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# Strengthening tsunami early warning in the North-west Indian Ocean region through regional cooperation

## Phase 2c

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*North-West Indian Ocean Regional Working Group Meeting  
22 July 2024*

# Strengthening tsunami early warning in the North-West Indian Ocean region through regional cooperation

## *Phase 1:*

Project Cost US\$ 147,470  
(2019-2021)

- 1) Better understanding of the tsunami risk knowledge to inform and underpin warning and mitigation systems in the NWIO to enable appropriate and effective community responses to the tsunami threat.
- 2) Improvement of warning services at NTWC level and the organization of the national warning chains to assure timely warnings.

## *Phase-2a:*

Project Cost US\$ 280.442,-  
(2022)

1. Finalisation of some Phase-1 remaining activities in tsunami risk knowledge and strengthening of national tsunami warning chains

## *Phase-2b:*

2. Gap analysis and development of guidance on tsunami inundation mapping and evacuation planning in the NWIO region

## *Phase-2c:*

Project Cost US\$ 298.834,-  
(2024)

Training in development of 1) tsunami inundation maps and 2) Tsunami evacuation plans to facilitate effective community responses to the threat from near-field and far-field tsunamis.

## Objective Phase 2c

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Training in development of tsunami inundation maps and evacuation plans to facilitate effective community responses to the threat from near-field and far-field tsunamis.

## Activity Output 5 Phase 2c

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### Regional Capacity Building



Activity Output 5.1 Regional training workshop on inundation mapping

Activity Output 5.2 Regional face-to-face training workshop on evacuation planning

*Backstopping: to help strengthen capacities of the national facilitator and stakeholders, and to assure quality in the processes and outputs.*

### National Implementation

Activity Output 5.3 National Implementation of the evacuation planning processes in pilot communities

India, Iran, Oman, Pakistan, and UAE



- Backstopping
- Translation of IOC UNESCO manual and Guides (74 & 82) Farsi & Urdu

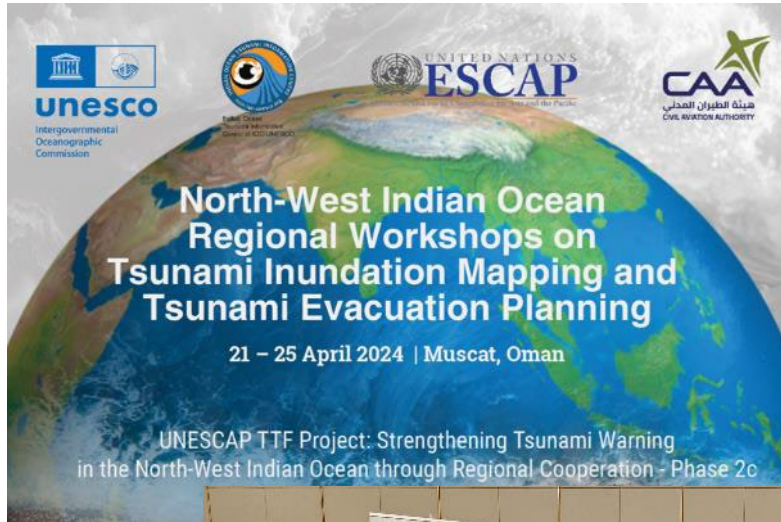
# Regional Training Workshop in Oman

Friday 19 April 2024	Saturday 20 April 2024	Sunday 21 April 2024	Monday 22 April 2024	Tuesday 23 April 2024	Wednesday 24 April 2024	Thursday 25 April 2024	Friday 26 April 2024
Arrival of IOC Experts and Consultants	Arrival Inundation Mapping Workshop Participants	Inundation Mapping Workshop	TEP Workshop (Jointly with Inundation Mapping Team)	TEP Workshop & Field Trip (Jointly with Inundation Mapping Team)	Departure Inundation Mapping Workshop Participants	TEP Workshop	Departure Of all international Participants
		Arrival TEP Workshop Participants			TEP Workshop		
					Joint Dinner		

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# Regional Training Workshop on Inundation Mapping



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- Discuss the roadmap for the further implementation and development of the PTHA.
- Prepare local inundation maps: strategy, approach and uncertainties.
- Discuss the role of scientists (modellers) in the implementation of national and local DRR strategies.
- Discuss expectations and needs of evacuation planning from the modellers.
- Present and discuss the progress inundation modelling in 5 pilot regions around NWIO to be addressed in the TEP meeting.

# Regional Training Workshop on Inundation Mapping



Sunday 21 April – Day# 1 Tsunami Inundation Mapping Workshop		
Facilitator: Jorn Lauterjung		
Time	Topic	Speakers
09:00 – 10:00	<b>1.1. Opening</b> – Welcome by: <ul style="list-style-type: none"> <li>○ Host - Directorate General of Oman Meteorology</li> <li>○ UNESCO</li> <li>○ UNESCO-IOC Secretariat</li> <li>○ Chair ICG/IOTWMS</li> <li>○ Chair ICG/IOTWMS RWG-NWIO</li> </ul> – Short introduction to the project: “Strengthening Tsunami Warning in the North-West Indian Ocean through Regional Cooperation – Phase 2c” – Objectives of Tsunami Inundation Mapping Workshop – Meeting logistics	Said Al-Harthy Temily Baker Rick Bailey Dwikorita Karnawati Mohammad Mokhtari  Ardito Kodijat  Jorn Lauterjung Nora Gale
10:00 – 10:15	<b>1.2. Introduction and overview Global Tsunami Model (GTM)</b>	Finn Lovholt
10:15 – 11:00	<b>1.3. From PTHA 1.0 to a regional consensus model: A roadmap</b>	Andrey Babeyko
11:00 – 11:15	<i>Coffee Break</i>	
11:15 – 12:00	<b>1.4. Local Inundation: Source selection, requirements, sources of uncertainties</b>	Stefano Lorito
12:00 – 12:30	<b>1.5. Implementing PTHA as a national strategy: Examples from Italy, Cyprus</b>	Stefano Lorito Ignacio Aguirre Ayerbe
12:30 – 12:45	<b>1.6. Report on the “HPC” project with GEO-Inquire</b>	Hira Lodhi, Jorn Lauterjung
12:45 – 13:00	<b>1.7. Requirements for Inundation Mapping from the Tsunami Evacuation Planning (TEP) perspective</b>	Harald Spahn
13:00 – 14:00	<i>Lunch</i>	
14:00 – 15:30	<b>1.8. Inundation Maps for TEP study cases (30 min per country)</b> – Pilot areas selected for the TTF project and as study cases for the TEP workshop – Overview and reports on the availability and plans for inundation maps in the pilot areas – What inundation maps will be the basis for the following TEP workshop and the project?	Jorn Lauterjung, RWG-TIMM members for India, Iran, Pakistan
15:30 – 16:00	<i>Coffee Break and Photo</i>	
16:00 – 17:00	<b>1.8. Inundation Maps for TEP study cases (cont)</b>	Jorn Lauterjung, RWG-TIMM members for Oman, UAE
17:00 – 18:00	<b>1.9. Discussion, way ahead and outlook on TEP workshop</b>	Jorn Lauterjung, RWG-TIMM members, Rick Bailey

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# Regional Training Workshop on Tsunami Evacuation Mapping



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Introduction TEP

TEP Step 2: Hazard and Risk Information

TEP Step 3: Draft Evacuation Plan

TEP Steps 4, 5 and 6

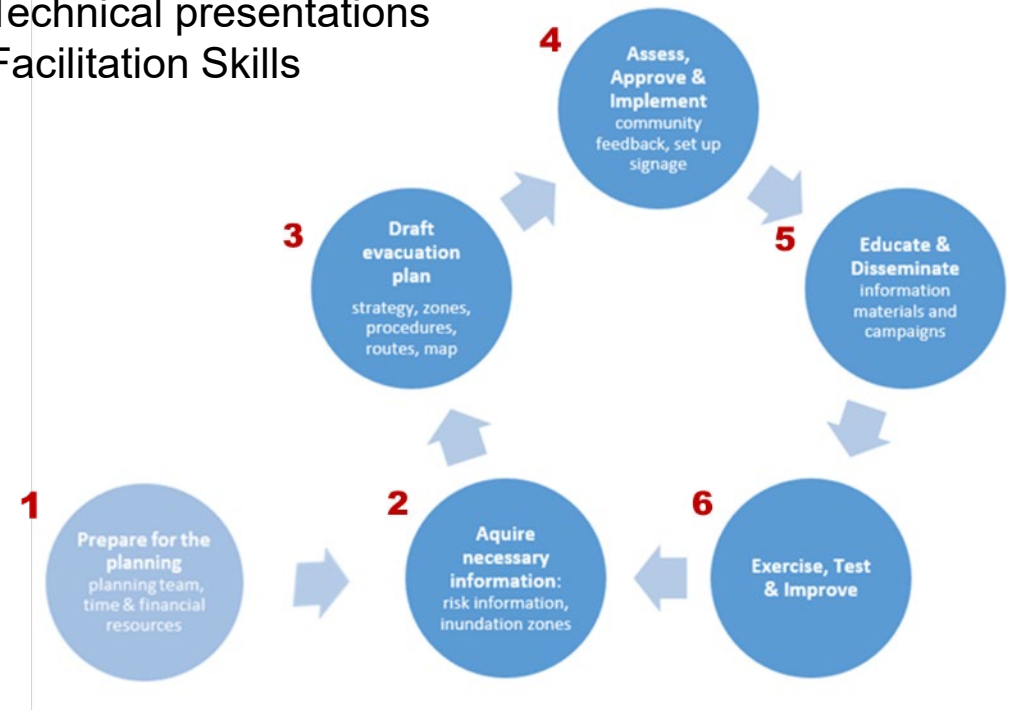
Task Assignment for Group Work on Own Cases

Group Work on own cases

Sharing of results

Technical presentations

Facilitation Skills





# Regional Training Workshop on Tsunami Evacuation Mapping



Reviewed designated hazard and inundation maps

- Outlining evacuation zone(s)
- Identifying vulnerable groups and elements

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# Regional Training Workshop on Tsunami Evacuation Mapping



Work on the overall evacuation strategy



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# Regional Training Workshop on Tsunami Evacuation Mapping



- Identify evacuation routes and signage requirements
- Define evacuation procedures
- Discuss features of a public evacuation map



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# Regional Training Workshop on Tsunami Evacuation Mapping

- Discuss methods for consultation and process for approval of a draft TEP
- Discuss strategies and methods to make the approved TEP known and understood by the public
- Discuss policies for exercising and revision processes



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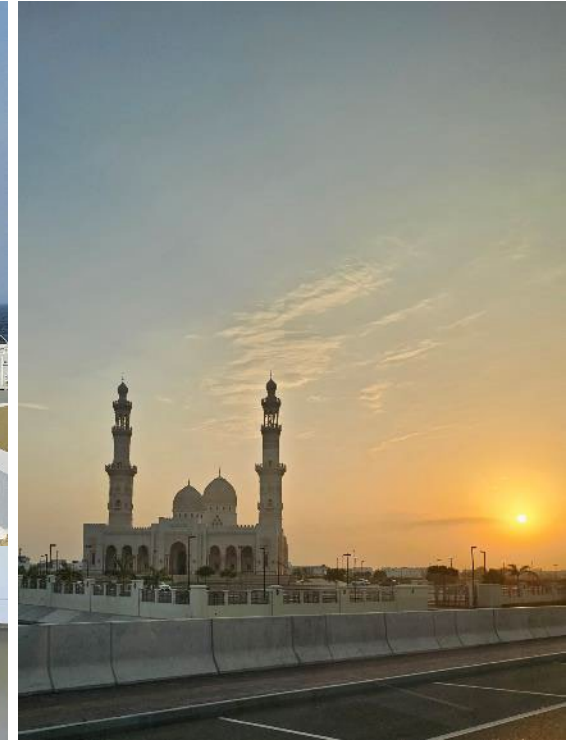
# Regional Training Workshop on Tsunami Evacuation Mapping



Oman CAA DGMet Warning Centre



Durat Al Qayat School



Jamea Sayyida Fatima Mosque

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# Outputs of Phase 2c

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- 1. Report of regional training workshop for members of the NWIO Regional Working Group on Tsunami Inundation Modelling and Mapping (RWG-TIMM).**
- 2. Report of regional training workshop for selected participants from the National Working Groups on Tsunami Evacuation Planning (NWG-TEPs)**
- 3. Report of in country Implementation for evacuation planning and implementation processes in pilot communities.**
- 4. Manual and Guide 74 and 82 in Farsi and Urdu**
- 5. Evaluation report on Phase 1, 2a-b, and 2c**



**THANK YOU**