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WG1 – Tsunami Risk. Awareness and Preparedness Progress Report

Chair
Harkunti P. Rahayu
28 November – 1 December 2022

WG1 – 1st Intersessional Meeting

BMK Jakarta, 30 September 2019

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Attendees:

1. Harkunti P. Rahayu (Indonesia) - Chair
2. Gareth Davis (Australia) – Vice Chair
3. Nora Gale (ICG/IOTWMS Secretariat)
4. Mr. Ajay Kumar Bandela (India)
5. Mmaphaka Tau (South Africa)
6. Dilanthi Amaratunga (UK)
7. Richard Haigh (UK)
8. Sunil Jayaweera (SriLanka)
9. Harald Spahn (Germany)
10. Rick Bailey (Australia)
11. Mohammad Mokhtari (Iran)
12. Mahmood Reza Akbarpour Jannet (Iran)
13. Suci Dewi Anugrah (Indonesia)
14. Weniza (Indonesia)
15. Alyadhan Al-Siyabi (Oman)

Terms of Reference

Liaise with other working group(s) and task team(s) within the ICG/IOTWMS and with working groups from the other ocean basins through the TOWS-WG to:

1. Assist, develop and strengthen the overall capacity and capability of Member States in tsunami risk assessment and mitigation, community awareness and preparedness.
2. Encourage Member States to mainstream tsunami Disaster Risk Reduction into sustainable development to help achieve resilient communities in the region.
3. Identify areas of priority for action following assessments, exercises and real tsunami events.
4. Provide advice on user requirements and utility of tsunami warning products and services.
5. Provide advice to the Indian Ocean Tsunami Information Centre (IOTIC) on educational, awareness and preparedness materials.
6. Promote collaboration among academia, research institutions and disaster management offices to encourage multidisciplinary and multi sectoral interaction in ensuring tsunami risk knowledge are streamlined to risk reduction strategies.

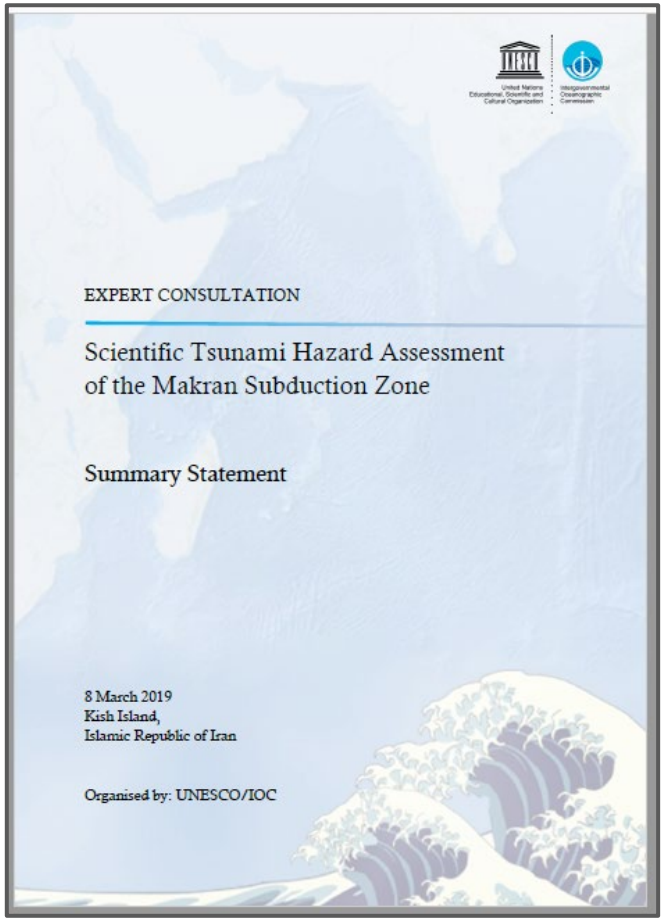
Activities may include:

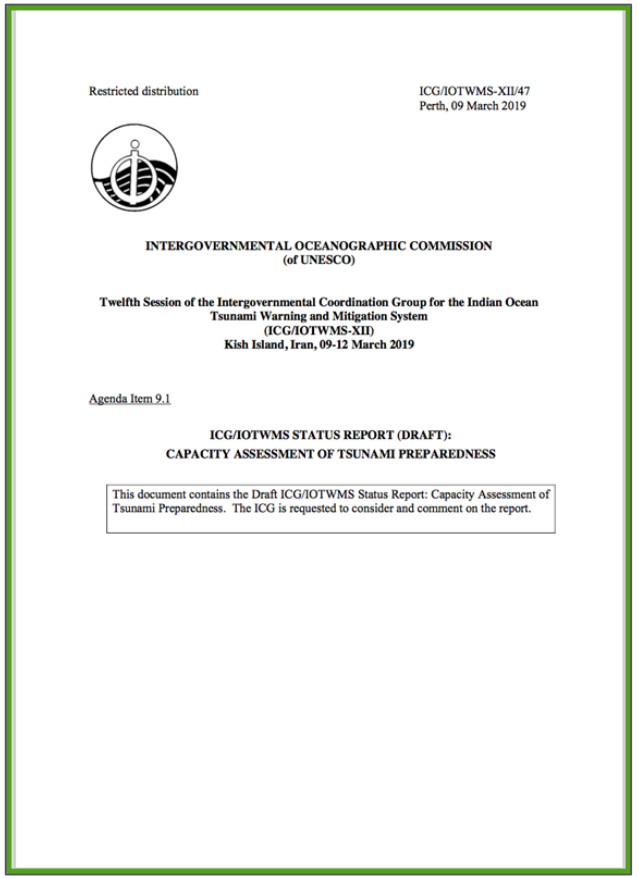
1. Monitor, assess and routinely report to the Steering Group and ICG on the status of Tsunami Risk Assessments, Community Awareness and Preparedness in each Member State.
2. Seek resources and coordinate projects to build capacity in Member States.
3. Organise workshops and symposiums for training and capability development.
4. Contribute to the conduct of regular exercises of the IOTWMS.
5. Encourage Member States to integrate tsunami risk assessment, community awareness and preparedness within national disaster risk reduction programmes for multi-hazards.
6. Stimulate and share information on best-practices between Member States.
7. Assist with development and application of guidelines on hazard, vulnerability and risk assessment and mitigation, exercises, and post-event surveys.
8. Work with Working Group 2 "Tsunami Detection, Warning and Dissemination" to develop effective warning products, services, Standing Operating Procedures and warning chains.
9. Under the direction of the Steering Group, assist with national assessments of the IOTWMS performance after each exercise and real tsunami event.

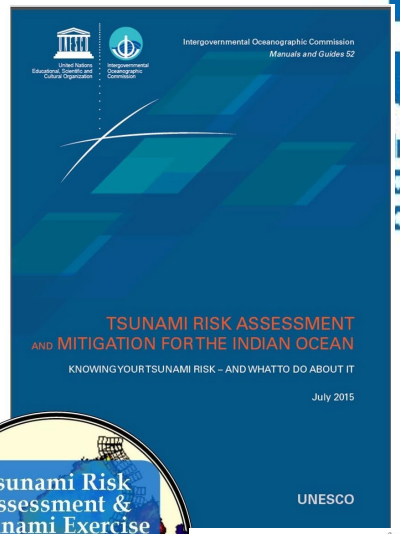
The Working Group will be composed of members nominated by Member States, an invited IOTIC representative and other invited observers as required, with a chairperson and two vice-chairpersons to be elected by the ICG.

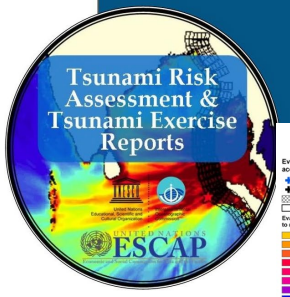
Pillar 1: Risk Assessment & Reduction

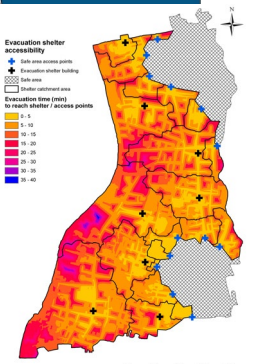
Working Group 1
Chair: Dr Harkunti Rahayu

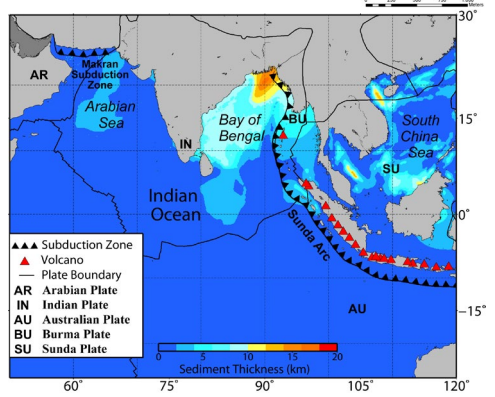












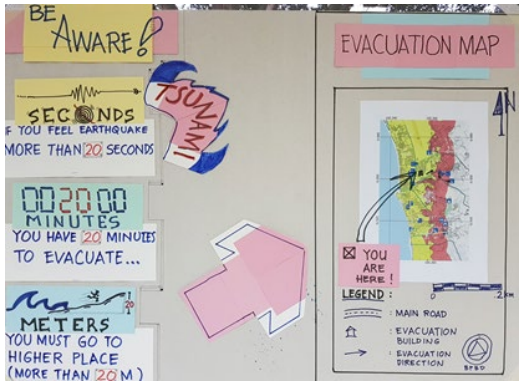
Pillar 3: Awareness & Response

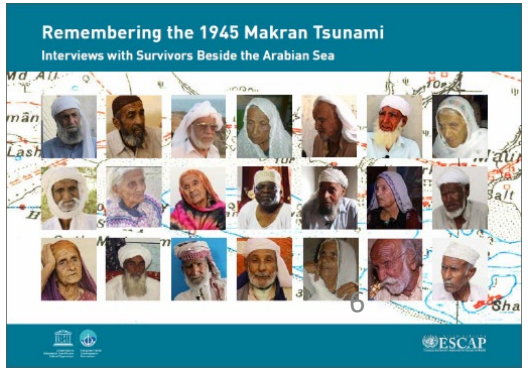
Working Group 1
Chair: Dr Harkunti Rahayu

IOTIC
Ardito Kodijat

- Education Material for NTWCs, emergency managers, communities, schools, tourism, etc in multiple languages
- Indian Ocean Tsunami Ready (IOTR) Programme
- Indian Ocean Tsunami Information Center (IOTIC) supported by BMKG, Indonesia (2017-2022)

Indian Ocean
Tsunami Information Center





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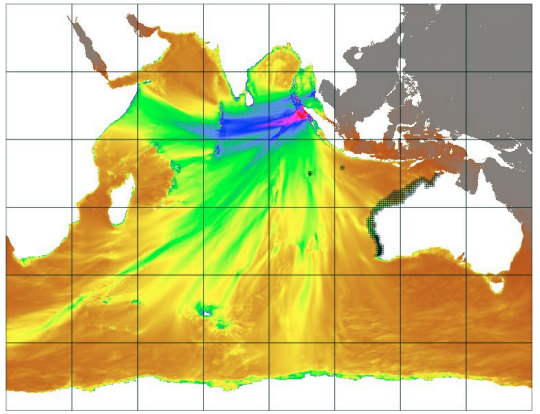
Progress of WG1 Action Plan 2019-2022 Work Plan

ICG 12.55 update PTHA for Indian Ocean

(Gareth Davis)

- **Aim for IO PTHA to begin after the Makran study is finished**
  - Similar process, adapt from their learning
  - To include much of the Indian Ocean tsunami hazard community → overlapping with Makran study

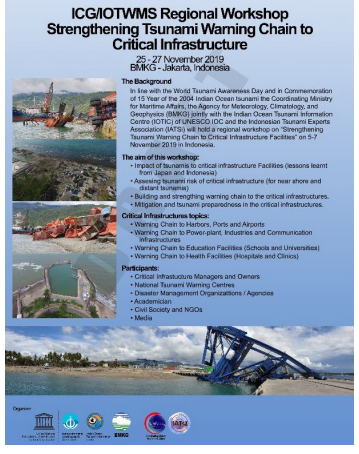
- **On going Project Inundation PTHA in Western Australia (June 2021-June 2024)**
  - Collaboration Geoscience Australian & local emergency services (DFES)
  - PTHA18 + Large-scale inundation model for Tsunami inundation hazard maps for Western Australia
  - Design of onshore evacuation maps
    - Strong involvement of DFES staff
    - Derived from models & DFES expertise → practicalities of communication / action + model results
    - PTHA18 → chance of inundation in a small "zoom" → in future, zoned evacuation maps to be derived by combining models & DFES expertise



ICG 12.59: Guidance tsunami preparedness for the coastal and marine private/business sector and infrastructure

- **Initiation Activities:**
  - 2019: IOTIC held a workshop on tsunami warning chain to critical infrastructure.
  - 2020-2022: BMKG has advocated Kulonprogo International Airport (Yogyakarta) and Ngurah Rai Airport (Bali) implement Tsunami Ready
  - 2018-2019: Review design of Kulonprogo NYIA from perspective of Tsunami Mitigation → become the benchmark for Tsunami Mitigation Design Criteria for all Indonesian Airport → endorsed by Minister of Transportation October 2019

- **Draft ToRs** have not been completed yet → need more time first semester 2023 (HPR will work closely with experts since will be in UK 4-6 weeks for collaborative research)



Learning from Palu Tsunami for Airport Ready for Disaster

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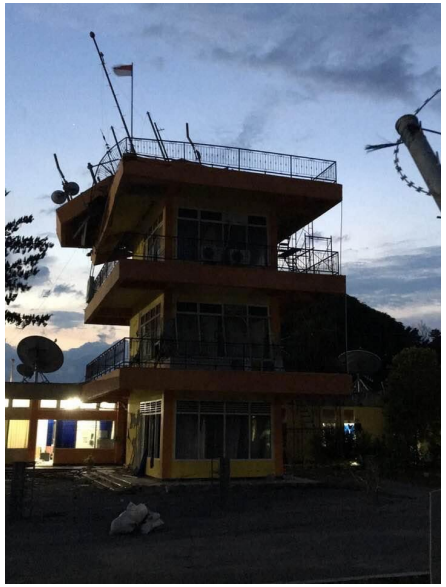
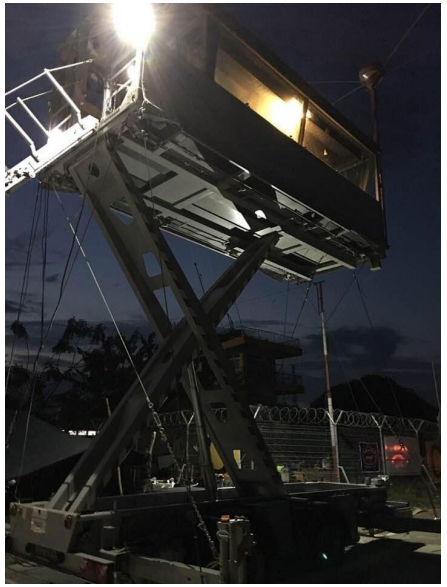
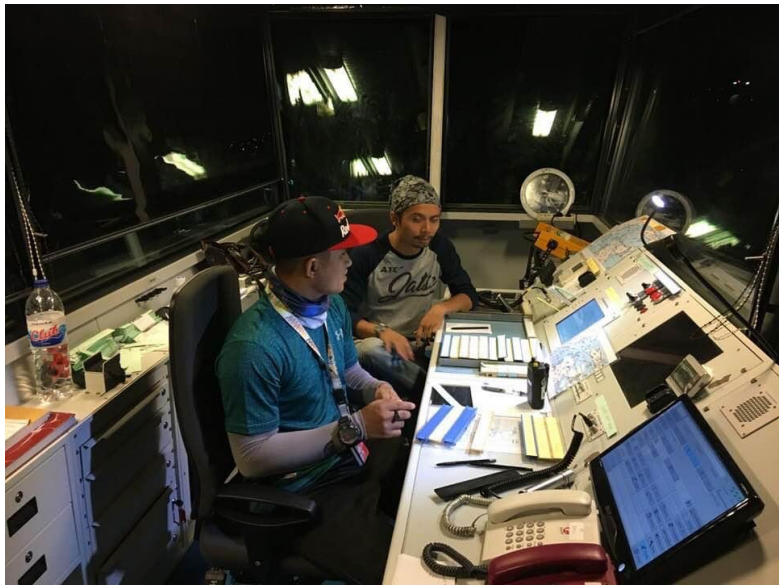






Mobile / Portable ATC

WG1 2019.03 & WG1 2020.1CAPT Questionnaires on Pandemic Section

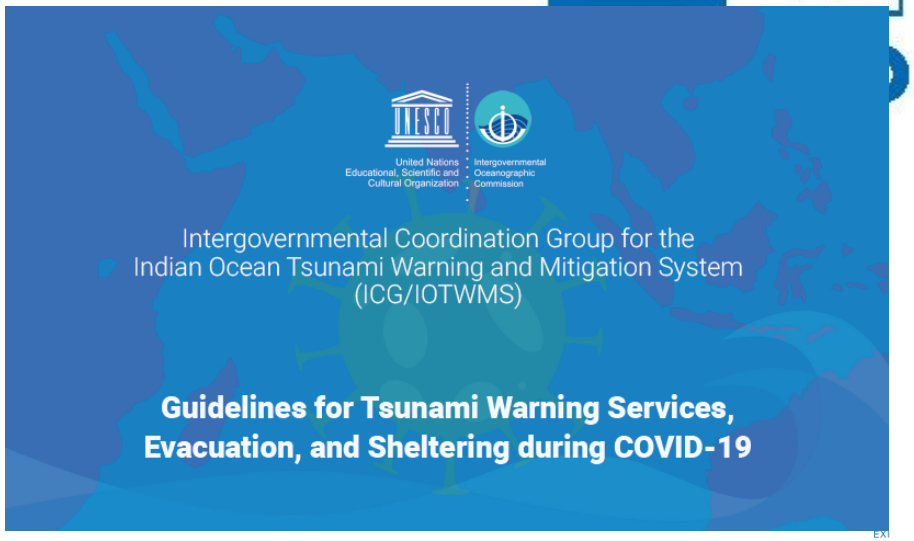
The COVID-19 response resulted in a shift of priorities, alterations in work patterns, processes and venues, the introduction of health protocol (physical distancing, self-isolation, as well as temporary lockdowns). → create ambiguity or confusion with regards to tsunami warning services and response actions like evacuation, under coexisting COVID-19 protocols.

In response, Guidelines for Tsunami Warning Services, Evacuation, and Sheltering during COVID-19 were issued by ICG/IOTWMS in 2020

National and local responses to COVID-19 in relation to tsunami early warning Questionnaires (28 questions) developed by HUD and ITB 2021.

The Survey issued by the Secretariat of IOTWMS and circulated to all 28 member states of the IOTWMS in early October '21, through their National Contact Points.

- Section 01: General questions on measures adapted to COVID-19 conditions (BEFORE A TSUNAMI EVENT)
- Section 02: Tsunami preparedness measures adapted to COVID-19 conditions (BEFORE A TSUNAMI EVENT)
- Section 03: Principles for tsunami warning and evacuation (BEFORE AND DURING A TSUNAMI EVENT)
- Section 04: Principles for sheltering (DURING A TSUNAMI EVENT)



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Tsunami warning services, evacuation, and sheltering during COVID-19

Background and consent to proceed

Before commencing this survey exercise, please:
1. Read the background information provided below
2. Confirm your willingness to participate in this survey by clicking the checkbox

What is this survey about?
The current COVID-19 response has resulted in a shift of priorities, alterations in work patterns, processes and venues, the introduction of physical distancing, self-isolation and quarantine measures, as well as temporary lockdowns of entire communities. This may create ambiguity or confusion with regards to tsunami warning services and response actions like evacuation, under co-existing COVID-19 protocols.

This survey is being conducted to better understand current national, regional and local responses to COVID-19, which may differ depending upon a number of conditions, such as the phase of the pandemic, transmission in the community, demographics and response capabilities. The survey is also looking to understand the uptake of the Guidelines for Tsunami Warning Services, Evacuation, and Sheltering during COVID-19, which were issued by the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) in 2020. For these guidelines please click here.

Who is conducting the survey?
This survey is being conducted by Working Group 1 Tsunami Risk, Community Awareness and Preparedness of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning & Mitigation System (ICG/IOTWMS) of the Intergovernmental Oceanographic Commission of UNESCO, in conjunction with the University of Huddersfield, UK and Institute of Technology Bandung, Indonesia

Survey of national and local responses to COVID-19 in relation to tsunami early warning

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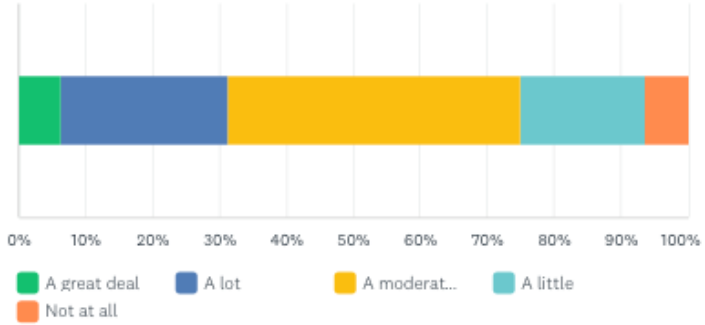
- **Aims of survey**
  - Understand current national, regional and local responses to COVID-19
  - Understand the uptake of the IOTWMS Guidelines for Tsunami Warning Services, Evacuation, and Sheltering during COVID-19
- **Target:**
  - National Tsunami Warning Centre (NTWC) and National Disaster Management Organisation (NDMO)
  - LDMO
  - Other National or Local COVID Task Force organisations

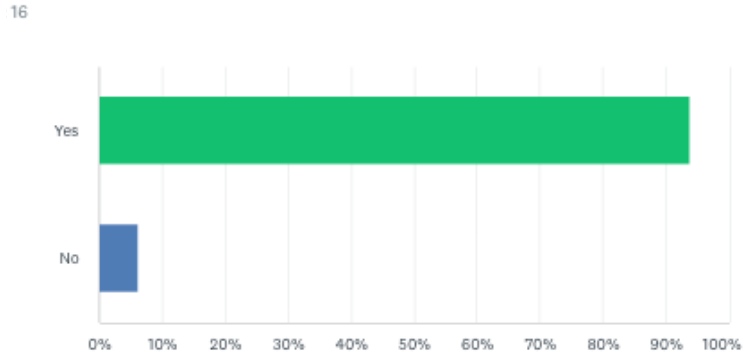
Disappointing response

- A minimum of one response from eleven countries
  - 15 NTWC (11 countries)
  - 5 NDMO (3 countries)
  - 4 LDMO (1 country)
- Several important sections of the survey are only relevant to N/LDMOs
- Some of the responses are not complete
- It is not possible to carry out meaningful analysis on such a low response rate / draw conclusions that would be representative
- Doubtful that reissuing they survey would work – timeliness of survey etc.

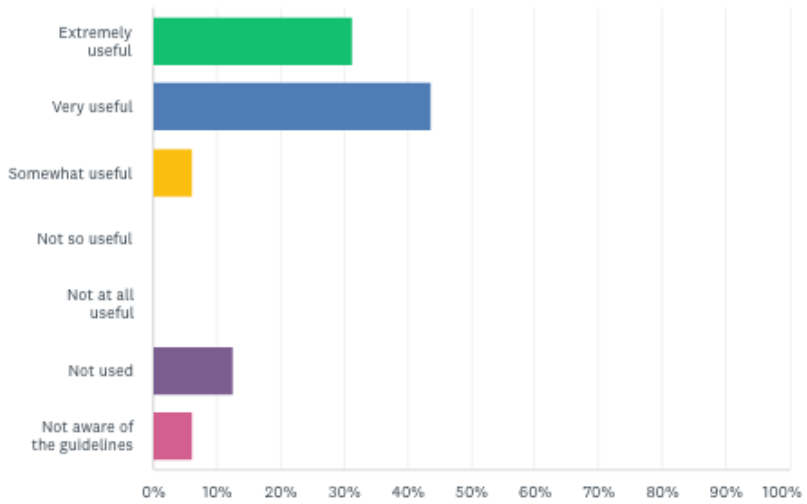
To what extent has COVID-19 had an impact on your organisation's role in tsunami warning and evacuation response?



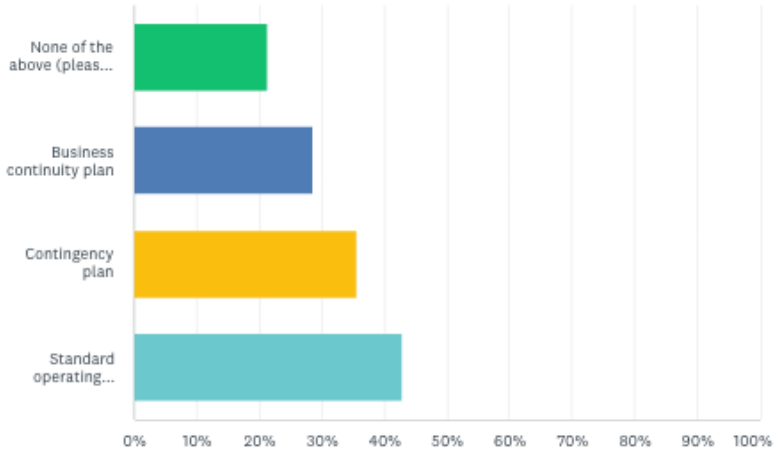
Are you aware of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) Guidelines for Tsunami Warning Services, Evacuation, and Sheltering during COVID-19?



How useful are the ICG/IOTWMS Guidelines for Tsunami Warning Services, Evaluation and Sheltering during COVID-19?



Which of the following plans and procedures at your organisation address COVID-19 health protocols in relation to tsunami early warning? (please check all that apply)



WG1 2019.07 & WG1 2019.11 Upstream-downstream interface in tsunami early warning national self-assessment tool

Initiation Works:

- Indonesia: A briefing paper for the interface of Ina-TEWS: Improving the upstream-downstream interface in the Indonesian end to end tsunami early warning and mitigation system (Ina-TEWS) (2019)→ based on survey and FGD on Upstream Downstream Interface (2018 -2019)
- Support by BMKG, KPI
- Regional Indian Ocean: A Cross Case Analysis of the Upstream–Downstream Interface in the Tsunami Early Warning Systems of Indonesia, Maldives, Myanmar and Sri Lanka (2021) → based on in-depth work at 4 countries on Upstream Downstream Interface(2018-2021)

Need more time to develop the assessment tools

Strengthening the role of media as the interface institutions of Ina TEWS meeting hosted by KPI

WG1 2019.08 Mainstreaming disaster risk reduction into urban planning and resilience

- The main purpose of this study is to understand how urban planning and development can be used to mitigate tsunami risk and develop a set of principles that can inform urban planning and development in tsunami prone areas. The results of the study will inform a guideline on urban planning and development to address tsunami risk that is being developed by the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) of The Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO), Working Group 1: Tsunami Risk, Community Awareness and Preparedness
- Output so far:
  - Briefing paper for Srilanka done
  - Briefing paper for Indonesia on going
- Guideline on urban design to address tsunami risk – WG1 of ICG/IOTWMS

Funded by HUD and ITB

WG1 2020.2 Developing and Harmonizing Local Capacities for Tsunami Early Warning

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Developing and Harmonising Local Capacities for Tsunami Early Warning

What is the nature of the research problem?

Recent studies have revealed the interconnectedness, and economic and social importance of coastal, urban populations in Indonesia and elsewhere in the region. They have also highlighted their high exposure to disaster risk and limitations in tsunami preparedness. These include capacity gaps among key agencies, including varying availability of national and sub-national standard operating procedures for tsunami early warning (TEW), as well as technical and human capacities. Recent events in Indonesia also demonstrate the challenges posed by near field tsunami events that can cause inundation within minutes.

In responding to such challenges, countries are developing more advanced systems for TEW, such as Indonesia´s TEW (InaTEWS) 4.0, which will enable the rapid dissemination of data rich mapping and advisories to relevant agencies and the wider public. But, if InaTEWS 4.0 is to be effective, it is necessary to harmonise capacities for TEW at the local level. Official warning information also has to work alongside, but sometimes compete with informal communication such as social media, creating confusion.

1. Map and measure the relationships and flows between downstream actors in the dissemination of TEW
2. Develop a framework to increase and harmonise the capacity of downstream actors in TEW
3. Understand the barriers and enablers for the next generation of TEW dissemination (such as InaTEWS 4.0), and its ability to deal with emerging challenges identified in the last newton project, such as near field tsunamis and socialmedia
4. Build researcher capacity to address disaster risk, including improved disaster risk reduction and early warning at thelocal level

Visit of COP26 President to Coastal Case Study – Jakarta Bay and Sarbagita (Bali)

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WG12020.3 Improving COVID-19 and pandemic preparedness and response through the downstream of multi-hazard early warning systems

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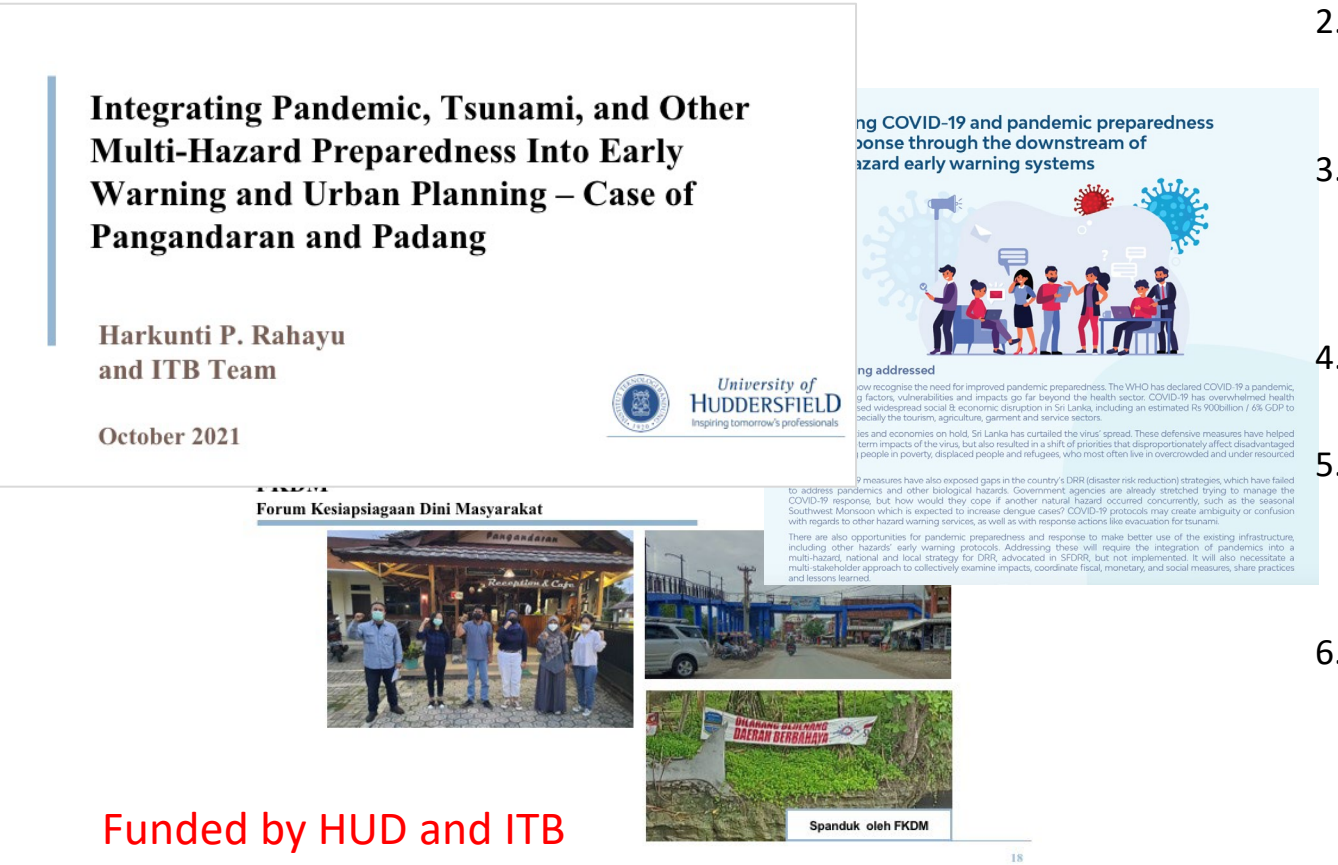
Done in Srilanka and Indonesia (Pangandaran and Padang) 2020-2021



Funded by HUD and ITB

1. To identify the key actors and what are the processes involved in the preparation of COVID-19 and other pandemic warning and dissemination processes
2. To propose recommendations to mainstream COVID-19 and other pandemic threats to be integrated within national and local disaster risk reduction strategies
3. To explore the impact of COVID-19 on the response capabilities for other hazards, either multiple simultaneous events, or cascading impacts and to understand what components of early warning system are greatly affected due to dual challenges associated with COVID-19
4. Develop and implement a synergised COVID-19 and public health surveillance system with “the last mile” of MHEW.
5. To identify how would pandemic response measures impact the downstream response to other hazards, including mass evacuations with increased capacity of shelters, camps and to identify measures to overcome these tensions in an emergency situation
6. To propose how the COVID-19 and public health surveillance system can be synergised with “the last mile” of multi-hazard early warning systems, where community networks, communication systems, and citizen behaviours can be utilised for pandemic EWS at the community level

International Journal of Disaster Resilience in the Built Environment

- Special issue 1 in memory of Professor Samantha Hettiarachchi
- Call for papers in 2019; Published in 2020, Volume 11, Issue 2
- 9 research articles & 1 editorial
- Approximately 5,600 downloads
- 2 research articles have already been cited in 10+ other articles

- Special Issue 2 on Technology enabled tsunami early warning: opportunities, gaps, barriers and challenges
- Call for paper 2021 → did not receive enough papers to justify an issue
- However, after peer review, 3 related papers were accepted and are being published in regular issues

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Guest editorial

o reduce tsunami impacts

rachchi, PhD (Lond), DIC, was a Senior Professor in Civil ity of Moratuwa, and a Fellow of the National Academy of SSL). He made exceptional national and international of coastal engineering, coastal zone management and e was the Vice-Chairman and Acting Chairman of the led the Indian Ocean Tsunami Warning and Mitigation ting with 26 Indian Ocean rim states under the auspices of adership UNESCO/IOC produced a definitive guideline on , now in its second edition (UNESCO, 2015). In Sri Lanka, Coast Conservation Department, the Lanka Hydraulic er Management Centre (DMC) and the National Science ulted by the Governments of Indonesia and Oman, in a.

Professor Hettiarachchi died at the relatively young age of 62 in April 2018, after a courageous battle against cancer. This special issue is meant to celebrate his life and work. It is appropriate that this *gedenkschrift* is carried in IJDRBE, because he collaborated very closely with its Chief Editors, being an editorial board member from its inception. He was also a keynote speaker at the 3rd International Conference on Building Resilience at Ahungalla in 2013, a conference series that is closely associated with this journal. The issue will be launched, fittingly in partnership with UNESCO too, at the 9th conference in the series to be held in Bali in January 2020. The actual call for papers was issued at a memorial lecture in Prof Hettiarachchi's honour, delivered in Colombo by Professor Eduard Kissling, Professor of Geophysics at ETH Zurich, under the auspices of the NASSL.

There are nine contributions in this issue, titled Early Warning Systems for Reducing Tsunami Impact. Three of them are from Sri Lanka, which is to be expected given Prof Hettiarachchi's rootedness in his home context. However, there are others from Japan, Canada, Indonesia and Sweden; and two from the United Kingdom. The UK is where Prof Hettiarachchi engaged in most of his initial academic collaborations. He obtained his doctorate from Imperial College London working under Prof Patrick Holmes, in the course of which he developed links with HR Wallingford; and subsequently worked for a year in the Maritime Engineering Group of Ove Arup and Partners, London. It is only after the Indian Ocean tsunami of 2004 that he broadened his travels and interactions, many of which are reflected by the author affiliations in this issue.

Japan is a country that extended significant technical assistance to Sri Lanka soon after the tsunami. The Canadian paper is from the University of Calgary (jointly with LHI), which launched the International Institute for Infrastructure Resilience and Reconstruction (IIIRR), largely spearheaded by some Sri Lankan academics there. Indonesia is a key country that was involved in the IOTWS. The Swedish Lund University link is thanks to the European Union funded seven-country ASCENT project, intended to strengthen research and innovation capacity for the development of societal resilience to disasters. This project was led by Professors Dilanthi Amaratunga and Richard Haigh of Huddersfield University, who are the joint chief editors of IJDRBE and authors in two of the papers herein. Many of the other authors are Professor Hettiarachchi's students, two of them full professors – one at the

Launching a new initiative in December 2022

20 years after - then and now

An explorative study of the status of communities relocated in the aftermath of the 2004 Indian Ocean Tsunami

Funded by

University of Huddersfield, UK

Balancing City/Regional Leader and Community Leadership Training

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Since Disaster Risk Reduction from Socio and Political Perspective seen as Political Commodity

2. Challenges

- Due to Covid19: several intersessional WG1 meeting were conducted online with the support from ICG IOTWMS Secretariat
- Due to Covid19 restriction regulation, several activities with field works component have been delayed. They are:
  - WG1 2019.08 - mainstreaming disaster risk reduction into urban planning and resilience
  - WG1 2020.2 - developing and harmonizing local capacities for tsunami early warning project
  - WG1 2020.3 - the integration of pandemic, tsunami and other multi-hazard preparedness into Early Warning and Urban Planning project with improved systems being undertaken in 2021-2021
- Due to Covid19 many program in Member States have been refocussed for Covid19 response
- Indonesian Government Ristek BRIN restructuring affect the research funding for WG1 activities.
- UK's withdrawal from the EU Erasmus+ programme have affected to lack of funding opportunity, i.e. WG1 2019.14 – development online training platform
- *Disaster Risk Reduction often seen as Socio and Political commodity → need to balance capacity building not only for community but also City/Regional Leader (Mayor/Governor)*

Recommendations to ICG to address gaps and challenges

ICG/IOTWMS WG1 Recommendations

1. **Tsunami Ready Implementation Guidance:**

Secretariat with the support of IOTIC and WG1 Members to develop urgently an online webinar for Tsunami Ready Focal Points on tools and strategies for implementing TR, supporting by a one-page brochure.

2. **Tsunami Ready and Critical Infrastructure Guidance:**

WG1 to develop guidance on TR indicators required for critical infrastructure (ports, harbours, airports, power stations, hospitals, etc) to present to ICG and TT DMP for consideration → based on works done

3. **Response to COVID 2021Survey:**

Noting the poor responses to the COVID-19 survey in 2021, there is a need to provide a sub-nation case study to next ICG to develop greater awareness of the issues and importance of preparedness to other Member States.

ICG/IOTWMS WG1 Recommendations

4. **DRR into Spatial Planning:**

Noting spatial planning isn't covered under TRRP, MS need ensure spatial planning is also taken into consideration at the city, province, and national level with respect to overall preparedness and sustainable resilience → based on works done

5. **2018 Capacity Assessment follow up: WG Action Plan**

Recommend WG1 (and WG2) develop responses/actions to each recommendation from CATP to present to ICG

6. MS Status Report to ICG XIII:

Secretariat to review Survey for CTP to develop subset of questions for MS to respond to help prepare status repot of IOTWMS at each ICG.

ICG/IOTWMS WG1 Recommendations

7. Next International Journal Special Issue:

Noting the achievement of 2 Special Issues of IJDRB published 2020 and 2021.

Discuss possible topic for next special issue related to warning and mitigation and UN Ocean Decade Tsunami Programme, that can include all ocean basins.

8. PTHA for Indian Ocean:

Noting following the Makran work

Suggests to update the IO PTHA

ICG/IOTWMS WG1 Recommendations

9. Response to GPDRR 2022 recommendations Bali Agenda for Resilience (BAR)

Noting the follow-up action of GPDRR on 7 of recommendations Bali Agenda for Resilience (BAR).

Suggests the importance of achieving the *sustainable resilience*, learning from Indonesia through.

1. SR is locally led, built on local context and strongly supported by the State
2. SR can only be achieved when collaborations with passions take place among the ”Pentahelix Stakeholders”
3. SR will thrive upon the availability of adequate, predictable, and decentralized financing
4. SR will only be meaningful when everyone is involved, everyone has a role, and no one left behind
5. SR will progress exponentially when innovations and technology are backed by global resources a developed with local context

ICG/IOTWMS WG1 Recommendations

10. Response to UN ODTP

Note and discuss UN ODTP definitions "The ultimate goal of an early warning system is the protection of life, as well as livelihoods. One of the two main goals of the decade is that 100% of communities at risk from tsunamis be prepared and resilient through program like Tsunami Ready or other similar program owned by the Member States".

Note and discuss 5 issues:

- Q1 : What is Community?
- Q2 : How many Communities are at Risk from Tsunami?
- Q3: Are public awareness and educational activities conducted?
- Q4: Are public awareness and response tested and exercised?
- Q5: Institutionalizing Tsunami Awareness and Response ?

ICG/IOTWMS WG1 Recommendations

11. Tsunami Ready Working Group?

Focus on TR implementation, be continuous and involve TR Focal Points, integrate future outcomes from WG1 and WG2 and TOWS-WG as required.

12. WG1 ToRs and Continuation

Recommend to add new ToR on Tsunami Ready:

Provide advice and guidance (to TR WG) on the implementation of the Tsunami Ready Recognition Programme in the Indian Ocean

17. City/Regional Leader DRR Training

Since DRR often seen as political commodity, there is need To balance community capacity building → Recommend to add new activity

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Status of Proposed WG1 Work Plan 2022-2024

1. Work Plan 2022 – 2024 (including Progress on existing Activities)

#	Open Action	Who	Update Dec 2020	Update Nov 2022
ICG 12.55	Requests Working Group 1 to update the Probabilistic Tsunami Hazard Assessment (PTHA) for Indian Ocean based on recent work by Geoscience Australia in collaboration with relevant experts from the Member States;	Gareth Davies	Ongoing – Makran PTHA under development as part of UNESCAP project. A natural progression would be to undertake the IO PTHA following the completion of the Makran PTHA noting lessons learnt during the initiative regarding Hazard Assessment for MSZ.	No further progress, noting Makran PTHA is ongoing and West Australia PTHA Inundation Project (2021-2024)
ICG 12.59	Requests Working Group 1 to prepare guidance to facilitate Member States to establish/update their national policies and plans to make tsunami preparedness mandatory for the coastal and marine private/business sector and infrastructure;	Secretariat	Ongoing – Guideline needs to be completed. IOTIC held a workshop on tsunami preparedness for critical infrastructure (Dec 2019).	Initiation activities done by IOTIC 2019 and BMKG 2002-2022. Draft ToRs have not been completed for discussion → need to be followed up
WG1 2019.01	Review the PTWS KPI framework with reference to the TT-CATP survey and provide input to a consolidated report for TOWS-WG-XIII	Chairs WG1 and WG2	Ongoing – Chairs of WG2 and WG2 (Harkunti Rahayu and Yuelong Miao) to contribute.	done by TOWS WG
WG1 2019.02	Conduct regular performance status assessment using Survey Monkey, once in every two years (upcoming survey in October 2020)	Secretariat	Ongoing – To be discussed further at SG meeting.	Ongoing – To be discussed further at XIII ICG meeting Nov 2022

2. Work Plan 2022 – 2024 (including Progress on existing Activities)

#	Open Action	Who	Update Dec 2020	Update Nov 2022
WG1 2019.03	Continuous improvement on CATP questionnaires	Secretariat and Chair WG1	Ongoing – WG-1 suggested to add section on pandemic. Harkunti, Nora, Richard and Dilanthi to discuss further.	Improvement CAPT Questionnaires on Pandemic Section has been done and SM has been conducted and analyzed October 2021
WG1 2019.07	Develop an IOC Technical Series document on governance of the upstream-downstream interface in tsunami early warning including a national self-assessment tool	Chair WG1	Ongoing.	Comment by Secretariat: As an IOC TS document is being proposed that will benefit all ICGs, this should be a recommendation to the TOWS-WG Task Team on Disaster Management and Preparedness (Secretariat to confirm the arrangements to commence the development of the guidelines)
WG1 2019.08	Develop a concept note on mainstreaming disaster risk reduction into urban planning and resilience	Harkunti Rahayu	Ongoing – GDRC (Richard and Dilanthi) has secured funding to work with ITB on this initiative.	Concept note is done. Associated research is On-going. Pls see the flyer attached. Findings arising from research will be ready for Nov 2022 meeting. Guidelines to be developed by the WG1
WG1 2019.11	Develop tools for upstream-downstream interface assessment	Harkunti Rahayu	Ongoing – Funding has not been secured.	We are still seeking funding to complete this exercise, which would collate previous 'interface' work that has been published in journal articles and will develop more practical tools for use by member states.

3. Work Plan 2022 – 2024 (including Progress on existing Activities)

#	Open Action	Who	Update Dec 2020	Update Nov 2021
WG1 2019.12	Support IOTIC in implementation of UNESCO-IOC Tsunami Ready Program and recognition in the IOTWMS Member States	WG1	Ongoing.	Closed. Comment by Secretariat: This should be a recommendation to the ICG to change ToRs to reflect this as ongoing activity
WG1 2019.13	Support integrated capacity development training workshops (i.e. SOP, TEMPP, Media)	WG1	Ongoing – Held virtual pre-IOWave20 SOP workshop.	Closed. Comment by Secretariat: This is existing ToR#1 and not an action item. Need specific actions related to ToR#1 in future
WG1 2019.14	Explore the possibility of utilising the online training platform being developed by the Global Disaster Resilience Center and other collaborative opportunities for meeting the capacity development needs of the IOTWMS Member States;	Harkunti Rahayu, Dilanthi Amaratunga, Richard Haigh	Ongoing.	Following the UK's withdrawal from the EU Erasmus+ programme no current opportunities to pursue this development. suggestion: to be removed from the work plan. However if new funding opportunities emerge, this can be proposed again in the future.
WG1 2019.15	In conjunction with IOTIC, develop a brief note on communication plan including target audience, means to be shared at ICG-XIII	Secretariat, IOTIC	Ongoing.	To be discussed at SG Nov 2021 and developed for ICG XIII in May 2022
WG1 R2020.1	ICG/IOTWMS endorse the recommendations of the Capacity Assessment of Tsunami Preparedness [Status Report 2018] related to a) risk assessment and reduction and b) awareness, preparedness and response for consideration in the WG-1 work plan.	Secretariat	New	done

4. Work Plan 2022 – 2024 (including Progress on existing Activities)

#	Open Action	Who	Update Dec 2020	Update Nov 2021
WG1 2020.1	Noting the kind offer of WG1 to assist with the upcoming Capacity Assessment of Tsunami Preparedness, a team consisting of Harkunti Rahayu, Dilanthi Amaratunga, Richard Haigh and Nora Gale to discuss the CAPT survey in more detail including incorporation of pandemic-related questions such as the extent to which tsunami preparedness measures have been adapted to Covid-19 conditions.	Harkunti Rahayu, Dilanthi Amaratunga, Richard Haigh, Nora Gale	New	It was later decided that this survey should focus on 'Tsunami warning services, evacuation, and sheltering during COVID-19', rather than replicate the full CAPT 2018 survey. The survey instrument was jointly developed by HUD (Richard and Dilanthi) and ITB (Harkunti). It was then refined following inputs by the Secretariat and WG1. In October 2021, the survey was issued to all IOTWMS Tsunami National Contacts. 31 responses have been received to date, covering 11 countries, mainly from NTWCs. There is still a need to increase response rates from NDMOs and sub-national response partners, which will enable us to provide a full analysis. A draft report of the findings will be shared before / during the May 2022 meeting.
WG1 2020.2	Working Group 1 to support the "developing and harmonizing local capacities for tsunami early warning project" being undertaken with ITB and University of Huddersfield with a case study taken in Indonesia funding from 2020 Newton Prize Winners (Harkunti P. Rahayu and Richard Haigh).	Harkunti Rahayu, Richard Haigh	New	Due to COVID-19 disruptions, the grant has been extended until March 2022. Desk studies and fieldwork in Indonesia are ongoing. We will be able to share findings at the May 2022 meeting. Please visit the project website for further details: http://deltaproject.info

5. Work Plan 2022 – 2024 (including Progress on existing Activities)

#	Open Action	Who	Update Dec 2020	Update Nov 2022
WG1 2020.3	Working Group 1 to support the integration of pandemic, tsunami and other multi-hazard preparedness into Early Warning and Urban Planning project with improved systems being undertaken in 2021-2021 by ITB and University of Huddersfield, with a major survey to be undertaken in the Indian Ocean and case studies to be undertaken in Indonesia and Sri Lanka.	Harkunti Rahayu, Dilanthi Amaratunga Richard Haigh	New	The regional survey is a duplicate of WG1 2020.1. Study findings on "integration of pandemic, tsunami and other multi-hazard preparedness into Early Warning and Urban Planning" will be presented in May 2022 meeting with an update to be provided for the November 2022. Project flyer is attached herewith Another project closely linked to above, also supported by the ITOWMS secretariat and WG1 was commenced in 2020, entitled: " Improving COVID-19 and pandemic preparedness and response through the downstream of multi-hazard early warning systems" , also with amalgamating downstream responses including for tsunamis. Findings to be ready for May 2022 with options to provide a short update for November 2021 meeting. Project flyer is attached . project web address is: http://www.pandemic-mhew.org/

6. Work Plan 2022 – 2024 (New Proposed Activity)

#	Open Action	Who		Update Nov 2022
WG1 …	Response to GPDRR 2022 recommendations Bali Agenda for Resilience (BAR)			
WG1 ….	Response to UN ODTP: Strategy how to achieve 100% community at risk prepared and resilience to tsunami			
WG1 …	Establishment WG for Tsunami Ready: Focus on TR implementation, be continuous and involve TR Focal Points, integrate future outcomes from WG1 and WG2 and TOWS-WG as required			
WG1 …	WG1 ToRs and Continuation: Recommend to add new ToR on Tsunami Ready: Provide advice and guidance (to TR WG) on the implementation of the Tsunami Ready Recognition Programme in the Indian Ocean			
WG1 ….	City/Regional Leader DRR Training Since DRR often seen as political commodity, there is need To balance community capacity building → Recommend to add new activity			

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Thank you …