Developing Monitoring & Evaluation Framework for UPSAPCC 2021-2030: Disaster Management Mission

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Government of Uttar Pradesh

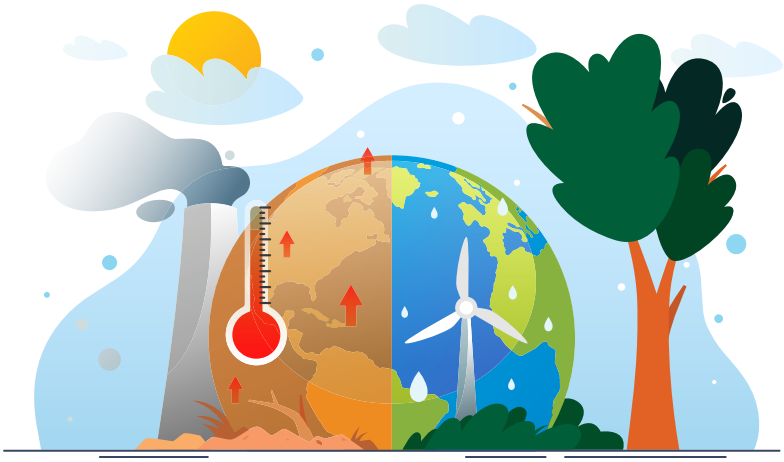
Introduction

The threat of climate change has become more and more real by every passing day. It is a challenge that humanity has to face as one and that is why international treaties like the Paris agreement 2015 and the pathway to sustainable development, as envisaged under Sustainable Development Goals (SDGs)- Agenda 2030 have been shaped.

The Indian government too had framed the the National Action Plan on Climate Change (NAPCC) of India in 2008. Over time each state has adapted these and framed their own State Action Plan on Climate Change (SAPCC) - twice, earlier in 2009 and an updated one in more recent years. In case of the state of Uttar Pradesh, this was done in 2021.

There are eight consolidated missions under the UPSAPCC 2021-2030 namely Green UP Mission, Sustainable Agriculture Mission, Jal Mission, Human Health Mission, Enhanced Energy Efficiency and Green Energy Mission, Sustainable Habitat Mission, Disasster Management Mission and Strategic Knowledge Mission.

But to successfully implement each of these missions, one needs a system to monitor and evaluate the various actions being taken under them.



About the Disaster Management Mission

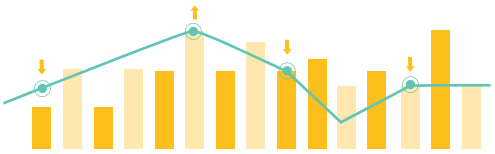
Climate-induced disasters are on a rise because of varied risks, vulnerabilities, and exposures of different regions in the state. This has impacted humans immensely. India itself recorded one of the highest numbers of disaster incidences (321 events) globally, with the human impact of 14.9 million people (CRED & UNISDR, 2020)5. This mission has two strategies elaborated across ten action points. The key focus area of the mission includes:

- Preparing for unforeseen extreme climate events originating beyond state borders
- Integrating climate change in disaster management across sectors
- Taking stock of the extent of loss and damages due to current incidences of hazards and their future projections

An oversight of the nature of actions and strategies across the eight missions of UPSAPCC 2021-30

No	Mission	Strategies	Action Points	Adaptation	Mitigation	Both
1	Sustainable Agriculture Mission	5	19	18	-	1
2	Jal Mission	5	25	21	-	4
3	Green UP Mission	5	20	6	10	4
4	Enhanced Energy Efficiency and Green Energy Mission	6	37	1	32	4
5	Sustainable Habitat Mission	9	35	15	9	11
6	Human Health Mission	5	31	24	-	1
7	Disaster Management Mission	2	10	10	-	-
8	Strategic Knowledge Mission	4	10	10		
lk	**TOTAL**	**41**	**187**	**104**	**51**	**25**

Why an M&E Framework for the revised UP SAPCC?



Meet the Goals

Monitoring and evaluation (M&E) frameworks are essential for ensuring that climate change action plans are effective in achieving their intended goals.

Keep track of Plans

It is crucial because it guarantees better evidence-based planning and tracking and aids in the identification of pertinent activities through the creation and operationalization of a framework.

Course Correction for the path ahead

Moreover, M&E is critical since gaps identified over time reveal mistakes, offer paths for learning and improvements, and provide opportunities to build on expertise and knowledge. A comprehensive M&E framework also allows policymakers and implementers to identify successes and challenges and make data-driven decisions to adjust their strategies accordingly.

Align with other state plans

With an eye on the goal, the metrics developed in the M&E framework also helps define roles and responsibilities better. The framework also leverages existing monitoring systems under other programmes in the state such as the UP SDG Vision 2030 and UP DEMP.

A foolproof system for the future

Once deployed, it will facilitate the creation of a data collection, flow, and management system through coordinated efforts by all relevant line departments

Vision for a dynamic Management Information System (MIS)

The M&E framework that has been developed should give way to a dynamic Management Information System (MIS) wherein data from various line departments will be collated, leading to effective monitoring of the targets set for various activities in the UP SAPCC 2.0. This system can continue to be adapted and used to for other future programmes.

The Method in brief

The M&E framework was created with the understanding that existing monitoring and data systems should be utilized rather than constructing a separate parallel data gathering mechanism. All relevant documents including the UP DEMP, UP SDG Vision 2030, NITI Aayog SDG index, and the MoSPI documents were studied along with various state and national schemes and programmes that overlap with a particular mission and the indicators within them were collated.

After this the indicators were shortlisted. As a first step only the intermediate and outcome-level indicators were shortlisted. Another criteria was whether they mapped to the strategies within a certain mission or not. Finally, the indicator or a set of indicators were chosen if they gave a holistic perspective of the strategy. Each criteria had a score attached to it and based on this scoring mechanism, the indicators were ranked and chosen.

To finalize the process, consultative workshops were held with various line departments and the indicators were further refined along with identifying or assigning the data sources for these indicators, the periodicity of their collection, who would be responsible for the job, etc.

What is notable is that some of the indicators are relevant to more than one strategy and based on this and other criteria such as data availablity, relevance to strategy/ies, holistic perspective, these indicators have been defined as high-priority or not.

How can one use this book?

This book compiles the different indicators that the various line departments need to gather information about in order to successfully monitor the strategies of UPSAPCC 2021-2030. The finalized list of indicators for the Disaster Management Mission are presented below in Table 1A.

Table 1A: Indicators for the Disaster Management Mission

Blue text: Vulnerability indicators (from SAPCC)

Pink Text: These indicators are not from any current scheme since they are part of an action point, which is a recommendation for something that needs to happen in future.

Brown Text: Indicators from NITI Aayog SDG Index 2020

Green text: Dashboards and Reports

S. No	Indicators(13)	Mapping to Strategy
1	Disaster preparedness score as per Disaster Resilience Index	1
2	Risk Prevention & Mitigation Score as per Disaster Resilience Index	1
3	Hazard Risk Index	1
4	Number of human lives lost per 1 crore population due to extreme weather events	1
5	Population affected	1
6	No. of cattle/livestock perished	1
7	Cropped area affected	1
8	Estimated value of damaged crops	1
9	Estimated value of damage to infrastructure	1

Table 1A: Indicators for the Disaster Management Mission (Contd.)

S. No	Indicators(13)	Mapping to Strategy
10	No. of IEC material developed	2
11	No. of early warning information disseminated	2
12	No. of trainings conducted for government officials	2
13	No. of Aapda Mitras Trained	2

One of the key ways in which the challenge of climate change can be addressed by Governments and development agencies is by reducing vulnerability. Derived from the vulernabilities listed under the chapter Climate Vulnerability Assessment" of the UPSAPCC 2021-2030, **Table 1B: Vulnerability Indicators for the Disaster Management Mission ,** as the name suggests, highlights the vulnerability indicators most relevant for the Disaster Management Mission .

In **Table 2: Operationalized M & E Framework for the Disaster Management Mission ,** you will find a detalied look at the individucal indicators, their definitions, the strategies they have been mapped to the measurement unit, their data sources, the department or agency responsible for their collection and the period during which this has to be done. Thus this is the most comprehensive table for the indicators and offers the Operationalized M & E Framework for the Disaster Management Mission .

Since all these indicators have been derived from different schemes, one can refer to the schemes under **Table 3: Various State Schemes and their alignment with the Disaster Management Mission and its strategies.** If one is working on certain projects under UP DEMP or has to see the alignment of the indicators with a specific programme or the UP SDG Vision 2030, one can refer to the tables in the annexure online– one can access it using the QR code given below.

To understand the detailed process behind these tables one can refer to **Developing Monitoring & Evaluation Framework for UPSAPCC 2021-2030 : Process Document**.

Table 1B: Vulnerability Indicators for the Disaster Management Mission

S. No	Indicators Selected for the M&E Frame-work: Disaster Management Mission	Functional relationship with Vulnerability
1	Percentage of households at risk to damage by wind, extreme rainfall and earthquakes	Positive
2	Insurance coverage	Negative

Reference Text for Table 2: Operationalized M &E Framework for the Disaster Management Mission

The Uttar Pradesh State Action Plan on Climate Change (UP SAPCC) 2021-2030 presents climate change–related mitigation and adaptation strategies to address regional and state-specific climate risks The table below puts together the operationalized M&E Framework for Disaster Management Mission . This Framework was developed after several rounds of deliberations and discussions between DoEFCC, GIZ and Sambodhi, and presents the final short-listed indicators for this mission.

Instructions for reading the mission spreadsheet	Legends
Column 2, Indicator, presents the indicators selected for this mission.	** Indicators derived from schemes, programmes, NITI Aayog SDG Index, SAPCC Vulnerability Indicators, Dashboards and reports
Column 3, Definition, provides a definition of the indicator.	**Blue text: Vulnerability indicators (from SAPCC)**
Column 4, Mapping to Strategy, presents the strategy or strategies to which each indicator is being mapped.	**Pink Text: These indicators are not from any current scheme since they are part of an action point, which is a recommendation for something that needs to happen in future.**
Column 5, Measurement Unit, is the unit (e.g., kg, hectares, INR, number, etc.,) at which indicator is being measured.	**Brown Text: Indicators from NITI Aayog SDG Index 2020**
Column 6, Data Source, is the relevant national or state level schemes, programmes, projects, and/or dashboards mapped to the indicators [Source: secondary research].	**Green text: Dashboards and Reports**
Column 7 presents the **Department/ Agency** responsible for collecting data.	
Column 8, Periodicity, is the frequency at which data is available from the said source. Eg., Annual, bi-annual, quarterly, monthly, etc.	
Column 9, Notes, contains additional relevant information,	

Strategy 1	Enhancing capacities for building institutional resilience towards climate change–induced extreme and slow onset disasters
Strategy 2	Creation of knowledge products, policies and guidelines to build climate resilience

Table 2: Operationalized M & E Framework for the Disaster Management Mission

No.	Indicator (13)	Definition	Mapping to strategy	Measurement unit
1	Disaster preparedness score as per Disaster Resilience Index	The disaster preparedness score card assesses the disaster management system of various states and their capacity to respond to disasters on a scale of 0-50 (NITI Aayog). It is a cumulative score obtained from the Disaster Resilience Index by including 10 parameters like end-to-end early warning systems, emergency operation centres, disaster communication system, emergency medical preparedness, etc. It accounts for a state/UT's preparedness to respond effectively to disasters. The score is calculated on a scale of 50 (NDMA). Higher value means better performance (+)	1	Number
2	Risk-prevention & mitigation score as per Disaster Resilience Index	It is a cumulative score obtained from the Disaster Resilience Index by including the following 10 parameters: 1. Disaster risk-mitigation projects 2. Mainstreaming DRR in development 3. State and disaster risk mitigation fund 4. Safety standards for construction/ land-use plans 5. Safety audit/retrofitting of lifeline structures 6. Construction of cyclone/flood shelters 7. Ecosystem approach for disaster-risk reduction 8. Social safety net for the poor and vulnerable 9. Mitigating risks of heritage 10. Integration of climate change adaptation with DRR The score is calculated on a scale of 50. (NDMA) S Higher value means better performance (+)	1	Number

Data source	Department/Agency responsible for collection of data	Periodicity	Notes
Home Department, UP government [Disaster Score Card for States and Union Territories of India Report Vol. 1, NDMA]	Revenue Department and State Disaster Management Authority (SDMA) + Municipal Corporation	Seasonal (Rainy, Winter, Summer)	Ministry of Home Affairs [Disaster Risks and Resilience in India - An Analytical Study, MHA-UNDP]
Home Department, UP government [Disaster Score Card for States and Union Territories of India Report Vol. 1, NDMA]	Revenue Department and SDMA + Municipal Corporation	Seasonal (Rainy, Winter, Summer)	

Table 2: Operationalized M & E Framework for the Disaster Management Mission

No.	Indicator (13)	Definition	Mapping to strategy	Measurement unit
3	Hazard Risk Index	Hazard Risk Index is a composite index created for the states and UTs comprising different hazards like earthquake, landslide, flood, drought, tsunami, avalanche, heat wave, cold wave, coastal erosion, lightning, fire, forest fire and industrial hazards, with specific parameters for each of these hazards and different weights put on these selected parameters (NDMA) Higher value means lower performance (-)	1	Number
4	Number of human lives lost per 1 crore population due to extreme weather events	Numerator (N)= Number of human lives lost due to extreme weather events Denominator (D) = Mid-year projected population for the year Number of human lives lost per 1 crore population due to extreme weather events = (N/D)* 10000000 Higher value means lower performance (-)	1	Per 1 crore popula
5	Population affected	People requiring immediate assistance during a period of emergency, i.e., requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance. This may include displaced or evacuated people Higher value means lower performance (-)	1	Number
6	No. of cattle/live-stock perished	No. of cattle/livestock perished due to earthquake, landslide, flood, drought, tsunami, avalanche, heat wave, cold wave, coastal erosion, lightning, fire, forest fire and industrial hazards, as per hazards defined under NDMA Higher value means lower performance (-)	1	Number
7	Cropped area affected	Area of crop affected by extreme weather events, as per hazards defined under NDMA Higher value means lower performance (-)	1	Hectares

	Data source	Department/Agency responsible for collection of data	Periodicity	Notes
	Home Department, UP government [Disaster Score Card for States and Union Territories of India Report Vol. 1, NDMA]	Revenue Department and SDMA + Municipal Corporation	Half-yearly	
ation	1. UP Directorate of Economics and Statistics [EnviStats India 2020] 2. Deparment of Health and Family Welfare, UP	Revenue Department and SDMA + Municipal Corporation	Annual	
	Home Department, UP government [Disaster Score Card for States and Union Territories of India Report Vol. 1, NDMA]	Revenue Department and SDMA	Seasonal (Rainy, Winter, Summer) + Real time data	Definition source - (Guha-Sapir et al., 2006) - Centre for Research on the Epidemiology of Disasters (CRED) launched the Emergency Events Database (EM-DAT) https://sustainabledevelopment.un.org/content/documents/7774UN%20Note%20on%20affected%20-%20Final%20version.pdf
	Uttar Pradesh State Disaster Management Authority (UPSDMA), UP government [Disaster Risk Reduction Programme (DRR)]	UPSDMA and Revenue Department	Seasonal (Rainy, Winter, Summer) + Real time data	
	Uttar Pradesh State Disaster Management Authority (UPSDMA), UP government [Disaster Risk Reduction Programme (DRR)]	UPSDMA and Revenue Dept, Department of Agriculture	Seasonal (Kharif, Rabi and Summer)	

Table 2: Operationalized M & E Framework for the Disaster Management Mission

No.	Indicator (13)	Definition	Mapping to strategy	Measurement unit
8	Estimated value of damaged crops	Total INR value of crops damaged due to extreme weather events, as per hazards defined under NDMA Higher value means lower performance (-)	1	INR
9	Estimated value of damage to infrastructure	Total INR value of infrastructure (buildings, roads, public properties, etc.) damaged due to extreme weather events, as per hazards defined under NDMA Higher value means lower performance (-)	1	INR
10	No. of IEC materials developed	No. of Information, Education and Communication (IEC) materials developed to spread awareness about climate induced extreme weather events Higher value means better performance (+)	2	Number
11	No. of early warning information disseminated	No. of early warning messages sent to target groups to enable individuals, communities, governments, businesses and others to take timely action to reduce disaster risks Higher value means better performance (+)	2	Number
12	No. of trainings conducted for government officials	No. of trainings conducted for government officials for better disaster preparedness Higher value means better performance (+)	2	Number
13	No. of Aapda Mitras trained	No. of Aapda Mitras trained for better disaster preparedness Higher value means better performance (+)	2	Number

	Data source	Department/Agency responsible for collection of data	Periodicity	Notes
	Uttar Pradesh State Disaster Management Authority (UPSDMA), UP government [Disaster Risk Reduction Programme (DRR)]	Revenue Department and SDMA, Department of Agriculture	Seasonal (Kharif, Rabi and Summer)	
	Uttar Pradesh State Disaster Management Authority (UPSDMA), UP government [Disaster Risk Reduction Programme (DRR)]	Revenue Department and SDMA	Seasonal (Rainy, Winter, Summer)	
	UPSDMA	UPSDMA	Half-yearly	Available at district level
	Revenue Department	Revenue Department	Seasonal (Rainy, Winter, Summer)	Warnings sent through IVRS calls, Aapda preheri app used for dissemination. No. of early warning messages disseminated (target select an area all – polygon) – all the mobiles in the No. of IVRS (Interactive Voice Response System) calls sent
	UPSDMA	UPSDMA	Half-yearly	
	UPSDMA	UPSDMA	Half-yearly	

Schemes for the Disaster Management Mission

Table 3: Various State Schemes and their alignment with the Disaster Management Mission and its strategies

No.	Scheme Name	Description
1	Flood Manage- ment and Bor- der Areas Programme (FMBAP)	To provide central assistance to the flood prone states to take up flood control and river management works in critical areas.
2	Drought Prone Area Programme (DPAP)	· The basic objective of the programme is to minimise the adverse effects of drought on production of crops and livestock and productivity of land, water and human resources ultimately leading to drought proofing of the affected areas.
3	Desert Develop- ment Programme (DDP)	The programme aims to minimise the adverse effect of drought and control desertification through rejuvenation of natural resource base of the identified desert areas.
4	National Database for Emergency Management (Dashboard)	National Database for Emergency Management (NDEM) is a national repository of multi-scale geospatial database coupled with decision support system tools. It is a unique and homogenous database served for entire country with essential database elements for addressing emergency/disas- ter management in the country
5	Flood Mapping Information System Centre (Dashboard)	

Geography	Timeline	Notes
National	2017-18 to 2019-20 and further extended up to September, 2022.	Link – https://jalshakti-dowr.gov.in/schemes/-flood-management-programme
16 states including UP	Launched in 1973-74, DPAP and DDP have been subsumed under Integrated Watershed Development Programme (IWDP) since 2009	Link – https://www.gktoday.in-/topic/drought-prone-area-programme/#:~:text=Drought%20Prone%20Areas%20Programme%20(DPAP,affected%20by%20severe%2 0drought%20conditions https://dolr.gov.in/en/drought-prone-ar- eas-programme-dpap
16 states including UP	1977-78 to 2005-06	Link – https://dolr.gov.in/en/desert-development-programme-ddp#:~:-text=The%20basic%20object%20of%20the,balance%20in%20the%20long%20run.
National	Ongoing	Link – https://ndem.nrsc.gov.in/login.php/geological- disasters/geolog- icaldisasters/documents/downloads/Mobileap p/Relief_Management.apk https://ndem.nrsc.gov.in/login.php
State	Real time	Link – https://www.fmiscup.in/

Table 3: Various State Schemes and their alignment with the Disaster Management Mission and its strategies

No.	Scheme Name	Description
6	India Meteorolog- ical De-partment (Dashboard)	
7	SDG Goals: Progress Report 2021 Uttar Pradesh (Based on NIF Prog-ress Report 2021 by MoSPI)	The "SDGs National Indicator Framework Progress Report, 2021" highlights the progress made so far in the journey of SDGs moni-toring/achievement at national level and identifies the gaps. Based on the report, Department of Planning, Govt of Uttar Pradesh pre-pared the report for state to present the achievements vis a vis achievement at the country level for each of the indicators
8	Disaster Risk Reduction Programme (DRR)	DRR focuses on creating awareness and improving the capacities of all concerned stakeholders, including government and non-govern-ment actors, for effective implementation of DRR. The objectives are the study & assessment of disaster management systems, mainstream-ing of DRR, capacity development of stakeholders, strengthening of knowledge manage- ment, and information and research network.
9	Aapda Mitra Scheme	The scheme aims to provide the community volunteers with the skills that they would need to respond to their community's immedi-ate needs in the aftermath of a disaster thereby enabling them to undertake basic relief and rescue tasks during emergency situations such as floods, flashfloods, and urban flooding.
10	13th Finance Commission Capacity Building Programme	The programme aims for building capacity for better handling of disaster response and for preparation of district and state level disaster management plans as envisaged under the Disaster Management Act of 2005 (DM Act) for the state of Uttar Pradesh.

Geography	Timeline	Notes
National	Real time	Link – https://city.imd.gov.in/dashboard/ https://mausam.imd.gov.in/ https://mausam.imd.gov.in/imd_latest/ con- tents/imd-dwr-network.php
State		Link – https://planning.up.nic.in/Go/SDG/ UP_S- DG%20Progress%20Mo- SPI%203.1%2028-12-2021.pdf
State	2013-17	Link – http://www.upenvis.nic.in/Database/Disas- ter- management_870.aspx?format=Print
National	The project approved for the duration of 2 years, i.e, 2016-2017 to 2017-2018. The scheme is extended upto 31.12.2020.	Link – https://ndma.gov.in/Capac- ity_Building/Admin- _Coordination/Aapda-Mitra https://ndmindia.mha.gov.in/programs
State	2010-15	Link – https://upsdma.up.nic.in/13thbuilding.pdf

Table 3: Various State Schemes and their alignment with the Disaster Management Mission and its strategies

No.	Scheme Name	Description
11	Disaster Management Support Services (Dashboard)	NRSC/ISRO has the mandate to develop the technologies for effective use of remote sensing and GIS based information services for disaster mitigation, relief and management at local/state/central level.
12	National Hydrology Project (NHP)	The objective of the project is to improve the extent, quality, and accessibility of water resources information, decision support system for floods and basin level resource assessment/planning and to strengthen the capacity of targeted water resources professionals and management institutions in India.
13	National School Safety Programme	The objective is to sensitize children and the school community on disaster preparedness and safety measures
14	India Disaster Resource Network Dashboard	India Disaster Resource Network (IDRN) is a web-based platform, for managing the inventory of equipment, skilled human resources and critical supplies for emergency response. Primary focus of IDRN portal is to enable the decision makers to find answers on availability of equipment and human resources required to combat any emergency situation. This database will also enable them to assess the level of preparedness for specific disasters.

Geography	Timeline	Notes
National	Real time	Link – https://bhuvan-app1.nrsc.gov.in/bhuvandisaster/
National	2016 - ongoing	Link – https://idup.gov.in/pdf/ppt_npp.pptx
National	2016 - 19	Link – https://www.ndma.gov.in/sites/default/files/PDF/school_safety/Final_NSSP_brochure[2]%20English.pdf https://ndma.gov.in/Mitigation_Preparedness/School-safety-project
National	Real time	Link – https://idrn.nidm.gov.in/

Table 3: Various State Schemes and their alignment with the Disaster Management Mission and its strategies

No.	Scheme Name	Description
15	Disaster Score Card for States and Union Territories of India	The objectives are: a) To develop benchmarks for various activities to be taken up for disaster risk management, namely risk assessment, risk prevention, risk mitigation and risk governance; and disaster preparedness, disaster response, disaster recovery and disaster reconstruction; b) To quantify the risks of disasters of the States and Union Territories of India on the basis of uniform datasets on common set of indicators on disaster risks, and generate scorecards on Disaster Risk Index; c) To quantify the level of resilience achieved by the States and Union Territories of India on the basis of uniform datasets on common set of indicators on disaster resilience and generate scorecards on Disaster Resilience Index.

Geography	Timeline	Notes
National	2018	Link – https://www.preventionweb.net/-files/65901_measuringdisaster-risksandresilience.pdf

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