United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

FUTURE GOALS AND PERFORMANCE MONITORING

TOWS Task Team on Disaster Management Preparedness (TT-DMP)

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UNCLASSIFIED

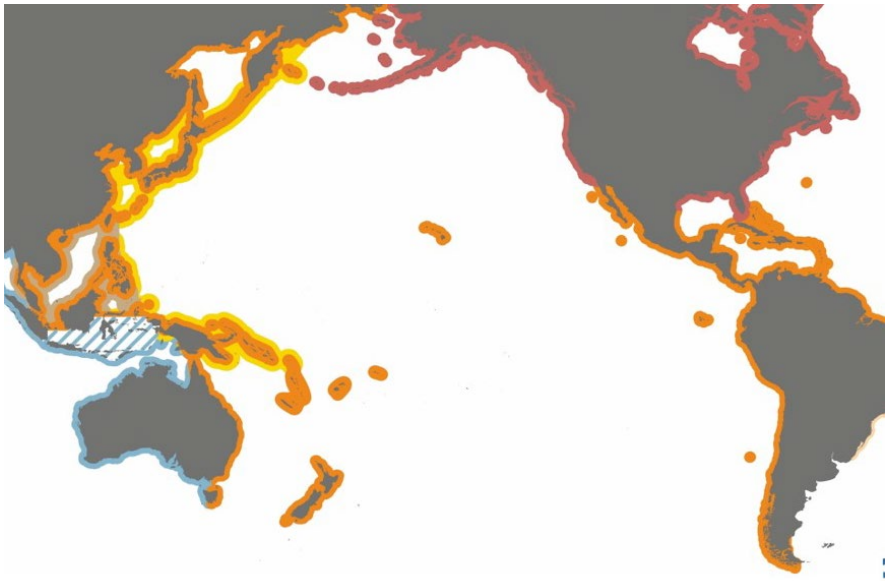
PURPOSE OF THE ICG/PTWS-TT FUTURE GOALS & PERFORMANCE MONITORING

Defined by the Terms of Reference (ToR). This includes:

1. Develop an ICG/PTWS Framework for the Future Goals and Performance Monitoring of the PTWS. This should be 'harmonised' with other ICGs.
2. Use outcomes from the 27th Meeting of the ICG/PTWS to establish a performance baseline and a list of activities and resources required to help meet the identified goals.
3. Developing a Status Report for reporting the status and performance of the PTWS

The main assessment activities include tsunami hazard risk assessment; warning system requirements; community awareness and preparedness; and planning.

OVERVIEW OF THE FRAMEWORK



International Oceanographic Commission (IOC) – Pacific Tsunami Warning System (PTWS)

Framework for Future Goals and Performance Monitoring of Risk Reduction Tsunami Hazard Warning and Mitigation Systems

This assessment table details the criteria for monitoring the performance of ICG/PTWS TSPs, NTWCs, overall national and PTWS activities including: tsunami hazard risk assessment, warning system requirements, community awareness and preparedness and planning. This framework build on the strategic objectives, suggested mechanisms and steps listed for each of the three declared PTWS Pillars (Risk Assessment and Reduction, detection Warning and Dissemination, and Awareness and Response) as described in the Pacific Tsunami Warning and Mitigation System (PTWS) Medium-Term Strategy, 2014–2021 (IOC TS-108). Assessment measures are aligned with the priorities for action and global targets of the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030, to ensure international alignment with best practice tsunami risk management, to measure the status against requirements and assist with obtaining resources for continued improvement. Specifically, these measures aim to align with Global Target (g) to increase availability of and access to multi-hazard early warning systems and disaster risk information and assessments by 2030. Harmonised standards will follow TOWS-WG recommendations as endorsed by the IOC.

Using this framework: ICG-PTWS WG/TT and ICG Countries are expected to monitor and evaluate against this framework and provide yearly reports via the annual ICG meeting structures.

MISSION: *"A modern and effective tsunami warning and mitigation system based on Member State participation. As a result, PTWS Member States are aware of the tsunami threat, work to reduce risk, and are prepared to act to save lives" (TS-108).*

GOAL 1: Understanding and Managing Tsunami Hazard and Risk

All ICG-PTWS countries understand their tsunami risk in all its dimensions including vulnerability, exposure of persons and assets, the many possible and/or likely tsunami hazard scenario and their characteristics, event frequency, uncertainties and associated consequences. Such knowledge should be translated into prevention, mitigation, preparedness and response planning activities.

Priorities for Action (PfA)		ICG-PTWS Targets					ICG Country Targets				Monitoring and Evaluation
		Responsibility	TASK - HOW Means of Implementation	WHAT Product to deliver	DEMONSTRATE Success measure (by which the PfA will be assessed)	WHEN Time	TASK - HOW Means of Implementation	WHAT Product to deliver	DEMONSTRATE Success measure (by which the PfA will be assessed)	WHEN Time	% achieved
1.1	**Tsunami Hazard Modelling**										
1.1.1	**Develop** methodology and supporting guidance for the *designation and mapping of tsunami inundation and evacuation zones.*	WG1	Establish standard methodology to include multi-scenario, location-based hazard inundation mapping using benchmarked models. Develop accompanying guidance and templates as required. Provision of training in hazard zone mapping, and translation of inundation maps into evacuation zone maps including on TEMPP methodology.	Guidance published. Template published. Training workshops	Via PTWS and IOC annual reporting requirements. Documents freely available and used consistently. Training / workshops announced by IOC Circular Letters	2018					

- Designed to ensure performance of PTWS TSPs, NTWCs, and NWSs was sustainable, achievable, and adequately monitored.
- Builds on strategic objectives of the PTWS
- Aligns with the PTWS Strategy, 2022–2030; priorities for action and global targets of SFDRR 2015-2030, to ensure international alignment with best practice tsunami risk management, to measure the status against requirements and assist with obtaining resources for continued improvement.
- Contributes to the EC decision EC-LI/3.3.
- ICG-PTWS WG/TT are expected to monitor and evaluate against this framework and provide yearly reports via the annual ICG meeting structures.

NWPTAC/JMA
Northwest Pacific Tsunami Advisory Center /
Japan Meteorological Agency

PTWC
Pacific Tsunami Warning Center

SCSTAC/NMEFC
South China Sea Tsunami Advisory Center /
National Marine Environmental Forecasting Center of P. R. China

OVERVIEW OF FRAMEWORK

- The PTWS Framework for Future Goals and Performance Monitoring was finalised in 2018.
- 2018 – 26 countries complete the 1st performance assessment round.
- This was reported to the Steering Committee at ICG/PTWS-XXVIII in Nicaragua, April 2019.

KEY INTERSESSIONAL ACTIVITITES

Covid-19 pandemic has impacted our ability to affectively monitor progress since 2018.

The next in-country reporting is anticipated to be carried out in 2022. More information on this is provided in Section 4 of this report.

DEVELOPING AN IOC GLOBAL PERFORMANCE MONITORING FRAMEWORK

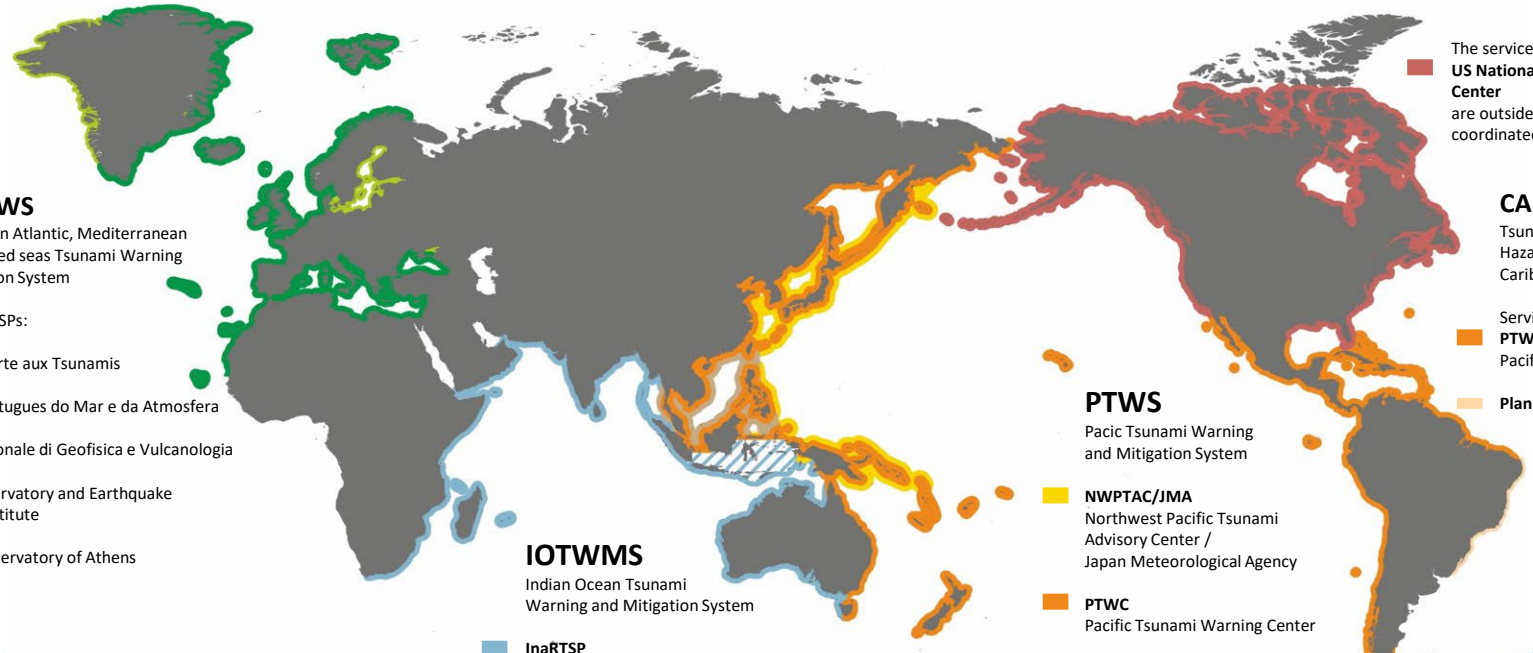
Action Item 6 – 'Report of the Inter-ICG Task Team on Disaster Management and Preparedness' (19/20 Feb 2019):

(1) Develop a key performance indicators that are harmonised with the goals and actions of the Sendai Framework for Disaster Risk Reduction;

(2) Review the current PTWS performance monitoring framework and compare this with other, similar ICG initiatives; and

(3) Develop a consistent global performance monitoring framework, which includes data collection tools/questionnaire and reporting formats.

GLOBAL GOALS AND PERFORMANCE MONITORING



NEAMTWS
North Eastern Atlantic, Mediterranean and connected seas Tsunami Warning and Mitigation System

Accredited TSPs:
CENALT
Centre d'Alerte aux Tsunamis
IPMA
Instituto Portugues do Mar e da Atmosfera
INGV
Istituto Nazionale di Geofisica e Vulcanologia
KOERI
Kandilli Observatory and Earthquake Research Institute
NOA
National Observatory of Athens

Planned

Service is provided by the
InaTEWS
Indonesian Tsunami Early Warning System at the BMKG, outside the framework of the IOC-coordinated tsunami warning systems

IOTWMS
Indian Ocean Tsunami Warning and Mitigation System

InaRTSP
Indonesian Regional Tsunami Service Provider
ITEWC
Indian Tsunami Early Warning Centre
JATWC
Joint Australian Tsunami Warning Centre

PTWS
Pacic Tsunami Warning and Mitigation System

NWPTAC/JMA
Northwest Pacific Tsunami Advisory Center /
Japan Meteorological Agency

PTWC
Pacific Tsunami Warning Center

SCSTAC/NMEFC
South China Sea Tsunami Advisory Center /
National Marine Environmental Forecasting Center of P. R. China

The services provided by the
US National Tsunami Warning Center
are outside the framework of the IOC coordinated tsunami warning systems

CARIBE-EWS
Tsunamis and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions

Service provided by
PTWC
Pacific Tsunami Warning Center

Planned

GLOBAL GOALS AND PERFORMANCE MONITORING

Sendai Framework for Disaster Risk Reduction 2015-2030

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

United Nations Decade of Ocean Sciences for Sustainable Development – A Safe Ocean

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

IOC Tsunami Programme – people centred EWS; aims at reducing the loss of lives and livelihoods from worldwide tsunamis; assess tsunami risk; educate communities at risk implement; multi-hazard disaster reduction strategies.

Tsunami Ready – enabling communities to reach a high level of tsunami resilience

ICG/PTWS Strategy 2022-2039

GLOBAL GOALS & CRITERIA

Goals:

- GOAL 1: Understanding and Managing Tsunami Hazard and Risk
- GOAL 2: Tsunami Detection, Warning & Dissemination
- GOAL 3: Enhancing tsunami preparedness for effective community response
- GOAL 4: Tsunami event response and recovery

Expectations are to:

- Monitor and evaluate against this framework
- Provide yearly reports via the annual ICG meeting structures
- Participate in annual TOW's meetings/workshops on global basin assessments. Detailing gaps, opportunities and improvements in regard to their evaluation against the framework
- Align all activities with the UN Ocean Decade

GLOBAL FRAMEWORK ACCESS

Web-based Portal

Hosted on IOC site

Algorithm functionality

Real-time graphs

Fair and ethical

Easy, accessible and simple (yet comprehensive)
National, ICG and Global reporting

GLOBAL GOALS & CRITERIA

"A modern and effective global tsunami warning and mitigation system based on global ICG and Member State participation. A key focus is to substantially improve community access to tsunami hazard and risk information, resulting in prepared, aware and resilient countries at risk of tsunami. Subsequently, we agree to work together, to reduce risk and build resilience to tsunami hazards."

United Nations Educational, Scientific and Cultural Organization · Intergovernmental Oceanographic Commission

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION of UNESCO

UNESCO Intergovernmental Oceanographic Commission (IOC) – Global Tsunami Performance Monitoring Framework

This assessment table details the criteria for monitoring the performance of TSP's, NTWC's and overall tsunami risk management activities of the ICG/PTWS, ICG/IOTWMS, ICG/CARIBE-EWS, and ICG/NEAMTWS.

There are five main goals that align with the strategic plans of the four ICG's. Each goal has targets that need to be achieved and associated activities and measures.

This framework is aligned with the Pacific Tsunami Warning and Mitigation System (PTWS) strategy 2022-2030, the United Nations Ocean Decade of Ocean Science for Sustainable Development (2021-2030), and IOC Strategy that identifies early warning systems as an important part of its strategic vision – 'Framework for Global Tsunami and Other Ocean Hazards Warning and Mitigation Systems' In addition the framework is closely aligned with the priorities for action and global targets of the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030, to ensure international alignment with best practice tsunami risk management, to measure the status against requirements and assist with obtaining resources for continued improvement. Specifically, these measures aim to align with Global Target (g) to substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments by 2030.

MISSION: *To operate a modern and effective global tsunami warning and mitigation system based on global ICG and Member State participation. A key focus is to substantially improve community access to tsunami hazard and risk information, resulting in prepared, aware and resilient countries at risk of tsunami. Subsequently, we agree to work together, to reduce risk and build resilience to tsunami hazards.*

GOAL 1: Understanding and Managing Tsunami Hazard and Risk

All Member States understand their tsunami risk in all its dimensions including vulnerability, exposure of persons and assets, the many possible and/or likely tsunami hazard scenario and their characteristics, event frequency, uncertainties, and associated consequences. Such knowledge should be translated into prevention, mitigation, preparedness and response planning activities.

GOAL 1 TARGETS	
The aim is to be 100% compliant with each target below	
1.1	**Develop** methodology and supporting guidance for the modelling of and designation of tsunami inundation and evacuation zones.
1.2	**Complete** tsunami inundation and evacuation zone mapping
1.3	**Implement and designate** tsunami evacuation zones.
1.4	**Develop methodologies** for tsunami hazard risk assessments developed including multi-scenario, location-based risk assessment of tsunami hazard characteristics vulnerability, exposure, likelihood and consequences.
1.5	**Conduct** and periodically review tsunami hazard risk assessments, using agreed methodologies.
1.6	**Translate** risk assessment findings to the appropriate stakeholders and sectors.
1.7	**Strengthen** technical and scientific capability to support locally informed risk assessments.
1.8	**Improve** the translation of scientific information and data into hazard risk assessments to inform and build on existing knowledge and identify gaps.

Note: Scale Will be changed to the following measurements: 0-25%, 25-50%, 50-75% and 75-100%

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

UNESCO Intergovernmental Oceanographic Commission (IOC) – Global Tsunami Performance Monitoring Framework

Assessment Table

GOAL 1: Understanding and Managing Tsunami Hazard and Risk

All Member States understand their tsunami risk in all its dimensions including vulnerability, exposure of persons and assets, the many possible and/or likely tsunami hazard scenario and their characteristics, event frequency uncertainties, and associated consequences. Such knowledge should be translated into prevention, mitigation, preparedness and response planning activities.

GOAL 1 TARGETS		The '%' gained will be analysed based on the answers provided. A country will not automatically get 0/25/50/100% as seen below. Their % achieved will be based on information given in the online assessment. E.g. 30% would fall between column 1 and 2. Examples will need to be provided by the user when answering the Q's.		
The aim is to be 100% compliant with each target below		0%-25%	25-50%	50-100%
1.1	Develop methodology and supporting guidance for the modelling of and designation of tsunami inundation and evacuation zones.	No methodology in place	Methodology developed, no supporting guidance	All complete
1.2	Complete tsunami inundation and evacuation zone mapping	evacuation zones	evacuation zones mapped	All zones modelled for inundation and 50-100% of evacuation zones mapped
1.3	Implement and designate tsunami evacuation zones.	<20% of evacuation zones designated	20-50% of evacuation zones designated	>50% of evacuation zones designated
1.4	Develop methodologies for tsunami hazard risk assessments including multi-scenario, location-based risk assessment of tsunami hazard characteristics vulnerability, exposure, likelihood and consequences.	No risk assessment methodology in place	Risk assessment methodology established, but not fully complaint with target - partially complete.	Fully compliant tsunami risk assessment methodology as per target
1.5	Conduct and periodically review tsunami hazard risk assessments, using agreed methodologies.	No review period in place	One review completed, no periodic review cycle in place.	Actively reviewing risk assessment, on agreed periodic cycle
1.6	Translate risk assessment findings to the appropriate stakeholders and sectors.	Relationship building required, currently risk assessment not translated further than TSP/responsible agency	Some engagement complete, plan in place to extend to other relevant stakeholders	Stakeholders actively engaged in assessment processes
1.7	Strengthen technical and scientific capability to support locally informed risk assessments.	Improvements required due to resource gaps or lack of capability	Some good expertise but more required in a specific area, this is being actively worked upon	Technical and scientific capability high, regular reviews in place to ensure this doesn't fall back
1.8	Improve the translation of scientific information and data into hazard risk assessments to inform and build on existing knowledge and identify gaps.	Some research used, no science engagement. Assessments based on other principals	Research used, scientifically based assessments	Research used, scientifically based assessments. Scientists actively involved in the created of assessments.
1.9	Identify and plan for ways to reduce tsunami risk in the short, medium and long term, including, for example, through the development of measures such as land use, maritime planning, critical facilities/infrastructure and structural standards.	No risk reduction plans or guidance in place	Research and work completed to start embedded risk reduction into plans and polices	Tsunami risk identified in long term plans, national, regional or local policy, or land use plans - reduction initiatives are identified
1.1	Ensure national and local tsunami response plans have a risk based approach and relate to the risk assessments.	<20% of response plans have a risk based approach applied	<50-75% of response plans have a risk based approach applied	<75-100% of response plans have a risk based approach applied
1.11	Assess ways to reduce, transfer, avoid, control or accept tsunami hazard risk	Tsunami risk is accepted with no other means to reduce or control the risk	Some controls and/or reduction initiatives are in place	Comprehensive measures to reduce, transfer, or control the risk are in place e.g. insurance cover for tsunami events

	Examples of how this target can be reached
	Information in this column is for use in the development of the web portal, that will house the 'survey' associated with this framework. It provides information on how Targets can be achieved. Questions will related directly to the Target. Questions may be skipped if they are not relevant (e.g. SIDs.), or will be removed based on user interface. Algorithm's will be used to 'weight' answers fairly based on country size, GDP and other factors that may hinder achieving certain Targets. Note: If reliance for a particular Target is on other nations, for example, to provide network coverage, this question will be removed and not included in the overall country 'score'.
	Information below will be seen in descriptive form, via a drop down box below each question, this will aid delegates to understand how to answer questions/assess if they have achieved the Target.
1.1	1. Methodology documented 2. Supporting guidance developed and published 3. Provision of training in the above if required
1.2	1. Modelling complete and documented 2. Inundation and or evacuation maps developed and documented
1.3	1. Tsunami source, and inundation modelling completed 2. Tsunami evacuation zone maps identified, mapped and accessible for all at risk populated areas 3. Where possible, obtain up to date LiDar and bathymetric data
1.4	1. Methodology documented (include multi-scenario, location-based hazard inundation mapping) 2. Supporting guidance and templates developed and published
1.5	1. Documented and published risk assessments 2. Workshops and training if required
1.6	1. Expert advice, guidance and/or review 2. Workshops and training 3. Stakeholder plans
1.7	1. Guidance is understood and published (see 1.1) 2. Identify training needs and funding requirements 3. Workshops and exercises to translate assessments and build knowledge 4. Relevant information made public and is easily accessible.
1.8	1. Guidance is understood and published (see 1.1) 2. Workshops and exercises to translate assessments and build knowledge 3. Promote and improve dialogue and cooperation among local/regional scientific and technological communities 4. promote use of technology and research in tsunami risk to address gaps
1.9	1. Inclusion of tsunami risk reduction measures in plans, guidance, standards and legislation. 2. Guidance developed on tsunami risk reduction topics such as land use planning. 3. Actively submit on local or regional policy that promotes tsunami risk reduction 4. Develop or own risk reduction plans
1.1	1. Develop and promotes response plans 2. Plans demonstrate the target and are freely available and used consistently. 3. Integrate response planning in public education strategies and campaigns, and national exercise plans 4. Ensure multi-stakeholder understanding and knowledge of plans and responsibilities 5. Response plans are exercised at least every two years, including for PacWave exercises.
1.11	1. Relates to Target 1.9 and can include designation of actions 2. Assessment of ways documented in national regional or local planning documents. 3. Tsunami disaster insurance in place

Task Team Recommendations to the TT-DMP

1. Agree to the approach outlined in this presentation

2. Agree for finalisation of the information and data presented today by the current Task Team members.

3. Agree for the Task Team to finalise the on-going documents and user guidance for survey completion.

4. Note, this work now requires resource and expertise that sits outside of the current task team.

5. Agree to fund a specific role to finalise the framework and work with industry experts to develop the survey; or IOC assign/appoint a person to help us with the online survey.

6. Agree to host the survey on the IOC website.