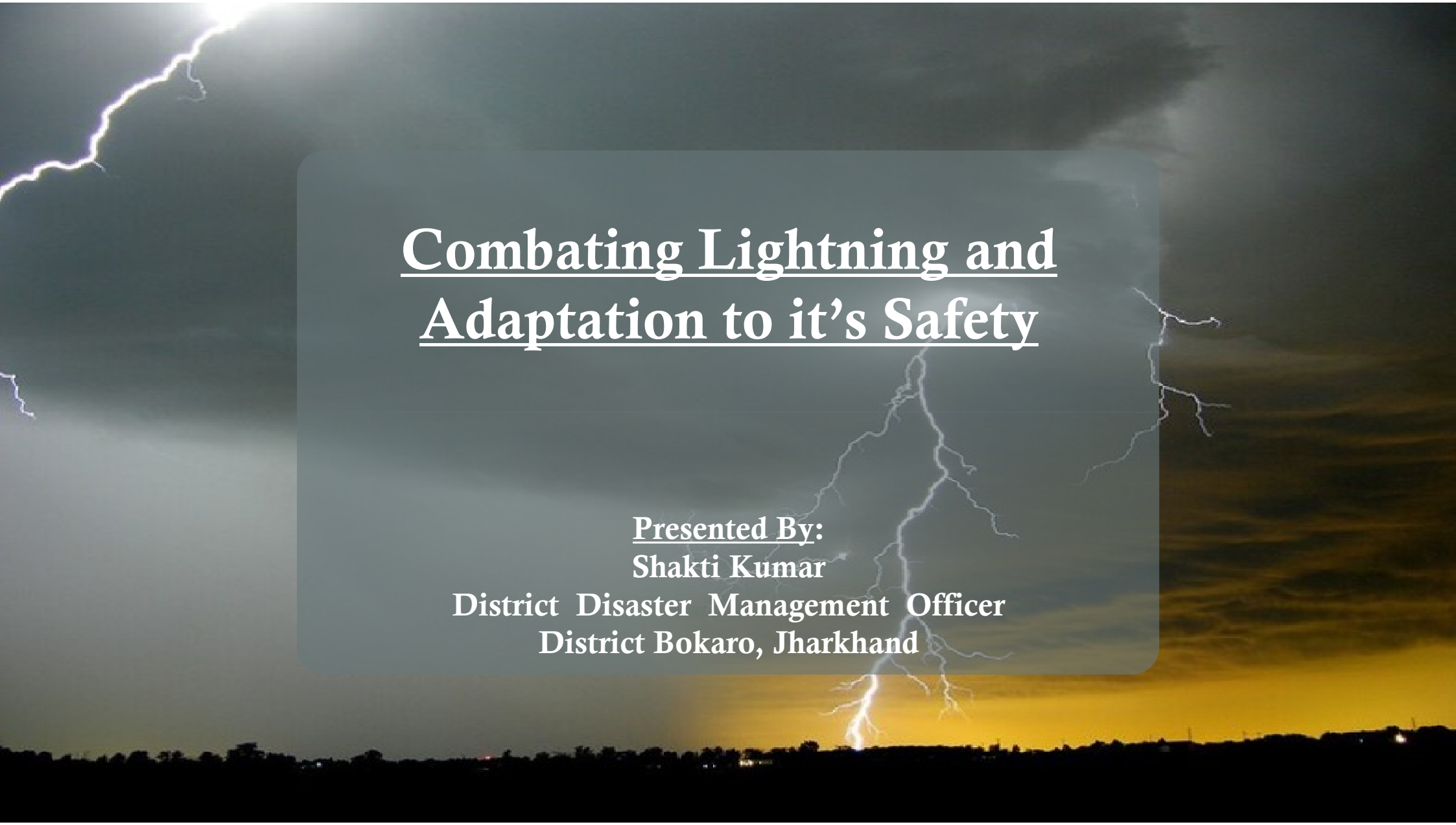


Combating Lightning and Adaptation to it's Safety

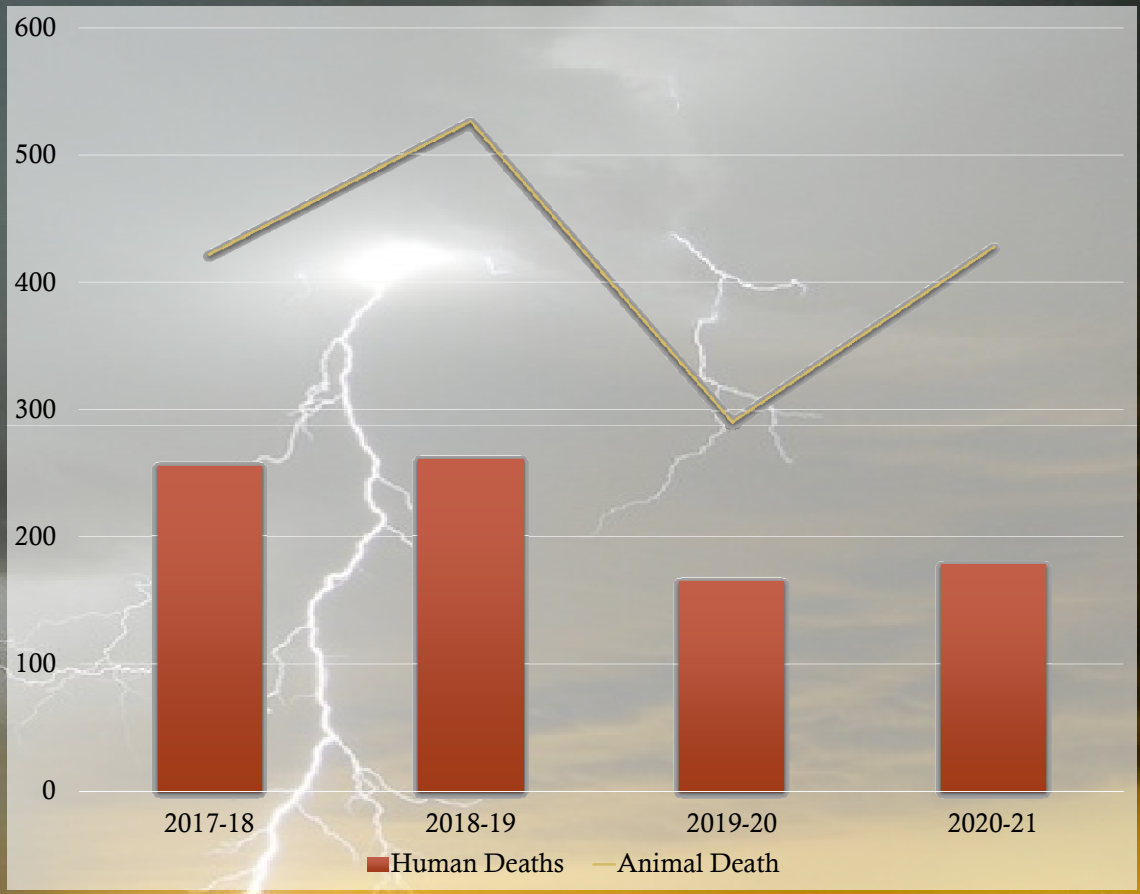
Presented By:
Shakti Kumar
District Disaster Management Officer
District Bokaro, Jharkhand

Disaster Profile of Bokaro District

S. No	Main Hazards	Who/ What is at risk	Vulnerability
1.	Mining Fire	Human Life, Houses and Property	High
2.	Fire	Human Life, Cattle Life, Houses and Property	High
4.	Road Accidents	Human Life and Property	High
5.	Drought	Human Life, Cattle Life, Agriculture loss	High
6.	Industrial and Chemical accidents	Human Life, Property, Industrial Infrastructure	High
7.	Lightning	Human Life, Livestock, Houses and Property	High
8.	Severe Summer Weather/Extreme Heat	Human Life, Cattle life, Crops	High
9.	Cyclone	Transport, Houses, Constructions, Drinking Water,	Moderate
10.	Earthquake	Human Life, House and property, Infrastructure	Moderate
11.	Dam Failure	Human Life, Electricity, Water supply, House & property	Moderate

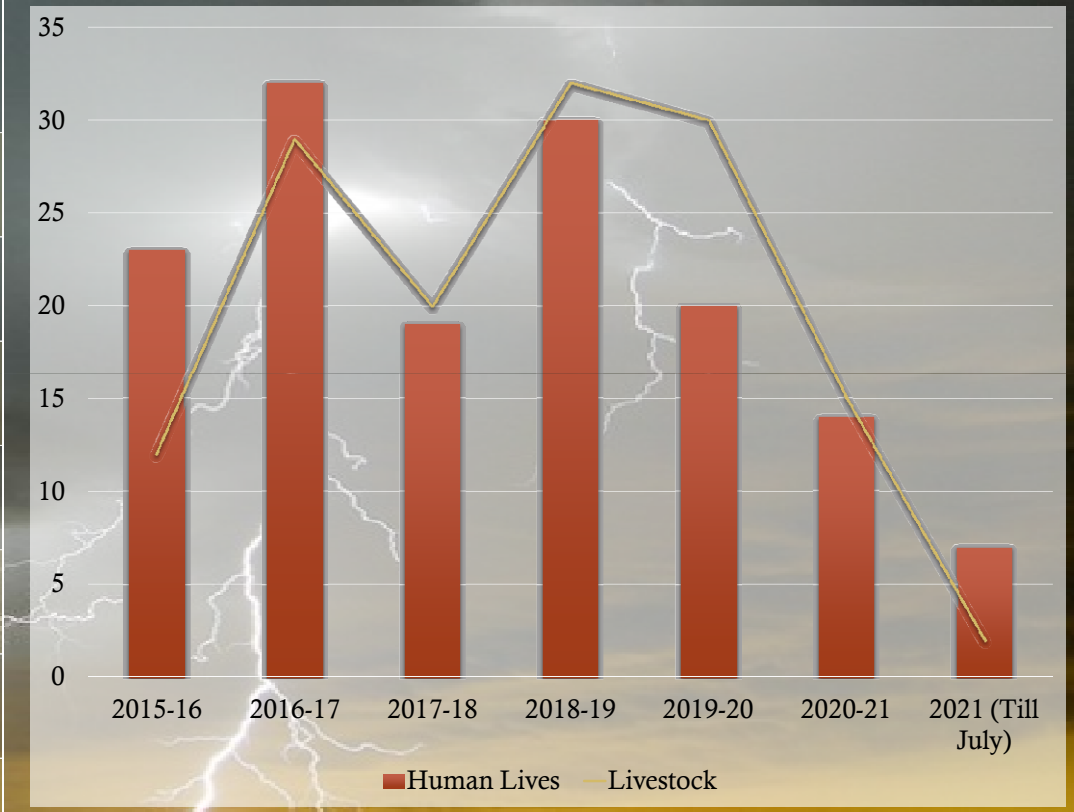
Matrix of Lightening Incidents in Jharkhand

FY	HUMAN LIVES	LIVESTOCK
2017-18	256	422
2018-19	261	526
2019-20	166	291
2020-21	178	428

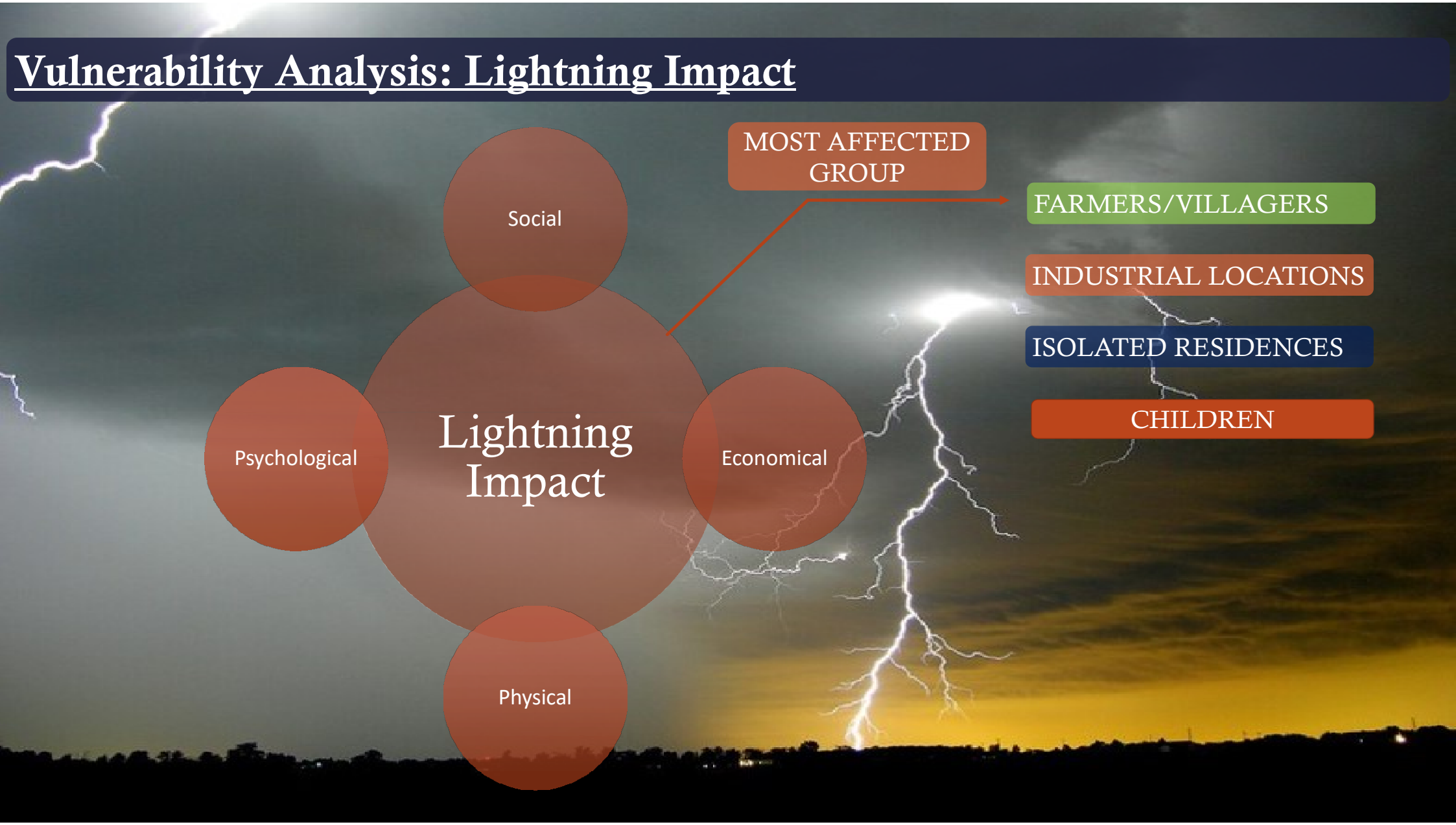


Matrix of Lightening Incidents in Bokaro

FY	HUMAN LIVES	LIVESTOCK	MOST AFFECTED BLOCKS
2015-16	23	12	CHAS
2016-17	32	29	NAVADIH
2017-18	19	20	GOMIYA
2018-19	30	32	GOMIYA
2019-20	20	30	GOMIYA
2020-21	14	15	PETARWAR
2021 (TILL JULY)	7	2	CHANDRAPURA



Vulnerability Analysis: Lightning Impact



Salient Features:

- In Jharkhand, Lightning Mitigation Campaign has been a serious affair since last 7-8 years.
- After the observation of frequency and pattern of lightning incidents, it was observed that it is a seasonal phenomena which mainly occurs in April-May, July and September. It was also observed that most events occurred between afternoon to evening.
- Through this analysis we were also able to identify the hotspot areas where maximum cases of lightning happened. After that, we shifted our focus of preparedness, prevention and awareness into these hotspot areas.
- The study and report of CROPC helped us in better understanding of causes, pattern and impact of lightning incidents. We prepared and formulated our Awareness Activity Calendar accordingly.
- Although incidents of lightning has been increased in recent years but we were able to contain/reduce number of fatalities by following a focused and systematic approach.

Efforts towards Adaptation

Awareness through “Vajrapaat Suraksha Rath”

CAPABILITY DEVELOPMENT OF THE COMMUNITY

Installation of hoardings at strategic locations (Approx. 300)

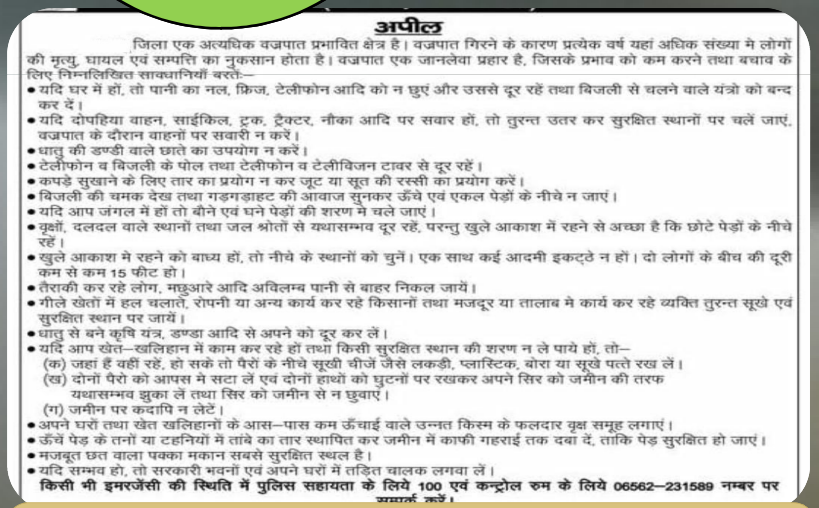
Efforts towards Adaptation

Workshops at panchayat level engaging women and children

CAPABILITY DEVELOPMENT OF COMMUNITY

Street Plays

Efforts towards Adaptation



CAPABILITY DEVELOPMENT OF COMMUNITY

अपील

जिला एक अत्यधिक वज्रपात प्रभावित क्षेत्र है। वज्रपात गिरने के कारण प्रत्येक वर्ष यहां अधिक संख्या मे लोगों की मृत्यु, घायल एवं सम्पत्ति का नुकसान होता है। वज्रपात एक जानलेवा प्रहार है, जिसके प्रभाव को कम करने तथा बचाव के लिए निम्नलिखित सावधानियाँ बरतें:–

- यदि घर में हों, तो पानी का नल, फ्रिज, टेलीफोन आदि को न छुएं और उससे दूर रहें तथा बिजली से चलने वाले यंत्रो को बन्द कर दें।
- यदि दोपहिया वाहन, साईकिल, ट्रक, ट्रैक्टर, नौका आदि पर सवार हों, तो तुरन्त उतर कर सुरक्षित स्थानों पर चलें जाएं, वज्रपात के दौरान वाहनों पर सवारी न करें।
- धातु की डण्डी वाले छाते का उपयोग न करें।
- टेलीफोन व बिजली के पोल तथा टेलीफोन व टेलीविजन टावर से दूर रहें।
- कपड़े सुखाने के लिए तार का प्रयोग न कर जूट या सूत की रस्सी का प्रयोग करें।
- बिजली की चमक देख तथा गड़गड़ाहट की आवाज सुनकर ऊँचे एवं एकल पेड़ों के नीचे न जाएं।
- यदि आप जंगल में हों तो बौने एवं घने पेड़ों की शरण मे चले जाएं।
- वृक्षों, दलदल वाले स्थानों तथा जल श्रोतों से यथासम्भव दूर रहें, परन्तु खुले आकाश में रहने से अच्छा है कि छोटे पेड़ों के नीचे रहें।
- खुले आकाश मे रहने को बाध्य हों, तो नीचे के स्थानों को चुनें। एक साथ कई आदमी इकट्ठे न हों। दो लोगों के बीच की दूरी कम से कम 15 फीट हो।
- तैराकी कर रहे लोग, मछुआरे आदि अविलम्ब पानी से बाहर निकल जायें।
- गीले खेतों में हल चलाते, रोपनी या अन्य कार्य कर रहे किसानों तथा मजदूर या तालाब मे कार्य कर रहे व्यक्ति तुरन्त सूखे एवं सुरक्षित स्थान पर जायें।
- धातु से बने कृषि यंत्र, डण्डा आदि से अपने को दूर कर लें।
- यदि आप खेत–खलिहान में काम कर रहे हों तथा किसी सुरक्षित स्थान की शरण न ले पाये हों, तो–
  (क) जहां हैं वहीं रहें, हो सके तो पैरों के नीचे सूखी चीजें जैसे लकड़ी, प्लास्टिक, बोरा या सूखे पत्ते रख लें।
  (ख) दोनों पैरो को आपस मे सटा लें एवं दोनों हाथों को घुटनों पर रखकर अपने सिर को जमीन की तरफ यथासम्भव झुका लें तथा सिर को जमीन से न छुवाएं।
  (ग) जमीन पर कदापि न लेटें।
- अपने घरों तथा खेत खलिहानों के आस–पास कम ऊँचाई वाले उन्नत किस्म के फलदार वृक्ष समूह लगाएं।
- ऊँचे पेड़ के तनों या टहनियों में तांबे का तार स्थापित कर जमीन में काफी गहराई तक दबा दें, ताकि पेड़ सुरक्षित हो जाएं।
- मजबूत छत वाला पक्का मकान सबसे सुरक्षित स्थल है।
- यदि सम्भव हो, तो सरकारी भवनों एवं अपने घरों में तड़ित चालक लगवा लें।

किसी भी इमरजेंसी की स्थिति में पुलिस सहायता के लिये 100 एवं कन्ट्रोल रुम के लिये 06562–231589 नम्बर पर सम्पर्क करें।

Advertisements in leading newspapers regarding do's & don'ts during lightning.

Efforts towards Adaptation

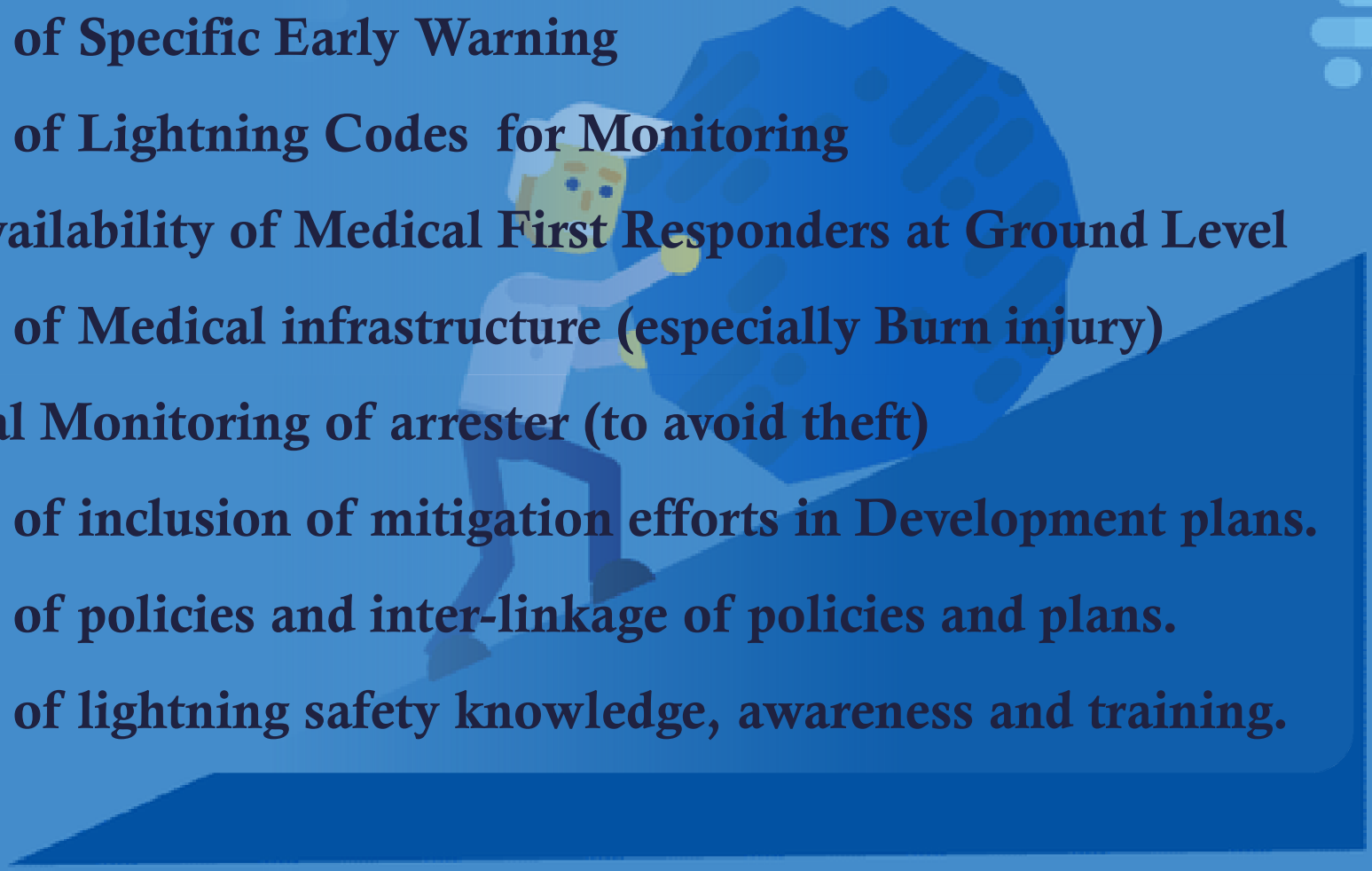
Policy level interventions:

- Department of Education, Govt. of Jharkhand has issued direction to private schools that it is mandatory to have certificate of installation of Lightning arrester by District Administration for CBSE affiliation.
- Letter/order has been issued under Disaster Management Act to all industrial Units of the district regarding safety measures to be taken for minimizing harmful impacts of lightning.
- Correspondence with all mining companies like CCL, BCCL etc. for safety of coal laborers and other employees during Lightning especially in open cast mining.
- Creation of Village Task Force (VTF) in all 249 Panchayats for awareness generation among villagers.
- Draft SOP has been formalized for engagement of NYKS and NCC/NSS volunteers as well as local social organizations like Gutkha Gang, Sewa Aashram etc. for creating Lightning Awareness and other disasters.
- Consultation with Nagar Nigam and Zila Parishad (PRIs) members to promote installation of lightning arrester.

Sensitivity: Internal (C3)

Challenges:

- Lack of Specific Early Warning
- Lack of Lightning Codes for Monitoring
- Unavailability of Medical First Responders at Ground Level
- Lack of Medical infrastructure (especially Burn injury)
- Social Monitoring of arrester (to avoid theft)
- Lack of inclusion of mitigation efforts in Development plans.
- Lack of policies and inter-linkage of policies and plans.
- Lack of lightning safety knowledge, awareness and training.



Sensitivity: Internal (C3)

Way Forward

- Lightning Arresters at village level in .
- Installation of "Lightning Resilient Shelters" at hotspot areas.
- Exploring the possibility of installation of 'Lightning-Towers' at hotspot areas.
- Efforts for mandatory installation of lightening arrester in building Plan.
- Special Drive to be initiated regarding installation of Lightening arrester in Social, Faith-based & Commercial institutions.
- Special campaigns to eradicate myths at rural area by involving women SHGs.
- Directive to industry and mining sector on Lightning Safety requirements.
- Long-term planning for planned forestation with forest Department.
- Specific research & study should be promoted in all Universities of the State regarding mitigation of risk and harmful impacts of lightning.
- Collaborative approach of all stakeholders for technical support, availability of equipment and fund requirements.

Sensitivity: Internal (C3)