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**Message**

It is a privilege for me to take over the additional charge of Executive Director of National Institute of Disaster Management (NIDM) in the month of November, 2018. It would help me in linking macro level initiatives which I undertake as Additional Secretary (Disaster Management) with micro level initiatives undertaken in NIDM. This newsletter gives me a golden platform to connect with all the readers in a meaningful and an engaging manner quickly. It gives me great pleasure to bring to you the November edition of NIDM's newsletter "Tidings". The month of November has been a very happening month for NIDM. The institute conducted capacity building programmes in varied fields like earthquake safety, flood and drought resilience, cultural heritage and disaster risk reduction and rapid visual screening of urban establishments. NIDM also conducted a sector specific programme for Panchayati Raj institutions for mainstreaming Disaster management in their functions. Additionally, our collaborator Special Centre for Disaster Research, Jawahar Lal Nehru University conducted an international workshop on reinforcing coastal zone Disaster management with NIDM. The newsletter also puts forth the views of our faculty, Dr Amir Ali Khan on fire safety in hospitals. You will be happy to know that the process of infrastructure development of NIDM campuses being built at Rohini, New Delhi and at Vijayawada, Andhra Pradesh is going smoothly as per schedule. NIDM since its inception has been working with dedication for accomplishing the ultimate goal of making India a Disaster Risk Resilient (DRR) country. The task is tough but not impossible to achieve. The Institute has already undertaken several initiatives for training, research, public awareness and policy support under the broader framework of capacity building during its journey for DRR. NIDM is committed to undertaking various activities as in-scripted in the DM Act 2005. We wish to undertake this journey forward with your support, co-operation and best wishes. NIDM trains you today and saves lives tomorrow.



*Rajni Sekhri Sibal*  
(Rajni Sekhri Sibal)

**National Institute of Disaster Management, New Delhi**  
**Role of Panchayati Raj Institutions (PRIs) in Disaster Management**

November 12 – 16, 2018

NIDM conducted a course on **“Role of Panchayati Raj institutions in Disaster Management”** in collaboration with Andhra Pradesh Human Resource Development Institute (APHRDI) at Bapatla, District Guntur, Andhra Pradesh on **November 12-16, 2018**. The course was conducted with the objective of mainstreaming disaster management in the functions of Panchyati Raj institutions. The course enabled the participants to understand the concept of Disaster Management and Institutional Framework of Disaster management in the country, explain strategies for mainstreaming disaster risk reduction into ongoing schemes and future developmental activities, know about basic life saving skills in disasters and to get an overview about the process of preparation of Preparedness and Response Plan for Panchayats. A total of **Forty two (42)** participants, mainly District Panchayati Raj Officers, Police officials, NGOs etc. from various panchayats of disaster prone districts of Andhra Pradesh, attended this programme.

**Earthquake Safety Evaluation and Retrofitting of Structures**

November 12 – 16, 2018 , New Delhi

A training Programme on **“Earthquake Safety Evaluation And Retrofitting Of Structures”** was organized by NIDM on **12 – 16 November, 2018**, at NIDM New Delhi with the objective of enhancing the professional capacity of engineers, architect and town planners of Delhi on the aspects of seismic hazard and vulnerability assessments of existing built environment in Delhi, making them aware of the fallacies in the ongoing construction practices in the city, pros and cons of building permit process and familiarize with correctives measure against seismic and fire safety, giving them onsite experience of random sampling of building materials and construction quality checking and monitoring of new construction, familiarizing them with building defects and diagnostic tools, fire safety, electrical and plumbing installations and promulgation of building bye laws, testing and seismic safety evaluation of some selected buildings in Delhi and finally to bring out a guideline/manual for certifying structural safety against potential hazards. The programme was attended by 34 participants.

**Mainstreaming Flood & Drought Resilience: Planning and Practices**

November 12 – 16, 2018 , New Delhi

A training Programme on **“Mainstreaming Flood & Drought Resilience: Planning and Practices”** was organized by NIDM on **12 – 16 November, 2018**, at **ATI, Mysore**. The programme aimed at enabling the participants to understand the concepts of disaster management and get an overview on approaches & pathways of climate resilient development in flood & drought scenario of India, get an overview about the nature, extent of the threats and the value of counter measures to combat the adverse impact of floods and droughts, know about planning & practices of various structural and non structural measures for preparedness and mitigation of flood & drought, get inputs on the role of Weather information and forecasts, early Warning System and criteria for Flood & Drought in coastal region and develop administrative capabilities to plan and implement disaster resilience for a safe national sustainable development. The programme was attended by 33 participants.

## **Cultural Heritage & Disaster Risk Reduction**

26 – 30 November, 2018

A training Programme on “**Cultural Heritage & Disaster Risk Reduction**” was organized by NIDM in collaboration with YASHADA Pune during **26 – 30 November, 2018**, at YASHADA Pune. The key objectives were to discuss the impact of disasters on heritage structures and the need for a risk-sensitive approach, identify the linkages between disaster risk reduction and heritage management, assess disaster risks on heritage sites and precincts and to formulate preparedness plans and mitigation strategies for reducing risk of cultural heritage sites and collections. The programme was attended by 23 participants.

### **Rapid Visual Screening (RVS) of Existing Urban Establishment in Earthquake Prone Area**

26 – 30 November, 2018

A training Programme on “**Rapid Visual Screening (RVS) Of Existing Urban Establishment In Earthquake Prone Area**” was organized by NIDM during **26 – 30 November, 2018**, at NIDM, New Delhi. The programme was attended by 30 participants. The Board methodology adopted for the programme was presentation based interactive sessions. During the training programme a variety of training methods like group discussion, demonstration, field visit and group work presentation by participants were used.

### **Workshops / Seminars**

#### **International Workshop on Reinforcing Coastal Zone Disaster Management: Saving Lives, Habitats and Livelihood of People (India & Coastal Neighbourhood Countries)**

15 – 17 November 2018.

The workshop was held in SCDR, JNU. The outcome of the workshop was the Delhi Puducherry Declaration on “Reinforcing Coastal Zone Management: Saving lives, Habitats and Livelihood of People” was an outcome of very intensive research and interaction carried by national and international, Government and Non-government groups of experts, community workers, teachers, media officials during this workshop. These are a list of Eight Action points compiled under the declaration. The coastal states may like to evolve a roadmap for disaster mitigation and prevention in coastal zones in accordance with the suggested action points and take appropriate steps to save human, nonhuman life, property and habitats from any further destruction. Since the given action points suggest a scale of priority on a lowest common denominator which is well within the capacity of States to implement, these may be forwarded to all coastal States for implementation.

## Other Activities

### The progress of infrastructure development of new campus of NIDM at Rohini, New Delhi

DDA had allotted 2.87 hact. Land at Plot no. 15, Block B, Sector 29 Rohini for setting up the campus of NIDM. MHA had sanctioned Rs. 47.7 crore for setting up the campus of NIDM and conveyed the approval to carry out the work through NBCC. The physical progress of the work as on date 30.11.2018 is as under:

- a) Administrative Block – Slab cast upto 3rd Floor
- b) Hostel Block – Slab cast upto 3rd floor and shuttering and reinforcement work in progress for 4th floor
- c) Residence Type II, Type III, Type IV & V, Type VI and water body – Structure completed
- d) Sewerage work, road work and Fire Fighting work etc. – In progress

The Monitoring Committee comprising officials from NIDM and an independent member is monitoring the physical progress as well as quality of the construction of NIDM campus.



### The progress of infrastructure development of NIDM Southern Campus at Andhra Pradesh

Government of A.P. had allotted 10 acre lands at Kondapovalluru Village Gannavaram Mandal Krishna District, Andhra Pradesh for setting up the NIDM Southern Campus. MHA had sanctioned Rs. 36.76 crore for setting up the campus of NIDM and conveyed the approval to carry out the work through NBCC. The physical progress of the work as on date 30.11.2018 is as under:

- a) Admin Building - RCC foundation work at other than basement area has completed. Brickwork below plinth beam is in progress. Basement foundation reinforcement work is in progress.
- b) Hostel - RCC work for foundation has been completed. Reinforcement work for plinth beam is in progress.
- c) Residences Type- III, Type- IV, Type- V – RCC work for foundation and plinth beam has been completed.
- d) First Aid Centre & Gym – RCC work for foundation has been completed. Reinforcement work for plinth beam is in progress.
- e) Boundary wall – RCC work in Foundation, Brick work below plinth beam is in progress



The Joint Inspection Team comprising officials from NIDM, NBCC and an independent member is monitoring the physical progress as well as quality of the construction of NIDM campus

# Thematic views

(FIRE SAFETY IN HOSPITALS – by Dr. Amir Ali Khan)

## 1.0 Introduction

Hospitals and other health facilities are critical infrastructural amenities which save lives. Safety and security of hospitals remain one of the prime concerns for wellbeing of the society. Hospital fires are a major cause of concern at international level. At national level, fire disasters in hospitals have led to loss of lives, caused huge damage to property and have eroded years of developmental gains. Fire incidents in hospitals have occurred in all parts of the country which had triggered a wide spread impact and resulted in loss of lives and properties. In case of fire incident majority of deaths are caused by smoke and other by-product of combustion. To avoid fire incidents/disasters within the hospitals one has to control the spread of smoke and take other necessary preventive measures. In recent past, there are many fire incidents at national level which had attracted attention. Few of the recent hospital fire accidents at national level are listed in Table 1:

**Table 1: Fire Accidents at National Level**

	Hospital	Date	Major reasons	Impact/losses	Remarks.
1.	ESIC Kamgar Hospital Mumbai	December 17, 2018	-Electric short circuit Inflammable material on the ground floor	Eleven people killed	The hospital failed a fire safety check just a fortnight ago
2.	Rohini Super	October	Electrical short-circuit	Two patients died	<ul style="list-style-type: none"> <li>• 199 patients were admitted to this hospital at the time of the accident</li> <li>• The hospital's fire safety system did not work during this crucial time Everyone including the doctors and hospital staff was in a state of panic and did not know how to respond</li> </ul>
3.	MY Hospital Indore	November 23, 2017	Cooking gas triggered the fire at one of the canteens		<ul style="list-style-type: none"> <li>• lives of 47 new-born babies were in danger</li> </ul>
4.	IMS & SUM Hospital in Bhubaneswar	October 16, 2016		22 people killed and 120 injured	<ul style="list-style-type: none"> <li>• Lacking in fire safety</li> <li>• No fire certificate was issued</li> </ul>
5.	Murshidabad Medical College and Hospital in West Bengal	August 27, 2016	Faulty electric wiring	two people killed	no disaster management in place
6.	Shishu Bhawan Hospital in Cuttack	November 29, 2015	Faulty equipment in children's ward	One child severely injured	Machines worth Rs. 11 lakh gutted
7.	PBM Hospital, Bikaner	January 13, 2013	Faulty electric wiring	Injured three infants	fire broke out in the nursery ward of the hospital
8.	AMRI Hospital, Kolkata	December 9, 2011	-Electrical short circuit -Stocking of combustible substances in the basement	95 people killed	the time of incident hospital had around 160 patients. Out of which 50 patients were in the intensive care ward.

Source: Compiled from different sources including newspaper clippings etc.

It can be seen from the Table 1 that major trigger in case of hospital fires is electricity related and storage of combustible material within the premises of hospitals. This deadly combination of availability of fire source and combustible material usually results in fire incident/disaster.

## 2.0 Disaster Management Planning at Hospital Level

For disaster management at hospital level, including fire incidents/disasters, every hospital must have a comprehensive disaster/emergency management plan of the hospital. The disaster management plan must have SOPs (Standard Operating Procedures) for different stakeholders within the hospitals. To overcome the emergency situation the disaster/emergency plan must be rehearsed on regular basis to ensure that all stakeholders in the hospital including doctors, paramedics and other staff etc. are well aware about their roles and responsibilities and are also well versed about the actions to be taken at the time of disaster/emergency situations.

Hospitals require a holistic approach to mitigate not only the fire hazards but also other prevailing hazards of natural and man-made nature. The holistic approach is based on a thorough HRVC (hazard, risk, vulnerability and capacity) analysis of the hospital, which encompasses assessment of existing vulnerabilities and capacities of the hospital. The existing vulnerabilities in a hospital may be structural and non-structural in nature. Structural vulnerabilities are based on the deficiencies in the structure components. Structural components of a building carry the weight of the building to the ground. Other than the structural components, everything else in the building is categorized as non- structural in nature. Non-structural components of a hospital building may include architectural elements (false ceiling, heating/air conditioning ducts, ventilation, windows, partition walls, parapets and cornices, stairways, water tanks etc.); electrical systems (transformers, lighting, emergency power supply etc.); furnishing and equipment (computers, file cabinets, shelving, display cabinets, shop equipment, lab equipment, kitchen appliances etc.); and hazardous materials (X-rays/ radioactive material, pathological, gases and chemicals, etc.).

It is very obvious that that majority of fire hazards prevailing within a hospital are non-structural in nature, which requires attention of the concerned stakeholders. The non-structural hazards can be fixed with minimal efforts and requiring little (minimal) efforts cost. Different measures to mitigate the impact of fire incidents/disasters in hospitals are discussed in the following section.

## 3.0 Fire Incident/ Disaster Management at Hospitals

In case of a fire incident, fire service takes time to reach at the site for assistance. To overcome this situation the fire incidents/disasters need to be managed locally in first place.

From this perspective and considering the importance of hospitals, the local system at every hospital needs to be self sufficient. In addition, hospital buildings must have a well built-in means of escape, which remains unlocked, unobstructed and adequately illuminated which must have been designed to remain smoke free in the event of a fire. Fire detection (early warning system) and internal fire fighting facilities are available in the hospital and are in functional state. All stakeholders present in the building are aware of the available facilities and are well versed with the use of such facilities at the time of emergency. Thus, the basic principle of fire fighting in hospitals is to be prepared to save life of everyone in the building, without assistance from outside.



Figure 1: Evacuation during AMRI Hospital, Kolkata fire incident 2011

- **Fire Prevention is the Key**

Fire prevention is much easier than fire fighting. To avoid fire within the hospitals premises there should be no unwanted combustible material near the source of fire/ignition. As electricity is the major cause of fire incidents, maximum care has to be given to electrical wiring, gadgets, wire joints, junction boxes with proper earthing etc. Hospitals have special risk of highly inflammable materials and/or gas like Oxygen, which require special attention and advance safety information to the staff for appropriate handling. To keep the in-house fire fighting system up-to-date, periodic self evaluation of the existing facilities by the concerned authorities and annual auditing by external agency need to be done.

Fire prevention considerations at the stage of construction of a hospital building plays critical role in mitigating the impact of fire incident/disaster, for example, central air conditioning ducts can become a source of spread of smoke and fire, if not designed properly. Spread of smoke makes fire fighting more difficult in a hospital. To avoid the spread of smoke proper management and venting mechanism need to be in place, which can provide additional time to escape from the building. Delay in spread of smoke also help in detecting the source of fire and also helps in saving water to douse the fire. The functional requirements for this purpose like self closing doors and sealing of vertical shafts etc. plays important role in curtailing the spread of smoke/fire in a hospital building. To avoid and to manage fire incidents all stakeholders in hospitals must understand the importance of smoke management.

A well planned architectural layout of a hospital constitutes basic requirement for combating fire incidences/disasters in hospitals. The architectural layout/design must fulfill the requirements as per the provisions of NBC 2016.

### **Up-to-date Internal Fire Fighting System**

A well-built internal fire fighting system in a hospital for escape and fire suppression is far more dependable than the most efficient and well equipped fire service available, next door. Secured availability of water supply to douse fire constitutes an essential requirement for hospital safety from fire disasters/incidents. Water carried on a fire engine last for few minutes only. It takes lots of time to connect to secure water supply system at the scene of fire. A functional, available internal fire fighting system is more dependable as it consumes less water, much needed at the time to fight the spread of fire.

- **Reporting Small Fire Incidents**

Small fire incidents should not be ignored. Such incidents need to be reported not only to the competent authority of the hospital but also to the local fire service for proper investigation. The '*near miss fire incidents*' may provide a lead to avoid a future fire incident/disaster in the hospital.

- **Evacuation Planning of a Hospital**

It will be exceptionally difficult to evacuate even few patients at the time of real emergency and more so for those on life support systems. It is neither advisable nor feasible to totally evacuate a hospital during a fire incident/disaster. Evacuation plan of a major hospital must be divided into sub plan of different blocks depending on the situation.

## **1.0 Summing Up**

Smoke is the biggest killer in any fire. Most lives in fire incidents are also lost due to poor visibility and inhalation of smoke and other poisonous gases emitted during fire. The well designed means of escape plays most critical role in saving lives of occupants of hospitals. The escape routes must be planned in such a manner that these are not locked or blocked and also designed to remain smoke free. Thus, appropriate fire fighting

system at local level and smoke management are the key to save lives in a hospital. To prevent hospital fires stakeholders including hospital administration, architect, HVAC(heating, ventilation, and air conditioning)manager(s) not only need to discuss for necessary fire safety requirements but also implement such measures in hospitals.

## 2.0 References

1. National Disaster Management Authority, (2016), National Disaster Management Guidelines: Hospital Safety;
2. Bureau of Indian Standards, NBC, (2016), *National Building Code*;
3. World Health Organization - Western Pacific Regional Office, Hospitals Should be Safe from Disasters - Reduce Risk, Protect Health Facilities, Save Lives;
4. World Health Organization,( 2010), Safe Hospitals in Emergencies and Disasters - Structural, Non-structural and Functional Indicators,
5. <https://in.news.yahoo.com/esic-kamgar-hospital-fire-mumbai-125116144.html>
6. <https://www.thehansindia.com/posts/index/Telangana/2017-10-17/Hanamkonda-hospital-fire-claims-two-lives/333665>
7. <https://timesofindia.indiatimes.com/city/indore/47-babies-saved-from-my-hospital-fire/articleshow/61775957.cms>
8. <http://www.beyondcarlton.org/fire-tragedy-sum-hospital-bhubaneswar/>
9. <https://www.hindustantimes.com/india-news/bengal-2-feared-dead-after-fire-breaks-out-in-murshidabad-hospital/story-FpmyMuta2Xgve6PR5RAIDL.html>
10. <https://www.patrika.com/bikaner-news/fire-in-the-office-of-pbm-hospital-1876694/>
11. <https://timesofindia.indiatimes.com/City/Cuttack/Fire-at-Cuttacks-Sishu-Bhawan/articleshow/49968962.cms>
12. <https://www.ndtv.com/india-news/kolkata-89-killed-in-amri-hospital-fire-six-board-members-arrested-566913>
13. <https://www.patrika.com/indore-news/fire-accident-in-my-hospital-child-care-unit-indore-2034282/>
14. [https://en.wikipedia.org/wiki/AMRI\\_Hospitals](https://en.wikipedia.org/wiki/AMRI_Hospitals)
15. <http://www.thehindu.com/todays-paper/tp-national/tp-telangana/fire-safety-measures-in-hospitals-to-be-reviewed/article19874525.ece>
16. <https://timesofindia.indiatimes.com/city/indore/47-babies-saved-from-my-hospital-fire/articleshow/61775957.cms>  
Personal discussion with Shri R. C. Sharma, Former Chief, Delhi Fire Services about fire disaster risk mitigation in hospitals (during the training programme on hospital disaster management plan organized by the Institute)



Resilient India : Disaster free India

**We welcome comments / responses / articles from readers of our Newsletter**

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