



Webinar Report

on

Cyclone Impact on Infrastructure

Date: May, 23 2022 | Time: 03:00 PM to 05:00 PM



Organized by:

National Institute of Disaster Management

(Ministry of Home Affairs, Govt. of India)

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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 resignation 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 the 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. The Institute's vision is to create a Disaster Resilient India by building the capacity for disaster prevention and preparedness at all levels.

Concept Note

“Cyclone Impact on Infrastructure”

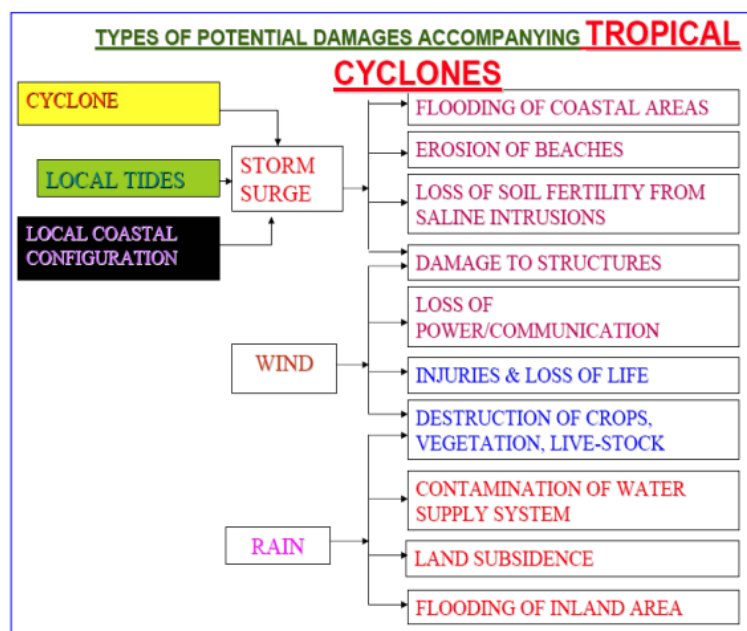
Date: 23rd May 2022 (Monday)

Monitoring and management methods for Cyclones: Study of Asani:

A "Cyclonic Storm" or a "Cyclone" is an intense vortex or a whirl in the atmosphere with very strong winds circulating around it in an anti-clockwise direction in the Northern Hemisphere and in a clockwise direction in the Southern Hemisphere.

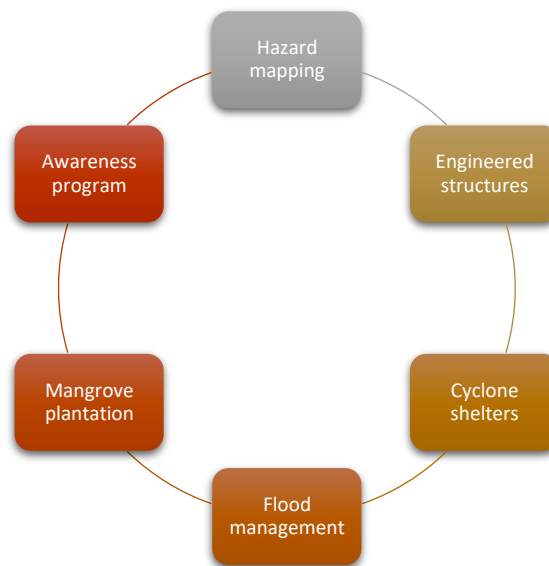
Hazard due to cyclone Disturbed weather occurs generally in association with low-pressure systems that are seen over different parts of the globe.

Types of Potential Damages accompanying Tropical Cyclones



Source: <https://mausam.imd.gov.in/>

Cyclone Disaster Management in India

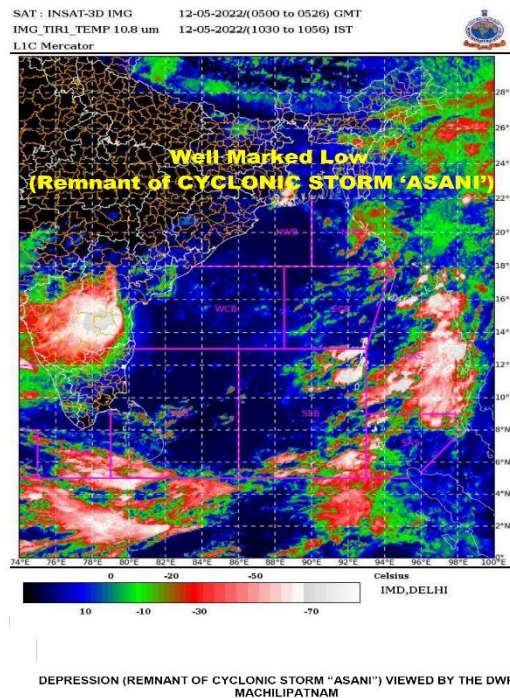


Monitoring and Predictions:

The monitoring and prediction of the location and intensity of the system are mainly based on (a) **Synoptic**, (b) **satellite** and (c) **radar observations**. When the system is far out at sea, satellite observation is given more weightage. When it comes within radar range, radar is given higher weightage followed by satellite and synoptic observations. When the system is close to the coast, the synoptic observation gets maximum weightage followed by Radar and satellite.

Asani Cyclone 2022

Asani cyclone is formed over the Southeastern part of the Bay of Bengal. It is an intensified cyclone storm that is likely to hit Orissa and Andhra Pradesh as per the Indian meteorological department (IMD). On Sunday evening the cyclone Asani intensified into a severe cyclonic storm that moved Northwestwards in the direction of Andhra Pradesh and the Odisha coast.



This is a guidance Bulletin for the WMO/ESCAP Panel Member countries. Please visit respective National websites for Country specific Bulletins

Cyclonic storm Asani made landfall between Machilipatnam and Narsapuram in Andhra Pradesh late on Wednesday night after weakening into a deep depression, the State Disaster Management Authority said.

Programme Schedule

Programme Schedule		
Time	Topics	Panelists
Date: 23.05.2022		
Moderator: Sumalya Ray, Resilient Infrastructure Division, NIDM		
03:00 - 03:15 PM	Welcome and context setting	Dr. Garima Aggarwal Sr. Consultant Resilient Infrastructure Division, NIDM, GoI /
03:15 - 03:30 PM	Special Lecture on	Prof. Chandan Ghosh Head Resilient Infrastructure Division, NIDM, GoI
03:30 - 04:00 PM	Overview of Tropical Cyclone and Its Impact: Some Recent Case Studies	Mr. Shreyash Dwivedi Jr. Consultant Resilient Infrastructure Division, NIDM, GoI
04:00 - 04:05 PM	Q & A Session	With Speaker
04:05 - 04:40 PM	Cyclone Management in Odisha	Shri. Padmanav Behera Joint Special Relief Commissioner Odisha
04:40 - 04:45 PM	Q & A Session	With Speaker
04:45 - 05:00 PM	Conclusion and Way forward	Dr. Garima Aggarwal Sr. Consultant Resilient Infrastructure Division, NIDM, GoI / Mr. Shaad Warsi Young Professional, NIDM, GoI

Flyer



WEBINAR ON

Cyclone Impact on Infrastructure

23rd May 2022 | Time: 03:00 pm to 05:00 pm

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Executive Director
NIDM, MHA, Govt of India

CONVENOR



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Senior Consultant
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NIDM, MHA, Govt of India

EXPERT PANELISTS



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NIDM, MHA, Govt of India



Shri. Padmanav Behera
Joint Special Relief Commissioner
Odisha



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RI Division, NIDM, MHA, Govt of India

MODERATOR



Mr. Sumalya Ray
Intern
RI Division, NIDM, MHA, Govt of India

Registration link: <https://training.nidm.gov.in/>

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Wear your Mask Properly

Follow Proper Hand Hygiene

Maintain Social Distancing

Get Vaccinated

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[yt](#) / nidmindia

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Inaugural Session

The webinar started with the Context Settings notes of **Dr. Garima Aggarwal, Senior Consultant, NIDM**. She said that this topic is most relevant considering the south-west monsoon season as this period has most probability of the storms and torrential rains in the coastal region especially in the states of Orissa, West Bengal and western parts of India, so the states have to make the plan to deal with it known as Response towards the cyclonic condition.



She also mentioned the Cyclone Tauktae which developed in the Arabian sea and badly affected Gujarat, Maharashtra etc.

She also talked about the cyclone Gulab which affected the coasts of south Orissa and north Andhra Pradesh. This year's cyclone Asani is the first cyclonic storm of the season.

So, the frequency of occurrence of the cyclones is increasing every year and she also mentioned in the global assessment report 2022 that disasters are increasing as climate change is making rapid changes.

She stressed on inclusion of DRR and CCA measures in infrastructure development projects for reducing the impacts of future cyclones on newly developed infrastructure and building resilient infrastructure.

She concluded that these disasters can be reduced if timely assistance and warning are given by the concerned authorities.

Key Speakers

The panellists of the session were:

1. Mr. Shreyash Dwivedi, Jr. Consultant, Resilient Infrastructure Division, NIDM

Mr. Shreyash Dwivedi gave his presentation on Overview of Tropical Cyclone and Its Impact: Some Recent Case Studies. He started by letting us know the origin of tropical cyclones with the help of a pictorial presentation. He discussed the different wind movements, Coriolis force and distribution of different pressure belts on the globe with the help of different animations.



He then briefly shared the concept of the formation of tropical cyclones. The structure and shape of tropical cyclones were also discussed.

He also talked about Indian cyclones and shared some real figures that every year around 10-12 cyclones hit India at the Bay of Bengal and the Arabian coast with a ratio of 4:1.

He concluded his presentation by telling us Do's and Don'ts during the cyclone.

2. Shri. Padmanav Behera, Joint Special Relief Commissioner, Odisha

Shri. Padmanav Behera gave his presentation on Cyclone Management in Odisha. He started his presentation by letting us know that the east coast of India is one of the most cyclone-prone areas in the world, Odisha is twice as vulnerable as compared to the other eastern states and Odisha faced the most devastating cyclone in 1999 which killed over 10,000.



He then told that Odisha has been able to protect its people. That's the most important part. In terms of bringing down the number of lives lost and the people getting affected, the state has done well. Odisha took a conscious decision and gradually built upon its capacity, particularly at the community level. It has successfully started community-level warnings, built multi-purpose cyclone shelters under National Cyclone Risk Mitigation Project and built an Early Warning Dissemination System with last-mile connectivity. The capacity to deal with natural disasters has increased tremendously at the community level.

He then shared that learning from the 1999 cyclone has led to the construction of over 1000 cyclone shelters and these shelters are equipped with search and rescue, first aid medical attention, and providing cyclone warnings systems.

He concluded by saying that Odisha needs to protect its infrastructure from getting hit by future disasters and for this, the state has raised Odisha Disaster Rapid Action Force (ODRAF) which comprises highly trained personnel with multi-disaster tackling capabilities.

3. Prof. Chandan Ghosh, Head, Resilient Infrastructure Division, NIDM

Prof. Chandan Ghosh gave a presentation on cyclone resilient infrastructure.

He started his presentation by saying that it is a common belief that heavier buildings, such as those made of concrete blocks, are safer. While it is true that well-built and properly-engineered houses are safe than houses made up of woods and other materials.



He stresses the ways by which the building resilience can be increased and destruction can be reduced such as strengthening the shelters against the winds with braces on the earthside, planting trees a safe distance from the house to break the wind forces, building the house on

stilts or on the highest location of the plot, maintaining the important parts of the shelter regularly and re-tightening and repairing the shelter before the monsoon starts.

He then talked about the Fani-2019 effect at Biju Patnaik International Airport at Bhubaneswar. There was damage to the roof of the airport as well and the trees were affected too. The whole structure of the airport was damaged.

So, to avoid such incidents concrete structures to be made and regularly renovation is needed.

He then showed the coastal area where trees are planted in a pattern near the houses on the coast. He said to avoid the incident these trees should not be placed too near to the houses causing more distress to the building.

So, a systematic study is needed in the field to minimise such incidents.

He pictorially showed the protective functions of mangrove and coastal vegetation such as trapping effect, escaping effect, soft-landing effect and energy dissipation effect.

He concluded his presentation by telling the extreme weather associated with the south Asian weather system and showing different wind speeds on the Saffir-Simpson scale.

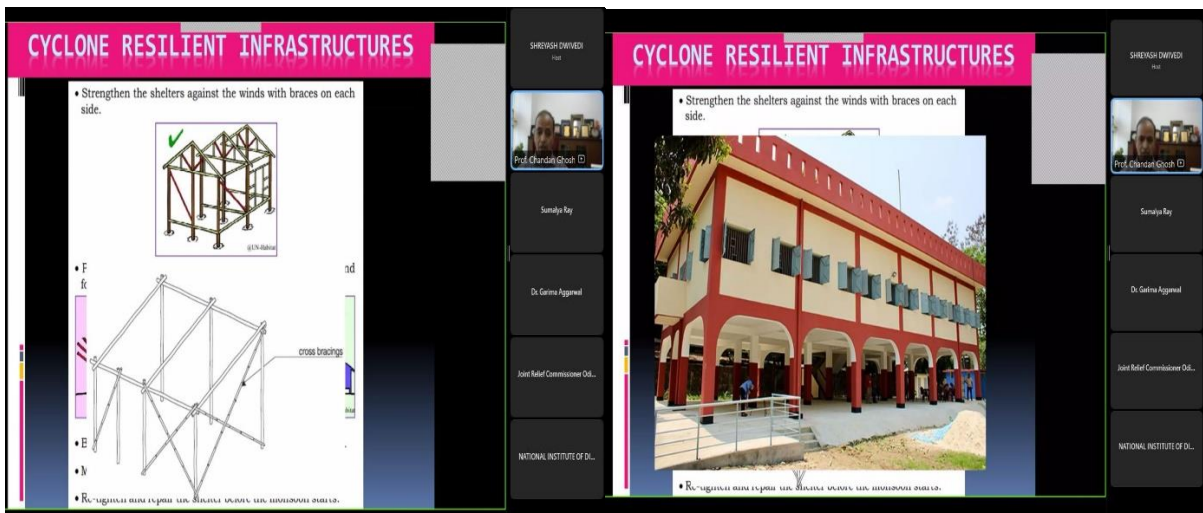
Closing Remarks

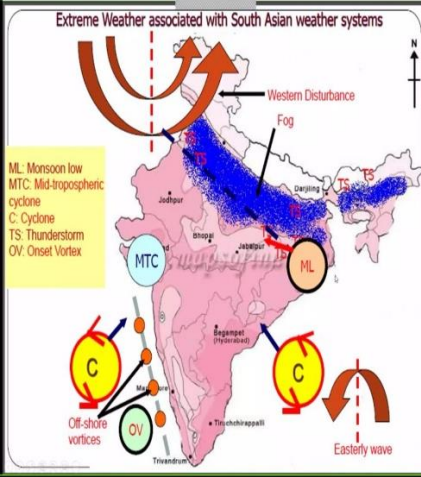
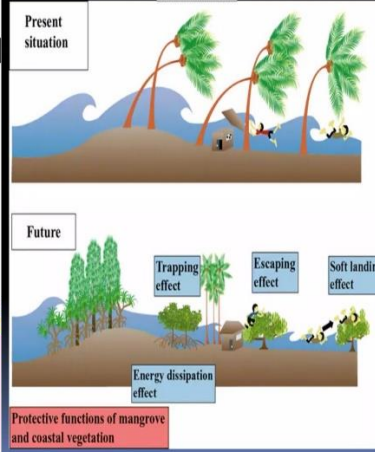
Dr. Garima Aggarwal, Senior Consultant, Resilient Infrastructure Division, NIDM has given the Closing Remarks and summarized the webinar. She further discussed how disasters and hazards vary from place to place and from one community to another. She has also explained the three conditions of storms, winds, and floods.

Key Takeaways

- Wind speed plays an important role in the formation of storms. It is, therefore, important to measure wind speed. The instrument that measures the wind speed is called an anemometer.
- Self-help is the best help. Therefore, it is better to plan in advance and be ready with defence against any approaching cyclone.
- States need to protect their infrastructure from getting hit by future disasters.
- Do not take shelter under an isolated tree. If you are in a forest take shelter under a small tree. Do not lie on the ground.
- Do not take shelter under an umbrella with a metallic end.
- Do not sit near a window. Open garages, storage sheds, and metal sheds are not safe places to take shelter.
- If you are the in water, get out and go inside a building.

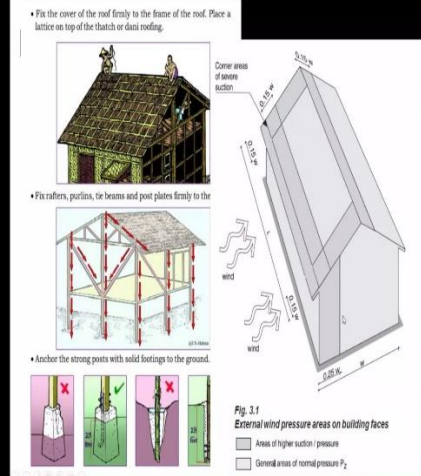
Photographs





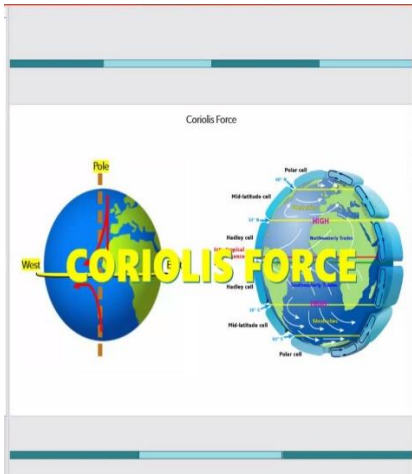
Saffir-Simpson Tropical Cyclone Intensity Scale

Category	Sustained winds (3-min average)	km/h
Five	>120 kt >222 km/h	≥ 252 km/h
Four	Very Severe Cyclonic Storm	118–221 km/h 209–251 km/h
Three	Severe Cyclonic Storm	48–63 kt 88–117 km/h
Two	Cyclonic Storm	34–47 kt 62–87 km/h
One	Deep Depression	28–33 kt 52–61 km/h
	Depression	≤27 kt ≤51 km/h



Aerofoil Effect of Wind

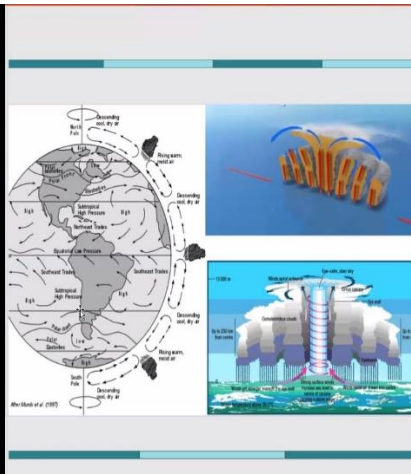
Wind Speed m/sec	Typical Movement
✓ 5-10	Loose aluminium sheets fly
10-15	Loose galvanised iron sheets fly
15-20	Loose fibre cement sheets fly
25-30	Loose concrete and clay tiles fly
30-35	Roof sheets fixed to battens fly
35-40	Small aircrafts take off speed
40-45	Roof tiles nailed to battens fly
45-50 ✓	Garden walls blow over
50-55	Unreinforced brick walls fail
55-60	Major damage from flying debris
60-65	75 mm thick concrete slabs fly
65-70	100 mm thick concrete slabs fly
70-75	120 mm thick concrete slabs fly
75-80	150 mm thick concrete slabs fly



SHREYASH DWIVEDI Host

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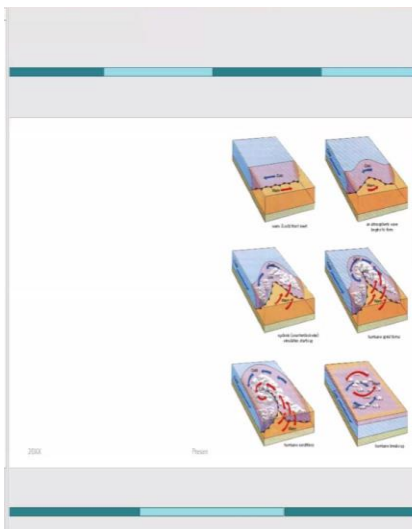
Sumalya Ray



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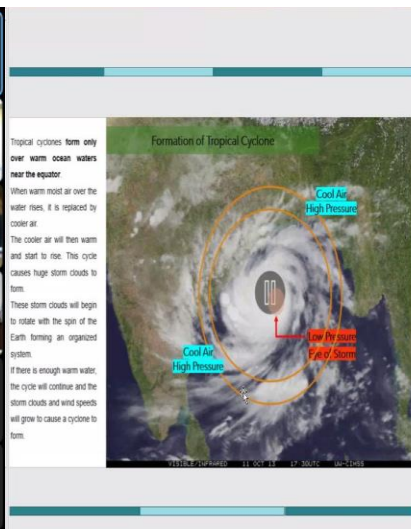
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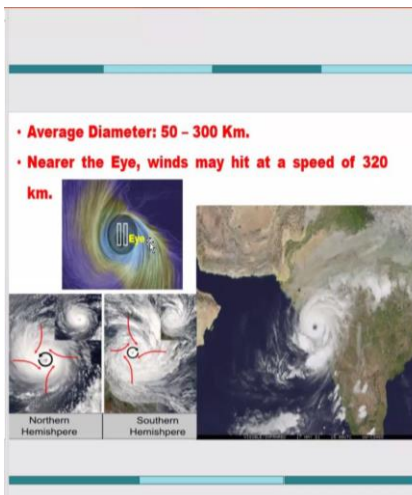
Sumalya Ray



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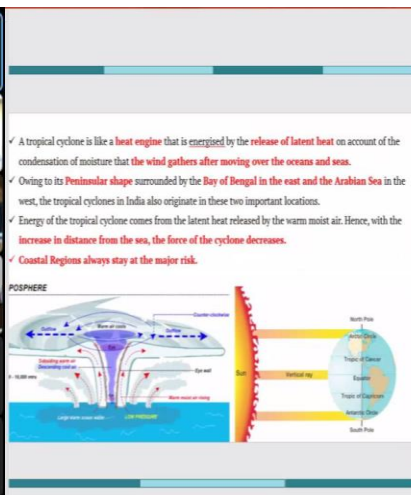
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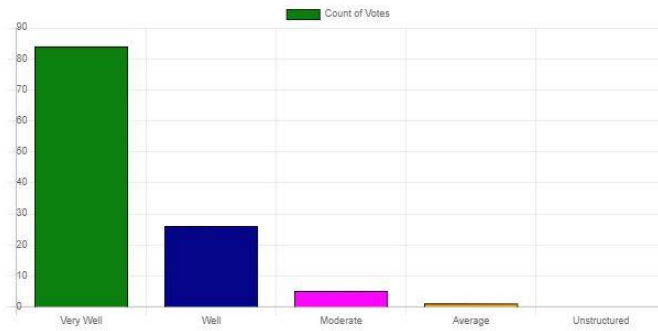
175	Ravindra Reddy M	ravindraoudepts@gmail.com
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212	Sudhanshu Singh	singhs1183@gmail.com
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239	Vikram Das	vikramdas9476068223@gmail.com
240	Virendrakumar Thakkar	virendrakumarthakkar@gmail.com
241	Visha Lakshmi Srikakolapu	visha.prasad@gmail.com
242	Vishal Verma	vermavishal1908@gmail.com
243	Vismaya K G	vismayakgkavungal@gmail.com
244	Vivek Tiwari	tvivek064@gmail.com
245	Waseem Ahmad Bhat	waseembhat1993@gmail.com

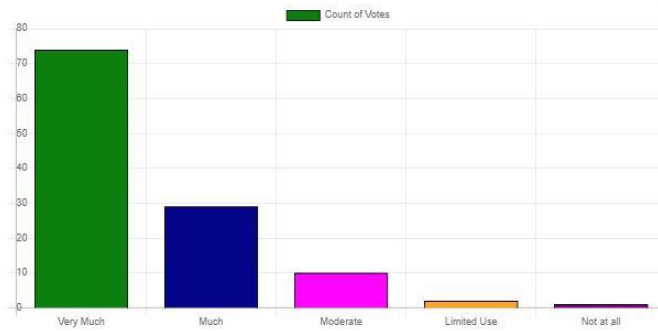
Feedback

Feedback Result

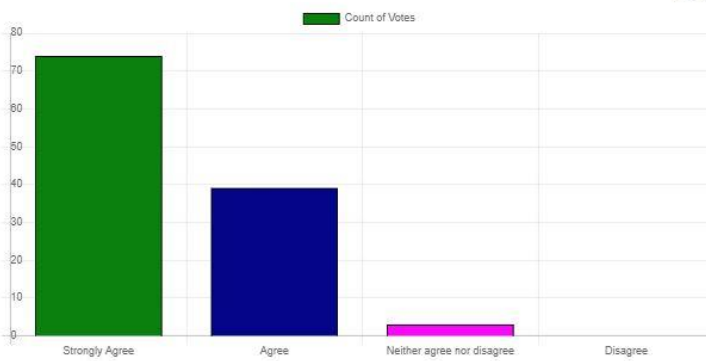
I think the structure and organization of the course fulfilled the objectives of the Training programme.



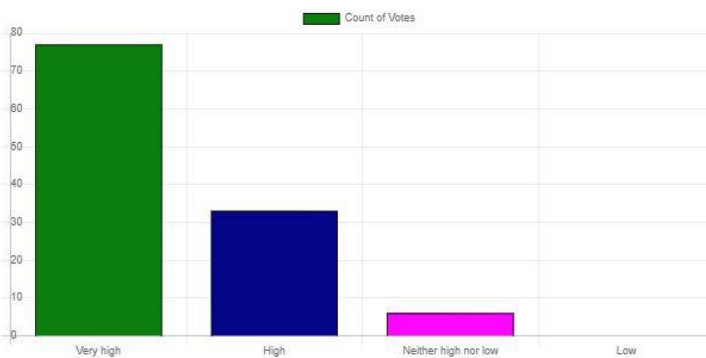
I feel this programme would be useful to me immediately in my job.



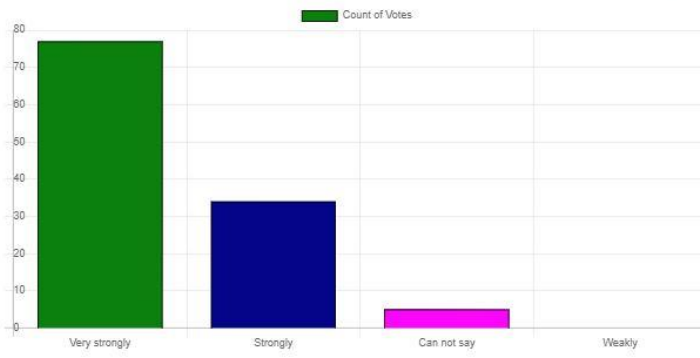
I believe this will help me in my future job related to Disaster management.



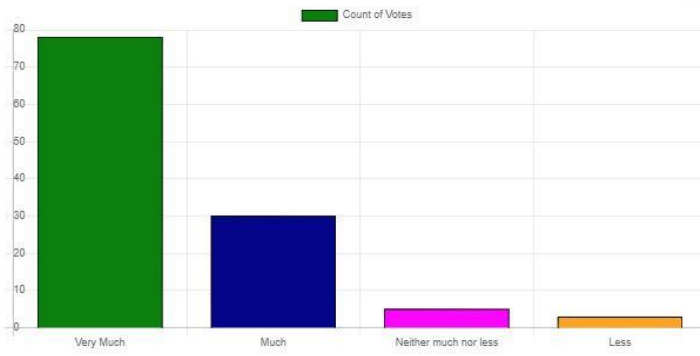
Practical orientation of the Training programme.



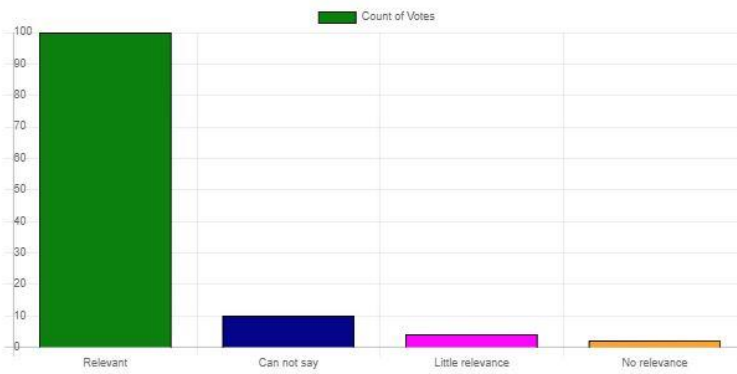
I feel this inspires me to take up assignments related to Disaster Management.



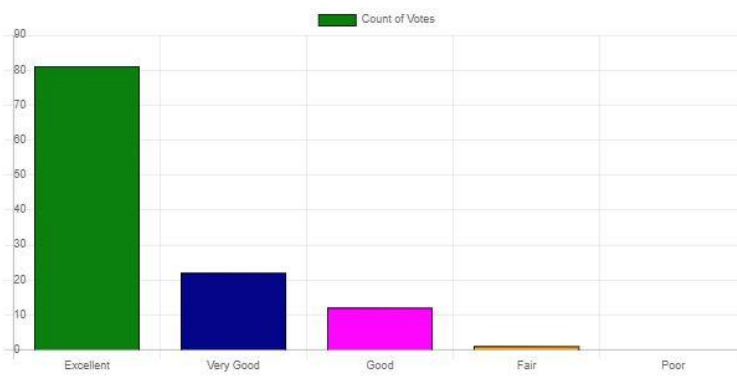
I have benefited from interaction with fellow participants in the course.



I found the course materials supplied to us to be



Your overall impression of the training programme.



Sample of Certificate

Sl. No.: /


सत्यमेव जयते


Resilient India - Disaster Free India

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

CERTIFICATE

This is to certify that

Participant Name

has participated in the webinar on "**Cyclone Impact on Infrastructures**" on **23 May 2022** organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India

 Prof. Chandan Ghosh Head, RI Division NIDM	 Dr. Garima Aggarwal Senior Consultant NIDM	 Taj Hassan, IPS Executive Director NIDM
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YouTube Link

<https://youtu.be/InvVyqBjKA8>