



MEETING REPORT

LIGHTNING PREPAREDNESS WORKSHOP

BACKGROUND

India has witnessed a significant rise in lightning-related fatalities in recent years, with rural populations in eastern and central states bearing the brunt of this deadly hazard. According to data from the India Meteorological Department (IMD), lightning and thunderstorms accounted for 597 out of 1,492 extreme weather-related deaths during the 2024 monsoon season. States like Madhya Pradesh, Uttar Pradesh, Bihar, and Jharkhand reported the highest number of casualties, highlighting a critical need for targeted preparedness and response measures. Despite the availability of advanced lightning forecasting technology developed in collaboration with IITM, the last-mile dissemination of warnings remains a major challenge, particularly in rural areas with limited digital access.

In response to this growing crisis, Sphere India, in collaboration with the International Centre for Applied Climate Sciences (ICARS), organized a Lightning Preparedness Workshop on May 5, 2025. The workshop aimed to bring together a wide range of stakeholders, including government departments, national NGOs, technical institutions, academic bodies, and community leaders. Participants engaged in a comprehensive review of the previous year's lightning trends, identified existing gaps in preparedness, and collaboratively developed strategic interventions to enhance community resilience against lightning-related disasters. The discussions focused on community-based early warning dissemination, low-cost protection solutions, educational initiatives, and the integration of lightning risk reduction into local disaster management plans.

OBJECTIVES

- To understand the rising frequency of lightning events and the high number of related deaths, particularly during the monsoon season. Analyzing this data will help identify the most affected regions and time periods, allowing for better planning and targeted interventions.
- To explore underlying vulnerabilities that increase the risk of lightning impacts in specific regions. Many affected areas have a large rural population with limited access to early warnings and safe shelter. Understanding these vulnerabilities is essential for designing effective and inclusive preparedness measures.
- To assess existing challenges in public awareness, early warning communication, and community response.
- Effective lightning preparedness requires the joint effort of multiple actors including government bodies, civil society, and community leaders. This workshop provides a platform to exchange knowledge, experiences, and best practices to collectively address the issue.
- To generate practical ideas that can be implemented at the local and regional levels. These recommendations will contribute to a shared roadmap for strengthening preparedness, response, and mitigation efforts in vulnerable areas.



EXPECTED OUTPUTS:

- Consolidated insights into causes and impact trends of lightning incidents in India.
- Identification of critical risk zones and community-level vulnerabilities.
- Strategic recommendations to improve preparedness, early warning systems, and outreach.
- Formation of a working group or task force for follow-up and localized action planning

SESSION FLYER



The flyer features a dark purple background with a lightning bolt graphic. At the top, it displays the logos of the Ministry of Home Affairs, NIDM, Sphere India Academy, and Sphere India. The title 'LIGHTNING PREPAREDNESS WORKSHOP' is prominently displayed in white, bold letters. Below the title, the states covered by the workshop are listed: BIHAR | CHHATTISGARH | JHARKHAND | MADHYA PRADESH | MAHARASHTRA | ODISHA | UTTAR PRADESH | WEST BENGAL. The flyer then presents ten speakers in two rows, each with a circular portrait and their name and title. The speakers are: Dr. Uday Kant Misra (Vice Chairman, BIHAR SDMA), Prof. Anil Gupta (PI & CEO, ICARS-IITR), Dr. Soma Sen Roy (Scientist-F & Head Radar Division, IMD), Col. Sanjay Srivastava (Founder and Chairman, CROPC), Dr. Jaison Varghese (Program Lead, Caritas India), Ms. Atisha Seed (Consultant, Centre for Disaster & Health NIDM, MHA GoI), Mr. Nikhil Gangwar (Project Expert, Civil Structure UPSDMA), Mr. Amit Kumar Dadhich (Executive Director, RAWs India), Mr. Debabrata Patra (Chairperson, IAG Odisha), and Mr. Omkar Oniel Khare (DRR -Specialist (Moderator)).

LIGHTNING PREPAREDNESS WORKSHOP

BIHAR | CHHATTISGARH | JHARKHAND | MADHYA PRADESH | MAHARASHTRA
ODISHA | UTTAR PRADESH | WEST BENGAL

Dr. Uday Kant Misra
Vice Chairman
BIHAR SDMA

Prof. Anil Gupta
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Dr. Soma Sen Roy
Scientist-F & Head
Radar Division, IMD

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Chairperson, IAG
Odisha

Mr. Omkar Oniel Khare
DRR -Specialist
(Moderator)





KEY DISCUSSION POINTS

- Lightning is a natural atmospheric phenomenon characterized by the sudden discharge of electricity within clouds, between clouds, or between clouds and the ground. While it is a spectacular display of nature's power, it is also a significant weather-related hazard in India, leading to numerous fatalities, with 597 lightning-related deaths reported during the 2024 monsoon season.
- Recognizing this, the consultation began with a review of the India Meteorological Department's (IMD) improved lightning detection and nowcasting capabilities, including the Damini app, which provides lightning alerts 20–25 minutes in advance.
- However, the critical issue of last-mile dissemination was emphasized, particularly for farmers who often do not receive warnings while working in fields.
- Discussions highlighted those states like Uttar Pradesh and Bihar are making significant strides in promoting lightning safety using digital tools, miking, and pilot devices for field workers.
- Meanwhile, rural Bihar has introduced an affordable, indigenous lightning protection system made from simple materials like cycle rims, bamboo, copper wire, charcoal, and salt, offering local protection. Odisha and Maharashtra have also taken progressive steps by declaring lightning as a state-specific disaster, ensuring faster compensation for lightning-related incidents.
- Participants stressed the need for lightning safety education in schools and recognized community responders such as teachers, ASHA workers, and panchayat leaders as frontline actors in raising awareness.
- Vulnerable regions like Bihar, Odisha, and Jharkhand were noted to face higher risks due to high atmospheric moisture and the exposure of rural populations who often lack access to early warning systems.
- It was also observed that lightning patterns vary by region, with northeast India experiencing more nighttime lightning (when people are indoors) and eastern India seeing more afternoon lightning (when people are outdoors).
- Despite receiving alerts, communities often fail to take timely action, pointing to the need for stronger public education and the promotion of a culture of safety. Bihar SDMA's innovative "NITISH Pendant" was discussed as a promising solution, providing lightning alerts through vibration and sound, making it accessible even to people with disabilities.
- Participants emphasized the value of traditional knowledge—such as observing animal behavior or water patterns—for lightning prediction, recommending its documentation and study.
- The consultation also recognized the low-cost indigenous lightning protection model from Bihar (costing just ₹2,525) as a scalable solution, with suggestions for adding sirens for field alerts.
- It was recommended that lightning protection be integrated into flood shelters and PM Awas Yojana houses. Expanding lightning awareness through school curricula, CSO training modules, and home guard training was identified as a priority, especially in tribal and forested areas.
- The need for continuous innovation, regular updates to preparedness strategies, and strong community engagement was emphasized to save lives and reduce the impact of lightning incidents in India.



KEY ACTION POINTS:

1. Sphere India is encouraged to integrate lightning preparedness into capacity-building initiatives across high-risk districts, focusing on school safety, health resilience, and GPDP planning. It is further suggested to document and promote successful grassroots models, such as low cost lightning protection and siren-based alert systems. Sphere India may also support the development of joint SOPs for lightning response, strengthen communication between scientific agencies and communities, and engage youth networks as lightning safety champions.
2. State Governments are advised to consider mandating the inclusion of low-cost lightning protection systems in public housing and community shelters under schemes such as PM Awas Yojana and disaster shelter programs. States are also encouraged to prioritize the installation of solar-powered lightning alert displays in areas prone to connectivity challenges.
3. Local Governments are encouraged to conduct annual lightning awareness campaigns, particularly before the monsoon season, in local languages, school networks, and cultural media. They may also consider integrating lightning risk mitigation into village-level disaster management and development plans, establishing clear protocols and identifying safe shelters.
4. District Administrations are recommended to provide training for community responders, including ASHA workers, teachers, and youth volunteers, to ensure effective response during lightning events.
5. IMD and Communication Departments are encouraged to enhance early warning dissemination systems, ensuring last-mile connectivity through multiple channels, including mobile apps, loudspeakers, miking, hooters, and traditional communication networks. It is also advised to ensure that technical lightning forecasts are translated into clear, actionable messages for community use. These messages should be easily understandable and accessible to local volunteers and leaders for rapid dissemination.
6. Educational Institutions, including schools and youth networks, are advised to promote the formation of youth networks and school eco-clubs as lightning safety champions. These groups should be equipped with training, awareness kits, and community engagement tools.
7. Community Volunteers and Leaders should be trained to take immediate protective actions during lightning alerts, such as ceasing outdoor activities, guiding individuals to safe shelters, and maintaining public safety.

**DRAFT AGENDA:**Date: 05th May 2025 | Time: 02:30 PM – 04:30 PMYouTube Link: - https://youtu.be/e9AGy_ctzU8

Time	Title	Facilitator
02:30 - 02:35 PM	Welcome and Introduction	Sphere India
02:35- 02:40 PM	Setting up Context	Omkar Niel Khare (Moderator)
02:40 - 02:45 PM	Opening Remarks <ul style="list-style-type: none"> National disaster risk priorities Lightning in DRM discourse Inter-agency collaboration 	Prof. Anil Gupta, ICARS
02:45 – 02:55PM	Inaugural Address <ul style="list-style-type: none"> Vision for lightning resilience State-level coordination efforts Community-centric planning 	Dr. Uday Kant Misra, Vice Chairman BIHAR SDMA
02:55 - 03:20 PM	Presentations from State SDMAs <ul style="list-style-type: none"> State-level lightning risk profiles Recent incidents and response mechanisms Best practices and challenges in early warning and preparedness Policy initiatives and state disaster management strategies 	Mr. Nikhil Gangwar UPSDMA
03:20 - 03:30 PM	Presentation: Lightning Trends & Impact. <ul style="list-style-type: none"> Annual and seasonal lightning data trends Mortality and geographical distribution analysis Climate and environmental factors influencing lightning events 	Dr. Soma Sen Roy Scientist-F & Head Radar Division, IMD
03:30 - 03:40 PM	Community Risk & Rural Vulnerability in High-Frequency Zones <ul style="list-style-type: none"> Socioeconomic vulnerabilities in lightning-prone regions Rural livelihoods and exposure patterns Gaps in infrastructure and access to safe shelter Recommendations for risk-informed planning 	Dr. Jaison Varghese Program Lead, Caritas India
03:40- 03:45 PM	Strengthening Capacities for Lightning Resilience: <ul style="list-style-type: none"> Capacity building for grassroots responders Local responder training 	Ms. Atisha Sood, NIDM
03:45- 04:00 PM	Voices from the Ground: Challenges & Gaps in Rural Preparedness <ul style="list-style-type: none"> Awareness, behavior, and perception of lightning risk Access to early warning systems and first response Barriers to effective community engagement 	Mr. Amit Kumar Dadhich Mr. Debabrat IAG Odisha



Time	Title	Facilitator
04:00 - 04:15 PM	Strategic Recommendations & Way Forward <ul style="list-style-type: none">• Priority actions and next steps• Integration of lightning risk into local disaster plans• Capacity building and training needs• Setting up follow-up task groups and timelines	Col. Sanjay Srivastava CROPC
04:15- 04:25 PM	Open Discussion: Collaborative Solutions & Innovations <ul style="list-style-type: none">• Stakeholder reflections• Innovative ideas• Localized solutions	All participants
04:25 - 04:30 PM	Closing Remarks and Next Steps	Sphere India

ANNEXURE

[List of Participants](#)