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PTWS National Tsunami Warning Centre (NTWC) Competency Framework - Minimum Levels for Operations Staff

2024-25 ITIC Training Pilot

ITP-TWC Minimum Competency Training Pilot
Kick-off meeting, 15-17 July 2024, Wellington, NZ, hosted by NZ NEMA

based on TOWS Joint TT TWO - TT DMP, 19 Feb 2024, Sendai, Agenda 6
Laura Kong, ITIC

PTWS NTWC Competency Development - History



1. PTWS-XXVII (2017, Tahiti) – Identified need

- WG-SWP-IV (2016, Honiara). Develop competency guidelines for tsu operational personnel
- Tonga - needs assistance to review its national tsunami warning procedures,... and establish minimum warning competency levels.
- => WG 3 (Training) - on-going need for warning & response training in SW Pacific, including introduction of competency based training. Funding required to advance.
- **Action:** WG 2 est by mid-2018 (PTWS-XXIX, 2019), minimum competency level for NTWC operations, by identifying a) what competencies required and b) what training schemes in existence & what guidelines & principles can be adapted for this purpose. WG2 rpt to SC
- **Action:** PICT WG ToR: 2. Develop competency guidelines for tsunami warning personnel for PICTs and report outcomes to PICT WG and WG2
- PTWS-XXVII.1. Appendix 2. Budget & Programme, 2017-2019 – Identified need, but no funding

Activity	Approx. co- investment by MS and UNESCO	IOC Extra-Budgetary resources req	Year of expenditure	Status
WG2 Development of TWC Competency Training Program Workshop		US\$25K	2017	Not done, no funding. Instead by email => delays.
WG2 NTWC Training (five countries not conducting TEMPP/Tsunami Ready)	Tonga – in-country pilot ITIC (USAID) – training course pilot	5x US\$25K = US\$300K	2017 2018 2019	Not done, no funding except Tonga (2019) Competency course development by ITIC (2024-5)

PTWS NTWC Competency Development – History

ICG/PTWS-XXVIII established WG 2 Task Team (TT) on Minimum Competency Levels for National Tsunami Warning Centre (NTWC) Operations Staff



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- 2. Est. TT, PTWS-XXVIII (2019).** Chairs: Ms Lara Bland (NZ), Mr Ofa Fa'anunu (Tonga).
 - Build from **draft Framework** developed by small group after 2018 PTWS WG mtg in Hawaii.
 - **CONTENT** - competency framework proposed is multi-tier system with different levels of knowledge and skills required depending on the roles.
 - 2019 draft was incomplete – required further work to finish
 - October 2019 – Draft Competencies Pilot by ITIC at request of Tonga Met
- 3. Cont. TT, PTWS-XXIX (2021, virtual).** Chairs: Mr Ofa Fa'anunu (Tonga), Dr Laura Kong (ITIC)
 - Draft PTWS NTWC Minimum Competency Framework shared with Global TOWS WG Inter-ICG TT on Tsunami Watch Operations and Disaster Management and Preparedness (2022, 2023)
 - **Complete Draft Framework (May – July 2023)**
 - **Final TT Report (Sept 2023):** Minimum Competencies, Framework, Training, Existing schemas
- 4. PTWS-XXX (2023) and PTWS-SC (Marc 2024) – MS approve Framework**
 - **WG 2 recommended approval** – ICG/PTWS-XXX Consensus agreement
 - **ITIC proposed to develop training and pilot, report back to PTWS-XXXI** – ITIC funded 2024-25
 - **PTWS PICT WG TT on Capacity Development** – ITIC to work with and report back to ICG

PTWS-XXX Executive Summary (June 2024)



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The ICG decided to dissolve the Task Team on UN Ocean Decade, the Task Team on Future Goals and Performance Monitoring, and **WG2 Task Team on the Minimum Competency Levels for National Tsunami Warning Centre (NTWC) Operations Staff.**

The ICG noted recommendations arising from the TT Minimum Competencies, and noting the submission of a Minimum Competency Framework to the IOC for consideration, and in anticipation that conditions around assessment of efficacy have been met, and **further noted** the instruction of the Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems (**TOWS-WG**) at its **16th meeting in 2023 to the regional ICG, notably the PTWS, and the ITIC to pilot the PTWS National Tsunami Warning Centre (NTWC) Competency Framework for endorsement by ICG/PTWS with the goal to develop a global framework for all ICGs to use.**

The ICG approved the PTWS National Tsunami Warning Centre competencies framework, and **training requirements**, and **welcomed** the ITIC proposal to pilot the PTWS Minimum NTWC Competency Framework through the development and conduct of a training course during the intersessional period, and report back on its outcome to the ICG/PTWS at its 31st session.

WG-PICT Task Team: Capacity Development - TOR

ICG/PTWS-XXX (2023): Continue

Pacific Island Countries and Territories Working Group Task Team on Capacity Development with Terms-of-Reference as attached in Appendix 1 to Recommendation ICG/PTWS-XXX.1. Elected Chair is Mr Ofa Fa'anunu (Tonga, third term). The Terms of Reference for this group remains unchanged.

1. Continue the implementation of minimum competency framework for National Tsunami Warning Centres personnel and work with the ITIC to pilot it with Australia, Fiji, Samoa, Tonga and Vanuatu, and report progress and lessons learned to ICG/PTWS WG 1, 2 and 3.

The Task Team Members:

*Australia, Fiji, France-New Caledonia (Co-Chair), New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tonga (Co-Chair), Vanuatu, ITIC, IOC, PTWC, SPC, SPREP.
Co-chairs to be elected by the ICG.*

Minimum Competency Level for National Tsunami Warning Centre (NTWC) Operations Staff



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Thirtieth Session of the Intergovernmental Co-ordination Group
for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)

11-15 September 2023

Agenda Item 4.3

REPORT OF

PTWS WG 2 TASK TEAM ON THE
MINIMUM COMPETENCY LEVELS FOR
NATIONAL TSUNAMI WARNING CENTRE (NTWC) OPERATIONS STAFF

This document has been prepared by the Task Team, co-chaired by 'Ofa Fa'anunu, Director of the Tonga Meteorological Services, and Laura Kong, Director of the International Tsunami Information Centre (ITIC).

The need to establish minimum competency level for national tsunami warning centre staff was discussed in the during the Fourth Session of the PTWS Working Group for the South West Pacific in 2016 and requested by Tonga at the Twenty-seventh Session of the ICG/PTWS-XXVII in 2017. A working draft was shared at the Twenty-eighth Session of the ICG/PTWS-XXVIII in 2019, and a Task Team on the Minimum Competency Levels for National Tsunami Warning Centre (NTWC) Operational Staff established under Working Group Two. Feedback was received from the PTWS PICT WG Task Team on Capacity Development report at the Ninth session of the PICT WG in February 2023. The meeting noted the impacts of the 2022 Hunga Tonga – Hunga Ha'apai Volcanic Eruption and Tsunami, and so the importance of including volcano-generated and non-seismic tsunami sources, as well as an understanding the disaster management and risk reduction aspects of tsunami warning.

This report contains the Framework, Minimum Competency Levels, Training Requirements, and compilation of examples from countries around the world. The competencies are general and applicable to other ICG regions.

The competency framework is built on elements of competencies which can be grouped into levels or tiers. Each level/tier has a corresponding qualification for staff to earn upon completion of all required competency elements and the successful test against the predefined performance criteria. The competencies cover science, understanding PTWS Tsunami Service Provider products, and the performance of tasks stipulated in their National Tsunami Warning Centre standard operating procedures (SOPs). No one individual is expected to be trained to the highest level in all competencies, but all should have a common understanding of the fundamentals and the skills to perform the minimum tsunami warning response tasks. At least two roles are recommended in an NTWC, one requiring an advanced level of knowledge and competency to be the primary responder, and a second with a basic level of knowledge and competency to assist with the tsunami warning process.

A draft recommendation is available in the final section.

2023 Report of PTWS WG2 Task Team on Minimum Competency Levels for National Tsunami Warning Centre (NTWC) Operations Staff



ICG/PTWS-XXX, Agenda 4.3 (2023)

Expert Task Team Report:

1. Established [minimum competency levels](#) required for NTWC operations staff.
2. Established [framework](#) for required competencies required by roles of a NTWC.
3. Established [what training is required](#) to ensure NTWC staff meets minimum competency levels.
4. Investigates and [document what schemes are currently in existence](#) and what guidelines and principles can be adapted for this purpose.

Task Team (Co-Chairs *): Wilfried Strauch (Nicaragua), Ofa Fa'anunu (Tonga) *, Yuelong Miao (Australia), Chip McCreery (USA), Lara Bland (NZ), Laura Kong (ITIC) *, and Ken Gledhill (NZ)

Piloting: PTWS Pacific Island Countries and Territories (PICT) WG Task Team on Capacity Development (PTWS-XXVIII.1, 2019)

1. Continue the development of competency framework for NTWC personnel and [pilot](#) it in Australia, [Vanuatu, Fiji, Samoa and Tonga](#) and report progress and lessons learnt to ICG/PTWS WG 1, 2, 3

Minimum Competencies - Summary

Tier 2 CORE (Basic, Min), Tier 1 ADV (Comprehensive, Max)



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- **KNOWLEDGE Science**

- CORE : Basic tsunami science / earthquake source knowledge
- ADVANCED : Adv tsunami science / earthquake source knowledge, tsunami forecast modelling

- **OPERATIONS competencies**

- CORE
 - Understand / use TSP text / graphical products, core set of decision support tools. Perform all core NTWC SOPs
 - Identify potential regional, distant, and local source tsunami threats
- ADVANCED
 - Understand and produce tsunami threat maps
 - Explain relationship of tsunami warning products to evacuation maps and routes
 - Use a comprehensive set of decision support tools
 - Advanced practical seismology (locate / characterise EQs), sea-level observations: measure & interpret records

- **NATIONAL AGENCY competencies - CORE**

- Provide national threat and impact assessment. Liaise with NDMO and response agencies. Monitor public enquiries, provide guidance. Conduct Post-event activities (e.g., post-tsu surveys).

Available Resources and Progress

1. 'Competency' training – existing
2. Global Interest
3. ITIC Training – past, present, future



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1. Competencies – Existing Schema

Task Team solicited Competency Information (and training) from advanced NTWCs

- **Profile of staff** - background, experience for staff that are hired (such as degrees and specialities)
- **Length of NTWC training** before they are officially designated as Duty Watch Standers
- **Training Information** – syllabus (topics, length), how watchstander readiness is measured (tests, practicum, other measures), how training is accomplished (live observer, online, offline, hands-on, classroom, online, other)

Information received: **USA (PTWC, USNTWC), Australia (BOM, GA), Chile (SHOA), New Zealand (GNS, NEMA), India (INCOIS, NTWC)**

2. Global Interest and status : TOWS WG-XVI (Feb 2023)



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Establishing a Global Framework

- **Appreciated intersessional progress**

Work of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) to develop a [National Tsunami Warning Centre \(NTWC\) Competency Framework](#) (2019), and the ITIC's leadership to pilot training courses based on the Framework;

- **Instruct the regional ICGs (PTWS)**

ITIC to pilot the Draft PTWS [National Tsunami Warning Centre \(NTWC\) Competency Framework](#) (2019) for endorsement by ICG/PTWS with the goal to develop a global framework for all ICGs to use.

=> NOW APPROVED AND PROCEEDING TO PILOT in 2024-25



2. Global Interest and status : TOWS WG-XV (Feb 2022)

Recommendation 13 for training competencies:

- Notes with appreciation the work of the [PTWS to develop a NTWC Competency Framework \(2019\)](#), and the [ITIC's leadership to pilot](#) training courses based on the Framework,
- Noting the interest of other ICGs, requests the PTWS to share its document with other regions, and invite comments and feedback,
- Also noting the challenges in developing and implementing a global competency framework.
- Requests the [TT TWO and TT DMP to continue to consider development of guidelines for a global NTWC competency framework](#) based on the available set of documents and Pacific input, noting that implementation can be at a regional level.

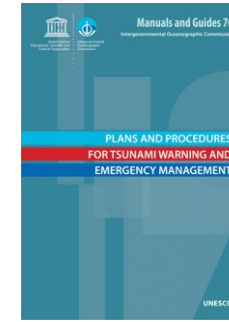
=> ITIC TO REPORT ON PROGRESS.

Consider development in global context applicable to all ICGs.

Consider development of process for national competency certification using WMO example

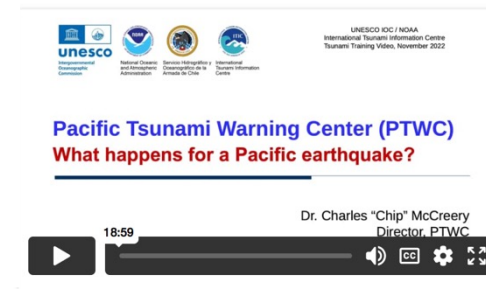
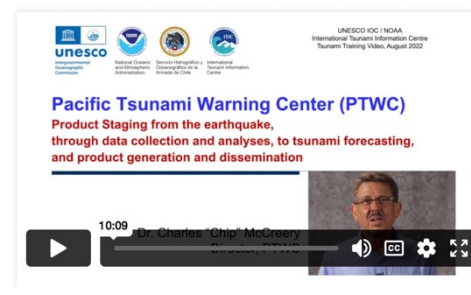
3. ITIC Existing

- Standard Training based on IOC Manual and Guides
 - TWC / TER SOP (MG 76); Evac Planning (TEMPP, MG 82)
 - 145+ trainings since 2005
- Ocean Teacher Global Academy (OTGA) – online and hybrid. Plan: TEWS, SOPs, TEMPP, Tsunami Ready
- PTWC Products training videos



Preparing for Community Tsunami Evacuations From Inundation to Evacuation Maps, Response Plans, and Exercises ... communities knowing what to do and where to go

IOC/ITIC Tsunami Evacuation Maps, Plans, and Procedures (TEMPP) Plus Capacity Building, Honduras and Central America, 2015-17



3. ITIC Future - NTWC Competency Training

Requirements - Content and Training Modality

1. Knowledge – do self-paced, hybrid
2. Operational SOP – do self-paced, hybrid, in-person
3. Real-life Experience – do by shadow at Advanced Centre, e.g., PTWC or others later (Australia, Chile, Japan, New Zealand, ?? ...)
4. National Qualification / Certification – by country

NOTE: IOC / ITIC does not provide certification for tsunami training and cannot certify staff

ITIC has funding for develop Training Course and Pilot in PTWS in 2024+

- Concept after US NWS Weather Pacific Training Desk (small cohort for 3 weeks, incl shadow)
- Competency measured (**for only 1, 2, 3 above**). Implementation Timeline:
 1. Develop Implementation Concept (incl partnerships, modality, application criteria, assessment)
 2. Develop Training Course content with PTWC shadow in 2024-25 (consult SMEs, develop e-learning modules (US COMET, IOC OTGA) and hands-on operations simulation tools)
 3. Pilot 1 cohort from PTWS PICT in 2025

ITP-TWC Minimum Competency – Project Team



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- Project lead – Laura Kong
- Project Manager – Tony Elliott
- Tsunami Warning Center SME – Ken Gledhill
- Budget Administration – Marie Eble

- Countries:
Australia, New Zealand, USA (NOAA PMEL, PTWC), other

- Consultation with
 - PTWS PICT WG TT Capacity Development
 - PTWS WG 2 on Warning and Dissemination
 - TOWS WG TT Tsunami Watch Operations
 - Other countries and experts



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