Issues and Challenges in Working Towards a Disaster Resilient Northeast India

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Area Under Jhum Cultivation as a Percentage of Total Area Under Agriculture
Number of Wildlife Crime Cases Reported Per 1,000 sq kms Of Forest Area

Legend:
- No Data
- 0 - 3.5
- 3.5 - 6.9
- 6.9 - 10.4
- 10.4 - 13.9
- 13.9 - 17.4
- 17.4 - 20.8
- 20.8 - 24.3
- 24.3 - 27.8
- 27.8 - 31.3
- 31.3 - 34.7

SDG 15.3
Percentage Of Loans Disbursed to MSMEs Against Sanctioned

Legend:
- No Data
- 0 - 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%
Surfaced Road as a Percentage of Total Road Length

Legend
- No Data
- 0 - 10%
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100%

North Singh
West Singh
South Singh

of Rs 3 lakh

SDG 9.2
## Damage due to Floods in Northeastern States

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>---------------------------</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>33</td>
<td>47</td>
<td>1647</td>
<td>0.007</td>
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<tr>
<td>Assam</td>
<td>53</td>
<td>122</td>
<td>77948</td>
<td>0.31</td>
<td>101</td>
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<tr>
<td>Manipur</td>
<td>25</td>
<td>142</td>
<td>10820</td>
<td>0.06</td>
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<tr>
<td>Meghalaya</td>
<td>7</td>
<td>4632</td>
<td>13100</td>
<td>0.02</td>
<td>23</td>
</tr>
<tr>
<td>Mizoram</td>
<td>22</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
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<tr>
<td>Nagaland</td>
<td>19</td>
<td>896</td>
<td>5202</td>
<td>0.05</td>
<td>19</td>
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<tr>
<td>Sikkim</td>
<td>4</td>
<td>-</td>
<td>83</td>
<td>-</td>
<td>6</td>
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<tr>
<td>Tripura</td>
<td>22</td>
<td>4167</td>
<td>40897</td>
<td>0.32</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>195</td>
<td>10006</td>
<td>149697</td>
<td>0.767</td>
<td>167</td>
</tr>
</tbody>
</table>

**Notes:**
- **Total** for each column is calculated and rounded to the nearest whole number.
- **%** denotes the percentage of the total for each column, based on the total for that state.
- **** indicates calculations or data that have been rounded or estimated.
How Vulnerable is India to Disaster?

In Addition,

• Impact of climate change has intensified the incidences of natural disasters
• Rapid industrialization and urbanization has also made it vulnerable to chemical and industrial disasters
Earthquake Zone
Flood Zones
Wind and Cyclone Zone
Prominent disasters in Northeast India

• In Northeast India, earthquakes, floods, landslides and high wind velocities are common and continue to remain the greatest threats.

• Every year, disastrous overflow of water from a river, lake or other water bodies due to excessive rainfall caused havoc in all the valley parts of the region while in the hills the breakup and downhill flow of rock, mud, water and anything caught in the path has taken a huge toll on the people.

• Fear of massive earthquakes which ravaged the region in the past causing much destruction: Cachar Earthquake (1869), Shillong Earthquake (1897), Assam Earthquake (1950), Sikkim Earthquake (2011) and Manipur Earthquake (2016). Since the region is experiencing mild earthquakes every year this fear persists.

• Strong winds with a speed of over 100 km per hour or more poses a threat as well. Every year storm wreaks havoc in various parts of Northeast India.
<table>
<thead>
<tr>
<th>Key Issues</th>
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<tbody>
<tr>
<td>Priority during 'non-disaster' phase</td>
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<tr>
<td>Inventory management</td>
</tr>
<tr>
<td>Maintenance of equipment</td>
</tr>
<tr>
<td>Inter-institutional coordination</td>
</tr>
<tr>
<td>Operationalization of Emergency Operations Centres</td>
</tr>
<tr>
<td>Community Engagement with focus on youth &amp; women</td>
</tr>
<tr>
<td>Role of local leaders &amp; elected representative</td>
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<tr>
<td>Dealing with media</td>
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</tbody>
</table>
• Activating an Early Warning System network and closely monitoring its functioning

• Lack mechanisms for integrating the scientific, technological and administrative agencies for effective disaster management

• Collapsing terrestrial communication links in the event of a rapid onset disaster

• Vulnerability of critical infrastructures (power supply, communication, water supply, transport, etc.) to disaster event

• Funding: Primacy of relief as disaster response

• Very often preparedness and mitigation measures are ignored.

• Lack of integrated efforts to collect and compile data, information and local knowledge on disaster history and traditional response patterns.
Constraints

• Lack of standardized efforts in compiling and interpreting geo-spatial data, satellite imagery and early warning signals.

• Weak areas continue to be forecasting, modelling, risk prediction, simulation and scenario analysis, etc.

• Absence of a national level, state level, and district level directory of experts and inventory of resources.

• Lack of appropriate implementation of National Disaster Management Plan, and State level and district level disaster management plans

• Lack of continuation and sustainability of efforts

• Lack of Inter Agency Co-ordination and Standard Operating Procedures for stakeholder groups, especially critical first responder agencies.

• Emergency medicine, critical care medicine, triage, first aid
Lessons Learnt

01 Be Prepared:
Preparedness and Mitigation is bound to yield more effective returns than distributing relief after a disaster

02 Integrate with Local Culture:
Create a Culture of Preparedness and Prevention.

03 Stakeholders Engagement:
Evolve a code of conduct for all stakeholder
Resilient Disaster Management Cycle

1. Disaster
2. Response
3. Rehabilitation
4. Reconstruction
5. Development
6. Prevention
7. Mitigation
8. Preparedness
Nodal Agencies for Disaster Management

- **Floods:** Ministry of Water Resources, CWC
- **Earthquakes:** Indian Meteorological Department
- **Epidemics:** Ministry of Health and Family Welfare
- **Rail Accidents:** Ministry of Railways
- **Air Accidents:** Ministry of Civil Aviation
- **Fire:** Ministry of Home Affairs
- **Nuclear Incidents:** Department of Atomic Energy
- **Mine Disasters:** Department of Mines
Strategic Pathways

• Effective Inter Agency Co-ordination and adapting Standard Operating Procedures (SOP) for stakeholder groups

• Public Private Partnership

• Encourage and consolidate information & knowledge networks

• Build Capacities: Mobilise and train disaster volunteers for more effective preparedness, mitigation and response (NSS, NCC, Scouts and Guides, NYK, Civil Defense, Home guards)
  • Increased capacity building leads to faster vulnerability reduction.
  • Learn from best practices in disaster preparedness, mitigation and disaster response

• Anticipatory Governance: Simulation exercises, Mock drills and Scenario Analysis
Operational Pathways

- Living with Risk: Community Based Disaster Risk Management
- Inclusive, participatory, gender sensitive, child friendly, eco-friendly and disabled friendly disaster management
- Stakeholders Engagement: Mobilising stakeholder participation of Self-Help Groups, Women’s Groups, Youth Groups, Village Institutions
- Knowledge Management
  - Documentation and dissemination of good practices
  - Indigenous knowledge systems and coping practices
Thank You