



UNESCAP Funded Project TTF31:

“Strengthening Tsunami Warning in the North-West Indian Ocean Through Regional Cooperation – Phase 2c”

North-West Indian Ocean Regional Workshops: Tsunami Inundation Mapping and Tsunami Evacuation Planning

Muscat, Oman, 21-25 April 2024

Final Agenda

BACKGROUND

Tsunami inundation mapping and evacuation planning has been identified as one of the priority topics to be addressed in the five partner Member States in the NWIO region (India, Iran, Pakistan, Oman, UAE) of the UNESCO-IOC Intergovernmental Coordination Group for the Indian Ocean Tsunami and Mitigation System (ICG/IOTWMS) to improve tsunami preparedness at the community level. They are key steps towards making at-risk communities Tsunami Ready. In this respect, the current UNESCAP funded Project TTF31 *“Strengthening Tsunami Warning in the North-West Indian Ocean Through Regional Cooperation - Phase 2c”* supports its partners to strengthen their capacities for tsunami inundation mapping and evacuation planning. This is being achieved in a two-step approach.

The first step was Phase-2b of the project, which included a gap analysis of regional capabilities in inundation modelling and a gap analysis of national capabilities and the development of guidance on evacuation planning across the NWIO region. The project established a Regional Working Group on Tsunami Inundation Modelling and Mapping (RWG-TIMM) to help undertake a gap analysis on existing capabilities and coordinate efforts in the NWIO region and develop guidance on using the outcomes and outputs from Phase 1 and Phase 2a of the project, including an improved understanding of the risk and the development of a Probabilistic Tsunami Hazard Assessment (PTHA). Phase 2b also undertook a gap analysis on the regional capabilities in for tsunami evacuation planning and provided information on existing global approaches, standards, methodologies, and best practices. To facilitate joint learning and national implementation, the project supported the establishment of National Working Groups on Tsunami Evacuation Planning and conducted participatory capacity and gap analysis in each of the five Member States participating in the project (India, Iran, and Pakistan with funding from the project; Oman and United Arab Emirates (UAE) through self-funding). It then provided recommendations to the NWIO Member States about what fits best and how to proceed regarding the development of a set of individual national evacuation plans.

The second step now includes coordination and training in the development of inundation maps and training in the development of tsunami evacuation plans for the identified Pilot Areas. This will help facilitate effective community responses to any tsunami threat, but especially from near-field tsunamis. With the successful implementation of these two steps, participating countries can work towards implementing the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP), or similar national initiatives, to develop a solid foundation that will help achieve the goals of the UN Ocean Decade Tsunami Programme to make 100% of at-risk communities prepared and resilient to tsunamis by 2030.

OBJECTIVES OF THE WORKSHOPS

The two workshops will kick-off joint working processes between and within the five partner Member States and the project team to develop inundation maps and evacuation plans for Pilot Areas of each Member State. During the two workshops the following shall be achieved:

- Providing background information on Phases 1, 2a and 2b of the project and related initiatives, such as the UN Ocean Decade Tsunami Programme and the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP).
- Getting to know each other and further develop regional and national partnership arrangements utilising the RWG-TIMM and NWG-TEPs.
- Discussion and further sharing of knowledge on principal concepts and approaches for tsunami inundation mapping from Phase 2b in order to build a common understanding among the participants.
- Review of existing tsunami inundation maps for the Pilot Areas
- Planning for development of new and updated tsunami inundation maps for the Pilot Areas where needed.
- Site visit to a community with existing tsunami inundation maps.
- Training in tsunami evacuation mapping for the Pilot Areas using existing global approaches, standards, methodologies, and best practices outlined in Phase 2b.
- Outlook on further activities to be undertaken under the framework of the project and agreements on next steps.

Sunday 21 April – Day# 1 Tsunami Inundation Mapping Workshop		
Facilitator: Jorn Lauterjung		
Time	Topic	Speakers
09:00 – 10:00	1.1. Opening <ul style="list-style-type: none"> – Welcome by: <ul style="list-style-type: none"> ○ Host - Directorate General of Oman Meteorology ○ UNESCAP ○ UNESCO-IOC Secretariat ○ Chair ICG/IOTWMS ○ Chair ICG/IOTWMS RWG-NWIO – 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	1.2. Introduction and overview Global Tsunami Model (GTM)	Finn Lovholt
10:15 - 11:00	1.3. From PTHA 1.0 to a regional consensus model: A roadmap	Andrey Babeyko
11:00 – 11:15	<i>Coffee Break</i>	
11:15 – 12:00	1.4. Local Inundation: Source selection, requirements, sources of uncertainties	Stefano Lorito
12:00 - 12:30	1.5. Implementing PTHA as a national strategy: Examples from Italy, Cyprus	Stefano Lorito Ignacio Aguirre Ayerbe
12:30 – 12:45	1.6. Report on the “HPC” project with GEO-Inquire	Hira Lodhi, Jorn Lauterjung
12:45 – 13:00	1.7. Requirements for Inundation Mapping from the Tsunami Evacuation Planning (TEP) perspective	Harald Spahn
13:00 - 14:00	<i>Lunch</i>	
14:00 - 15:30	1.8. Inundation Maps for TEP study cases (30 min per country) <ul style="list-style-type: none"> – 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	1.8. Inundation Maps for TEP study cases (cont)	Jorn Lauterjung, RWG-TIMM members for Oman, UAE
17:00 - 18:00	1.9. Discussion, way ahead and outlook on TEP workshop	Jorn Lauterjung, RWG-TIMM members, Rick Bailey

Monday 22 April – Day #1 Tsunami Evacuation Planning Workshop (joint with Tsunami Inundation Mapping Workshop)		
Facilitator Harald Spahn		
Time	Topic	Speaker / Facilitators
09:00 – 10:00	1.1. Opening <ul style="list-style-type: none"> – Welcome by: <ul style="list-style-type: none"> ○ Host - Directorate General of Oman Meteorology ○ UNESCAP ○ UNESCO-IOC Secretariat ○ Chair UNESCO-IOC ICG/IOTWMS ○ Chair UNESCO-IOC ICG/IOTWMS RWG-NWIO – UNESCO-IOC Tsunami Recognition Programme – Short introduction to the project: “Strengthening Tsunami Warning in the North-West Indian Ocean through Regional Cooperation – Phase 2c” – Meeting logistics 	Said Al-Harthy Temily Baker Rick Bailey Dwikorita Karnawati Mohammad Mokhtari Suci Dewi Anugrah Ardito Kodijat Nora Gale
10:00 - 10:30	1.2 Workshop Objectives <ul style="list-style-type: none"> – Objective, overall programme – Methodology of the training – Introduction of trainer team 	Harald Spahn, TEP Trainer Team (TTT)
10:30 - 11:00	<i>Coffee Break and Photo</i>	
11:00 - 11:45	1.3 Introduction TEP <ul style="list-style-type: none"> – Key issues for TEP – Overall planning cycle for TEP – TEP experiences in the participating countries and pilot areas 	Harald Spahn, AK, National TEP teams (NTT)
11:45 - 13:00	1.4 TEP Step 2: Hazard and Risk Information <ul style="list-style-type: none"> – Risk Information for TEP – Inundation Maps: approaches and suitability for different settings / environments – Vulnerability and Inclusivity: elements and groups 	Harald Spahn Jorn Lauterjung + RWG-TIMM Ignacio Aguirre Ayerbe
13:00 - 14:00	<i>Lunch</i>	
14:00 - 14:15	1.5 Task Assignment for Group Work on own cases	Harald Spahn
14:15 - 16:00	1.6 Group Work on own cases <small>(including Coffee Break)</small> Reviewing designated hazard and inundation maps <ul style="list-style-type: none"> – Outlining evacuation zone(s) – Identifying vulnerable groups and elements 	NTT with support from TTT and RWG-TIMM participants
16:00 – 16:45	1.7 Sharing of results Outlook on Day 2 Evaluation of Day 1	Harald Spahn, TTT, NTT, Suci Anugrah
17:00 – 20:00	<i>Tour of Muttrah area and market</i>	
20:00	<i>Joint Dinner</i>	

Tuesday 23 April – Day #2 Tsunami Evacuation Planning Workshop (joint with Tsunami Inundation Mapping Workshop)		
Facilitator Harald Spahn		
Time	Topic	Speaker / Facilitators
09:00 - 09:30	2.1 Wrap-up Day 1 <ul style="list-style-type: none"> – Conclusions from group work on case studies and results from evaluation of day 1 – Responses to online questions from Day 2 Intro Day 2 <ul style="list-style-type: none"> – Overview on agenda for Day 2 and logistics – Logistical information for site visit 	<u>Harald Spahn</u> , TTT, NTT Suci Anugrah Nora Gale TTT Ardito Kodijat <u>Host</u>
09:30 - 10:00	2.2 TEP Step 3: Draft Evacuation Plan <ul style="list-style-type: none"> – Elements of a TEP – Evacuation Strategy 	<u>Harald Spahn</u>
10:00 - 10:10	2.3 Task Assignment for Group Work on own cases	<u>Harald Spahn</u>
10:10 - 11:30	2.4 Group Work on own cases (including Coffee Break) <ul style="list-style-type: none"> – Defining the overall evacuation strategy 	<u>NTT</u> with support from TTT and RWG-TIMM participants
11:30 - 12:00	2.5 Sharing of results	<u>Harald Spahn</u> , TTT NTT
12:00 - 13:00	<i>Lunch</i>	
13:00 - 14:00	2.6 Debriefing Meeting <ul style="list-style-type: none"> – Reflection on site visit – Discussion: implications for practical implementation of TEP – Considerations for RWG-TIMM – Follow-up – Evaluation of Day 2 	<u>Rick Bailey</u> , Jorn Lauterjung, Harald Spahn All participants from RWG- TIMM and NTT
14:00 - 16:00	2.7 Site Visit <ul style="list-style-type: none"> – Main features of the site (hazard, exposure, vulnerability) – Overall evacuation strategy for the site – Progress and experience with TEP on the site 	<u>Host</u> , TTT

Wednesday 24 April – Day #3 Tsunami Evacuation Planning Workshop		
Facilitator Harald Spahn		
Time	Topic	Speaker / Facilitators
09:00 - 09:35	3.1 Wrap-up Day 2 <ul style="list-style-type: none"> – Conclusions from group work on case studies, field visit and debriefing session. Results from evaluation of day 2 – Responses to online questions from Day 2 Intro Day 3 <ul style="list-style-type: none"> – Overview on agenda for Day 3 and logistics 	<u>Harald Spahn</u> , TTT, NTT Suci Anugrah Nora Gale
09:35 - 10:15	3.2 Technical presentations (10 min each) <ul style="list-style-type: none"> – Evacuation Routes – Evacuation Procedures – Evacuation Map – Evacuation Signage 	<u>Harald Spahn</u> Ignacio Aguirre Ayerbe Ardito Kodijat Rick Bailey Suci Anugrah
10:15 - 10:25	3.3 Task Assignment for Group Work on own cases	<u>Harald Spahn</u>
10:25 - 13:00	3.4 Group Work on own cases (including Coffee Break) <ul style="list-style-type: none"> – Identifying evacuation routes and signage requirements – Defining evacuation procedures – Discussing features of a public evacuation map 	<u>NTT</u> with support from TTT
13:00 - 14:00	<i>Lunch</i>	
14:00 - 15:30	3.5 Sharing of results <ul style="list-style-type: none"> – Presentation of draft maps including evacuation routes – Presentation of draft evacuation procedures – In-depth discussion on key issues that came up during the group work 	<u>Harald Spahn</u> , NTT, TTT
15:30 - 16:00	<i>Coffee Break</i>	
16:00 - 17:00	3.6 Facilitation Skills (1) <ul style="list-style-type: none"> – Role of a facilitator in local TEP – Roles of local stakeholder – Working in multi-stakeholder processes 3.7 Evaluation of Day 3	<u>Harald Spahn</u> , Ardito Kodijat NTT, UNESCO consultants, and TTT Suci Anugrah

Thursday 25 April – Day #4 Tsunami Evacuation Planning Workshop		
Facilitator Harald Spahn		
Time	Topic	Speaker / Facilitators
09:00 - 09:30	4.1 Wrap-up Day 3 <ul style="list-style-type: none"> – Conclusions from working on TEP Step 3 – Responses to online questions from Day 3 – Results from evaluation of day 3 Intro Day 4 <ul style="list-style-type: none"> – Overview on agenda for Day 4 and logistics 	<u>Harald Spahn</u> , TTT, NTT Suci Anugrah Nora Gale
09:30 - 10:00	4.2 TEP Steps 4, 5 and 6 <ul style="list-style-type: none"> – Consultation and official approval of a draft TEP – Public awareness and knowledge of the approved TEP – Exercising and regular revision / improvement of a TEP 	<u>Harald Spahn</u> Rick Bailey Ardito Kodijat Nora Gale
10:00 - 10:10	4.3 Task Assignment for Group Work on own cases	<u>Harald Spahn</u> , TTT
10:10 - 11:10	4.4 Group Work on own cases (including Coffee Break) <ul style="list-style-type: none"> – Discussing methods for consultation and process for approval of a draft TEP – Discussing strategies and methods to make the approved TEP known and understood by the public – Discussing policies for exercising and revision processes 	<u>NTT</u> with support from TTT
11:10 - 12:00	4.5 Sharing of results	<u>Harald Spahn</u> , NTT, TTT
12:00 - 13:00	<i>Lunch</i>	
13:00 - 13:20	4.6 TEP Step 1 and 2 <ul style="list-style-type: none"> – How to prepare for a TEP process – Information required to run a TEP process 	<u>Harald Spahn</u> Harald Spahn Ignacio Aguirre Ayerbe
13:20 - 13:30	4.7 Task Assignment for Group Work on own cases	<u>Harald Spahn</u> , TTT
13:30 - 14:30	4.8 Group Work on own cases (including Coffee Break) <ul style="list-style-type: none"> – Outline activities to prepare for TEP processes in your country Pilot Areas 	<u>NTT</u> with support from TTT
14:30 - 15:00	4.9 Closing Remarks <ul style="list-style-type: none"> ○ Host - Directorate General of Oman Meteorology ○ UNESCAP ○ Chair ICG/IOTWMS RWG-NWIO ○ UNESCO-IOC Secretariat 	<u>Rick Bailey</u> Said Al-Harthy Temily Baker Mohammad Mokhtari Rick Bailey
15:00 - 16:00	4.10 Sharing of results	<u>Harald Spahn</u> , NTT, TTT
16:00 - 17:00	4.11 Facilitation Skills (2) <ul style="list-style-type: none"> – Moderation / Group Work techniques and tools – Developing and using a moderation plan 	<u>Harald Spahn</u> , <u>Ardito Kodijat</u> NTT, UNESCO consultants, and TTT
17:00 - 17:15	4.12 Final Evaluation & Closure <ul style="list-style-type: none"> – Evaluation of Day 4 and final overall evaluation of the training – Further support for TEP in Pilot Areas by the project 	<u>Rick Bailey</u> Suci Anugrah Ardito Kodijat