UTTAR PRADESH
STATE DISASTER MANAGEMENT AUTHORITY

Sri Yogi Adityanath
Hon'ble Chief Minister of Uttar Pradesh

UTTAR PRADESH
STATE DISASTER MANAGEMENT PLAN-2023
(Part-II)

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 PM 10 Point Agenda also emphasizes the role of women in DRM. Further in 2019, the 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 Uttar Pradesh, the SDMP focuses on specific vulnerabilities of the following groups:

Gender Perspective and DRR

Uttar Pradesh, India's most populous State, has a sex ratio at birth for children born in the last 5 years, of 941.[1] Female literacy is at 66.1 per cent.[2] About 15.8 per cent girls are married before the age of 18 years.[3]

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 Uttar Pradesh i.e., about 21.1 per cent SCs[4] and 0.57 per cent STs[5]. 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.

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[1] National Family Health Survey-5 (2020–21)

[2] National Family Health Survey-5 (2020–21)

[3] National Family Health Survey-5 (2020–21)

[4] https://censusindia.gov.in/tables_published/scst/dh_sc_up.pdf

[5] https://censusindia.gov.in/Tables_Published/SCST/dh_st_up.pdf

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 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.[6]

Elderly

According to the Census 2011, the share of elderly population in Uttar Pradesh (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 Uttar Pradesh. Their specific vulnerabilities need to be addressed in DRR efforts to ensure that they are not excluded in the development planning.

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[6] 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.

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	Department of Women and Child Development 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	Samaj Kalyan Vibhag and DDMA

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
	shelters/ temporary shelters/ relief camps • Promote insurance and specific knowledge products for risk reduction especially of sexual and gender-vulnerable groups • Gender audit of DRR measures with the assistance of the State Women's Commission		• 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 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	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
	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 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	Department of Women	• Ensure compliance of regulatory measures for	DDMA, WCD and

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
	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	and Child Development and Department of Social Welfare with Education Department, SCPS, UPSDMA and RCO	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	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
	children immediately after a disaster and during rehabilitation • The State Child Protection Society (SCPS) and SDMA 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 Information, Education and Communication (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	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 (neighbours, relatives, friends) and other arrangements for their support	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
	areas from State, national and international agencies working for the well-being of the elderly		• 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 • 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	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 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	District Persons with Disabilities Empowerment Officer and DDMA with Police, SDRF and other relevant line departments

Sub-Thematic Area	Responsibility of the State	Lead Stakeholders	Responsibility of the District	Lead Stakeholders
	• 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		• 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 (neighbours, relatives, friends) 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	

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.[7]

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.

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[7] 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 SDMA 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.[8] 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:

- Recurring/Regular (day-to-day);
- Short term (T1, ending 2024);
- Medium term (T2, ending 2027); and
- 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 PM'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; and
5. Climate change risk management.

Given below 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.

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[8] 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[9]

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 Uttar Pradesh:

- 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,	RCO in collaboration with FMISC	Coordinate with IMD, CWC, NRSA, NDMA, UPRSAC towards monitoring and forecasting of heavy rain and flood	DDMA	Develop early warning protocols for dissemination of information at the village level

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

Forecasting and Early Warning				
Forecasting and Early Warning	Irrigation and Water Resource Department, (FMISC) in collaboration with CWC and IMD	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
		On receiving heavy rainfall, the Irrigation and Water Resource Department to assess the situation and issue flood warning, if necessary		Formation of flood monitoring Committee at the Tehsil and Block levels
		Irrigation and Water Resource Department to alert the Nodal Officers of every irrigation division and control		
		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	Irrigation and Water Resource Department	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
	Irrigation and Water Resource Department, (FMISC) with	Establish early warning systems in the State for flood risks		

	UPSDMA and UPRSAC			
	Irrigation and Water Resource Department, (FMISC) with CWC and IMD	Install automated river flow gauging and reservoir monitoring systems (inflow, outflow levels)		
	Irrigation and Water Resource Department, (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 Irrigation and Water Resource Department and UPRSAC	Prepare flood plain zoning mapping using remote sensing, GIS and 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	DDMA with UPRSAC, UPSDMA	Prepare flood vulnerable maps at District, Tehsil, Block and GP levels using remote sensing, GIS and GPS Tools
		Update and maintain a library of spatial database on flood for the State		
		Short Term Activities (T1)		
	UPRSAC	Digital risk mapping in public domain		
		Review and update hazard maps of flood-prone	Irrigation and	Prepare a list of flood-affected village in most severe,

		areas with high vulnerability	Water Resource Department	severe and moderate categories in the Districts
	Revenue, Irrigation and Rural Development	Enforcement of laws regulating construction and developmental activities in flood-prone areas		
	CWC, Irrigation and Water Resource Department 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 District		
		Regular/Recurring		**Regular/Recurring**
Research and Development	UPSDMA in collaboration with Irrigation and Water Resource Department and UPRSAC	Documentation of lessons learnt due to major floods in the State, especially focusing on management, prevention and mitigation measures, etc.	DDMA in collaboration 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
	Irrigation and Water Resource Department 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)	Irrigation and	Keep updated information on rivers, embankments

			Water Resource Department	and dams and discharge of water at regular intervals
	RCO, UPSDMA with Irrigation and Water Resource Department 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)	Panchayati Raj Department	
	RCO, UPSDMA with Irrigation and Water Resource Department 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 Irrigation and Water Resource Department	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 Irrigation and Water Resource Department and UPRSAC, CWC, National Remote Sensing Centre (NRSC)	Conduct floodplain mapping of the State through partnership with key national and State-level institutions		

	UPSDMA in collaboration 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, Irrigation and Water Resource Department, 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
	Irrigation and Water Resource Department 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, Irrigation and UPRSAC	Carry out HRVCA and generate micro and macro-level flood hazard vulnerability maps for different river basins in the State		
		Regular/Recurring		**Regular/Recurring**
Dissemination of Warnings, Data and Information	RCO with FMISC Irrigation and Water Resource Department	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 Irrigation and Water Resource Department	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, TV, 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 District Emergency Centres (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
	UPSMDA/ 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	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/ RCO	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 Uttar Pradesh'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 Action (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 Urban Development Department (UDD)	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
	RSAC and Irrigation and Water Resources Department 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	
UPSDMA/ RCO	Emergency support functions are notified and made operational with fully functional EOCs at State and District levels		Incident Response System (IRS) in the District
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), State Disaster Response Force (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		
	RCO	Provide resource support to conduct search and rescue operations	DDMA	Provide necessary resources in terms of material, human resource and monetary support
	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	Set up relief camps and designate camp in-charge
	RCO	Prepare flood situation report	DDMA	Coordinate with State agencies for the necessary support process, mobilization of necessary resources during and after the flood
	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	DDMA	Start relief works and ensure fare distribution of

		services to the affected community/region		relief materials to the affected people as per SDRF norms
	RCO/ UPSDMA	Coordinate with all possible stakeholders including the donors, NGOs, INGOs, media, private and voluntary sector		
	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)		
		Medium Term (T2)	DDMA	Conduct detailed damage, loss and needs assessment
	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	Irrigation and Water Resource Department	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		
	RCO	Establish working relationship with warning agencies in the District, State and the National levels	DDMA	Quick, clear, effective dissemination of early warnings
		Short Term (T1)	DDMA	
	RCO, and Irrigation and Water Resource Department	Develop flood early warning systems in the State		Regular updates of flood warning to people in areas at risk
	RCO	Support development of ICT intervention in flood management		
		Medium Term (T2)	DDMA	
	RCO and Irrigation and Water Resource Department	Preparation of the action plan for flood forecasting and warning in the State		Establish working relationships with warning agencies in the District and 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	Irrigation and Water Resource Department 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, Rural Development Department, Urban Development Department (UDD), PRIs and 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	Urban Development and the State Urban Development Authority (SUDA)	Redesign existing stormwater and drainage systems in urban settlements for flood control	Irrigation and Water Resource Department	Develop the flood plain by afforestation, land sloping, construction of small reservoirs/check dams, etc.
	Irrigation and Water Resource Department	Undertake embankment strengthening activities		
	All concerned departments	Undertake flood-proofing of critical and vulnerable infrastructure (elevate important structures vulnerable to flooding)	DDMA	Identify suitable sites for temporary shelters for people and livestock

	Irrigation and Water Resource Department	Enhance embankment/dam safety measures and integrate end to-end early warning system	DDMA and Panchayati Raj Department	Construct multi-purpose shelters in villages/ habitations prone to floods
	Irrigation and Jal Nigam, Revenue Department	Irrigation and Water Resource Department, Jal Nigam to identify suitable sites for construction of check dams/barrages/diversion canals and water harvesting structures	Irrigation and Water Resource Department	Proper monitoring and maintenance of river embankments
	Short Term (T1)		Panchayati Raj Department and Revenue Department	Identify sites for flood-resistant constructions through MGNREGA, etc., programmes
	Irrigation and Water Resource Department 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	Promote low-cost flood-resistant technology in rural housing	Rural	
	PWD, Rural Development and Panchayati	Build capacity of rural masons on safe construction		

	Raj Department			
		Medium Term (T2)		
	Urban Development and Panchayati Raj Department	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
	Panchayati Raj and UDD	Promote cost-effective and flood-resistant building technologies		
		Regular/Recurring		**Regular/Recurring**
Multi-purpose Flood Shelters	Revenue and Rural Development Department	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 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, Highways, and Expressways	Concerned departments	Protect all critical infrastructure from flood damage		
	Public Works Department and concerned departments	Construct and repair roads, bridges, culverts in the State, including construction and repair of public buildings of the State	DDMA	Ensure trouble free road communication

	Public Works Department 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		
	Public Works Department, UDD and Rural Development	Ensure design and construction of buildings are incompliance to the Indian Construction Codes of Practice (BIS)	Public Works Department and concerned departments	Ensure repair and maintenance in the urban areas and implementation of disaster-resistant building codes and designs
	Public Works Department, UDD, Panchayati Raj and Rural Development Department	Public Works Department, UDD, Rural Development and Panchayati Raj Department 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
	Irrigation and Water Resource Department and	Undertake river bank protection and anti-erosion works	Irrigation and Water Resource Department and DDMA	Undertake pre- and post-monsoon inspections of dams and reservoirs

	Agriculture Department			
	Irrigation and Water Resource Department	Conduct regular inspection and strengthen flood protection embankment ring and other bunds using modern technology	Irrigation and Water Resource Department	Irrigation and Water Resource Department 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 Existing or New Channels	Irrigation and Water Resource Department	Clean/de-silt channels/creeks to undertake improvement of drainage system	Irrigation and Water Resource Department	De-silt rivers in flood-prone areas
	Irrigation and Water Resource Department	Take necessary steps to repair/improve the channels to ensure free flow of flood waters		
	Irrigation and Water Resource Department, Panchayati Raj and ULBs	Improve drainage in flood-prone areas and across	Irrigation, Agriculture, UDD	De-silt storm water drains and tanks periodically
			DDMA	Clear the encroachments to minimize the flood events
		Regular/Recurring		**Regular/Recurring**
Hazard-Resistant	UDD, Public Works	Carry out structural safety audit of all critical lifeline structures	DDMA and all line	Take precautionary steps for the protection of lifeline structures against possible loss and damage during

Construction, Strengthening and Retrofitting of all Lifeline Structures and Critical Infrastructure	Department, Rural Development Department and other concerned departments		departments	flood
	Irrigation and Water Resource Department	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
	Public Works Department, UDD	Formulate guidelines for safe construction of public works		
	Irrigation and Water Resource Department and Water Resource Department	Procure/prepare HRVA for water resource management and flood protection		

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

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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 Resources Management	Irrigation and Water Resource Department	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 Panchayati Raj	Implement land-use regulation for low-lying areas as per flood control norms	Irrigation and Water Resource Department	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
	Short Term (T1)		Irrigation and Revenue Department	Prevent and remove encroachment in to the waterways and natural drainage systems
	Irrigation and Water Resource Department, 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)			

	Irrigation and Water Resource Department 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	Irrigation and Water Resource Department	Adequate budget needs to be allocated to improve the operations and maintenance processes of the drainage systems		
	Irrigation and Water Resource Department/ Revenue Department/ Department of Environment, Forest and Climate Change	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
	Uttar Pradesh Wetland Authority with Revenue Department	Discourage reclamation of wetlands and natural depressions by laying down strict norms		

		Medium Term (T2)	Public Works Department and line departments	Formulate guidelines for safe construction of public work in flood-affected areas
	Uttar Pradesh Wetland Authority with Revenue Department	Action plan managing wetlands and natural drainage systems for flood moderation		
		Long Term (T3)		
	Department of Environment, Forest and Climate Change (DoEFCC) and Irrigation and Water Resource Department	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 Irrigation and Water Resource Department	Implement watershed management including catchment area treatment and afforestation programmes	DDMA	Discourage reclamation of wetlands, natural depressions
		Medium Term (T2)	Irrigation and Water Resource Department and line departments	Implement watershed management including catchment area treatment and afforestation programmes
	DoEFCC and Irrigation and Water Resource Department	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	SIRD*[10] 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 PRIs and NGOs
	SIRD* and	Conduct training and awareness camps for	DDMA, Fire	Conduct search and rescue training to local

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[10] Symbol * denotes the nodal agency in the corresponding activity.

Department of Medical Health and Family Welfare (DoMHFW)	Health Officials and community members in DM	Department and Civil Defence	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
UPSDMA and SIRD*	Train civil society, Community Based Organizations (CBOs) and corporate entities in various aspects of DM	DDMA with Panchayati Raj Department	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 Panchayati Raj Department	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, Panchayati Raj Department	Train PRI members and community volunteers on embankment protection-related watch (for breach signs), communication and immediate actions

	Urban Development Department	Train engineers, architects, structural engineers, builders and masons in various aspects of DM		
	Panchayati Raj Department 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	UPSDMA and SIRD* with concerned line departments	Conduct training needs analysis		
	UPSDMA and SIRD*	Develop training manual as per the training need analysis on flood preparedness and response for Government stakeholders, PRIs, CBOs, volunteers and other key stakeholders		
	UPSDMA and SIRD* 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 Panchayati Raj Department	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, PM 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*, Panchayati Raj and Skill Development Department	Promote community education, awareness and training		
	UPSDMA, SIRD* 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 Panchayati Raj Department	Training on use of disinfectants (halogen tablets, bleaching powder, etc.)		
	Rural Development Department* and Panchayati Raj Department	Train rural volunteers on repairing of hand pumps/ and damaged drinking water sources		

		Short Term (T1)	DDMA in co-ordination with UPSDMA, Rural Development 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
	Panchayati Raj Department and Rural Development Department*	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	UPSDMA, RCO* and Panchayati Raj Department	Develop community-based early warning systems	DDMA	Build capacities of communities to be better prepared to deal with and respond to disasters

	UPSDMA* and Panchayati Raj Department	Promote community education, awareness and training programmes through DDMAs		
	UPSDMA, SIRD* and Panchayati Raj Department, Rural Development Department	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 Panchayati Raj	Train Panchayat members, SHGs, NCC, NSS, youth, and local community organizations on various aspects of DRM
	UPSDMA* and Panchayati Raj Department	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**
Climate Change Adaption (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 State Plan for execution of NDC as enunciated in Paris Accord and COP 26, COP 27 at Glasgow and Sharm-el-Sheikh, Egypt.		

		DDMA with line departments	Sensitize and generate awareness on CCA measures in various sectors viz. agriculture, health, livelihood, water, food and nutrition, education
Medium Term (T2)			
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
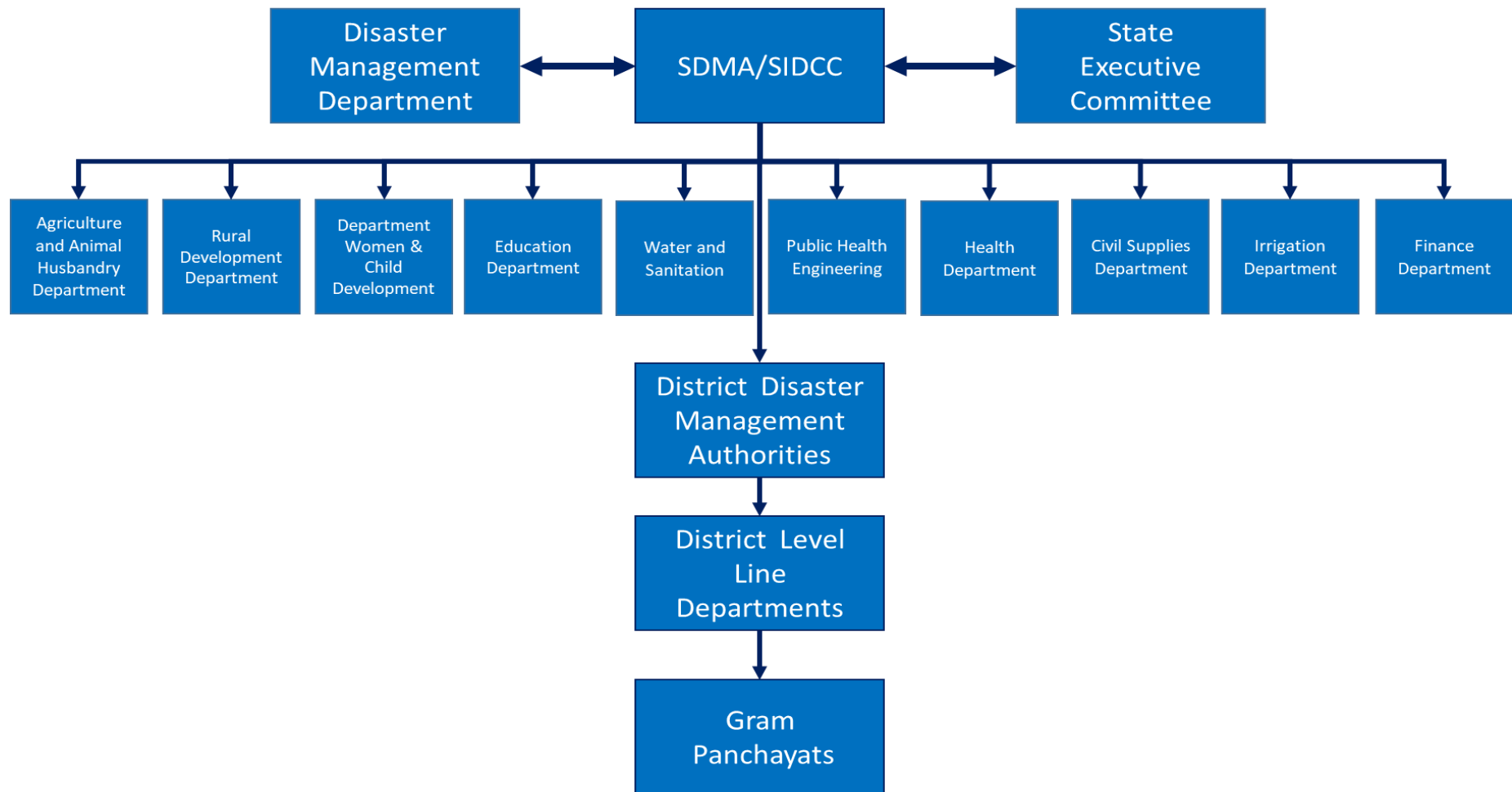
Figure 16: Coordination Mechanism for Drought Management

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 Uttar Pradesh:

- 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, Irrigation	Notify guidelines on block-wise rainfall deficit mapping in the drought-prone and water scare region	DDMA, Agriculture Department*, Irrigation and Water Resource Department	Prepare maps of areas likely to face water deficit before onset of next monsoon (demarcate blocks and preferably villages)
	Agriculture Department*, Irrigation and Water Resource	Notify guidelines on comprehensive assessment of water deficit in dry land farming, rain-fed, and drought-prone areas' stream flow (surface and groundwater)	Irrigation and Water Resource Department, DDMA*	Undertake village-wise assessment of water safety and security in the vulnerable blocks

	Department,	Notify agro-climate region wise water deficit assessment reports for relevant regions separately	DDMA*, Agriculture Department, Irrigation and Water Resource Department	Undertake HRVCA as part of preparation/revision of DM Plan
	UPSDMA*, RCO, UPRSAC, Irrigation and Agriculture Department	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, Irrigation and Water Resource Department and concerned line departments,	Develop drought forecast, and assessment of water deficit, drought-prone, and dry land farming areas	DDMA with Agriculture Department and Irrigation and Water Resource Department	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
		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 Irrigation and Water Resource Department	Ensure functioning of drought monitoring cells with requisite facilities and staff to continuously monitor water availability in the drought-prone blocks
	Agriculture	Monitor key drought indices at State and District	Irrigation and	Prepare and update a robust database of micro level

	Department	levels as per latest national manual for drought management	Water Resource Department and Agriculture Department with DDMA	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, CSA 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	Panchayati Raj 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*, Panchayati Raj, Irrigation and Water Resource Department and RCO	Notify for provision of necessary technical, administrative and logistical assistance for the provision of water tankers as per the guidelines		
	Rural Development*	Issue guidelines to ensure provision of work for the labour in 15 days of receipt of applications of demand for work (MGNREGS)		
		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*, Panchayati Raj, Irrigation and Water Resource Department	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*, Panchayati Raj, Irrigation	Promote drinking water storage and distribution facilities	Panchayati Raj, Animal Husbandry Department*	Ensure establishment of fodder banks at strategic locations using improved fodder/feed storage methods for supply of fodder to deficit areas
	Irrigation and Water Resource Department	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	Rural Development Department, 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
	Irrigation and Water Resource Department*, Housing and Urban Development and Rural Development Department	Promote water harvesting and storage structures		
	Irrigation and Water Resource Department	Promote check dams, reservoirs with excess capacity		
		Recurring/Regular		**Recurring Regular**
Social Housing Schemes	Housing and Urban Development and Panchayati Raj Department	Ensure rainwater harvesting and storage in the social housing schemes in drought-prone areas	Housing and Urban Development and Panchayati Raj Department	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, SDMA should promote numerous State and District-level stakeholders to invest in the following non-structural measures of DRR.

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
	Irrigation and Water Resource Department* and Rural Development Department	Promote watershed development projects		**Short Term (T1)**
	Medium Term (T2)		DDMA, Panchayati Raj, Irrigation and Water Resource Department*, 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
	Agriculture Department, concerned agencies and the UPSDMA*	Convergence of lessons learnt from studies carried out by various research institutions Technical inputs on better crop management (especially for dryland/ rainfed farming)	Agriculture Department, KVKs, Irrigation and Water Resource Department	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, NABARD	Risk management for dryland/rainfed farmers through agricultural extension, and financial institutions based on assessments		
Promote Water Conservation, Water Harvesting, Efficient Irrigation, Afforestation, Resilient Animal Husbandry		**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.)
	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*, Rural Development Department and, Panchayati Raj Department	Provide credit and financing products relevant to the drought-prone areas	DDMA. Agriculture Credit Bank, Panchayati Raj Department, Rural Development, 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**
	Agriculture Department and Department of Animal Husbandry	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 Department of Animal Husbandry, 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

Area of Intervention	State	Short Term (T1)	District	Medium Term (T2)
	Thematic Area: Capacity Building and Knowledge Management			
Training	UPSDMA, RCO, Agriculture Department*, Uttar Pradesh State Institute for Rural Development	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, ICAR and other state agricultural institutes who are conversant with drought mitigation and management techniques		
	Department of Animal Husbandry	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 crop and water management (including conservation of surface and ground water)		Promote attitude and behaviour change in the awareness campaigns IEC
		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, Panchayati Raj, Rural Development, Department of Women and Child Development (DWCD)	Incorporate gender-sensitive and equitable approaches in capacity development covering all aspects of DM	DDMA, Agriculture Department, Panchayati Raj, Rural Development	Involve women in locally organized Self-Help Groups (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*, Rural development, Panchayati Raj	Take initiatives to promote drought-resistant crops	Agriculture Department, Rural development	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	Promote local weather-based insurance mechanisms and agricultural practices	Agriculture Department	Promote extra short duration crops and varieties to reduce vulnerability to drought and make arrangements for their seed bank
		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)**
Climate Change Adaptation (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 Irrigation and Water Resource Department	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 DMP 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*, Irrigation and Water Resource Department	Implement efficient water management and monitoring systems as part of CCA in the drought-prone areas		

9.3 Earthquake

Multiple Stakeholders (left list):
- Academic Institutions
- Technocrats
- NIDM
- UN Agencies
- NGOs
- Media

SDMA → **District Administration & DDMA** ← **Line Departments**

Line Departments (right list):
- Revenue
- Health and Family Welfare
- Food and Civil Supplies
- Panchayati Raj, etc.

Risk Analysis

Include earthquake in HRVCA process of District DM planning and identify risks to life, livelihoods and well-being of the people in the District with special reference to:
- Hazard assessment: frequency, zonation, intensity, geography
- Earthquake risk mapping at the village level.
- Socio-economic profile, population data, housing, agriculture and livestock
- Coping and adaptive capacity assessment

Preparedness

- Formation of community-based task forces to generate awareness on earthquake preparedness
- Review and revision of preparedness measures taken up by line departments
- Identification of shelter locations and adequate material prepositioning for effective response
- Capacity building of line departments on earthquake risk analysis and preparedness
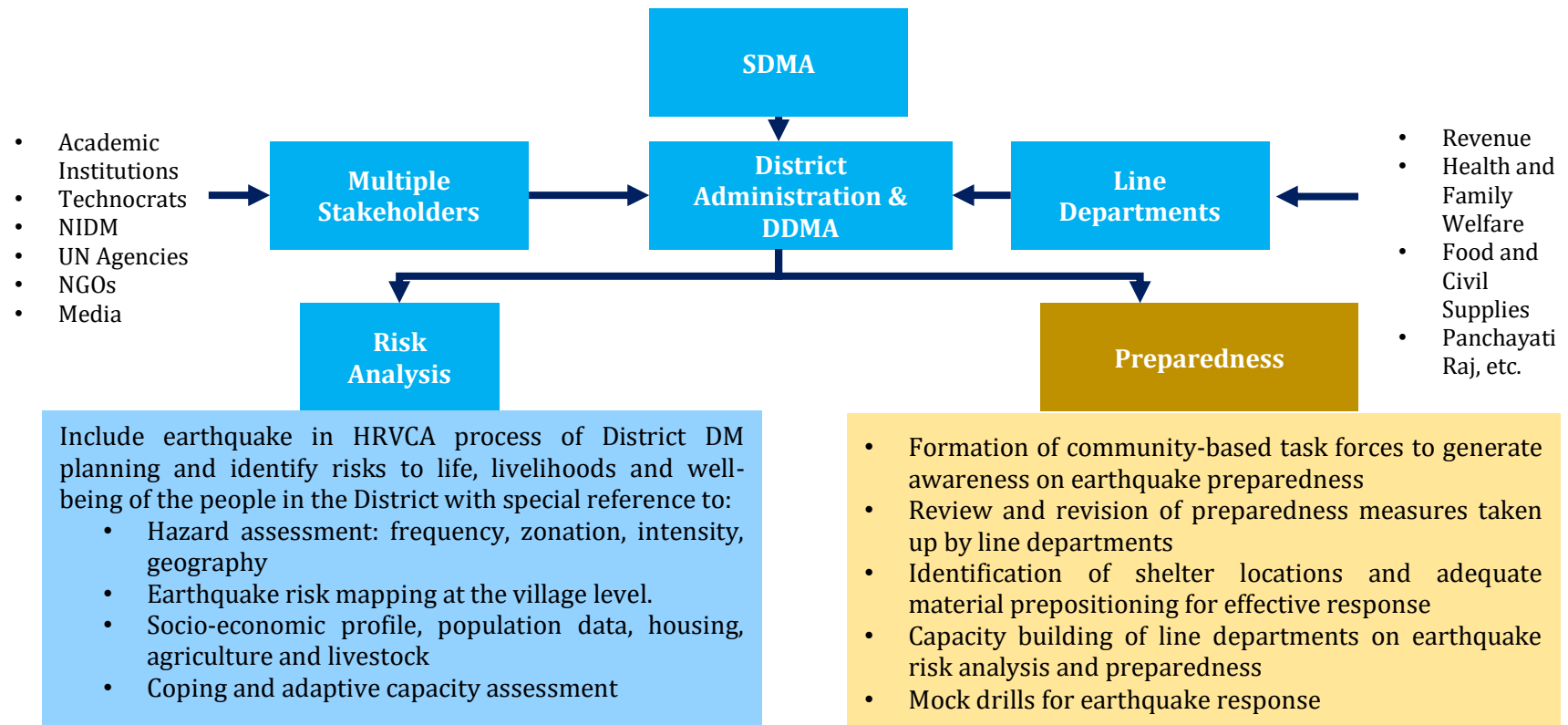- Mock drills for earthquake response

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 Uttar Pradesh:

- 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 (EHRA)**	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 Uttar Pradesh. Collaborate with IITs for Earthquake Early Warning projects as implemented along the foothills in Uttarakhand.	DDMA	Train DDMA official on interpretation of shake alert and dissemination to public
	Medium Term(T2)			

• Scientific Seismic Zonation and Micro Zonation	UPSDMA*, Geological Survey of India (GSI)	Technical group for undertaking earthquake risk analysis for the State of Uttar Pradesh		
		Micro-zonation of major cities of Uttar Pradesh		
	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 National Disaster Management Authority (NDMA)		
		Long Term (T2)	DDMA	Train town and country planning department

	Housing and Urban Development Department	Set up regulation for land use and building construction bye-laws in zone III and Zone IV of Uttar Pradesh		officials in mechanism for structural audit of buildings in Zone III and Zone IV of Uttar Pradesh
	UPSDMA with UPRSAC and GSI	Set training programme on remote sensing-based studies which can provide inputs for seismic zonation work for Uttar Pradesh	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 Uttar Pradesh'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
	Housing and Urban Development Department	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	Housing and Urban Development Department and Panchayati Raj Department	Ensure earthquake-resistant features are incorporated in planning and execution of social housing schemes	DDMA, Panchayati Raj Department, ULBs and Police and Fire Services	Ensure promotion and implementation of norms and issued by State for earthquake-resistant structure buildings
	Housing and Urban Development Department and Panchayati Raj Department	Ensure compliance with relevant building codes		
		Medium Term (T2)		**Regular/Recurring/Short Term (T1)**
Strengthening and Seismic Retrofitting of Prioritized Lifeline Structures and Buildings	Public Works Department, 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 Public Works Department, 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	Panchayati Raj, Rural Development Department and State Urban Development Agency (SUDA)	Invest in hazard-resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure through collaboration with technical agencies	DDMA, Panchayati Raj Department	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, SDMA 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	Housing and Urban Development Department	Adopt suitable bye-laws for rural and urban areas, put model codes (e.g., NBC 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		
	Housing and Urban Development Department	Ensure strict compliance with code implementation through relevant departments and agencies		

	and Panchayati Raj			
		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, Public Works Department, 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, Housing and Urban Development Department, Public Works Department	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	Promote private participation in DM facilities	DDMA	Document the best practices

	Chambers of Commerce & Industry and Private Industries			
		Regular/Recurring/Short Term (T1)		**Medium Term (T2)**
Risk Transfer	Housing and Urban Development 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, 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, NYKS	Train community and volunteers		

	Urban Development	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

Coordination

- Block(s) Administration
- ULBs
- Health and Family Welfare
- Police
- Social Welfare
- Labor
- Animal Husbandry
- Education
- Panchayati Raj
- Jal Shakti
- Transport
- CSOs, Charitable Trust
- Press and Electronic Media

SDMA

DDMA

SEOC

Common Minimum Actions

District level Heatwave Risk Assessment → Review Heatwave Preparedness in District → Disseminate Heatwave Forecast to Agencies and Public → Coordinated Heatwave Response through DEOC
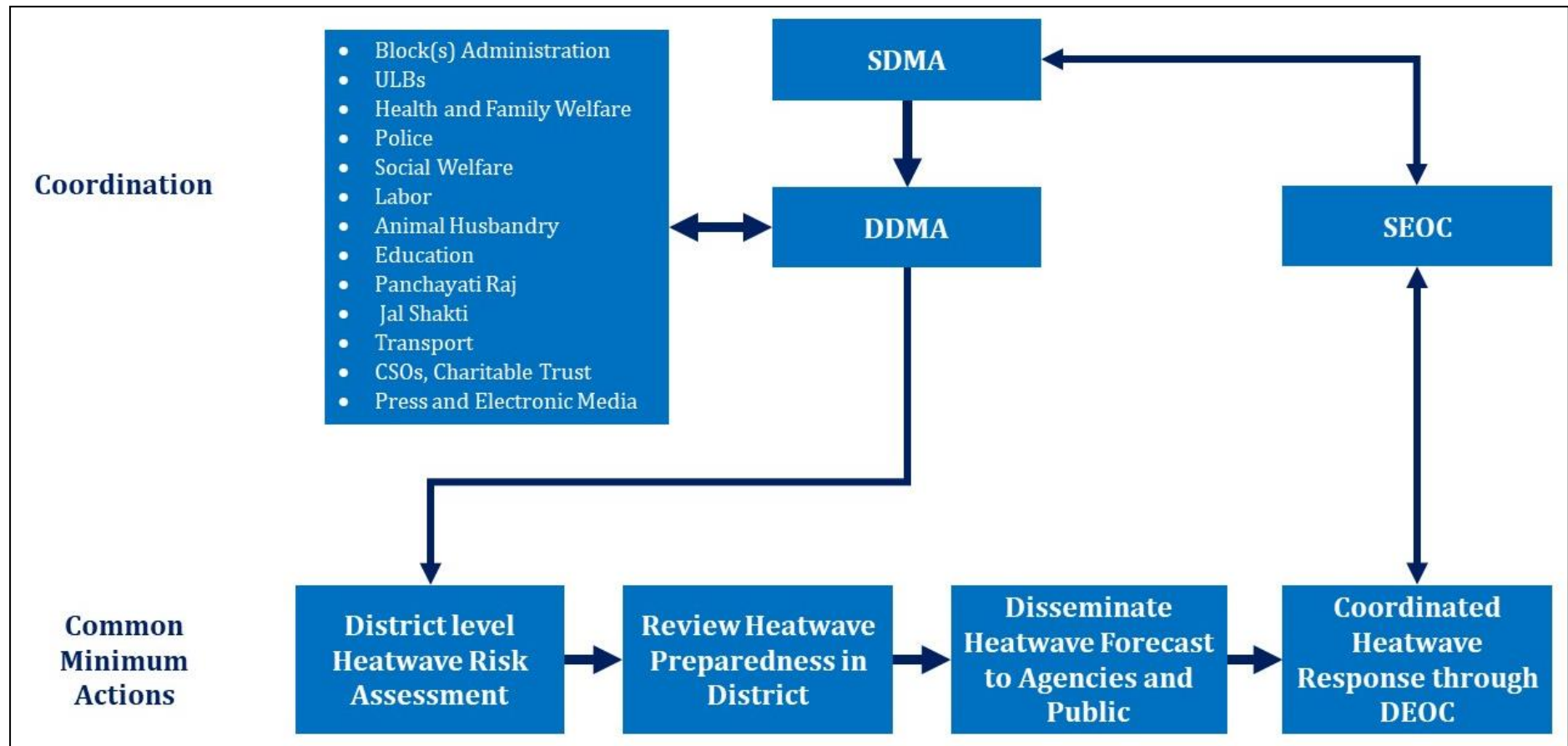
Figure 18: Common Minimum Actions and Coordination for Heat Wave Management

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 Uttar Pradesh:

- 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 Uttar Pradesh 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	
	UPSDMA with Animal Husbandry, Agriculture and other concerned line departments	Establish research on understanding risk exposure in individual, community, animal husbandry, agriculture, and other relevant sectors		Establish mechanisms for early warning dissemination of temperature to the public
		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 HRVA for State	DDMA	Update the HVRCA
	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
	UPSMDA, 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 Uttar Pradesh	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

Systematic data Collection and Database Management				
			DDMA, DoMHFW	Display heat alerts and precautionary measures at strategic public locations in urban areas
		Regular/Recurring		**Regular/Recurring**
	RCO IMD	Develop real-time, end-to-end temperature, wind and humidity monitoring system for early warning and declaration of heatwave	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 Uttar Pradesh'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		
	Housing and Urban Development Department 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 based on temperature, wind and humidity against the current practice which is based on temperature	DDMA	Establish mechanism for dissemination of early warning on daily bases

				only.
	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 other measures	UPSDMA and RCO	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
	Housing and Urban development Department	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 Dept.	Make arrangements for effective transportation and traffic management in vulnerable areas
	Department of Medical Health and Family Welfare	Monitoring of first aid kit distribution and emergency treatment facilities	Animal Husbandry Dept.	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, Housing and Urban development Department*	Guidelines and technical support for incorporation of protection from heat wave in multi-hazard resistant housing schemes	DDMA, ULB, Rural Development	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)	**Lead Agency: DDMA**	**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*, Rural Development	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

| Area of Intervention	State	Recurring Regular/Short term (T1)	District	Recurring Regular/Short term (T1)
Thematic Area: Climate Change Risk Management				
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)**
	Department of Agriculture	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)			
	Department of Agriculture	Develop local adaptation strategies and pilot projects		

9.5 Cold Wave
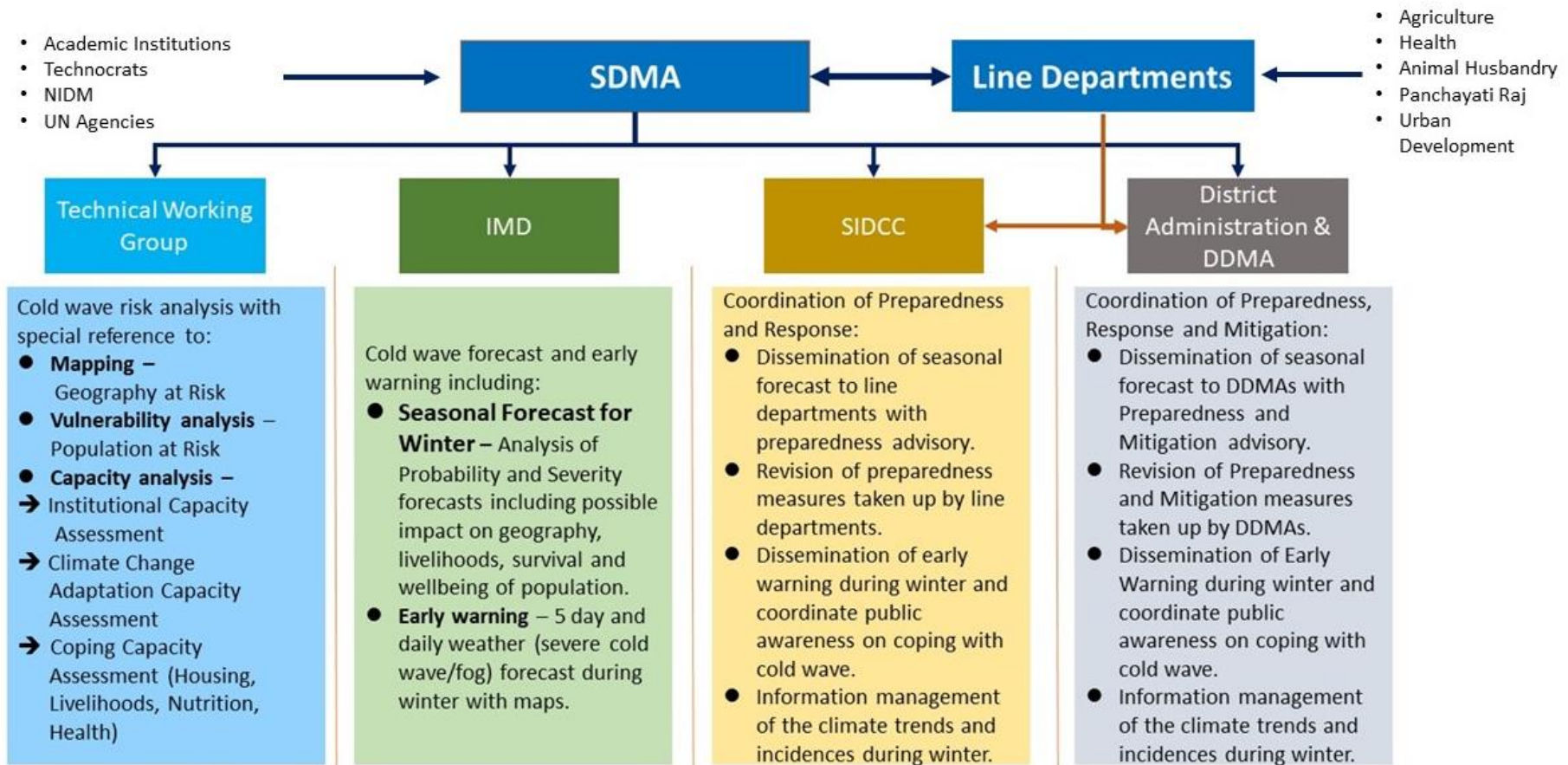
Figure 19: Role of SDMA in Cold Wave Management

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 Uttar Pradesh.	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, RCO	To set up guidelines and SOP on HRVA methods		
		Regular /Recurring		**Regular /Recurring**
Establishing, Risk Information Management System (HRIMS)	RCO, DoMHFW*	Monitoring compliance with 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, RCO	Development of Online information management system to measure climate condition (RH, 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	**Lead Agency: UPSDMA**	**Short Term(T1)**	**District**	**Regular /Recurring**
Institutional Disaster Risk Governance Framework and Coordination	UPSDMA, RCO	Set up a State Level Committee with clear roles and responsibilities, spearheaded by Department of Medical Health and Family Welfare for monitoring of cold wave deaths	DDMA	Ensure all administrative measures required for effective and timely relief and response.
	UPSDMA, DoMHFW*	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.
	Urban Development and Panchayati Raj	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	UPSDMA, 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.
	UPSDMA, 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
	UPSDMA, RCO	Develop a data sharing strategy among all stakeholder		
	UPSDMA, RCO	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	Housing and Urban development Department	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 Dept.	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 Dept.*	Ensure appropriate medical staff, and facilities at place of incident
	Short Term(T1) and Mid Term(T2)		DDMA, Health Dept.*	Strengthen health centres with a network of paramedical professionals
	Agriculture Dept.	Necessary modification and implementation of crop contingency plan with respective States	Health Dept.*, 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	Housing and Urban Development Department and Panchayati Raj	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, Housing and Urban Development Department*	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, RCO	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 TV 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
	UPSDMA, 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)**	Department of Agriculture	**Short Term (T1)**
	Department of Agriculture, DoEFCC	Develop adaptation guidelines on agricultural practices		Promote sensitization and awareness creation on use of climate-resilient varieties of seeds from KVKs
	UPSDMA, Panchayati Raj Department	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, 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 (TB) 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 Bareilly	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 Uttar Pradesh		
		Establish epidemiological research centres to monitor communicable diseases		
		Regular/Recurring		**Short Term (T1)**
Establishing Health, Risk Information Management System (HRIM)	DoMHFW*, RCO, UPSDMA	Monitor compliance with medical colleges on reporting of hospitalization in various cases of importance epidemic	Health Department, DDMA	Establish Human Resource Information and Management System (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 Uttar Pradesh		
		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 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	Health Department, DDMA	Conduct public health and epidemiological investigations and sero-survey in line State and national guidelines

		Regular/Recurring		Short Term (T1)
		laboratories of Armed Forces Medical College, Railways, and the Forensics Department		
				Long Term (T3)
			Health Department, DDMA	Mainstream DRR and DRR and public programme of NHM, SHM, Ayushman Bharat, RBSK, 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 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 (AAI), 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 Panchayati Raj Department 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	Department of Health, 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	Department of Health, 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

Areas of Intervention	State	Long Term (T3)	District	Long Term (T3)
Capacity Building and Knowledge Management				
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 Department of Health and Family Welfare	Health Department, DDMA,	Train and orient specific epidemic programmes for State Government staff, and other stakeholders such as ASHAs, CHWs, and volunteers
				Training programmes of youth such as NSS, NYKS, scouts and guides, and NSS in logistics and cold chain management
		Introduce crisis management and EMR in nursing programme		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	Carry out mass media campaigns
				Train CBOs on appropriate behaviours
	UPSDMA*, RCO and DoMHFW	Promote methods of disaster risk prevention, mitigation, and preparedness		Train communities on isolation, quarantine, social distancing and external decontamination
			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, UPPCB, UPSDMA, NDRF, SDRF, FICCI, 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 Hazardous Chemical (Codes) (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		

Vulnerability Mapping	LCO, UPPCB*, UPSDMA	**Mid Term (T2)**		**Recurring/Regular**
		Develop a system of stimulation of worst-case scenarios for MAH units in release of various chemicals	Factories/ Labour Department, Regional PCB	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 Hazardous Material (HAZMAT) transportation	Factories/ Labour Department, Regional PCB,	Identify the areas in the Districts which are vulnerable to chemical release due to HAZMAT transportation
			Factories/ Labour Department, Regional PCB, 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, Panchayati Raj	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, Public Works Department, 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, NYS, and scouts and guides		Training programmes of youth such as NSS, NYS, 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 Department, SDRF, DDMA	Organize planning and execution of emergency drills on hazardous chemical release in a plant
				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
	Police Department - Fire Services	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		
	Police Department - Fire Services	Address gaps in infrastructure and equipment needs, and upgrade equipment including PPE	Police Department - Fire Services	Monitor resources available at hospitals
	Police Department	Develop action plan for modernization and to		

- Fire Services	meet future needs			
Police Department - Fire Services	Strengthen and standardize response mechanisms			
Long Term (T3)				
Police Department - Fire Services	Procure equipment for firefighting, urban search and rescue as per the requirements			
Police Department - Fire Services	Establish fire stations/posts up to the sub-divisional level to the Block level			
Police Department - Fire Services	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 Housing and UDD	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		
	Police Department - Fire Services	Strengthen and standardize response mechanisms		
	Regular/Recurring/Short Term (T1)			**Regular/Recurring/Short Term (T1)**
Mock Drills/ Exercises	Police Department - Fire Services with	Prepare annual calendar for mock drills with the line departments and agencies	DDMA, Police Department - Fire	Organize table top with line departments and agencies as per the State annual calendar

	UPSDMA, SDRF, Civil Defence		Services	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	Electricity Department	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	DDMA	Coordinate with SDRF and District Administration for the clearance of roads to provide access to emergency services in areas of the incidences reported

		print/electronic/social/hooter system and other mass media at the local level	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		
	Housing and Urban Development Department	Ensure building by-laws and make it mandatory for all ground floor plus two and taller buildings to install lightning conductors /arresters		
	UPSDMA*, RCO, Housing and UDD and Public Works Department	Promote installation of lightning conductors/arresters in schools, industries, and Government and private-owned buildings	Panchayati Raj 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	Electricity Department	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 SDMA 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 SDMA advisory, with special reference to thunderstorm and lightning
	Panchayat Raj Department and Housing and Urban Development Department	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 SDMA advisory, with special reference to thunderstorm and lightning
	Uttar Pradesh Power Corporation Limited (UPPCL)	Ensure functional state of all electrical equipment and maintain the service, or replace equipment from time to time	Panchayati Raj and Revenue Department	Form GP-level task forces for ensuring preparedness as per the SDMA advisory, with special reference to thunderstorm and lightning
	Short Term (T1)			
	Panchayat Raj Department and Housing and Urban Development Department	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	UPSDMA with SIRD*	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
	Irrigation and Water Resource Department	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
	Uttar Pradesh 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, Panchayati Raj Department*	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
			Panchayati Raj Department, 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	UPSDMA UPSTDC	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

Areas of Intervention	State	Regular/Recurring/Short Term (T1)	District	Regular/Recurring/Short Term (T1)
Thematic Area: Capacity Development and Knowledge Management				
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