Disaster Risk Management in the 21st Century: Focus on Communities

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Dehradun 22 November 2017
Disaster
Early Warning
Prevention
Mitigation
Global Scenario

- Increasing trend of hydro-meteorological disasters
- Increasing Exposure
- Better Reporting
Global Scenario

Mortality is trending down but still very high
Economic losses rising
One Hurricane: Two Countries

Emergency Response Coordination Centre (ERCC) – ECHO Daily Map | 06/10/2016
Haiti, Dominican Republic, Cuba, USA – Tropical Cyclone MATTHEW

SITUATION

- Tropical Cyclone MATTHEW continued moving north-west, passing through The Bahamas islands as a Category 3 Hurricane. On 6 October at 9:00 UTC, its centre was located 95 km south-south-east of Nassau (The Bahamas) and 410 km south-south-east of west Palm Beach (Florida State, USA) and it had max. sustained winds speed of 205 km/h (Category 3 Hurricane).
- Over the next 24 h, it is forecast to continue moving north-west, strengthening. Its centre may pass near or over Andros Island and New Providence on 6 October afternoon and Gran Bahama Island (The Bahamas) in the evening of the same date possibly as a Category 3 Hurricane. It then may pass near the eastern coast of the Florida peninsula on 7 October possibly as a Category 4 Hurricane. Heavy rain, strong winds and storm surge may affect the areas along its path. JRC calculations estimated a storm surge of 2.8 m in Red Bay (The Bahamas) on 6 October at 17:00 UTC.
- As of 6 October 9:00 UTC, Hurricane and Tropical Storm Warnings and Watches are in effect for several parts of the Bahamas, as well as several parts of Florida and South Carolina states (USA).
- Civil Protection Haiti is reporting 5 dead and over 230 schools damaged.
Differential Impacts

Cuba
Deaths: 0
Evacuated: 70,000
Population of most affected municipalities: 300,000

Haiti
Deaths: 548 (+128 missing)
Evacuated (displaced): 175,000
Population of most affected municipalities: 1,000,000
Indian Scenario

Declining Disaster Mortality: false comfort?

Disaster Mortality (10-year moving average)
Indian Scenario

Probabilistic assessment by the Global Assessment Report (UNISDR) estimates expected direct average annual losses for India at $10 billion per year.

India along with China is placed as top four countries (others include Japan, USA) as "high risk" in absolute economic exposure due to natural hazards.

(Natural Hazards Risk Atlas 2014 by British Risk Assessors Maplecroft)
What leads to high level disaster risk?

**HAZARDS**: almost all principal natural hazards: earthquakes, floods, cyclones, drought, and landslides

**EXPOSURE**: Large, disproportionate concentration of people, capital assets and economic activity in hazard prone areas. This exposure is increasing!

**VULNERABILITY**: Inherent vulnerability of the built environment, socio-economic systems, environmental concerns exacerbating risk
# Disproportionate Exposure

<table>
<thead>
<tr>
<th>Seismic Zone</th>
<th>Area</th>
<th>Total Population (2001)</th>
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</thead>
<tbody>
<tr>
<td>Zone V</td>
<td>10.90 %</td>
<td>9%</td>
</tr>
<tr>
<td>Zone IV</td>
<td>17.30 %</td>
<td>27%</td>
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<tr>
<td>Zone III</td>
<td>30.40 %</td>
<td>42%</td>
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</table>
Increasing Vulnerability

Share of houses, which are prone to Earthquakes, is growing while the share of traditional houses which can withstand disasters is reducing.

Note: Figures in bracket are the number of houses in Million.
Increasing Vulnerability of the Built Environment in the North East: case of Manipur

Collapsed frame of a soft-storeyed RCC structure (women vendors’ market) in Saikul
The traditional buildings suffered little to no damage.
Climate Change, Complexity and Uncertainty

• Processes of climate change are adding new and more intractable dimensions to the problem of risk

• In a sense “everybody lives downstream” – territorial complexity, concatenation of causal factors, scale

• It is accepted that climate change will alter the severity, frequency and complexity of climate related hazards

• However, there is great uncertainty about the local level manifestations (even “natural” variability impacts are varied from event to event)
Four near normal monsoon years over India

The mean summer rainfall over India plotted as % of the long term average relative to the colour code. Each year falls within the definition of a normal precipitation season falling within ±10% of normal. However, coherent variations exist from year-to-year. Bangladesh not included in analysis.
Climate Related Hazards do not translate linearly into impacts: an example

<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>Sumatra</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Jawa</td>
<td>46%</td>
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<td></td>
<td>Kalimantan</td>
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<td></td>
<td>Bali-NT-TT</td>
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<td>Sulawesi</td>
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<td></td>
<td>Irja-Maluku</td>
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<tr>
<td>Total area suffering from drought = 555,093 ha</td>
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</table>

<table>
<thead>
<tr>
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<td>1991</td>
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<tr>
<td></td>
<td>Jawa</td>
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<td></td>
<td>Kalimantan</td>
<td>8%</td>
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<tr>
<td></td>
<td>Bali-NT-TT</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Sulawesi</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Irja-Maluku</td>
<td>0%</td>
</tr>
<tr>
<td>Total area suffering from drought = 843,917 ha</td>
<td></td>
<td></td>
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<table>
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<th>Region</th>
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<td></td>
<td>Jawa</td>
<td>71%</td>
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<td></td>
<td>Kalimantan</td>
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<tr>
<td></td>
<td>Sulawesi</td>
<td>3%</td>
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<tr>
<td></td>
<td>Irja-Maluku</td>
<td>0%</td>
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<tr>
<td>Total area suffering from drought = 544,422 ha</td>
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<table>
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<th>Region</th>
<th>Contribution</th>
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<td>1997</td>
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<tr>
<td></td>
<td>Jawa</td>
<td>34%</td>
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<td></td>
<td>Kalimantan</td>
<td>12%</td>
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<tr>
<td></td>
<td>Bali-NT-TT</td>
<td>2%</td>
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<tr>
<td></td>
<td>Sulawesi</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Irja-Maluku</td>
<td>0%</td>
</tr>
<tr>
<td>Total area suffering from drought = 492,794 ha</td>
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</table>
Integrated Climate Risk Management

• Adaptation to climate change **can not be based solely on scenarios** of what might happen in 30-40 years

• Risk management for a wide range of elements at risk, ranging **from communities to ecosystems**, at **short and long** time scales and **across spatial scales**.

• Learn to manage your “now” to be prepared for “future”

• While past climate is not a good guide as to the future climate, past experiences and lessons learned are

• Multiple scales, multiple stakeholders, multiple sectors
Evolving Role of Community-Based Organizations
Neither Sendai targets nor SDGs can be met without investment in community resilience.
Reduce

Mortality/
global population
2020-2030 Average << 2005-2015 Average

Affected people/
global population
2020-2030 Average << 2005-2015 Average

Economic loss/
global GDP
2030 Ratio << 2015 Ratio

Damage to critical infrastructure & disruption of basic services
2030 Values << 2015 Values

Increase

Countries with national & local DRR strategies
2020 Value >> 2015 Value

International cooperation
to developing countries
2030 Value >> 2015 Value

Availability and access
to multi-hazard early warning systems & disaster risk
information and assessments
2030 Values >> 2015 Values
Key Issues

• **Targets**
  • Which Targets? Can they be localized?
  • Quantitative (specific) or Qualitative?
  • Baseline? How will we develop local level baselines?

• **Scope**
  • Which additional hazards to include?
  • Risk information for biological, man-made hazards

• **Linkages**
  • With the State’s *development* targets
  • Involvement of *States’ Statistical Office*
PM’s Ten-Point Agenda on DRR

1. Mainstreaming
2. Risk Coverage
3. Women’s Leadership
4. Risk Mapping
5. Leverage Technology
6. Network of Universities
7. Effective Use of Social Media
8. Invest in Local Capacity
9. Post-Disaster Recovery
10. Coherent International Response
Greater Involvement and Leadership of Women in Disaster Risk Management

“...women are disproportionately affected by disasters. They also have unique strengths and insights...”
Invest in local capacity, not only for response but also for disaster risk reduction.

“...We need to expand the scope of community based efforts and support communities to identify local risk reduction measures and implement them.”
Multiplicity of roles

- From provider to enabler
- From tracking relief assistance to tracking risk
Diversifying the volunteer base

- Beyond blood donation…
- Beyond on-site assistance to highly skilled off-site assistance
Voice
Participation
Accountability
Innovation
Thank You