भारत सरकार

Government of India

केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority

पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee

एफ-3, एमआयडीसी क्षेत्र, अंधेरी पुर्व मुंबई

F-3, MIDC Area, Andheri (East), Mumbai – 400093

No.CEA-GO-31-03/7/2025-WRPC Dated: 09.06.2025

To,

As per the list

Subject: Minutes of the 2nd Meeting of Region Disaster Management Group (RDMG) of Western region held on 29th May 2025- reg.

Enclosed herewith is minutes of the 2nd Meeting of Region Disaster Management Group (RDMG) of Western region held on 29th May 2025 through hybrid mode for information and necessary action.

Your's faithfully

(Prashant Gire)

Assistant Director

Mob. No. 7770036304

List of Members

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3.	Superintendent Engineer (CP & SS), GETCO, Vadodara	0265-2337918, 2338164
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5.	Chief Engineer (O&M:Gen), MPPGCL, Jabalpur	0761-2664572/2668050
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7.	Chief Engineer (PP), MSEDCL, Mumbai	
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18.	Station Director, TAPS, Tarapur 3 & 4	02525-244021/244169
19.	Station Director, KAPS, Kakrapar 1 &2	02626-231231
20.	Station Director, KAPS, Kakrapar 3 & 4	
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24.	General Manager, NTPC, Vindhyachal, M.P.	07805 –247711
25.	General Manager, NTPC, SIPAT, CG	07752-246504
26.	General Manager NTPC LARA	
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28.	General Manager NTPC Khargone	
29.	General Manager NTPC Solapur	
30.	General Manager, NTPC, Kawas, Surat	0261-2860290
31.	General Manager, NTPC, Gandhar	02642-287402
32.	General Manager, NTPC, Mouda	07115-281221/281219
34.	CLD TPC, Mumbai	022-25541908/67175385
35.	Head (O), Dahanu TPS, Dahanu	02528-222039
36.	Sr V P Reliance Transmission, Pune 30471555	0124-3917982/020-
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38.	Vice President (O &M), APL Mundra , Gujarat	02838-266364
39.	Head Operation CGPL Mundra	
40.	Vice President (Opn), Jindal Power Ltd.,Raigarh	07767-281993/281995
41.	AGM(OS) NSPCL Delhi	011-26717363,26717366
42.	GENERAL MANAGER (POWER), RGPPL, Ratnagiri	02359-241071/ 241011
43.	Member (Power), NCA, Indore	0731-2559888
44.	Chief Engineer (PM & C), NHDC, Bhopal	0755 4030188/4030130
45.	E. E. Elect. (Ponda), Goa	0832-2313780
46.	Executive Engineer DD (UT), Daman	0260-/2230771/2250889/2230550
47.	Executive Engineer DNH (UT), Silvassa	0260-2642338
48.	Secretary, CERC, New Delhi	011-24360010/23753923
49.	CEO, JSW Energy ltd.	011-46032343/26183546
50.	VP-Power Infra-Essar Hazira Surat	0261-6688498/022-67082198
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52.	Vice President EPTCL Hazira Surat	0261-6682747
53.	COO, Korba West Power Co. Ltd. Raigarh	
54.	VP(COMML) Essar Power MP Ltd MP	
55.	GM Torrent power grid ltd. Ahmedabad, Gujarat	
56.	Adani Power Maharashtra Ltd Tiroda	
57.	CGM, R K M Powergen Pvt Ltd	
58.	ED, Athena Chattishgarh Power Ltd.	
59.	Head(O&M) Dhariwal Infra Ltd C'pur	
60.	Head Operation Jaypee Nigrie STPP Singrauli.	
61.	VP(O&M), GCEL, Chhattishgarh	
62.	Head Operation DB Power, Chhattishgarh.	
63.	Head operation Hindustan Power, Anuppur MP	
64.	Head operation GMR, Warora Energy ltd.	
65	Head O&M, Sterlite Grid Ltd Bhopal	
66	Head Operation Balco, Chhattishgarh.	
67	Head(O& M), SKS, SPGCL, Raigarh	
68	AVP,O&M Electrical,RIPL,Amravati	

Minutes of the 2nd Meeting of Region Disaster Management Group (RDMG) of Western region held on 29th May 2025.

The 2nd meeting of Region Disaster Management Group (RDMG) of Western region held under the Chairmanship of Member Secretary, WRPC on 29th May 2025 at 11:00 AM at Mumbai. The list of participants is enclosed as **Annexure-I.**

2. Member Secretary, WRPC welcomed all the participants and briefed them on the objective of the meeting, emphasizing the need to strengthen disaster preparedness across the Western Region and highlighted the guiding principles of the Sendai Framework for Disaster Risk Reduction, which underscores the importance of proactive risk management, institutional preparedness, and the development of resilient infrastructure. Thereafter, he requested WRLDC to initiate the proceedings with a presentation on Disaster Management. The presentation shared by WRLDC is enclosed as **Annexure-II.**

3. The participants confirmed the Minutes of the 1st Meeting of Region Disaster Management Group (RDMG) of Western region held on 12th July 2024. Thereafter, discussions were held on the following agenda items:

Item No. 1: Disaster Risks in the Power Sector and actions to be taken

The power sector is a critical infrastructure, and disruptions due to disasters cause significant hardship for human beings and economic loss because every aspect of human life is directly or indirectly associated with electricity. The key disaster risks specifically identified for the power sector include Fire / Forest fire, Cyclones, Floods/Flash Flood/Cloud Burst/Urban Flood, Earthquake, Tsunami, Landslides and Snow Avalanche, Thunderstorm & Lightning, Squall, Dust Storm, Strong Wind, Pandemic / Epidemic, and Environment and Climate Change. These hazards can damage power establishments, equipment, and networks, leading to disruptions in the generation, transmission, distribution, and supply of electricity to affected areas.

As per the decision in the 1st Meeting on Western Regional Disaster Management-

- All utilities to prepare long /medium/short-term plans based on their experience in dealing with natural disasters in the past 10 years and the best practices followed across the world to ensure a resilient infrastructure.

Discussions held in the meeting:

EE, WRPC enquired about the status of the Disaster Management Plan (DMP) and Crisis Management Plan (CMP) of the utilities and requested them to share their respective plans. Member Secretary, WRPC, added that the utilities should refer to the DMP and CMP prepared by the Ministry of Power as guidance while preparing their plans. He emphasized that separate CMP and DMP

documents need to be prepared by each utility as the institutional framework for dealing Disaster & Crisis differs. Also, the CMP is to be treated as a confidential document, whereas the DMP should be shared with the concerned stakeholders.

Item No. 2: Sharing of warning alerts for impending natural calamities to Power Sector Utilities

The power grid, with its extensive infrastructure, is very susceptible to damage from natural disasters like cyclones, floods, and earthquakes. However, having advanced information about these events would help power companies reduce the damage and speed up restoration efforts.

Discussions held in the meeting:

MS, WRPC observed that warning alerts for cyclones and earthquakes typically follow a top-down approach, whereas flood alerts generally follow a bottom-up approach. He stated that alerts from the top-down approach are more easily accessible since notifications are received directly from higher authorities. He then inquired how utilities receive alerts in the bottom-up approach.

In response, the Representative of NTPC stated that the local administration provides alerts for local calamities, and based on these alerts necessary precautions is taken in coordination with local agencies.

Item No. 3: Sendai Framework for Risk Reduction

The goal of the Sendai Framework is to "Prevent new and reduce existing disaster risks through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience."

As per the decision in the 1st Meeting on Western Regional Disaster Management "The disaster management plan of all the utilities should be aligned with the Sendai framework and utilities may update their plan accordingly".

Discussions held in the meeting:

MS, WRPC stated that the DMP of power sector is based on Sendai Framework. He informed that the Sendai Framework was officially adopted by India in 2015, and accordingly, the disaster management plans of all utilities should be prepared in alignment with the principles outlined in the framework.

Most of the utilities stated their plan document is more response specific. MS WRPC stated that such plans are not as per Sandai framework which

emphasises more on pre disaster activities i.e. disaster mitigation and preparedness.

NTPC stated their new plan based on Sendai framework is under approval process and will be submitted very soon.

Item No. 4: Risk Mitigation and Strengthening Resilience

The Disaster Management Plan (DMP) outlines the risks linked to the power sector and related thematic areas. The Risk and Disaster Management Group (RDMG) is tasked with aligning the responsibility matrix for utility projects accordingly. Implementing this matrix will support effective risk mitigation and enhance system resilience against disasters.

Based on the four-priority area, six thematic areas for action have been identified in the Sendai Framework to achieve its four priorities which are as follows:

i. Understanding Risk

ii. Inter-Agency Coordination

iii. Investing in DRR – Structural Measures

iv. Investing in DRR – Non-Structural Measures

v. Capacity Development

vi. Climate Change Risk Management

For each thematic area, the DMP has identified a set of major sub-themes for undertaking actions within the broad planning framework under Chapter 7: Disaster Risk Reduction and Building Resilience – The Responsibility Matrix.

All the utilities were requested to include similar responsibility matrices in their DMP as per the applicability."

Discussions held in the meeting:

EE, WRPC highlighted the need to align DMPs with the six thematic areas for action identified in the Sendai Framework, which support the achievement of its four priority areas. MS WRPC added that the responsibility matrixes for all six thematic areas should be a part of Disaster Management Plan document prepared by the utilities in line of such matrixes added in DMP of Power Sector prepared by MoP.

Item No. 5: Preparedness of Restoration Plan & Black Start Facilities

The integrated operation of the National Grid is an extensive and complex undertaking that requires constant vigilance and meticulous attention, particularly from a disaster management perspective. In the event of a grid failure, swift and coordinated efforts must be executed across generating stations, substations, and transmission lines, guided by the National Load Despatch Centre (NLDC), Regional Load Dispatch Centres (RLDCs), and State Load Despatch Centres (SLDCs).

IEGC, 2023 mandates that:

i. SLDC of each State and the RLDC of each region shall prepare restoration procedures for the grid for their respective control areas, which shall be updated every year by the concerned SLDC and RLDC taking into account changes in the configuration of their respective power systems.

ii. Detailed procedures for restoration post partial and total blackout of each user system within a region shall be prepared by the concerned user in coordination with the concerned SLDC, RLDC or NLDC, as the case may be.

iii. NLDC, RLDC and SLDC shall identify the generating stations with black start facility, grid forming capability of inverter-based generating stations, house load operation facility, inter-state or inter-regional ties, synchronizing points and essential loads to be restored on priority.

Utilities are requested to update on the following:

1) The Black Start procedure adopted by RLDCS/SLDCs.

2) RLDCS/SLDCs update the list of black start reserves identified.

3) The start-up procedure adopted for generating units.

Discussions held in the meeting:

EE, WRPC informed that the availability of Black Start-capable units was reviewed during the Operational Readiness and Emergency Preparedness Meeting held on 11th May 2025, in view of the India–Pakistan border tensions prevailing at that time. He stated that, as per the deliberations of the last emergency meeting, all entities had confirmed the availability of their Black Start facilities, which could be made operational promptly whenever required.

MS WRPC advised all utilities to include detailed restoration procedures in their respective Disaster Management Plans, covering protocols for total system blackout and phased restoration within each regional user system. He also requested Gujarat SLDC and TATA Power to share their blackout restoration experiences with all entities, as they had successfully executed

the entire process very recently.

Item No. 6: Periodic Mock Drill Exercises in areas of generation, transmission and distribution of the power sector

In accordance with the Disaster Management Plan for the Power Sector formulated by the Central Electricity Authority (CEA) under the Disaster Management Act, 2005 and approved by the Ministry of Power, Government of India—regular mock drill exercises must be conducted across the generation, transmission, and distribution segments of the power sector to ensure preparedness for potential emergencies. These drills should simulate a variety of crisis and disaster scenarios such as earthquakes, floods, and other relevant hazards, based on the specific vulnerabilities of each installation or plant. Utilities are required to conduct at least one mock drill per quarter for every type of crisis or disaster risk identified for their facilities. Any shortcomings or issues observed during these drills must be thoroughly reviewed, and corrective actions must be implemented to prevent the recurrence of such events in the future.

Discussions held in the meeting:

MS, WRPC highlighted the importance of conducting regular mock drill exercises and reiterated that these drills are vital for assessing the preparedness of utilities to handle potential emergencies such as earthquakes, floods, and other site-specific hazards. He advised all utilities to conduct mock drills at least once every quarter for each type of disaster or crisis scenario relevant to their facilities and submit mock drill reports to CEA. Utilities should also inform CEA in advance about the schedule of upcoming mock drills to enable participation or observation, if required.

Additionally, all entities were encouraged to share key observations and lessons learned from their mock drills with each other to promote cross-learning and continuous improvement in emergency preparedness across the region.

Item No. 7: Restoration of Transmission Lines & Emergency Restoration Systems (ERS)

Transmission lines serve as the vital arteries of the electricity grid and are particularly susceptible to damage from natural disasters such as earthquakes, cyclones, and floods. In the event of such damage, Emergency Restoration Systems (ERS) can be deployed to temporarily restore power supply. ERS comprises lightweight, modular structures equipped with polymer insulators and multiple stays, designed for quick assembly and deployment.

To facilitate the effective use of ERS, the Central Electricity Authority (CEA) has issued specific guidelines for its requisition, and the Ministry of Power has issued

an advisory to all state utilities emphasizing its importance.

According to the Central Electricity Authority (Grid Standards) Regulations 2010 and the Disaster Management Plan for the Power Sector, the following requirements apply regarding ERS:

- Every transmission licensee must have arrangements in place for the restoration of 400 kV and above transmission lines, as well as strategically important 220 kV lines, using ERS to minimize durations following tower failures.
- Strategic locations for storing ERS components should be identified and maintained at centralized, regional, or zonal levels for rapid deployment.

Discussions held in the meeting:

MS, WRPC stated that the transmission utilities are expected to maintain at least one set of Emergency Restoration System (ERS) per 5,000 Ckt.km of their transmission lines. He further suggested that utilities may also explore entering into ERS sharing agreements with neighboring entities to strengthen regional emergency response capabilities.

EE, WRPC, referring to the discussions held during the last preparedness meeting held on 11th May 2025, noted that Gujarat is currently dependent on Power Grid Corporation of India Ltd. (PGCIL) for ERS support. Accordingly, Gujarat was advised to initiate its own ERS procurement process. In response, the Gujarat representative informed that the procurement process has commenced and is currently under financial approval.

EE, WRPC further advised all entities to update the list of spares used during emergencies on the DRIPS portal, so that such resources can be tracked and mobilized efficiently across the region in the event of an emergency.

Item No. 8: Risk transfer and insurance of assets

The power sector's infrastructure encompasses generation, transmission, and distribution assets, all of which require substantial capital investment. To safeguard these high-value assets against a variety of risks, effective risk transfer strategies—such as insurance—are essential. Risk transfer is a key risk management approach where potential losses are contractually shifted from one entity to another, typically through insurance arrangements.

Power utilities should ensure that comprehensive insurance coverage is in place for critical equipment and facilities. Additionally, adequate insurance provisions must be made for employees to cover potential disaster-related incidents.

Discussions held in the meeting:

MS, WRPC emphasized the importance of having comprehensive insurance coverage as a fundamental part of the power sector's risk management strategy. He noted that insurance not only helps in mitigating financial losses arising from damage to critical infrastructure but also provides security for employees against disaster-related risks.

Item No. 9: Islanding Schemes in Power Sector

The status of the existing Islanding schemes as discussed in the PCM is as given below:

S. No.	Name of Islanding Scheme	Progress of the Scheme	Review of changes if any	Healthiness of the Battery	SCADA visibility
1	Mumbai Islanding Scheme	In-service	No operational constraints found.	Healthy	Visible
2	Uran Islanding Scheme	In-service	No modification required and no operational constraint found.	Healthy	Partly Visible
3	Surat Islanding Scheme	In-service	No modification required and no operational constraint found.	Healthy	Visible
4	Ahmedabad City Islanding Scheme	In-service	No modification required and no operational constraint found.	Healthy	Visible
5	KAPS 1&2 Islanding Scheme	In-service	No modification required and no operational constraint found.	Healthy	Visible
6	KAPS 3&4 Islanding Scheme	Under Implementation	Discussed on 23.11.2023 regarding Implementation	Healthy	Visible
7	Sugen Islanding Scheme	In-service	No modification required and no operational constraint found.	Healthy	Visible

The status of the new Islanding Schemes is as follows:

Sr. No.	Name of Islanding Scheme	Name of Generating Station	State	Status
1	Nagpur	Khaparkheda TPS	Maharashtra	Submitted for PSDF grant approval
2	Jamnagar	Sikka	Gujarat	Submitted for PSDF grant approval
3	Bhuj (Anjar-Kukma)	APL	Gujarat	
4	Jabalpur	Amarkantak TPS	Madhya Pradesh	PSDF Grant approved.
5	Raipur	Marwa (W) TPS	Chhattisgarh	Submitted for PSDF grant approval

Discussions held in the meeting:

MS, WRPC inquired about the status of new islanding schemes. The representative from Madhya Pradesh updated that the Jabalpur Islanding Scheme is expected to become operational within three months and they have also submitted proposals for two additional islanding schemes. MS WRPC, stated that those proposals will be discussed in a separate Protection sub-committee meeting. He further advised to continuously monitoring the healthiness and operational readiness of existing islanding schemes.

Item No. 10: Status of Emergency Operation Centers (EOCs)/Control Rooms and Back-up EOC/ Control Rooms in Power Sector

As per the DMP, An Emergency Operation Centre (EOC) i.e. a centralized facility with full communication infrastructural facilities, should be set up at each power establishment level from which Disaster-related operations are directed and coordinated.

The objective of the EOCs shall be to provide centralized directions and control of any or all of the following functions:

i. Receive and process disaster alerts and warnings from nodal agencies and other sources and communicate the same to all designated authorities;
ii. Monitor emergency operations;
iii. Requisition of additional resources during the disaster phase;
iv. Issue disaster/incident-specific information and instructions specific to all concerned;
v. Consolidation, analysis, and dissemination of damage, loss and needs assessment data;
vi. Forward consolidated reports to all designated authorities;
vii. Facilitate coordination among internal departments and external agencies;

The EOCs/Control Rooms shall have the following resources to effectively handle Crisis/disasters –

i. State-of-the-art communication facilities (conventional and alternative communication systems) for seamless communication during threatening disaster situations or disasters.
ii. Necessary IT support, disaster dashboard facility & connectivity with Distribution Companies, SCADA & breakdown management system, so that monitoring of network outage, list of breakdowns and off supply of VVIP consumer & vital installations e.g. Police Station, Fire Station etc. can be directly viewed and necessary guidance for faster restoration/rebuild of the system can be generated.

iii. The EOC building should be disaster resistant, so as to withstand the Functionalities and features available in EOCs should be periodically checked and should be suitably upgraded as per requirement.

iv. A backup EOC/ Control room should also be set up preferably at a remote location & kept ready to manage adverse situations if the main control room dysfunctions or gets affected due to any disaster. The backup control room should be tested periodically for intended functionality by making it the main control room.

Discussions held in the meeting:

EE, WRPC stated that the issue of Backup SLDCs, which function as backup Emergency Operation Centers (EOCs) or Control Rooms during disasters, was adequately discussed in the Operational Readiness and Emergency Preparedness Meeting held on 11th May 2025 and the 591st OCC meeting. He highlighted the following key points:

i. **The Backup SLDC shall be capable of fully functioning as the Main SLDC during contingencies.**
ii. **The option of manpower redistribution to strengthen Backup SLDC operations should be actively explored, ensuring adequate staffing at both Main and Backup SLDCs.**
iii. **Regular operation and testing of both Main and Backup SLDCs shall be conducted.**
iv. **The geographical locations of the Main and Backup SLDCs shall be sufficiently distant from each other to safeguard against location-specific contingencies.**
v. **Frequent mock drill trials shall be conducted to verify the effective functioning of Backup SLDCs.**

Item No. 11: Cyber Risk Assessment and Mitigation Plan

Formulating a Cyber Risk Assessment and Mitigation Plan is essential to protect critical infrastructure and systems in the power sector from evolving cyber threats. The Central Electricity Authority (CEA) Guidelines on Cyber Security in the Power Sector are of vital importance to all stakeholders within the sector. These guidelines call for the establishment of a Cyber Crisis Management Plan (CCMP) to address cyber incidents through a comprehensive, coordinated, and multi-disciplinary approach. This includes prompt threat identification, prompt information sharing, rapid response, and remedial actions to contain and recover from cyberattacks affecting critical operations.

The Chief Information Security Officer (CISO) of each utility is responsible for

implementing the Cyber Risk Assessment and Mitigation Plan, as well as conducting regular reviews based on both internal and external feedback.

Discussions held in the meeting:

WRLDC stated that several cyberattack attempts were observed during the recent India–Pakistan border tensions, underscoring the urgent need for robust cyber defences across the power sector. They emphasized that all utilities must have a Cyber Crisis Management Plan (CCMP) in place to ensure preparedness against cyber threats. They also assured that all necessary support would be extended to entities for the preparation of their respective CCMPs.

Furthermore, WRLDC requested each utility to submit the name and contact details of their designated Chief Information Security Officer (CISO), who is responsible for developing, implementing, and overseeing the organization's cybersecurity strategy to ensure protection against cyber threats.

Item No. 12: Financial arrangement specifically for the Power Sector

The financial dimensions of Disaster Risk Management are vital in planning for immediate post-disaster relief and recovery. The Disaster Management Act, 2005 includes specific provisions for the allocation of funds by various Ministries and Departments, as outlined below:

"(1) Every Ministry or Department of the Government of India shall make provisions, in its annual budget, for funds for the purposes of carrying out the activities and programs set out in its disaster management plan.

(2) The provisions of sub-section (1) shall, mutatis mutandis, apply to departments of the Government of the State."

Moreover, the Disaster Management Plan for the Power Sector mandates each power utility shall create a fund for meeting the requirements of the disaster management plan. The disaster management fund would be 1.5% of the annual revenue of the utility. Besides the above, every utility should have a core corpus of sufficient amount, especially for immediate relief and rehabilitation depending upon the revenue potential of the utility and the same should be replenished on an annual basis.

All utilities are requested to update the following:

- Creation of the disaster management fund by utilities.
- Status of the funds available in the disaster management fund.
- Utilization pattern of the fund under various circumstances.

The financial aspects of Disaster Risk Management play a crucial role in the development of planning for immediate relief post-disaster, Disaster Management Act, 2005 ensures special provision for the allocation of funds by Ministries and Departments, which states:

> "(1) Every Ministry or Department of the Government of India shall make provisions, in its annual budget, for funds for the purposes of carrying out the activities and programs set out in its disaster management plan.
>
> (2) The provisions of sub-section (1) shall, mutatis mutandis, apply to departments of the Government of the State."

Disaster Management Plan for the Power Sector mandates each power utility shall create a fund for meeting the requirements of the disaster management plan. The disaster management fund would be 1.5% of the annual revenue of the utility. Besides the above, every utility should have a core corpus of sufficient amount, especially for immediate relief and rehabilitation depending upon the revenue potential of the utility and the same should be replenished on an annual basis.

Discussions held in the meeting:

MS, WRPC emphasized the critical importance of financial preparedness in disaster management and highlighted the relevant provisions under the Disaster Management Act, 2005 which mandate utilities to earmark dedicated funds within their annual budgets for disaster-related activities.

MS, WRPC urged utilities to treat financial provisioning as an integral part of disaster preparedness to enable swift and efficient response and recovery in crisis situations.

Part B: Crisis Management

Crisis Management Plan

Besides the natural disasters, there are many man-made of technology oriented physical events, which result in a significant disruption in the normal business of electricity supply. These may include severe accidents caused due to fire explosion, handling of hazardous materials, act of terrorism, cyber-attack, strike by employees or disruption in supply of essential inputs like coal/fuel etc. such events may affect generating plant, transmission system or distribution system with or without loss of human life or physical injuries. The crisis management plan shall be able to respond quickly and effectively to such unexpected events and situation. In majority of cases, such situations are localized in nature and this should be handled by the plant / installation level emergency management group supported be state level group. Only in those cases, where central assistance is required in terms of administrative or policy initiative and / or are having wider ramifications, the central level Power management Group should be associated. However, in all cases, the information flow to State regional & central level must continue.

i.Terrorist Attack:

Terrorist attack is normally local in nature confined to small area. The response mechanism shall be as per the advice of Emergency Management Group set up at each plant/installation. Everybody should act without panic and rumours according to the well-defined instructions already assigned to each one of key employees and workers.

ii.Bomb Threats & Bomb Explosion

Physical Security Aspects of Installations, Basic steps to be carried out in the event of a bomb threat, Action plan to Deal with Bomb & Bomb Threats.

iii.Drone Attack

Identify potential risks associated with drone activity, including surveillance, physical damage, and operational disruptions, Emergency Drone Response Team, Response Phase (During Drone Incident)

iv.Strike by Plant Personnel:

In any organization there are three broad categories of employees viz. executives, supervisors and workmen. Employees in all these categories can get organized in the form of unions/ organizations/federations and take part in strikes. The possibility of executives going no strike may be very remote and it is felt that the speedy redressal of grievances and motivational factors should form a part of the strategy to keep the executives away from resorting to such extreme steps as going on strike.

Notwithstanding the above, a plan needs to be prepared for handling crisis arising out of strikes.

v.Fire Protection:

Though fire can occur in any part of the plant, some areas are more prone to fire than others. The fire prone areas must be identified well in advance so that the initiated to take precautionary measures can be put in place. A ready assessment of fire equipment available within the installation as well as within the adjoining areas should be available. In case fire protection equipment is outside the installation the method of accessing them should also be known to the concerned people. In certain cases, mutual assistance agreement needs to be entered with the nearby organization to share the firefighting equipment. This agreement should be drawn during the normal times. The method of handling various types of fire with different type extinguishing equipment may be listed in order to avoid confusion or any other type of hazards. The information on the fire protection to cover the various aspects mentioned above may be collected in appropriate manner.

vi.Cybersecurity Threats

The operation of critical electrical infrastructure in India may be at risk due to increasing cyber incidences that may impact normal operations. The electrical infrastructure depends on electronic control systems for its operation which are cyber physical systems i.e., physical systems control and operated by a IT system. Due to this power system become prone to cyber-attacks as in case of IT systems. Since any damage to cyber physical system is always cause loss of time and money, cyber security of power system is critical. Cyber-attacks are increasing threats to the control systems used in the critical infrastructures in the world today. Cyber-attacks may not be as easily identified and many of the attacks may go unnoticed even to the companies for long periods of time. Even though the resources and tools for cyber-attacks are becoming more commonplace and readily available, companies that own and operate or make up the critical infrastructures are often unaware of the problem and may have poor cyber security designs and weak protection.

Power System operations and control was initially local, including automated isolation and concentrating on continuity/ reliability of the system and of the supply. However, with the introduction of Information & Communication Technology (ICT) based control systems, efficiency, reliability and operational flexibility of Power System has increased many folds. These control systems like SCADA/ EMS can be operated in isolation and also in connected mode with corporate network as well as internet. The result is exposure of the Power Systems controls to cyber space and thus becoming vulnerable to Cyber-attacks.

Cyber-attacks can be perpetrated both by outsiders as well as insiders and may be caused by design faults, employee errors, firewall misconfigurations, tardy software

updates and circumvention of existing security elements such as IDS and IPS systems. Such attacks can have far–reaching and detrimental effects on power systems controls and could lead to the destabilization of the supply capabilities of the energy sector and lead to cascading effect on the national economy itself.

Cyber threats to system can take many forms e.g. failure of a system/ element to act/ react in designed way due to virus, software bugs, intrusion and congestion in the underlying/ supervising system and it may lead the misguidance to the operating engineers and there by taking false decision in real time operation. Dependence of normal system operation on ICT, so much so that operator's/ power system personnel are not aware of and not well versed in alternate method to control/ operate the system. Non availability of ICT systems is also a form of cyber security vulnerability.

Members may please discuss.

Discussions held in the meeting:

EE, WRPC informed that the four-tier institutional structure envisaged under the Disaster Management framework is equally applicable to Crisis Management within the power sector, and henceforth, crisis-related matters will also be discussed as part of the RDMG meetings.

MS WRPC highlighted the increase threat of drone attacks in recent past and requested all utilities to review their plans and take immediate steps to declare their asset as per the different zoning criteria prescribed by MHA.

MS, WRPC further highlighted that the review and monitoring of the Crisis Management Plan by Ministry of Power is carried out at the highest level - by the Secretary (Security), Cabinet Secretariat, Government of India. The minutes of the latest review meeting held on 09.04.2025 was shared with the participants for their awareness. He urged all utilities to prioritize CMP preparedness and ensure their plans are regularly reviewed and updated. A copy of the minutes is enclosed as Annexure-III.

The meeting ended with a vote of thanks to the chair.

****

ANNEXURE-I

2nd RDMG Meeting dated 29.05.2025

Sr no.	Name	Organization	Designation	Mobile Number	Email id	Signature
1	Shri Deepak Kumar	WRPC	MS		ms-wrpc@nic.in	
2	Shri D. N. Gawali	WRPC	SE, Opn		opc-wrpc@nic.in	
3	Shri Krishna Nand Pal	WRPC	EE, Opn		"	
4	Sunny Parmar	CORPC	AD, Opn	7984863941	"	
5	SHAILENDRA VERMA	WRLDC	DGM	9873918446	SKVERMA@GRID-India.in	
6	SHEKHAR GUPTA	WRLDC	Dy. Manager	9713042342	shekhargupta@grid-India.in	S.G.
7	Sanjeet Chaudhary	WRLDC	A.M	9140707665	sanjeetchaudhary@grid-india.in	Sanjeet
8	SK CHANDRAKAR	WRLDC	GM	9433041800	Sanjeev Chandrakar@grid-India.in	
9	Abhay Sahu	NTPC Ltd	AGM (OS)	9423137986	agsahu@ntpc.co.in	
10	Prashant Gux	WRPC	AD, Opn		opc-wrpc@nic.in	
11						
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ANNEXURE-II

Disaster Management Plan for Power Sector

DMP – 2024

1. Disaster Management Plan – Important Aspects
2. Criticality of Western Region
3. Extreme weather events
4. Impact on the Grid elements
5. Discussions

विद्युत क्षेत्र के लिए
आपदा प्रबंधन योजना

DISASTER MANAGEMENT PLAN FOR POWER SECTOR

विद्युत मंत्रालय
भारत सरकार
नई दिल्ली
दिसंबर, 2024

MINISTRY OF POWER
GOVERNMENT OF INDIA
NEW DELHI
December, 2024

(Prepared by Central Electricity Authority in fulfilment of provisions of Disaster Management Act 2005)

(आपदा प्रबंधन अधिनियम 2005 के प्रावधानों की पूर्ति में केंद्रीय विद्युत प्राधिकरण द्वारा तैयार)

Background: The Indispensable Power Sector

Critical Infrastructure: The power sector is one of the most vital infrastructures for the country.

Economic Engine: Its growth is directly correlated with the nation's economic growth.

Lifeblood of Society: Electricity is integral to nearly every aspect of human life.

Impact of Disruption: Disasters causing power outages lead to widespread hardship.

Purpose of This Plan

- **Proactive & Holistic:** To evolve a more proactive, holistic, and integrated approach.
- **Strengthening Key Areas:**
  - Disaster Mitigation
  - Preparedness
  - Emergency Response
  - Recovery
- **Framework for Action:** Provides direction to power sector utilities across all phases of the disaster management cycle.
- **Guidance for All:** Intended to guide all agencies with roles and assignments before, during, and after emergencies.

Scope of the DM Plan: Key Areas Covered

- Institutional Framework for Disaster Management
- Hazard Risk and Vulnerability Analysis (HRVA)
- Coherence of Disaster Risk Management with Resilient Development & Climate Change Action
- Mainstreaming Disaster Risk Reduction
- Disaster Risk Reduction and Building Resilience
- Preparedness & Response
- Recovery and Reconstruction
- Capacity Building & Financial Arrangements

DMP 2024

The revised UNDRR terminology defines '**disaster**' as:

"A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts." (UNDRR 2016)

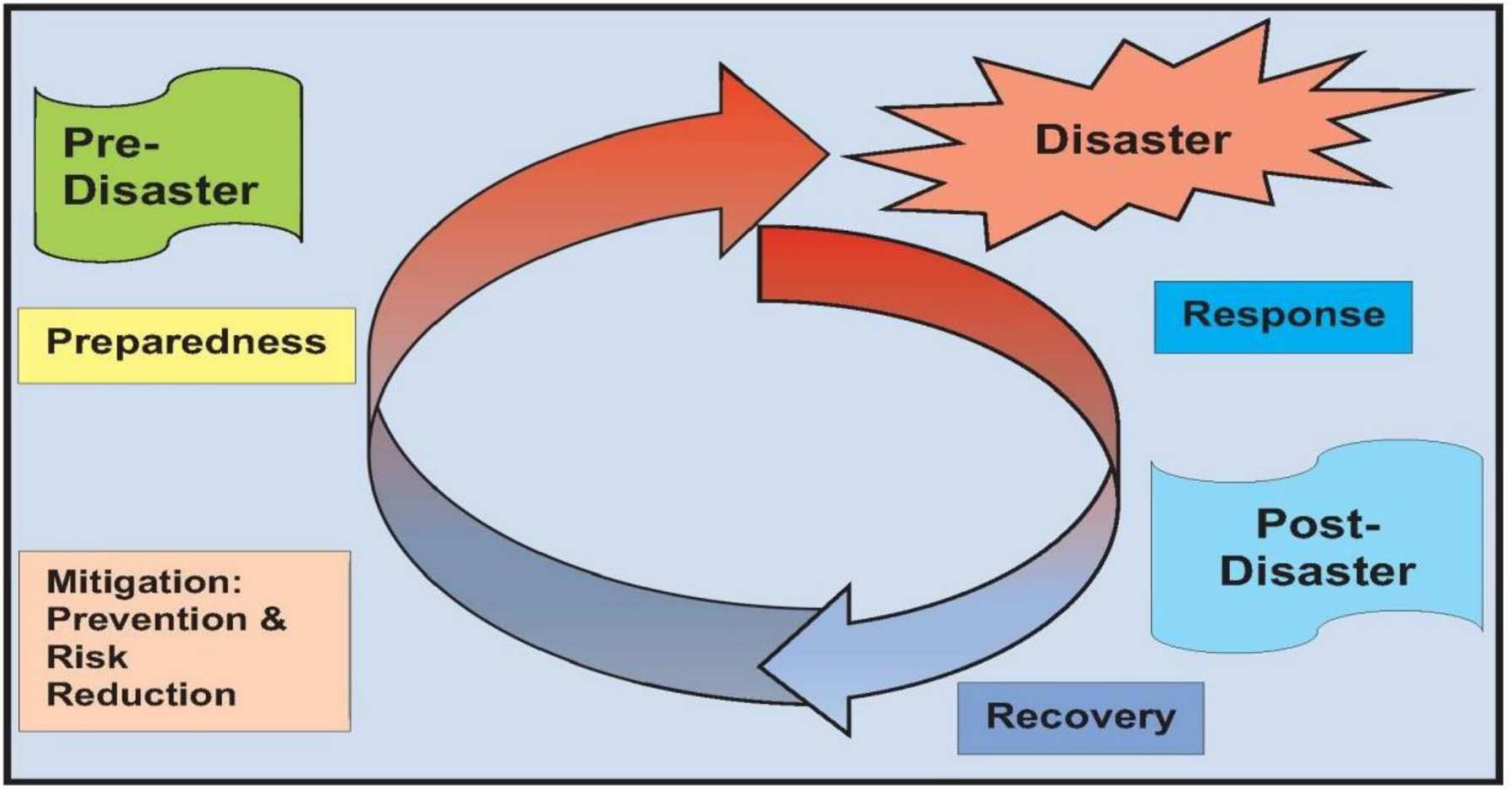
DM Act 2005 defines "**Disaster**" as –

- *"Disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area."*

Disaster Management

- “A continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient" for the following: 1) Prevention of danger or threat of any disaster, 2) Mitigation or reduction of risk of any disaster or its severity or consequences, 3) Capacity- building, 4) Preparedness to deal with any disaster, 5) Prompt response to any threatening disaster situation or disaster, 6) Assessing the severity or magnitude of effects of any disaster 7) Evacuation, rescue and relief, and 8) Rehabilitation and reconstruction.” (DM ACT 2005)

Disaster Management Cycle



DMP 2024- Vision and Scope

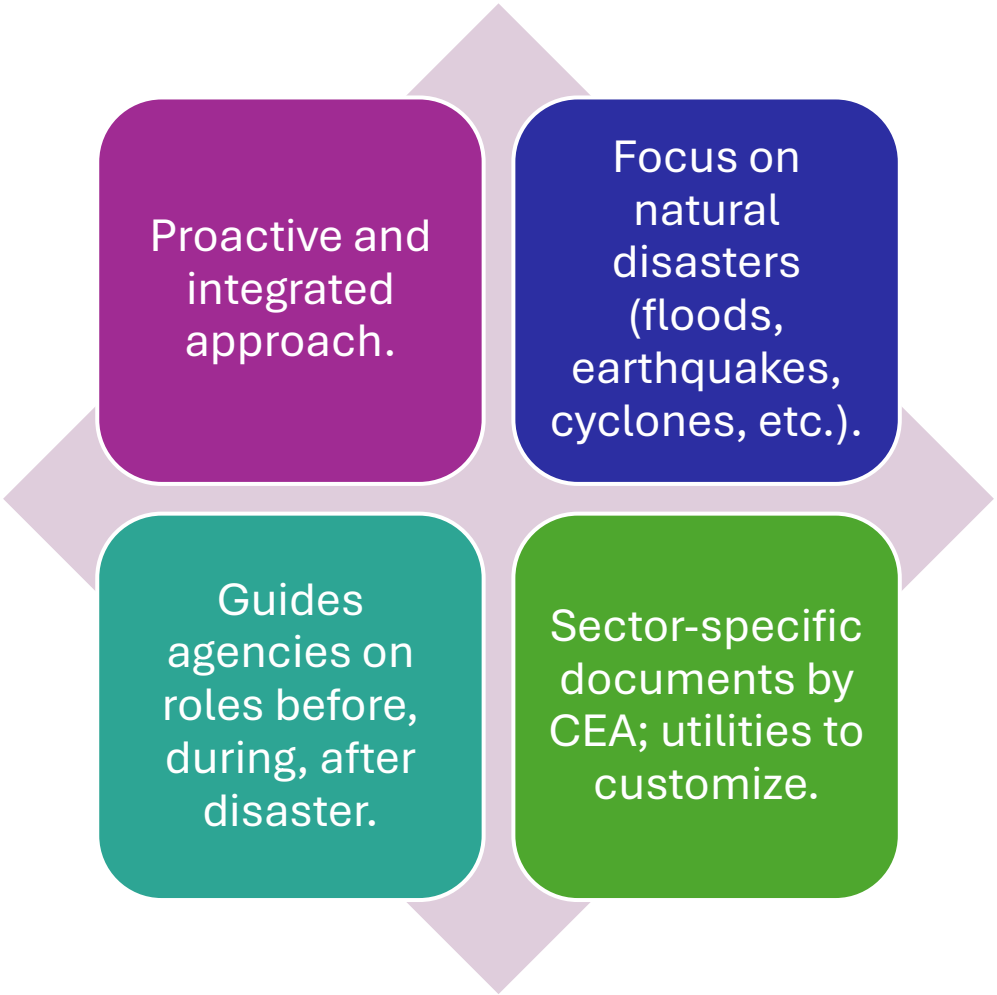
Vision

- To make Indian power sector disaster-resilient, achieve substantial disaster risk reduction, and significantly decrease the loss by maximizing the ability to cope with disasters at all levels of administration as well as at the field level.

- Scope of the DMP
- "The Disaster Management Plan for the Power Sector is intended to guide all agencies within the sector with a general concept of potential emergencies and roles and assignments before, during, and following emergency situations. It covers the roles/responsibilities of various concerned in line with the principles laid down by the DM Act, 2005. "

"Apart from this document, sector-specific generic documents on disaster management for thermal & hydro generation, transmission, distribution and renewable energy sectors are also separately brought out by CEA. "

Key Aspects of the DMP 2022

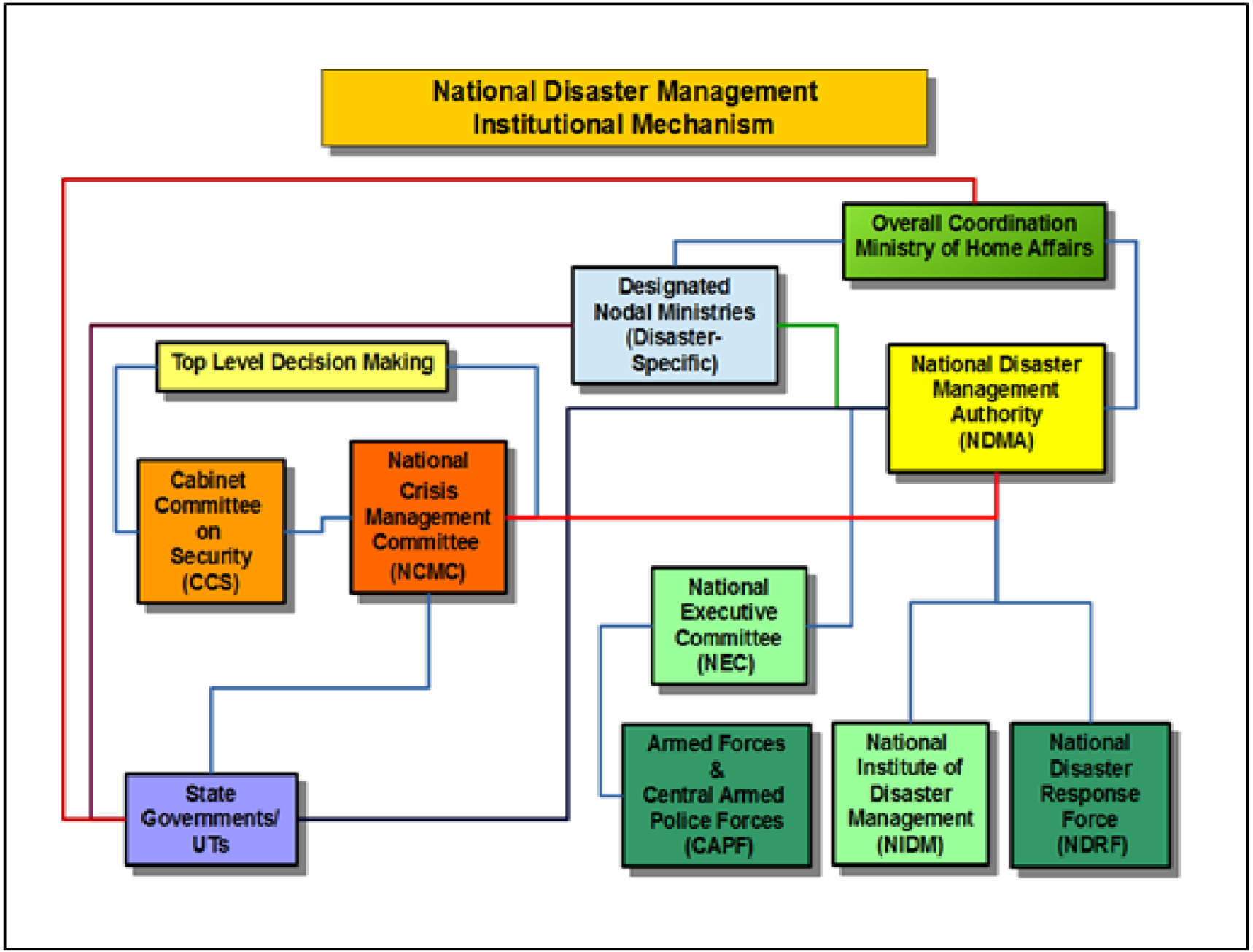


DMP 2024

- **Compliance, Conformity and alignment with NDMP & Global Frameworks (**Sendai Framework, SDG and the COP21) :
- **Disaster Risk Reduction 2015-30 that identifies four priorities for action** –
- (i) Understanding disaster risk,
- (ii) Strengthening disaster risk governance to manage disaster risk,
- (iii) Investing in disaster risk reduction for resilience &
- (iv) Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.

For each hazard, approach used in this plan incorporates the four priorities enunciated in the Sendai Framework under the six Thematic Areas for Action:

- i. Understanding Risk
- ii. Inter-Agency Coordination
- iii. Investing in DRR – Structural Measures
- iv. Investing in DRR – Non-Structural Measures
- v. Capacity Development
- vi. Climate Change Risk Management


National Disaster Management Institutional Mechanism
Overall Coordination Ministry of Home Affairs
Designated Nodal Ministries (Disaster-Specific)
Top Level Decision Making
National Disaster Management Authority (NDMA)
Cabinet Committee on Security (CCS)
National Crisis Management Committee (NCMC)
National Executive Committee (NEC)
Armed Forces & Central Armed Police Forces (CAPF)
National Institute of Disaster Management (NIDM)
National Disaster Response Force (NDRF)
State Governments/ UTs

Institutional Framework for Disaster Management (Power Sector)

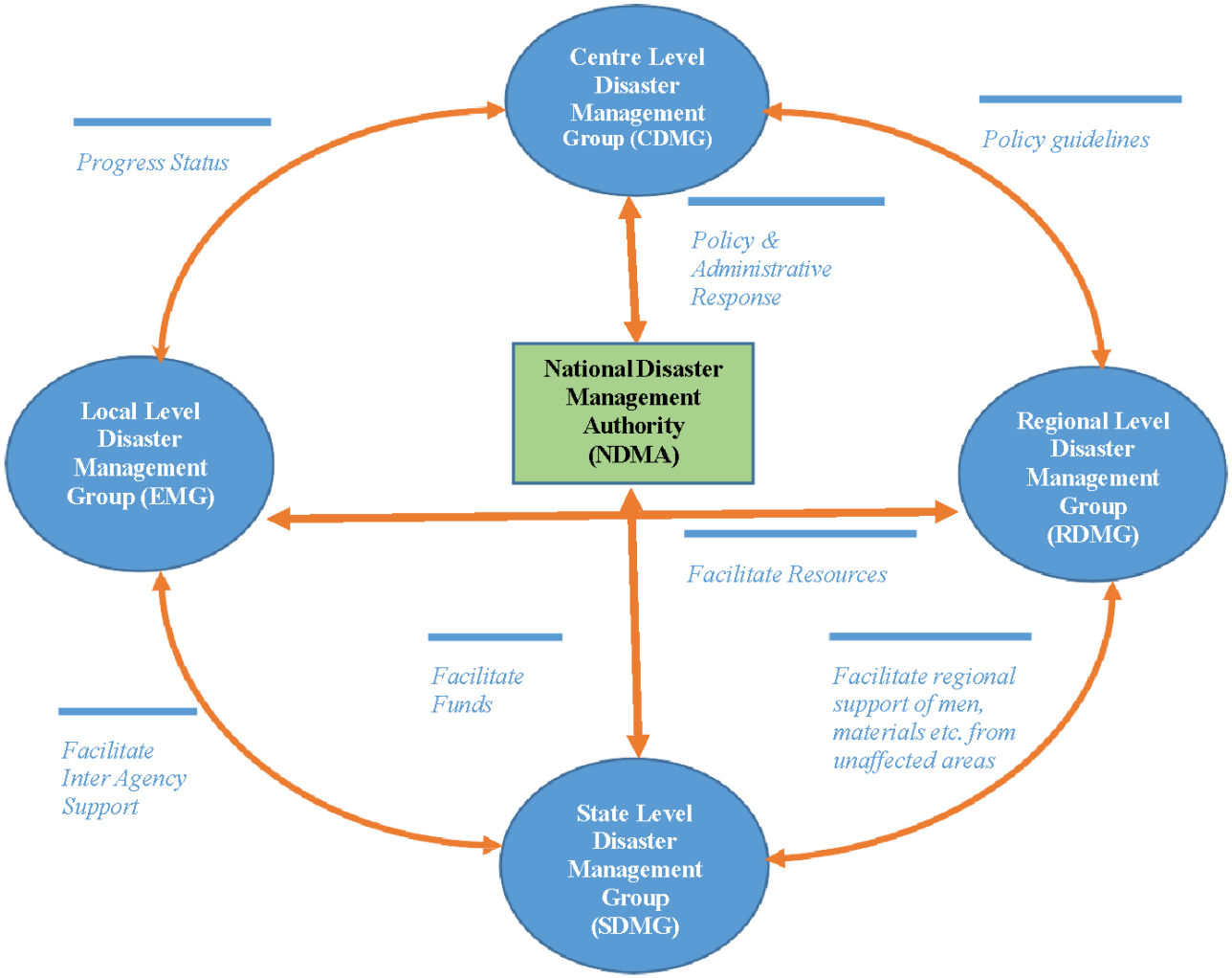
a. Central Level Disaster Management Group (CDMG)

b. Regional Disaster Management Group (RDMG)

c. State Level Disaster Management Group (SDMG)

c. Local Level Emergency Management Group (EMG)

Inter-Group Relationships in DM System of Power Sector



Central Level Disaster Management Group (CDMG)

- **Composition:**
- a) Secretary (Ministry of Power, Government of India) – Chairman.
- b) Chairperson, CEA.
- c) CMD, Grid Controller of India Limited (GRID-INDIA).
- d) Chairman of NPC and RPCs.
- e) CMDs of NTPC, NHPC & Power Grid Corporation of India Limited
- f) Chairman, Central Water Commission (CWC), for floods related early warnings.
- g) Director-General, Indian Meteorological Department (IMD), for Earthquake, and cyclone related early warnings.
- h) Director, Indian National Centre for Ocean Information Services (INCOIS), for tsunami related early warnings.
- i) A representative of National Disaster Management Authority (NDMA).

- **Responsibilities of the CDMG are also mentioned in the DMP**

Regional Level Disaster Management Group (RDMG)

Composition:

a) Member Secretary (RPC) - Chairman

b) Representative of Secretary in-charge of Rehabilitation and Relief of the affected State of the Region

c) Representatives of each State Civil Defence

d) Regional HODs CPSUs (NTPC, NHPC, PGCIL etc.)

e) CMDs State TRANSCOs/Power Departments

f) SLDC in charge of each state.

g) Chief Engineer, Central Water Commission (CWC), for floods related early warnings.

h) Deputy Director-General, Indian Meteorological Department (IMD), for Earthquake, and Cyclone related early warnings.

i) Group Head, Ocean Information and Forecast Services Group (ISG), for Tsunami

Responsibilities:

a) To interact with CDMG for proper coordination.

b) To ensure that disaster management plans are in place.

c) To provide inter-state emergency & start-up power supply

d) To coordinate the early restoration of the regional grid.

e) To participate in damage assessment.

f) To facilitate resource movement to affected state (s) from other regional states

State Level Disaster Management Group (SDMG)

Composition:

a) Principal Secretary / Secretary (Energy) of the State - Chairman
b) MDs of Generation, Transmission, Distribution companies
c) Representatives of health and welfare agencies
d) Chief fire safety officer
e) Inspector General of Police
f) Director, Central Water Commission (CWC) for floods related early warnings
g) A representative from Meteorological Department (IMD) of State for Earthquake and Cyclone related early warnings
h) A representative from Ocean Information Services Centre of State for Tsunami related early warnings.
i) A representative of State Disaster Management Authority (SDMA)
j) SLDC in charge

Responsibilities:

a) To interact with RDMG/CDMG.
b) To mobilize resources for restoration
c) To ensure that disaster management plans are in place
d) To mobilize financial resources
e) To facilitate inter-agency support & coordinate information
f) To facilitate damage assessment

Local Level Disaster Management Group (EMG)

Composition:

a) In-charge of the Plant/Substation/Circle

b) Plant/Substation safety manager

c) Chief Plant/substation Operation Administration

d) A representative of District Administration

Responsibilities:

a) To direct action in the affected area taking into consideration the priorities for the safety of plant/sub-station personnel, minimize damage to plant/substation, property and the environment.

b) To direct fire and security personnel for immediate action.

c) To ensure that all non-essential workers/staff in the affected area are evacuated to safer places

d) Set up communication points

e) Report all development and requirements/ assistance needed

f) Preserve all evidence so as to facilitate any inquiry into the cause and circumstances which caused or escalated the emergency

g) To coordinate with District Administration for necessary finance, medical facilities law & order etc.

Emergency Operation Centres / Control Rooms

a. National Load Despatch Centre

b. Regional Load Despatch Centres

c. State Load Despatch Centres

d. Plant / Sub-station level Control Room

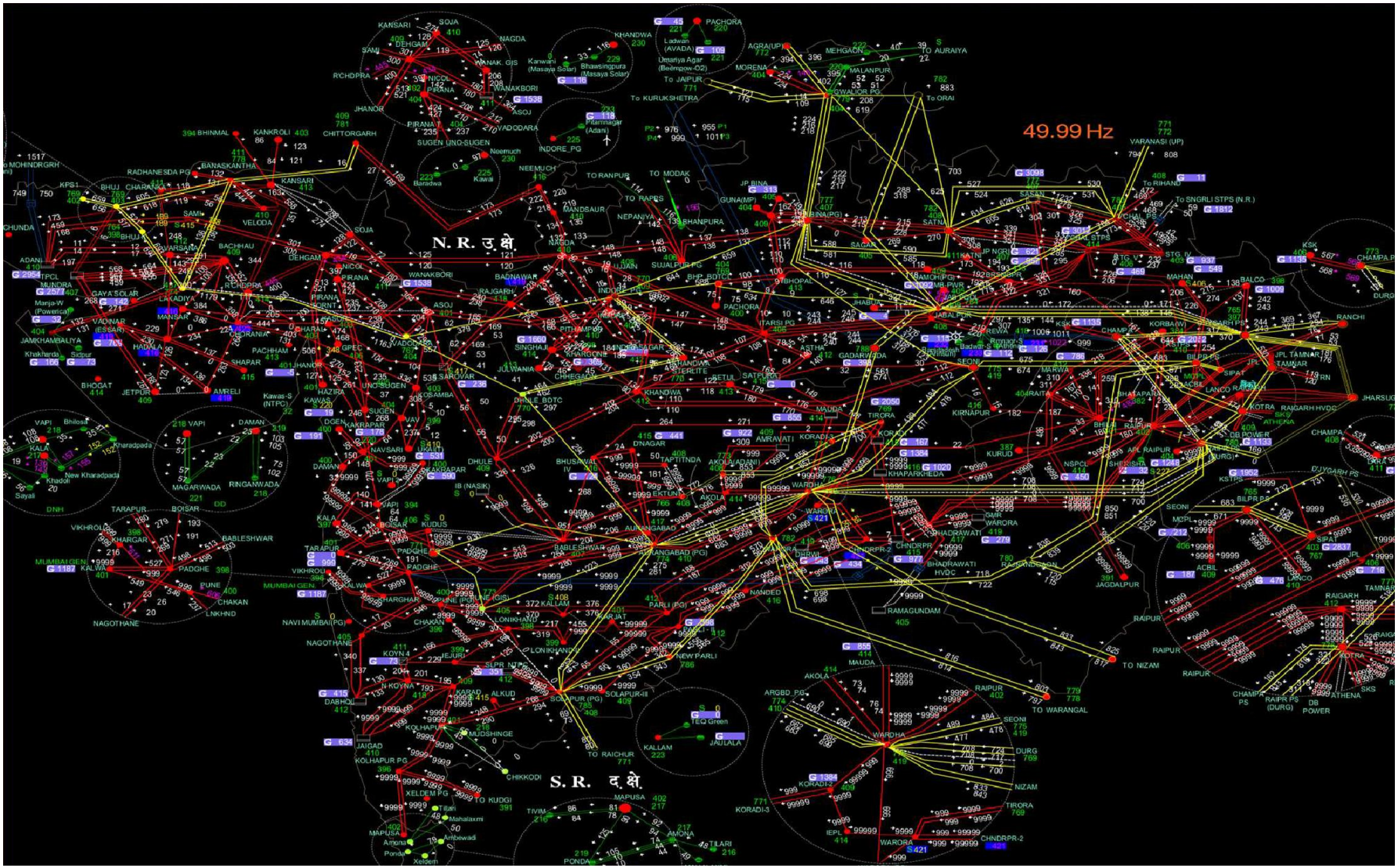
Emergency Centers & Risk Mapping

- Control Rooms: NLDC, RLDC, SLDC, Plant level.
- Hazard Mapping: Cyclones, floods, earthquakes, landslides.
- Weather Portal by NLDC and IMD/CWC alerts.
- Flood plain zoning by CWC.

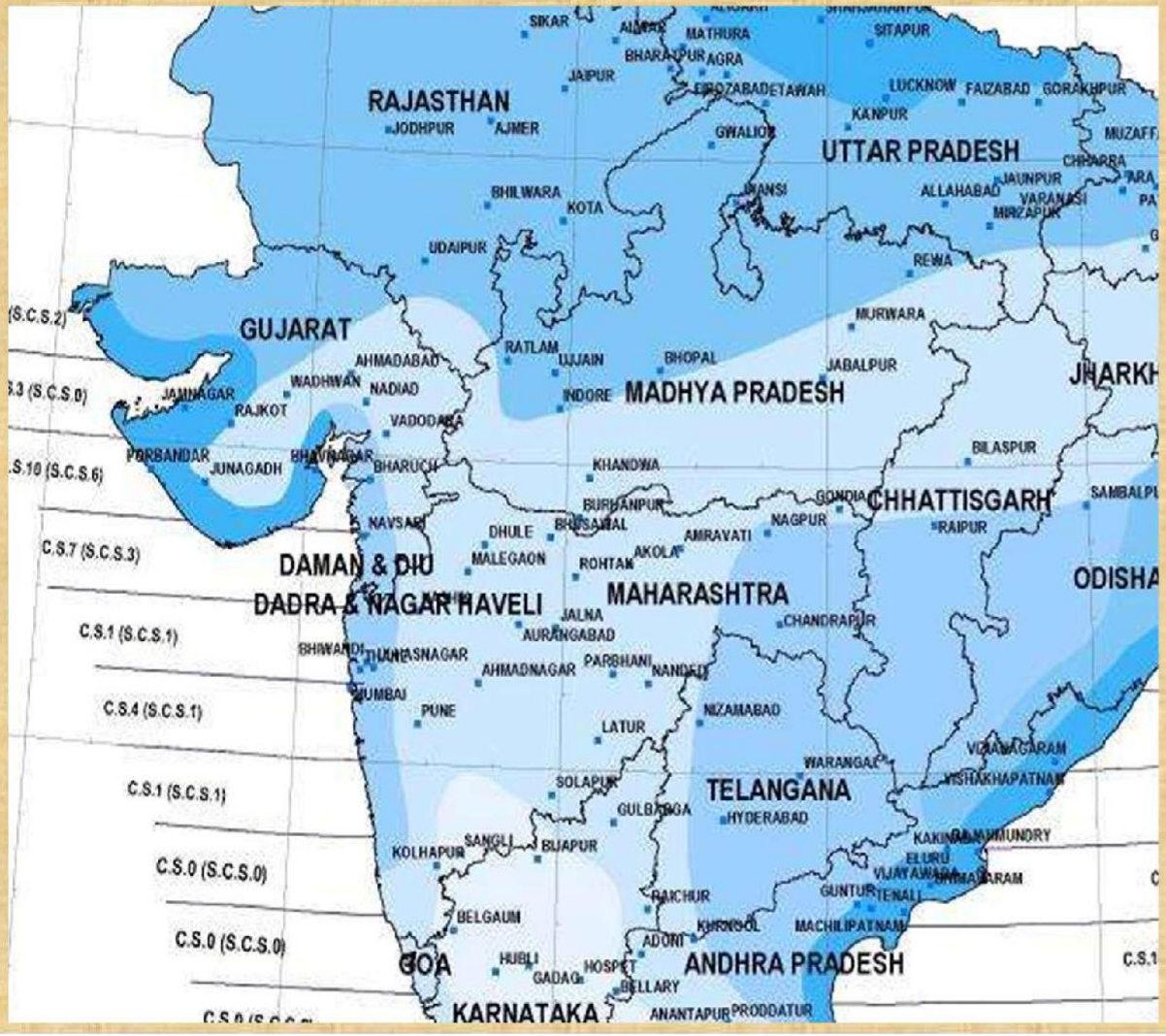
Hazard Risk and Vulnerability Analysis (HRVA)

- Disaster in the power sector can occur mainly due to the following hazard:
- Fire / Forest fire
- Cyclones
- Floods/cloud bursts/urban floods
- Earthquakes
- Tsunamis
- Landslides
- Thunderstorm & Lightning, Squall, Dust Storm, and Strong Wind
- Pandemic / Epidemic
- Environment and Climate Change

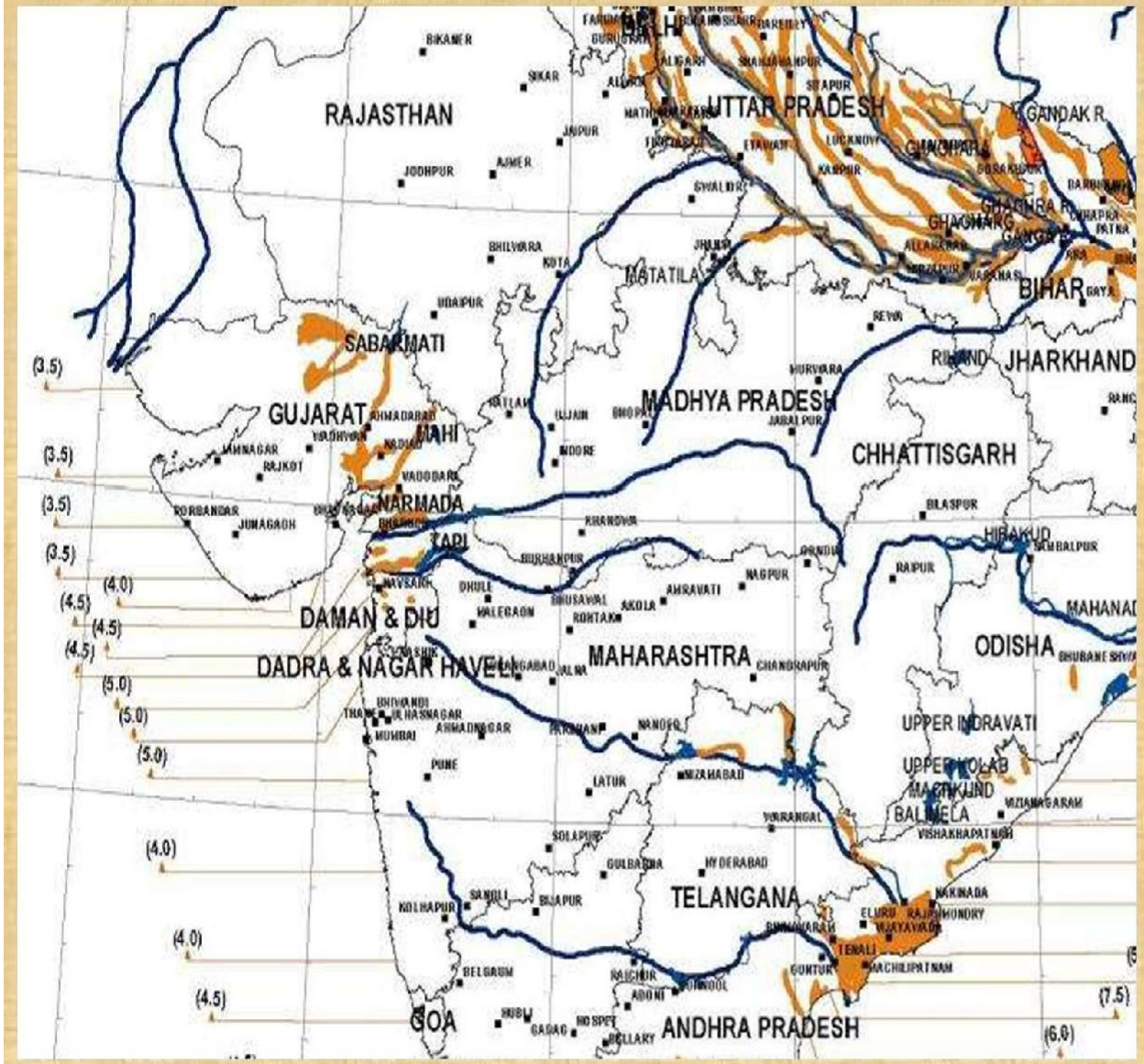
Western Region At a Glance



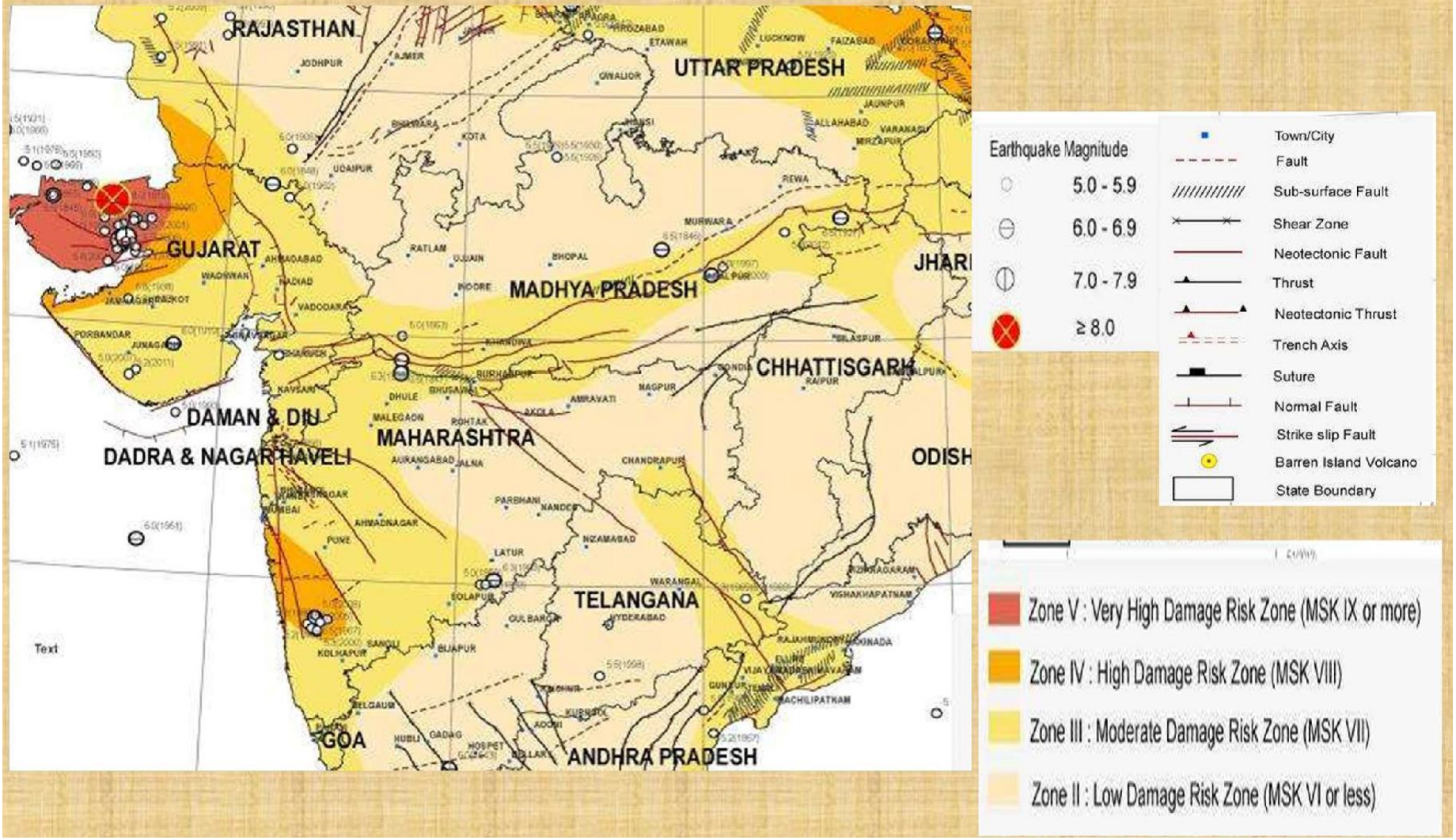
Wind Hazard Zone Map



Flood Hazard Map



Earthquake Hazard Map



High Risk Multi Hazard Zones

Areas prone to wind destruction, cyclones, floods and earthquakes

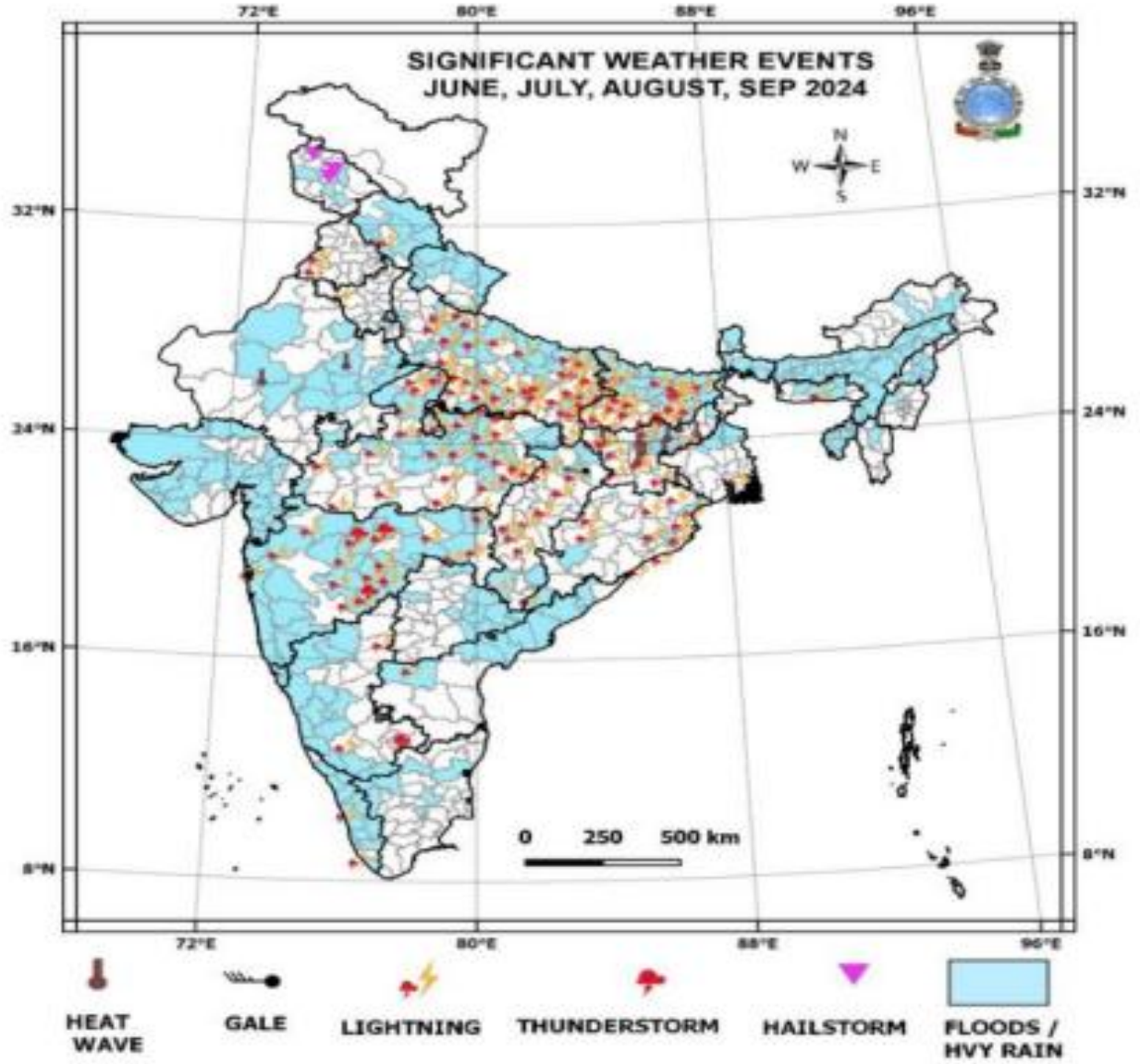


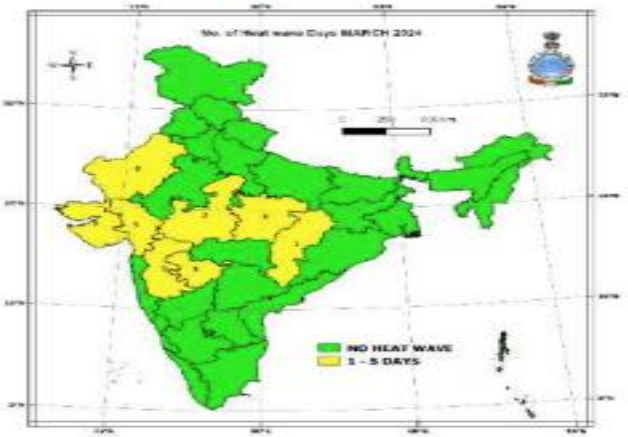
Fig. 2.6: Significant weather events during SWM season 2024 causing disastrous situations

Source: IMD

Heat Wave Conditions:

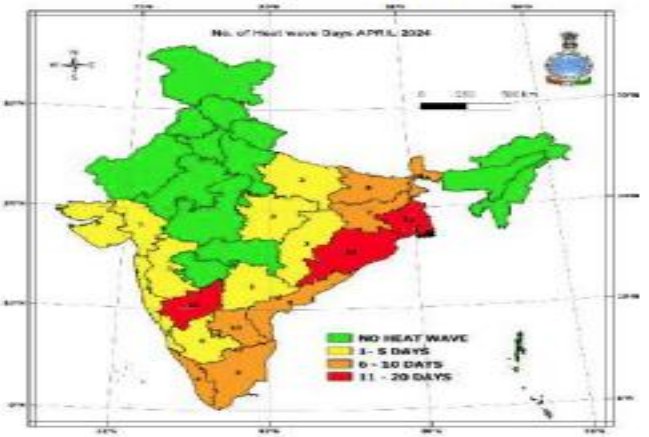
Monthwise sub divisionwise heat wave days distribution is shown in following fig. 7 (a, b, c, d)

(a)



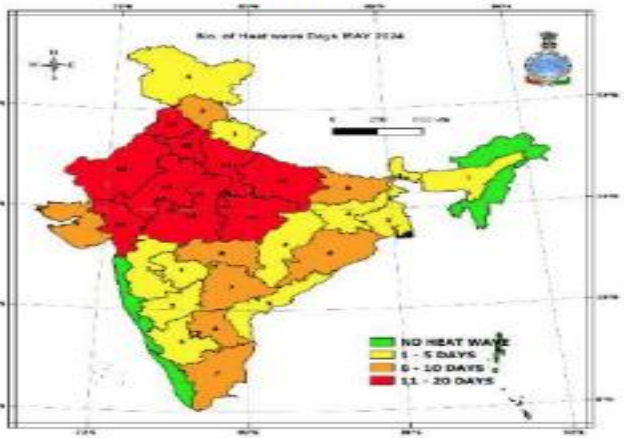
No. of heat wave days during March 2024

(b)



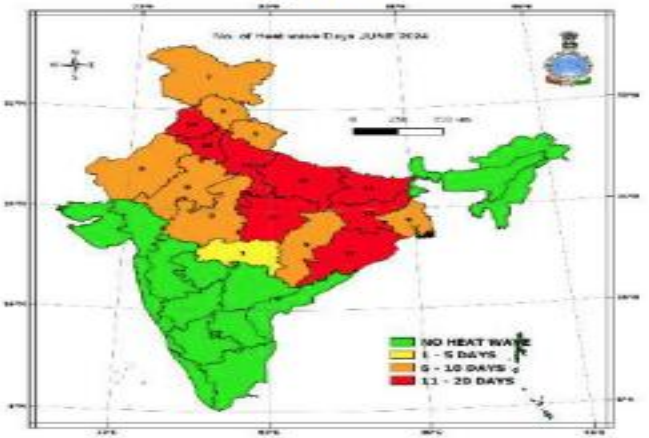
No. of heat wave days during April 2024

(c)



No. of heat wave days during May 2024

(d)

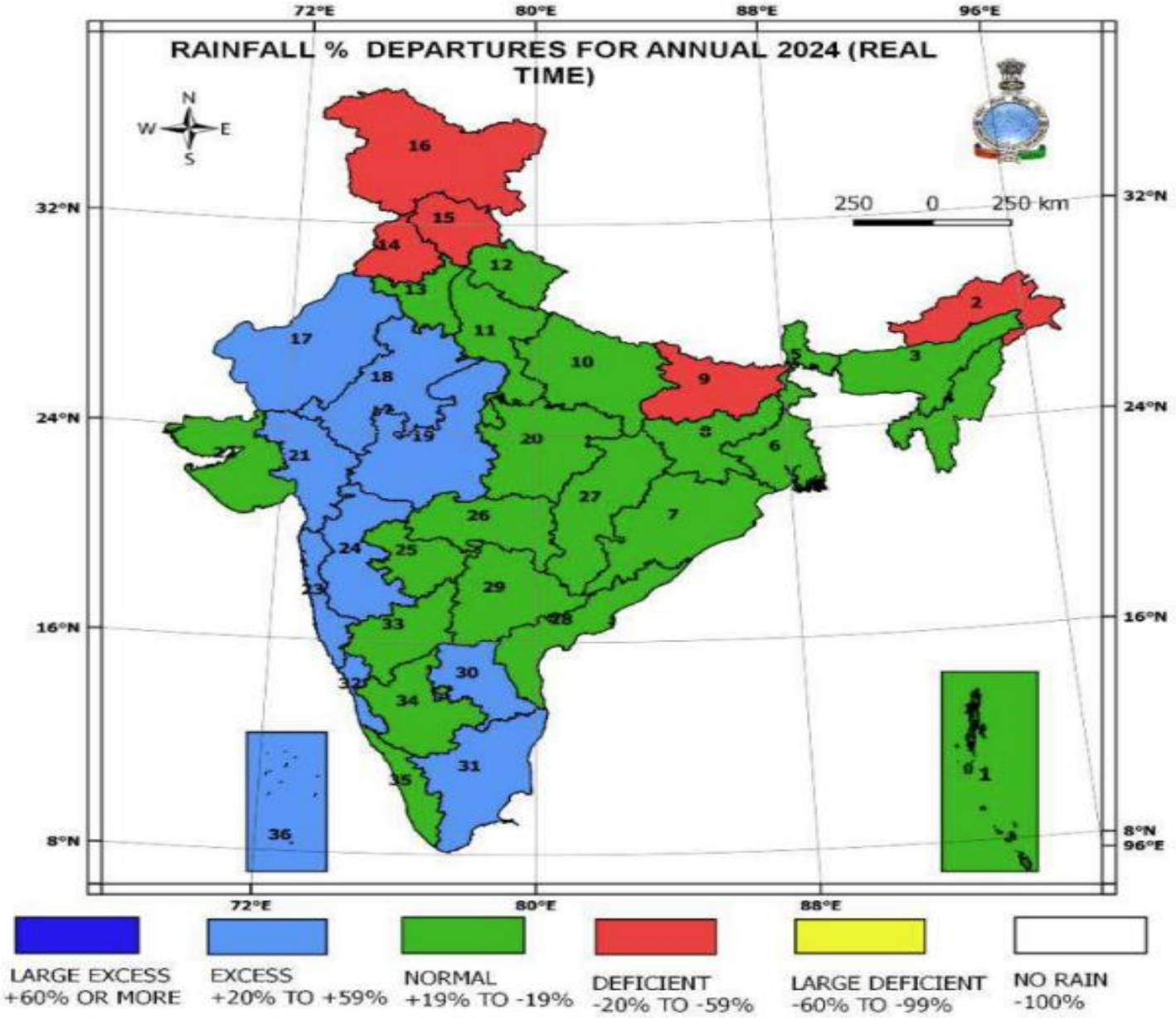


No. of heat wave days during June 2024

चित्र 7 (a, b, c, d): (a) मार्च, (b) अप्रैल, (c) मई और (d) जून के महीने में हीट वेव की संख्या

Fig. 7 (a,b,c,d): Number of Heat waves in the month of (a) March, (b) April, (c) May and (d) June

Source: IMD

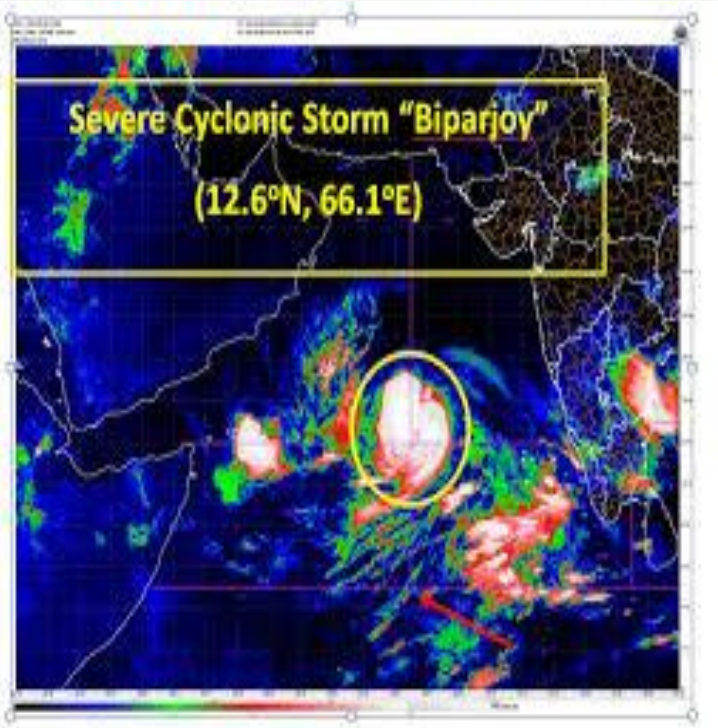


चित्र १२: २०२४ के लिए उप-प्रभागवार वार्षिक वर्षा प्रतिशत विचलन

Fig. 12: Sub-division-wise Annual rainfall percentage departure for 2024

Source: IMD

Tower Collapse and Cyclone



Financial Year	Voltage Level	Nos of lines affected due to tower collapse
2024-25 (5)	220 kV	1
	400 kV	2
	765 kV	2
2023-24 (18)	220 kV	6
	400 kV	6
	765 kV	2
2022-23 (5)	220 kV	2
	400 kV	1
	765 kV	2

Weather Extremes related Incidents

Generation Loss and of Tripping of lines due to inclement weather

Following lines were tripped at APL Mundra Substation due to inclement weather:

1. 400KV-APL-MUNDRA-CHARANKA-1 tripped at 16:18 Hrs.
2. 400KV-APL-MUNDRA-MANSAR-1 tripped at 16:30 Hrs.
3. 400KV-APL-MUNDRA-SAMI-2 tripped at 16:35 Hrs.
4. 400KV-APL-MUNDRA-VARSANA-2 tripped at 16:35 Hrs.

At 16:52 hrs, 400KV-APL-MUNDRA-VARSANA-1 tripped due to Yph-Bph fault. At the same time, 400KV-APL-MUNDRA-SAMI-1 tripped due to overloading, HVDC Mundra Pole – 1&2 tripped due to under voltage protection operation and APL unit-3 to unit-9 (7 units) tripped due to SPS operation. Generation loss of 2770 MW occurred as per SCADA.

8 lines gtripped and about 2800 MW gen. loss

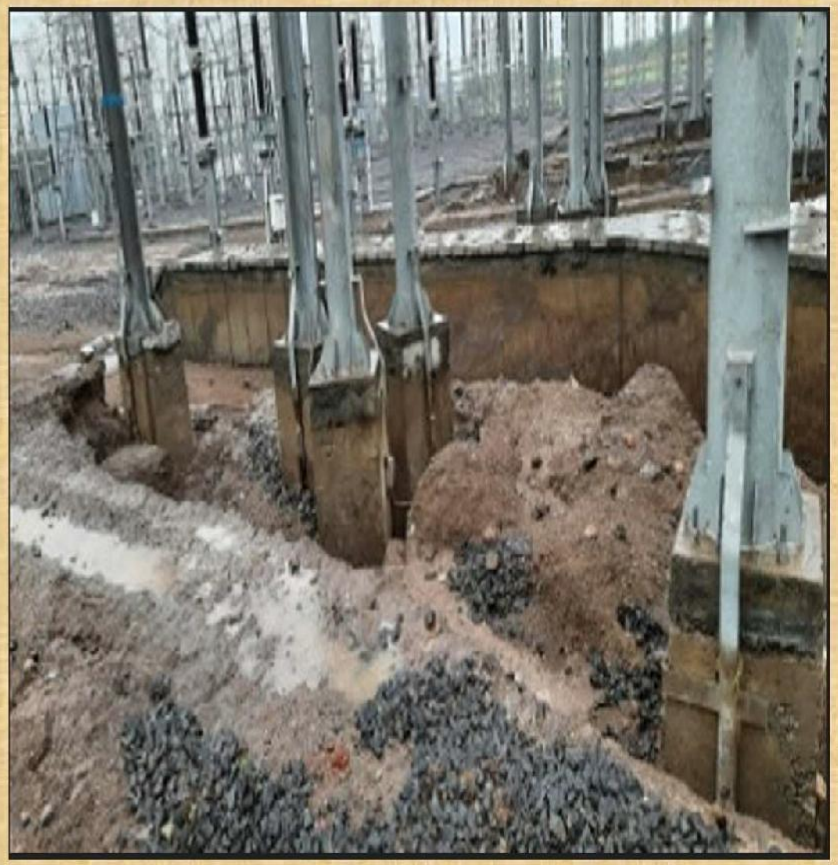
Padghe GIS 22.07.21

A critical element of
Power supply chain
for
Greater Mumbai, Thane Dist,
DNH
and
South Gujarat

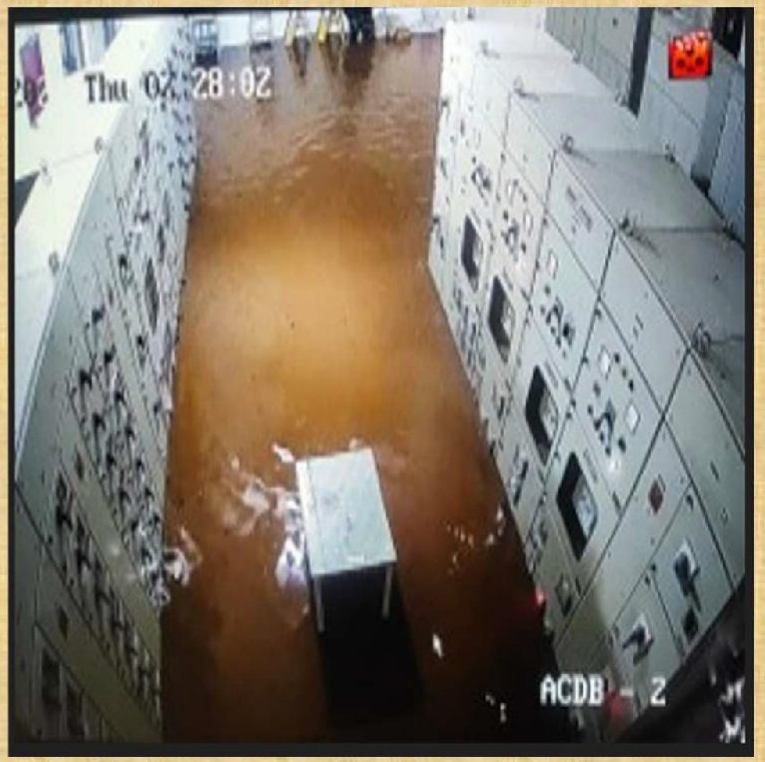
Padghe GIS 22.07.21

Padghe GIS 22.07.21

400 KV Akola SS – 22.07.21



400 KV Akola SS 22-07-21



400 KV Akola SS

- Akola Sub-station is an important evacuation path of 3300 MW Generation plant at Tiroda, Maharashtra.
- Power Supply to Marathwada, North Maharashtra, Pune and Greater Mumbai
- Restoration of sub-station could start after herculean efforts for 13 hours.

765/400 KV Champa SS 24.07.21 & 22.09.23

765/400 KV Champa SS 24.7.21 & 22.09.23

765/400 KV Champa SS 24.7.21 & 22.09.23

Champa Sub-station – Important Interregional Node

1. 6000 MW capacity HVDC Champa – Kurukshetra
2. Major 765 kV node of Chhattisgarh Power Complex
3. Interfacing point with NR,SR & ER

Thanks

Crisis Management Plan

Addressing Man-Made & Technological Threats

Ensuring Resilient Power Sector Operations

Definitions

- A crisis is defined as a man-made event that poses significant threats to operations and has negative consequences if not handled properly. Such events in the context of power sector include severe accidents caused due to fire, acts of terrorism, crowd or mob attacks, cyber-attack, strikes by plant employees or disruption in supply of essential inputs like coal/fuel etc.

- The “Crisis Management Plan for Power Sector” provides a framework and direction to the utilities in the power sector for all phases of crisis management. It is intended to guide all agencies within the sector with a general concept of potential emergencies and roles and assignments before, during, and following emergency situations.

Crisis Management Plan

The plan covers the following:

- Institutional Framework for Crisis Management,
- Various Crisis Situations/Potential Crisis Situations,
- Mitigation Strategies
- Action plan during Crisis Situation, Post Crisis Strategies and
- Capacity Building

Vision

"To decrease the losses significantly by maximizing the ability at all levels of administration as well as at the field level to cope with crisis situations that may arise in the Indian Power Sector."

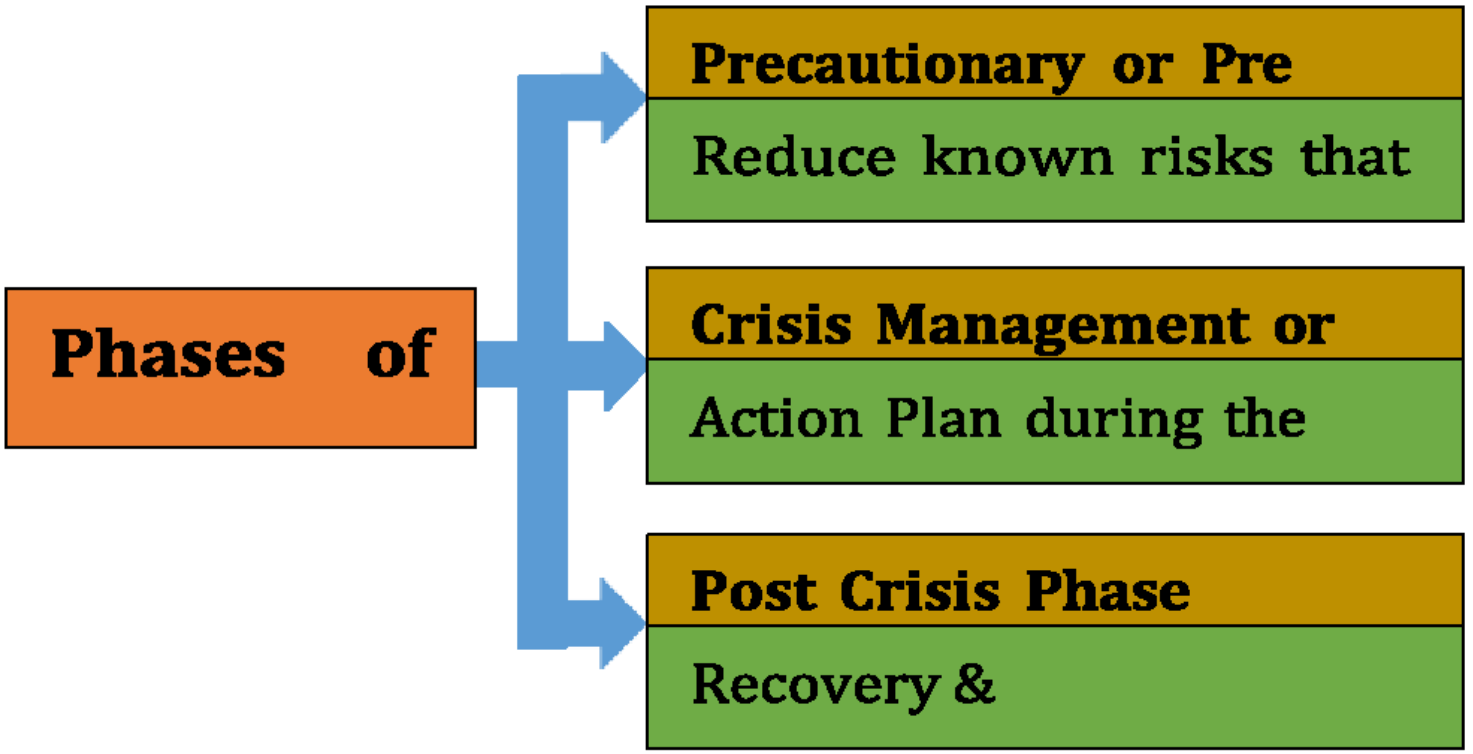
Objectives:

a) To improve state of preparedness to meet any contingency.
b) To reduce response time in organizing the assistance.
c) To identify major resources, manpower, material and equipment needed to make the plan operational.
d) Making optimum use of the combined resources.

Institutional Structure in Power Sector

- A four-tier structure is placed for handling crisis and disasters at Central, Regional, State and Local Unit levels viz. (CDMG), (RDMG), (SDMG) and (EMG)
- Ministry of Power has designated National Load Despatch Centre (NLDC) as Central Control room to deal with crises/disasters in the power sector.
- Nodal Officer, Central Control Room would act as an information source desk for all related developments in the event of a crisis/disaster. The concerned RLDC would be Regional Control Centre in case of crisis/disaster and RLDC in-charge would act as the Nodal Officer for the same. The State level nodal officer(s) would be required to interact with the State GENCO/DISCOMs as well as Regional control rooms depending upon the magnitude of emergency situations.
- A four tier Control room structure- NLDC, RLDC, SLDCs, and Powerplant/Grid S/s
- It also recommends for entering into financing arrangements with other funding organizations well in advance as it will reduce the response time in organising the funds at the time of disaster.

Crisis Management



Crisis Situations

- The plan covers the following crisis situations that may arise in the power sector –
- Terrorist Threats and Attacks,
- Bombs Threats, Hoax & Bomb Explosions,
- Explosion in Equipment,
- Crowd or Mob Attacks,
- Threat from UAV (Drone) Attack,
- Strike,
- Sabotage
- Cyber-attack &
- Fire

Drone Attack

Identify	Identify risks: surveillance, damage, disruption.
Form	Form Emergency Drone Response Team.
Activate	Activate response protocols during drone incidents.
Evaluate and update	Evaluate and update protective measures regularly.

Strike by Plant Personnel

- Employees (executives, supervisors, workmen) may organize strikes.
- Executives rarely strike; resolve grievances swiftly to prevent escalation.
- A contingency plan must be in place to handle strike-related crises.
- Maintain essential services and safety during strikes.

Fire Protection

- Identify fire-prone areas in advance.
- Inventory fire equipment within and outside installations.
- Mutual assistance agreements for firefighting support.
- Document procedures for various fire types and responses.

Cybersecurity Threats

Electrical infrastructure is vulnerable due to ICT dependence.

Control systems (e.g. SCADA/EMS) may be exposed to cyber-attacks.

Threats from viruses, bugs, insider attacks, misconfigurations.

Cyber-attacks can destabilize power supply and affect the economy.

Need for strong cybersecurity architecture and continuous awareness.

Way forward

- All CPM and DMP of the concerned LDC and Ulities to be in place
- Proactive planning
- Weather forecasts
- Capacity Building
- Dedicated fund of 1.5% of the annual revenue or from allocated contingency fund account by each power utility
- As DMP and CMP to be reviewed annualy by a standing committee, so inpits, if any may be forwarded to the WRPC/WRLDC

Thanks

Back up Details for Western Region

Sl. No.	State	Loaction of Backup SLDC 1	Loaction of Backup SLDC 2	Whether Manned (Y/N)	Operational readiness (Y/N)	Data Connectivity with WRLDC (Y/N)
1	Maharashtra	ALDC Ambazari	N.A.	Yes	Yes	Yes
2	Goa	Cuncolim(Goa)	Nil	Yes	Yes	Yes
3	DNH DD	Main SLDC-DNH at SILVASSA	Sub-SLDC--DAMAN (Work as Area SLDC)	Yes	No, Sub-SLDC-Daman not work as a Back up SLDC.	Main-SLDC -DNH-Silvassa & Sub-SLDC-Daman DATA Connectivity with WRLDC are O.K.
4	CHHATTISGARH	KHEDAMARA, BHILAI	N/A	YES	YES	YES
5	Gujarat	Gandhinagar	No	Gandhinagar Sub SLDC Manpower utilized for operation.	Yes	Yes
6	WRLDC	New delhi,NRLDC	No	No	Yes	Yes
7	Madhya Pradesh	Bhopal	No	Yes	Yes (In case of operational requirement, staff from main SLDC is being deputed to Backup SLDC.)	Yes

ERS Data for Western Region

	ERS DATA FOR WESTERN REGION					
Sl No	**Region**	**State utilities/PGCIL**	**Length of the Tr.Lines owned by the utility (Ckt Kms)**	**No of ERS Set (Tower) available (Nos)**	**ERS required as per the Govt norms(one ERS for every 5000 Ckt Kms)**	**Location**
1	**PGCIL-WR1**	220kV	180		1	400kv ERS at Raipur can be used
		400kV	12072	1 set (16 towers)	3	Raipur 400kV
		765kV	9503	1 set (18 towers)	2	Seoni 765kV
		HVDC	1434	1 set (24 towers)	1	Bilaspur SS
2	**MP**	400KV	4089	1Set (5 towers)	1	Indore
		220 KV	15106	1Set (7 towers)	3	Bhopal
		132 KV	22939	1Set (7 towers)	5	Jabalpur
3	**PGCIL WR-2**	132KV	159	NIL	1	400 kV ERS set can be utilized for 132 kV & 220 kV
		220KV	1499	NIL	1	400 kV ERS set can be utilized for 132 kV & 220 kV
		400KV	18765	1 set (12 towers)	4	Itarsi (MP)
				1 set (12 towers)	-	Dehgam (Gujarat)
				1 set (14 towers)	-	Boisar (Maharashtra)
		765KV	8804	1/2 set (12 towers)	2	Bina (MP)
				1/2 set (12 towers)		Bhuj (Gujrat)
		800KV HVDC	968		1	765 kV ERS set can be utilized for 800 kV HVDC

ERS Data for Western Region

4	CS	400kv	1924.24	0	1	
		220KV	4456.46	2 sets (6 towers)	1	Bhilai
		132 KV	7359.19	2 sets (6 towers)	2	Bilaspur
5	Gujarat	400kv	7569	NIL	2	No ERS, uses PGCIL ERS if required
		220kv	22252	NIL	5	
		132kv	5947	NIL	1	
		66kv and 33kv	40714	NIL	8	
6	DD	66KV	115.5	NIL	1	No ERS Available
		220 KV	13.86	NIL	1	No ERS Available
7	DNH	220KV	71.26	NIL	1	No ERS Available
8	GOA	220 KV	240.65	NIL	1	Will initiate the procurement process immediately
9	Maharashtra	500 kV	1504	2 Sets (14 nos of towers)	1	7 nos at Kalwa near Mumbai, 7 nos at Amravati (Murtizapur, Yavatmal)
		400 kV	8464		2	
		220 kV	19882		4	
		132 kV	19275		4	

Black Start details for Western Region

Sl No	Power Station	Installed Capacity (in MW)	Fuel type	Black Start Source	Capacity of DG Set /Small Generator /Battery	Date of last mock drill	Ownership	Availability(Yes/No)	Remarks
1	Bhivpuri HPS	3 x 24 +2 x 1.5 +2x12	Hydro	DG set	250 kW	24/11/2024	Tata Power		
2	Khopoli HPS	3x24+2x12	Hydro	DG set	250 kVA	24/11/2024	Tata Power		
3	Bhira HPS	6 x 25	Hydro	DG set	500 kVA	24/11/2024	Tata Power		
4	Uran (Gas)	4x108 (GT)+ 2x120 [Waste Heat Recovery (WHR) units]	Gas	DG set	PH1:412kVA PH2:450kVA,WH:520kVA	21/12/2024	MSPGCL		
5	Koyna I & II(Popha	4 x 70 + 4X80	Hydro	DG set	2 MVA	16/12/2024	MSPGCL		
6	Ghatghar HPS	2x125	Hydro	DG set	2x1250 kVA	20/12/2024	MSPGCL		
7	Jhanor / Gandhar	3x144 (GT)+ 225 (ST)	Gas	DG set	2.975 MW	13/12/2024	NTPC		Mockdrill was unsuccessful due to overloading of 66 kV network due to solar injection during island formation.
8	SSP	6x200(RBPH)	Hydro	DG set	2x1000 KVA	01/12/2024	NCA		
9	Ukai (H)	4 x 75	Hydro	DG set	500 kVA	22/06/2024	GSECL		
10	Kawas	4x106 (GT)+2x116 (ST)	Gas	DG set	2.850 MW	12/03/2025	NTPC		Actual Blackstart done on 12th March 2025 during grid disturbance occurred in South Gujarat
11	Kadana	4 x 60(RBPH)	Hydro	DG set	DG1-500 kVA & DG2-650 kVA	10/12/2024	GSECL		
12	Omkareshwar	8x65	Hydro	DG set	2x2010 KVA	22/02/2024	NHDC		
13	Tons (Ban Sagar-I)	3 x 105	Hydro	DG set	2x50 kVA	13/06/2024	MPPGCL		
14	Pench	2 x 80	Hydro	DG set	250 kVA	29/01/2025	MPPGCL		Pench is a blackstart source for both Maharashtra & Madhya Pradesh. Mock drill successfully done by Maharashtra on 29.01.2025
15	Bargi	2 x 45	Hydro	DG set	250 kVA	05/04/2024	MPPGCL		
16	Birsinghpur	1x20	Hydro	Battery Bank & House generator	220 V DC	24/02/2025	MPPGCL		
17	Medikheda	3x20	Hydro	DG set	250 KVA	27/09/2024	MPPGCL		
18	Rajghat	3x15	Hydro	DG set	250 KVA	10/03/2025	MPPGCL		
19	Hasdeo Bango	3x40	Hydro	DG set	250KVA	12/07/2024	CSPGCL		
20	Bhira PSS	1x150	Hydro	DG set	500 kVA	Not conducted	Tata Power		Vibration issues observed in the Penstock
21	Trombay-(7A&7B)	1 x 120 + 1 x 60	Gas	DG set	2.5 MW	20/09/2022	Tata Power		Mock drill not conducted in 2024 as Trombay Unit 5 was under forced outage during planned mockdrill time.
21	GIPCL-I	3x32 (GT)+ 1x49 (ST)	Gas	DG set	500 kVA	28/12/2021	GIPCL		No gas available for running the units
21	Sugen	3x382.5	Gas	DG set	2x6MVA	Not conducted	Torrent Power		Difficulty in bus split operation
21	Indira Sagar	8x125	Hydro	DG set	2x1000 KVA	Not conducted	NHDC		Indore L/R constraint (Expected to revive in June 2025)
21	Gandhi Sagar	5 x 23	Hydro	DG set	100 kVA	Not conducted	MPPGCL		Machines are old and under R&M works (expected Dec-2026)

ANNEXURE-III

Most Immediate/Time Bound

सं. 22-1306/5/2020-OM [252019]
भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power

Shram Shakti Bhawan, New Delhi
Dated: the 1st May, 2025

OFFICE MEMORANDUM

Subject: Review of Crisis Management Plan in respect of Ministry of Power.

Reference is invited to the minutes of the review meeting on the **'Crisis Management Plan'** of the Ministry of Power held under the Chairmanship of Secretary (Security), Cabinet Secretariat on 09 April, 2025 circulated vide this Ministry's OM of even number dated the 25.04.2025.

2. Secretary (Power) has directed that Action Taken Report on the decisions/action points of the meeting be submitted urgently.

3. It is requested that Action Taken Report on the Action Points that emerged during the aforesaid meeting pertaining to your organization, may please be furnished to this Ministry by 10th May, 2025 (as per **annexure**).

Encl: As Above

01/05/2025
(Parveen Dudeja)
Director (OM)
Email: parveen.dudeja@nic.in

To

1. Chairperson, CEA
2. CMD, NHPC
3. CMD, Grid India
4. CISO, MoP

Copy to:

1. Member (Planning), CEA.
2. Chief Engineer (PDM&LF), CEA.

ANNEXURE

Action Taken Report on the Action Points of the Review Meeting on 'Crisis Management Plan" of Ministry of Power.

S. No.	Agenda Point	Action Point	Follow up action/Remarks
1.	**Crisis / Disaster fund for Grid-India.**	Secretary (Security) advised JS, MoP to explore and see that the crisis managing requirements for Grid-India is adequately met.	**Grid India** to furnish comments/Action Taken Notes.
2.	**Redundancy of data centres for Grid-India.**	Secretary (Security) advised JS, MoP that the mock drills for handover of control from Main control centre to Redundancy centre may be conducted to ensure that the operations are not disrupted in case of a contingency.	**Grid India** to initiate the action for conducting the mock drill as advised by Secretary (Security) and submit Action Taken Report.
3.	**Conduct of mock drills in Public and Private Power Utilities /consolidation of common learnings.**	Secretary (Security) advised JS, MoP to assess the reports submitted, consolidate the common important learning and circulate the same to all the utilities for improvements in their crisis management. Secretary (Security) advised JS, MoP to ensure that the Crisis Management Plan is available with both Public and private utilities, as availability of codified plan will ensure proper handling and reporting of the crisis.	**CEA**, being the nodal agency, may initiate follow-up action and submit Action Taken Report.
4.	**Identification of utility specific crisis for conduct of mock drills.**	The Secretary (Security) advised JS, MoP to analyse the vulnerabilities and assess the preparedness of the utilities for handling any type of crisis by conduct of specific mock drills. Secretary (Security) advised JS, MoP to ensure that mock drills are designed based on the occurrence of incidents like floods, earthquakes, disruption of supply and agitation. Secretary (Security) advised JS, MoP to factor in a scenario wherein the primary crisis happens in a different sector but majorly affect the Power Sector utilities.	**CEA**, being the nodal agency, to take follow-up action and submit Action Taken Report.
5.	**Involvement of other agencies in**	The Secretary (Security) advised the JS, MoP that the agencies who are	**CEA**, being the nodal agency, to take follow-up action and submit

	the mock drill exercises	the first responders in case of a crisis, in generation unit, transmission unit, etc. should be aware of their roles and responsibilities and should be regularly involved in mock drills to understand the response mechanism.	Action Taken Report.
6.	**Devising an SOP for involving Armed Forces during the mock drills, especially in sensitive areas**	Secretary (Security) advised JS, MoP to also seek comments from Ministry of Defence and finalize the SOP at the earliest. The JS, MoP informed that the Armed Forces located near the Utilities were not interested in participating in the mock drills / formulation of SOP and whether Secretary (Security) could take it at the Ministry level. The Secretary (Security) advised JS, MoP to submit a proposal to the Ministry of Defence and also send the copy of the same to this Office for follow up action.	**CEA** to send the draft SOP regarding involvement of Armed Forces during mock drills to be shared with Ministry of Defence in order to ensure the participations of Armed Forces in the mock drills. . **NHPC** to provide a note indicating the instance/details where armed forces located near the utilities did not show interest in participating in the mock drills. MoP will take up the matter with MoD.
7.	**Database of manpower / equipment / resources**	Secretary (Security) advised that details on DRIPS Portal and should be available to authorized personnel on 'Need to know basis', with proper access control. The Secretary (Security) further advised that an institutional mechanism for regular updation of this list along with the maintenance schedule should be laid down for strict implementation.	**CEA** to provide comments/ submit Action Taken Report.
8.	**Declaration of Critical Information Infrastructure (CII) as 'Protected system'**	The Secretary (Security) advised that the CCMP for all the utilities should be in place and may be effectively implemented. He further advised that Cyber Security Audit may also be comprehensively carried out in all the utilities with particular emphasis on CIIs.	**CISO, MoP** to provide comments and submit Action Taken Report.
9.	**Status of actions taken for protection from Drones**	The Secretary (Security) advised JS, MoP to send a formal proposal regarding marking of Power utilities in Digisky Portal to DGCA with a copy to their office.	**CEA** to provide a list of 'Vulnerable' Power Utilities. MoP to share the list with Secretary (Coordination) in order to ascertain the vulnerable Power utilities requiring marking in

			Digisky Portal of DGCA.
10.	**Establishing Captive 5G Communication Networks for Power Sector Utilities**	The Secretary (Security) advised MoP to have redundancy in communication facilities more specifically in the remote areas not necessarily in the form of captive 5G network.	**CEA,** in consultation with Power CPSUs, to take follow-up action and submit Action Taken Report.
11.	**Implementation of Early Warning System for the Hydro Power Utilities**	Secretary (Security) advised MoP to conduct regular mock drills in coordination with NDMA, involving all stakeholders and responders, especially for hydro-power utilities, leveraging Meteorological Department's early warning systems.	**CEA** to issue an advisory to all utilities especially Hydro Power Utilities, under MoP to conduct regular mock drills in consultation with NDMA.
14.	**Advance Cyber security Regulations, Audits, SOC/NOC Funding and Trusted Vendor Scheme.**	The Secretary (Security) advised JS, MoP to consider a strong feedback mechanism in the implementation of the Cyber security related issues and also to conduct vulnerability test and mock drills for assessing the preparedness.	**CISO, MoP** to take follow-up action and submit Action Taken Report.
15.	**Capacity Building and Cyber security Training for MoP Officials**	The Secretary (Security) advised that continuous Cyber security training programmes at different levels for employees manning critical posts should be carried out by the MoP and regular monitoring of sensitive data storage and appropriate physical access control for retrieval / use of sensitive data should be in place.	**CISO, MoP** to take follow-up action and submit Action Taken Report.
16.	**Learnings from Heathrow Airport Crisis and Review of Islanding Scheme.**	The recent crisis at Heathrow Airport, London, due to a fire accident in a Sub-station feeding power to it was discussed. The Secretary (Security) advised the JS, MoP that the learnings from the incident may be reviewed for any changes in the operations of the Power Sector with specific reference to power supply to airports, sensitive installations, etc. He further advised to also review the Islanding Scheme with reference to this.	**CEA and Grid-India** to provide comments on the matter.

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