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# AAPDA SAMVAAD



## BIMSTEC DMEx 2017



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### Training Programme on CBRN emergencies

NDMA conducted a five-day training programme on CBRN (Chemical, Biological, Radiological and Nuclear) emergencies with an aim to improve the preparedness of Parliament House Complex (PHC) security staff to respond to threats emerging from the use of CBRN material. The training programme, which began on October 23, 2017, trained a batch of 40 PHC security personnel.

This is the 18th in a series of training programmes conducted by NDMA for security personnel over the years. So far, more than 800 security staff have been trained to handle CBRN emergencies.

### Workshop on application of UAVs

NDMA conducted a one-day national-level brainstorming session on "Application of Unmanned Aerial Vehicles (UAVs) in Disaster Management" on November 7, 2017. The event aimed to build and improve the capacity of



stakeholders to use UAVs and related technologies for better disaster preparedness and response.

UAVs can provide high-resolution, real-time images of even the inaccessible locations. These images can then be used to produce accurate hazard maps that can aid the planning of prevention and mitigation measures. In a post-disaster situation, UAVs can be used to map the affected areas in high resolution within a short time, which, in turn, can aid swift and efficient response.

NDMA officials and experts from educational institutions and stakeholder organisations attended the event. Representatives of many State Disaster Management Authorities (SDMAs) also participated in the brainstorming session.

### India Disaster Response Summit

NDMA and Facebook jointly organised the India Disaster Response Summit on November 9, 2017. The event was inaugurated by Shri Kiren Rijiju, MoS, Home Affairs. This event discussed as to how can we best leverage social media platforms to 'prepare, respond and recover' for, during and after



a disaster.

Calling it a great example of execution on Prime Minister Narendra Modi's ten-point agenda on Disaster Management, Shri Rijiju also invited other technology companies to create tailored solutions for disaster-related challenges.

Facebook will now share its disaster maps, developed using aggregated, de-identified data, with NDMA. These maps can aid swift disaster response by providing real-time, actionable information.

### TOT for Sendai Framework

Shri Kiren Rijiju, Union Minister of State for Home Affairs, inaugurated the first national-level training of trainers programme to sensitise various Central Ministries and Departments on utilisation of Sendai Monitor for developing action plans for Disaster Risk Reduction (DRR) in New Delhi on December 18, 2017.

NDMA organised the three-day programme in



collaboration with the United Nations Office for Disaster Risk Reduction-Global Education and Training Institute (UNISDR-GETI).

Similar training programmes for State Government officials will also be held subsequently.

Senior officials of NDMA and UNISDR, and participants from nodal Ministries, National Institute of Disaster Management (NIDM), National Disaster Response Force (NDRF), India Meteorological Department (IMD) and Central

Water Commission (CWC), among others, attended the programme.

### Earthquake ME in Haryana

NDMA in collaboration with the Govt. of Haryana conducted a State-level Mock Exercise on earthquake preparedness on December 21, 2017. The exercise that was held simultaneously in all districts of the State will help participating agencies and stakeholders in evaluating the effectiveness of their disaster response plans "Such exercises play a vital role in enhancing preparedness and response, especially for earthquakes as they strike without warning," said Lt. Gen. N. C. Marwah (Retd.), Member, NDMA, who steered the entire exercise.

This was the first State-level Mock Exercise on earthquake covering all districts of the State. Chief



Minister of Haryana, Shri M. L. Khattar, Capt. Abhimanyu, Revenue & Disaster Management Minister and senior functionaries of the State also participated in the exercise.

The mock exercise was part of a three-day event which began with a Co-ordination Conference on December 19, 2017 followed by a Table-top Exercise on December 20, 2017.

The exercise is significant as Haryana falls in the seismic zone IV, III, & II. Moreover, tremors have been felt in the State whenever there is an earthquake in the Himalayan foothills due to its proximity to the hill States.

### Training programme for Airport Emergency Handlers

NDMA conducted a five-day training programme from 18-23 December, 2017 at the Netaji Subash Chandra Bose International Airport in



Kolkata to enhance the preparedness of Airport Emergency Handlers to respond to CBRN emergencies. The training programme was conducted in collaboration with the Airport Authority of India (AAI) and Institute of Nuclear Medicine & Allied Sciences (INMAS).

A total of 200 personnel were trained on various aspects of CBRN emergencies. This includes sensitization of 150 working level staff in a half day module.

This is the second in a series of such training programmes that have been planned for various airports across the country. The first training programme was held at the Chennai airport.

### Training on Landslide Risk Mitigation

NDMA conducted a one-day capacity building and training programme on 'Landslide Risk Mitigation and Detailed Project Report (DPR) Preparation' for landslide-prone States for two different batches on December 19 and 20, 2017.

The programme brought together key groups, including geo-technical engineers, civil engineers, geologists, disaster managers, etc., from States which work towards developing, adopting, implementing and enforcing mitigation measures in their concerned States.

Representatives from Assam, Meghalaya, Mizoram, Manipur, Himachal Pradesh, Maharashtra, Uttarakhand and Tamil Nadu participated in the programme on Day 1 (December 19, 2017). On Day 2 ((December 20, 2017), the following States participated in the training: Arunachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Nagaland, Tripura, West Bengal and Maharashtra.

Landslides affect at least 15 per cent of India's landmass and incur huge economic losses annually. Landslide mitigation involves awareness, education, preparedness, prediction and timely warning systems to minimise the adverse effects of a landslide. •

# BIMSTEC DMEx 2017



Natural hazards transcend national boundaries. So do disasters. This is even truer for nations which share common geological formations and river basins. One such group of nations is the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) comprising Bangladesh, Bhutan, India, Nepal, Sri Lanka Myanmar and Thailand.

The region is home to about 1.5 billion people which is roughly around 22 per cent of the global population. It has a combined gross domestic product (GDP) of US\$ 2.7 trillion. As the region is exposed to a variety of hazards, it is imperative that these countries come together to reduce their disaster risks.

They did come together for the first annual



BIMSTEC disaster management exercise in October 2017. The four-day exercise was conducted by the National Disaster Response Force (NDRF) as the lead agency from October 10-13, 2017 in Delhi and the National Capital Region (NCR).

Inaugurating the exercise, Union Home Minister Shri Rajnath Singh said that while frequency and intensity of extreme weather events is likely to rise due to climate change, losses can be reduced by making our communities, our towns and villages, and our economic activities resilient.

On Day 2, a simulated earthquake measuring 7.8 on the Richter Scale in the NCR razed thousands of buildings and trapped hundreds of thousands inside the debris. Search and rescue operations seemed to be a daunting task. In this hour of need, other BIMSTEC nations sent their teams to help carry out search and rescue operations. Various hi-tech equipment, trained canines and professional capability of the responders helped trace the trapped victims and rescue them.

The Collapsed Structure Search & Rescue exercise was conducted at NTH Complex, Kamla Nehru Nagar, Ghaziabad. A Custom Check Post, Reception & Departure Centre, Multi Nation Coordination Centre, On-Site Operation



Coordination Centre, Command Post, Communication Centre, Emergency Operation Centre (EOC), Community Centre, Base Medical Station & Rehabilitation Centre were established as per the International Search & Rescue Advisory Group (INSARAG) guidelines for the exercise.

Incessant rains, a highly flooded river Yamuna at the Yamuna Barrage in Wazirabad, Delhi, and a large number of people stranded in the flood-affected areas was painted as the disaster scenario on Day 3. A large number of dummy structures, including multi-storied buildings, were erected in the simulated flooded localities with marooned people.

Rescue teams carried out highly synchronized Search and Rescue operations. A helicopter was also used for demonstrating the airborne rescue of the stranded people as well as exhibiting the special skill of hovering and winching of the victims by rescuers.



Various flood rescue techniques and use of various improvised rafts made by using locally available resources for evacuation during floods was also demonstrated during this exercise.

At the debriefing and 'After Action Review' (AAR), conducted on the last day of the exercise, lessons learnt which would assist the countries to augment disaster response and coordination were discussed.

Addressing the participants at the Valedictory Session, Minister of State (Independent Charge) of the Ministry of Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances & Pensions, Atomic Energy and Space, Dr Jitendra Singh emphasized upon the need for better coordination, cooperation and sharing of best practices for effective disaster management in the region." As he rightly pointed out, forums like this are opportunities to share and learn from each other's experiences. •



# EAST COAST TSUNAMI MOCK EXERCISE

One of the worst disasters in recent history of Southeast Asia took place on December 26, 2004. The 9.1 magnitude earthquake that struck the Indian Ocean and the resultant Tsunami waves killed hundreds of thousands, rendered many homeless and destroyed property worth crores. India too was badly affected. It brought forth the realisation that tsunamis, though rare, are highly devastating and require rapid response when they occur as the reaction time is very limited.

Ever since, the country has been taking steps to improve its Tsunami preparedness. The efficacy of such measures became evident on November 24, 2017 when an 9.2 magnitude earthquake struck the Andaman & Nicobar Islands at about 9:30 in the morning. Within moments, the Indian Tsunami Early Warning Centre (ITEWC) issued a massive tsunami threat notification for the entire eastern

coast through e-mails, fax and SMSes. It also put out detailed bulletins on its website. The entire government machinery was mobilised within the notified two-hour reaction time.

In less than half an hour, State Emergency Operation Centres (SEOCs) were activated in West Bengal, Odisha, Andhra Pradesh, Tamil Nadu and Puducherry. District administrations were put on high alert in all 35 coastal districts. Public warnings were sent out to the communities; vulnerable areas were evacuated.

Post the simulated landfall of the tsunami, damage assessment was carried out at the SEOCs on the basis of information received from affected districts and first-hand information by air sorties, both fixed wings and helicopters. This helped the administration in prioritising the response and dispatching the appropriate task forces to the affected sites.



While the alacrity and response of the state machinery was real, the tsunami was, thankfully, not. It was part of a mega mock exercise conducted to assess and improve the early warning and response mechanism to mitigate the impact of a high-intensity tsunami.

Conducted by the NDMA and the Indian National Centre for Ocean Information Services (INCOIS), this mock exercise was to assess and improve the early warning and response mechanism of our agencies to mitigate the impact of a high-intensity tsunami. "This is the first-of-its-kind mock exercise involving the entire Eastern coast of the country. This exercise is significant as our entire Eastern coast is susceptible to both cyclones and tsunamis," said Lt. Gen. N. C. Marwah (Retd.), Member, NDMA. He added that it will help improve coordination among participating agencies, which plays a crucial role during an actual disaster situation.

This exercise was also aimed at strengthening regional mutual cooperation on disaster risk



reduction and preparedness amongst Pacific Island Countries. Representatives from 11 Pacific Island countries observed the mock exercise for key lessons and best practices to be adopted while preparing for and responding to a disaster situation. "This exercise has taught us the importance of coordination among various agencies in ensuring that the people are brought to safety," said Melle from Fiji islands.

Post-exercise analyses were conducted with all the participating districts from the State headquarters through videoconferencing. Challenges, gaps and ways to improve the response mechanism were discussed.

NDMA has conducted more than 600 mock exercises on various disasters throughout the country to improve preparedness and response mechanisms. •



## Dr. Mrutyunjay Mohapatra on Cyclones

**The Cyclone Ockhi, which struck the coast of India in November 2017, has generated a lot of curiosity. To know more about cyclones, Aapda Samvaad spoke with Dr. Mrutyunjay Mohapatra, who is the Head of IMD's (India Meteorological Department) Cyclone Warning Division.**



**Q. What is a cyclone? What is the difference between a tropical cyclone and an extra-tropical cyclone? Is a cyclone any different from a hurricane and a typhoon?**

A. A cyclone is an extreme weather phenomenon caused by disturbances around a low pressure area over water bodies. Winds spiral around the centre of this low pressure area in a snake-like coil and gather speed. These winds rotate anti-clockwise in the northern hemisphere and clockwise in the southern hemisphere. When it develops over tropical waters, it is known as a tropical cyclone. Similarly, when it is formed over extra-tropical waters, it is known as an extra-tropical cyclone.

Tropical cyclones that are formed over the Atlantic Ocean are called hurricanes; those formed over the Indian Ocean are called cyclones; and those which are formed over the Pacific Ocean are called typhoons.

**Q. What is the structure of a tropical cyclone?**

A. A fully developed tropical cyclone has a cloud-free central region of calm winds, known as the “eye” of the cyclone. This eye has a diameter varying from 10 to 50 kilometres. Surrounding the eye is the 'wall cloud



region', characterised by very strong winds, strong updrafts and torrential rains, which has a width of anything from 10 to 150 kilometres. The winds over this region rotate around the centre and resemble the 'coils of a snake'. As we move away from this core, the associated wind speed gradually decreases and is associated with overcast skies and an occasional squall. There may be one or more spiral bands in a cyclone with stronger winds and causing a heavy rainfall. The vertical and the horizontal extent of a cyclone is about 15-16 km (top of the tropical tropopause) and 100-1000 km, respectively.

**Q. How long do they last?**

A. The average life period of a tropical cyclone is about seven days. However, they are relatively shortlived over the north Indian Ocean with a life period of about 5-6 days. They have a longer life period over the northwest Pacific Ocean.

**Q. How many cyclones develop over the Indian region annually? Why do more cyclones occur over the Bay of Bengal than over the Arabian Sea?**

A. At an average, about five tropical cyclones are formed in the north Indian Ocean (the Bay of Bengal and the Arabian Sea) annually. Of these, 2-3 formations graduate into severe cyclonic storms.

The frequency of cyclones is more in the Bay of Bengal than in the Arabian Sea - the ratio being 4:1. This is mainly because the Bay of Bengal is warmer than the Arabian Sea.

**Q. Is there a cyclone season in India? Which parts of the country are most vulnerable to cyclones?**

A. There are two cyclone seasons in the north Indian Ocean - pre-monsoon season (April-June) and post-monsoon season (October-December). The months of May-June and October-November are known to produce cyclones of severe intensity. Tropical cyclones that develop during the monsoon months (July to September) are generally not intense.

The eastern coast of the country is more vulnerable than the western coast. Odisha and Andhra Pradesh are the most vulnerable followed by West Bengal and Tamil Nadu and Puducherry. On the western coast, Gujarat is most vulnerable.

**Q. Can cyclones be predicted?**

A. Yes, cyclones can be predicted. A mix of various techniques and equipment (including satellite, radar, automated weather station and

cyclone prediction models etc.) is used to track the formation, development, trajectory and intensity of the tropical cyclones in the north Indian Ocean.

**Q. What mechanisms are used to deliver Cyclone warnings to the common man?**

A. Cyclone warnings are disseminated using various forms of communication such as telephone, fax, e-mail, Short Message Services (SMSes), Global Telecommunication System (GTS), IMD website, All India Radio (AIR) and Television, among others. For the common man, these warnings/advisories are disseminated through local newspapers, community radio stations, All India Radio, Doordarshan, private radio as well as TV channels.

Warnings are also put up on IMD's dedicated website for cyclones - [www.rsmcnewdelhi.imd.gov.in](http://www.rsmcnewdelhi.imd.gov.in). Warning SMSes



are also sent on mobile numbers registered by public on this website. Similar messages are also sent to fishermen and farmers through Indian National Centre for Ocean Information Services (INCOIS) and Kisan Portal networks respectively.

Yet another way for circulating warning messages is IVRS (Interactive Voice Response system) wherein requests for weather information and forecasts on a toll free number are automatically answered by the system.

**Q. Does climate change play a role in the frequency/intensity and impact of cyclones?**

A. Yes, climate change does have an impact on the frequency, intensity and impact of cyclones. However, its impact is not uniform across all the ocean basins. Over the Indian Ocean, both the frequency and intensity of cyclones have been showing a decreasing trend, though there is an increasing trend in sea surface temperature. •

# Stay Safe During a Cold Wave



## Follow these simple Do's

- Have adequate winter clothing
- Listen to radio, watch TV, read newspapers for weather updates
- Have emergency supplies ready
- Drink hot drinks regularly
- Store adequate water as pipes may freeze
- Prefer mittens over gloves
- Stay indoors as much as possible
- Take care of elderly and children



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