

Regional Training on Multi-Hazard Early Warning Services (MHEWS) Interoperability Implementation

New Delhi, 9-13 December 2024

INFORMATION NOTE FOR PARTICIPANTS

1. Venue of the Workshop

The Regional Training on Multi-Hazard Early Warning Services (MHEWS) Interoperability Implementation is scheduled to be held in New Delhi, India, from 9-13 December 2024. The training will be hosted by India Meteorological Department (IMD), in face-to-face modality, and supplemented with simultaneous online mode as necessary to allow remote participation. The venue of the meeting will be Arnav Hall, Prithvi Bhawan, Lodi Road, New Delhi-110003. This conference hall is located within the Ministry of Earth Sciences which is adjoining to IMD building. Complimentary wireless internet connection will be available in the meeting rooms for all participants.

The training will be conducted in English, and the training program will be made available on the WMO Community Platform webpage here:

<https://community.wmo.int/en/meetings/regional-training-mhews-interoperability-implementation-new-delhi-9-13-december-2024>

2. Local Organizing Committee (LOC)

For any queries regarding local arrangements for your participation in the training, please contact the Local Organizing Committee (LOC) at:

1. Ms. Monica Sharma, IMD

Mobile: +91 9990389494

E-mail: moniimd@gmail.com

2. Dr. D. R. Pattanaik, IMD

Mobile: +91 9868554029

E-mail: drpattanaik@gmail.com

3. Visa / Entry Requirements

Participants who are not exempted from visa (as mentioned below) are strongly advised to apply for a visa to the nearest Indian Embassies or Consulates accredited in the respected countries of residence and/or online through the following link:

<https://indianvisaonline.gov.in/>.

1. Afghanistan - Exempted only for Diplomatic passport holders
2. Bangladesh - Exempted for Diplomatic and Official passport holders
3. Bhutan - Exempted for All passport holders
4. Indonesia - Exempted for Diplomatic and Official passport holders
5. Maldives - Exempted for Diplomatic and Official passport holders
6. Myanmar - Exempted for Diplomatic and Official passport holders
7. Nepal - Exempted for All passport holders
8. Sri Lanka - Exempted for Diplomatic and Official passport holders

9. Thailand - Exempted for Diplomatic and Official passport holders
10. China - No exemption
11. Pakistan - No exemption

Kindly contact Indian Embassies or Consulates for more information. Participants may also avail Indian Visa plus services through "Official app Indian Visa Su-Swagatam" mobile App for 60 countries" as applicable and feasible.

Invitation Letter from IMD will also be issued to the participants for visa support.

4. Airport Transfer

IMD is generously providing airport transfer for all participants on request. Kindly send your itinerary to the LOC well in advance of your journey.

Taxi are also available at the airport in case of missing out the pick-up with fare approximately INR 650.00 (<https://www.delhairport.com/taxi.php>)

5. Currency

The official currency of India is rupee (currency code: INR). The exchange rate to US dollar is roughly at USD 1.0 = INR 83.64, subject to daily variations. The day-to-day exchange rates can be found at <https://in.investing.com/currencies/usd-inr>. Foreign currency may be exchanged at New Delhi International Airport upon arrival and in other banks located in New Delhi. There is also several foreign currency exchange offices located in New Delhi.

6. Hotel Accommodation

The following hotels are suggested for the participants for their accommodation during the meeting. These hotels are located nearby to the meeting venue.

Note: Participants may not need to book their rooms through hotels' websites. You can send your email (and/or WhatsApp) directly to the hotel's contact person with cc'd to <moniimd@gmail.com>. Please give reference of India Meteorological Department while writing email for room reservation.

<p>Option 1: Ambassador, New Delhi - IHCL SeleQtions Website: Ambassador, New Delhi Address: Sujan Singh Park, Subramania Bharti Marg, New Delhi, 110003, INDIA Contact: Phone: +91 11-66261000 Room Reservations: +91-11-64804425 or +91-11-68183700 Email: book.ambassador@seleqtionshotels.com Room Categories & Rates: Superior & Deluxe Room:</p>	<p>Option 2: Hotel Samrat • Website: Hotel Samrat • Address: 50 B, Kautilya Marg, Chanakyapuri, New Delhi, 110021, INDIA • Contact: o Phone: 011-26110606 o Reservations Extn: 2804, 2806 o Fax: 91-011-26887047 o Email: hotelsamrat1@yahoo.co.in Room Categories & Rates: • Executive Deluxe Room: o Single Occupancy: INR 10,500 per night o Double Occupancy: INR 11,500 per night</p>	<p>Option 3: Hotel Bamyán-The Boutique (Low Budget Hotel in Market area of Lajpatnagar, South Delhi) Contact Person: Mr Gurdeep Singh WhatsApp No: +91 9899655959 Email: reservation@bamyanhotel.in Special Room Rates Single Room Occupancy: @ INR 4000/- + 12% GST (Including Breakfast)</p>
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<p>Single Occupancy: INR 14,500 + taxes Double Occupancy: INR 15,500 + taxes Extra Bed: INR 1,500 + taxes</p> <p>Cancellation/No-Show Policy: No charges for cancellations 48 hours prior to arrival. One night charge if cancelled within 48 hours or in case of a no-show.</p> <p>Special Inclusions: Breakfast at Yellow Brick Road Use of fitness center Daily newspaper and Wi-Fi</p> <p>Check-In/Check-Out Policy: Check-In: 14:00 hrs Check-Out: 12:00 hrs (Early arrivals or late departures may incur additional charges. Can contact if needed.)</p>	<p>Booking Cancellation Policy:</p> <ul style="list-style-type: none"> • No cancellation charges if cancelled 72 hours before check-in. • One night's charge applies if cancelled within 72 hours. • Full charge if no cancellation is made within 72 hours. <p>Special Inclusions:</p> <ul style="list-style-type: none"> • Breakfast • Wi-Fi • 2 liters of bottled water daily <p>Payment Terms:</p> <ul style="list-style-type: none"> • 100% advance payment required. <p>Arrival & Check-Out Times:</p> <ul style="list-style-type: none"> • Arrival Time: 01:00 PM • Check-Out Time: 11:00 AM 	<p>Double Room Occupancy: @ INR 5000/- + 12% GST (Including Breakfast)</p> <p>Suite AC Room @ INR 9000/- (All inclusive) (Taxes+ Breakfast)</p> <p>Additional facilities: Complimentary breakfast, Wi-Fi, tea/coffee maker in room, mineral water etc. are available.</p>
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7. Life and Health Insurance

Life/major health insurance for each participant is necessary and is the responsibility of participant's institution or government. The Local Organizing Committee will neither assume any responsibility for life and major health insurance, nor for expenses related to medical treatment or accidents.

8. Climate of New Delhi in December

In New Delhi, Winter starts in November and peaks in January. Winters are very mild. Its climate in December is like:

Normal Minimum temperature	4.5 °C	40.1 °F
Normal Maximum temperature	27.3 °C	81.1 °F
Average Humidity	59 %	
Average Monthly Rainfall	8 mm	

9. Electricity

The standard voltage throughout India is normally 230 Volt and with a standard frequency of 50 Hz. Type D power plugs and sockets will be available at conference

venue as below. If you're coming from a country that does not use this type of sockets, you should bring an adapter.





Regional Training on Multi Hazard Early Warning Services (MHEWS) Interoperability Implementation (New Delhi, India, 9-13 December 2024)

Provisional Objective and Program

Training Objectives

Considering the Concept Note on Multi-Hazard Early Warning Services (MHEWS) Interoperable Environment (MIE) Framework (available as annex to Resolution 15 (EC-76)), the objective of this first Regional Training Workshop on MHEWS Interoperability Implementation is to train the National Meteorological and Hydrological Services (NMHSs) in South Asia on the interoperability and integration of early warning initiatives, programmes, and activities as feasible into a coordinated and sustainable, multi-hazard interoperable environment, to enhance the capacities of NMHSs including with support from the regional level collaboration and coordination. Participants will learn on how to develop a coordinated and sustainable, multi-hazard interoperable environment through:

- Sharing good practices
- improve regional collaboration (e.g. among regional and national centres for guidance product, data, training etc.)
- maximizing available resources (e.g., computing, IT and manpower etc.)
- developing synergized standard operating procedures
- strengthen national institutional coordination and arrangements for MHEWS (to ensure national governance and commitment)
- sharing of data and products (in standards and formats) compatible to various systems to contribute to MHEWS interoperability
- integrate various services into one package
- minimization of number of bulletins and development of consolidated bulletin as per user requirements

This will be achieved through series of lectures, practical sessions and demonstration of case studies on forecasting and early warning services (EWS) for various hydromet hazards (e.g., heavy rainfall, flash flood, thunderstorm, tropical cyclone, heat waves, fog etc.) and impact -based forecast and warning services (IBFWS) as well as sharing of knowledge and good practices on developing platforms to support implementation of MHEWS interoperable environment.

Day 1: Monday, 9 th December 2024		
09:00-09:30	Registration	All
09:30-10:30	Opening <ul style="list-style-type: none"> • Welcome Address by DG IMD, PR of India and 3rd Vice President of WMO • Address by WMO representative • Address by Secretary Ministry of Earth Sciences • Vote of thanks by Dr. D.R. Pattanaik • Group Photo 	Host (India) and WMO All
10:30-11:30	Coffee/ Tea Break	

	Technical Session 1: Understanding MHEWS Interoperable Environment (MIE)	
11:30-11:45	Concept Note on MHEWS Interoperable Environment Framework (as approved by EC through its Resolution 15 (EC-76))	Mr Ata HUSSAIN (WMO) (15 min)
11:45-12:45	Regional Guidance and Advisory Services in support of MHEWS <ul style="list-style-type: none"> Regional Severe Weather Forecasting support Tropical Cyclone Forecast support Flash Flood Forecast support Coastal Inundation Forecast support 	<ul style="list-style-type: none"> Dr. DR Pattanaik (India) Dr. AK Das (India) Shri Rahul Saxena (IMD) Dr PLN Murty (IMD) (15 min each)
12:45-13:30	Keynote Lecture on MHEWS Interoperability - Example of Heavy Rainfall Monitoring and Forecasting: Standard Operation Procedure	Dr M. Mohapatra
13:30-14:30	Lunch Break	
14:30-15:30	Good Practices on MHEWS Interoperability in Indonesia	Mr Achmad Rifani (BMKG)
15:30-16:30	Good Practices on MHEWS Interoperability in China	Mr Qingliang Zhou (CMA)
16:30-16:45	Coffee/ Tea Break	
	Technical Session 2: Country status on MHEWS Interoperability and Gap Analysis	
16:45-18:00	<p>Considering Concept Note on MIE, participants are requested to provide information on the following:</p> <ul style="list-style-type: none"> MHEWS status in their countries including utilization of guidance products provided by RSMC New Delhi (e.g., for severe weather, tropical cyclone, storm surge and flash flood guidance) MHEWS interoperability status in their countries including technical capabilities, potential gaps, challenges and needs to improve interoperability among various systems by share data and products compatible for use by various systems MHEWS institutional aspect including coordination mechanism, governance, and political commitment etc. <p>(Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan, Sri Lanka and Thailand)</p>	<p>Moderators: Mr Achmad Rifani, Mr Qingliang Zhou & Dr DR Pattanaik</p> <ul style="list-style-type: none"> Mr. M. Mustafa Zadrán Mr. M. Abdur Rahman Khan Mr. Sangay Tenzin Ms. Monica Sharma Mr. Ahmed Shabin Ms. Thet Htoo Naing Mr. Binod Parajuli Mr. M. Aleem ul Hassan Ramay Ms. Preethika M. Jayakody Mr. Tanik Chokkuea <p>(15 min each)</p>

	Day 2: Tuesday, 10 th December 2024	
09:30-10:45	Technical Session 2: Country status on MHEWS Interoperability and Gap Analysis (continues...)	Country representatives (15 min each)
10:45-11:00	Summary and Discussion	Moderators: Mr Achmad Rifani, Mr Qingliang Zhou & Dr AK Das
11:00-11:15	Coffee/ Tea Break	
	Technical Session 3: Interoperability of monitoring & forecasting of heavy rainfall and flash flooding - Demonstration with a Case Study	
11:15-12:00	Integrated impact-based forecast and warning services (IBFWS) for heavy rainfall at sub-division & district level: Introduction of case study	Dr RK Jenamani & Dr HR Biswas (45 min)
12:00-12:45	Monitoring and analysis of Heavy rainfall with a case study (based on Rain gauge, Satellite, and Radar)	Dr Kuldeep Srivastava (ISSD) Dr AK Mitra & Dr Satya Prakash (Sat. Met.) Mrs Arpita Rastogi (Radar) (15 min each)
12:45-13:00	QPF for catchments	Dr Ashok K Das & Dr SK Manik (15 min)
13:00-13:15	EPS Models and Indices for heavy rainfall prediction	Dr RG Ashrit (15 min)
13:15-13:30	Flash Flood Guidance System for South Asia	Sh. Rahul Saxena and Sh Asok Raja (15 min)
13:30-14:30	Lunch Break	
14:30-14:50	Decision Support System (DSS) for IBF & RBW of Heavy Rainfall by IMD	Sh. Anshul Chauhan & Mrs Suman Gurjar (20 min)
14:50-15:10	Heavy rainfall Guidance through SWFP for South Asia	Ms. Monica Sharma (20 min)
15:15-16:15	IBFWS for heavy rainfall and flash flooding in Indonesia	Mr Achmad Rifani (BMKG) (1 hr)
16:15-16:30	Coffee/Tea Break	
16:30-18:00	Group Exercise: Preparation of interoperable multi-hazard IBF & RBW of heavy rainfall	Moderators: Dr RK Jenamani, Mr Achmad Rifani, Mr Qingliang Zhou All trainees in groups

Day 3: Wednesday, 11 th December 2024		
09:30-10:30	IBFWS for heavy rainfall and flash flooding in China	Mr Qingliang Zhou
	Technical Session 4: Interoperability of Thunderstorm Warnings - Preparation of bulletins and products with a case study	
10:30-11:15	Thunderstorm Monitoring, Forecasting and Warning Services: Standard operation procedure Introduction of case study	Dr Soma Senroy (45 min)
11:15-11:30	Coffee/ Tea Break	
11:30-12:30	Observational data for thunderstorm monitoring (surface, upper air, wind profiler, lightning detection network etc., satellite, radar, current weather observations) with a case study	<ul style="list-style-type: none"> • Dr Trisanu Banik-Lightning • Mr Chinmaya-Satellite • Mr Amit Kumar-Upper Air • Dr Shashikant- Surface Observations (15 min. each)
12:30-13:00	Deterministic NWP & MME model guidance for Thunderstorm forecast	Dr Trisanu Banik
13:00-14:00	Lunch Break	
14:00-14:30	DSS for Thunderstorm forecast	Mr Anshul Chauhan & Mrs Suman Gurjar
14:30-15:15	<ul style="list-style-type: none"> • Short to medium range forecast of Thunderstorm Potential • Nowcast for Thunderstorm • Aviation forecast and warnings for Thunderstorm 	<ul style="list-style-type: none"> • Mr Pradeep Sharma • Mr Ved Prakash • Dr VR Durai (15 min each)
15:15-15:30	District Level and location specific Warnings and IBF for Thunderstorm	Mr Shobhit Katiyar
15:30-16:15	Thunderstorm monitoring and IBFWS in Indonesia	Mr Achmad Rifani
16:15-16:30	Coffee/Tea Break	
16:30-17:00	Thunderstorm monitoring and IBFWS in China	Mr Qingliang Zhou
17:00-18:00	Group Exercise: Preparation of interoperable multi-hazard IBF & RBW of thunderstorm	Moderators: Dr Soma Senroy, Mr Achmad Rifani, Mr Qingliang Zhou All trainees in groups

Day 4: Thursday: 12 th December		
Technical Session 5: Interoperability of tropical cyclones and storm surge monitoring & forecasting - Demonstration with a Case Study		
09:30-10:15	Tropical Cyclones Monitoring and Forecasting: Standard Operating Procedure Introduction of case study	Dr M Mohapatra
10:15-11:00	Monitoring of TCs ((Satellite, Radar and Synop Observations)	Ms Monica Sharma - Synop Mr Chinmaya - Satellite Mr Rohit Shukla - Radar (15 min each)
11:00-11:30	Tea/Coffee Break	
11:30-12:15	Multimodal Ensemble & single model ensemble Guidance for Forecasting track, intensity and wind	Dr T Arulalan
12:15-13:00	TC Hazards (Heavy rainfall, wind, storm surge) Monitoring and Prediction	Dr AK Das-Rainfall Mrs Monica-Wind Dr PLN Murty-Storm Surge Dr Amit Bhardwaj-Waves
13:00-14:00	Lunch	
14:00-15:30	Different types of Bulletins (National, GMDSS, Sea Area, Coastal Weather, Port Warning, Fisherman Warning, Offshore-Onshore warning, Flash Flood, QPF)	Dr AK Das, Dr PLN Murty, Mrs Monica, Dr Amit Bhardwaj, Mr Asok Raja, Dr SK Manik, Dr. Sankar Nath and CWD team
15:30-16:30	Interoperability of Cyclone/Typhoon Warning in China	Mr Qingliang Zhou
16:30-16:45	Tea/Coffee Break	
16:45-18:00	Group Exercise: Interoperability of Cyclone Warning and preparation of bulletin & products	Moderators: Dr DR Pattanaik, Mr. Qingliang Zhou All trainees in groups
Day 5: Friday: 13 th December		
09:30-10:30	Heat wave Monitoring, Forecasting & IBF	Mr Akhil Srivastava
10:30-11:00	Fog Monitoring and Forecasting	Dr RK Jenamani
11:00-11:30	Tea/Coffee Break	
11:30-13:00	Recommendations and Follow Up Actions (To address the gap analysis and needs for MIE implementation in participating countries)	Moderators: Dr Naresh Kumar, Qingliang Zhou, Mr Achmad Rifani All trainees
13:00-14:00	Lunch	
14:00-14:30	Concluding Session	
14:30 onwards	Technical Visit	