

INDIA

Risk of Lightning and mitigating its Impact in the Eastern Indian State of Odisha

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Lightning is a sudden electrostatic discharge to earth through a conductive path that generates during a thunderstorm. It is a very localized natural phenomenon and comes with devastating consequences on the ground. As the lightning strikes it generates around 30,000°C temperature and 100,000 ampere current causing loss of life and damage to property (Vijayalaxmi, T.N. 2013). Lightning causes more deaths in India than any other natural disaster like by flood, landslide, heat stroke and cold waves. On an average, every year, 2000 people in the country die from lightning strikes. Between 1967 to 2012, lightning accounted for 39% of deaths that resulted from natural disasters in India (Illiyas et.al. 2014). In 2014, 2,582 people died of lightning strikes in India, according to the National Crime Record Bureau (NCRB). The previous year, 2,833 people had died of lightning strikes. Lightning does not often find mention in accounts of extreme weather events in India (De et al 2005). Few victims of lightning strikes actually get any official help because the phenomenon is not covered by under the National Disaster Relief Fund (NDRF). It was only in 2015 that the Centre allowed it to be declared as a state-specific disaster, making affected people or their families eligible for compensation in a particular state. Lightning related incidents are under-reported as the news about lightning deaths are gathered from newspapers, or panchayat or medical sources or sometimes the police station. (Cooper and Kadir 2010).

The State of Odisha situated in the east part of India is often called India's natural disaster capital because of the frequency with which calamities such as cyclones, floods and droughts hit the state. Apart from that, a super cyclone hit the coastal districts of Odisha in 1999, which had taken a toll of 9893 human lives (Kalsi, S.R., 2006), statistics show that of all the calamities that befall the state at regular intervals, lightning claims more human lives than any other natural disaster. On

average, 327 persons die of lightning strikes in Odisha every year (B.S., 2016), accordingly. On analyzing the collected data of 13 years from various sources, it was found that Mayurbhanj, Dhenkanal, Ganjam and Sundargarh were the districts from where reports of maximum number of such deaths poured in every year. Mostly, the victims were farmers, daily wage labourers and people who were in the fields and were from rural areas. On an average, 74.67 % of those killed were male while 25.33% female. Mostly, in a year, deaths due to lightning occurred during April to September with maximum of the 33.48% deaths occurred in the month of June. It was followed by 31.86% deaths in July. In the age group analysis, 9.26 % were up to the age of 14 and 57.12% of those killed were between 15 to 45 years. 24.37 % died belong to age group between 46 and 60, while 9.25% killed were aged 61 and above. At least 35.32% were struck by lightning when they were working in paddy fields. Another 20.72 % and 13.48 % were struck when they were in open fields and near their house respectively. However, 8.21 per cent people died while they were inside the house. Odisha has for long been asking the Union government to place lightning in approved list of natural disasters so that it could compensate for the loss of lives from State Disaster Response Fund. Meanwhile, lightning has been declared as a 'state disaster' by government of Odisha. As per the norms, Rs 4 lakh per deceased will be paid by the government as ex-gratia (TOI, 2017)

From the above discussion and considering the fatalities, it seems nationwide; less serious efforts have been to study thoroughly the vulnerability of areas to lightning and its mitigation. Therefore, this research study will present the compilation of incidents of lightning fatality in Odisha so as to assess the gravity of the risks involved. Existing policy matters related to lightning hazard vis-à-vis natural calamities will be discussed. Mitigating actions will be suggested comprising the following accordingly; Local Planning & regulatory frameworks, Infrastructure facilities for warning systems, Natural system protection, Education and Awareness Programs.