3. INTERSESSIONAL MEETING OF TASK TEAM ON TSUNAMI PREPAREDNESS FOR A NEAR-FIELD TSUNAMI HAZARD (TT-NEAR FIELD)

Jakarta, Indonesia
29 September 2019

Members

Dr. Mahmood Reza Akbarpour Jannat (Chair, Iran)
Ms. Weniza (Vice-Chair, Indonesia)
Dr. Gareth Davies (Australia)
Mr. Ajay Kumar Bandela (India)
Mr. Padmanabham Jijjavarapu (India)
Dr. Karyono (Indonesia)
Dr. Harkunti Rahayu (Indonesia)
Dr. Mohammad Mokhtari (Iran)
Dr. Chai Mui Fatt (Malaysia)
Mr. Jaifar Bl-Busaidi (Omam)
Dr. Juma Al-Maskari (Oman)
Mr. Alyaqdhan Al-Siyabi (Oman)
Mr. Sunil Jayaweera (Sri Lanka)

Invited Experts

Prof. Dilanthi Amaratunga
Mr. Rick Bailey
Prof. Richard Haigh
Mr. Harald Spahn

Observers

Dr. Yuelong Miao (Australia)
Ms. Suci Dewi Anugrah (Indonesia)
Prof Dwikorita Karnawati (Indonesia)
Mr. Tiar Prasetya (Indonesia)
Dr. Muhamad Sadly (Indonesia)
Ms. Kian Purna Sinki (Indonesia)
Mr. Rahmat Triyono (Indonesia)
Mr. Mmaphaka Tau (South Africa)

UNESCO-IOC

Dr. Thorkild Aarup
Ms. Nora Gale
Mr. Ardito M Kodijat
Dr. Srinivasa Kumar Tummala

Participants at the Intersessional Meeting of the Task Team on Tsunami Preparedness for a Near-Field Tsunami Hazard, 29 September 2019, Jakarta, Indonesia

3.1 WELCOME AND OPENING

Dr Mahmood Reza Akbarpour Jannat, Chair of the ICG/IOTWMS Task Team on Tsunami Preparedness for a Near-Field Tsunami Hazard (TT-Near Field), opened the meeting at 2:00 pm. He welcomed the distinguished delegates, Task Team members and invited experts to the meeting. Suitable warning chains for near-field tsunami threat are critical in the Makran region where tsunami waves can reach shores within a few minutes with wave heights of several meters. This short time frame poses a challenge to tsunami warning systems.

The participants provided introductions to the Task Team. The list of participants is contained at the start of this section and participant contact details are provided in Annexure 2.2. The vice-chair of the Task Team is Ms Weniza of Indonesia.

The Task Team was established at ICG/IOTWMS-XII, Kish, March 2019. Its terms of reference include:

1. Assist Member States threatened by near-field tsunami threat to adapt and integrate their national warning chains and standard operating procedures, particularly in relation to community preparedness for self-evacuation.
2. Guide the implementation of Indian Ocean Tsunami Ready (now called UNESCO-IOC Tsunami Ready) recognition programme in the IOTWMS Member States with a near-field tsunami threat.

The Task Team will work towards enhancing tsunami preparedness for near-field tsunami hazard including improving end-to-end national warning chains while incorporating learns from the 2018 tsunami events in Palu and Sunda Strait.

The terms of reference of the task team are aligned with the UNESCAP project on "Strengthening tsunami early warning in the north west Indian Ocean through regional cooperation". A high level conference on near-field tsunamis in the Makran was organised in Muscat, Oman during 1 – 2 September 2019 to build a shared understanding on the necessary improvement of warning services at NTWC level and organisation of national warning chains down to the community level to be fully ready for MSZ near-field tsunamis, in addition to those generated from far-field. The summary report of recommendations from the Muscat meetings is available at http://www.ioc-tsunami.org/index.php?option=com_oe&task=viewDocumentRecord&docID=25398

Dr. Akbarpour Jannat informed that the UNESCAP project is utilising the TT-CATP as a framework for effective implementation of the UNESCAP project objectives relevant to tsunami preparedness for a near-field tsunami hazard.

Dr Akbarpour Jannat reviewed the meeting agenda, which was accepted without modification (refer to Annexure 1.2).

3.2 LESSONS LEARNT FROM PALU AND SUNDA STRAIT TSUNAMIS INCLUDING UPDATE FROM THE SYMPOSIUM

Mr Kodijat presented a preliminary summary of the lessons learned from the Palu and Sunda Strait tsunami symposium, which was held immediately prior to these meetings on 26-27 September 2019. The two-day symposium addressed the topics of lessons learnt from the Palu-Donggala tsunami; lessons learnt from the Anak Gunung Krakatau tsunami; critical issues on tsunami early warning systems; developing and strengthening end-to-end tsunami early warning system; and the Indonesia permit for international researchers. There was also a side-meeting of the Indian-Ocean Rim Association (IORA). The symposium included 279 participants from 24 countries.

The UNESCO-IOC technical series publication "Study Case: Palu-Donggala tsunami, 28 September 2018" was launched during the symposium. Key findings of this publication included the need to simply the warning chain and decision making process; the end-to-end tsunami warning system needs to be revitalised focusing on the downstream warning part; self-evacuation protocol is the key to survive local tsunami; community risk understanding and knowledge; and local knowledge needs to be capitalised.

Dr Mokhtari asked if the terminology of tsunami early warning system is appropriate in the context of self-evacuation. Mr Kodijat replied that we should keep using these terms and noted that self-evacuation is different from warning. Ms Anugrah commented that the self-evacuation protocol still requires tsunami monitoring, particularly for making a decision on the all-clear. Mr Spahn noted that we should not separate the two as they are both part of the same process. Prof Karnawati expressed the importance of encouraging the experts to do more technical work such as SMART cable deployments to assist faster early warning. Dr Aarup noted the substantial progress that has been achieved since the 2004 Indian Ocean tsunami.

3.3 UPDATE ON THE UNESCAP PROJECT INITIATIVES RELATED TO EARLY WARNING CHAINS AND STANDARD OPERATING PROCEDURES FOR NEAR-FIELD TSUNAMIS

Mr Spahn, project consultant, provided an overview of the UNESCAP project on "Strengthening tsunami early warning in the North West Indian Ocean". Improvements in the tsunami warning chain are critical to improving the race against time in evacuation of near-field communities. The UNESCAP project supports this through a regional approach with joint learning through a programmatic approach from risk assessment through to warning chains, inundation modelling and evacuation modelling. In September 2019, a high-level meeting and an expert meeting were held in Muscat, Oman. Future events include two workshops focusing on standard operating procedures for NTWCs and DMOs and a third workshop involving media. Preparations are underway to implement UNESCO-IOC Tsunami Ready in pilot communities and test warning chains during Exercise IOWave20. The conference derived a new template for displaying tsunami warning chains and agreed on five actions with timelines as noted below in Section 3.6 of this report.

Ms Moseley commented that the quality of the detection influences the success of the warning chain. In this regard, she asked about the progress of data sharing in North West Indian Ocean Member States. Dr Al-Maskari noted that this was discussed during the meeting and is a task of the Task Team on Scientific Tsunami Hazard Assessment of the Makran Subduction Zone. Within this context it was agreed that more work is necessary including drafting three agreements: bilateral, multi-lateral, and with TSPs. Moreover, Prof Karnawati noted the role of additional monitoring, including GNSS and accelerometer data, in producing faster tsunami threat evaluations.

Dr Akbarpour Jannat noted concerns about the tight timeline with little time for evacuating near-field communities following the issuance of a warning. Mr Spahn commented that two important issues are (1) how long does it take for the NTWC to issue a warning and (2) when the warning is received by the communities. Dr Al-Maskari added that a timeline guideline is critical for enforcing dissemination of evacuation orders on time.

Mr Bailey recalled the non-tectonic tsunami events and questioned how these can be better monitored. He noted that clear guidance on these process needs to be disseminated.

Ms Moseley noted that sea level and seismic monitoring were the best proxies for earthquake and tsunami characterisation when the IOTWMS was established. Now GNSS and other technologies are available. She also noted the potential merit in partnering with universities and research organisations who are working on similar issues.

Prof Haigh commented that the findings of the interface project will be of relevance to this Task Team.

Dr Tummala noted that findings and recommendations of this Task Team can be transferred to other near-source Member States in both the Indian Ocean region and other ocean basins.

3.4 NEAR-SOURCE TSUNAMI RESPONSE SOPS (PTWS INITIATIVES)

Dr Yuelong Miao reported on local-source tsunami response best practice with reference to the guiding principles drafted by the Pacific Tsunami Warning and Mitigation System (PTWS) prepared following the 2016 Kaikoura tsunami in New Zealand. In 2018 and 2019, the TOWS-WG recommended that PTWS develop a standard operating procedure for local-source tsunamis. Instead, guiding principles

were developed for any concerned countries to consider for the development of their own standard operating procedures. The current guiding principles did not take non-seismic sources into account.

The first draft was tabled at the ICG/PTWS meeting, Nicaragua, April 2019 and input is being sought from other ICGs. The key content covers four areas: local-source tsunami priorities, warning types, public awareness and education, detection and characterisation and items for subsequent consideration. Priorities for local-source tsunamis are: self-evacuation is the key to surviving; official warnings are supplementary to natural warnings; and official warning systems must have fast and simple warning chains.

Mr Spahn suggested that this Task Team provide inputs to this document based on learnings in Indonesia and the North West Indian Ocean.

There was a discussion about measuring the effectiveness of and improvements in such undertakings against key performance indicators.

3.5 INDIAN OCEAN TSUNAMI READY IN THE CONTEXT OF NEAR-FIELD TSUNAMIS

Mr Kodijat presented on Tsunami Ready in the context of near-field tsunamis. In the TOWS-WG meeting (Paris, February 2019) it was agreed that Tsunami Ready will be termed UNESCO-IOC Tsunami Ready and be implemented in all ocean basins. Harmonised global guidelines are being developed with a view to enable community awareness and preparedness. Tsunami Ready is a community based recognition programme that empowers communities by building capacity. There are ten indicators that relate to mitigation, preparedness and response (as noted below).

Mitigation

1. Have designated and mapped tsunami hazard zones
2. Have a public display of tsunami information

Preparedness

3. Have a tsunami evacuation map developed in collaboration with communities and local authorities
4. Develop and distribute outreach and public education materials
5. Hold at least three outreach or educational activities annually
6. Conduct an annual tsunami community exercise

Response

7. Address tsunami hazards in the community's emergency operations / response plan
8. Have the capacity to manage emergency response operations during a tsunami
9. Have redundant and reliable means to receive official tsunami warnings 24x7
10. Have redundant and reliable means to disseminate official tsunami warnings and information to the public 24x7

The Tsunami Ready logos have been drafted for adoption. Harmonised flyers are being developed for each ocean basin listing the local contact details.

Mr Spahn noted that the use of the term response before the actual tsunami event could be confusing to disaster managers. Further it is confusing why there are three guideline categories. He suggested to look at the UNISDR terminology. Moreover, Mr Spahn noted the term mitigation has a different meaning in the climate community. Mr Kodijat replied that during the Indian Ocean pilot programme, only the indicators were used, not the terms (i.e. mitigation, preparedness and response).

3.6 WORK PLAN FOR THE TASK TEAM

Dr Akbarpour Jannat noted that at the high-level conference in Muscat (1-2 September 2019), it was decided that the Task Team review the outcomes and actions arising in the conference. The actions that contribute to TT-Near Field work plan include:

Activity	Date
Tsunami National Contact (TNC) of India, Iran, Pakistan and Oman to establish or consolidate already existing National Working Groups to coordinate, enhance and continuously improve national tsunami warning chains.	31 October 2019
TNC for each country to advise ICG/IOTWMS Secretariat when National Work Group is established or consolidated and provide the list of confirmed participants	15 November 2019
TNC to ensure that the National Working Group for each country will review and update national tsunami warning chain template	End January 2020
TNC for each country to provide IOC Secretariat for ICG/IOTWMS with updated national tsunami warning chain template	End of January 2020
TNC for each country to identify pilot communities to be involved in the project and participate in IOWave20 and provide the list to the ICG/IOTWMS Secretariat	15 November 2019
To distribute a message to all members of the TT-Near Field providing a short introduction on the background and importance of the PTWS paper and encouraging members for contributions and comments on it (as discussed with Harald). The message should include a deadline that would allow all to review all inputs received and to prepare a consolidated input from the TT for PTWS.	~ end of December 2019
Prepare a report to ICG-XII on the possibility of adopting lessons learnt from the UNESCAP project by broader IOTWMS Member States that are at threat from near-field tsunamis – Chair to coordinate a draft report.	January 2021

3.7 MEETING CLOSE

Dr Akbarpour Jannat noted that the Task Team has been nourished with nice presentations throughout the meeting. He thanked the presenters, organisers and hosts for their efforts. He hoped that the recommendations would offer participants a fresh outlook and new opportunities to update their near-field tsunami standard operating procedures.

Dr Akbarpour Jannat declared the TT-Near Field meeting officially closed at 5:15 pm.

Annexure-1.2

UNESCO IOC
Intergovernmental Coordination Group for
the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS)

Intersessional Meeting of Task Team on Tsunami Preparedness
for a Near Field Tsunami Threat (TT-Near Field)

29 September 2019 (Sunday)

Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG)
Jakarta, Indonesia

29 September – 02 October 2019

TT-NEAR FIELD AGENDA

Item	Time	Topic	Lead / Presenter
		Venue: BMKG	
1	1400 - 1415	**Welcome and Opening** • Membership and ToRs • Introductions	Mahmood Reza Akbarpour Jannat (Chair)
2	1415 - 1500	Lessons learnt from Palu and Sunda Strait Tsunamis including update from the Symposium	Ardito Kodijat
3	1500 - 1530	Update on the UNESCAP project initiatives related to early warning chains and SOPs for near-field tsunamis	Harald Spahn / Srinivasa Kumar
	1530 - 1600	**Tea Break and Group Photo**	
4	1600 - 1630	Near-source tsunami response SOPs (PTWS initiatives)	Yuelong Miao
5	1630 - 1700	Indian Ocean Tsunami Ready in the context of near-field tsunamis	Ardito Kodijat
6	1700 - 1730	**Work Plan for the Task Team**	Chair
7	1730	**Meeting Close**	Chair