

# Use of Earth Observation Data in Disaster Management-Assam Experience

Biren Baishya  
GIS Expert  
Assam State Disaster Management Authority  
Assam

# Setting up of ASDMA – What did we do?

- ASDMA was notified in March 2007
- Initially to overcome operational difficulties in absence of dedicated staff, Section 16 of DM Act was resorted to
- Secretariat structure was conceived and approved in first meeting of ASDMA
- Necessary process for creation of required posts and recruitment was followed
- ASDMA now is fully functional and vibrant authority with 42 nos. of full time staff including District Project Officers in each of 27 district of State

# Functions of SDMA

- Formulate Policy and Rules for Disaster Management in the State.
- Develop an operational Disaster Management plan at all levels/ departments
- Ensure strengthening of appropriate techno legal regime across different sectors in the State
- Ensure measures for prevention and mitigation in the development plans and projects
- Facilitate departments in addressing disaster management concerns in their plans and programmes
- Facilitate Safety Audits of critical infrastructures, lifeline buildings, high-rise apartments, schools, hospitals etc
- Capacity building of all stakeholders & Awareness Generation
- Review the measures taken for preparedness, mitigation and capacity building and issue guidelines as may be necessary •

# DDMA Functions

- Identify hazards and assess vulnerability of the district to these hazards
- Prepare, review & update district level DM plans
- Facilitate the integration of DM concerns in district development plans/programmes
- Initiate measures for ensuring safer built environment in the district
- Organize and coordinate specialized training
- Facilitate community training and awareness
- Establish a coordinated system for dissemination of information to public
- Coordinate response in any disaster situation
- Ensure communication systems are in order and disaster management drills are carried out periodically

# State Initiative: Use of Space Data

- Flood, Earthquakes, and Landslides are the most common natural disasters in the North Eastern Region of India, causing heavy losses to the life and property of people.
- The major challenge for any disaster management authority is how to protect the life, property and the vital life-supporting infrastructure.
- Advanced disaster management technology like Remote Sensing could provide a critical support system for disaster management authorities at times of disaster-related crisis.
- Space technologies are becoming increasingly vital to modern day disaster management activities.
- Earth observation satellites have proved to contribute unique and significant solutions in disaster management: disaster mitigation, disaster preparedness, disaster relief and also disaster rehabilitation.
- Government of Assam has taken few initiatives using the space products for planning purpose.

## Flood Hazard Atlas for Assam

- Flood over decades have turned out to be a permanent problem for Assam.
- There was no specific document on flood inundated areas which could be used as base for carrying out planning and developmental activities.
- On the request from Govt. of Assam, NRSC, Hyderabad prepared the Flood Hazard Atlas for the entire State using both optical and microwave satellite data.
- The flood inundated villages were classified into 5 categories i.e very low, low, moderate, high and very high based on the frequency of inundation.
- The Flood Hazard Atlas was further simplified by ASDMA into district wise brochures showing revenue circle wise list of flood inundated villages.
- In addition, a list of suggestive applications of the Flood Hazard Atlas for the district administration and other departments was also incorporated in the brochure.
- The Flood Hazard Atlas has helped Government of Assam in chalking out comprehensive plan in deciding both short and long-term measures to effectively tackle flood disasters and mitigate the sufferings of flood affected people.

## **Flood Early Warning System (FLEWS)**

- Assam, inspite of suffering from annual flood events, unfortunately did not have a system of any early warning mechanisms that would alert the concerned districts/circles/villages from the occurrence of a disaster.
- For the first time in India, a model for early warning for floods has been developed by Government of Assam in collaboration with the North Eastern Space Application Centre (NESAC).
- FLEWS gives early warnings on floods in magnitude (severity),location (revenue circle) and probable time (within 12-24 hrs range).
- This is a classic example wherein satellite data and ground information are brought into a single platform, resulting in the generation of flood alerts.
- The FLEWS has helped the Government of Assam in planning and taking decisions for mobilizing its resources for response activities and to evacuate the people in case of high flood alerts.
- NESAC also maps the embankment breaches using satellite data and submits a report to Government of Assam by March i.e before the onset of monsoon season for taking rectifying measures by the respective department.

## Mapping of Open Spaces

- With increasing population and urbanization the losses from hazard/disaster have been increasing significantly in hazard prone areas.
- Open spaces plays a vital role in planning any rescue and recovery operations. It can act as a short-term shelter area during any emergency or disasters.
- Mapping of open spaces therefore, enables decision makers to execute any emergency decisions and plans during disasters.
- ASDMA has taken an initiative for mapping all the open spaces within Guwahati City as part of its preparedness measure for response in case of a major earthquake.
- The statistics on the availability of open spaces with respect to the population will help the government in understanding the requirement of open spaces and take appropriate action for its planning.



## Way Ahead.....

- Mapping of vulnerable river bank erosion prone areas
- Mapping of vulnerable sections of the embankment
- Preparation of a flood risk map considering population and agriculture

# THANKYOU

Website:[www.asdma.gov.in](http://www.asdma.gov.in)

Email: [asdmaghy@gmail.com](mailto:asdmaghy@gmail.com)