सत्यमेव जयते

nidm
Resilient India - Disaster Free India

# TIDINGS

NIDM Newsletter – 8/2020
(April – June) 2020

## Theme: Multi Hazard Disaster Scenario




**NATIONAL INSTITUTE OF DISASTER MANAGEMENT**
(Ministry of Home Affairs, Govt. of India)

Website: www.nidm.gov.in

/ nidmmhaindia
/ nidmindia
/ nidmmhaindia
/ nidmmhaindia

# Content


| | | |
|---|---|---|
| 1. | Review of activities (2019-2020) | 02 |
| 2. | Webinars | 03 |
| 3. | Online Training Programmes | 28 |
| 4. | Thematic Views | 34 |

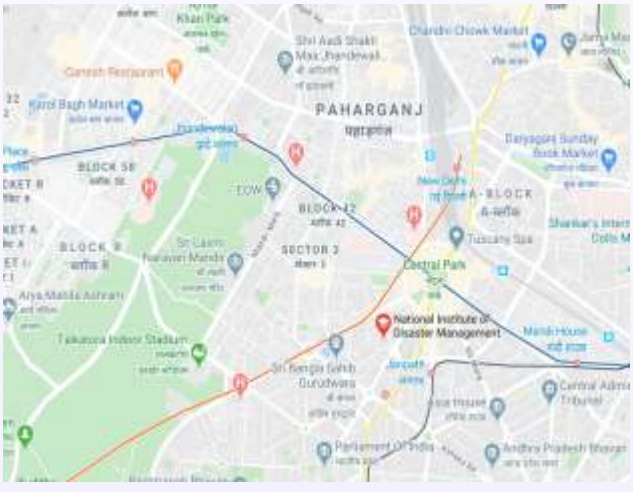

# Editorial Board


**Editor-In–Chief**
**Maj. Gen. Manoj Kumar Bindal, VSM**
Executive Director

**Editor**
**Dr. Ajinder Walia**

**Editorial Assistant**
**Karanpreet Kaur Sodhi**

**Technical Support**
**S.K. Tiwari**


# About NIDM

The National Institute of Disaster Management (NIDM) was constituted under an Act of Parliament with a vision to play the role of a premier institute for capacity development in India and the region. The efforts in this direction that began with the formation of the National Centre for Disaster Management (NCDM) in 1995 gained impetus with its redesignation as the National Institute of Disaster Management (NIDM) for training and capacity development.

Under the Disaster Management Act 2005, NIDM has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation and policy advocacy in the field of disaster management.

Both as a national Centre and then as the national Institute, NIDM has performed a crucial role in bringing disaster risk reduction to the forefront of the national agenda. The Institute believes that disaster risk reduction is possible only through promotion of a "Culture of Prevention" involving all stakeholders. The Institute works through strategic partnerships with various ministries and departments of the central, state and local governments, academic, research and technical organizations in India and abroad and other bi-lateral and multi-lateral international agencies.

NIDM is proud to have a multi-disciplinary core team of professionals working in various aspects of disaster management. In its endeavour to facilitate training and capacity development, the Institute has state-of-the-art facilities like class rooms, seminar hall and video-conferencing facilities etc. The Institute has a well-stocked library exclusively on the theme of disaster management and mitigation.

NIDM provides Capacity Building support to various National and State level agencies in the field of Disaster Management & Disaster Risk Reduction. The Institute's vision is to create a Disaster Resilient India by building the capacity at all levels for disaster prevention and preparedness.

From the NIDM

# Executive Director's Desk



Dear Readers,

I hope you are all keeping safe and healthy. The Covid 19 pandemic has put a pause in our lives during which we are all contemplating on how to use this experience to build resilience for the future. The response to the pandemic is taking up the bulk of resources, expertise, time and efforts of all countries across the globe. We are fortunate that we have a low mortality and high recovery rate in our country. It confirms our belief that we are moving in a right direction towards a disaster resilient nation.

While the primary focus of many governments is on managing the Covid 19 crisis, planning for potentially concurrent disasters was also crucial to ensure communities are adequately prepared for the complexities that could arise from overlapping crises. Amidst such a global pandemic, our country had to respond to cyclones and fires following the protocols of physical distancing. On one hand, Covid 19 counter measures could hamper the emergency response to disasters while on the other hand disruption to physical distancing could have increased the potential for infection. We faced the adverse situation with grit and determination and adjusted to the 'new normal' while responding to these exigencies.

We need to join our hands together to adopt a holistic approach of dealing with multi hazard disaster scenarios. Projections and scenario planning can help us in dealing with such situations. Our thematic write up section in this newsletter is also based on this issue and we hope you get insights for better planning and management strategies from this section. Your constant support and encouragement is the strength behind all our endeavours and we hope to continue receiving it from all of you in future.

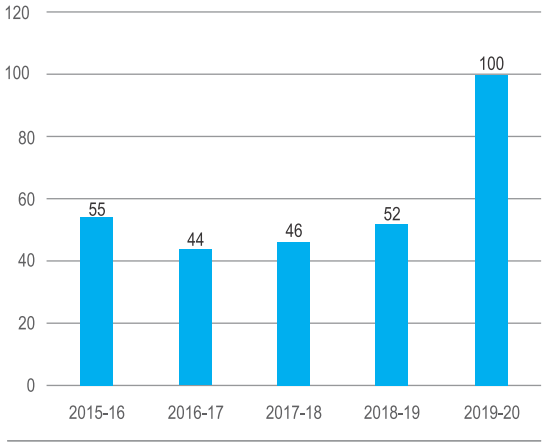


**Major General Manoj Kumar Bindal, VSM**
Executive Director, NIDM

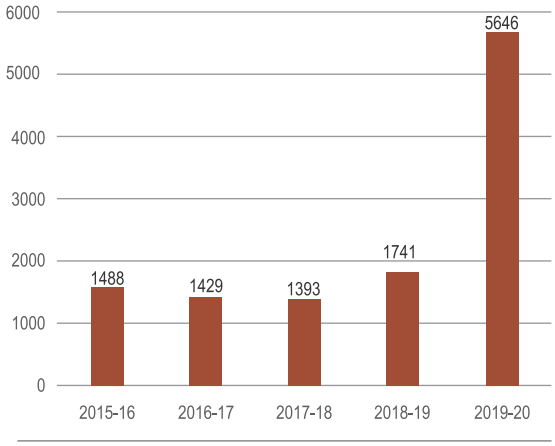
# REVIEW OF ACTIVITIES (2019-20)

A total number of 100 training programmes were conducted in 2019-20 for 5646 participants. The female participation amongst the participants was 26.63 percent. There was an overall rise in the training programmes conducted for States /UTs. In 2019-20, 28 states were covered. It was the first time that the training programmes were conducted in most of the States and Union Territories of India. A total of 6 online programmes were conducted for 208 participants in the year. The number of training workshops/Seminars/Conferences/Other Activities increased from 20 in 2015-16 to 36 in 2019-20. The number of research activities and studies also increased from 22 in 2015-16 to 23 in 2019-20. Finally, the total number of publications made by NIDM in the last year was 27. The following graphic depictions summarizes the relative increase in various activities over the years in NIDM.

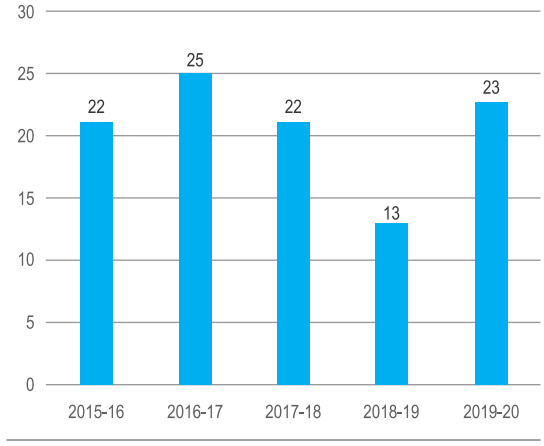
Programmes Conducted



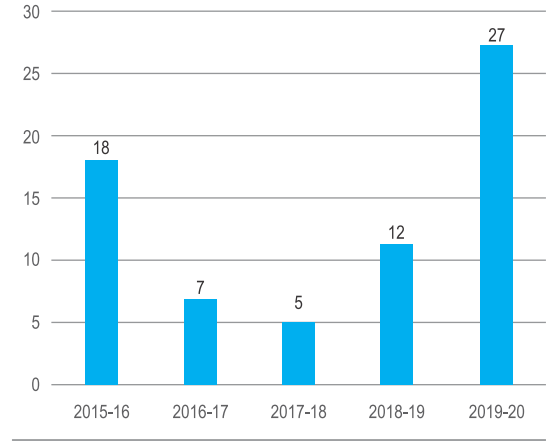

No. of Participants




Number of Research Activity/Studies




Total No. of Publication



# COVER PHOTO SOURCES

1. https://www.news18.com/photogallery/india/these-pictures-show-how-grave-the-situation-is-in-kerala-1778341-3.html
2. https://cosmosmagazine.com/earth/water/putting-drought-in-the-spotlight/
3. https://www.gonewsindia.com/latest-news/news-and-politics/earthquake-jolts-mizoram-houses-and-roads-damaged-pm-modi-assures-centres-support-15107
4. https://www.indiatvnews.com/news/india-nine-killed-in-manipur-landslide-452179
5. https://www.webmd.com/lung/coronavirus
6. https://www.nzgeo.com/stories/cyclone/

# WEBINARS

## National Webinar on Urban Health Hazard and Preparedness in Global Pandemic Covid 19 in collaboration with Shri Shaheed Bhagat Singh College Delhi University, 29 April 2020




The key take away points from the webinar were:

(a) Provided an amazing platform for interaction among experts, academicians, research scholars and university students. There was participation from all over India besides the universities of Delhi, JNU, Jamia Milia Islamia, and other NCR institutes.

(b) Psychological preparedness aspects connected with the medical fear among people and the anxiety due to lockdown was highlighted by the speakers.

(c) Discussions on medical perspectives of corona were very well taken by participants.

(d) Discussions motivated people to look up for further research in variety of areas related Covid19. Considering the keen interest shown by the participants, a second edition of the same webinar was organized on 2nd May, 2020.

## Webinar on "PANDEMIC, LOCKDOWN AND WAY FORWARD" jointly organized by National Institute of Disaster Management and Invertis University Bareilly (U.P.), 15 May 2020




The key take away points from the webinar were:

(a) Information dissemination with respect to status of Covid 19 in India and how India is placed to cope up with it with existing rules/regulations, preparedness and lockdown measures etc.

(b) Knowledge sharing with respect to advanced technologies being tried and tested in our country for planning response to Covid 19.

(c) Detailed analysis of past, present and future of such pandemics in our country, symptoms/treatments, preventive measures and how to cope up with it in times to come.

## Webinar on New Normal : System and Technology for Disaster Response 15 May 2020

The key take away points from the webinar were:

(a) Technology and data lead to digital solutions with systemic approach which will help to address complex and cascading disaster risks.

(b) Use of data science by Government of India to combat Covid 19 is great work and it always act as bridge to health.

(c) Aarogya Setu App inclusion help to fight against Covid 19, also it helped during the response to upcoming hazards in monsoon season.

(d) Technology and innovation assisted for better response and recovery and can make India self-sufficient.



## Webinar on Effect of Covid 19 on Education and Health Care & Nutritional Needs of Children, 15 May 2020




The key take away points from the webinar were:

(a) Nutrition and health care challenges faced by children in the current climate were discussed .

(b) Critical role that schools played in promoting health, nutrition and wellbeing and in safeguarding nutrition and health care needs of children.

(c) Participants raised the issues and challenges faced by children in light of healthcare, mental health issues and emerging issues related to wellbeing of children and behavioral changes in children.

## Webinar on Challenges faced by Children due to Closure of School during Covid 19, 16 May 2020

The key take away points from the webinar were:




(a) Educational authorities should adopt mitigation strategies to address the impacts of school closures on children's learning, for example by working with teachers, school officials, and teachers to recover teaching hours lost, and ensuring fair compensation for teachers and school personnel who are working additional hours.

(b) Mitigating the disproportionate effects on children and youth who have already experienced barriers accessing education, or who were at higher risk of being excluded, including children with disabilities, students in remote locations and otherwise vulnerable communities.

(c) Providing targeted funding to teachers and school officials in under-resourced areas should be considered so that they can contact their students and distribute learning materials in more remote or rural areas.

(d) Prepare for immediate steps to get children back in school once the crisis ends and ensure access to free primary education.

## Webinar on The New Normal: Disaster Response in the time of Covid 19
## 18 May 2020




The key take away points from the webinar were:

(a) Storm surge of 4-6 mts inundate the coastal villages and the wind speed leads to huge damage to electric and mobile towers.

(b) Social distancing practice has already reduced the evacuation capacity to a great deal and it is the biggest challenge for evacuation.

(c) People and the government machinery are already exhausted and traumatised. The current cyclone would be an added misery and hence psycho social care is the priority for responders and the affected people.

(d) Technology could be brought immediately like Drone, Robots, Artificial Intelligence, GPS for tracking the victims and assessing the impact.

(e) Debris removal with PPE by responders will not be advisable as heat and sultry weather creates discomfort. In such situations, national and state forces working together is a challenge. Following social distancing and Covid 19 protocols would be difficult.

## Webinar on Children Mental Health and Well Being during post Covid 19 Crisis
## 19 May 2020

The key take away points from the webinar were:

(a) Prolonged distress may results in poor mental health conditions and long-term repercussions on the functioning and coping capacity of both children and caregivers.

(b) Apprehend and provide an overview of most common problems and worries of children during Covid 19.

(c) Grasp and outline the impact of Covid 19 on behaviour of children.

(d) Mental health and wellbeing issues of children were discussed with strategies to overcome the mental health issues of children during the crisis.



## Webinar on Issues & Challenges of responding to Natural Disasters in the light of Covid 19, 20 May 2020




The key take away points from the webinar were:

(a) Information management is a important challenge while responding and its dissemination to the affected, had always been an issue.

(b) Authorities at district level must be strengthened to ensure better coordination at the times of response.

(c) Protection of responders must be looked into by adding a new element of pandemic.

(d) Managing fear psychosis and anxiety requires a greater involvement of Psycho-social care.

(e) Lessons learnt must culminate into actionable points which can and must be implemented to the extent possible.

## Webinar on Impact of Covid 19 on Training and Capacity Building for DRR 22 May 2020

The key take away points from the webinar were:

(a) Reorganization of Capacity building into short, medium and long term strategies. Capacity building initiatives should have public health component.

(b) Disaster response should be more caring and sharing then traditional command and control. Decentralized participatory approach for DRR to be adopted.

(c) Online webinar should continue and multi sectoral approaches should be adopted to break the silos.

(d) Documentation of good practices and reasons why it worked and why it did not needs to be detailed out.



## Webinar on Covid 19: Educational, Health Care & Nutritional Needs of Children 22 May 2020




The key take away points from the webinar were:

(a) Webinar focused on risks for children emerging across different contexts.

(b) Authorities should track, using gender-disaggregated data, the numbers of children affected by school closures.

(c) Track the number and gender of children returning after reopening of schools.

(d) Develop strategies to prevent gender and other disparities in the number of children returning from school.

## Webinar on Child Centric Disaster Risk Reduction, 23 May 2020

The key take away points from the webinar were:

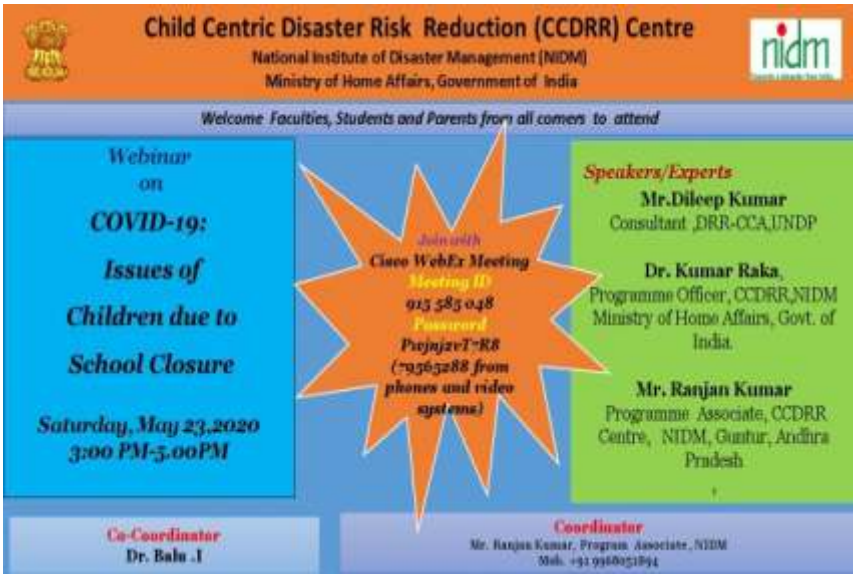
(a) Importance of involving children in CCDRR.

(b) Impact on children with reference to Covid 19 was discussed.

(c) Importance of involving children in CCDRR, Benefits of CCDRR, Definition of Child, Centric Disaster Risk Reduction, Difference between community based DRR and Child Centric DRR were thoroughly discussed.



## Webinar on Covid 19: Issues of Children due to School Closure 23 May 2020




The key take away points from the webinar were:

(a) Conceptual framework of Covid 19 and its impact on children was discussed in this webinar. Issues such as health-care, nutrition disruption of routine, mental and behavioral changes among the children were also discussed.

(b) Efforts to prioritize continuing education for all children during and after temporary school closures, and make it accessible to all, using all available technology.

(c) Possible measures needed to be taken to provide the fastest and broadest internet service for all children to ensure their right to education.

(d) Issues of confusion and stress of teachers was discussed because they were often unsure of their obligations and how to maintain connections with students to support learning.

## Webinar on Global to Local Level Impact of Covid 19 Pandemic in collaboration with Gyan Vihar University, 26 May 2020

The key take away points from the webinar were:

(a) Decrease the damage connected with Covid 19, public health and infection control actions are immediately necessary to limit the global spread of the virus.

(b) Positive impact of the pandemic has successfully recovered the environment to a large extent and that should definitely set positive impact on global climate change.

(c) Occurrence of Covid 19 has emphasized the improvement of mutually-affective connection between humans and nature. At this point of time, it was indispensable to control the source of disease, cut off the transmission path, and use the existing drugs & means to control the progress of the disease proactively.

(d) Geospatial mapping of corona virus hotspot (Covid 19) using space borne technology for the management of Global fight against outbreaks and pandemic was also discussed.



## Webinar on "Pandemic and Indian Economy" in the Collaboration with Invertis University, 28 May 2020




The key take away points from the webinar were:

(a) Covid 19 has impacted the global economy drastically.

(b) Several issues such as unavailability of labours and raw materials, has affected and would further affect this sector in future.

(c) Further impact on the overall performance of Indian Economy and is expected morale boosting measures to lift this sector as a whole is needed.

(d) Grave situation and apathy the labours faced on roads included hunger, starvation, poverty etc.

(e) Need was felt for redefining and reengineering of the economy.

## Webinar on Community Based Disaster Preparedness for Pandemics, 29 May 2020

The key take away points from the webinar were:

(a) Creation of pro-active approach of community engagement for prevention, detection and surveillance of outbreak.

(b) Need for building awareness in the communities regarding basic hygiene and such as mask, sanitisation, hand washing and social distancing.

(c) Local communities should be well informed about emergency contacts like community health centres, quarantine facilities, etc.

(d) Major challenge for community level preparedness for pandemics was durational uncertainty and the scale. While the arid regions might face issues of water scarcity due to increased water consumption, they were more vulnerable in a contagious disease outbreak.

(e) Need to understand the importance of self-dependent communities as in state of Kerala and how they constrained further transmissions.



## Webinar on The New Normal: Capacity Building for Disaster Research and Education, 29 May 2020




The key take away points from the webinar were:

(a) Assessing the capacity building scenario in the phase of new normal and how to identify the key areas of research and education in capacity building.

(b) Research problems in Capacity building based on field needs and priorities.

(c) Need to link education and research for Disaster Risk Reduction.

(d) Building a mechanism for a collaborative environment for providing innovative solutions in the area of research and education.

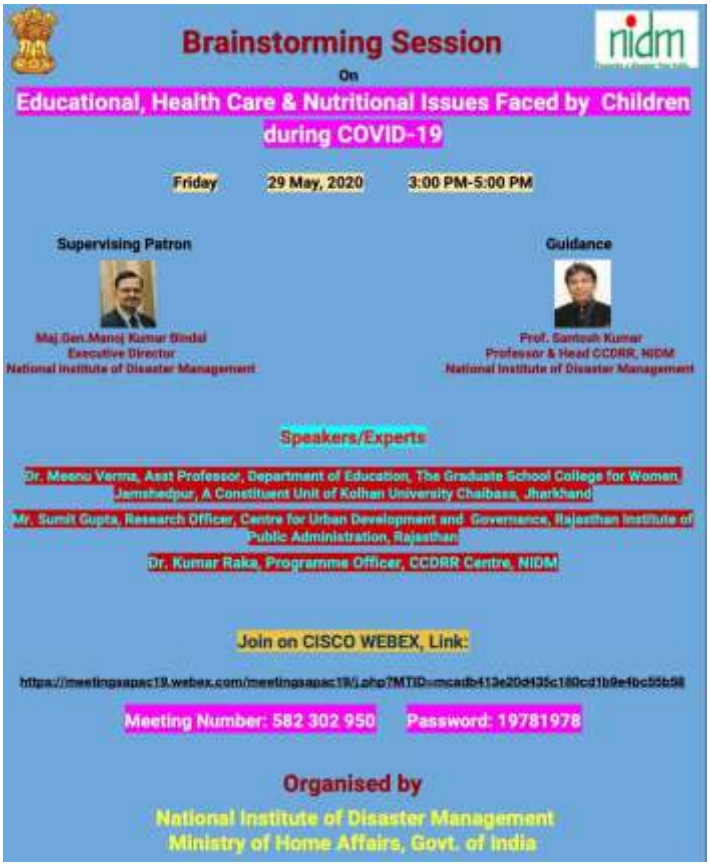
## Webinar on Brainstorming session on Education, Health Care and Nutrition Needs of Children, 29 May 2020

The key take away points from the webinar were:

(a) Open discussion with experts on education, health care and nutritional challenges faced by children in the current climate.

(b) Critical role that schools play in promoting health, nutrition and wellbeing and how to safeguard nutrition and health care needs of children by addressing and innovating simple things during times of home learning.

(c) Issues were raised regarding the challenges faced by the children in light of healthcare, mental health issues, emerging issues related to well-being of children and behavioral changes.



## Webinar on Challenges and issues of Women during lockdown 30 May 2020




The key take away points from the webinar were:

(a) Provided the overview of most common problems of women.

(b) Discussed the impact of Covid 19 on women.

(c) Emphasized on the strategies for improving mental health of women.

(d) Highlighted the strategies to overcome issues of women in post lockdown.

## Webinar on Supply Chain Management for Natural Disasters in Pandemics Situation, 1 June 2020

The key take away points from the webinar were:

(a) Strengthening local supply chains and developing global collaborations in terms of needs and requirements.

(b) Shifting to automation and mobile-based technologies to deal with the decreased workforce and facilitate remote working for employees.

(c) Active involvement of all stakeholders such as government authorities, civic societies, communities and retailers.

(d) Reducing and recycling of packaging wastes produced in supply chains.

(e) Use of spatial data and relational database can be incorporated to ensure quick supply.

(f) Supply of special needs of vulnerable groups like disabled people, children, and aged people should be taken care of.



## Webinar on 'Covid 19: Global and National Perspective-What we have learnt so far', 2 June 2020




The key take away points from the webinar were:

(a) Bring together all the stakeholders in the same platform to analyze and reflect the lesson learnt so far and integrating knowledge to understand the different aspects of Covid 19 at national and international levels.

(b) Researchers, scientist, academician didn't find the right platform to share knowledge and information with policy makers and limited expertise of the researchers is considered in policy formation and hence there is a need to consult the academician, researchers, health workers etc. to a large extend.

(c) WHO (World Health Organization) is putting tremendous efforts on accelerating research and development toward vaccine development.

(d) Health, safety and moral of health care workers needs to be taken care of.

(e) Strengthening collaboration, command, control and communication systems for efficient prompt graded response and recovery.

## Webinar on Safety of Responders in the light of Covid 19, 2 June 2020

The key take away points from the webinar were:

(a) Highlighted that the present situation of the frontline workers such as Police, NDRF, SDRF, Doctors and Nurses are falling prey to Covid 19.

(b) Shared the experiences about safety of responders, which depends on quality of PPE kits and behaviour of rescued persons. Further, there was the issue of special provisions for care providers of disabled persons, which was the difficulty during lockdown.

(c) Discussed that safety of responders must include dedicated ambulance for covid suspects and dedicated space for covid suspects in relief camps, regular checkups for responders and inclusion of medical staff in every team.

(d) Need for framework and system in institutionalization of response and requirement of motivation and safety of entire team.



## Faculty Training Programme on Disaster Management in Covid 19 Times in Collaboration with Kalindi College University of Delhi, 3-4 June 2020




The key take away points from the webinar were:

(a) Played an proactive role in reducing the impact of disasters not only in their universities and colleges premises but also within the community.

(b) Highlighted on various facets like Covid 19: origin, spread and containment strategies – national and international perspectives; role of academic institutes in management of Covid 19.

(c) Explained the concepts of Covid 19 mitigation plan at University/College level and basic concepts of DRR with reference to Covid 19.

## Webinar on Mental Health Issues in Children, 5 June 2020

The key take away points from the webinar were:

(a) Understand the impact of Covid 19 on changing behaviour of children and provide suggestions and guidance to parents, teachers and care-givers for improving mental health of children.

(b) Effect of emotional outburst, behavioral changes, alteration in cognitive functioning in children and its long-term psychological issues faced by children was also debated and discussed.

(c) Highlighted the reasons and causes of stress, anger and symptoms of depression in children and how to minimize adverse effects of negative psychological consequences.



## Webinar on Covid 19 and Children, 6 June 2020




The key take away points from the webinar were:

(a) Discussions on Socio Economic impact of Covid 19 on children.

(b) Explained an overview of most common problems and worries of children during Covid 19.

(c) Illustrated the impact of Covid 19 on behaviour of children.

(d) Suggested strategies to overcome wellbeing issues of children and improving their mental health.

## Webinar on Covid 19: Challenges Faced by Primary School Children, 6 June 2020

The key take away points from the webinar were:

(a) Challenges and opportunities of primary school children after opening of schools was discussed. Issues of the children, teachers, parents and caregivers was thoroughly discussed.

(b) Deliberated on current, immediate and long term challenges and opportunities for different stakeholders.

(c) Challenges of adherence to Standard Operating Procedures (SOPs) of Health Dept. /Government / Education Dept., Containment zone was main point of discussion in webinar.

(d) Emphasized on the future development of children and what initiatives needed to be taken such as talent mapping and talent search shaping future leadership among the them.

(e) Explained the issues of rural children especially of migrants workers who are deprived of lack of resources, food social equality in the current situation.



## International Webinar on Large-Scale Rockslides and Rock Avalanches, 7 June 2020




The key take away points from the webinar were:

(a) Enlightened the participants with their expertise and experience on various facets of landslides particularly focusing on rockslides and rock avalanches for better assessment of future hazards.

(b) Sharing their experiences in the field of landslide hazards management also.

## Webinar on Community Preparedness for Earthquake Risk Mitigation in collaboration with NIRDPR & GP-NERC Centre, 8 June 2020

The key take away points from the webinar were:

(a) Primarily designed for people across the humanitarian to development spectrum, who may in some capacity be involved in earthquake risk mitigation activities at local levels.

(b) Highlighted discussions on earthquake risk profile of India and mitigation of earthquake risk at community level.

(c) Earthquake safe housing practices with special reference to rural India was discussed.

(d) Community preparedness for earthquake risk mitigation at national level was another agenda of the webinar.



## Webinar on Data Science and Role of Technology Jointly Organized by NIDM and WHO, 9 June 2020




The key take away points from the webinar were:

(a) Bought together all the stakeholders on the same platform and to get an insight into the role of technology and data science to anticipate, measure, tract and fight Covid 19.

(b) Highlighted that organizations and networks that support evidence-informed policy-making can play an important role in providing relevant and timely evidence to inform pandemic responses and bridge the gap among science, policy and politics.

(c) Stressed into enhancing Special Surveillance System (S3) and elaborated on Integrated Health Information Platform.

(d) Pointed that health systems preparedness is key to timely emergency response. Innovative technologies were discussed that can help in the fight against Covid 19.

## Webinar on 'Covid 19 and Changing Environment' in Collaboration with Bareilly College, UP, 9 June 2020

The key take away points from the webinar were:

(a) Sensitization and information dissemination with respect to impact of Covid 19 on environment and wildlife in India.

(b) Highlighted the Responsibilities on part of individuals, government machineries, private organizations and community as a whole.

(c) Delivered a striking a balance between development and environment protection with a fruitful message.

(d) Propagated an agreement on part of NIDM and Bareilly College to hold series of such webinars along with research work and its publication.



## Webinar on 'The New Normal: Responding to Heatwave at the Time of Unlock' 9 June 2020




The key take away points from the webinar were:

(a) Heatwave and drought response should be integrated.

(b) Nature based solution for climate change adaptation and heatwave should be encouraged.

(c) Planning of long-term measures along with climate change Adaptation.

(d) Improvised the warning for heatwave with more accurate data and simulation process.

(e) Integration of SDG, Sendai framework, and Climate action plan through inclusive would be key way for a long-term measure.

## Webinar on Museum Preparedness Planning for Disasters during Pandemics 11 June 2020

The key take away points from the webinar were:

(a) Reconfiguration of the existing Standard Operating Procedures (SOPs) according to the context of Covid 19.

(b) Use of digital mediums for digitisation, inventory management, remote monitoring of museums, system and surveillance.

(c) Preparation of integrated disaster management plans for complex emergencies.

(d) Engaging and partnering with communities for museum safety and planning.

(e) Developing low-cost systems for management of museum and heritage sites and ensuring safety of museum staff and personnel.



## Webinar on Pandemics and Human Trafficking in the time of Covid 19 12 June 2020




The key take away points from the webinar were:

(a) Need to recognize human trafficking and that it will be a consequence of this pandemic like any other disaster.

(b) Important role played by NIDM in training state representatives across the country on recognizing this trend through the period of relief and rehabilitation.

(c) Ensured vigilance and prevention of trafficking during Pandemics.

(d) Imperative to design and formulate a strategy on how do we reach out to people and create awareness amongst them.

## Webinar on Earthquake Risk Mitigation in North East India, 12 June 2020

The key take away points from the webinar were:

(a) Generating awareness among the people about the earthquake risk mitigation, who may in some capacity not be involved activities related to earthquake risk mitigation.

(b) Need for earthquake risk mitigation in North East India was one of the key feature of the webinar.

(c) Overview of earthquakes risk in NE India in light of the Great Shillong earthquake of 1897 and what might go wrong in NE India in case of repeat of 1897 earthquake in present times.

(d) Concluded over a detailed discussion on strategy for earthquake risk mitigation in NE India.



## Webinar on School Closures & Lockdown effecting Mental Health of Children 12 June 2020




The key take away points from the webinar were:

(a) Embarked with a topic on the basic concepts of stress management, global and national level impacts of mental health and increasing stress and anxiety due to Covid 19 among children, teachers and parents. Types of stresses, its phases, management and preventive measures were explained.

(b) Emphasized on the need to support children to have access to all services during the lockdown, and provide them with the essential services and resources and for continuation of their activities.

(c) Discussed local level experiences with the participants and advised them to be aware and watch out the activities in different age groups of the children in the current situation.

(d) Suggested the audience, care-givers, parents to monitor children during lockdowns and continue case management through remote approaches until schools reopen.

(e) Parents and teachers must receive support to maintain structure and routine for the children, and to keep the children engaged in learning activities.

## Webinar on Covid 19 and Children, 13 June 2020

The key take away points from the webinar were:

(a) Govt may think of having recharge facility for mobile phones at PDS distribution points (Ration shops) to ensure accessibility to online education.

(b) Protocols - rules and procedure have been issued for the conduct of online classes by schools and colleges but the Education Dept has to monitor that the institutions are observing the same.

(c) Coordinate with the Police/Rev/Corporation/Health to bring the woman/children to safety.

(d) Ensure all private helplines that advertise their services are registered with the department.



## Webinar on Challenges faced by Children due to closure of School during Covid 19 13 June 2020




The key take away points from the webinar were:

(a) Discussed on the positive emotional and mindfulness needed for managing self; also on the importance of positive and mindfulness for secondary school children.

(b) Enlightened emotional engagement and feeling of interest and process of mindfulness for cultivating awareness for raising emotional competencies for stress management in current situation.

(c) Highlighted the issues of disruption of school learning the equality among the rural and urban children due to un -accessibility of online learning services.

(d) Need for ensuring connectivity to children for providing online education in remote areas.

(e) Highlighted the initiatives of government regarding the course curriculum, one India one digital program, formation of Covid cell in school and networking and screening of syllabus in current situation.

## Webinar on Urban Issues and Covid 19 Management in Densely Populated Settings, 16 June 2020

The key take away points from the webinar were:

(a) Emphasized the urban dimension of the Covid 19 issues and assessed the measures needed to be taken for Covid 19 Management in Densely Populated Settings in India.

(b) Discussed the transmission of Covid 19 in Urban Settlements, slums, and densely populated areas which was a major challenge. The speakers also focused on the Transmission dynamics, Susceptibility and Severity.

(c) Stressed upon the need for prioritizing the Covid 19 prevention and control in informal settlements and highlighted the major risk factors for people living in the informal settlements.

(d) Accentuated various ways for preparing urban settlements for prevention and control of Covid 19 such as Institutional mechanism, Covid 19 containment plan etc.



## Webinar on New Normal: Earthquake & Covid 19, 18 June 2020




The key take away points from the webinar were:

(a) Preparedness activities for earthquake in the light of Covid 19 and of the dual disaster that poses a great challenge.

(b) Dealing with a situation of twin disaster with its cascading effect.

(c) Preparedness situation of an earthquake and Covid 19 could be handled by the people who are adhering to Covid 19 protocol.

(d) Provisions of a quick guide for a common person occupying different structure when earthquake would strike.

(e) Guidelines that would be helpful in mitigating the impact by coordinated governance.

## Webinar on Understanding Earthquake Hazard in India and Our Preparation 19 June 2020

The key take away points from the webinar were:

(a) Generating awareness among the professionals (like engineers, architects, urban / physical planners etc.) involved with design, construction and maintenance of built environment.

(b) Understanding of earthquake hazard in India and preparedness at national level to meet the challenge.

(c) Local effects of earthquake and its implication on built form and how to develop an earthquake safe built form was another key point of the webinar.

(d) Earthquake risk mitigation based on the queries received from participants of the webinar provided clarification on various aspects of earthquake engineering.



## Webinar on Mental Health of Children, 19 June 2020




The key take away points from the webinar were:

(a) Focused on the mental health issues of children during the lockdown and closures when the majority of educational institutions and schools were closed and children were spending most of their time at home.

(b) Highlighted the concerns regarding growing stress in children and pointed that children like as any other young adults are victims of accumulative stress.

(c) Discussed the issues of various age groups of children due to pandemics. The concerns of different age groups of children and their exposure and vulnerability in the present situation was explained along with coping mechanisms and ways to develop resilience.

## Webinar on Covid 19 and Children, 20 June 2020

The key take away points from the webinar were:

(a) SOPs in place but the Education Dept has to keep monitoring whether the teaching staff and the schools are familiar with the rules. Necessary for all teaching staff to be given a crash course on online safety.

(b) Corporation staff (or whoever is assigned by the State Govt.) who make door to door visits checking for Covid cases can be asked to meet all the persons living in the house and ask if they need any assistance generally. Trained and asked to watch out for signs that there is child abuse in the house and get the info passed to the Social Welfare and Police Depts.

(c) Yoga can be taught for the children at the time of closure of school to engage the children in physical activities and ensure the well being of children.

(d) Yoga supports to attain the physical, mental and spiritual wellbeing of children.

(e) Key role of parents in protecting children in the time of pandemic as global concern.



## Webinar on Reopening of Schools: Expectation of Children and Parents 20 June 2020




The key take away points from the webinar were:

(a) Issues discussed included continuity of learning; E learning system and inaccessibility to under-privileged children and how to safeguard of school for the children after reopening.

(b) Short term, intermediate and long-term plan and strategy for reopening of school.

(c) Safety and policy guidelines along with different strategies for reopening of school should be developed.

(d) Ensuring safe school operations updating school elementary and contingency plans.

(e) Establishment of procedures for students and staff who become unwell in this crisis situation and also to promote information sharing among children and parents.

(f) Need for adopting school, area, and resource specific planning and implementation.

## Webinar on Mental Well being and Need for Behavioral Change Communication 20 June 2020




The key take away points from the webinar were:

(a) Reflection on individual's important values through engagement of open-minded and balanced appraisal.

(b) Develop linkages between individual, community and societal behavior change.

(c) Psychological vulnerabilities like sensitivity, emotions and face greater stress was a fresh subjects for the participants to discuss and debate.

(d) Steps/Practice to change Behavioral Change Communication in context of Covid 19 was one of the major take away for the participants as it highlighted demonstrations and proper techniques, which can be used on daily basis.

(e) Stages of behavioral change and channels of behavioral change communication like interpersonal communication, uses of IEC and mass media, community mobilization, awareness drives, meeting were taught to participants stating useful examples.

## Live talk on Mental Well-being of vulnerable groups during Covid 19 Pandemic (Disaster Management Perspective), 21 June 2020 (You tube link: https://youtu.be/v2y6S4SHqNU)




A Live talk on Mental Well-being of vulnerable groups during Covid 19 Pandemic (Disaster Management Perspective) was organized on 21 June 2020. Dr. Sushma Guleria, Assistant Professor, National Institute of Disaster Management, Ministry of Home Affairs illustrated that Covid 19 pandemic is a rapidly evolving global crisis and is still emerging in terms of the psychosocial and mental health consequences for the diverse populations. She further stated Mental health is a state of well-being in which someone can cope with the normal stresses of life. They are able to work productively and can contribute positively to their community.

Along with its high infectivity and fatality rates, the 2019 Corona Virus Disease (Covid 19) has caused universal psychosocial impact by causing mass hysteria, economic burden and financial losses. Mass fear of Covid 19, termed as "coronaphobia", has generated a plethora of psychiatric manifestations across the different strata of the society.

## Webinar on Earthquake Risk Mitigation at Local Level in collaboration with WHO, 24 June 2020

The key take away points from the webinar were:

(a) Concept and issues involved in earthquake risk mitigation and management; different activities involved in earthquake risk mitigation/ preparedness for the community.

(b) Illustrated a detailed presentation on earthquake risk mitigation at community level followed by a discussion on preparedness for earthquake at local level.



## Webinar on Silver Lining of Covid 19 in Live of Children, 26 June 2020




The key take away points from the webinar were:

(a) Exploring the hidden positive aspects of lockdowns and closure in the lives of children.

(b) Discussed that domestic violence, family disputes as a matter of concern during the lockdowns and closures further leading to physical and sexual abuse needs to be taken care of in order to reduce the impact of mental stress on children.

## Webinar on Covid 19 and Children, 27 June 2020

The key take away points from the webinar were:




(a) Ensure that all women and children know that they can reach out for help - use the A-V media, print, notices etc to publicize helpline numbers.

(b) Vans carrying one person from Social welfare, Health, Education, Revenue, Police depts and a lawyer and NGO could go around a specific area and spread awareness of social schemes of the Govt, Health related matters, crimes against women and children, cyber safety.

(c) Child marriages have shot up during this period. All concerned departments have taken action in ensuring that the marriage was stopped and a case registered. But the follow-up action is crucial.

(d) Infrastructural arrangements have been done by the HRD Ministry to save the children.

(e) Meditation and breathing techniques can be a best way to engage the children during the closure of school.

# Webinar on Safety of Children after School Reopening, 27 June 2020




The key take away points from the webinar were:

(a) Highlighted major concerns about reopening of school in the ongoing crisis situation with focus on balancing finances within household to provide children with best available support.

(b) Discussed innovations at human resource level within schools with special focus on flexible teaching and learning materials and aids for the children and also prioritizing disability specific concerns of 'divyang' children in the situation of pandemic.

(c) Implementation of social distancing amongst children within school premises constituted focus of the debate and staggered school days and timings was found one solution for instilling social distancing norms with the children.

(d) Age specific nutrition needs of the children was yet another major concern whilst millions of children are missing their mid-day meals on a daily basis during this closure and that is going to adversely affect the health indicators of the country in the long run.

******

# ONLINE TRAINING PROGRAMMES

## Webinar Training on integration DRR with Gram Panchayat Development Plans (GPDP), 20-22 May 2020




A collaborative Webinar Training Programme on Integrating Disaster Management Plan with Gram Panchayat Development Plans was organized on 20-22 May 2020. The program sensitized on disaster management plan, the roles of various stakeholder integrating disaster management plans into gram panchayat development plan. One of the major objectives of the webinar was how the participants can mobilize the people and utilize the disaster management plan. They were taught to make vulnerability and hazard assessment map with respect to Covid 19. There was a key discussion regarding paradigm shift in Disaster Management to Disaster Risk Reduction including the Sendai Framework. The roles and responsibilities of NDRF was thoroughly discussed. Highlights drawn to pertinent issues of Gram Panchayat Development Plan and how to integrate Gram Panchayat Development Plan with Disaster Management Plan was addressed during the session. Challenges in integrating disaster management initiative in GPDP was highly debated. Disaster Management professionals, State Disaster Management Authority, District Disaster Management Authority, State and District level officials of agriculture, rural development, Panchayati Raj elected representatives joined the webinar.

## National Training Programme on Hydro-meteorological and Extreme Events Disaster Risk Management, 1-21 June 2020

Indian Institute of Technology, Indore in collaboration with National Institute of Disaster Management organized a three week National Training Program on "Hydro-Meteorological and Extreme Events Disaster Risk Management", from 1-21 June, 2020. The aim of the national training program was to explore and develop the understanding regarding the risks due to extreme climatic events and facilitating the way forward towards better plans and strategies for disaster risk management, adaptation and mitigation. The program explored the extreme events such as droughts, heatwaves, heavy rain, and violent storms. It also illustrated climate change, one of the biggest environmental threats faced by the world which can potentially impact food production and security, sustained water supply, biodiversity of forests and other natural ecosystems, human health and settlements. It was concluded that climate processes were intricate and influenced by many interconnections, therefore, the role of different climate drivers in developing an extreme event must be analyzed. The event was joined by about 150 participants from IITs, NITs, IIMs and different educational and non-educational bodies across the country.



## Training Programme on Incident Response System (IRS): Basic & Intermediate (Kottayam District), 11-13 June 2020




NIDM conducted a training programme on IRS: Basic & Intermediate jointly with Kerala State Disaster Management Authority for Kottayam district during 11-13 June 2020. 47 participants attended this programme.

The inaugural address was made by KSDMA Member Secretary, Dr Sekhar L. Kuriakose in which he mentioned about the importance of IRS and also urged the functionaries to learn the concepts through this training. Further, Chief Manager of KSDMA, Mr. Siji M Thankachan facilitated a session on the history of IRS, various functions, thematic areas etc. He also explained the positional functions of Incident Commander, Planning Section Chief, Logistics Section Chief, Operations Section Chief. State Project Officer of KSDMA, Mr Joe John George facilitated a session on the Taluk level IRT and its functions.

The second day training started with a recap done by Kottayam ADM inter alia District Incident Commander Mr Anil Oommen followed by a technical session delivered by Mr Shekher Chaturvedi, Asst. Professor of National Institute of Disaster Management, New Delhi. He explained the significance and objectives of IRS and further elaborated about the role of each of the 25 positions in IRS. He explained the IRS chart and also the roles and responsibilities of every position of IRS organization. Mr Joe George explained about an exercise which each of the Talukas was asked to conduct. Dr. Sekhar L. Kuriakose gave a fitting reply to all the queries raised by the participants.

The exercise presentation was made by Mr Shinoy K R, Planning section chief (Fire & Rescue Dept.). Mr Joe George further oriented the participants on IDRN portal and requested them to update the portal.

## Online Training Programme on Coastal Disaster Risk Reduction and Resilience 17-19 June 2020




National Institute of Disaster Management with APHRDI (Andhra Pradesh Human Resource Development Institute) conducted a three day online training programme on "Coastal Disaster Risk Reduction and Resilience" from 17-19 June 2020. The inaugural address was delivered by Major General Manoj Kumar Bindal, ED NIDM and Key note address by Sri D. Chakrapani, IAS (Retd) Former Founder DG APHRDI. The program focused on various case studies on coastal hazards and its management from coastal states namely Gujarat, West Bengal and Andhra Pradesh. Shri Shyamnarayan Dave, UNICEF highlighted water, sanitation, and hygiene in schools of Gujarat. Shri Simanchal Pattnaik and Shri Mahendra, UNICEF presented on Multi-purpose cyclone Shelters (MPCS) addressing Social & Economic Risk in context to West Bengal and Andhra Pradesh. The programme concluded with the remarks given by Prof. Surya Parkash, Head GMR Division, NIDM followed by Sri D. Chakrapani, IAS (Retd) Former Founder DG APHRDI. The participants were from varying academic background namely NDRF, SDRF, APSDMA, Animal Husbandry, Medical & Health, Civil Defense, Fishery Dept., Land Revenue and Disaster Management, All India Radio etc.

## Online Training Programme on Child Centric Disaster Risk Reduction 22-24 June 2020

A three day online Training Programmed on Child centric Disaster Risk reduction was conducted during 22-24 June, 2020 in association with Dr. MCRHRD Institute of Telangana. About 200 participants were participated in this programme. Shri. Divya Parmer, IES., Director, Centre for Sustainable Development Goals, MCRHRDIT delivered a welcome address. Major General. Manoj Kumar Bindal, Executive Director, NIDM, delivered a key note address. Prof. Santosh Kumar from NIDM delivered an opening remarks in the inaugural session. The programme was exclusively organized for the officers of Women and Child Welfare Department of Telangana state. Conceptual framework of disaster management, concept of child centric disaster risk reduction, mental health issues of children school safety and disaster impact on children were discussed in this training.



## Online Training Programme on Child Centric Disaster Risk Reduction 22-24 June 2020




Child Centric Disaster Risk Reduction Centre, NIDM successfully conducted a three day online training program on Child Centric Disaster Risk Reduction with SIPARD, Agartala. ED, NIDM gave a keynote address. Prof. Santosh Kumar gave inaugural address and Principal Secretary to Govt. of Tripura and DG, SIPARD gave his valedictory address to the participants.

## Online Training Programme on Environment and Disaster: Integrated Risk, Resilience and Sustainable Development, 22-24 June 2020




A three day Online Training Programme was organized by National Institute of Disaster Management on 'Environment & Disasters: Integrated Risk, Resilience and Sustainable Development' from 22-24 June 2020. The key objectives of the training programme was to impart a sound understanding of the inherent relationship between environment and disasters and the implication of climate change and environmental degradation on disaster risk reduction (DRR). It also aimed to discuss the need of an integrated risk management and multi-hazard approach of DRR. The lead talks in the programme were from Prof. V.K. Sharma, VC Sikkim, SDMA and Senior Prof at IIPA, New Delhi (Environment Issues in Disaster Management), Prof. Dr. Jugal Kishore, Director Professor at VMMC & Safdarjung Hospital, New Delhi (Environment and Health Resilience) and Prof. Anil K Gupta, Head ECDRM, NIDM (Environment Policy Instruments and Green Economy for DRR). The programme was attended by 430 participants from diverse backgrounds including officials and professionals from government/private institutes/ departments, scientists, professors, teachers academicians, research scholars from different institutes/colleges and NGOs across the country.

## FDP CUM Training Program on Basic Disaster Management, 24-26 June 2020




A three day FDP cum Training Program on "Basic Disaster Management" was held from 24-26 June 2020 jointly organized by National Institute of Disaster Management and Department of Civil Engineering, Invertis University Bareilly. The main outcome of this programme was the knowledge up gradation of Faculty Community of Educational Institutes with respect to Disaster Management, sharing of informational updates with respect to how the DRR measures can and need to be mainstreamed with developmental policy/plans and most importantly bringing in the continuity of propagating the idea of education and delivery during the tough times of Covid 19. The program was attended by 395 participants across India. There were 6 participants from foreign countries as well.

## Training Programme on Psycho-Social Effect of Pandemic and its Mitigation 24-26 June 2020

An online training programme on "Psycho-Social Effect of Pandemic and its Mitigation "was organized by NIDM in collaboration with Vigyan Prasar, Noida. A total of 57 participants from various parts of the country participated in this online training programme. The programme started off with a discussion on the social impact of the pandemic on women, children, aged, people with disabilities and migration. It also focused upon the impact on mental health of the communities during lockdown and periods of physical distancing.




The sessions were undertaken by various speakers including Dr. Ajinder Walia, NIDM, Dr. TV Venkateshwaran, Vigyan Prasar, Dr. Nand Kumar, AIIMS, Mr. Sandeep Baruah Vigyan Prasar Mr. Nimish Kapoor, Vigyan Prasar and Dr. Irfana Begum, Vigyan Prasar.

## Online Training Programme on Child Centric Disaster Risk Reduction 29 June - 1 July 2020




Child Centric Disaster Risk Reduction Centre, NIDM successfully conducted a three day online training program on Child Centric Disaster Risk Reduction with RIPA, Rajasthan from 29 June - 1 July 2020. Prof. Santosh Kumar provided the opening remarks and ED, NIDM addressed the participants with his keynote address.

## Training Programme on Disaster Risk, Vulnerability Assessment and Management 29 June - 3 July 2020




National Institute of Disaster Management, Govt. of India organized a National Level Training Programme in collaboration with Department of Civil Engineering, Delhi Technological University on Disaster Risk, Vulnerability Assessment and Management. The programme was organized online from 29 June - 3 July 2020. The objective of this program was to impart a sound knowledge to the participants to prepare and evaluate the disaster events and mitigating measures, to interact on cutting-edge and groundbreaking topics in hazard assessment/ risk assessment disaster resistant design, retrofitting and sensitization, to introduce new areas of research in the field of Disaster mitigation and management to the faculty.

******

## Finding the Way: From Confusion to Quest for Success

Prof. Santosh Kumar

There is a tradition that NIDM faculty should contribute a small piece of experience in every TIDINGS which NIDM is publishing and sharing with on a regular basis. I hope the readers must be enjoying what is being shared with all of you. NIDM do not get any feedback from the readers - letters to the editor, hence we do not know your views. But I hope as an author that you may be liking our ideas. Today, when I sat for writing this piece I was confused or a bit hazy about what to share, since, my elder brother, just 60 years old very healthy and hearty got infected by Covid 19 in the last week of July and succumbed to it within his 6 days of ailment (may or may not be attributed to testing facilities, quarantine facilities, admission in the hospital, treatment and care to the patient etc) Nothing could be done from the available public health system in India. Today, India has crossed the 45 thousand mark of deaths attributed to Covid 19, With a heavy heart, I initially thought to write on COVID and share those things which can be corrected and many are precious lives could be saved. But I thought it has been written in volumes already nationally as well as internationally. So I dropped that idea and thought of sharing something else.

It is my 28$^{th}$ year in the disaster management sector. I got into this accidentally after the Chamoli, Uttarkashi and Latur earthquakes as a part-timer. But in 1994, I became the full-timer and since then breathing DRR which truly I am relishing with containment.

My main discipline was development economics and Gender Studies. At IDS, Sussex, Robert Chamber (Guru of Participatory development), Michal Lipton ( his famous book -Why poor people stay poor) and Prof. John Toy and Prof. Naila Kabeer, London School of Economics, who were my teachers and could influence my thoughts more on inclusive development, community participation and people-oriented or people-led development, approach by keeping poverty and gender in the nucleus and how this could be made a public policy priority. How this could be beautifully crafted into a workable programme which could be translated on the ground. My father, who was a Professor of Mathematics, always used to remind me about designing the programme or policy would depend on how the problem is understood correctly? Serving the people with the combination of science and society's experience would be a better proposition. Since we are dealing with uncertainties (disaster risk management), it is even more important for quantification of a probabilistic problem of disaster risks When we trust science for an answer it might not fulfil your quest fully as it has its own limitation and if you switch over to society and its rich experience that also might not give us the desired results. So it important that it should be the combination of both. Hence, for solving potential risk, quantification of this uncertain and abstract situation has a big role to play.

Until the advent of modern physics, it was generally perceived or thought that all knowledge of the world could be obtained from direct observation as seeing is believing. As things are what they seem. As perceived through our senses. But the grand advent of modern physics, which is based upon concepts given by Richard Feynman, who worked at the California Institute of Technology, a system has not just one history but every possible history. In the history of science, we have discovered a sequence of better and better theories and models. Stephen Hawking & Leonardo Mlodinow in their treatise' The Grand Design' , from Plato to the classical theory of Newton to modern quantum theories. Will this sequence eventually reach by an endpoint, an ultimate theory of the universe, that will predict every observation we can make, or will we continue

forever finding better theories, but never one that can be improved upon? And then talks about the" M-theory (theory of everything) is the answer to the above question, which talks about that M theory is the only model that has all the properties we think the final theory that has all the properties we think the final theory ought to have."

On the other hand, when science was evolving, society too was progressing across the globe with different sets of knowledge, experience and beliefs. Society always had a different notion about the universe at different point of time. The knowledge of the society about the universe was evolving too. In 340 BC, Aristotle in his book, on the heavens, said that earth was a round ball and talked about the eclipse of the moon was coming were caused by earth coming between the sun and the moon. The ideas were later explained and elaborated by Ptolemy in the first AD, a cosmological model, The earth stood the centre surrounded by eight spheres. Later in 1514, Nicholas Copernicus explained that the sun was stationary at the centre and the earth and the planets moved in circular orbits around the sun. Then Galileo, Copernicus compounded their theories and modified the previous theories. In 1687, Newton said that gravity causes the moon to move in an elliptical orbit around the earth and causes the earth and the planets to follow elliptical paths around the sun. And science kept moving enhancing the knowledge of the society.

During the evolution (science and society) process humankind also faced catastrophic wrath of nature. In the ancient time, the power of GOD was predominant in the creation of the universe and hence people use to believe that disaster is the act of god and nothing is in the hands of people who can do something about it and they accepted it as fate accomplished. Later, it was accepted and defined as the wrath of nature and it is happening due to various natural activities. So, nature is more powerful than the human being. So we had different policy and strategies. Now, it is being said as disaster is more anthropogenic than due to nature. It is us who is responsible for catastrophic events and hence it is our responsibility to act before than in the post-disaster scenario.

Disasters are consuming precious lives and eating up huge resources. By acknowledging various studies recommendations, International conventions also drafted their strategies accordingly. The key strategies have been Yokohama Strategy, International Decade for Disaster Reduction, Hyogo Framework of Action (2005 -2015) and now Sendai Framework for Disaster Risk Reduction (2015-2030). I was fortunate enough for being part of all these conventions and contributed to the draft of these international strategies at different point of time. I can give full credit to the Government of Japan which could take all these international initiatives. They played a leadership role in nurturing the subject and giving emphasis on ex-ante planning and investment for disaster risk reduction than ex-post response, relief and recovery. On the economy of scale, this has also been proven correct by many studies conducted across the globe by the World Bank, UNDP, UNISDR, UNESCAP, IFRC, ADB and many other institutions.

Since Covid 19 already affected humanity badly at this moment, if I do not give the reference of this it will not make it complete. FOR PANDEMIC there was a report," Pandemic Risk by Olga B.Jones, The World Bank 2013 which says," Pandemic risk combines a low probability (1-3 per cent annually) with high impact (over $3 trillion in a severe case). The annual risk is at least $30 billion, but people, firms, and governments grossly underestimate it. No country is safe. In an interconnected world, a pathogen from a remote village can reach major cities on all continents in 36 hours." We have seen how it travelled from Wuhan city of China to Europe, to Asia to South Asia and India. It is in a true sense trans-boundary disaster. This cannot be wiped out unless all global community get engaged together in putting all efforts for it from vaccine development to its treatment. The cost of public health is huge to poor or developing countries. They too might require the support of the rich countries in fighting with Covid 19.

What we see that all the international conventions signed by most of the countries of the World, after due diligence, for the disaster management remains unattended and hence the problem remains the same where it was, but for the marginal improvement. Automatically questions come to our mind Why? Despite well-meaning governance with good leadership, it did not take off as it was committed ? Can we fulfil our commitment in the coming ten years? How Sendai Framework, Sustainable Development Goals and Climate Change Adaption be interconnected and coordinated? What strategy would work and what not? How pandemic would be integrated into the framework of SDG, DRR and CCA? How the public health system is going to strengthen the manifold with increased investment in the sector? Can we think of making health insurance with disaster management as multi-peril insurance compulsory? What kind of workable model of public-private support could be possible in DRR framework? That way we can build financial resilience of the vulnerable communities and infrastructure.

I do not have the answer to questions which I have flagged it here. May be readers can suggest some innovative ideas which Disaster Management system may find worth considering for taking them forward. Millions of people in India who are getting affected every year can live their life with safety, security and dignity as enshrined in the constitution as one of the fundamental rights.

Before I conclude what I wish to share that in the entire thread of governance framework of Disaster Management, two critical gaps are missing i.e. i) Compassion and ii) Love. It is possible to integrate If we start looking at the no of deaths and the affected people during disasters beyond statistics (statistics has no emotions, no love, no compassion) probably we may take the agenda differently. Hon'ble Prime Minister Mr. Narendra Modi had outlined his 10 point agenda for the implementation of the SENDAI FRAMEWORK BY 2030. Since we have adopted it, five years are gone and 10 more years to go. But in these 10 years, the substantial improvement could be made. If compassion and love ingrained as a fundamental principle of designing action of PM 10 points I am sure it would give a phenomenal result. People will be seen as people with respect and dignity. This will be a true sense of governance of disaster. This may change the entire discourse. I may be sounding little crazy but trust me, it is bound to be a success. It will not remain as statistics- emotionless with no humility. Ten-point agenda is holistic and has the capability to turn around. Regular monitoring of central ministries, Institutions, coordination with the state governments by giving the top priority as in the case of Covid 19 Hon'ble Prime Minister was having regular meeting with state leadership similar model to be adopted for coordination with the state governments. 15$^{th}$ Finance commission allocation for ex-ante investment for risk reduction would definitely help in bringing down the disaster mortality. Even one death in the family is to be seen as a challenge for the future.

Disaster Risk reduction is not a hardware activity alone. It is much to do with softer activities. Any government will not have capacity and resources for reducing the risk of every individual, community, infrastructure (hospitals, schools, housing, roads, bridges, rail, port etc.). It has to be community-led by empowering people who are at risk. Public awareness, incentivising initiative, facilitating community initiatives, building or enhancing communities knowledge, skills and strengthening public institutions who all are working with them. Its time to take action ex-ante for making invisible visible. Post disasters might take high attention but it has not yielded and substantial result despite huge expenditure in relief. It is short-lived. The response is essential but not to eclipse ex-ante risk reduction. In the time of climate change, pandemic, trans boundary and cascading disasters business, as usual, will not work in the new normal. We need to change now. We as an individual need to take a pledge for risk reduction or choose to wither away. I will not request you to forward this message (what's app messages do) but if you believe in my argument I request you to kindly join the movement of ex-ante risk reduction. It will be a great service to humanity. Life would be worth living.

# Disaster Management in Covid 19 Times

Dr. Amir Ali Khan

The mankind is passing through one of its toughest phase and facing the pandemic of unprecedented nature. The Covid 19 has taken a huge toll by infecting large population in 213 countries and territories around the world and 2 international conveyances. The USA, Brazil and India are the worst affected countries in terms of infections. The USA has the highest number of deaths resulting due to Covid 19. Table 1 indicates the top three Covid 19 affected countries.

**Table 1: Top Three Covid 19 affected Countries**

| # | Country | Population | Total Cases | Total Deaths |
|---|---|---|---|---|
| | World | - | 20,025,245 | 733,997 |
| 1 | USA | 331,214,010 | 5,199,444 | 165,617 |
| 2 | Brazil | 212,723,058 | 3,035,582 | 101,136 |
| 3 | India | 1,381,456,118 | 2,215,074 | 44,466 |

Source: Wordometer [2]

India, by taking exceptional measures at the right time is able to contain the spread of virus, which has resulted in limiting the overall impact of Covid 19 in comparison to other countries. During the Covid 19 times, India, as a country, continues to face other types of disasters on regular intervals. During this period, various types of disasters like floods, cyclones and earthquakes have been faced by the country. A list of few such events has been given in Table 2.

**Table 2: Disaster Events Impacted India since April, 2020**

**Floods** Several parts of the country are facing unprecedented floods during the monsoon season. Few of the affected states include Assam, Bihar, Kerala, Maharashtra etc. have faced a tremendous challenge to continue providing quality care to corona affected patients.

**Cyclones** Country has faced two cyclones on East and West Coast of India (i.e. Amphan and Niserga). The post cyclones management have resulted in substantial challenge not only to the common people but also to the disaster response agencies.

**Earthquakes** Smaller earthquake events are taking place all over the country. However, the events in Champhai district of Mizoram, bordering Myanmar, have resulted in making life difficult for the local people and administration. The region has faced a series of earthquakes on regular basis upto a Magnitude of 5.3 (June 22, 2020)[3]. The recurring earthquakes have partially damaged houses, other buildings including a church at Zokhawthar.



*Damaged building in an earthquake in Champhai district of Mizoram*[4]

| | |
|---|---|
| **Landslides** | The landslides are a recurring phenomenon in rainy season every year. At times such events result in substantial damages. The states like Maharashtra and Kerala and UT of Jammu and Kashmir, etc. have already faced the landslide events so far. |
| **Urban Flooding** | Many cities faced the local flooding causing effect on treatment and management of corona affected patients. |
| **Fires** | There are many fire incidences during this period including a fire in make- shift corona care facility/hospital. There are reports of about death of 11 people/ patients and injuries to many more[5]. |
| **Drought** | Lack of sufficient rainfall results in drought like situation which is not uncommon at national level. |

**Source:** Compiled from various sources

The regularly occurring disaster events in Covid 19 times have increased the misery of the affected people and posed a challenge to the administration in managing such events. The response agencies like NDRF and SDRF along with other first responders have managed the post disaster management situations very effectively; in the process many of first responders have been infected by the Corona Virus.

The regularly occurring disaster events have clearly highlighted lack of preparedness at community level to face the cascading disaster events along with the Covid 19. To overcome such a situation, there is a strong need for comprehensive pre-disaster planning taking multi-hazard approach into account. The holistic comprehensive approach in terms of covering all aspects of disaster management cycle of disaster management is the only solution to prepare communities to face the challenge of recurring disaster events.

[1] https://www.worldometers.info/coronavirus/ (as on August 10, 2020)

[2] https://www.worldometers.info/coronavirus/ (as on August 10, 2020)

[3]https://economictimes.indiatimes.com/news/politics-and-nation/earthquake-of-5-3 magnitude-hits-mizoram-houses-damaged-cracks-develop-on-roads/articleshow/76504457.cms

[4]https://scroll.in/latest/965362/earthquake-of-5-3-magnitude-strikes-mizoram-second-in-12-hours-pm-modi-amit-shah-extend-support

[5]https://www.indiatoday.in/india/story/vijayawada-fire-case-registered-against-hotel-used-as-coronavirus-facility-11-killed-1709379-2020-08-09

## Planning for Multi-hazard Vulnerabilities of Urban Settlements in India

Dr. Chandrani Bandyopadhyay

The world is inexorably turning urban, India being no exception. 55.3% of the global population call urban settlements their home. In India, 377 million people, who make up 31.12% of the population live in urban areas. The role played by urban centres is varied; they are trade, commerce and service hubs, politico-administrative centres as well as socio-cultural and educational hubs. The global development during the last couple of centuries has been powered by rapid urbanization and growth. According to the World Bank, cities generate 80% of the global GDP and thus spearhead overall growth.

While urban areas have been at the forefront of global development, unplanned growth has led to complex risk scenarios developing in cities. The rapid growth of population and urban sprawl has led to encroachment of the natural habitat by humans. This has caused complex scenarios of risk to manifest in

most cities. Urban risks are many-layered, powered by unsafe constructions, informal housing, unsafe livelihoods, lack of access to information and other factors.

The Indian urban landscape is characterized by issues of dense population, informal housing, lack of services and infrastructure and an overall dense urban fabric. The urban dwellers are distributed in 7933 urban settlements, of which larger cities with a population of more than 1 lakh accommodate 70.1% of the urban population. Between 2001 and 2011, the country's urban population increased by 91 million and is expected to reach six-hundred million by 2031 as estimated by India's Economic Survey 2018.

As more and more people join the urban systems, disaster risks multiply due to the inherent complexities and vulnerability of systems. With 59% of India prone to earthquake and more than 12% to floods and the entire coastline of 7500 Km prone to cyclones and tidal surges, it is natural that most of the cities are prone to one or more hazards.

The increasing urban population is exerting pressure on urban infrastructure, land and environment. Issues like shortage of fresh water supplies, waste disposal problems, poor air and water quality, public health concerns, high energy consumption, environmental deterioration, etc. are emerging. According to a report of United Nations, urban India generates 62 million tonnes waste per year causing waste disposal problems and polluting the environment. The dearth of land and lack of basic services in urban areas often lead to the growth of informal housing and slums. As per Census 2011, 17.4 percent of urban households live in slums and informal settlements.

The world is in the throes of a pandemic currently, affecting millions of people. With the link to global supply chains and increased mobility, the cities have become centres of transmission of the disease. 13 of the largest cities in India, viz Mumbai, Chennai, Delhi/New Delhi, Ahmedabad, Thane, Pune, Hyderabad, Kolkata/Howrah, Indore, Jaipur, Jodhpur, Chengalpattu and Thiruvallur have reported 70% of all positive cases (The Hindu, June 19, 2020). While the high density of settlement and overcrowding in urban areas is considered to be at the root of the whirlwind spreading of coronavirus, various other factors need to be revisited. High density urban living and working, commuting longer distances by public transport, retail shopping and recreation have undergone widespread changes in the way cities function. Municipal functions like provision of basic urban services have faced momentous challenges in operations management and public health infrastructure standards.

Rapidly increasing urban population and top-heavy urban morphology have led to a complex system of risks and vulnerability. Physical, social, economic and environmental dimensions combine to form complex risk scenarios in cities. Localized events like urban fires or building collapse or disease outbreaks are combined with large-scale extensive events like cyclones, floods or earthquakes. The impact of Cyclone Amphan on May 20, 2020 brought the metropolis of Kolkata to its knees, with the entire infrastructure system failing to cope with the fury of the storm. Some of the suburban areas of Kolkata were without electricity for 11 days. The Govt. of West Bengal estimated a total damage of Rs 6750 crores to urban infrastructure alone.

In this context of risk and emerging risks in the context of climate change, disaster risk reduction needs to be put at the centre of all development activities and planning for the future. The need of resilient cities has been also acknowledged at the global level. Goal 11 of the Sustainable Development Goals (SDGs), thus, entirely focuses on building sustainable cities and communities by achieving safe and affordable housing and transport for all and at the same time reducing deaths and losses resulting from disasters. This goal also focuses on reducing environmental degradation and coming up with resource efficiency and adaptive measures for climate change. The Sendai Framework of Disaster Risk Reduction (SFDRR) focuses on building resilience in communities and risk reduction. The approach in disaster management is witnessing

a paradigm shift from management to building resilience, especially in urban areas. The major action areas that have been identified and are worked upon are conservation and harvesting of water resources, prevention of air pollution, adaption to climate change, conservation of forests and wildlife, and safeguarding heritage from the disaster impacts. There is thus a need to integrate Disaster Risk Reduction in all urban development schemes such as Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Swachh Bharat Mission, National Heritage City Development and Augmentation Yojana (HRIDAY), etc. to work on these focus areas and also incorporate it in future urban planning and development.

## Planning for Multi Hazard Disasters

Dr. Ajinder Walia

Our current approach to developing and making plans tends to focus on a specific hazard at a particular time. However, international and national experiences in the past including the massive earthquake, tsunami and nuclear radiation leakage in Japan in 2011, recurring floods and landslides in India along with earthquakes and tsunami in some areas and earthquakes which are followed by fire breakouts and landslides in others are some of the examples of how planning only for a primary disaster can lead to a myopic viewpoint. For any administration, it is extremely important to remain prepared for various possible eventualities including the likelihood of facing concurrent disasters cannot be ruled out. India which is reeling under the pandemic of Covid 19 across the country has had to respond to other disasters like cyclone in West Bengal, gas leakage in Andhra Pradesh and lightning in Bihar while upholding the principals of physical distancing imposed by the spread of pandemic. The situations have demanded making complex and difficult decisions to balance Covid 19 risks and protocols with disaster response and recovery operations. These experiences have challenged the resilience of societies and systems. They have forced us to do away with planning for a specific hazard at a time and expand our horizons to plan for multi hazard scenarios.

The challenges are not only limited to rescuing disaster survivors but may include evacuating people and managing multipurpose shelters ensuring physical distancing, higher demand on the already exhausted health and economic systems, increase in demand of personal protective kits for responders, increased demand for supply of resources to support recovery, dealing with increased infection rates amongst the survivors as well as disaster responders, maintenance of hygiene standards. We need to relook into our approach to planning for disasters. Firstly, we should develop models and simulate worst case scenarios of cascading disasters as well as concurrent disasters to develop response plans. Secondly, apart from learning lessons from our own experiences we need to visit best practices of other countries in such scenarios. Thirdly, seasonal disasters should be anticipated well in advance and preparedness measures should be put into place accordingly. Moreover our plans need to focus on the safety of the more vulnerable group which includes elderly, pregnant women, those dependent upon critical medicines to reduce the risk of Covid 19 infections. We also need to establish strategies for decongestion of densely populated relief camps, introducing clear physical distancing protocols for distribution of essential services , and the use of more emergency shelter locations with fewer people so that some semblance of social distancing may be achieved even in the aftermath of a disaster. Regular sanitization and disinfection of multipurpose shelters should also be undertaken. Large-scale availability of personal protective equipment (PPE) to emergency responders would also help prevent the spread of infection. Earlier plans of preparedness and response need to be revisited and revised accordingly. An effective administrative and political coordination will be the key to deal with such challenges. Finally, there is a need for policymakers to factor the possibilities in their planning and prepare accordingly, as far as possible.

## Response to Multi Hazard Disaster Scenario

Shekher Chaturvedi

In present days, entire world is fighting a battle with pandemic Covid 19 and India is one of them. The Government of India has notified the pandemic as a disaster and has been responding to it on a war footing since February 2020 to contain the damage caused due to the pandemic. Many states had launched a robust response and are still continuing with it. Due to the scale of the response, almost all the stakeholders had come in forefront and have been doing their bit to support the Central as well as State Governments and UT administrations in this response. It is to state here that India was under lockdown since March 25, 2020 and life had come to almost standstill. All modes of transport both public and personal, Educational institutions, places like malls, picture halls, hotels etc., religious congregations, construction work, etc. had all been put to a halt thereby affecting the economy and business.

People have been asked to follow certain norms such as wearing of mask, maintaining social distancing, frequent hand washing and sanitizing. Ever changing scenario of active cases, results of different studies have developed fear in the minds of common person about the challenges to be faced by this invisible attacker in the future.

Now that season of natural disasters such as floods, drought and cyclones is approaching and India has already faced Cyclones Amphan and Nisarga. Earthquakes see no season to strike. The scenario of response to multi hazards is inevitable.

States and NDRF are gearing up to address these disasters. Common practice till today was to respond collectively in a group in coordinated manner. Movement of Responders had always been in large groups. Rescue has also been in large groups and story of relief camps is known to all.

In the present circumstances with response to Covid 19 still ongoing, it would be a challenge to respond in the prevailing pattern as it would jeopardize the norms already set for Covid 19. There will be issues in group formation to respond and rescue, managing the rescue sorties, management of relief camps, Covid 19 suspect place at relief camps, testing at relief camps and rescued persons, Separate ambulance for shifting of Covid 19 positive/ suspect patients, protocols of responders, etc.

For effective and efficient response in such multi hazard scenario, it is necessary to have a strong institutional support for strong and fast decision making. It is also necessary to have strong psycho-social support to reduce stigma and anxiety amongst common person for ever changing reports and use of technology such as online courses, non-contact classroom sessions, web based seminars etc. need to be streamlined and accepted by all as means of imparting knowledge. Incident Response System (IRS) based approach would help in systematically and effectively respond to multi hazard situation i.e. any other hazard in addition to ongoing response to Covid 19.

## Multi Hazard Disaster Scenario

Dr. Sushma Guleria

Every year man-made and natural disasters impact the lives of millions of people. The frequency of occurrence of such disasters is steadily increasing since the last 50 years, and this has resulted in considerable loss of life, destruction of infrastructure, and social and economic disruption. A focussed and comprehensive solution is needed encompassing all aspects, including early detection of disaster scenarios, prevention, recovery, and management to minimize the losses. India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes

and landslides are regular phenomena in India. Besides these, Moreover, India is also vulnerable to Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and other man-made disasters.

Disaster risks in India are further compounded by increasing vulnerabilities related to changing demographics and socio-economic conditions, unplanned urbanization, development within high-risk zones, environmental degradation, climate change, geological hazards, epidemics and pandemics. Clearly, all these contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development.

The multi-hazard scenario across various parts of the country has seen a rise in the past few years and these disasters have immense socio-economic impact on the country at large, and in particular the communities has underscored the need to adopt a multi dimensional approach involving diverse scientific, engineering, financial and social processes to reduce vulnerability in multi-hazard prone areas. This makes it imperative to look at the entire cycle of disaster management in reducing risk and linking it to developmental planning process. In view of this, the Government of India had enacted the Disaster Management Act 2005 with a vision to bring about a paradigm shift in its approach to disaster management. The change is from "relief and emergency response" to a balanced approach covering all phases of the Disaster Management Cycle.

With Technological advancement, many new methods and tools are found relevant for managing a disaster scenario, such as WSN, remote sensing technique, artificial intelligence, IoT, UAV, and satellite imagery, to encounter the issues associated with disaster monitoring, detection, and management. In case of emergency conditions arising out of a typical disaster scenario, there is a strong likelihood that the communication networks will be partially disrupted; thus the alternate networks can play a vital role in disaster detection and management. It was felt important to focus on the role of alternate networks and the associated technologies in maintaining connectivity in various disaster scenarios alongside, the ability to tackle multiple disasters such as landslide, forest fire, and an earthquake etc.

In the current pandemic situation, having a common framework for early action to cope with complex disasters can make it easier for authorities and other stakeholders, including populations at risk, to understand the full spectrum of a disaster's secondary and tertiary effects and thus where to focus preparedness efforts, and how best to provide more targeted warnings and response services. Meteorological and hydrological services worldwide have developed and implemented Multi-Hazard Early Warning Systems (MHEWS) for weather- and climate-related hazards; these are now being expanded and transitioned toward Multi-Hazard Impact-Based Early Warning Systems (MHIEWS). While it is still early, it is becoming clear that this approach has useful lessons for the Covid 19 global pandemic, and some valuable insight to be gained in risk communication, risk analysis, and monitoring methodologies and approaches. The ability to understand and respond effectively to warnings through appropriate behaviours and actions is central to resilient societies and communities. By avoiding physical, societal, and economic harm to the greatest extent possible, recovery from a hazard is likely to be faster, less costly, and more complete. MHIEWS can be a common approach for all hazards and therefore is more likely to become a trusted tool that everyone can understand and use as a basic element of their national disaster risk management system. The interconnectedness of hazards and their impacts is a strong motivator for a common approach.

One of the lessons from both the Covid 19 pandemic and extreme weather events is the need to understand the vulnerability of individuals, communities, and societies so as to provide reliable, targeted guidance and warnings and ensure the willingness and capacity to prepare for a reasonable worst-case scenario based on informed long-term planning. Meteorology and hydrology are making good progress in this direction, and the process can be readily applied to health and other sectors.

**References:**

1. https://www.ndma.gov.in/en/vulnerability-profile.html

2. Multi-hazard disaster studies: Monitoring, detection, recovery, and management, based on emerging technologies and optimal techniques: International Journal of Disaster Risk Reduction; Volume 47, August 2020, 101642

3. Learning from multi-hazard early warning systems to respond to pandemics; GFDRR, World Bank: 23 June 2020. Web: https://reliefweb.int/report/world/learning-multi-hazard-early-warning-systems-respond-pandemics.

## Business Continuity Management in a Multi Hazard Scenario

Ashish Kumar Panda

**Introduction:**

We are living in an era where the most unpredictable thing is hazards turning into disasters with increasing number and severe intensities across the globe. Moreover, they are now in unprecedented combinations of various disasters devastating one place simultaneously. Multi Hazard Scenarios force us to educate/train ourselves & be vigilant all the time to tackle and possibly mitigate their impact on lives, property and business economy. Disruption of economy for short to long duration has drastic impacts on the quality and safety of life. Best practices of Business Continuity Management (BCM) in Multi Hazard Scenarios for the well-being of communities and the resilience of small and medium enterprises are the prudent need of the time. Small businesses are mostly less sufficiently equipped compared to larger enterprises and MNCs in safeguarding themselves with necessary contingency plans.

**International Labour Organisation (ILO)**: ILO CRISIS, with the support of the International Organization of Employers (IOE) and International Recovery Platform (IRP), have developed "Multi-Hazard Business Continuity Management" to increase constituents' resilience, mitigate risks and enhance preparedness for crisis and business recovery. Salient features of this model framework is discussed as under:-

**Business continuity**: Keeping key business activities functional after a disaster event, with the human, material and financial resources available at the time. Extent of the reduction of resources is proportional to the direct and indirect impact of the crisis on the enterprise and its suppliers, customers and clients.

**Business Continuity Management (BCM)**: Enterprises can set BCM in place in order to ensure a pre-established level of continuity of their operations after a crisis strikes which includes data collection and analysis for decision making; implementation of the action plan; and evaluation of the whole process for future documentation and knowledge. Potential impacts threatening an enterprise are identified and it provides a framework for building resilience and the capability for an effective response safeguarding interests of key stake holders, reputation, brand and value creating activities of the enterprise.

**Risk**: An uncertain event, generated by specific cause, with probability to produce severe impact and its treatment has a cost. Risk = Probability of hazard(s) x Severity of Outcome

**Magnitude of a Disaster**: Natural events of the same intensity may produce major damages in certain areas and minor or moderate damages in others depending on the degree of vulnerability of human settlements. Hence, we must be ready for different scenarios and Business Continuity Planning (BCP). Natural Hazards having a meteorological or hydrological origin (floods, landslides, cyclones) may follow some patterns of

seasonality but not the geophysical phenomena (tsunamis, earthquakes).

**Enterprises' Vulnerability to Disaster Risk:**

- Human resources: Poor education, lack of risk awareness, risky behaviours;
- Production assets: Location of stocks; machinery and equipment in exposed facilities; degree of dependence on suppliers - unprepared towards risks; reliance on electricity without alternative sources;
- Facilities - Poor building codes, location in proximity to natural hazards;
- Financial resources: Limited cash flow; credit burden and insolvency;
- Purchase, marketing and sales: Poor networks with suppliers and clients;
- Information Management - Poor or non-existent early warning systems and communication mechanisms;
- Safety and health: Limited personnel and equipment safety guards;
- Poor or non-existent preparedness: plans and coordination mechanisms.

**Business Priority**: A good or a service ("product") that an enterprise produces and delivers to the market is the priority of that firm, failing which, the whole spectrum of business activities may be compromised. Small disruptions can be tolerated, but long duration ones cannot be afforded. Disruption of certain activities triggers other negative consequences like organisational income, cash flow, capacity to respect contractual commitments, abiding by regulatory or statutory requirements etc.

**Essential Knowledge required for a good BCM:**

- Potential disasters affecting the geographic areas of the Enterprise (Production plant, warehouse etc), key suppliers (e.g. electricity, raw materials), Topography (Flood Plain, Earthquake prone area, Volcano Proximity, Landslides area etc).
- Degree of accessibility of warehouse, production plant, suppliers, sources of power and water, roads, bridges, airports, harbours etc.
- Ability of suppliers of utilities (e.g. water, power, waste collection) to continue their business or to recover expediently in the wake of any disaster.
- Anticipate Disruptions to critical assets. Resources may be unavailable due to destruction of warehouse, stored goods and materials, bridge collapse, road destruction/diversion, damaged functioning of the Unit.
- Identify the most appropriate modality to address the negative consequences of disasters upon business activities.
    - Access:- Relocating disrupted activities or using alternative suppliers;
    - Availability:- Replacing missing resource with valid substitute or outsourcing the function covered by the damaged resource.
    - Risk profile:- Changes over time. New risk may emerge. Review risk profile especially after significant changes in operations/environment.

**Procedure to be followed for Risk Assessment for Business Continuity Management -**

1. **Identify natural hazards, likely to occur in Enterprise Locality -** Produce a list of natural hazards that are likely to occur in the locations where the enterprise has assets and runs operations. Highlight critical operation areas, specific locations, types of hazards likely to impact these locations, their seasonality, the types of disruptions they lead to etc. Likelihood Range:- 1 to 5: 1=very unlikely; 2=unlikely; 3=medium likely; 4=likely; 5=very likely.

**Sample matrix for profiling disruption risks of time-critical operations**

| Time-critical Operations | Location & topography | Natural hazard | Type of disruption | Likelihood | Downtime period | | Season/ month |
|---|---|---|---|---|---|---|---|
| | | | | | Tolerated | Expected | |
| T-Critical Operation 1 | Location 1 | Hazard 1 | Types of Disruption 1 | Range 1-5 | | | |
| | | | Types of Disruption 2 | Range 1-5 | | | |
| | Location 2 | Hazard | Types of Disruption 1 | Range 1-5 | | | |
| | | | Types of Disruption 2 | Range 1-5 | | | |
| T-Critical Operation 2 | Location | Hazard | Types of Disruption 1 | Range 1-5 | | | |
| | | | Types of Disruption 2 | Range 1-5 | | | |
| T-Critical Operation 3 | Location | Hazard | Types of Disruption 1 | Range 1-5 | | | |
| | | | Types of Disruption 1 | Range 1-5 | | | |

**Sample matrix for profiling natural hazards (Operations at multiple locations)**

| Location | Activity (ies) | Natural hazard | Proximity to hazard in Km | Vulnerabilities to the hazard | Likelihood | Season / month |
|---|---|---|---|---|---|---|
| Location 1 | | Hazard 1 | | | Range: 1-5 | |
| | | Hazard 2 | | | Range: 1-5 | |
| Location 2 | | Hazard ... | | | Range: 1-5 | |
| Location 3 | | Hazard ... | | | Range: 1-5 | |

Enlist all the sites of the enterprise, possible natural hazards and the proximity of the site to the hazards to determine the likelihood of occurrence of the hazards.

2. **Produce risk profile of the critical resources, including magnitude of each risk -** Risk of natural hazard is different than the risk that a specific disruption will occur within the firm. Efforts should be made to prevent or mitigate disruptions within one's business by identifying the following key parameters:-

- Location of the asset
- Natural hazard(s) - Exposure to Hazard characterizes the typology and likelihood of damages and disruptions in a firm.
- Type of disruption(s) - To be caused by the hazard, due to vulnerabilities of Accessibility, Availability or Functioning of the asset.
- Likelihood of the business disruption - Proportional to the intensity of the natural hazard

(magnitude). Also depends on vulnerability of assets, resilience of infrastructures and facilities and prevention and mitigation measures set in place.

- Severity of the impact - Severity of the disruption can be measured:- 1 to 5: 1=insignificant; 2=minor; 3=moderate; 4=serious; 5=disastrous.

**Possible seasonality** - Risk of disruption is also a function of the risk of natural hazard having same pattern of seasonality and this can be charted as below:-

**Sample matrix for profiling disruption risks**

| Asset | Location & topography | Natural hazard | Type of disruption | Likelihood | Impact | Season/ month |
|---|---|---|---|---|---|---|
| Asset 1 | Location 1 | Hazard 1 | Type of Disruption 1 | Range 1-5 | Range 1-5 | ….. |
| | | | Type of Disruption 2 | Range 1-5 | Range 1-5 | |
| | Location 2 | Hazard | Type of Disruption 3 | Range 1-5 | Range 1-5 | ……. |
| | | | Type of Disruption 4 | Range 1-5 | Range 1-5 | |
| Asset 2 | Location… | Hazard | Type of Disruption 5 | Range 1-5 | Range 1-5 | …….. |
| | | | Type of Disruption 6 | Range 1-5 | Range 1-5 | |
| Asset 3 | Location… | Hazard | Type of Disruption 7 | Range 1-5 | Range 1-5 | ……. |

**Risk management strategy to preserve critical assets as per risk magnitude** - An enterprise has different ways to prevent a risk and/or mitigate its possible impact. It can: (1) accept/retain the risk; (2) transfer the totality or part of the risk to others by insuring the critical assets and inputs or by outsourcing the production to external suppliers; (3) reject/avoid the risk by suspending or terminating the risk-prone activity (ies). In general, risks positioned on the left hand of the matrix can be tolerated, while those on the right-hand must be prevented, mitigated or even avoided.

**Risk Matrix**

| | | | | | | |
|---|---|---|---|---|---|---|
| **LIKELIHOOD** ↑ | **Very likely** | 5 | 20 | 45 | 80 | 125 |
| | **Likely** | 4 | 16 | 36 | 64 | 100 |
| | **Moderate Likelly** | 3 | 12 | 27 | 48 | 75 |
| | **Unlikely** | 2 | 8 | 18 | 32 | 50 |
| | **Very unlikely** | 1 | 4 | 9 | 16 | 25 |
| | | **Insignificant** | **Minor** | **Moderate** | **Serious** | **Disastrous** |
| | **SEVERITY** → | | | | | |

4. **Risk profile of the critical operations, susceptible to be affected –** Time-critical operations whose tolerated downtime period is relatively short must be resumed as duly addressed by the Business Continuity Planning. The impact on the business depends on the length of the period the operation is

expected to be down due to the disruption. If the expected downtime period is longer than the tolerated downtime period, then there is need for reducing it.

5. **Consult stakeholders, providers of the concerned resources -** Involve representatives of all Departments to get a complete view of the risks affecting the assets and operations under their responsibilities. Use face-to-face interviews or organize workshops for this. The risk management strategy conceived through the assessment should be approved by the firm's leadership, Heads of directly and indirectly concerned departments, and Finance (for feasibility and release of funds).

6. **Review analysis with new information -** Review the risk analysis periodically.

7. **Explore market for insurance and micro-insurance products:**

- **Property and household multi risk products** cover for stocks of merchandise and production materials in events like floods, landslides as well as theft.
- **Catastrophic micro-insurance** against natural catastrophic events like earthquake, hurricane, tsunamis, cyclones, etc.
- **Agricultural and livestock insurance** against changes in the average behaviour of climatic events for producers in rural environments.

**Conclusion**

It is hard to prepare for the undefined and unpredictable, especially when confronted with sudden-onset of natural disasters. The need of many entrepreneurs to stay in business and protect their workforce and assets gains importance in the times of Multi Hazards. It is a continuous process which should be articulated around a flexible plan. Preparing for emergencies requires predetermined actions by trained and experienced persons with clear defined roles and having knowledge of flexible style of preparedness. There should be collaboration among stakeholders including the Communities. Innovation and cultural change that accompany all transformations also play important roles. BCM can be designed to suit enterprises belonging to different sectors of the economy and producing a wide range of goods and services. They also apply to different types of disasters caused by natural hazards. Business continuity practices should be proportional to the size of the business and customized to the risk profile of the enterprise. Enterprises should set up an internal Task Force (or continuity team), including representatives from key enterprise functions (Departments), delegates of workers, representatives from key suppliers and contractors etc. BCM process is meaningful only when aligned with the local level community response to a given disaster or combination of disasters. Eventually it is a collaborative practice to stay in business and protect jobs and community.

**Reference**

"Multi-Hazard Business Continuity Management" – Guide for Small and Medium Enterprises, by ILO Crisis, 2011.

## Multi hazard disaster awareness among the school children

Dr. Balu I

**Introduction**

Experience of multi hazard disasters/emergencies has a great impact on school children. Awareness and preparedness for multi hazard disasters and emergencies are essential for improved risk management. In

recent past, schools in India and worldwide have witnessed multi disasters/emergencies exposing vulnerability of children from the predictable and/or perceived risk.

## Methodology

This study was commissioned to analyse the "Multi hazard awareness among the school children" in Goa and Maharashtra. Adopting convenient sampling method 360 schools are covered under this study. The study was conducted in South Goa, district of Goa and Thane district of Maharashtra. About 180 schools in each state were selected based on convenient sampling method and the total sample size is 360 schools. User friendly questionnaire was prepared and the data collected through google form.

## Findings on multi hazard awareness

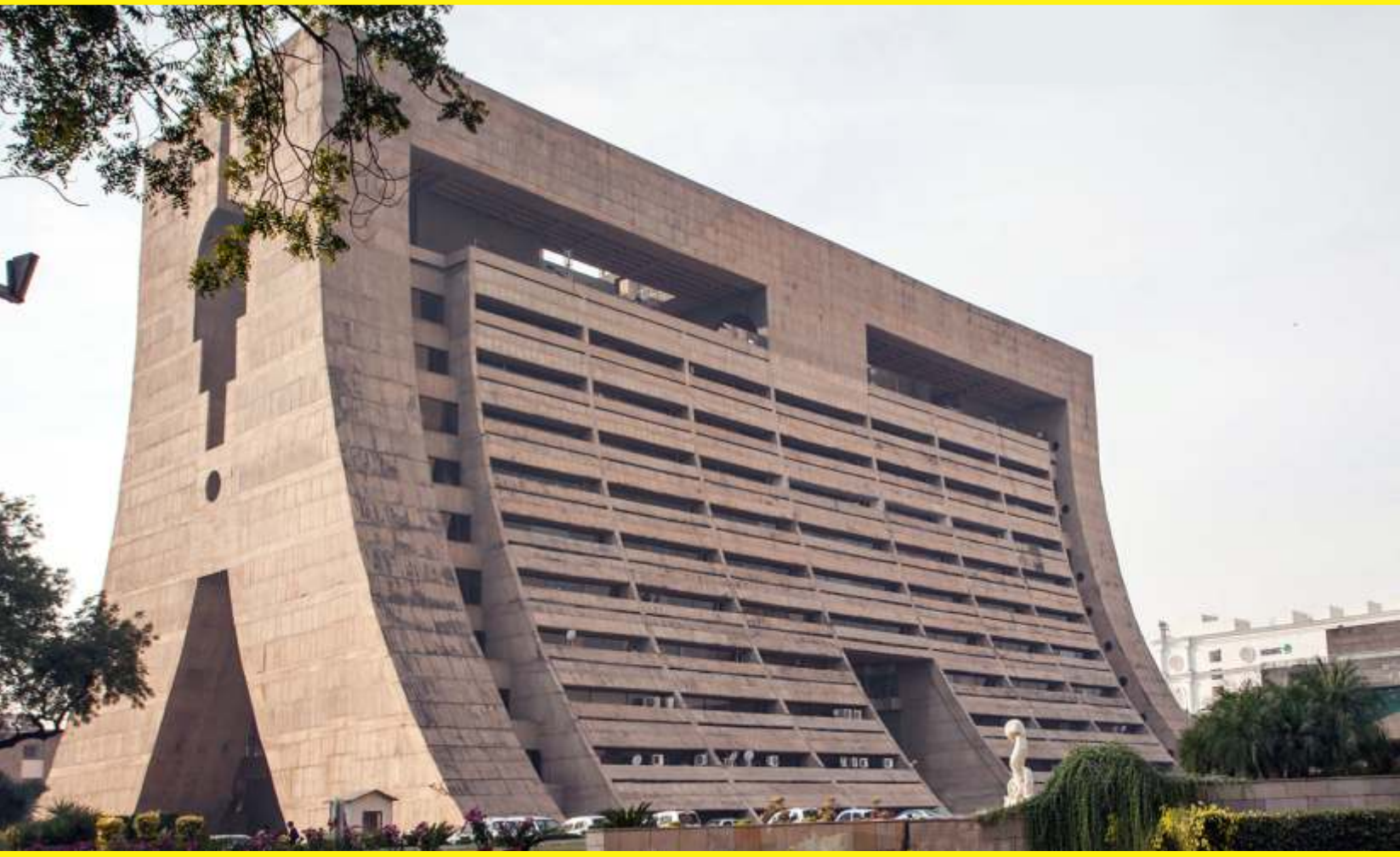
It is evident from Table 1 that majority (78 percent) of students is aware of do's and don'ts on disaster remaining 22 percent of students are vulnerable. Similarly about 80 percent of students are aware of do's and don'ts on fire emergency and remaining 20 percent of students are vulnerable. More than half (70 percent) of the students are aware of do's and don'ts on flood followed by only 62 percent of the students are aware of do's and don'ts on building collapse. More than one third of respondents reported their students aware of do's and don'ts on food poison and epidemic disease respectively. Less than half (48 percent) of the respondents reported their students aware of do's and don'ts on landslide.

**Table - 1: Students awareness on multi hazard**

| Types of disaster | No | | Not sure | | Yes | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Earth quake | 18 | 5.0 | 60 | 17.0 | 282 | 78.0 | 360 | 100.0 |
| Fire | 28 | 8.0 | 44 | 12.0 | 288 | 80.0 | 360 | 100.0 |
| Flood | 34 | 9.0 | 74 | 21.0 | 252 | 70.0 | 360 | 100.0 |
| Building collapse | 50 | 14.0 | 86 | 24.0 | 224 | 62.0 | 360 | 100.0 |
| Food poison | 50 | 14.0 | 68 | 19.0 | 242 | 67.0 | 360 | 100.0 |
| Epidemic disease | 46 | 13.0 | 64 | 18.0 | 250 | 69.0 | 360 | 100.0 |
| Landslide | 70 | 19.0 | 116 | 32.0 | 174 | 48.0 | 360 | 100.0 |
| First aid | 20 | 6.0 | 42 | 12.0 | 298 | 83.0 | 360 | 100.0 |

## Conclusion

It is appreciable that schools in both the states has taken good initiatives to create awareness on multi hazard among the students at the same time about 20 percent of students are not aware of do's and don'ts multi hazard which is a most vulnerable group and their capacity needs to be enhanced. Majority of the respondents reported that their students are aware of first aid techniques.



Resilient India - Disaster Free India


**Executive Director,**

**National Institute of Disaster Management**

**(Ministry of Home Affairs, Govt. of India)**

**A wing, 4th floor, NDCC-II Building, Jai Singh Road, New Delhi - 110001**

**Phone: 011-23438286, Fax: 011-23438285**

**Email : ed.nidm@nic.in | Website: www.nidm.gov.in**