(5) उपहार ड्रा निकालने की तिथि के 30 दिन के भीतर विजेताओं को अपने कूपन के साथ उपहार हेतु दावा प्रस्तुत करना होगा।

(6) उपहार

(अ) त्रैमासिक ड्रा –

प्रत्येक त्रैमास की समाप्ति पर प्रत्येक सम्भाग में सम्पूर्ण त्रैमास के दौरान सम्भाग की मण्डियों के स्तर से निर्गत कूपन के आधार पर त्रैमासिक ड्रा वर्ष में चार बार निकाला जायेगा, जिसमें उपहार स्वरूप चयनित कृषकों को निम्न प्रकार उपहार दिये जायेंगे:–

उपहार	उपहार की वस्तु	प्रत्येक सम्भाग में उपहारों की संख्या
प्रथम	थ्रेशिंग सेट(8 हार्सपावर किर्लोस्कर इंजन) अथवा रोटावेटर	दो
द्वितीय	पावर विनोइंग फैन	तीन
तृतीय	पावर स्प्रेयर	तीन
चतुर्थ	मिक्सर ग्राइंडर	तीन

(ब) छमाही बम्पर ड्रा –

प्रत्येक छःमाही की समाप्ति पर प्रत्येक सम्भाग में सम्पूर्ण छःमाही के दौरान सम्भाग की मण्डियों के स्तर से निर्गत कूपन के आधार पर बम्पर ड्रा वर्ष में दो बार निकाला जायेगा, जिसमे उपहार स्वरूप चयनित कृषकों को निम्न प्रकार उपहार दिये जायेंगे:–

उपहार	उपहार की वस्तु	प्रत्येक सम्भाग में उपहारों की संख्या
प्रथम	ट्रैक्टर 35 हार्स पावर	दो
द्वितीय	पावर टिलर (सीटयुक्त 900 सी0सी0) (11के0वी0)(13.7 एच पी)	दो
तृतीय	पावर ड्रिवेन हार्वेस्टर/रीपर (4.00 हार्सपावर डीजल इंजन सहित)	तीन
चतुर्थ	सोलर पावर पैक सयंत्र	दस

(7) उपहार वितरण हेतु त्रैमास इस प्रकार होंगे:–

प्रथम त्रैमास	द्वितीय त्रैमास	तृतीय त्रैमास	चतुर्थ त्रैमास
अप्रैल से जून	जुलाई से सितम्बर	अक्टूबर से दिसम्बर	जनवरी से मार्च

(8) छःमाही बम्पर ड्रा प्रत्येक वर्ष के लिए दो बार निकाले जायेंगे। प्रथम छःमाही अवधि माह अप्रैल से सितम्बर तक एवं द्वितीय छःमाही अवधि माह अक्टूबर से मार्च तक होगी।

(9) प्रत्येक त्रैमास की समाप्ति पर उसके अगले मास में उपहार हेतु ड्रा निकाला जायेगा। द्वितीय त्रैमास से सम्बन्धित ड्रा के साथ प्रथम छःमाही बम्पर ड्रा निकाला जायेगा। इसी प्रकार चतुर्थ त्रैमास से सम्बन्धित ड्रा के साथ द्वितीय छःमाही बम्पर ड्रा भी निकाला जायेगा।

(10) सम्भाग स्तर पर त्रैमासिक ड्रा के लिए कूपन प्राप्त करने वाले कृषकों की न्यूनतम संख्या निम्नवत् होगी:–

क्रसं0	मण्डी समिति की श्रेणी	त्रैमास में कूपन प्राप्त करने वाले कृषकों की संख्या
1	'क' विशिष्ट श्रेणी	50
2	'क' श्रेणी	
3	'ख' श्रेणी	25
4	'ग' श्रेणी	

(11) त्रैमासिक एवं छःमाही बम्पर ड्रा, कार्यक्रमों का व्यापक प्रचार–प्रसार कर किसानों की सहभागिता व जन प्रतिनिधियों की उपस्थिति में कराया जायेगा।

(12) योजना के अन्तर्गत ड्रा के विजेता कृषकों को उपहार का वितरण कृषक के नाम व पता एवं पहचान की पुष्टि करके ही किया जायेगा। पहचान की पुष्टि करना सम्बन्धित सचिव, मण्डी समिति का दायित्व होगा।

(13) त्रैमासिक एवं छःमाही ड्रा के उपहारों का क्रय प्रभावी क्रयदारी नियमों के अनुसार किया जायेगा।

(14) प्रत्येक त्रैमासिक ड्रा एवं छःमाही बम्पर ड्रा के विजेता कृषकों/ विक्रेताओं का पूर्ण विवरण पंजिका में स्थायी रूप

से अनुरक्षित किया जायेगा।

4–"मुख्यमंत्री कृषक छात्रवृत्ति योजना"

उ0प्र0 कृषि उत्पादन मण्डी अधिनियम की धारा 19 (11)(क) में मण्डी परिषद से अनुमोदित संस्थाओं, मान्यता प्राप्त शिक्षण संस्थाओं को, अपनी वार्षिक आय का अधिकतम दो प्रतिशत तक वित्तीय सहायता प्रदान करने की व्यवस्था है। इस प्राविधान के अन्तर्गत कृषकों एवं खेतिहर मजदूरों के पुत्र व पुत्रियों एवं उन पर पूर्ण रूप से आश्रितों को छात्रवृत्ति दिये जाने की योजना लागू है। यह छात्रवृत्ति प्रदेश के मान्यता प्राप्त कृषि विश्वविद्यालयों/कृषि संस्थानों एवं कृषि महाविद्यालयों में कृषि की उच्च शिक्षा– स्नातक, स्नातकोत्तर छात्रों एवं शोधार्थियों को दी जा रही है।

इस योजना को अधिक उपयोगी, व्यापक एवं पारदर्शी बनाने हेतु वर्तमान में प्रभावी योजना के स्थान पर संशोधित "**मुख्यमंत्री कृषक छात्रवृत्ति योजना**" के प्राविधान निम्नवत् होंगे:–

1–योजना का उद्देश्य –

उत्तर प्रदेश के सरकारी एवं सरकारी सहायता प्राप्त कृषि विश्वविद्यालयों, कृषि संस्थानों एवं कृषि महाविद्यालयों में अध्ययनरत कृषि/होम साइंस स्नातक एवं स्नातकोत्तर में अध्ययनरत छात्र व छात्राओं को मण्डी परिषद द्वारा छात्र वृत्तियाँ दी जायेगी। प्रत्येक कृषि विश्वविद्यालय/कृषि संस्थान एवं कृषि महाविद्यालय में अध्ययनरत स्नातक एवं स्नातकोत्तर छात्रों के लिए छात्रवृत्ति योजना में छात्र/छात्राओं की संख्या, छात्रवृत्ति की धनराशि एवं योजना की शर्त एवं नियम इस प्रकार है:–

स्नातक एवं स्नातकोत्तर छात्रवृत्ति हेतु छात्र/छात्राओं की संख्या एवं छात्रवृत्ति की धनराशि :–

क्रमांक	शिक्षण संस्था का नाम	पाठ्यक्रम स्तर	छात्र/ छात्राओं की संख्या	छात्रवृत्ति की दर (रू0 प्रति माह)
1	कृषि विश्वविद्यालय एवं कृषि संस्थान	कृषि स्नातक	25	3000/–
		होम साइंस स्नातक	06	3000/–
		कृषि स्नातकोत्तर	10	3000/–
		होम साइंस स्नातकोत्तर	04	3000/–
2	कृषि महा विद्यालय	कृषि स्नातक	10	3000/–
		कृषि स्नातकोत्तर	05	3000/–

कृषि स्नातक एवं कृषि स्नातकोत्तर पाठ्यक्रमों के अन्तर्गत कृषि एवं उससे सम्बन्धित विधाओं यथा–उद्यान, वानिकी, पशुपालन आदि के छात्र/छात्राओं को सम्मिलित करते हुए छात्रवृत्तियाँ प्रदान की जायेंगी।

2–छात्रवृत्ति के लिए पात्रता :–

(1) छात्रवृत्ति हेतु छात्र/छात्राओं का उत्तर प्रदेश का निवासी होना अनिवार्य है।

(2) कृषकों एवं खेतिहर मजदूरों के पुत्र व पुत्रियों तथा उन पर पूर्णरूप से आश्रितों को छात्रवृत्ति प्रदान की जायेगी। कृषक का आशय ऐसे व्यक्ति से है, जिसके नाम भू–अभिलेख में कृषि भूमि आवेदन के दिनांक को दर्ज हो।

(3) छात्रवृत्ति का आधार मेरिट होगा। स्नातक छात्र/छात्राओं हेतु यू0पी0 बोर्ड से इण्टरमीडियट की उत्तीर्ण परीक्षा में न्यूनतम 70 प्रतिशत प्राप्तांक और अन्य बोर्ड के लिए न्यूनतम 85 प्रतिशत प्राप्तांक का मानक होगा, जबकि स्नातकोत्तर पाठ्यक्रम हेतु स्नातक स्तर पर न्यूनतम प्राप्तांक 70 प्रतिशत होगा।

3–योजना की शर्तें व नियम:–

(1) छात्र /छात्रा को अपना आवेदन/प्रमाण–पत्र, 12वीं कक्षा अथवा स्नातक की अंक तालिका के साथ शिक्षा संस्था के सक्षम प्राधिकारी के पास जमा करना होगा।

(2) इस योजना के अन्तर्गत मेरिट के आधार पर पात्र छात्र/छात्राओं को छात्रवृत्ति का लाभ दिया जायेगा। प्रथम

वर्ष के पश्चात आगामी वर्षों में उत्तीर्ण छात्र/छात्राओं को ही इस योजना का लाभ प्रदान किया जायेगा। किसी भी वर्ष अनुत्तीर्ण होने पर छात्र/छात्रा अग्रेतर इस योजना हेतु अपात्र होगा।

(3) छात्र/छात्रा को यदि कोई अन्य छात्रवृत्ति विश्वविद्यालय/महाविद्यालय या अन्य स्रोत्र से प्राप्त हो रही है, तो ऐसी दशा में मण्डी परिषद द्वारा प्रदत्त छात्रवृत्ति में से एक विकल्प चुनकर अन्य छात्रवृत्तियाँ वापस करनी होगी।

(4) छात्र/छात्रा को शिक्षण अवधि में अच्छा अनुशासन व आचरण करना अनिवार्य होगा।

(5) यदि किसी समय यह ज्ञात होता है कि छात्र/छात्रा ने कोई सूचना छिपाई अथवा छिपवायी है, तो बिना किसी पूर्व सूचना के छात्रवृत्ति समाप्त कर दी जायेगी।

4–छात्रवृत्ति के लिए चयन प्रकिया:–

(1) छात्रवृत्ति हेतु मेरिट के आधार पर घटते क्रम (डिसेन्डिग आर्डर) में पात्र छात्रों का चयन सम्बन्धित विश्वविद्यालय द्वारा किया जायेगा। पात्र छात्र सूची अनुमोदन हेतु चयन समिति के समक्ष प्रस्तुत की जायेगी। चयन समिति में विश्वविद्यालय के अधिकारियों के साथ सम्बन्धित सम्भागीय उप निदेशक (प्रशासन/विपणन) का उपस्थित होना अनिवार्य होगा।

(2) महाविद्यालय के मामले में महाविद्यालय द्वारा पात्र छात्रों/छात्राओं का चयन किया जायेगा। पात्र छात्र सूची अनुमोदन हेतु चयन समिति के समक्ष प्रस्तुत की जायेगी। चयन समिति में महाविद्यालय के प्राचार्य व अन्य अधिकारियों के साथ सम्बन्धित सम्भाग के उप निदेशक (प्रशासन/विपणन), मण्डी परिषद सदस्य होंगे।

(3) छात्रवृत्ति की स्वीकृति हेतु सम्बन्धित सम्भाग का उप नेदेशक (प्रशासन/विपणन) सक्षम अधिकारी होगा। छात्रवृत्ति हेतु छात्रों का चयन सम्भागीय उप निदेशक (प्रशासन/विपणन) स्तर पर अन्तिम किया जायेगा तथा चयनित छात्रों की सूची, लिये गये निर्णय का कार्यवृत्त तथा देय धनराशि का विवरण परिषद मुख्यालय को प्रेषित किये जाने पर परिषद मुख्यालय द्वारा धनराशि अवमुक्त की जायेगी।

किसी कठिनाई की दशा में प्रकरण को मण्डी परिषद मुख्यालय को संदर्भित किया जाए।

उपर्युक्तानुसार प्रभावी कार्यवाही किया जाना सुनिश्चित करें।

(रमाकान्त पाण्डेय)
निदेशक

पृष्ठांकन व दिनांक उपरोक्तानुसार।

प्रतिलिपि– निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

1. प्रमुख सचिव, कृषि विपणन एवं कृषि विदेश व्यापार विभाग, उ0प्र0 शासन को शासन के पत्र संख्या– सी0एम0337–1/80–1–2018–600(2)/98 दिनांक 10.09.2018 के क्रम में सूचनार्थ प्रेषित।
2. समस्त जिलाधिकारी, उ0प्र0।
3. समस्त अधिकारी, मण्डी परिषद,मुख्यालय।

26.9.18
निदेशक

Annexure 8: Relief and Response Assistance under State Disaster Response Fund and National Disaster Response Fund Norms

Type of Loss/Damage due to Disaster	Relief Norms
Ex-gratia payment to families of deceased persons (*Note*: Subject to certification regarding cause of death from Government hospital or dispensary)	**Rs. 4 lakh** per deceased person
Death of animals	**Rs. 30,000** per Buffalo/ cow/ camel/ yak/ mithun **Rs. 3,000** per sheep/ goat/ pig **Rs. 25,000** per camel/ horse/ bullock **Rs. 16,000** per calf/ donkey/ pony/ mule Poultry **@ Rs. 50/- per bird** subject to a ceiling of assistance of **Rs. 5,000** per beneficiary household
Damage to housing	**Rs. 95,100** per house (fully damaged house) **Rs. 5,200** per house (partially damaged pucca house) **Rs. 3,200** per house (partially damaged kutcha house) **Rs. 4,100** per hut
Disability due to disaster (*Note*: Subject to certification by a doctor from a hospital or dispensary of Government, regarding extent and cause of disability)	**Rs. 59,100** per person, when the disability is between 40% and 60% **Rs. 2 lakh** per person, when the disability is more than 60%
Hospitalization due to disaster	**Rs. 12,700** per person requiring hospitalization for more than a week **Rs. 4,300** per person requiring hospitalization for less than a week
Loss of clothing and utensils/ household goods	**Rs.1,800** per family, for loss of clothing **Rs.2,000** per family, for loss of utensils/ household goods
Families whose livelihood is seriously affected due to a disaster (*Note*: State Government will certify that identified beneficiaries are not housed in relief camps. Further State Government will provide the basis and process for arriving at such beneficiaries District-wise.)	**Rs. 60** per adult **Rs. 45** per child
Desilting of agricultural land or desilting/ restoration/ repair of fish farms	**Rs. 12,200** per hectare for each item
Loss of substantial portion of land	**Rs. 37,500** per hectare
Input subsidy for fish seed farm	**Rs. 8,200** per hectare
Crops destroyed due to disaster (*Note*: Assistance may be provided where crop loss is 33 per cent and above, subject to a ceiling of 2 ha. per farmer) Sericulture	**Rs. 6,800** per hectare in rain-fed areas and restricted to sown areas **Rs. 13,500** per ha. in assured irrigated areas, subject to minimum assistance not less than Rs. 1,000 and restricted to sown areas **Rs. 18,000** per ha. for all types of perennial crops subject to minimum assistance not less than **Rs. 2,000** and restricted to sown areas **Rs. 4,800** per ha. for eri, mulberry, tussar **Rs. 6,000** per ha. for muga
Provision of fodder/feed concentrates, including water supply and medicines in cattle camps	Large animals: **Rs. 70** per day Small animals: **Rs. 35** per day