Concept Note
Technical Session 1: Understanding Disaster Risk

As the actual losses and the potential of both human and economic losses from disasters continues to rise globally, there is a growing recognition that disaster risk management efforts should be based on evidence of risk as opposed to only the perception of risk. The Sendai Framework states: "policies and practices for disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment." Such an understanding of risk would inform all aspects of disaster risk management – prevention, mitigation, preparedness and post-disaster response and recovery. A systematic and periodic assessment of disaster risk will also help assess the efficacy of disaster risk management efforts including cost-benefit analyses.

Two broad work streams are identified in this regard:

1. **Assessment of disaster risk (potential losses):** Disaster risk is the potential loss of life, injury, or destroyed or damaged assets, which could occur to a system, society or a community in a specific period of time. It is a function of hazard, exposure, vulnerability and capacity. With the knowledge of prevailing or emerging hazard patterns, exposed population, assets and economic activities, and their vulnerabilities, disaster risks can be assessed and mapped. Tools and techniques for assessing, mapping and communicating disaster risk have improved dramatically over the last two decades. However, *application* of these tools to generate easily understandable and usable disasters risk assessments is still in a nascent phase.

2. **Accounting of actual disaster losses:** Assessment of *potential* losses needs to be complemented with tracking of *actual* losses. This requires systematic, geo-referenced disaster loss databases that capture losses at the lowest administrative level possible. Analysis of such databases will help discern the spatial and temporal trends in disaster losses. The Sendai Framework includes seven global targets. Four of these targets are pertaining to reduction in mortality, number of affected people, economic losses, and infrastructure losses. Progress against these targets can not be measured without robust disaster loss databases.

THE INDIAN CONTEXT

a) With regards to development and application of **disaster risk assessments**, following broad observations can be made:

- At the National level, one of the earliest efforts to map disaster risk is the Vulnerability Atlas of India produced by BMTPC. It provides multi-hazard maps at the district level and superimposes the housing stock (categorized by roof and wall type) on these maps. Based on the generic vulnerability of each house type, loss scenarios can be estimated from the Atlas. The Atlas does not cover other capital assets such as transport, energy and communications networks, schools and hospitals.
- At the state level, a comprehensive probabilistic risk assessment was produced by Gujarat in 2005. In more recent years, Himachal Pradesh has undertaken such an assessment and produced an atlas accessible on a digital platform. A number of other states have undertaken hazard, vulnerability and risk assessments of varying scope.
- At the city level, a number of cities such as Shimla and Surat have undertaken detailed risk assessments.

- Progress has been made in improved hazard maps for almost all principal hazards: a number of cities have undertaken seismic micro-zonation studies; the country now has probabilistic seismic hazards maps; landslides have been inventoried using remotely sensed images; remotely sensed flood zonation maps have been produced for selected river basins. In general, mapping of exposure and vulnerability has not kept pace with progress on hazard mapping.

The above-mentioned efforts notwithstanding, the practice of comprehensive, probabilistic disaster risk assessment is still nascent in the country. There are numerous **challenges with regards to disaster risk assessments** such as:

- ✓ Common standards/ protocols for developing and periodically updating risk assessments at different scales;
- ✓ Inter-operable datasets on hazards, exposure and vulnerability;
- ✓ Systems for making risk information available in an understandable and usable format to decision makers; and dialogue between producers and users of risk information

b) With regards to accounting of disasters losses, following observations can be made:

- Some states, most notably Tamil Nadu and Odisha, have set up geo-referenced historical databases, that captures disaster losses up to block/ sub-district level.
- At present, there is a lot of variation in how states manage disaster loss data. It is not clear whether data is collected and stored systematically for small and medium-scale disasters. In the absence of such data, a national level analysis of spatial and temporal trend analysis of disaster losses remains elusive.
- Beginnings have been made to standardize the collection of disaster data in consultation.

There are numerous **challenges with regards to accounting of disaster losses** such as:

- ✓ Lack of common definitions, protocols and standard formats for collecting and storing disaster loss data across the country.
- ✓ Lack of involvement of statistical organizations as well as key development sectors in collecting and managing disaster data.

SESSION PLAN

Chair: *DR. M. Nair Rejeevan, Secretary, Ministry of Earth Sciences*
Co-chair: *Shri. R.K. Bhandari, Member Advisory Group, NDMA*
Opening Remarks – By Session Chairperson/Co-Chair. (5 minutes)

- ✓ Overview presentation(s) on
  Multi-Hazard, Vulnerability and Risk Assessments (HRVA) – Aromar Revi (15 Minutes)
- ✓ Social Aspects of Risk Assessments - Mr. Anant Marin Ganti (10 Minutes)
- ✓ Case Study on HRVA
  Himachal Pradesh Risk Atlas- Government of HP and Taru Leading Edge (10 Minutes)
  Risk Atlas- A user's Perspective- Shri. Tikender Panwar, Dy. Mayor, Shimla (10 Minutes)
- ✓ Case Study Disaster Loss Databases in Tamil Nadu (10 minutes)

Open House (25 Minutes)
Closing Remarks – By Session Chairperson/Co-Chair. (5 minutes)

***