



## ***SUMMARY REPORT***

### ***Advisory Committee Meeting***

On

# **"Multi-hazard Disaster Risk and Resilience: Practical Learning and Step-by-Step Guide to Improve Disaster Resilience at City Levels"**

Organized by

***National Institute of Disaster Management***, Ministry of Home Affairs, Government of India

Plot no. 15, Pocket-3, Block-B, Sector-29, Rohini, Delhi -110042

**Date: 6<sup>th</sup> December 2021**

**Time: 11:00 AM to 12:30 PM**

### **1. Opening**

The first Advisory Committee Meeting towards the study on “***Multi-hazard Disaster Risk and Resilience: Practical Learning and Step-by-Step Guide to Improve Disaster Resilience at City Levels***” with the members of the advisory committee was held online on 6<sup>th</sup> December 2021 from 11:00 am to 12:30 pm online on Cisco-Webex Platform.

### **2. List of Participants**

<b>S.No.</b>	<b>Advisory Committee Member</b>	<b>Attendance</b>
1	<b><i>Shri K. M. Singh</i></b> , Former Member NDMA; Former Director General, CISF	Present
2	<b><i>Shri Mohsen Shahedi</i></b> , DIG (ops), HQ, National Disaster Response Force, New Delhi.	Present
3	<b><i>Shri Nagendra Prasad</i></b> , CDO, Central Public Works Department, New Delhi	Present
4	<b><i>Dr. Nisha Mendiratta</i></b> , Advisor and Scientist G, Head Climate Change Program, Department of Science and Technology, GOI, New Delhi	Present
5	<b><i>Dr. Muzaffar Ahmad</i></b> , Former Member, National Disaster Management Authority, New Delhi	Present

6	<i>Dr. Pervez Ahmed</i> , Professor, Geography and Disaster Management, University of Kashmir, Jammu and Kashmir	Present
S.No.	Member	Attendance
1	<i>Prof. Anil Kumar Gupta</i> , Head, ECDRM, NIDM	Present
2	<i>Dr. Manish Kumar Goyal</i> , Dean of Infrastructure, IIT Indore	Present
3	<i>Dr. Kopal Verma</i> , Junior Consultant, ECDRM, NIDM	Present
4	<i>Mr. Vikas Poonia</i> , Research Scholar, IIT Indore	Present
5	<i>Dr. Uzma Parveen</i> , Research Associate, CAPR-RES, NIDM	Present
6	<i>Ms. Fatima Amin</i> , Young Professional, ECDRM, NIDM	Present
Note: Mr. Sumeet Gupta and Shri Avinash Mishra were not able to join because of certain unavoidable circumstances.		

### 3. Agenda of the Meeting

Time	Session
11:00 AM – 11:05 AM	Welcome Address by <i>Maj. Gen. Manoj Kumar Bindal</i> , Executive Director, NIDM
11:05 AM – 11:10 AM	Context Setting by <i>Prof. Anil K. Gupta</i> , Project Director and Head-ECRDM, NIDM
11:10 AM – 11:20 AM	Presentation of the study by <i>Dr. Manish K Goyal</i> , Dean of Infrastructure, Department of Civil Engineering, IIT Indore Assisted by <i>Mr. Vikas Poonia</i> , Research Scholar, Dept. of Civil Engineering, IIT Indore
11:20 AM – 12:25 PM	Remarks on the study from all the esteemed Advisory Committee Members: 1. <i>Shri K. M. Singh</i> , Former Member NDMA; Former Director General, CISF 2. <i>Shri Mohsen Shahedi</i> , DIG (ops), HQ, National Disaster Response Force, New Delhi. 3. <i>Shri Nagendra Prasad</i> , CDO, Central Public Works Department, New Delhi

	<p>4. <b>Dr. Nisha Mendiratta</b>, Advisor and Scientist G, Head Climate Change Program, Department of Science and Technology, GOI, New Delhi</p> <p>5. <b>Mr. Sumeet Gupta</b>, Assistant Secretary General, Homeland Security, Federation of Indian Chambers of Commerce &amp; Industry, New Delhi</p> <p>6. <b>Dr. Muzaffar Ahmad</b>, Former Member, National Disaster Management Authority, New Delhi</p> <p>7. <b>Shri. Avinash Mishra</b>, Adviser (WR&amp;LR), NITI Aayog, GoI, New Delhi</p> <p>8. <b>Dr. Pervez Ahmed</b>, Professor, Geography and Disaster Management, University of Kashmir, Jammu and Kashmir</p>
12:25 AM – 12:30 PM	Conclusion and Vote of Thanks

- A round of introduction amongst the team and the advisory committee members was carried out for familiarization.
- **Dr. Kopal Verma** welcomed all the distinguished panelists in the consultation meeting.
- **Prof. Anil K. Gupta** explained the importance of the said study as not only academic but strategic as well. He mentioned that Ministry of Home Affairs, Government of India jointly with United Nations Development Programme had undertaken a study for developing a multi-hazard disaster risk and resilience score card for all the states and union territories of India. This score card is in pursuance of the principles under the Sendai Framework that focuses on the quantitative parameters and approaches where various indicators were used. So, the approach in this study is moving upwards from qualitative to quantitative based. This study takes into consideration the most common hazards being faced by Indian landmass, their key components of vulnerability and also looks at the components that provide resilience against the risk from these disasters. This study then assigns the values to the cities in terms of disaster risk and resilience. Similar exercises that have been done for the states and UTs are now being carried out in the form of this research study jointly with the technical cooperation of Indian Institute of Technology, Indore. Dr Manish Goyal, dean of infrastructure, IIT Indore is associated with this study which is being undertaken by NIDM to develop a prototype for the pilot study for four cities and the purpose is to develop their risk and resilience scores and to come up with the step-by-step guidance to improve disaster resilience. The similar kind of study can be replicated covering all the major cities of the country.

- **Maj. Gen. Manoj Kumar Bindal** mentioned that this whole exercise started way back in 2010 when the Ministry of Home Affairs started a research on calculating the disaster resilience index of India, in which they picked out five disasters and then they picked governance issues and the response issues. Also, NIDM was instituted to create a step-by-step guide for each of the state as to how they can increase their disaster resilience index. Based on this, a separate study is being carried out by IIT Madras, corporate, NABARD, Geohazard Society, etc. to make up a step-by-step guide for building the disaster resilience index of the states. More than 52 % of the population strives in open areas and are more likely to get organized, hence a separate study only targeting the urban areas is needed to be done. Similar study has been taken up by NIDM jointly with IIT Indore at city levels, with target of evaluating the disaster resilience index of an urban area and practical steps to bring the resilience gradually. This study will be based on a few cities only but it can be made generic in such a way that everyone can use it to build resilience for their city. This study will be addressing the factors, challenges and recommendations in a step-by-by manner which can be treated as an action book or a toolkit for a particular city.
- **Dr. Manish Kumar Goyal** explained in detail about the study. He introduced the study stating that the majority Indian smart cities are vulnerable to urban natural disasters. In order to build and strengthen the resilience of the urban population to reduce disaster risk a tool for performance measure of disaster risk management and risk information conveying platform is required at city level. Further he explained the objectives and methodology of the study. He mentioned that the first part of the study has been completed and hazard index, vulnerability and exposure index and composite hazard index have been evaluated. Also, with the help of data received from the Jaipur nodal officers, disaster resilience index for Jaipur city was evaluated.
- **Shri K. M. Singh** complemented the study saying that it is the much-needed initiative for the current scenario and appreciated the comprehensive work, mathematical models and risk analysis being applied in this study. Shri K. M. Singh iterated his five observations regarding the study, which are as follows:
  - When mentioning the indicators, depicting 14 major hazards, floods should be indicated as urban floods. Floods are natural hazards and nowadays major cities are mostly affected by urban floods which are man-made. Also, vulnerability from floods is majorly to the individual and commercial property as compared to livestock population.
  - In the section of parameters and weightage of vulnerability, where there is a mention about unsafe building social and physical infrastructure, etc. lifeline buildings like hospitals which are very important for the sustenance of a society, should be included.
  - In hazard indication computation datasets part of the study for Heat Wave parameter, Srinagar was given a very high index which given the geographical

location of the city needs to be reconsidered. Similarly, for cold wave parameter, the index provided to Jaipur and Srinagar may be required to be recalculated.

- In the composite hazard index section, the vulnerability of cities evaluated through this index should also include factors like coping capacity of local administration. India has significantly improved upon its preparedness and coping capacities for droughts and cyclones but still lacks in developing the same for earthquakes.
  - In hazard specific vulnerability index, the earthquake index given to Srinagar which falls in the Zone - V is very low as compared to that provided for Jaipur and Vishakhapatnam. Also, for landslide index provided to Vishakhapatnam is quite high as compared to Srinagar which can be considered to be looked upon again.
- ***Shri Mohsen Shahedi*** presented NDRF's perspectives regarding the study. There is one very important aspect of mitigation which concerns the state. Quoting his personal example, he mentioned that during the Chamoli disaster there was severe deficiency of equipment, like heavy machinery to fight disasters. For a city to attend disasters in a self-contained manner, this is one of the very important and vital aspects needed to be considered. In fact, NIDM is bringing the concept of IDRN (Indian Disaster Resource Network) wherein various resources from the states are being identified so that they can be used commonly for the disaster response. There is a need to think one step ahead and think about the essential disaster specific machineries and equipment.
    - Shri Mohsen Shahedi also mentioned various problems being faced by NDRF during management of disasters in cities like traffic and crowd problems which results in delay of the movement of response force. A dedicated corridor is required only for this purpose.
    - In old city areas which are heavily congested, there are various fragile abandoned buildings which have been illegally occupied that pose serious risks of falling down and hindering response force operations. A system is needed to be devised to rebuild these areas of the cities in disaster resilient manner.
    - Next, he talked about the communication system which is severely disrupted during the disasters. A communication system should be devised to cater the needs of the contingencies.
    - Further he mentioned that the role of agencies is not very clear during disasters. There is a lack of proper policy and accountability as well as a proper city disaster management plan which can define roles of different agencies during the disasters. Although, a very good Incident Response System has been instituted by NDMA but its proper functioning has to be assured.
    - A very important point of constituting a City Disaster Response force was proposed by him in the meeting.
    - He also talked about the very important role that volunteers can play on ground and conversely how media interference hinders their operations.
    - Lastly, he mentioned about the four aspects adaptation strategies viz. preparedness drills, human resource training for capacity building, early

warning system and an updated disaster database should be readily available in real-time.

- **Dr. Muzaffar Ahmad** mentioned that the disasters have increased over the last couple of years and we have seen worst disasters as well. The academic Institution and universities, especially those working in the high-risk areas have a big role to play. NIDM has to be at the centre place for coordinating various studies in order to have complete details regarding the vulnerability of all the states. He quoted the example of the Bihar state in the field of disaster management, where they have made a roadmap for next 15 years with respect to hazard risks and vulnerabilities considering cities as well as the extensive rural areas. The broad areas like animal health too were taken into consideration. Then he mentioned about the important role that NDMA played in training the MCD officials regarding safety and stability of buildings. He reiterated the point raised by Shri K. M. Singh about considering lifeline buildings in city disaster management plans quoting the example of Srinagar floods where during floods all six major hospitals were under water. Lastly, he mentioned that NIDM can play an important role in conducting similar kinds of studies in various other cities as well.
- **Dr. Nisha Mendiratta** mentioned the need to have a scientifically backed package. The government of India is thoroughly looking into studies of the kind being carried out by NIDM and IIT Indore with special focus on extreme weather events. This study can be extrapolated to the pan India level as well. Vulnerability is one of the very important areas, which is government is looking at very seriously. She commended the focused methodology of the study and decision makers and line departments have been consulted to develop the same and a comprehensive set of questions have been established to develop the vulnerability index. She mentioned about one of the first studies done on vulnerability index by DST with IISc Bangalore, IIT Mandi and IIT Guwahati. A few more similar kinds of studies have been carried out for the country. She mentioned that it is very important that there are interlinkages in terms of methodology in all these studies. For the user to not get confused, it is required that the studies conducted with same goal should follow same methodology. These indices are being created for the stakeholders and decision-makers, so it is very important that these are user-friendly. She mentioned that the DST will soon take up the profiling of extreme weather events and a common meeting can be called so that duplications don't happen and then there is a possibility to take the work forward given the tasks already been carried out by different agencies. Lastly, she appreciated the presence of gender index in the current study, which otherwise is nowhere else available as gender forms a very important segment of the scientific research.
- **Dr. Pervez Ahmed** mentioned that NIDM and academic institutions can join hands to form the synergy to develop better understanding of disaster risk reduction. He seconded the observations raised by other members of the advisory committee meeting. In addition, he mentioned that the weightage given to the livestock population can be reconsidered. Also, gender-based weightage can be given after taking into account the factors like their profession (working and non-working), etc. Children of all age groups were given equal weightage which can be reconsidered as, different age groups of

children are differently vulnerable to various disasters. He advised to revisit on the statistical models that are being applied to heat wave and cold vulnerability indices. He reiterated the point that in cities the urban, man-made floods are more frequent, quoting an example from Srinagar flood, he said the main reason for that flood was the inundation of floodplains because of the excessive land encroachment. Lastly, he mentioned about taking into consideration the locational differences.

## FLYER OF THE PROGRAMME





सत्यमेव जयते



Resilient India - Disaster Free India






**ADVISORY COMMITTEE MEETING FOR**  
**MULTI-HAZARD DISASTER RISK AND RESILIENCE:**  
**PRACTICAL LEARNING AND STEP-BY-STEP GUIDE TO**  
**IMPROVE DISASTER RESILIENCE AT CITY LEVELS**



**6th December 2021**



**11:00am - 12:30 pm**



**PATRON**



Maj. Gen. Manoj K. Bindal  
Executive Director  
NIDM, MHA, GoI

**CONVENERS**



Prof. Anil K Gupta  
Project Director  
Head, ECDRM Division  
NIDM, MHA, GoI



Dr. Manish K Goyal  
Dean of Infrastructure  
IIT Indore, M.P.

**ADVISORY COMMITTEE MEMBERS**



Shri K. M. Singh  
Former Member NDMA



Dr. Nisha Mendiratta,  
Advisor and Scientist G, Head Climate  
Change Program, Department of  
Science and Technology, GOI, New  
Delhi



Shri Atul Karwal, IPS,  
Director General, Directorate General –  
National Disaster Response Force, New  
Delhi.



Shri Kamran Rizvi, IAS,  
Additional Secretary, Ministry of  
Housing and Urban Affairs, New Delhi



Mr. Sumeet Gupta,  
Assistant Secretary General, Homeland  
Security, FICCI, New Delhi



Dr. Muzaffar Ahmad,  
Former Member, NDMA



Dr. Pervez Ahmed,  
Professor, Geography and Disaster  
Management, University of Kashmir,  
J&K



Shri. Avinash Mishra,  
Adviser (WR&LR), MTI Aayog, GoI, New  
Delhi

**COORDINATORS**

- **Dr. Kopal Verma**  
Junior Consultant, ECDRM Division, NIDM, MHA, GoI
- **Mr. Vikas Poonia**  
Research Scholar, Dept. of Civil Engineering, IIT Indore

**TEAM**

- **Dr. Uzma Parveen**  
Research Associate, CAPRES, NIDM, MHA, GoI
- **Mr. Michael Islary**  
Junior Consultant, ECDRM Division, NIDM, MHA, GoI
- **Ms. Fatima Amin**  
Young Professional, ECDRM Division, NIDM, MHA, GoI

**PARTICIPATION BY  
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Organized by:

**National Institute of Disaster Management,**  
Ministry of Home Affairs, Govt. of India




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**Stay Protected  
from Corona**



Wear your Mask  
Properly



Follow Proper  
Hand Hygiene



Maintain Social  
Distancing

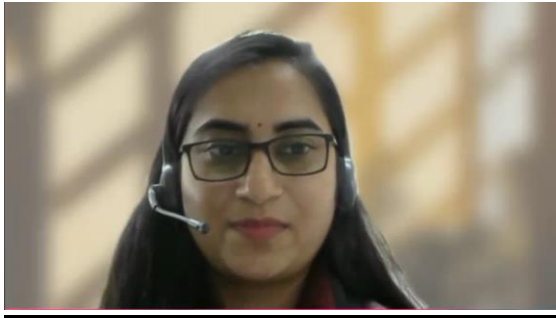


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## **KEY TAKEAWAYS**

- Ministry of Home Affairs, Government of India jointly with United Nations Development Programme had undertaken a study for developing a multi-hazard disaster risk and resilience score card for all the states and union territories of India.
- This study will be based on a few cities only but it can be made generic in such a way that everyone can use it to build resilience for their city. This study will be addressing the factors, challenges and recommendations in a step-by-by manner which can be treated as an action book or a toolkit for a particular city.
- In old city areas which are heavily congested, there are various fragile abandoned buildings which have been illegally occupied that pose serious risks of falling down and hindering response force operations. A system is needed to be devised to rebuild these areas of the cities in disaster resilient manner.
- the communication system which is severely disrupted during the disasters. A communication system should be devised to cater the needs of the contingencies.
- The role of agencies is not very clear during disasters. There is a lack of proper policy and accountability as well as a proper city disaster management plan which can define roles of different agencies during the disasters.
- There is need of constituting a City Disaster Response force.
- There is a need to have a scientifically backed package. The government of India is thoroughly looking into studies of the kind being carried out by NIDM and IIT Indore with special focus on extreme weather events.

# PHOTOGRAPHS

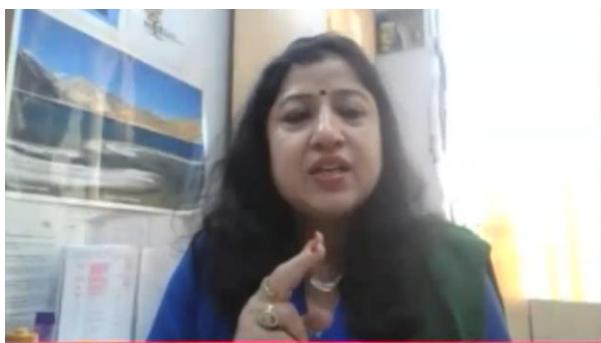




Project Progress Report  
on

**Multi-hazard Disaster Risk and Resilience: Practical Learning and Step-by-Step Guide to Improve Disaster Resilience at City Levels**

Dr. Manish Kumar Goyal  
Associate Professor  
Indian Institute of Technology Indore

Prof Anil K Gupta  
Professor and Head  
National Institute of Disaster  
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## List of Participants

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