

## **TERMS OF REFERENCE FOR R&D PROJECT**

**1. Title of the Project:** Study of Lightning accidents and Early warning systems in India to assess Lightning Safety Measures.

**2. Background:**

More people died due to lightning strikes than floods or cold exposure in India. As many as 40% of the 7,126 accidental deaths reported by the National Crime Records Bureau in 2021 attributed to weather events were due to lightning strikes. Between 2000 and 2021, over 49,000 have died from lightning strikes across the country. The latest numbers from the IMD are from March 2023, and show that 68 people died due to various weather events, of which 60 died due to lightning

Lightning mitigation techniques and protection measures are being implemented by central Government and various state Governments through disaster management departments.

The objective of this project is to conduct an extensive study on the reasons for death of people, study the protection measures implemented in these locations, compare the compliance of these protection measures w.r.t to IS standards and find out the improvements if necessary.

**3. Scope:** Scope of this research project includes –

- a. Conducting a survey to gather information on Lightning accidents and deaths happened during the last 3 years and collect data related various safety measures implemented.
- b. Verify these data with IS/IEC/TR 62713 and IS/IEC 62035.
- c. Examining the method of early warning systems implemented by various state governments with IS/IEC 62793 and IS/IEC 62858.
- d. Find out the gaps and identify the potential improvements in the standards or the practices followed by various disaster management organisations.

**4. Expected Deliverables:**

- A comprehensive report about accidents due to Lightning and analysing the reason for deaths and failures.
- A comprehensive report of the safety measures implemented in these locations with the recommendations of IS/IEC/TR 62713 and IS/IEC 62035.
- A comprehensive report of the methods used for early warning and the recommendations of IS/IEC 62793 and IS/IEC 62858.
- Recommendations for the improvements of standards or practices followed in India with a target of reducing deaths due to lightning.
- Report to IEC TC81 if any improvements in IEC standards are necessary.

## 5. Research Methodology:

The project will involve the following research methodologies:

- Contacting the Disaster management departments of state governments, state electrical inspectorates, offices of Archaeological survey of India and other relevant offices to verify the accident investigation reports.
- Site visits and discussing with affected people, investigate the incident and compare the data with the recommendations of IS standards.
- Collecting data of installation practices and methods used in these locations and compare with IS/IEC 62305.
- Finding out the gaps and make recommendations for improvement.

## 7. Timeline and Method of Progress Review:

The duration of the project is 5 months from the date of award of the project. The proposed indicative timeline stage-wise is given below:

Sr No	Stage	Time from date of award of project (cumulative)
1	Literature review and identification of manufacturing base, testing laboratories, user/user industry, and discussion with BIS for the finalization of sampling plan	1 month
2	Visit to manufacturers, testing laboratories, users and data collection	3 months
3	Preparation and submission of first draft report to BIS	4 months
4	Submission of final project report	5 months

## 8. Support BIS will Provide:

- BIS will provide access to latest editions of standards, required for the project.

