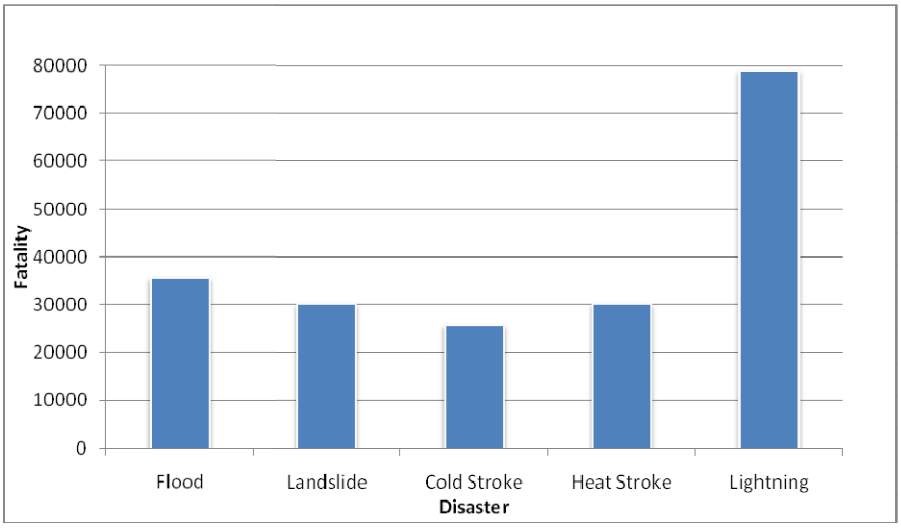
CENTRE FOR LIGHTENING RESEARCH AND ALTERNATIVE COMMUNICATION SYSTEMS

(CLRACS)

1. INTRODUCTION

Disasters are as old as human history. It is a crisis situation causing widespread damage which is beyond our recovery limit. The world faces an average of one or two disasters and this number and its intensity is increasing day by day. The 'Centre for Research on the Epidemiology of Disasters (CRED)' define a disaster as " a situation or event overwhelms local capacity, necessitating a request to a national or international level for assistance, an unforeseen and often sudden event that causes great damage, destruction and human suffering. "At least 93 people have been killed and more than 20 injured by lightning strikes in the Indian states of Bihar, Jharkhand, Uttar Pradesh and Madhya Pradesh, officials say"(BBC News, 22-06-2016).Lightning is identified as one of the major hazard that affect India. Fatality figures of five major disasters for the 45-year period from 1967 to 2012 is given below.



2. Scope of Centre for Lightning Research

The social and administrative aspects of lightning incidents have seldom been studied in India or for that matter elsewhere in the world. Majority of the available literature have dealt with the science of thunder and lightning formation and its allied meteorological features or the medical effects like keraunoparalysis and Lichtenberg figures due to lightning strikes on humans or its geological effects like the generation of fulgurites .It is identified that , no nation-wide effort has been made to study the effects of lightning in India considering the fatalities in its spatio-temporal dimensions and the vulnerabilities involved.(Illiyas F T,2014). Hence such academically allied knowledge sharing is required to reduce the risk associated with Lightning Hazard and to increase the coping capacity of the vulnerable community.

3. Emergency Communication Systems

Both natural and human induced disasters can disrupt all means of communication system in the affected area. All hazardous situations could inter alia bring people's attention. This results their demand for 'a medium' to communicate/ share/ request/ demand /offer assistance. In a hazardous situation such as earth quake, cyclone, all the wired communication services will be disrupted. The internet cables,

telephone lines, hot lines etc will be damaged. As the power supply systems also get damaged, the dependence on television is not righteous. In case of cellular communication, the towers providing connectivity to cellular phones will also be nonfunctional due to collapse. Further if the number of people accessing a particular tower system in a particular time is beyond the limit, the communication would be disrupted due to signal jamming. This situation is being experienced in various pilgrimage destinations like Sabarimala, Thrissur Pooram and Kumbha mela locations. Though the radio receiver can survive to an extent, the service is limited to one line connectivity. The satellite phones could be an alternative mechanism, but the higher call rates, higher cost of implementation & maintenance cost could not be affordable to every part of developing country like India.

Hence it is necessary to identify and implement alternate communication systems during disaster situations for the effective management of the crisis. The reinstallation of communication systems is the immediate step after every disaster situations. The VHF (Very High frequency) Radio Communication acts as a panacea in emergency communication.

4. **Scope of Centre for Emergency Communication Systems**

There are five main VHF Repeater stations installed for ensuring state wide connectivity between Collectorates and state headquarters. 379 static radio sets were installed in Kerala(at Collectorates, Taluks and Villages). The connectivity among the Taluks Villages and Collectorates are established through 14 District level repeaters.

Advantages:

- Easy to use
- Analogue radio technology
- Easy to reinstall after a disaster
- Interoperability with other agencies.

Mission of CLRACS:

The centre aims to educate the researchers, practitioners, officials, policy makers, professionals and enthusiasts in the field of lightning hazards to reduce the risk associated with it and to improve the coping capacity of the vulnerable community. It has another mission that to support the government by providing emergency communication systems during disasters and high risk scenarios.

- Portability
- Works at12 battery

The general public who are licensed users of radio communication known as HAMs could also be used for emergency communication activities.

Vision of CLRACS:

Develop the academic & research activities in Disaster Management for nurturing the administratively skilled personals in good governance with technical strengths & interests to cop up with disasters and to work for the wellbeing of the society.

Objective of CLRACS:

- Monitor and identify the lightning incidents in the state.
- Observe and identify the paternal changes associated with incidents related to lightning hazard.
- Prepare lightning susceptibility map annually
- Identify and develop the scope of lightning warning systems.
- Identify proper communication system for emergencies.
- Practice and implement emergency communication systems in high risk zones.
- Provide professional consultancy services.
    - Liaising the administrative systems and NGO/Private sector.

2. Experience and Expertise.

ILDM has ample qualified professional competence to take up the task of research on Lightning Hazard. ILDM is identified as the agency to revamp emergency communication radio network (VHF) of the state. ILDM already implemented the emergency communication project in Sabarimala and Thrisur Pooram festivals with the incorporating the HAM radio operators.

3. PROJECTS UNDER OPERATION

Sl. No	Activities planned for the year 2016-18
1	Developing Training Modules on Lightning Emergency
2	Training Programme on Lightning Emergency Management to First Responders and General Public
3	Preparation of Lightning intensity Map for the state.
4	Alternate Communication Network for Sabarimala Pilgrimage using VHF radio Communication System
5	Implementation of HAM Radio Network as the alternate communication hand of District Disaster Management Authorities and State Disaster Management Authority.
	Total

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