INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
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COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية الحكومية لعلوم المحيطات
政府间海洋学委员会

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IOC Circular Letter No 2756
(Available in in English only)

IOC/BA/AB/ba
12 February 2019

To : ICG/PTWS Tsunami National Contacts (TNC) and Tsunami Warning Focal Points (TWFP)

cc. : Official National Coordinating Bodies for liaison with the IOC
Permanent Delegates/Observer Missions to UNESCO and
National Commissions for UNESCO in ICG/PTWS Member States
UNESCO Offices in Asia/Pacific and Latin America
Permanent Observers to ICG/PTWS
ICG/PTWS Officers
Director PTWC
Director NWPTAC
Director ITIC

Subject: ICG/PTWS Framework for Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning, and Mitigation – First Cycle (2017–2018) of Reporting on Key Performance Indicators against the Framework agreed Goals

At its 26th session, the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), through recommendation ICG/PTWS-XXVI.3, agreed to establish a Task Team to develop a framework for future goals and performance monitoring measures for PTWS Tsunami Service Providers (TSPs), National Tsunami Warning Centres (NTWCs), and national warning systems. The framework should be aligned both with the PTWS Medium-term Strategy (IOC/2013/TS/108) established goals and priorities for action, and the global targets of the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015–2030.

The framework will support the PTWS performance assessment and enable monitoring the system against agreed goals and key performance indicators. Replacing the ICG/PTWS Implementation Plan that was developed in 2009, the framework will provide Member States with goals to achieve and the ability to identify gaps and possible solutions. This process will allow Member States to align their domestic work programmes to the activities and actions of the ICG/PTWS.

The framework will also contribute to respond to IOC Executive Council decision EC-LI/3.3 which requested the ICG/PTWS to: (a) complete its present work on key performance indicators (KPIs) and tailor them to the target G indicators of the Sendai Framework; (b) develop a document

containing the background and context of the proposed KPIs; and (c) provide the document to all ICGs for consideration, with a view to submitting a consolidated report to the IOC Assembly at its thirtieth session in 2019.

Through this letter and on behalf of the ICG/PTWS, we are pleased to send to Member States the **Framework for Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning, and Mitigation** and would like to request that you prepare and issue your first online National Report (2017–2018) against Key Performance Indicators.

Goals

The Framework has four main goals that summarize the overall objectives for a performance monitoring area. The Goals *set out the high-level intentions and long-term aims* of what the system strives to achieve. The four goals are as follows:

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	International coordination and cooperation

Priorities for Action (PfA)

Each Goal has specific detailed Priorities for Action (PfA), e.g. developing national public education strategies and campaigns for Goal 3. The PfA *provides detail on what needs to be achieved*. The number of PfAs varies for each Goal according to its scope.

Targets

Each PfA is divided into 'targets' for the ICG/PTWS and for PTWS Member States. These targets detail *what needs to be completed and demonstrated in order to achieve the PfA*, and by when.

To facilitate your reporting, two documents have been prepared: (i) a *Member State Guidance for National Reporting on ICG/PTWS Goals and Performance Monitoring*; and (ii) a *National Report Template*. The former document details the process and requirements for each ICG/PTWS Member State to report on their country's progress on tsunami risk management activities, including but not limited to, hazard risk assessment, warning system requirements, community awareness and preparedness and planning. The National Report Template may be used to collect information from relevant national stakeholders.

The online reporting survey is available at: https://www.surveymonkey.com/r/MN66YGZ

Inquiries about the reporting process should be sent to Bernardo Aliaga (b.aliaga@unesco.org), Technical Secretary of the ICG/PTWS.

We kindly ask Member States to complete their National Report by 15th March 2019 through the Online Survey.

Yours sincerely,

[signed]

Vladimir Ryabinin
Executive Secretary

Enclosures:

- ICG/PTWS Framework for Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning, and Mitigation
- National Performance Monitoring Report Template
- Member State Guidance for National Reporting on ICG/PTWS Goals and Performance Monitoring

Intergovernmental Oceanographic Commission (IOC) – Pacific Tsunami Warning and Mitigation System (PTWS)

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

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 (1. Risk Assessment and Reduction, 2. Detection Warning and Dissemination, and 3. 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 substantially increase the 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 Member States are expected to monitor and evaluate against this framework and provide yearly reports via the regular 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 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.

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, standards and templates as required. Provision of training in hazard zone mapping, and translation of inundation maps into evacuation zone maps including on Tsunami Evacuation Maps, Plans, and Procedures (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					

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1.1.2	**Implement and designate** tsunami evacuation zones.	WG1 WG3	Provision of support to countries as required.	Expert advice, guidance and/or review.	Via PTWS and IOC annual reporting requirements.	2018	Tsunami source modelling completed. Tsunami inundation modelling completed. Tsunami evacuation zones identified. Where possible, obtain up to date LiDar and bathymetric data.	Tsunami evacuation zone maps developed and accessible for all at risk populated areas.	Percentage of at risk communities with established evacuation zone maps documented via PTWS reporting requirements (National reports).	50% countries by 2021 (member state target Review as required	
1.2	**Tsunami Hazard Risk Assessment**										
1.2.1	**Methodologies** for tsunami hazard risk assessments developed including multi-scenario, location-based risk assessment of tsunami hazard characteristics vulnerability, exposure, likelihood and consequences.	WG1	Develop/establish, standardised methodology, or utilise existing best practice from other ICG's. Develop accompanying guidance, training and templates as required.	Guidance published. Template published.	Via PTWS and IOC annual reporting requirements. Documents freely available and used consistently.	End 2018					
1.2.2	**Conduct** and periodically review tsunami hazard risk assessments.	WG1	Provision of support to countries to undertake hazard assessments as required (including but not limited to source identification).	Expert advice, guidance and/or review. Training/Workshops	Via PTWS and IOC annual reporting requirements. Documents freely available and used consistently.	On-going	Using the established methodology to complete assessments. Collection of local DEM data via compilation of existing data sets or land survey. Tsunami source identification for hazard assessment via identification of Worst Credible Case Scenarios.	Documented and published risk assessments. High-resolution DEM models of at risk communities. Regional Tsunami Source Identification Report.	All countries with tsunami risk assessments undertaken and documented via PTWS reporting requirements.	50% by 2021 75% by 2025 Biennial review	
1.2.3	**Strengthen technical and scientific *capability*** in the Pacific to support locally informed risk assessments.	WG1 WG2 WG3	Provision of support to countries as required e.g. increased representation on science WGs or international tsunami programmes/panels. Training in risk assessment theory and practice. Facilitate capacity building by secondments across the System as required.	Guidance published. Training manuals published.	Via PTWS and IOC annual reporting requirements.	2021	Identify training needs. Identify funding requirements. Support learning and development opportunities.	Training records. Science and technical information clearly articulated in risk assessments.	50% (2019) and 75% (2021) of countries with local knowledge/expertise in tsunami assessments. Local science expertise documented via PTWS reporting requirements.	2019 2021 Biennial review	

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1.2.4	**Strengthen technical and scientific *information*** to inform and build on existing knowledge, and identify gaps.	WG1 WG2 Regional WGs ICSU/ WDS/ MGG	Work with scientific bodies e.g. The International Union of Geodesy and Geophysics (IUGG) to ensure the translation of science information to support tsunami risk assessments. Make non-sensitive tsunami hazard exposure, vulnerability, risk and consequence information freely available and accessible.	Guidance published. Products published. Workshops and exercises delivered. Web-based map of tsunami scenarios, basin-wide and by regions. ICSU/WDS/MGG - Global historical tsunami database (GHTD) continually updated and quality-controlled.	Increased inclusion of international tsunami science information. Gaps in existing knowledge identified and planned for. Via PTWS and IOC annual reporting requirements.	On-going	Promote and improve dialogue and cooperation among local/regional scientific and technological communities. Promote use of technology and research in tsunami risk to address gaps.	Workshops, exercises and products delivered that demonstrate knowledge gaps and information sharing with Pacific partners. New sharing arrangements with Pacific partners developed. Identify regional Task Teams as required/appropriate.	Knowledge gaps documented via PTWS reporting requirements (National reports).	2021 and on-going	
1.3	**Tsunami Risk Reduction**										
1.3.1	**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.	WG1 WG3 IOC ITIC	Providing guidance on risk reduction options and measures that could be considered as tsunami risk management best practice.	Guidance published on planning for vertical evacuation. Guidance published on land use planning, maritime planning, for ports and harbours, and major infrastructure (including airports).	Increased inclusion of risk reduction measures in country tsunami plans, use of guidance. Documents freely available and used consistently. Via PTWS and IOC annual reporting requirements.	2019 2021	Identify reduction measures suitable to each country, including the consideration of relocating critical facilities and infrastructures to areas outside the tsunami inundation zones, and design and development of commercial ports to minimize tsunami risk. Develop reduction plans with targets and measures. Demonstrate ways to reduce exposure to tsunami risk.	Tsunami risk reduction plans developed. Reduction measures implemented.	Documented via PTWS reporting requirements (National reports).	10% by 2019 50 % by 2021 75% countries by 2025	
1.5	**Response and Recovery**										
1.5.1	**Develop** national and local tsunami response plans.	WG3	Develop guidance and templates as required, including SOP guidelines, TEMPP guidelines.	Guidance published. Templates and products published. Workshops exercises delivered.	Documents freely available and used consistently. Via PTWS and IOC annual reporting requirements.	2018	Develop and promote response plans. Integrate response planning in public education strategies and campaigns, and national exercise plans. Ensure multi-stakeholder understanding and knowledge of plans and responsibilities.	Response plans developed and accessible for use by all necessary stakeholders. Response plans exercised at least every two years, including for PacWave exercises.	Documented via PTWS reporting requirements (National reports).	25% by 2019; 50% by 2021 and 90% countries by 2021	

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1.5.2	**Undertake post event analysis** by evaluating, recording, and integrating tsunami related impacts and losses into assessments to improve knowledge of tsunami hazard frequency and impacts.	WG1 WG3 ITIC	Support training in data calibration and reconnaissance using the International Tsunami Survey Team (ITST) Post-Tsunami Survey Field Guide, second edition, IOC. Manuals and guides; 37. Develop post event questionnaire to facilitate lessons learned.	Workshops delivered.	Documents freely available and used consistently. Pacific community wide data from events used to improve readiness of the PTWS. Via PTWS and IOC annual reporting requirements. Training / workshops announced by IOC Circular Letters	Ongoing	Develop post event analysis plans. Where possible demonstrate improvements on post event assessments, by detailing lessons and measures in tsunami risk reduction plans.	Event analysis plans and templates developed and tested in exercise. For a real event, 1. Collect data on impacts and losses, e.g., physical, biological, environmental, geotechnical, engineering, marine ecosystem. Data shared for input into the ICSU/WDS GHTB. 2. Distribute questionnaire to collect lessons learned, and compile as report for sharing with PTWS member States.	Documents available for use and reported on via PTWS reporting requirements (National reports).	50% (2019) 90% (2021)	
1.5.3	**Develop, manage and function** Emergency Operation Centres (EOC's)	WG3					Develop central command and control facility responsible for carrying out tsunami risk management functions at a strategic level during an emergency (EOC).	Exercised at least once per year EOC or equivalent established	Reported on via PTWS reporting requirements (National reports).	50% by 2019; 90% countries by 2021	

GOAL 2: Tsunami Detection, Warning & Dissemination

All ICG-PTWS Member States with at risk coastal communities receive timely, accurate, reliable and effective warnings for tsunami sources

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2.1	**Monitoring and Detection Networks**										
2.1.1	**Make seismic (real-time)** and other observational seismic data needed for rapid tsunami source detection and evaluation, available freely, accurately and timely to TSPs and NTWCs available from seismic monitoring networks.	WG2 Regional WGs	Sustain or enhance Pacific wide seismic and other observational network coverage necessary to rapidly detect and analyse all potential tsunami sources. Sustain and/or improve mechanisms for the open and timely exchange of these data and their metadata to TSPs and NTWCs. Continually assess and provide options to improve the system, this includes the use of other data types and new technologies.	Real-time data and associated metadata from seismic and other relevant observational networks sufficient to detect and characterize potential tsunami sources in a timely manner.	The coverage, sensitivity, and reliability of the contributing seismic and other relevant observational networks are routinely measured and compared against PTWS KPIs. The availability of these data and metadata to TSPs and NTWCs are routinely measured and compared against PTWS KPIs.	Ongoing	Member States sustain or enhance their seismic and other observational network coverage necessary to help rapidly detect and analyse all nearby potential tsunami sources. Member States exchange these data and metadata in a timely and open manner to TSPs and other Member States. Member States receive seismic and other relevant observational data and metadata from other networks to enhance their ability to rapidly detect and evaluate potential tsunami sources.	Earthquake or other potential tsunami source characteristics are available with sufficient accuracy and in sufficient time, either from TSPs or by national means, for NTWCs to generate alerts for local, regional, and distant tsunamis.	The coverage, sensitivity, and reliability of national seismic and other relevant observational networks are routinely measured and compared against PTWS KPIs. The availability of these data and metadata to TSPs and NTWCs are routinely measured and compared against PTWS KPIs.	Ongoing 100% (2025)	

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2.1.2	**Make sea level** (real-time) and other observational data needed for rapid confirmation, characterization, and monitoring of tsunami waves available freely, accurately and timely to TSPs and NTWCs from monitoring networks.	WG2 Regional WGs TSPs NTWCs	Sustain or enhance Pacific wide coastal and deep ocean sea level and other observational network coverage necessary to rapidly confirm, characterize, and monitor tsunami waves. Sustain and/or improve mechanisms for the open and timely exchange of these data and their metadata to TSPs and NTWCs. Continually assess and provide options to improve the system, this includes the use of other data types and new technologies.	Real-time coastal and deep ocean sea level data and associated metadata from seismic and other relevant observational networks sufficient to rapidly confirm if a tsunami has been generated, to characterize the tsunami, to constrain and validate tsunami forecast models, and to monitor the tsunami propagation and impacts. Assess ways to increase the existing network of stations.	The coverage, sensitivity, and reliability of the contributing coastal and deep ocean sea level and other relevant observational networks are routinely measured and compared against PTWS KPIs. The availability of these data and metadata to TSPs and NTWCs are routinely measured and compared against PTWS KPIs.	Ongoing	Sustain or enhance national networks of coastal and offshore sea level and other relevant observational gauges to rapidly detect, characterize and monitor tsunami waves. Exchange these national data and metadata in a timely and open way with TSPs and other Member State NTWCs. NTWCs receive sea level and other relevant observational data and metadata from other networks in order to monitor and evaluate tsunami waves approaching their coast from afar.	Tsunami waves from potential local tsunami sources can be confirmed quickly. Tsunami waves from distant sources can be monitored as they approach by NTWCs via data exchanged from other networks. Tsunami impacts along national coasts can be comprehensively monitored from initial impact through the end of the hazard. TSPs and NTWCs of other Member States receive the national sea level data and metadata.	The coverage, accuracy, and reliability of national coastal and offshore sea level and other relevant observational networks are routinely measured and compared against PTWS KPIs. The exchange of these data and metadata between Member States and TSPs is routinely monitored and measured and compared against PTWS KPIs.	Ongoing 100% by 2025	
2.2	**National Warning Systems**										
2.2.1	**Invest in, develop, and maintain** tsunami hazard, multi-sectoral forecasting and early warning systems.	WG2 WG3	Provision of support to countries to scope, and implement tsunami early warning systems. Promote the application of simple and low-cost early warning equipment and facilities and broaden release channels for tsunami early warning information	Expert advice, guidance and/or review. Training/Workshops.	Via PTWS and IOC annual reporting requirements.						

Priorities for Action (PfA)		ICG/PTWS Targets					ICG Country Targets				Monitoring and Evaluation
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2.2.2	**Provide** tsunami threat information to Tsunami Warning Focal Points (TWFPs) for each Member State with coastal communities at risk.	WG2 TOW S-WG TSPs	TSPs ingest and analyse seismic and other appropriate data to quickly detect, locate, and determine the magnitude of potentially tsunami-genic earthquakes. TSPs perform analyses based on seismic, sea-level, and other appropriate data to forecast tsunami impacts within their respective coastal areas of responsibility. TSPs compose and issue timely and accurate products to TWFPs and NTWCs of Member States.	ICG designation of TSPs Earthquake and tsunami events Exercises Communication tests Maintenance of Global Services Definition Document TSP performance reporting to ICG	Via TOWS-WGs, PTWS and IOC annual reporting requirements.		Tsunami Service Providers Funding sustained for TSPs to continue to provide service for other countries. Effective international and national communication networks.	At least 1x TSP providing threat information for each at risk countries ICG Meeting reports IOC Assembly and EC reports Post event assessments (see 1.5.2) TSP KPI reports to ICG and TOWS-WG WG2 reports Exercise evaluation reports. Country Capacity Assessments Project National Reports	ICG meetings or annual meetings IOC Assembly/EC	Ongoing	
2.2.3	**Perform** analyses to rapidly detect and then accurately characterize potential tsunami sources.	WG2 TSPs	TSPs and capable NTWCs perform appropriate analyses to rapidly detect and then accurately characterize potential tsunami sources. TSPs and NTWCs issue timely, accurate, reliable and effective products regarding potential and confirmed tsunami threats to vulnerable populations and infrastructure.	TSPs and NTWCs issue timely, accurate, reliable, and effective products regarding potential and confirmed tsunami threats to at risk coastal communities.	TSP and NTWC timeliness, accuracy, and effectiveness of products and their information are measured routinely as well as for significant events and compared against PTWS KPIs.						

Priorities for Action (PfA)		ICG/PTWS Targets					ICG Country Targets				Monitoring and Evaluation
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2.2.4	**Develop** national 24/7 capability to receive or generate tsunami threat information and issue tsunami warnings to coastal communities at risk.	IOC WG2	Provision of support to countries to scope, and implement tsunami early warning systems.	Expert advice, guidance and/or review. Training/Workshops.	Via PTWS and IOC annual reporting requirements.	ICG meetings or upon request by IOC Secretariat	Bulletins received from TSP(s) by TWFP. Bulletins issued by NTWCs/Member States Earthquake and tsunami events Exercises Communications tests	Number of countries with 24/7 Tsunami Warning Focal Point (TWFP) and access to tsunami threat information determined by TSPs or NTWC National Protocols (SOPs) for use of manual and or automated information to generate tsunami warnings when close to the source. Elapsed time of issuing national tsunami warnings and other related statements according to SOPs	100% countries Surveys TWFPs listed by Member States meet the requirements as defined by IOC TWFP information in IOC database kept up-to-date by Member States. National Reports submitted to ICG meetings. Event Questionnaires Exercice evaluation reports. Reports of communications tests Country Capacity Assessments Project National Reports	ICG meetings or upon request by IOC Secretariat 100% countries by 2021	
2.3	**Tsunami alerts and warnings**										
2.3.1	**Establish** multiple channels to receive tsunami warnings						NTWC's/TWFP's monitor warning channels 24/7 NTWC's/TWFP's receive TSP and other products through at least two channels. TSP and/or NTWC products are available through multiple channels	National multi-channel hazard, communications and the dissemination of tsunami warnings	Via TOWS-WGs, PTWS and IOC annual reporting requirements.	100% countries by 2021	
2.3.2	**Developing** and investing in public alerting systems	WG3 ITIC					Establish multiple channels for TWFPs and NTWCs to receive tsunami products from TSPs. TWFP's and NTWCs monitor warning for TSP products 24/7.	Tsunami alerts communicated to all at-risk communities Tsunami alerts communicated to all main populated areas via multiple channels/mechanisms.	Country Capacity Assessments Project National Reports	100% by 2025	

GOAL 3: Enhancing tsunami preparedness for effective community response

All ICG-PTWS Member States strengthen tsunami preparedness and awareness for more effective response and recovery.

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3.1	**Public Education**										
3.1.1	**Develop**, promote and use national public education strategies and campaigns	WG3 ITIC	Develop/establish standard methodology and templates and best practice for countries to create public education strategies aligned with SFDRR. Specific guidance developed for local source natural warning signs and associated preparedness actions plans. Collate and provide guidance on how to engage with NGO's, the private sector and others to promote tsunami awareness and preparedness	Tsunami preparedness guidance and associated material developed and collated. Endorsed, publicised, available for use to all ICG countries. Establish usability feedback mechanisms in National report templates. Available for use by all countries.	Documents freely available and used consistently by 90% of ICG countries. Via PTWS and IOC annual reporting requirements.	2018	National public education strategies include Tsunami preparedness and awareness contents. Formal and in-formal education included in tsunami strategies. Develop campaigns to meet goals of public education strategies, targeted at building tsunami risk awareness/preparedness. Where applicable, community education on natural warning signs for local source tsunami. Collaboration of all stakeholders through the involvement of national/local government, the private sector, community-based organizations and non-governmental organizations.	Strategy and supporting materials developed. Campaigns with clear implementation plans developed accessible for all necessary stakeholders. Use of multi-media channels. Social media used.	Publication of strategy and supporting materials. Reported on via PTWS reporting requirements (National reports). Multi-sectoral approach taken and identified. Training and education on tsunami risk delivered. Outreach activities delivered to communities.	90% have strategies and campaigns, with accessible materials by 2021 50 % 2019; 75% by 2021; 90% countries by 2025	
3.2	**Community awareness and preparedness**										

Priorities for Action		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
3.2.1	**Develop and establish** tsunami evacuation zones, signs, routes and maps in conjunction with community engagement.	WG3 ITIC Regional WGs	Develop/establish supporting documents to identify and promote tsunami inundation areas, evacuation zones, signs, routes and maps. Develop and facilitate training for tsunami evacuation mapping and planning. Promote and guide on approaches for culturally appropriate community engagement. Establish best practice guidance, resources and products for local source tsunami. Support provided in establishing signs, routes, maps.	Guidance and associated material developed. All material endorsed, published, available for use to all ICGs. Trainings, workshops and support delivered.	Increased application (Pacific community wide) of PTWS endorsed approaches in establishing signs, routes and maps. All documents freely available and used consistently by 90% of ICG countries. Via PTWS and IOC annual reporting requirements.	2021	Display and publicise tsunami evacuation maps, Maps available via multiple channels and displayed in public spaces. Information on tsunami hazard and risk publically available. Develop safe, tsunami evacuation routes in conjunction with communities. Agree signage locations in conjunction with communities. Consider the use of new technologies to promote awareness.	Culturally appropriate evacuation maps, safe routes and sign locations, developed in appropriate country specific formats. Bi-/Multi-languages considered and/or used. Engagement with communities clearly identified, and endorsed.	Tsunami evacuation maps, routes and signs displayed and visible, in appropriate country specific formats. Aligned with Tsunami Ready and identified via PTWS reporting requirements (National reports).	50% by 2021 75% countries by 2021	
3.2.2	**Conduct** tsunami evacuation drills and exercises using a multi-stakeholder approach at all levels	WG3 ITIC TT PacWave	Facilitate Pacific wide exercises and support ICG-Countries to engage and 'play'. Establish exercise control, monitoring and evaluation instruments/documents for member states. Establish exercise writing guidance - develop and promoted. Support an appropriate range of location based scenarios in exercises. Support provided to countries with local source tsunami risk, to complete local source tsunami drills/exercises.	Published documents and templates. Methodology published. Complete exercise control, monitoring and evaluation in conjunction with member states. .Support provided to countries with local source tsunami risk, for completing regular local source tsunami drills/exercises.	Post exercise reports e.g. PacWave exercise reports/TT Reports. % country participation improves overtime. Exercise documents freely available and delivered in time for ICG countries to plan and participate in Pacific wide exercises. Regional/Local templates used. Via PTWS and IOC annual reporting requirements. Local source tsunami exercises included in Pacific wide exercises	NOW	Countries develop and maintain a national exercise programme. Develop exercise control, monitoring and evaluation documents aligned with PTWS documents and templates. Promote regular tsunami preparedness, response and recovery exercises/drills at all levels and develop supporting promotional material. Countries complete regular drills and exercises as outlined in the national programme, taking a multi-stakeholder approach Including, but not limited to: • Communities • Private sector • NTWC • Emergency Management Agencies(all levels) • Schools/education providers • Critical infrastructure providers.	All exercise/drill documentation developed and used, consistent with PTWS guidance. Bi-/Multi-languages considered and/or used for exercise promotional material. Community exercises conducted at least biennially.	De.monstrated preparedness and capability in member states at government and community levels to respond to tsunami threat National Reports submitted to ICG meetings. Member State surveys. Exercise Evaluations. Post exercise review and articulation of lessons identified, with recommendations or gaps clearly noted in National Strategies for improvements. Completing regional and being involved with Pacific wide exercises. Via PTWS reporting requirements (National reports).	50 % 2019; 75% by 2021; 90% countries by 2025 By 2019 100% of countries with local source tsunami risk, where the wave arrival time is < 10 mins, have performed drills and or exercises	

GOAL 4: International Coordination and Cooperation

All ICG-PTWS Member States in a region and globally work together to detect tsunami threat and build capacity and capability to respond

Alignments with: IOC Tsunami Programme, TEMPP, TsunamiReady

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
4.1	**International Engagement**										
4.1.1	Enhanced capacity and capability to respond to tsunami threat	IOC PTWS ICG WGs PTWS SC ITIC	Develop and share tools, products and guidelines. Develop, find resources and implement capacity building projects involving relevant countries, WGs and TTs.		Via PTWS and IOC annual reporting requirements.		Countries engaged in the intergovernmental process and working together to mutually develop capability in tsunami disaster risk reduction, Coordinated development and implementation of Capacity Building projects for least developed countries and small island developing States.	Number and types of capacity building projects supported Capacity building projects involving at least four appropriate countries during each ICG inter-sessional period (two years)	ICG Steering Group reports Funds are available to undertake capacity building projects ICG Relevant WGs	60% Member States attend ICG meetings and/or relevant Regional Working Group meetings by 2019 75% by 2021	

UNESCO-IOC

Intergovernmental Coordination Group (ICG) for the Pacific Tsunami Warning System (PTWS)

MEMBER STATE GUIDANCE FOR NATIONAL REPORTING ON ICG/PTWS GOALS AND PERFORMANCE MONITORING

This document details the process and requirements for each ICG/PTWS Member State to report on their country's progress on tsunami risk management activities, including but not limited to hazard risk assessment, warning system requirements, community awareness and preparedness and planning.

Member States should read this guide prior to completing the National Report template and the On-line Report.

Documents that relate to this guide are as follows:

- Framework for Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning, and Mitigation (table);
- On-line reporting survey; and
- National Performance Monitoring Report Template.

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1. BACKGROUND

At the ICG/PTWS-XXVI.3, the ICG agreed to establish a Task Team to develop goals and performance monitoring measures for PTWS Tsunami Service Providers (TSPs), National Tsunami Warning Centres (NTWCs), and national warning systems. It was agreed the Task Team would:

- Develop a Framework for future goals and performance monitoring of risk reduction tsunami hazard warning and mitigation systems.
- Align the Framework with the PTWS Medium-term Strategy (IOC/2013/TS/108) established goals and priorities for action and global targets of the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030.

The Framework will support the PTWS to be well maintained in its functions and performance, and monitor the system against agreed goals and key performance indicators. Replacing the IC/PTWS Implementation Plan that was developed in 2009, it will provide Member States with future goals to work towards, the ability to identify gaps in their reduction, assessment, warning and mitigation system, identify areas for improvement, and to meet common objectives. This process will allow Member States to align their domestic work programmes, while supporting the activities and actions of the ICG.

1.1 Objectives

The key objectives of the Future Goals and Performance Monitoring Framework are to:

- Demonstrate performance against agreed goals
- Demonstrate value and contributions of the Tsunami Programme to the Intergovernmental Oceanographic Commission (IOC).
- Inform priorities and resource setting at the IOC level.
- Support a common framework for future goals and performance monitoring of all ocean basin ICGs.
- Build on the strategic objectives, suggested mechanisms and steps listed for each of the three PTWS Pillars (1. Risk Assessment and Reduction, 2. Detection Warning and Dissemination, and 3. Awareness and Response) as described in the Pacific Tsunami Warning and Mitigation System (PTWS) Medium-Term Strategy, 2014−2021 (IOC TS-108).

1.2 Integration of the Sendai Framework for Disaster Risk Reduction (SFDRR)

The Sendai Framework for Disaster Risk Reduction (SFDRR) was adopted at the Third UN World Conference in Sendai, Japan, on 18 March 2015. Many PTWS Member State are among those signatory countries that committed to the goals and actions of the SFDRR and agreed to report, nationally, on their progress in reducing overall disaster risk.

The SFDRR aims to achieve "substantial reduction of disaster risk and loss to life, livelihoods and health, and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries." The Sendai Framework has developed seven agreed global targets (A-G) to measure progress against, with related national targets and indicators contributing to the achievement of the outcome and goal.

The IOC, through the Tsunami Programme and ICG, will contribute to the expected outcomes of the Sendai Framework (t*he substantial reduction of disaster risk and losses in lives, livelihoods and health and in economic, physical, social, cultural and environmental assets of persons, business, communities and countries).*

Target G of the SFDRR aims to *"Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030".* Key components of Target G focus on improved detection, monitoring, analysis, and forecasting of hazards and possible consequences, and dissemination and communication, by an official source, of authoritative, timely, accurate, and actionable alerts and associated information on likelihood and impact (UNISDR, 2015). This specifically relates to the IOC Tsunami Programme and ICGs objectives. Alignment of the SFDRR with the ICG/PTWS Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning, and Mitigation, ensures international alignment with best practice tsunami risk management, and assists with targeting resourcing for continued improvement.

2. THE FRAMEWORK ASSESSMENT TABLE

The Framework is comprised of a Performance Monitoring Framework Assessment Table (Appendix 1) which details the criteria for monitoring the performance of the ICG/PTWS and PTWS Member States including, but not limited to tsunami hazard risk assessment, warning system requirements, community awareness and preparedness and planning.

2.1 Framework Components – Goals, Priorities for Action and Targets

The following section outlines the main components of the Performance Monitoring Framework Assessment Table.

Goals

The Framework has four main goals that summarize the overall objectives for a performance monitoring area e.g. Understanding Tsunami Risk. The Goal *sets out the high-level intentions and long-term aims* of what the system strives to achieve. The four Goals are as follows:

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:	International coordination and cooperation

Priorities for Action (PfA)

Each Goal has detailed Priorities for Action (PfA) that relate to the purpose of the Goal e.g. developing national public education strategies and campaigns. The PfA's provide *detail on what needs to be achieved*. The number of PfA's vary for each Goal, as some Goals are broader than others.

Targets

Each PfA is divided into 'targets' for the ICG/PTWS and for PTWS Member States. These targets detail *what needs to be completed and demonstrated in order to achieve the PfA*, and by when.

3. REPORTING

3.1 Using the Framework Table

ICG/PTWS Working Groups and Task Teams and ICG Member States are expected to monitor and evaluate their progress against the Framework, and provide annual progress reports via the ICG structures. The Framework Table should be read in full before starting the reporting process.

First reporting against the Framework will begin in 2019 (for the period 2017-2018) following the endorsement of the Framework by the PTWS Steering Committee, and the mandate given by the ICG/PTWS to the Task Team on Future Goals and Performance, at its 27th session in April 2017

3.2 National Report Template

The National Performance Monitoring Report Template (Appendix 2) is to be used by each ICG/PTWS Member State to internally collect their country's progress on tsunami risk management activities, including but not limited to hazard risk assessment, warning system requirements, community awareness and preparedness and planning.

The National Report Template has a set of questions and answers aligned with the Framework Table. The questions address goals, priorities, and targets on how each Member State manages, or intends to manage tsunami hazard and risk. To support Member States in answering the questions, detail is provided in the Framework Table on what is required to achieve under each Goal's priorities. Members States should ensure they have reviewed this thoroughly and have an understanding of what needs to be demonstrated before commencing the National Report Template. Each question should be answered, based on achievement of all success measures.

The National Report Template also provides an opportunity for Member States to give detailed examples on achievements, modifications, gaps, issues, and future plans.

Completion of Member State reporting should be done collaboratively with all relevant tsunami practitioners and stakeholders. This will provide an accurate picture of each Members State's progress. It is recommended the national reporting process is led by the **Member State Tsunami National Contact** or National Tsunami Warning Focal Point.

3.3 On-line Reporting

An on-line survey will support the ICG/PTWS and IOC Tsunami Programme with monitoring and assessing progress.

The objective of the on-line survey is to enable a high-level, compiled overview of PTWS Member States progress on the Goals of the Performance Framework. The on-line survey may not include the same level of detail as the Reporting Template and should be completed once the National Reporting Template has been finalized. The questions in the on-line survey have been designed so they are quick to answer, while providing insight into the overall system's progress.

The PTWS Task Team for Future Goals and Performance Monitoring will facilitate the on-line reporting survey and synthesis of the results. The Task Team Chair or nominated IOC delegate will provide a report on the results at each ICG/PTWS meeting. This will show where gaps exist, where improvements need to be made and inform the PTWS work programme.

4. TIMEFRAMES AND IOC EXPECTATIONS

The National Report Template should be used internally to collect all relevant information.

The on-line survey is the only formal submission required.

IOC expects all Member States to complete national level reporting, to assist in building a strong, resilient Pacific-wide tsunami community that has established risk reduction practices, imbedded public education and awareness campaigns, with robust tsunami monitoring, detection and warning systems that keep Pacific basin communities safe from tsunami threat.

5. PROCESS OVERVIEW (Quick reference guide)

The following table summarizes the performance monitoring process:

Task (in Priority order)	**Task Description**	**Responsibility/Task Owner**
1	Member States receive all relevant documentation for completing National Performance Monitoring Reports.	PTWS TT
2	Member States review the Future Goals and Performance Monitoring Framework Table, to fully understand the Goals and associated Priorities for Action (PfA's) that they are reporting against.	PTWS Member States
3	Member States complete the National Reporting Template in conjunction with the targets outlined in the Future Goals and Performance Monitoring Framework Table.	PTWS Member States
4	Member States fill out and submit the on-line National Reporting Survey.	PTWS Member States
5	PTWS Task Team for Future Goals and Performance Monitoring synthesises the on-line survey report, and where necessary refers to the Member States National Reports, to develop a clear summary of ICG/PTWS progress.	PTWS TT
6	PTWS Task Team for Future Goals and Performance provides a progress report to the inter-sessional meeting of the ICG/PTWS Steering Committee.	PTWS TT
7	PTWS Task Team for Future Goals and Performance Monitoring present results at the biennial PTWS ICG meetings to inform future system goal setting, priorities, and WG/TT work programmes.	PTWS WG's and TT's
8	PTWS Task Team for Future Goals and Performance Monitoring share results with other IOC-ICG's.	PTWS TT

UNESCO-IOC

Intergovernmental Coordination Group (ICG) for the Pacific Tsunami Warning System (PTWS)

NATIONAL PERFORMANCE MONITORING REPORT TEMPLATE

This template is to be used by each ICG/PTWS Member State to present their country's progress on tsunami risk management activities, including but not limited to hazard risk assessment, warning system requirements, community awareness and preparedness and planning.

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 to assist with targeted resourcing for continued improvement.

Member States must use this report in conjunction with the 'Framework for Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning, and Mitigation' table, and will monitor and evaluate their progress against this framework on a yearly basis. This report will enable Member States to achieve this, along with summaries via the annual ICG meeting structures.

NB: National Reports will be posted to the ICG/PTWS meeting website without TWFP contact details

REPORT SUBMITTED BY (Country name):	

PART I: SUBMISSION INFORMATION

1) ICG/PTWS Tsunami National Contact (TNC):

The person designated by a Member State to an Intergovernmental Coordination Group (ICG) to represent his/her country in the coordination of international tsunami warning and mitigation activities. The person is part of the main stakeholders of the national tsunami warning and mitigation system. The person may be from the national tsunami warning centre, the national disaster management organization, from a technical or scientific institution, or from another agency with tsunami warning and mitigation responsibilities.

Name:	
Position:	
Organisation:	
Telephone Number:	
E-mail Address:	
Postal Address:	

2) National Tsunami Warning Centre (NTWC):

A centre officially designated by the government to monitor and issue tsunami warnings and other related statements within their country according to established National Standard Operating Procedures.

NTWC Agency Name:	
NTWC URL (web link):	
NTWC Contact – Name:	
Position:	
Telephone number:	
E-mail address:	
Postal address:	

3) ICG/PTWS Tsunami Warning Focal Point (TWFP):

A 24x7 point of contact (office, operational unit or position, not a person) officially designated by the NTWC or the government to receive and disseminate tsunami information from an ICG Tsunami Service Provider according to established National Standard Operating Procedures. The TWFP may or not be the NTWC.

TWFP Agency Name:	

TWFP URL (web link):	
TWFP Contact – Name:	
Position:	
Telephone number:	
E-mail address:	
Postal address:	

PART II: MONITORING REPORT ON TSUNAMI RISK MANAGEMENT

Please use the following monitoring template to document your county's tsunami risk management. This template aligns with the 'Framework for Future Goals and Performance Monitoring of Risk Reduction Tsunami Hazard Warning and Mitigation Systems' KPI table.

The following questions address goals, priorities, and targets on how your country manages, or intends to manage tsunami hazard and risk.

Goal 1: Understanding and Managing Tsunami Hazard and Risk

Tsunami Hazard Modelling

1) Has your country identified all possible tsunami sources?

☐ Yes
☐ No

2) Has your country completed tsunami source and propagation modelling?

☐ Yes
☐ Partially
☐ No

3) What is/are your country's most significant tsunami source(s) as identified? (please tick all that apply)

☐ Distant-source (greater than 3 hours)
☐ Regional-source (1-3 hours)
☐ Local-source (less than 1 hour)

4) Has your country completed tsunami inundation modelling and developed inundation zones?

☐ Yes
☐ No
☐ Some areas
☐ Inundation modelling has been completed but inundation zones are not yet developed

If yes, do they consider multiple scenarios?

_____

_____

5) What scenarios are your country's inundation zones based on, as they stand at present? (Please fill in the table below)

	Source (location)	**Return period**	**Confidence percentile**
1.			

2.			
3.			

6) At what level has inundation modelling been completed?

☐ National (all at risk communities)
☐ Regional
☐ Local/District
☐ City
☐ Community (suburb)

7) Who completed your country's tsunami modelling?

Name the organisation(s):

_____

_____

8) What software did the organisation use to complete your country's tsunami inundation modelling?

☐ MOST - ComMIT
☐ COMCOT
☐ TSUNAMI-N1/2
☐ RiCOM
☐ NEOWAVE
☐ Other (please describe)_____

9) Has your country identified tsunami evacuation zones for all at risk communities?

☐ Yes
☐ No
☐ Some areas (please fill out the table below):

At risk areas <u>WITH</u> tsunami evacuation zones	**At risk areas <u>WITHOUT</u> tsunami evacuation zones**

10) Are your country's tsunami evacuation zones easily accessible, well marked and published for all at risk populations?

☐ Yes
☐ No

11) How many evacuation zones does your country apply?

☐ 1
☐ 2
☐ 3

☐ 4 or more

12) What format are your country's tsunami evacuation zones published in?

☐ PDF's (or similar)
☐ Geographic Information Systems (GIS)
☐ Other (please list all that apply and supply an explanation)

_____

13) Where possible, does your country obtain up to date LiDAR and bathymetric data?

☐ Yes (if yes, when was this data last updated):

_____

☐ No (please explain why) _____

14) How often is your country's tsunami modelling and evacuation zones reviewed and updated? e.g. annually, biennially, when you update LiDAR and/or bathymetric data (please describe)

_____
_____

Tsunami Hazard Risk Assessment

15) Has your country completed a tsunami hazard risk assessment(s)? (for all at risk communities)

☐ Yes
☐ No (If no, can you please describe why e.g. data restrictions)

_____
_____

16) Does your country's risk assessment consider multiple-scenarios?

☐ Yes
☐ No
☐ Focus only on maximum credible event (please describe)_____

_____
_____

17) Does your tsunami risk assessment account for vulnerability and exposure including population's assets, and critical infrastructure?

☐ Yes
☐ No

Please tick if included in your country's tsunami risk assessment

Exposure	**Identified**	**Vulnerability (in tsunami inundation zones)**	**Identified**
Population		Population	
Assets (buildings)		Assets (buildings)	
Critical infrastructure		Critical infrastructure	
Roads		Roads	

Other (please describe)		Other (please describe)	

18) Does your country have a standardised methodology to conduct your tsunami hazard risk assessment?

☐ Yes

☐ No

If yes, please describe (e.g. PTWC resources and guidelines)

_____

_____

19) Are your county's tsunami hazard risk assessment(s) methodology and results documented and easily accessible?

☐ Yes

☐ No

If yes, how are they documented and where can they be accessed? (e.g. PDF's or similar on council websites)

_____

_____

If no, why not?

_____

_____

20) Has your country documented tsunami hazard risk assessment(s) via PTWS reporting requirements?

☐ Yes (if yes, when was this last documented?)

☐ No (if no, why not?)

_____

21) How often is your country's tsunami risk assessment reviewed and updated? This includes review of technical and scientific information (please tick only one)

☐ Annually

☐ Biennially

☐ When data is updated e.g. LiDAR/bathymetric, assets, population change

☐ Other (please explain) _____

22) Has your country collected and applied local DEM data via compilation of existing data sets or land survey?

☐ Yes

☐ No

23) Do you believe your country needs to strengthen technical and scientific capability for tsunami hazard risk assessment?

☐ Yes
☐ No

If yes, what is needed to strengthen technical and scientific capability for your country?

24) Has your country identified training needs? (This can include technical and/or scientific experts)

☐ Yes
☐ No

If yes, what training needs does your country need?

25) Does your country document training records?

☐ Yes (if yes, how does your country document training records?)

☐ No (if no, why not?)

26) Has your country identified funding requirements to enhance technical and scientific capability?

☐ Yes
☐ No

If yes, what funding requirements does your country need? (Please fill out the table below)

	Technical or scientific capability needed
1	
2	
3	

27) Does your country support and encourage learning and development opportunities to enhance tsunami risk technical and scientific capability?

☐ Yes
☐ No

If yes, please explain what your country supports?

28) Is science and technical information clearly articulated in your country's tsunami risk assessment?

☐ Yes
☐ No

29) Does your country strengthen technical and scientific information to inform tsunami risk assessments?

☐ Yes
☐ No

30) Does your country promote and improve dialogue and cooperation among local/regional scientific communities?

☐ Yes
☐ No

If yes, how do you do this?

_____

_____

31) Does your country promote the use of technology and research to address gaps?

☐ Yes
☐ No

If yes, what technology/research do you use to address gaps for your country's tsunami risk (please describe below)

Technology/Research	**Gaps addressed**
1.	
2.	
3.	

32) Does your country hold workshops, exercises or produce documents to identify knowledge gaps and information sharing with Pacific partners?

☐ Yes
☐ No

If yes, please tick all that apply
☐ Workshops
☐ Exercises
☐ Documents
☐ Other (please describe)

_____

33) Does your county have new individual sharing arrangements with Pacific partners/other ocean basin partners?

☐ Yes
☐ No

If yes, please describe sharing arrangements:

34) Does your country document gaps in knowledge via the PTWS reporting requirements? E.g. National reports

☐ Yes
☐ No

35) Has your country identified regional Task Teams to address tsunami risk reduction?

☐ Yes
☐ No

If yes, please provide context:

Tsunami Risk Reduction

36) Does your country identify and plan for ways to reduce tsunami risk? E.g. relocation of public facilities to areas outside tsunami inundation zones, land-use planning

☐ Yes
☐ No

If yes, please list these initiatives:

1.
2.
3.

37) Does your country consider tsunami risk reduction measures in the short*, medium* and long term*?

☐ Yes
☐ No

If yes, select all that apply

☐ Short-term
☐ Medium-term
☐ Long-term
** noting these timeframes may vary for each country*

38) Are risk reduction measures implemented for at risk communities?

☐ Yes
☐ No

If yes, please list these measures and areas where they are implemented:

Risk reduction measures	Areas of implementation
1.	
2.	
3.	

Tsunami Response and Recovery

39) Has your country developed national and local tsunami response plans? (please tick all that apply)

☐ National response plan
☐ Local response plans
☐ Community response plans
☐ Have developed response plans but have not promoted to communities
☐ Other (please describe)

40) Are your response plans exercised at least every two years including for PacWave exercise?

☐ Yes
☐ No

If no, how often are response plans exercised? (Please describe)

_____

41) Are these response plans integrated in public education strategies and campaigns?

☐ Yes (if yes, please describe how)

☐ No (if no, why not?)

_____
_____

42) Are local response plans integrated with the national response plan?

☐ Yes (if yes, please describe how)

☐ No (if no, why not?)

_____
_____

43) Has your country's response plans considered a multi-stakeholder approach? (Do all stakeholders understand and have knowledge of the plan)

☐ Yes
☐ No

If yes, please provide examples of the range of list stakeholders that have been consulted or participated:

1.
2.
3.
4.
5.

44) Are your country's response plans accessible for use by all necessary stakeholders?

☐ Yes
☐ No

If no, why not?

_____

45) Does your country developed post-event analysis to improve knowledge of tsunami hazard frequency and impacts?

☐ Yes
☐ No

If yes, please list plans:

1.
2.

46) Have you post-event analysis plans and templates been tested during exercises or past tsunami events?

☐ Yes
☐ No

If yes, for which event(s)? (Please list)

1.
2.

47) Does your country record improvements identified in post-event assessments?

☐ Yes
☐ No

If yes, please list improvements:

1.
2.
3.

48) Has your country established a central command and control facility responsible for coordinating tsunami response management during an event (e.g. an Emergency Operations Centre (EOC)?

☐ Yes (if yes, where is this facility located?)

☐ No (if no, why not?)

_____

49) Is this facility exercised at least once a year?

☐ Yes
☐ No (if no, why not?)

_____

Goal 2: Tsunami Detection, Warning & Dissemination

Monitoring and Detection Networks

1) Is seismic data (including real-time)/other observational network data freely, accurately and timely available from seismic monitoring networks?

☐ Yes

☐ No

If yes, please fill out the table on your country's national seismic network (seismometers):

	Station Name/ Location	Latitude	Longitude	Operating Agency	Contact Person (Name, email)
1					
2					
3					

2) Does your country exchange data and metadata in a timely and open manner with other TSP's and PTWS Member States?

☐ Yes

☐ No

If no, why not?

_____

_____

3) Does your country have access to required earthquake information available in sufficient time to generate warnings for local, regional and distant source tsunamis?

☐ Yes

☐ No

If no, what information do you need?

_____

_____

4) Is your country able to detect tsunami (above basin threat threshold for tsunami generated by earthquakes) within:

a) <5 mins for local source tsunami
b) < 5 mins for regional source, or TTT of <100km from coast to tsunami source
c) <15 mins for distant source, or TTT of >100km from coast to tsunami source

☐ Yes
☐ No
If no, explain why?

5) Does your country have reliable and accurate tsunami threat information and ability to warn at risk coastal communities?

☐ Yes
☐ No
☐ Could be improved (please describe)

6) Do you believe your country has accurate tsunami amplitude forecasts for tsunami generated by undersea earthquakes?

☐ Yes
☐ No
☐ Could be improved (please describe)

7) Is your country's sea-level data and tsunami related information available to TSP's and/or IOC Sea Level Monitoring Facility? (Tsunami Buoys and Tide Gauges)

☐ Yes
☐ No (if not, why not?)

If yes, please fill in the table below:

	Station Name/ Location	Latitude	Longitude	Operating Agency	Contact Person (Name, email)
1					
2					
3					

8) Does your country exchange tsunami source and impact data/information in a timely and open manner with other TSP's and PTWS Member States?

☐ Yes
☐ No

If no, why not?

9) Does your country have tsunami threat assessments for tsunami generated by non-seismic sources?

☐ Yes
☐ No

10) Does your country comprehensively monitored tsunami impacts along national coasts during real events, from initial impact through the end of the hazard?

☐ Yes
☐ No

If yes, please state how:

11) During real events, has your system performed and maintained accuracy?

☐ Yes
☐ No
☐ No events have occurred

If no, please explain:

National Warning Systems

12) Does your country have arrangements for TSPs to provide tsunami threat information to Tsunami Warning Focal Points (TWFPs) and for at risk coastal communities?

☐ Yes
☐ No

13) Does your country provide funding to sustain TSPs capability to continue to provide service for countries other than your own?

☐ Yes
☐ No

If no, please state why:

14) Does your country have effective international and national tsunami communication networks?

☐ Yes
☐ No

If yes, please provide context:

15) Does your country have national 24/7 capability to generate tsunami threat information and issue tsunami warnings to agencies and at risk coastal communities?

☐ Yes
☐ No

16) Does your country carry out initiatives to test national 24/7 tsunami threat assessment and warning capability?

☐ Yes
☐ No

If yes, please tick all that apply:

☐ Exercises
☐ Communication tests
☐ Other (please describe)

_____

_____

17) Does your country have national protocols (SOPs) for use of manual and or automated information to generate warnings for local source tsunami?

☐ Yes
☐ No

If yes, please fill in the table below to reflect the status of SOPs and whether technical support and/or training is needed to develop:

Item	Human Resourc	Infrastructure / Capacity	SOPs	Others	Technical support and/or training
24/7 Emergency Operation Centre					
Receiving information from the NTWC					
Response Criteria / decision making					
Warning dissemination					
Evacuation instruction procedures					
Community Evacuation procedures					
Communication with NTWC					
Communication with Local Government					
Media Arrangements					

Communication with other stakeholders i.e. Red Cross, Fire Brigade, Search and Rescue, Police, Army, Navy etc.					

18) Does your country have elapsed time of issuing national tsunami warnings and other related statements according to SOPs?

☐ Yes
☐ No

Tsunami alerts and warnings

19) Has your country established multiple channels to disseminate and receive tsunami warnings?

☐ Yes
☐ No

If yes, please list them:

1.
2.
3.
4.
5.

20) Does your country have NTWC's/TWFP's that monitor warning channels 24/7?

☐ Yes
☐ No

21) Does your country use multiple channels to receive TSP and other products?

☐ Yes
☐ No

Goal 3: Enhancing tsunami preparedness for effective community response

Public Education

1) Has your country developed and promotes national and/or local public education strategies? (This includes tsunami preparedness and awareness)

☐ Yes
☐ No

If yes, please describe your country' strategies:

Strategy	Description
1.	
2.	
3.	

2) Has your country developed an implementation plan(s) associated with goals and tasks in the strategy?

☐ Yes

☐ No

If yes, please list your country's plan(s):

1.
2.

3) Is the strategy and implementation plan accessible for all necessary stakeholders?

☐ Yes

☐ No

If yes, please list which stakeholders has access to this plan:

Engaged stakeholders:

4) Does your strategy include formal and non-formal education tsunami strategies?

☐ Yes

☐ No

If yes, please list both formal and non-formal education strategeies:

Formal education strategies	Non-formal education strategies

5) Has your country developed campaigns to meet goals of public education strategies? (Targeted at building tsunami risk awareness/preparedness e.g. natural warning signs for local source tsunami)

☐ Yes

☐ No

If yes, please list campaigns and purpose to meet strategies:

Name of public education campaign	Description of campaign
1.	
2.	
3.	

6) Does your country use multi-media channels and social media to disseminate tsunami preparedness and awareness education strategies?

☐ Yes

☐ No

If yes, please list multi-media channels (e.g. social media, websites, notification by community leader):

1.
2.
3.

7) Has your country involved community-based organisations and non-governmental organisations to disseminate tsunami risk information?

☐ Yes

☐ No

If yes, please provide context:

_____

_____

Community awareness and preparedness

8) Does your country display and promote tsunami evacuation maps?

☐ Yes

☐ No

9) Are your country's tsunami evacuation zone maps available on multiple channels and displayed in public spaces?

☐ Yes

☐ No

If yes, please list where displayed:

1.
2.
3.

10) Are your countries tsunami evacuation zone maps culturally appropriate and developed in appropriate country specific formats? (Developed in country specific format)

☐ Yes

☐ No

If yes, please list format:

1.
2.
3.

11) Has bi-/multi-languages been considered and/or used?

☐ Yes

☐ No

☐ N/A (please provide context below)

_____

_____

12) Is the information on publically available?

☐ Yes

☐ No

If yes, where are these resources available?

_____

_____

13) Has your country developed/identified tsunami safe routes in conjunction with communities?

☐ Yes

☐ No

If yes, are all communities aware on tsunami safe routes? (Please describe)

_____

_____

14) Does your country have agreed signage locations in conjunction with communities?

☐ Yes

☐ No

15) Does your country clearly endorse community engagement in tsunami awareness e.g. community workshops?

☐ Yes

☐ No

If yes, please decribe how:

_____

_____

_____

16) Has your country considered the use of new technologies to promote awareness?

☐ Yes
☐ No

If yes, please list new technologies your country is using to promote awareness:

17) Has your country developed a national exercise programme(s) that include tsunami hazard?

☐ Yes
☐ No

If yes, please describe your national exercise programme(s) (date, procedures, location etc.):

18) Has your country developed exercise control, monitoring and evaluation documents?

☐ Yes
☐ No

19) Does your country promote and complete regular tsunami preparedness, response and recovery exercises and develop supporting promotional materials? Including but not limited to participation by at-risk communities, the private sector, NTWC, Emergency Management Agencies (all levels), schools/education providers and critical infrastructure providers.

☐ Yes
☐ No

20) How often are local or community exercises conducted? (please tick one)

☐ Annually
☐ Biennially
☐ Other (please describe)

21) Please provide an example of how your country has demonstrated preparedness and capability at the national and local level to respond to a tsunami threat:

22) Does your country carry out post exercise reviews and clearly articulate lessons identified, with recommendations or gaps clearly noted and corrective actions monitored through in formal processes?

☐ Yes

☐ No

If yes, what are the key recommendations or gaps for improvement? (Please describe below):

Key recommendations for improvement
1.
2.

23) Are National Reports submitted to ICG meetings? (via PTWS reporting requirements)

☐ Yes

☐ No

Goal 4: International Coordination and Cooperation

International Engagement

1) Has your country enhanced its capacity and capability to respond to tsunami threat by leveraging international coordination and cooperation?

☒ Yes

☐ No

If yes, please describe how:

_____

_____

_____

2) Has your country engaged in the intergovernmental process and working to develop mutual capability in tsunami disaster risk reduction?

☐ Yes

☐ No

If yes, please describe how:

_____

_____

_____

3) Are you engaged in, or supporting capacity-building projects that support small island developing Member States?

☐ Yes

☐ No

If yes, please list projects your country is engaged on:

Name of project	**Country(s) this project is supporting**
1.	
2.	
3.	

PART IV: REPORTING

Please provide follow information to demonstrate how your country is successfully measuring against the country targets and priorities.

1) Tsunami risk assessments/report(s)

Date of completion(DD/MM/YYYY): _____
Please describe latest one:

_____
_____

2) Post-event assessments (provide event name)

Date of completion(DD/MM/YYYY): _____
Name of the event: _____

3) SOPs

Date of completion(DD/MM/YYYY): _____
Name of the SOPs: _____

4) National tsunami science experts

Date of completion(DD/MM/YYYY): _____
Number of experts: _____

5) Exercise and evaluation reports

Date of completion(DD/MM/YYYY): _____
Name of the report: _____
Please describe latest one:

_____
_____

6) Event questionnaires

Date of completion(DD/MM/YYYY): _____
Name of the events: _____

7) Country capacity assessments projects

Date of completion(DD/MM/YYYY): _____
Please describe latest one:

_____
_____

8) ICG/PTWS National reports

Date of completion(DD/MM/YYYY): _____
Please describe latest one:

_____
_____

9) Reports of communication tests

Date of completion(DD/MM/YYYY): _____
Please describe latest one:

_____
_____

10) TSP KPI reports to ICG and TOWS

Date of completion(DD/MM/YYYY): _____
Reserved for TSPs:

_____
_____

11) Please fill out the table below:

Report	**Percent complete (0-100%)**	**Are you willing to publically share with ICG/PTWC (if yes, please tick)**
Tsunami risk assessments/report(s)		
Post-event assessments (provide event name)		
SOPs		

National tsunami science experts		
Exercise and evaluation reports		
Event questionnaires		
Country capacity assessments projects		
IOC Assembly and EC reports		
Reports of communication tests		
TSP KPI reports to ICG and TOWS		

PART V: FUTURE PLANS

Please provide a brief summary of your country's plans for future tsunami risk reduction, warning and mitigation system improvements

PART VI: EXECUTIVE SUMMARY – alignments to National Reports

Has your National Report been used for reporting on your country's commitments to the Sendai Framework for Disaster Risk Reduction? Please provide a brief summary of how.

Please provide a brief summary (one page maximum) of your country's National Report, including, but not limited to achievements, modifications, gaps, issues, and future plans. This should also reflect on innovations or modifications since the last National Report, pertaining to national operations, technology and data, science and research, risk reduction, preparedness, public education and exercising.