

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies



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

Fourteenth Session

Banten, Indonesia
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**Intergovernmental Coordination
Group for the Indian Ocean
Tsunami Warning and
Mitigation System
(ICG/IOTWMS)**

Fourteenth Session

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Executive Summary

The Fourteenth Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS-XIV) was held in Banten, Republic of Indonesia, under the Chairpersonship of Professor Dwikorita Karnawati. The session was conducted in hybrid modality and attended by 77 delegates from 19 Indian Ocean Member States (mainly Australia, Comoros, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mozambique, Myanmar, Oman, Pakistan, Seychelles, South Africa, Thailand, Timor Leste, United Arab Emirates and Yemen), 5 staff from United Nations agencies (including 4 from UNESCO and 1 from UNESCAP), 6 invited experts and 16 observers. The adopted agenda is attached as Annex I.

The ICG reviewed the progress made during the intersessional period and considered the reports and recommendations from its Steering Group, Working Groups and Task Team. The ICG considered the [IOWave23 Exercise Report](#) (IOC Technical Series, 181), [2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean Report](#) (IOC Technical Series, 193), and Tsunami Service Provider (TSP) Status Reports from Australia, India and Indonesia. The ICG also received, considered and noted reports of the 16th and 17th meetings of the Working Group on Tsunami and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG); of the IOC Secretariat; Indian Ocean Tsunami Information Centre (IOTIC); and national reports from 22 Member States. The documentation for the session is available at <https://oceanexpert.org/event/4574>.

The ICG noted the UN Secretary-General's Early Warnings for All initiative, which called for every person on Earth to be protected by early warning systems by 2027.

The ICG noted the approval of the UN Ocean Decade Tsunami Programme (ODTP) [Research Development and Implementation Plan](#) (RDIP) by the 32nd Session of the IOC Assembly and publication of the [White Paper on Challenge 6](#) of the UN Ocean Decade "Increase Community Resilience to Ocean Hazards".

The ICG noted the outcomes of the 2nd UNESCO-IOC Global Tsunami Symposium in the *Banda Aceh Statement* on:

Global Tsunami Warning and Mitigation System: Building Sustainability for the next decade through Transformation and Innovation ([IOC/BRO/2025/1](#)) UNESCO and its partners call on States and civil society to drastically step up their investments and efforts to strengthen Tsunami Early Warning Systems and achieve 100% of Tsunami Ready Communities across the world by 2030. (November 2024)

The ICG noted the extensive task to achieve the outcome 100% of at-risk communities resilient and prepared for tsunamis, further recognizing the roles of the ICG/IOTWMS and its work plans are to support the capacity development of Member States to help them achieve this, depending on their risk assessment and national priorities.

The ICG further noted with appreciation the recognition of 48 communities in India and Indonesia as UNESCO-IOC Tsunami Ready and **encouraged** all Member States to implement the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP) in vulnerable communities with UNESCO-IOC recognition to meet the UN Ocean Decade Tsunami Programme goal of 100% at-risk communities resilient and prepared for tsunamis.

The ICG noted the successful outcomes of Phases 1, 2a and 2b of the UNESCAP funded project "Strengthening tsunami early warning in the North-West Indian Ocean through regional cooperation" and the implementation of Phase 2c of the NWIO UNESCAP project involving

training in inundation and evacuation mapping in support of implementation of the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP) in the region.

The ICG noted the successful conduct of Exercise IOWave23 with multiple scenarios including a non-seismic (volcanic) source.

The ICG decided to accept the report of Exercise IOWave23 incorporating any feedback received from the Member States in four weeks and submission to IOC for publication as an UNESCO-IOC document.

The ICG decided to conduct an IOWave exercise in 2025.

The ICG noted with appreciation the work of the Steering Group in overseeing the 2024 Capacity Assessment of Tsunami Preparedness and the comprehensive nature and value of the assessment.

The ICG decided to instruct the Steering Group to finalize the 2024 Capacity Assessment Report and Executive Summary in four weeks, for further review by the Member States, incorporate feedback if any, and endorse the final report for publication as an UNESCO-IOC document.

The ICG decided to instruct the Steering Group, Working Groups and Task Teams to consider the recommendations of the ODTP RDIP, IOWave23, 2024 Capacity Assessment and 2nd Global Tsunami Symposium into their work plans.

The ICG decided to extend the TSP services to include tsunamis generated by non-seismic and complex sources.

The ICG decided to continue the capacity development initiatives related to Standard Operating Procedures (SOPs), Tsunami Evacuation Maps, Plans and Procedures (TEMPP), Tsunami Ready Recognition Programme (TRRP) and on-the-job training for warning centre operators by TSPs.

The ICG decided to continue:

- Working Group 1 on Tsunami Risk, Community Awareness and Preparedness
- Working Group 2 on Tsunami Detection, Warning and Dissemination
- Working Group 3 on Tsunami Ready Implementation
- Sub-regional Working Group for the North-West Indian Ocean
- Steering Group

The ICG decided to establish intersessional Task Teams on:

- Indian Ocean Wave 25 Exercise (IOWave25)
- New/Emerging Technologies for Observations and Forecasting
- Medium Term Strategy (MTS)

The ICG encouraged Member States to make voluntary contributions to the IOC Special Account set up for the ICG/IOTWMS to support activities identified in the Budget and Programme to underpin successful implementation of the IOTWMS and capacity development for Member States. **The ICG requested** UNESCO-IOC Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems (TOWS-WG) to complete and harmonise the Key Performance Indicator Framework for the global tsunami warning and mitigation system to facilitate monitoring and reporting of implementation of the IOTWMS and

progress towards Member State goal of 100% of at-risk communities resilient and prepared for tsunamis.

The ICG elected its officers for the next intersessional term commencing at the end of the session, whereby Mr Pattabhi Rama Rao Eluri (India) was elected as Chair, and Dr Yuelong Miao (Australia) and Dr Harkunti Pertiwi Rahayu (Indonesia) were elected as Vice-chairs.

The ICG acknowledged with appreciation the contribution and continued support of the Government of Australia for the IOTWMS Secretariat and the support of the Government of the Republic of Indonesia for hosting the Indian Ocean Tsunami Information Centre (IOTIC).

The ICG expressed its gratitude to the Government of the Republic of Indonesia for kindly hosting the 14th Session of the ICG/IOTWMS in Banten.

The ICG accepted with appreciation the kind offer of the Government of the Sultanate of Oman to host the 15th Session of the ICG/IOTWMS in 2026 and the kind offer of India as a backup option to host the 16th Session of the ICG/IOTWMS in 2028.

The ICG adopted Decisions ICG/IOTWMS-XIV.1 as attached in [Annex II](#).

Résumé exécutif

La quatorzième session du Groupe intergouvernemental de coordination du Système d'alerte aux tsunamis et de mitigation dans l'océan Indien (GIC/IOTWMS-XIV) s'est tenue à Banten (République d'Indonésie), sous la présidence de M^{me} Dwikorita Karnawati. La session a été menée selon des modalités hybrides et a rassemblé 77 délégués de 19 États membres de l'océan Indien (principalement d'Afrique du Sud, d'Australie, des Comores, des Émirats arabes unis, d'Inde, d'Indonésie, d'Iran, du Kenya, de Madagascar, de Malaisie, des Maldives, du Mozambique, de Myanmar, d'Oman, du Pakistan, des Seychelles, de Thaïlande, du Timor Leste et du Yémen), cinq membres du personnel d'organismes des Nations Unies (dont quatre de l'UNESCO et un de la CESAP), six experts invités et 16 observateurs. L'ordre du jour de la réunion figure à l'annexe I.

Le GIC a passé en revue les progrès accomplis pendant la période intersessions et examiné les rapports et recommandations de son Groupe directeur, de ses groupes de travail et de ses équipes spéciales. Le GIC a examiné les rapports « [IOWave23 Exercise Report](#) » (Rapport sur l'exercice IOWave23) (Série technique de la COI, n° 181), « [2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean Report](#) » (Rapport 2024 sur l'évaluation des capacités de préparation aux tsunamis dans l'océan Indien) (Série technique de la COI, n° 193) et les rapports d'étape des prestataires de services (TSP) relatifs aux tsunamis d'Australie, d'Inde et d'Indonésie. Le GIC a également reçu et examiné plusieurs rapports, dont il a pris note : les rapports des 16^e et 17^e réunions du Groupe de travail sur les systèmes d'alerte aux tsunamis et autres aléas liés au niveau de la mer, et de mitigation (TOWS-WG) ; le rapport du Secrétariat de la COI ; le rapport du Centre d'information sur les tsunamis dans l'océan Indien (IOTIC) ; et les rapports nationaux de 22 États membres. Les documents de la session sont accessibles en ligne à l'adresse suivante : <https://oceanexpert.org/event/4574>.

Le GIC a pris note de l'initiative « Alertes précoces pour tous » du Secrétaire général de l'ONU, qui a appelé à protéger chaque personne sur Terre à l'aide de dispositifs d'alerte rapide d'ici à 2027.

Le GIC a également pris note de l'approbation par la 32^e session de l'Assemblée de la COI du Plan de recherche, de développement et de mise en œuvre concernant le [Programme relatif aux tsunamis de la Décennie de l'Océan](#) et de la publication du document « [White Paper on Challenge 6 of the UN Ocean Decade 'Increase Community Resilience to Ocean Hazards'](#) » (Livre blanc sur le défi 6 de la Décennie de l'Océan des Nations Unies : « Accroître la résilience des communautés face aux risques océaniques et côtiers »).

Le GIC a pris note des résultats du deuxième Symposium mondial de la COI sur les tsunamis dans la *Déclaration de Banda Aceh* :

Le Système d'alerte aux tsunamis et de mitigation dans l'océan Indien : renforcer la durabilité pour la prochaine décennie au moyen de la transformation et de l'innovation (IOC/BRO/2025/1). L'UNESCO et ses partenaires appellent les États et la société civile à accroître drastiquement leurs investissements et leurs efforts afin de renforcer les systèmes d'alerte rapide aux tsunamis et de parvenir, dans le monde entier, à des communautés 100 % résilientes face aux tsunamis d'ici à 2030. (Novembre 2024)

Le GIC a noté l'ampleur de la tâche à accomplir pour atteindre le résultat de 100 % des communautés à risque résilientes et préparées aux tsunamis, reconnaissant en outre que le rôle du GIC/IOTWMS et de ses plans de travail est de soutenir le renforcement des capacités des États membres pour les aider à atteindre cet objectif, en fonction de leur évaluation des risques et de leurs priorités nationales.

Le GIC s'est félicité que 48 communautés en Inde et en Indonésie aient obtenu la certification Tsunami Ready de l'UNESCO/COI et **a encouragé** tous les États membres à mettre en œuvre

le programme de certification Tsunami Ready de l'UNESCO/COI parmi les communautés vulnérables en ce qui concerne cette reconnaissance, de façon à atteindre l'objectif de la Décennie de l'océan des Nations Unies, qui vise à ce que 100 % des communautés à risque soient résilientes et préparées aux tsunamis.

Le GIC a pris acte des résultats concluants des phases 1, 2a et 2b du projet « Renforcer le système d'alerte rapide aux tsunamis dans la région de l'océan Indien du Nord-Ouest par la coopération régionale » financé par la CESAP, ainsi que de la mise en œuvre de la phase 2c du projet NWIO CESAP prévoyant une formation à la cartographie des zones submersibles et des itinéraires d'évacuation à l'appui de la mise en œuvre du programme Tsunami Ready dans la région.

Le GIC a constaté la tenue concluante de l'Exercice IOWave23 avec divers scénarios, dont une source (volcanique) non sismique.

Le GIC a décidé d'accepter le rapport de l'Exercice IOWave23 en y intégrant les éventuels retours soumis par les États membres dans les quatre semaines, et d'approuver sa publication par la COI à titre de document de la Commission.

Le GIC a décidé d'effectuer un exercice IOWave en 2025.

Le GIC a salué le travail du Comité directeur en ce qui concerne la supervision de l'Évaluation des compétences 2024 en matière de préparation aux tsunamis, ainsi que le caractère exhaustif et la valeur de l'évaluation.

Le GIC a décidé de charger le Comité directeur de finaliser le Rapport 2024 sur l'évaluation des capacités et le Résumé exécutif d'ici quatre semaines, de façon à ce qu'ils puissent à nouveau être examinés par les États membres, d'y intégrer les éventuels retours et d'approuver le rapport final afin qu'il soit publié à titre de document de l'UNESCO-COI.

Le GIC a également décidé de charger le Comité directeur, les groupes de travail et les équipes spéciales de passer en revue les recommandations du Plan de recherche, de développement et de mise en œuvre concernant le Programme relatif aux tsunamis de la Décennie de l'Océan, l'exercice IOWave23, l'évaluation des capacités 2024 et le deuxième Symposium mondial sur les tsunamis dans leurs plans de travail.

Le GIC a décidé d'élargir la gamme des services des prestataires de services relatifs aux tsunamis (TSP) en incluant les tsunamis générés par des sources non sismiques et complexes.

Le GIC a en outre décidé de poursuivre les initiatives de renforcement des capacités liées aux procédures opérationnelles normalisées, aux cartes, plans et procédures d'urgence en cas de tsunami, au programme de certification Tsunami Ready et aux formations en cours d'emploi des opérateurs des centres d'alerte par les prestataires de services relatifs aux tsunamis.

Le GIC a décidé de maintenir :

- le Groupe de travail 1 sur les risques de tsunami et la sensibilisation et la préparation des communautés ;
- le Groupe de travail 2 sur la détection des tsunamis, l'alerte et la diffusion ;
- le Groupe de travail 3 sur la mise en œuvre du programme de certification Tsunami Ready ;
- le Groupe de travail sous-régional pour l'océan Indien du Nord-Ouest ;
- le Groupe directeur.

Le GIC a décidé de créer des équipes spéciales intersessions en ce qui concerne :

- l'Exercice Indian Ocean Wave 25 (IOWave25) ;
- les Technologies nouvelles et émergentes pour l'observation et la surveillance des océans ;
- la Stratégie à moyen terme.

Le GIC a encouragé les États membres à apporter des contributions volontaires au Compte spécial de la COI établi pour le Groupe intergouvernemental de coordination du Système d'alerte aux tsunamis et de mitigation dans l'océan Indien (GIC/IOTWMS) afin de soutenir les activités recensées dans le Programme et budget et d'appuyer la bonne mise en œuvre de l'IOTWMS et le renforcement des capacités des États membres. **Le GIC a prié** le Groupe de travail UNESCO/COI sur les systèmes d'alerte aux tsunamis et autres aléas liés au niveau de la mer, et de mitigation (TOWS-WG) de finaliser et d'harmoniser le cadre d'indicateurs de performance pour le Système mondial d'alerte aux tsunamis et d'atténuation de leurs effets, afin de faciliter le suivi et l'établissement de rapports sur la mise en œuvre de l'IOTWMS et les progrès vers l'objectif des États membres d'assurer la résilience et la préparation aux tsunamis de 100 % des communautés à risque.

Le GIC a élu son bureau pour la prochaine période intersessions, à compter de la fin de la session. M. Pattabhi Rama Rao Eluri (Inde) a été élu Président, et MM. Yuelong Miao (Australie) et Harkunti Pertiwi Rahayu (Indonésie) ont été élus Vice-Présidents.

Le GIC a pris note avec satisfaction de la contribution et du soutien constant fournis par le Gouvernement australien au Secrétariat de l'IOTWMS, ainsi que de l'aide qu'apporte le Gouvernement de la République d'Indonésie en hébergeant le Centre d'information sur les tsunamis dans l'océan Indien (IOTIC).

Le GIC a remercié le Gouvernement indonésien, qui a généreusement accueilli la 14^e session du GIC/IOTWMS à Banten.

Le GIC a accepté avec gratitude la généreuse proposition du Sultanat d'Oman d'accueillir la 15^e session du GIC/IOTWMS en 2026, ainsi que la généreuse proposition de l'Inde comme solution de remplacement pour la tenue de la 16^e session du GIC/IOTWMS en 2028.

Le GIC a adopté les décisions ICG/IOTWMS-XIV.1 qui figurent à l'[annexe II](#).

Resumen ejecutivo

La 14ª reunión del Grupo Intergubernamental de Coordinación del Sistema de Alerta contra los Tsunamis y Atenuación de sus Efectos en el Océano Índico (ICG/IOTWMS-XIV) se celebró en Banten (República de Indonesia) bajo la presidencia de la Prof. Dwikorita Karnawati. La reunión se celebró en formato híbrido y contó con la participación de 77 delegados de 19 Estados Miembros del océano Índico (Australia, las Comoras, los Emiratos Árabes Unidos, la India, Indonesia, el Irán, Kenya, Madagascar, Malasia, Maldivas, Mozambique, Myanmar, Omán, el Pakistán, Seychelles, Sudáfrica, Tailandia, Timor-Leste y el Yemen), cinco funcionarios de organismos de las Naciones Unidas (cuatro de la UNESCO y uno de la CESPAP), seis expertos invitados y 16 observadores. El orden del día aprobado de la reunión figura en el anexo I.

El ICG examinó los progresos realizados durante el periodo entre reuniones, así como los informes y recomendaciones de su Grupo de Dirección, sus grupos de trabajo y sus equipos de trabajo. El ICG examinó el [informe sobre el ejercicio IOWave23](#) (Colección Técnica de la COI N° 181), el [informe de 2024 sobre la evaluación de la capacidad de preparación ante los tsunamis en el océano Índico](#) (Colección Técnica de la COI N° 193) y los informes de situación de los proveedores de servicios sobre tsunamis (TSP) de Australia, la India e Indonesia. Asimismo, el ICG recibió y examinó los siguientes informes, de los que tomó nota: los informes de las reuniones 16ª y 17ª del Grupo de Trabajo sobre los Sistemas de Alerta contra los Tsunamis y Otros Peligros relacionados con el Nivel del Mar y Atenuación de sus Efectos (TOWS-WG); el informe de la Secretaría de la COI; el informe del Centro de Información sobre los Tsunamis en el Océano Índico (IOTIC); y los informes nacionales de 22 Estados Miembros. La documentación de la reunión puede consultarse en el siguiente enlace: <https://oceanexpert.org/event/4574>.

El ICG tomó nota de la iniciativa Alertas Tempranas para Todos del Secretario General de las Naciones Unidas, que pedía que se garantizara que todos los habitantes de la Tierra estuvieran protegidos por sistemas de alerta temprana de aquí a 2027.

El ICG tomó nota también de la aprobación por la Asamblea de la COI, en su 32ª reunión, del [Plan de Investigación, Desarrollo y Ejecución](#) del Programa de Tsunamis del Decenio del Océano de las Naciones Unidas, y de la publicación del [libro blanco sobre el desafío 6](#) del Decenio del Océano de las Naciones Unidas “Aumentar la resiliencia de las comunidades ante los peligros oceánicos”.

El ICG tomó nota además de los resultados del Segundo Simposio Mundial sobre Tsunamis de la COI-UNESCO en la Declaración de Banda Aceh:

Sistema mundial de alerta contra los tsunamis y atenuación de sus efectos: generar sostenibilidad para el próximo decenio mediante la transformación y la innovación ([IOC/BRO/2025/1](#)). La UNESCO y sus asociados instan a los Estados y a la sociedad civil a aumentar drásticamente sus inversiones y esfuerzos a fin de fortalecer los sistemas de alerta temprana contra los tsunamis y lograr que, en todo el mundo, el 100 % de las comunidades estén preparadas para los tsunamis de aquí a 2030 (noviembre de 2024).

El ICG tomó nota de la ingente tarea que supone lograr que el 100 % de las comunidades en riesgo estén preparadas y sean resilientes ante los tsunamis, reconociendo además que la función del ICG/IOTWMS y de sus planes de trabajo consiste en apoyar el desarrollo de capacidades de los Estados Miembros para ayudarles a alcanzar ese objetivo, en función de su evaluación de riesgos y sus prioridades nacionales.

El ICG tomó nota con satisfacción de que 48 comunidades de la India e Indonesia obtuvieron el reconocimiento Tsunami Ready de la COI-UNESCO, y **alentó** a todos los Estados Miembros a poner en marcha el Programa de Reconocimiento Tsunami Ready de la UNESCO/COI en

comunidades vulnerables, con el fin de que obtengan dicho reconocimiento y se contribuya así a alcanzar el objetivo del Programa de Tsunamis del Decenio del Océano de las Naciones Unidas de lograr que el 100 % de las comunidades en situación de riesgo estén preparadas y sean resilientes ante los tsunamis.

El ICG tomó nota de los resultados satisfactorios de las fases 1, 2a y 2b del proyecto financiado por la CESPAP “Fortalecimiento de la alerta temprana contra los tsunamis en la región noroccidental del océano Índico mediante la cooperación regional”, así como de la puesta en marcha de la fase 2c del proyecto de la CESPAP de la región del océano Índico noroccidental que abarca formación en elaboración de mapas de inundación y evacuación para respaldar la ejecución del programa Tsunami Ready en la región.

El ICG tomó nota también del éxito del ejercicio IOWave23 con múltiples hipótesis, incluida una fuente no sísmica (volcánica).

El ICG decidió aceptar el informe sobre el ejercicio IOWave23 incorporando todas las observaciones que pudieran recibirse de los Estados Miembros en un plazo de cuatro semanas, y transmitirlo a la COI para que lo publique como documento de la Comisión.

El ICG decidió llevar a cabo un ejercicio IOWave en 2025.

El ICG tomó nota con reconocimiento de la labor del Grupo de Dirección relacionada con la supervisión de la evaluación de la capacidad de preparación para casos de tsunami de 2024, así como del carácter exhaustivo y el valor de la evaluación.

El ICG decidió encargar al Grupo de Dirección que finalizara el informe sobre la evaluación de la capacidad de 2024 y su resumen ejecutivo en un plazo de cuatro semanas, con el fin de que los Estados Miembros los examinen nuevamente, se incorporen las observaciones que pudieran formularse, y se apruebe el informe final para que se publique como documento de la Comisión.

El ICG decidió también encargar al Grupo de Dirección, los grupos de trabajo y los equipos de trabajo que tuvieran en cuenta en sus planes de trabajo las recomendaciones del Plan de Investigación, Desarrollo y Ejecución del Programa de Tsunamis del Decenio del Océano de las Naciones Unidas, el ejercicio IOWave23, la evaluación de la capacidad de 2024 y el Segundo Simposio Mundial sobre Tsunamis.

El ICG decidió además ampliar los servicios de los TSP para incluir los tsunamis generados por fuentes no sísmicas y complejas.

El ICG decidió mantener las iniciativas de desarrollo de capacidades relacionadas con los procedimientos operativos estándar (POE), los mapas, planes y procedimientos de emergencia en caso de tsunami, el programa de reconocimiento Tsunami Ready y la capacitación en el empleo de los operadores de los centros de alerta por parte de los TSP.

El ICG decidió mantener:

- el Grupo de trabajo 1 sobre riesgo de tsunamis y sensibilización y preparación de las comunidades;
- el Grupo de trabajo 2 sobre detección de tsunamis, alerta y difusión;
- el Grupo de trabajo 3 sobre la puesta en marcha de Tsunami Ready;
- el Grupo de trabajo subregional para el océano Índico noroccidental;
- el Grupo de Dirección.

El ICG decidió crear equipos de trabajo para el periodo entre reuniones sobre las siguientes cuestiones:

- el ejercicio “Indian Ocean Wave” en 2025 (IOWave25);
- las tecnologías nuevas y emergentes de observación y previsión;
- la Estrategia a Plazo Medio.

El ICG alentó a los Estados Miembros a aportar contribuciones voluntarias a la Cuenta Especial de la COI establecida para el ICG/IOTWMS a fin de apoyar las actividades definidas en el programa y el presupuesto, y respaldar una aplicación exitosa del IOTWMS y el aumento de capacidades de los Estados Miembros. **El ICG pidió** al Grupo de Trabajo sobre los Sistemas de Alerta contra los Tsunamis y Otros Peligros relacionados con el Nivel del Mar y Atenuación de sus Efectos (TOWS-WG) que finalizara y armonizara el marco de indicadores clave del desempeño para el sistema mundial de alerta contra los tsunamis y atenuación de sus efectos, con miras a facilitar el seguimiento y la presentación de informes sobre la aplicación del IOTWMS, y los avances hacia la consecución del objetivo de los Estados Miembros de que el 100 % de las comunidades en riesgo estén preparadas y sean resilientes ante los tsunamis.

El ICG eligió sus directivos para el próximo periodo entre reuniones que comienza al final de la reunión. El Sr. Pattabhi Rama Rao Eluri (India) fue elegido Presidente y el Dr. Yuelong Miao (Australia) y el Dr. Harkunti Pertiwi Rahayu (Indonesia) fueron elegidos Vicepresidentes.

El ICG acogió con satisfacción la contribución y el apoyo constante del Gobierno de Australia a la Secretaría del IOTWMS y el apoyo del Gobierno de la República de Indonesia para acoger el Centro de Información sobre Tsunamis del Océano Índico (IOTIC).

El ICG expresó su agradecimiento al Gobierno de la República de Indonesia por haber acogido amablemente la 14ª reunión del ICG/IOTWMS en Banten.

El ICG aceptó con reconocimiento la amable propuesta del Gobierno de la Sultanía de Omán de acoger la 15ª reunión del ICG/IOTWMS en 2026, así como la amable propuesta de la India de servir como país anfitrión alternativo para la 16ª reunión del ICG/IOTWMS en 2028.

El ICG adoptó las decisiones ICG/IOTWMS-XIV.1 que figuran en el [anexo II](#).

Рабочее резюме

Четырнадцатая сессия Межправительственной координационной группы по Системе предупреждения о цунами и смягчения их последствий в Индийском океане (МКГ/СПЦСПИОХIV) прошла в Бантене, Республика Индонезия, под председательством профессора Двикориты Карनावати. Сессия проводилась в смешанном формате, и в ней приняли участие 77 делегатов из 19 государств-членов Индийского океана, включая Австралию, Индию, Индонезию, Иран, Йемен, Кению, Коморские Острова, Мадагаскар, Малайзию, Мальдивские Острова, Мозамбик, Мьянму, Оман, Пакистан, Объединенные Арабские Эмираты, Сейшельские Острова, Таиланд, Тимор-Лешти и Южную Африку, 5 сотрудников учреждений ООН (в том числе 4 из ЮНЕСКО и 1 из ЭСКАТО), 6 приглашенных экспертов и 16 наблюдателей. Утвержденная повестка дня сессии приводится в приложении I.

МКГ провела обзор достигнутых в межсессионный период результатов и рассмотрела доклады и рекомендации своей руководящей группы, рабочих групп и целевой группы. МКГ рассмотрела [доклад об учениях «Волна-23» в Индийском океане](#) (Серия технических докладов МОК, № 181), [доклад «Оценка потенциала готовности к цунами в Индийском океане за 2024 г.»](#) (Серия технических докладов МОК, № 193) и доклады о ходе работы поставщиков данных слежения за цунами (ПДСЦ) из Австралии, Индии и Индонезии. МКГ также получила, рассмотрела и приняла к сведению доклады 16-го и 17-го совещаний рабочей группы по системам предупреждения о цунами и других опасных явлениях, связанных с изменением уровня моря, и смягчения их последствий (РГ-СПЦО), Секретариата МОК, Центра информации о цунами в Индийском океане (ЦИЦИО) и национальные доклады 22 государств-членов. Со всеми документами этой сессии можно ознакомиться по адресу <https://oceanexpert.org/event/4574>.

МКГ приняла к сведению инициативу Генерального секретаря «Системы раннего оповещения для всех», согласно которой к 2027 г. каждый человек на планете Земля должен быть защищен с помощью систем раннего оповещения.

МКГ приняла к сведению утверждение на 32-й сессии Ассамблеи МОК [плана исследований, разработок и осуществления](#) Программы по цунами в рамках Десятилетия океана ООН и публикацию [справочного документа по задаче 6](#) Десятилетия океана ООН «Повышение устойчивости общин к опасным океаническим явлениям».

МКГ приняла к сведению итоги второго Глобального симпозиума МОК ЮНЕСКО по цунами в Банда-Ачехе на тему:

«Глобальная система предупреждения о цунами и смягчения их последствий: обеспечение устойчивости на следующее десятилетие благодаря преобразованиям и новаторским решениям ([IOC/BRO/2025/1](#)). ЮНЕСКО и ее партнеры призывают государства и гражданское общество значительно увеличить свои инвестиции и активизировать усилия по повышению эффективности систем раннего предупреждения о цунами и обеспечению готовности к цунами 100% общин во всем мире к 2030 г.». (ноябрь 2024 г.)

МКГ приняла к сведению масштабную задачу по обеспечению устойчивости и готовности к цунами 100% общин, подверженных риску цунами, признав далее ключевую роль МКГ/СПЦСПИО и ее планов работы в содействии развитию потенциала государств-членов для достижения этой цели с учетом результатов оценки рисков и национальных приоритетов.

МКГ с признательностью отметила получение 48 общинами в Индии и Индонезии сертификата готовности к цунами МОК ЮНЕСКО и **призвала** все государства-члены осуществлять Программу МОК ЮНЕСКО по сертификации готовности к цунами (ПСГЦ) в

уязвимых общинах в интересах достижения глобальной цели Программы по цунами Десятилетия океана ООН, заключающейся в обеспечении устойчивости и готовности к цунами 100% общин, подверженных риску цунами.

МКГ приняла к сведению информацию об успешном завершении этапов 1, 2a и 2b финансируемого ЭСКАТО ООН проекта «Усовершенствование системы раннего предупреждения о цунами в северо-западной части Индийского океана на основе регионального сотрудничества» и об осуществлении этапа 2с проекта ЭСКАТО в северо-западной части Индийского океана, включающего обучение составлению карт наводнений и эвакуации в поддержку осуществления Программы МОК ЮНЕСКО по сертификации готовности к цунами (ПСГЦ) в данном регионе.

МКГ приняла к сведению успешное проведение учений «Волна-23» в Индийском океане с несколькими сценариями, включая цунами несейсмического (вулканического) происхождения.

МКГ постановила принять доклад об учениях «Волна-23» в Индийском океане с учетом всех замечаний, полученных от государств-членов в течение четырех недель и представить его МОК для публикации в качестве документа МОК ЮНЕСКО.

МКГ постановила провести учения «Волна» в Индийском океане в 2025 г.

МКГ с удовлетворением отметила работу руководящей группы по осуществлению контроля за проведением оценки потенциала готовности к цунами в 2024 г., а также всеобъемлющий характер и ценные результаты этой оценки.

МКГ постановила поручить руководящей группе завершить работу над докладом об оценке потенциала за 2024 г. и его рабочим резюме в течение четырех недель для его дальнейшего рассмотрения государствами-членами, учета замечаний, если таковые имеются, и одобрения окончательного варианта доклада для публикации в качестве документа МОК ЮНЕСКО.

МКГ постановила поручить руководящей группе, рабочим группам и целевым группам учесть в своих планах работы рекомендации ПИРО-ПЦДО, учений «Волна-23» в Индийском океане, оценки потенциала за 2024 г. и второго Глобального симпозиума по цунами.

МКГ постановила расширить спектр услуг ПДСЦ, распространив их на цунами несейсмического и комплексного происхождения.

МКГ постановила продолжать осуществление инициатив по развитию потенциала в области применения стандартных оперативных процедур (СОП), карт, планов и процедур на случай чрезвычайных ситуаций, связанных с цунами, а также в рамках Программы по сертификации готовности к цунами (ПСГЦ) и обучения операторов центров предупреждения о цунами на рабочем месте, обеспечиваемого ПДСЦ.

МКГ постановила продолжить работу:

- рабочей группы 1 по опасности цунами, информированию и обеспечению готовности общин;
- рабочей группы 2 по обнаружению цунами, оповещению и распространению информации о них;
- рабочей группы 3 по осуществлению Программы сертификации готовности к цунами;

- субрегиональной рабочей группы по северо-западной части Индийского океана;
- руководящей группы.

МКГ постановила учредить целевые группы по:

- учениям «Волна-25» в Индийском океане;
- новым/передовым технологиям для наблюдений и прогнозирования;
- среднесрочной стратегии.

МКГ призвала государства-члены вносить добровольные взносы на Специальный счет МОК для МКГ/СПЦСПИО в поддержку мероприятий, определенных в программе и бюджете для обеспечения эффективного функционирования СПЦСПИО и развития потенциала государств-членов. **МКГ поручила** рабочей группе МОК ЮНЕСКО по системам предупреждения о цунами и других опасных явлениях, связанных с изменением уровня моря, и смягчения их последствий (РГ-СПЦО), завершить разработку и согласовать систему ключевых показателей эффективности для глобальной системы предупреждения о цунами и смягчения их последствий в целях содействия мониторингу и отчетности по функционированию СПЦСПИО и результатам государств-членов по обеспечению устойчивости и готовности к цунами 100% общин, подверженных риску цунами.

МКГ избрала своих должностных лиц на начинающийся после окончания сессии следующий межсессионный период. Г-н Паттабхи Рама Рао Элури (Индия) был избран председателем, а д-р Юэлун Мяо (Австралия) и д-р Харкунти Пертив Рахаю (Индонезия) были избраны заместителями председателя.

МКГ с признательностью отметила вклад Австралии и постоянную поддержку секретариата СПЦСПИО со стороны ее правительства, а также поддержку правительства Республики Индонезия, где размещается Центр информации о цунами в Индийском океане (ЦИЦИО).

МКГ выразила благодарность правительству Республики Индонезия за организацию 14-й сессии МКГ/СПЦСПИО в Бантене.

МКГ с признательностью приняла любезное предложение правительства Султаната Оман о проведении 15-й сессии МКГ/СПЦСПИО в 2026 г., а также любезное предложение Индии, которое будет рассматриваться в качестве запасного варианта проведения 16-й сессии МКГ/СПЦСПИО в 2028 г.

МКГ приняла решения ICG/IOTWMS-XIV.1, которые приводятся в [приложении II](#).

1. OPENING

1. The fourteenth session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS-XIV) was hosted by the Republic of Indonesia through its Agency for Meteorology, Climatology and Geophysics (BMKG) at the Sheraton Jakarta Soekarna Hatta Airport Hotel in Banten.

2. The sessional meeting was held from 17 to 19 November 2024 under the Chairpersonship of Prof Dwikorita Karnawati. The hybrid session was attended by 77 delegates from 19 Indian Ocean Member States (mainly Australia, Comoros, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Maldives, Mozambique, Myanmar, Oman, Pakistan, Seychelles, South Africa, Thailand, Timor Leste, United Arab Emirates and Yemen), 5 staff from United Nations agencies (including 4 from UNESCO and 1 from UNESCAP), 6 invited experts and 16 observers. The list of participants is provided in [Annex IV](#).



Figure 1. Participants at the fourteenth session of the ICG/IOTWMS, Banten, Indonesia, 17–19 November 2024.

3. The opening ceremony was conducted under the auspices of BMKG on behalf of the Republic of Indonesia with Mr Muhammad Hafizh Ghifari as the master of ceremonies. A minute of silence was observed in remembrance of the victims of all past tsunamis. Opening remarks were provided Dr Nelly Florida Rama, Dr Srinivasa Kumar Tummala, and Prof. Dwikorita Karnawati.

4. Dr Nelly Florida Riama, Deputy Head of Geophysics at BMKG, addressed the excellencies, distinguished guests and national delegations. She welcomed all participants to the fourteenth session of the ICG/IOTWMS. The 2nd UNESCO-IOC Global Tsunami Symposium to commemorate two decades following the Indian Ocean Tsunami was held immediately prior to this meeting during 11–14 November 2024. The global symposium highlighted the need to strengthen collaboration among tsunami warning and mitigation stakeholders. Dr Riama noted that for this 14th Session of the ICG/IOTWMS, the Intergovernmental Coordination Group (ICG) will take inspiration from the symposium on the way forward. The lessons learned from the visit to the BMKG campus (held on 16 November 2024) highlight that collaboration between BMKG and stakeholders is important for future work of the ICG. She wished all a successful meeting.

5. Dr Srinivasa Kumar Tummala, Head of ICG/IOTWMS Secretariat addressed distinguished colleagues, ICG Officers, Working Group Chairs, Head of the Tsunami Resilience Section, Heads of the national delegations of 19 IOTWMS Member States, representatives of UN and non-UN organisations, and all participants. He warmly welcomed everyone to the fourteenth session of the ICG/IOTWMS. He expressed gratitude on returning to work with the IOTWMS community again noting that it is great honour to work together to strengthen the ICG/IOTWMS. This session is held coincident with the 20th commemoration of the Indian Ocean (Aceh) tsunami. The 2nd UNESCO-IOC Global Tsunami Symposium held in Banda Aceh just

prior to this event, reviewed the progress made, and identified gaps and priorities for the next decade. The 2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean is another key input to guiding activities. The Ocean Decade of Ocean Science for Sustainable Development (2021–2030) and Ocean Decade Tsunami Programme create a strong framework for collaboration with partners. The Intergovernmental Oceanographic Commission (IOC) of UNESCO and its Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems (TOWS-WG) have provided guidance to the ICG for implementation of systems to monitor for non-seismic events as a priority. Dr Tummala noted other key activities including the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP) where 48 communities in India and Indonesia have received recognition. In conclusion, he thanked the meeting host, BMKG, for the exceptional arrangements.

6. Prof. Dwikorita Karnawati, Chair of ICG/IOTWMS and Head of BMKG, addressed the distinguished delegates and welcomed all to Jakarta. She thanked the strong collaboration among IOTWMS Working Groups, Task Teams, and colleagues to move forward towards saving lives along the Indian Ocean coastline. She welcomed all to the fourteenth session of the ICG/IOTWMS. Prof Karnawati expressed thanks for the contributions towards advancing tsunami warning and mitigation across the Indian Ocean region. She expressed her heartfelt gratitude to those who attended the Global Tsunami Symposium in Banda Aceh and congratulated all on the success of the symposium. Prof Karnawati noted that together we can be more prepared for future potential tsunamis. She acknowledged the success of the recent capacity assessment activities and encouraged the follow-up actions to be implemented promptly. She reminded that, as we gather for this fourteenth session, we need to remember that our work builds on the IOC Assembly resolution in 2005 to create the IOTWMS. This meeting will review the progress of implementation of the sessional workplan of the IOTWMS and recommend further actions to enhance the system.

7. The ringing of the gong by Prof Karnawati accompanied by Dr Riama, Dr Tummala and Mr Ardito Kodijat (UNESCO-IOC) marked the opening of the 14th Session of the ICG/IOTWMS.

2. ORGANISATION OF THE SESSION

2.1 ADOPTION OF AGENDA

8. The Chair invited the Head of Secretariat to introduce the provisional agenda for review and adoption. The ICG accepted the agenda with two minor modifications ([Annex 1](#)). Firstly, the reports on earthquake and tsunami events during the intersessional period was included within agenda 4 on IOTWMS Tsunami Service Provider reports. Secondly, an additional item on the Indian Ocean Wave 2023 (IOWave23) report was included in agenda 9 on documentation.

2.2 DESIGNATION OF RAPPORTEUR

9. The Chair requested the nomination of a rapporteur from the floor. The role of the rapporteur is to review and certify the report prepared by the Secretariat. As a general practice, the host country was requested to propose a rapporteur for the session. Indonesia proposed Mr Muhammad Hafizh Ghifari as the rapporteur. The nomination was endorsed by the ICG.

2.3 CONDUCT OF THE SESSION

10. The Chair requested the Head of Secretariat to advise on the conduct of the Session. Dr Tummala noted a timetable for the Session has been prepared in consultation with the Steering Group. The session agreed that meetings of the sessional committees will be held on 18 and 19 November between 09:00 – 10:30 local time (UTC +7). To accommodate this, agenda 5 (Special Session on Outcomes from 2nd UNESCO-IOC Global Tsunami Symposium) will be moved to 17 November and agenda 6 (IOWave23 report) will be moved to 18 November after

the morning break. The agenda 9 (IOTWMS Documentation) will be moved to the end of 18 November.

11. Dr Tummala noted the event website, <https://oceanexpert.org/event/4574>, contains meeting documentation, presentations and participant details.

2.4 ESTABLISHMENT OF SESSIONAL COMMITTEES

12. The Chair requested the delegates to establish statutory sessional committees to facilitate and promote the exchange of viewpoints and advance agreements that might prove time consuming in plenary.

- (i) The Capacity Assessment Committee was established to review the draft report of the 2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean and report back to plenary under agenda item 10. Dr Harkunti Rahayu (Indonesia) was nominated as the committee Chair.
- (ii) The Exercise Indian Ocean Wave Committee was established to review the recommendations for the next ocean-wide exercise in 2025 and report back to plenary under agenda item 10. Dr Weniza (Indonesia) was nominated as the committee Chair.
- (iii) The Strategy, Governance, Programme and Budget Committee was established to produce an estimate of the amount of resources Member States are investing in tsunami warning systems and to estimate needs for 2024–2026, both from UNESCO-IOC regular budget and from other sources, and report back to plenary under agenda items 10 and 11. Dr Yuelong Miao (Australia) was nominated as the committee Chair.
- (iv) The Nominations Committee was established to oversee the election of officers and report back to plenary under agenda item 12. Mr Abdullah Alkhadouri (Oman) was nominated as the committee Chair. Dr Tummala announced the nomination deadline for ICG/IOTWMS Officers is at 17:00 local time (+7 UTC) on 18 November 2024.
- (v) The Recommendations Committee was established to certify that draft recommendations submitted by Member States are consistent in language and fulfil requirements established in the IOC Manual ([IOC/INF-785](#)) for presentation under agenda item 16. Mr E Pattabhi Rama Rao (India) was nominated as the committee Chair.

13. Dr Tummala invited delegates to join the sessional committees through liaison with the committee chairs.

3. REPORTS FROM INTERSESSIONAL ACTIVITIES

3.1 ICG CHAIR'S REPORT

14. Prof. Dwikorita Karnawati, Chair of ICG/IOTWMS, reported on the activities of the ICG during the intersessional period. She recalled that the current structure of the ICG/IOTWMS consists of a Steering Group, four (4) Working Groups and a Task Team on Exercise IOWave23 (as illustrated below).

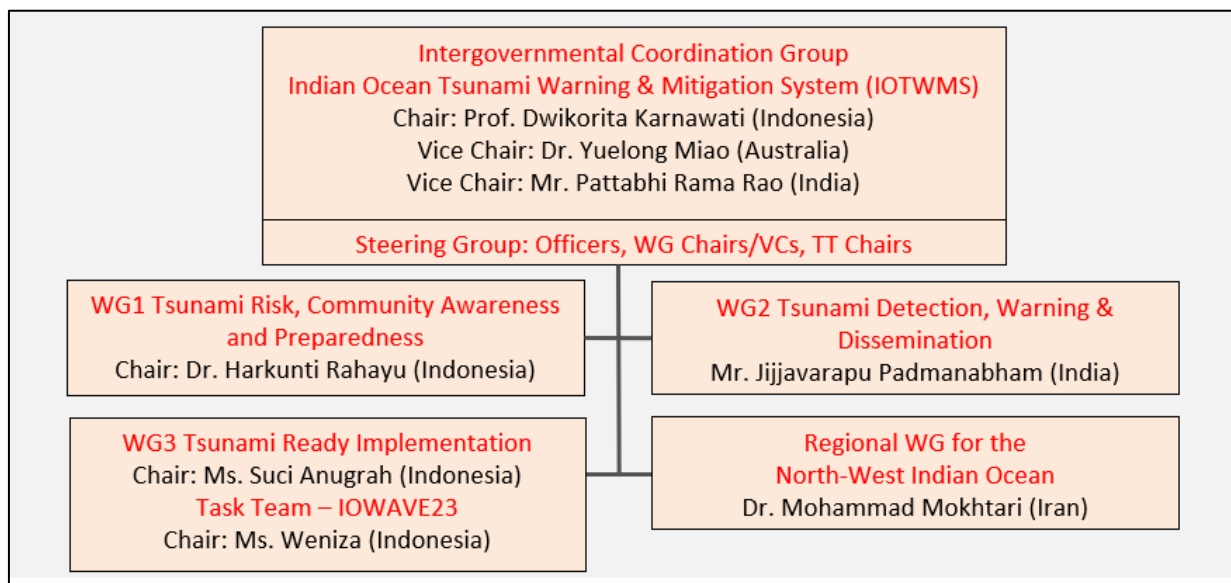


Figure 2. Structure of the ICG/IOTWMS during the 2022-2024 intersessional period.

15. The IOTWMS Secretariat is hosted in Perth and primarily funded by the Government of Australia. The Indian Ocean Tsunami Information Center (IOTIC) is hosted in Jakarta and primarily funded by the Republic of Indonesia. Additional funding from projects and programmes activities is provided through the UNESCAP Tsunami Trust Fund and IOC regular programme budget. In-kind support is provided by several Indian Ocean Member States such as the governments of Australia, India, and Indonesia who make tsunami information freely available to Member States in their roles as the three (3) Tsunami Service Providers (TSPs) for the Indian Ocean region.

16. Recent TSP activities and milestones include TSP Australia generating products for non-seismic events, TSP India's and TSP Indonesia's multi-hazard mobile application platforms. Future activities include implementation of standard operating procedures for non-seismic tsunami and NAVAREA products by all TSPs.

17. Various Standard Operating Procedures training workshops have been held as well as on job capacity development trainings. Exercise IOWave23 was conducted during October 2023 with participation of twenty (20) countries and over 44,000 people evacuating. The 2024 Indian Ocean Capacity Assessment has identified gaps for future work in the region. The UNESCO-IOC Tsunami Ready Recognition Programme is underway with forty-eight (48) communities recognised in India and Indonesia. Implementation of Tsunami Ready for critical infrastructure is under discussion with progress underway at the national level in Indonesia.

18. Prof. Karnawati reported on the success of the 2nd UNESCO-IOC Global Tsunami Symposium that was held in Banda Aceh during 11-14 November 2024, prior to this Session. The Banda Aceh Statement 'Global tsunami warning and mitigation: Building sustainability for the next decade through transformation and innovation' calls for UNESCO and its partners to call on Member States and civil society to drastically step up their investments and efforts to strengthen Tsunami Early Warning Systems and achieve 100% of Tsunami Ready communities across the world by 2030.

19. Issues and challenges include developing standard operating procedures for non-seismic tsunami, providing tsunami information for maritime community through the NAVAREA coordinators, and mainstreaming Tsunami Ready implementation.

3.2 IOC SECRETARIAT REPORT

20. Mr Bernardo Aliaga, Head of the UNESCO-IOC Tsunami Resilience Section, provided an overview of the UNESCO-IOC activities and initiatives related to tsunami preparedness and mitigation. The report highlighted the ongoing efforts to enhance tsunami preparedness through commemorative events, awareness campaigns, publications, and international collaboration.

21. Key activities and anniversaries included the 20th Anniversary of the Indian Ocean Tsunami, World Tsunami Awareness Day (WTAD, 5 November), and the "I survived a tsunami" exhibition and social media campaigns to raise awareness. At UNESCO Headquarters in Paris, events were held for WTAD 2023 and 2024 featuring tsunami survivors. The IOTIC-BMKG project on preserving past tsunami information for future preparedness included the publication of six (6) booklets on various tsunamis and a collection of 356 stories and videos from past tsunamis (i.e., 1945 Makran Tsunami, 1992 Flores Tsunami, and others). The 2nd UNESCO-IOC Global Tsunami Symposium reflected on the 2004 Indian Ocean Tsunami and planning the way forward (Banda Aceh, November 2024). At the 32nd IOC Assembly (21–23 June 2023) all ICGs reported, with a focus on the Tsunami Ready Coalition and Meteotsunami initiatives.

22. Future plans include WTAD 2025 in collaboration with UNDRR, focusing on tsunami readiness, and the 33rd session of the UNESCO-IOC General Assembly (25 June–3 July 2025). The Ocean Decade Tsunami Programme (ODTP) will meet in January 2025 to discuss targets for the next biennium including conferences and continued focus on tsunami readiness and mitigation.

23. Ms Nora Gale, Assistant Programme Officer of the ICG/IOTWMS Secretariat, highlighted the ongoing efforts and plans of the ICG/IOTWMS Secretariat to enhance tsunami preparedness and resilience in the Indian Ocean region through coordination, training, and capacity building initiatives. The ICG/IOTWMS Secretariat supports meetings of the ICG and facilitates liaison among national contact points including maintaining a list of operational contact points for receipt of tsunami information bulletins from the IOTWMS Tsunami Service Providers.

24. During the reporting period, the Secretariat has facilitated and supported training workshops on Standard Operating Procedures (July–August 2023), the Indian Ocean Wave 2023 (IOWave23) Exercise (October 2023) with participation from twenty (20) countries and evacuations in eight (8) communities, and the 2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean with inputs from twenty-two (22) Member States. The Makran project on Strengthen tsunami warning in the North-West Indian Ocean through regional cooperation has focused on training for tsunami inundation maps and evacuation plans (Phase 2c, funded by UN ESCAP). Intersessional meetings during 2023-2024 included various meetings of the ICG/IOTWMS Steering Group, its four (4) Working Groups, and Task Team on IOWave23. The ICG/IOTWMS Secretariat also supported the annual meetings of TOWS-WG and its Inter-ICG Task Teams. Future plans include continuation of capacity building and training workshops such as Tsunami Evacuation Maps, Plans, and Procedures (TEMPP) in early 2025.

25. The recommendations for the ICG/IOTWMS Secretariat include:

- (i) In collaboration with IOTIC, prepare a proposal for Phase 3 of the Makran Project focussing on Tsunami Ready implementation and submit to UNESCAP;
- (ii) Support the Steering Group and Working Groups to build linkages of ICG and IOTWMS Member States activities with the Ocean Decade Tsunami Programme.
- (iii) Facilitate publication of UNESCO-IOC documents including IOWave23 Exercise, 2024 Capacity Assessment, IOTWMS Service Definition Version 5, NTWC User's Guide Version 3 and the report of 14th Session of ICG IOTWMS.
- (iv) Liaise with NAVAREA Coordinators WWNWS Sub-Committee about piloting NAVAREA Maritime Products and to eventual implementation.

3.3 INDIAN OCEAN TSUNAMI INFORMATION CENTER REPORT

26. Mr Ardito Kodijat, Head of the Indian Ocean Tsunami Information Center (IOTIC), provided an overview of the activities and achievements of IOTIC during the intersessional period. IOTIC provides support to the Indian Ocean Member States and their tsunami prone communities in tsunami risk reduction through capacity building in tsunami hazard, awareness, preparedness, education, and mitigation measures. IOTIC is based at UNESCO Jakarta and works in close collaboration with the ICG/IOTWMS Secretariat in Perth. The IOTIC Terms of reference were renewed in 2022 and the UNESCO-BMKG partnership has been extended to 2027.

27. Significant progress was made by IOTIC in enhancing tsunami preparedness and resilience in the Indian Ocean region through collaboration, training, documentation, and public education initiatives. IOTIC has supported Exercise IOWave23 and capacity building workshops, webinars, and documentation of past tsunamis including publications, eyewitness stories, and videos. National Tsunami Ready Training in Maldives, Timor Leste, and Seychelles was conducted during 2023 and 2024. To date, 26 communities in India and 22 communities in Indonesia have received UNESCO-IOC Tsunami Ready recognition. Engagement with youth continues through activities like Tsunami United. The development of public education materials such as community materials on the natural warning signs for tsunami and 'Runami', a Tsunami Ready boardgame for youth have increased community awareness of tsunamis. In 2025, IOTIC plans to contribute to tsunami capacity building through TEMPP workshops, national tsunami ready training for Small Island Developing States (SIDS), WTAD workshop on tsunami resilience, documentation of past tsunamis, and youth engagement through Tsunami United (part 2).

28. The recommendations for IOTIC include:

- (i) Create a capacity development work plan jointly with IOTWMS Secretariat for the intersessional period based on the priority needs of the Member States, where possible, utilizing the facilities of UNESCO C2C ITCOcean, INCOIS in India, and the STC, BMKG in Indonesia.
- (ii) Organize jointly with IOTWMS Secretariat at least one TEMPP Training and one SOP Training during the intersessional period.
- (iii) Organize jointly with IOTWMS Secretariat and BMKG at least two in-country training programmes on implementation of UNESCO-IOC Tsunami Ready Recognition Programme, prioritising SIDS, LDCs and Africa.
- (iv) Publish "The Unforeseen Threat", developed by IOTIC, WG-1, and U-INSPIRE Indonesia by considering additional input from WG-2, as a UNESCO-IOC document.
- (v) Propose mechanisms in consultation with the Steering Group to strengthen the structure, organisation, and management of the IOTIC through possible voluntary contributions from the Member States.
- (vi) Continue to implement the work plan under the IOTIC-BMKG Program including preserving past tsunami information for future preparedness and youth engagement.

29. Mr Rama Rao (India) took the opportunity to thank IOTIC and the UNESCO-IOC Tsunami Resilience Section in Paris for the kind support they have extended to community accounts of past tsunami in India.

3.4 TOWS WORKING GROUP REPORT

30. Dr Harkunti Rahayu, Chair of the TOWS-WG Inter-ICG Task Team on Disaster Management Preparedness (TT-DMP), briefed on the meeting held coincident with the 17th meeting of TOWS-WG (Sendai, February 2024). She reviewed the recommendations of the meeting with emphasis on the UN Ocean Decade Tsunami Programme goals:

- (i) Ensure 100% of coasts at risk receive actionable and timely tsunami warnings.
- (ii) Achieve 100% community preparedness and resilience to tsunamis by 2030 through initiatives like the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP).

31. Dr Rahayu noted the work of the Ad Hoc Teams on Meteotsunami and the important role of the Special Coalition for Tsunami Ready. The Tsunami Glossary revision (2023) includes clarifications of definitions (e.g., meteotsunami, arrival time), updates on global and regional tsunami maps and tables, and inclusion of new terms (e.g. Lamb Wave, TRRP, and volcanic tsunamis). The UN Early Warning for All (EW4All) initiative includes tsunami in the key action areas as well as identification of tsunami hazards by SIDS as priority hazards. A new website is under development for the UNESCO-IOC Tsunami Ready Recognition Programme. For upcoming tsunami exercises, ICGs should consider performing exercises outside of working hours, and in particular during the night, but being careful to take into consideration difficulties and possible issues of involving the public in night-time drills. Furthermore, the ICG/IOTWMS is requested to develop and share guidelines for Tsunami Ready critical infrastructure.

32. Mr Jijavarapu Padmanabham, member of TOWS-WG Inter-ICG Task Team on Tsunami Watch Operations (TT-TWO), briefed on the meeting held coincident with the 17th meeting of TOWS-WG (Sendai, February 2024). The TT-TWO is chaired by Dr Yuji Nishimae of Japan. The TT-TWO recommendations aim to strengthen the capacity of TSPs and Member States to respond effectively to tsunami hazards, including those generated by volcanic activity. Specifically, it is recommended for closer collaboration between IOC/UNESCO and WMO, including initiatives like MHEWS, UN EW4ALL, and CIFI as well as to review roles and responsibilities for meteotsunamis. Related to WG-2, Tsunami Service Providers (TSPs) are requested to trial and operationalize dissemination of maritime bulletins to NAVAREA operators, provide services for Tsunami Generated by Volcanoes (TGVs) impacting multiple Member States, and monitor sea level and seismic networks biannually. Moreover, TT-TWO is requested to develop a global Common Alerting Protocol (CAP) template for TSPs to facilitate bulletin exchange and Evaluate tsunami probabilistic forecasting methods and provide advice to TSPs and NTWCs. The Secretariat is requested to hold webinars involving relevant Volcano Observatories and Volcanic Ash Advisory Centers (VAACs).

3.5 STATUS OF PROGRESS IN OTHER ICGS

(i) North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS)

33. Dr Alessandro Amato, Chair of ICG/NEAMTWS, presented on the activities and advancements of the ICG during 2023 and 2024. The North-Eastern Atlantic, the Mediterranean and Connected Seas regional tsunami warning system was established in 2005 through Resolution XXIII-13 of the 23rd Session of the UNESCO-IOC General Assembly. There are 5 TSPs (France, Greece, Italy, Portugal and Turkey) providing regional coverage. Exercise NEAMWave23 was conducted in 2023. The CoastWave project concluded phase 1 (2022-2024) and phase 2 began in July 2024. A new Task Team on non-seismic tsunami sources has been established. New technology developments include tide gauges in multiple coastal areas, including twenty (20) in the Marmara Sea, and the first cabled deep-ocean sensors connecting Portugal, Azores, and Madeira. The NEAM 2030 strategy document was produced in 2023 by the Task Team on documentation. A baseline Probabilistic Tsunami Hazard Assessment (PTHA)

is available for national and local planning. The first six (6) Tsunami Ready communities including were recognised in 2024 with one in Egypt, France, Greece, Italy, Spain and Turkey.

34. Dr Nelly Florida Riama (Indonesia) asked Dr Amato about the benefits of smart cables for tsunami monitoring. Dr Amato replied that the cables are designed to collect scientific data with pressure sensors attached for tsunami monitoring.

(ii) Pacific Tsunami Warning and Mitigation System (PTWS)

35. Dr Dakui Wang, Vice-Chair ICG/PTWS, presented on progress in the ICG. The 13th Session was held in Tonga in September 2023 where key recommendations and the organizational structure were reviewed. The response to the Hunga Tonga-Hunga Ha'apai Event (15 January 2022) was presented. In response, the new PTWC procedures and PTWS product user's guide (Hunga Tonga–Hunga Ha'apai Volcanic Tsunami Hazard Response) is available as IOC Technical Series 188. Exercise Pacific Wave 24 was conducted during September to November 2024 and included trial transmission of messages from PTWC to the NAVAREA coordinators through the National Tsunami Warning Centre. The 14th session of ICG/PTWS will be held Beijing, China in April 2025.

36. Ms Sunanda Manneela (India) asked about the threat level terminology and harmonisation with other basins. Dr Amato reported this was recently discussed and they are willing to adjust the threat level terminology to align with best practices in other basins.

(iii) Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE-EWS)

37. Dr Regina Browne, Vice-Chair ICG/CARIBE-EWS, provided a pre-recorded video of progress in the ICG. There are 48 Member States and Territories in the ICG. The reports and recommendation from the 17th meeting in Nicaragua, 6–9 May 2024 were summarized. The next meeting is scheduled to be held in Paris during May 2025. The structure includes four working groups and two task teams. The TSP is the Central America Tsunami Advisory Center (CATAC) and the tsunami information centre is CTIC (Caribbean Tsunami Information Center). CARIBE WAVE 24 was conducted on 21 March 2024 with two scenarios and 457,000 participants. CARIBE WAVE 25 will be conducted on 20 March 2025. In 2026, the exercise will involve a non-seismic (volcanic) scenario.

3.6 REPORTS FROM UN AND NON-UN ORGANISATIONS

(i) United Nations Economic and Social Commission for Asia and the Pacific

38. Ms Temily Baker, Programme Management Officer, provided remarks on behalf of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). Through the Trust Fund for Tsunami, Disaster and Climate Preparedness, ESCAP has been a strong supporter of regional cooperation for tsunami warning and mitigation since its inception. Twenty-three (23) out of the thirty-two (32) Trust Fund supported projects have been dedicated to Tsunami preparedness across twenty-one (21) Indian Ocean basin countries. UNESCO-IOC has remained a key implementing partner for many of these projects, since as early as 2007. Ms Baker's full remarks are tabled in [Annex III](#).

(ii) International Research Institute of Disaster Science, Tohoku University

39. Dr Shunichi Koshimura, Deputy Director of the International Research Institute of Disaster Science at Tohoku University presented on 'TsunamiCast'. The 2011 Great East Japan Earthquake and Tsunami led to the development of 'TsunamiCast', a real-time impact-based tsunami forecast system. It is a unique GNSS based tsunami inundation forecast system with fully operational capability using supercomputer that can provide a forecast in minutes. The products include inundation maps with critical facilities, building damage, and exposed

population. Tohoku University have partnered with the Amazon Web Service to power the database. They propose to promote cooperation with private sector to develop new products and services to help accelerate Tsunami Ready.

40. Dr Robert Greenwood (Australia) asked how long it took to develop this system. Dr Koshimura replied the project commenced in 2015 and became fully operational in 2018 with 10 to 15 researchers working on this.

41. Ms Suci Dewi Anugrah (Indonesia) asked if the application is open source. Dr Koshimura explained that they are providing the products not the source code. The products are made available for users for purchase.

42. Dr Srinivasa Tummala asked how the system outputs fit into the tsunami warning and mitigation framework. Dr Koshimura replied that the mapping products for responders supports both government organisations and commercial clients.

43. Dr Mohammad Mokhtari asked about the strategy for promotion to the private sector. Dr Koshimura explained that a formal consortium identified potential users and then pursued user contracts to make the system fully operational.

3.7 UNESCAP NWIO PROJECT STATUS REPORT

44. Mr Ardito Kodijat reported on the progress of the UNESCAP-funded project on Strengthening Tsunami Early Warning in the North-West Indian Ocean through regional cooperation. The project involves the countries of India, Iran, and Pakistan with Oman and UAE participating on a self-funded basis. Regional activities focussed on understanding the tsunami risk in the Makran region and national activities focused on warning chains and standard operating procedures were conducted during Phase 1. Phase 2 focused on a gap analysis to identify the national expertise and capacity development needs related to tsunami inundation modelling and evacuation mapping. In contribution, the United Arab Emirates hosted a regional workshop in 2023. The project is now in Phase 2c which include training and capacity building in tsunami evacuation maps informed by inundation models through engagement with the pilot communities of Kerala (India), Chabahar and Jask (Iran), and Gwadar and Karachi (Pakistan). In contribution, the Sultanate of Oman hosted a regional training workshop in April 2024. As part of the project UNESCO-IOC Manual and Guide 74 and 82 have been translated to Farsi and Urdu and in Pakistan. The publication on the Karachi Folio Impact of 1945 Tsunami has also been translated. A no-cost extension is requested until April 2025 will allow for further activities including consultant engagement with the pilot communities and another regional training on tsunami evacuation maps, plans and procedures (TEMPP) training workshop. A proposal for Phase 3 will be submitted in the coming year with a focus on building capacities for implementation of the UNESCO-IOC Tsunami Ready Recognition Programme in the pilot areas.

45. Ms Suci Dewi Anugrah (Indonesia) noted that the risk assessment for the North-West Indian Ocean can be utilised in other Member States. Mr Ardito Kodijat replied that the hazard assessment phase of the project is now completed. The lessons learnt from the project can be shared with other regions.

46. Dr Mokhtari expressed his sincere appreciation to UNESCO-IOC and UNESCAP on the success of the project. He suggested the learnings from paleo tsunami and non-seismic tsunami sources to be incorporated into the project.

47. Ms Temily Baker (ESCAP) noted that Phase 3 may focus on cities in the Tsunami Ready implementation. She further noted that the ICG should consider the next collaboration with UNESCAP.

4. IOTWMS TSUNAMI SERVICE PROVIDER (TSP) REPORTS

48. Representatives from the TSPs of Australia, India and Indonesia reported on their operational status, developments, and progress during the intersessional period.

49. There were four (4) significant earthquakes in the Indian Ocean region during the intersessional period: (i) Southern Sumatra, Indonesia, Mw 6.8, 24 April 2023, (ii) Prince Edward Islands Region, Mw 7.1, 21 May 2023, (iii) Mount Ruang volcanic eruption in North Sulawesi, Indonesia, 30 April 2024, and (iv) South of Africa, M6.6, 10 July 2024. However, these did not generate tsunamis.

4.1 TSP AUSTRALIA

50. Dr Yuelong Miao, representative of TSP Australia, reported on activities during the intersessional period. TSP Australia (nationally known as the Joint Australian Tsunami Warning Centre) is a partnership between Geoscience Australia and the Bureau of Meteorology. Geoscience Australia has responsibility for earthquake monitoring and alerts while the Bureau of Meteorology has responsibility for tsunami monitoring, assessment and warnings.

51. In 2023, the Bureau's tsunami warning centre was recertified as ISO 9001 compliant. Their decision support tool is being migrated to GEMPA Tsunami Observation and Simulation Terminal (TOAST). Geoscience Australia has upgraded to SeisComp5 and tested the seismic array processor in real-time with a view to operationalize. Other notable activities include implementation of the non-seismic service including a response to the eruption of Ruang on 30 April 2024. In the Pacific region, Australia has assisted with development of the minimum staff competency training pilot and participated in PacWave24. Future developments include GA update to SeisComp6, implementation of minor TOAST updates, and harmonize national warning products.

52. Mr Ajay Kumar Bandela (India) asked TSP Australia about the issuance of bulletins for volcanic events through TOAST. Dr Robert Greenwood confirmed that this is possible using TOAST.

53. Ms Manneela (India) asked about the status of Tsunami Ready in Australia. Dr Miao replied there are equivalent programmes in place, and they are not ready to take on tsunami ready at this stage.

54. Dr Weniza (Indonesia) enquired about the minimum competency framework for National Tsunami Warning Centres as being implemented in the Pacific. Dr Miao explained that at the Bureau, the competency framework is role based.

4.2 TSP INDIA

55. Mr Pattabhi Rama Rao, representative of TSP India, reported on activities during the intersessional period. The observation networks have been sustained including tide gauges, deep ocean buoys, and GNSS stations. Enhancements include observations, modelling, bathymetry, topography, and outreach. INCOIS's state-of-the-art Synergistic Ocean Observations, Prediction and Services Lab (SYnOPS) was inaugurated on 14 February 2024. Recently, INCOIS established a high-performance computing facility called TARANG. INCOIS has expanded its ocean services with WMO recognition as a Regional Specialized Meteorological Centre.

56. The website <https://tsunami.incois.gov.in> provides tsunami advisories and bulletins. SAMUDRA (Smart Access to Marine Users for ocean Data Resources and Advisories) mobile application provides users with real-time updates and critical alerts on ocean disasters. During the intersessional period, 43 global events were detected with two from the Indian Ocean region. Key Performance Indicators (KPIs) are generally met except for KPI 2 (identification of

earthquake of M6.8 and above). Maritime products for NAVAREAs are being generated for the Indian Ocean. Monitoring for tsunamis generated by volcanos is underway with ash advisories from VAAC in conjunction with monitoring sea level fluctuations. The coastal multi-hazard vulnerability assessment includes 3D coastal inundation mapping.

57. The Probabilistic Tsunami Hazard Assessment for Makran region was completed with support from UNESCAP, GIZ, and University of Malaga, and INGV. The results will be hosted and shared with all IOTWMS Member States. Relating to preparedness and response activities, India participated in IOWave23 for the Andaman and Makran scenarios with over 40,000 people evacuating from 42 coastal villages. Further mock exercises were conducted on World Tsunami Awareness Day. Standard Operating Procedure workshops were conducted prior to Exercise IOWave23 and on the job training has been conducted for nine (9) operators of the Oman National Multi-Hazard Early Warning Centre operators in 2023 and 2024.

58. The UNESCO-IOC TRRP has been implemented in twenty-four (24) new communities of Odisha and expansion of the programme is planned for other coastal states as a high priority. India submitted a UN Ocean Decade proposal to be a Decade Collaborative Center for the Indian Ocean Region, which was subsequently endorsed by UNESCO-IOC and several follow-on activities have been conducted at the centre. Future plans were highlighted including the establishment of a cable based multi-parameter (Ocean Bottom Seismometer (OBS), Bottom Pressure Recorder (BPR), etc.) observatory near the subduction zone in proximity to Andaman and Nicobar Islands.

59. Dr Weniza (Indonesia) asked about the strategy for Tsunami Ready implementation in India. Ms Manneela explained that initially there is a trigger to generate a positive village response. Then the village can be used as an example to encourage other villages to take action.

60. Dr Ali Khoshkholgh (Iran) enquired about access to the PTHA database hosted by INCOIS. Ms Manneela noted the results require consolidation and should be ready by the next meeting of the Regional Working Group for the North-West Indian Ocean.

4.3 TSP INDONESIA

61. Mr Yedi Dermadi, representative of TSP Indonesia, reported on activities during the intersessional period. TSP Indonesia's key performance indicators were met during 2024 except for KPI 2. There are currently 533 seismic stations, 211 tide gauges and 5 tsunami buoys. The earthquake and tsunami processing systems are in Jakarta with back-up systems in Bali. SeisComP6 is utilized in conjunction with TOAST. The Indonesian Tsunami Non-Tectonic (InaTNT) integrated system to detect sea level change anomalies recorded by sea level monitoring sensors indicative of tsunami generation provides information to stakeholders.

62. Since ICG/IOTWMS-XIII 4,000 new tsunami scenarios have been integrated into the TOAST processing system. The on-the-job-training for operators of the Oman National Multi-Hazard Early Warning Centre was held in May 2024. The WRS-TSP Indonesia is a real-time system used to alert NTWCs of tsunami. The deployment of 100 tsunami gauges is planned for 2024-25 equipped with water sensors, barometric sensors, and Closed Circuit Television (CCTV). There are also plans to complete the tsunami scenario data base in the Sunda zone. Future plans include incorporating Global Navigation Satellite System (GNSS) data into the earthquake processing system, develop maritime products for NAVAREAs, and continued research for non-seismic hazards.

63. Ms Manneela (India) asked about the benefit of additional scenarios as we move to real-time monitoring. Mr Dermadi replied that the scenarios are required for completeness of the tsunami scenario database maintained by the NTWC, and TSP Indonesia is continuously making advancements.

64. Dr Abdullah Al Khadouri (Oman) thanked all presenter for their valuable and insightful presentations. He suggested that capacity training workshops should be organised for NTWCs in support of their operations to add value to the community. Furthermore, monitoring could focus on all ocean hazards. Dr Tummala replied that training for operators has been identified as a requirement of the IOTWMS for the past 10 years. Connections can be used to leverage on the available training in the area such as the UNESCO Category 2 Centres in India and Iran. Further, the Capacity Development Facility (CDF) under the Ocean Decade is a collaborative platform designed to support the development of skills and knowledge for sustainable ocean solutions where different stakeholders can come together to address capacity development needs.

65. General (Ret.) Luhut Binsar Pandjaitan, the Coordinating Minister of Maritime Affairs and Investment (Indonesia), asked about the modelling utilized by the TSPs. Mr Padmanabham replied that there are three different models used by the TSP but the process to issue bulletins is similar. NTWCs are advised to look at detailed threat information on the password-protected TSP websites and take a decision on the national level threat.

66. The Coordinating Minister also asked about the tsunami buoy data utility to which Mr Dermadi replied that the buoy data from BRIN in collaboration with BMKG was used for tsunami monitoring. The buoy data is no longer operational; however, the cable-based solution is under research.

67. Dr Mohammad Mokhtari (Chair WG-NWIO) noted the important work conducted by the TSPs and suggested that TSPs could provide inundation modelling to communities in the future. Dr Robert Greenwood noted this a future ambition of TSPs that would require significant resources as well as available bathymetry and topography data.

5. SPECIAL SESSION ON OUTCOMES FROM 2ND UNESCO-IOC GLOBAL TSUNAMI SYMPOSIUM

68. Dr Harkunti Rahayu, Chair of the 2nd UNESCO-IOC Global Tsunami Symposium organising committee, reported on the outcomes of the event. In total, 32 countries and around 700 people attended. The main objectives were to commemorate the 2004 Indian Ocean tsunami, reflect on achievements over the last two decade, and identify gaps, challenges and priorities for the next 10 years. The Banda Aceh Statement for global tsunami warning and mitigation is 'Building sustainability for the next decade through transformation and innovation'. The symposium was comprised of eight sessions with the identification of associated gaps and priorities identified for each topic. A summary statement is under preparation.

69. Ms Suci Dewi Anugrah, Vice-Chair of the organising committee, reported that the side events including exhibitions, ignite stages, and poster sessions were successful. She shared video testimonies of participants from the symposiums.

6. TASK TEAM REPORT

6.1 INDIAN OCEAN WAVE 2023 (IOWAVE23)

70. Dr Weniza, Chair of the Task Team on Exercise Indian Ocean Wave 2023 (IOWave23) reported on the Exercise. The exercise was conducted on 4, 11, 18 and 25 October 2023 and involved four scenarios: Andaman trench, Makran trench, Heard Island Volcano, and Java trench. This was the first time a non-seismic tsunami was tested during an IOWave exercise.

71. The Exercise objectives included:

- (i) Procedures in place to ensure tsunami warnings get to all in the community, including those with disabilities, all genders, elderly, and youth.
- (ii) Level of community awareness, preparedness, and response.

- (iii) SOPs within countries for generating and disseminating tsunami warnings to their relevant emergency response agencies, other authorities, media, and the public.
- (iv) SOPs within countries for the issuing of public safety messages, ordering evacuations and where possible issuing all-clear messages.
- (v) Dissemination by TSPs of Tsunami Bulletin Notification Messages to NTWCs via Tsunami Warning Focal Points (TWFPs) of Indian Ocean countries and the reception by NTWCs of the TSP messages.
- (vi) Access by NTWCs to the tsunami bulletins and other products on the TSP websites, and the use of that information to produce national warnings. Validate the reporting by NTWCs to the TSPs of their National Tsunami Warning Status.
- (vii) Reporting by NTWCs to the TSPs of their National Tsunami Warning Status. Receipt and understanding by NTWCs of new TSP service for tsunamis generated by non-seismic and complex.

72. Twenty (20) Member States participated in the exercise. While all involved National Tsunami Warning Centres (NTWCs) and Disaster Management Organisations (DMOs), it was encouraging also to see exercising down to community level in 8 Member States, including specific testing of the UNESCO-IOC Tsunami Ready indicators in at least 7 Member States. Around a total of 45,000 people participated in evacuation drills, including all genders, children, elderly, and people with disabilities. Extensive national stakeholder engagement in each Member State, including with media, helped with successful exercise outcomes and greater government and community awareness of the tsunami threat and what to do. As part of the IOTWMS coordinated service, the TSPs in Australia, India, and Indonesia successfully issued test tsunami threat bulletins for each scenario to all Member States. TSP-Australia was commended for their new products for tsunamis generated by non-seismic sources (such as for the scenario of a tsunami generated by a Heard Island volcano), which were tested for the first time.

7. WORKING GROUP PROGRESS REPORTS

73. The Chair invited reports of the Working Groups of the ICG/IOTWMS.

7.1 WORKING GROUP 1 ON TSUNAMI RISK, COMMUNITY AWARENESS AND PREPAREDNESS

74. Dr Harkunti Rahayu, Chair of ICG/IOTWMS Working Group 1 on Tsunami Risk, Community Awareness and Preparedness, reported on the activities during the intersessional period including a review of the terms of reference and membership. Dr Rahayu drew reference to inclusive people centred early warning system in the face of near-field tsunami risk. The 2024 UNESCO-IOC Capacity Assessment of Tsunami Preparedness in the Indian Ocean was conducted and a draft report is underway. Tsunami warning chains and standard operating procedures in Indian Ocean countries have been refined. The PTHA for the Makran region is in progress with version 1.0 completed and likely to be published in early 2025. There are several alternative models, and the next step is consensus on the model weights. Non-seismic tsunami hazards assessments are recommended as a future activity noting the work undertaken in the Pacific by New Zealand. Key activities of the workplan include updating the PTHA, supporting inclusive standard operating procedures, promoting tsunami awareness for critical infrastructure, and advancing capacity-building projects.

75. The recommendations for Working Group 1 on tsunami risk, community awareness and preparedness include:

- (i) Develop guidelines for Tsunami Ready Critical Infrastructure in collaboration with WG3 and share with the TOWS-WG in their next meeting.

- (ii) Probabilistic Tsunami Hazard Assessment for Indian Ocean including non-seismic sources.
- (iii) Develop Inclusive People Centred Early Warning DMO SOPs for near field tsunami.
- (iv) Develop draft assessment tool for the downstream warning process.

7.2 WORKING GROUP 2 ON TSUNAMI DETECTION, WARNING AND DISSEMINATION

76. Mr Jijavarapu Padmanabham, Chair of ICG/IOTWMS Working Group 2 on Tsunami Detection, Warning and Dissemination, reported on the activities during the intersessional period including a review of the terms of reference and membership. Under ICG/IOTWMS there are 3 Tsunami Service Providers (TSPs) (Australia, India, Indonesia) to provide tsunami threat information to NTWCs.

77. Working Group 2 has supported Exercise IOWave23, the 6-monthly IOTWMS communication tests, and training workshops on standard operating procedures and TSP products and services. TSP Australia is producing bulletins for non-seismic and complex sources, and other two TSPs are currently working on future implementation. IOC Circular Letter 3006 notifying that fax dissemination on TSP notifications will be ceased on 31 March 2024 was issued on 8 October 2024.

78. IOTWMS Tsunami Service Provider Definition Document Version 5 includes NAVAREA templates and the provision to issue TSP products for non-seismic events. The National Tsunami Warning Center User's Guide will be updated to also include this content.

79. The recommendations for Working Group 2 on tsunami detection, warning and dissemination include:

- (i) Trial dissemination of maritime bulletins to respective NAVAREA operators in the Area of Service (AoS) for the upcoming communication test and for full operational implementation in 2025.
- (ii) Develop a Standard Operating Procedure (SOP) document for TSPs to address Tsunami-Generating Volcanic Events (TGVEs).
- (iii) Develop an optimal notional observing network design to meet the objectives of ODTP, facilitate the strategic and coordinated submission of projects to the UN Ocean Decade and potential funding sources.
- (iv) Utilise and promote the use of multi-purpose sea level monitoring stations to support MHEWS in enhancing data coverage and reducing costs.
- (v) Utilise exercises and communication tests as an opportunity to simultaneously monitor data availability and quality.

7.3 WORKING GROUP 3 ON TSUNAMI READY IMPLEMENTATION

80. Ms Suci Dewi Anugrah, Chair of ICG/IOTWMS Working Group 3 on Tsunami Ready Implementation, reported on the activities during the intersessional period including a review of the terms of reference and membership. The Working Group met three times during the period. The most recent meeting (21 August 2024) included an introduction on the UNESCO-IOC Tsunami Ready Recognition Programme for the Tsunami Ready Focal Points (TRFP). In response to IOC Circular Letter [2978](#), TRFPs have been nominated from 18 Member States.

81. Ocean Teacher Global Academy training on tsunami community preparedness based on the Tsunami Ready indicators was conducted in December 2022. Together with the IOTIC, national capacity development in Tsunami Ready was conducted in Maldives (August 2024),

Timor Leste (July-August 2023), and Seychelles (November 2023). Indonesia is promoting Tsunami Ready for critical infrastructure in airports, ports and hotels.

82. To date forty-eight (48) communities from India and Indonesia have been recognised as UNESCO-IOC Tsunami Ready, and there are plans for further communities to join the programme. To receive Tsunami Ready recognition, communities need to satisfy the twelve (12) indicators in the areas of assessment, preparedness, and response (see Table 1).

TSUNAMI READY INDICATORS	
I	ASSESSMENT (ASSESS)
1	ASSESS-1. Tsunami hazard zones are mapped and designated.
2	ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated.
3	ASSESS-3. Economic, infrastructural, political, and social resources are identified.
II	PREPAREDNESS (PREP)
4	PREP-1. Easily understood tsunami evacuation maps are approved.
5	PREP-2. Tsunami information including signage is publicly displayed.
6	PREP-3. Outreach and public awareness and education resources are available and distributed.
7	PREP-4. Outreach or educational activities are held at least three times a year.
8	PREP-5: A community tsunami exercise is conducted at least every two years.
III	RESPONSE (RESP)
9	RESP-1. A community tsunami emergency response plan is approved.
10	RESP-2. The capacity to manage emergency response operations during a tsunami is in place.
11	RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place.
12	RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place.

Table 1. Indicators of the UNESCO-IOC Tsunami Ready Recognition Programme in the areas of assessment, preparedness, and response.

83. The Recommendations for Working Group 3 on Tsunami Ready Implementation include:
- (i) Encourage Member States to establish National Tsunami Ready Board (NTRB) or consider including its role, responsibilities, and functions in the existing disaster management coordination mechanism.
 - (ii) Review the guidance on Tsunami Ready Equivalency of ICG/PTWS.
 - (iii) Review national tsunami preparedness programmes in the Member States and prepare guidance on similar initiatives to the UNESCO-IOC Tsunami Ready Recognition Programme as contribution to the UN Decade Tsunami Program.
 - (iv) Encourage members to identify potential communities for implementing the Tsunami Ready Recognition Program
 - (v) Continue the capacity development on Tsunami Ready for the Member States and national Tsunami Ready facilitators.
 - (vi) Encourage the Member States to explore possibilities for implementation of Tsunami Ready for critical infrastructure.

7.4 SUBREGIONAL WORKING GROUP FOR THE NORTH-WEST INDIAN OCEAN

84. Dr Mohammad Mokhtari, Chair of Regional Working Group for the North-West Indian Ocean, presented the activities and recommendations of the Working Group for the intersessional period. He presented the terms-of-reference, membership, and progress on activities. There are two projects underway in the region: a) Strengthening tsunami warning in the North-West Indian Ocean through regional cooperation (funded by UNESCAP) and b) West Makran Paleo-tsunami investigation (funded by the International Geoscience Programme (IGP) of UNESCO). The first consists of a multi-phase programmatic approach with Phase 2c on inundation and evacuation mapping capacity development under implementation. Two back-to-back workshops on inundation mapping and evacuation plans for pilot areas were conducted in Muscat, Oman during 21-25 April 2024. Regarding the paleo-tsunami investigation project, trench and core samples have been collected along the Iranian coastline and a first workshop has discussed the results. Dating of the samples, sediment and geochemical analyses will enable identification of tsunami events. Real-time data sharing has made some progress with bilateral data exchange; however, further work is to be done in this area.

85. The recommendations for the Regional Working Group for the North-West Indian Ocean include:

- (i) Progress data sharing amongst the North-West Indian Ocean countries, and with the TSPs
- (ii) Formulate a regional Paleo-tsunami study proposal for possible funding and contribution to the UN Ocean Decade Tsunami Programme
- (iii) Extend the inundation and evacuation maps, as developed for the pilot areas under the UNESCAP project, to the other areas of NWIO region in line with the results of the hazard assessments towards implementation of the UNESCO-IOC Tsunami Ready Recognition Programme.
- (iv) Facilitate on-the-job training for National Tsunami Warning Centre representatives.

86. The Chair invited comments from the floor on the Working Group progress reports.

87. Dr Nelly Florida Riama (Indonesia) enquired about the funding sources to sustain activities of Working Group 1. Dr Rahayu replied in-country and international partnerships have been leveraged in successful funding proposals.

88. Dr Riama asked if expert discussion followed the intersessional events. Mr Padmanabhan noted that there was no tsunami threat from any events, and therefore they were not discussed within expert forums.

89. Dr Tummala suggested that the Working Group recommendations should incorporate the related recommendations from the UN Decade tsunami programme and TOWS-WG.

90. Dr Tummala recommended that Working Group 2 design an ideal regional monitoring network, so that Member States can prioritise their deployment of monitoring stations.

91. Further, Dr Tummala noted that capacity development trainings (such as TEMPP trainings) have been discussed on several occasions and leveraging existing regional training facilities for such events is recommended.

8. POLICY MATTERS

8.1 CAPACITY ASSESSMENT OF TSUNAMI PREPAREDNESS IN THE INDIAN OCEAN

92. Dr Harkunti Rahayu reported the structure of the capacity assessment survey, which includes sections on (i) basic information, (ii) risk assessment and reduction, (iii) detection, warning and dissemination, (iv) public awareness, preparedness and response, (v) Tsunami Ready recognition programme, and (vi) country narrative, that can be mapped to the Early Warning 4 All pillars.

93. The capacity assessment is underpinned by the survey data collected from Member States. For the 2018 capacity assessment, eighteen (18) responses were received and for the 2024 capacity assessment, twenty-two (22) responses were received. However, Tanzania and Timor Leste only provided input in 2018 while 3 Member States (Maldives, Seychelles and United Arab Emirate) only provided input in 2024.

94. The 2024 report provides an update of the status of tsunami preparedness, identifies specific gaps and prioritises capacity development requirements at both the regional and national levels with an overarching view of strengthening the end-to-end tsunami warning and mitigation system in the Indian Ocean.

95. An assessment of the survey indicates that, much progress has been made between 2005 and 2018 to develop robust and state-of-the-art regional and national tsunami warning and mitigation systems. Examination of the 2018 and 2024 survey results indicate that tsunami policies, plans and guidelines have increased or remained at a similar level between the surveys. All to nearly-all countries have reported undertaking tsunami hazard assessments in both surveys while the percentage of countries undertaking tsunami risk assessments has increased with time. The results show that the upstream tsunami warning system components of detection, warning and dissemination have plateaued since 2018. During the same timeframe, efforts have been increasing in community preparedness. For example, considerable growth has been measured in the areas of standard operating procedures for community evacuation, and tsunami exercises conducted in cities and schools. Countries have reported an increase in tsunami information boards and signage reflecting greater community awareness and preparedness. The observed increase in community tsunami activities between 2018 and 2024 may be attributed to the adoption and growth of the UNESCO-IOC Tsunami Ready Recognition Programme with 48 communities in India and Indonesia recognised so far.

96. Dr Mohammad Mokhtari (Chair of Regional Working Group for North-West Indian Ocean) asked what the next steps will be. Dr Rahayu replied that the sessional committee will further discuss the recommendations during the break-out session tomorrow and provide input for the ICG/IOTWMS Medium Term Strategy. Dr Nelly Florida Riama (Indonesia) expressed support for this activity.

97. Dr Abdullah Al Khadouri (Oman) reiterated the importance of prioritising countries without warning systems in future capacity development support.

98. Dr Tummala noted that the sessional committee should also discuss the plan for publication of the report as a UNESCO-IOC Technical Series document in their break-out session providing an opportunity of 4-weeks for Member States to review of the draft document.

8.2 UN OCEAN DECADE TSUNAMI PROGRAMME (ODTP)

99. Dr Srinivasa Tummala presented the Ocean Decade framework, which is a joint initiative coordinated by UNESCO with a broad range of stakeholders. The UNESCO General Assembly approved the concept in 2016, and it was launched in 2021 for a ten-year period. Broadly, the

Ocean Decade's key objectives include improving our understanding of the ocean, fostering innovation, promoting inclusivity, and ensuring a sustainable future for future generations.

100. Calls for action invite stakeholders to engage with and co-design programmes, projects, activities and contributions designed to meet the 10 Ocean Decade challenges. Regional and national coordination mechanisms and structures address various areas. The Decade Programme encourages countries to set up their own National Decade Committees of which there are currently 39.

101. The vision 2030 outcome report includes ten collaborative white papers outlining the strategic ambition for each of Ocean Decade challenges. The roadmap outlines how to translate these global actions into regional and national actions. Of interest to the tsunami community is challenge 6, which focuses on increasing community resilience to ocean hazards including enhanced multi-hazard early warning systems.

102. Dr Tummala explained that following commencement of the UN Ocean Decade, the tsunami community responded by establishing the Ocean Decade Tsunami Programme (ODTP). A global committee was formed with membership from the four Intergovernmental Coordination Groups and external experts. The 10-year Research, Development and Implementation Plan was endorsed at the IOC Assembly at its 32nd session in June 2023. The implementation plan addresses the four pillars in disaster risk reduction with additional content on capacity development across all pillars and adoption within a multi-hazard framework.

103. Dr Tummala reviewed the status, gaps and performance indicators for the areas of a) tsunami risk knowledge, b) tsunami detection, analysis and forecasting, c) tsunami warning, dissemination and communication, and d) preparedness and response capabilities. He further commented on capacity development and pathways to implementation. Actions within Member States in contribution to the Ocean Decade are limited and there is a call for additional contributions. Collaborative and coordination centres established under the Ocean Decade can be leveraged for Ocean Decade activities and projects in the Indian Ocean region.

104. The Chair invited comments from floor.

105. Mr Pattabhi Rama Rao (India) requested for further information on the nominal observational network. Dr Tummala explained that the network is based on providing tsunami information within 10 minutes and considers an optimal grid of mixed observing systems.

106. Ms Suci Dewi Anugrah (Indonesia) asked how more activities of tsunami programmes can contribute to Ocean Decade Challenge 6 initiatives. Dr Tummala replied that it is important to link all stakeholders into the Ocean Decade framework and for them to respond to the calls for action seeking submission of new Ocean Decade projects and activities.

107. Dr Abdullah Al Khadouri (Oman) asked if there are any Key Performance Indicators (KPIs) to track progress. Dr Tummala replied that KPIs are under development with a plan to identify milestones and targets against the pillars. Within the TOWS-WG, ICG KPIs are being reviewed and integrated with the UN Ocean Decade targets.

8.3 EXERCISE INDIAN OCEAN WAVE 2025 (IOWAVE25)

108. Dr Weniza provided preliminary feedback on behalf of the sessional committee. There is consensus that multiple scenarios will be tested during Exercise Indian Ocean Wave 2025 (IOWave25) including a non-seismic event. It is recommended to conduct at least one scenario outside of normal working hours, such as at night or on the weekend (as recommended by TOWS-WG). The time of the year of the exercise is also being discussed. The conclusions will be shared in Agenda 10.

109. The Task Team has prepared the draft report of Exercise IOWave23. Member States are requested to review the draft report and provide feedback to the Secretariat by end of December 2024.

8.4 IOTWMS GOVERNANCE AND STRUCTURE

110. Dr Yuelong Miao provided an outline of the proposed future IOTWMS governance and structure for the next intersessional period (2024 to 2026). The core Working Groups 1, 2 and 3 will remain. Working Group 3 focus will be on Tsunami Ready implementation. The Regional Working Group for the North-West Indian Ocean will remain, however, the Task Team on the Scientific Tsunami Hazard Assessment of the Makran Subduction Zone will not continue. The Task Team on Exercise IOWave25 will report to the Steering Group. Additionally, there will be new Task Teams on Medium Term Strategy (reporting to the Steering Group) and New Technologies, Observations and Forecasting (reporting to Working Group 2). The proposed governance and structure of the ICG/IOTWMS is shown below.

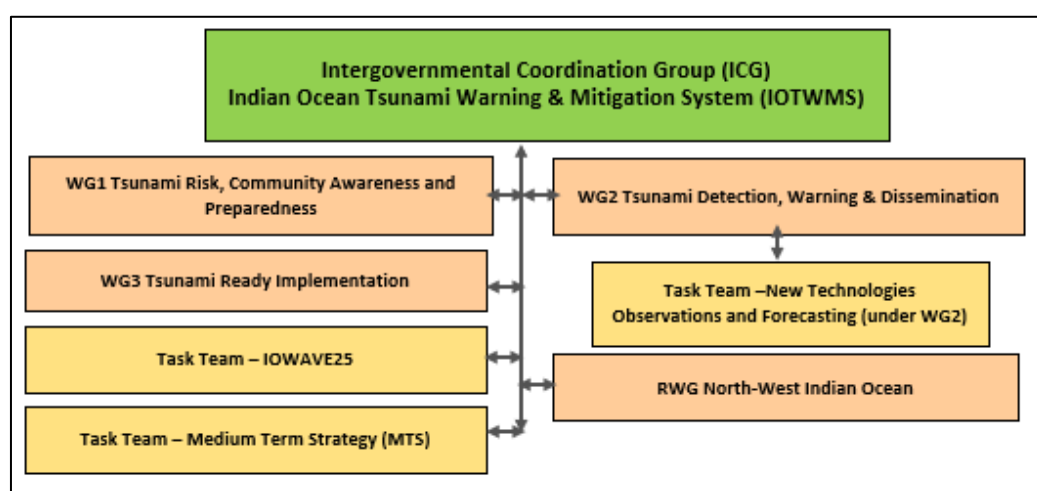


Figure 3. Governance and Structure of the ICG/IOTWMS (2024-2026).

8.5 TSUNAMI READY FOR CRITICAL INFRASTRUCTURE

111. Dr Harkunti Rahayu provided a review of Tsunami Ready for critical infrastructure such as airports and ports. Structural design criteria are important to ensure the infrastructure can withstand the tsunami impact. Hazard mapping and community education were highlighted as key indicators. The development of Standard Operating Procedures (SOPs) that are tested in drills is another important component. Components of the SOPs, such as the evacuation strategy, should be refined based on lessons learned.

112. It is recommended that WG3 explore expansion of the Tsunami Ready indicators for critical infrastructure.

8.6 PILOTING THE IMPLEMENTATION OF ISO-22328 GUIDELINES FOR THE IMPLEMENTATION OF A COMMUNITY-BASED TSUNAMI EARLY WARNING SYSTEM

113. Dr Weniza provided an overview of the IOS-22328 guidelines for the implementation of a community-based early warning system for tsunamis. The ISO guidelines are being implemented in communities and businesses in Indonesia. They provide structure and guidance for the implementation of community-based tsunami early warning systems, emphasizing safety management and business continuity for at-risk coastal areas. Long term commitment in the standards will ensure that community-based tsunami early warning systems are useful and effective.

9. IOTWMS DOCUMENTATION

114. Ms Nora Gale provided an update on IOTWMS documentation.

9.1 IOTWMS STATUS REPORT

115. The provisional drafts of the 2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean will be reviewed internally. This includes the Full Report and Executive Summary. Following the internal review the document will be shared with Member States for comment. Member States will have four weeks to provide feedback.

9.2 IOTWMS MEDIUM-TERM STRATEGY

116. The structure and content of this document is being discussed by the sessional committee led by Dr Yuelong Miao. An outline document is available in [Annex II](#) (specifically Annex 8 to Decision ICG/IOTWMS-XIV.1: Medium-Term Strategy 2025–2030).

9.3 UPDATE TO THE DEFINITION OF SERVICES PROVIDED BY THE IOTWMS TSUNAMI SERVICE PROVIDERS

117. IOTWMS TSP Service Definition Document Version 5.0 includes NAVAREA templates as well as changes required for a non-seismic event template.

9.4 UPDATE TO THE NATIONAL TSUNAMI WARNING CENTRE USER'S GUIDE

118. IOTWMS National Tsunami Warning Centre User's Guide Version 3.0 will be updated with the same changes as the TSP Service Definition Document.

10. REPORTS FROM SESSIONAL COMMITTEES

(i) Capacity Assessment

119. Dr Harkunti Rahayu (Indonesia) reported on the sessional committee for the 2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean. The recommendations underpinned by discussions during the Bangkok meeting in September 2024 were reviewed with required updates made during the session.

120. Dr Rahayu advised that the draft report requires further improvements and restructuring prior to publication as a UNESCO-IOC Technical Series document.

(ii) Exercise IOWave25

121. Dr Weniza presented the sessional committee's recommendation on Exercise Indian Ocean Wave 2025 (IOWave25). They include,

- Consider performing exercises outside of working hours, and in particular during the night or weekend, but being careful to take into consideration difficulties and possible issues of involving the public in such drills.
- Encourage the Member States to ensure the participation of the community, especially those recognized as UNESCO-IOC Tsunami Ready Community in IOWave25.

122. The recommendations for Exercise IOWave25 are tabled in [Annex II](#).

(iii) Strategy and Governance

123. Dr Yuelong Miao reported on the sessional committee for strategy and governance. The 2025-2030 Medium Term Strategy was discussed by the committee and the structure of the report was drafted. The committee also considered key reports, documents and recommendation and links to global programmes (i.e. UN Ocean Decade and its Challenge 6 whitepaper, ODTP, EW4ALL). New and emerging technologies and environmental trends were also considered through a Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis.

124. The ICG decided to establish a new Task Team on Medium Term Strategy (MTS) to prepare a draft MTS 2025-2030 during the first half of 2025 and consisting key elements as detailed in [Annex II](#) (specifically Annex 8 to Decision ICG/IOTWMS-XIV.1: Medium Term Strategy 2025–2030).

125. The proposed structure of the ICG/IOTWMS (Figure 3) includes continuation of WG1, WG2, WG3 and WG-NWIO with some updates to the terms-of-reference, convene a Task Team of IOWave25 under the steering group and a Task Team on new technologies for observation and forecasting under WG-2. The updated/new Working Group and Task Team Terms-of-Reference were presented and adopted by the plenary as detailed in [Annex II](#) (specifically Annexes 1–6 to Decision ICG/IOTWMS-XIV.1).

11. PROGRAMME AND BUDGET

107. Mr Pattabhi Rama Rao (India), Chair of the Programme and Budget Committee, reported that the committee has reviewed the budgetary requirements for the proposed programme of activities. Funding for ICG/IOTWMS activities comprises both regular programme and extra-budgetary funds including support from the Government of Australia, IOTIC-BMKG, and UNESCAP. Mr Rama Rao reviewed the proposed activities for the intersessional period noting budgeted and/or in-kind contributions against each activity.

108. The Chair invited ICG to consider the important issue of funding for the long-term sustainability of the ICG/IOTWMS. Member States were invited to make contributions to the IOC Special Account set up for this purpose.

12. ELECTION OF OFFICERS

126. The Secretariat reminded the delegates of the rules and procedures for the election of Officers. The Election of Officers of the ICG/IOTWMS was announced with the [IOC Circular Letter 3007](#) along with the required forms. Open for nominations were the positions of one Chair and two Vice-Chairs. The deadline for nominations was on 18 October 2024 at 17:00 local time (12:00 UTC).

127. The Chair handed over this part of the session to Mr Abdullah AlKhadouri (Oman), Chair of the Elections committee. The committee had membership from India and Seychelles with support from the Secretariat. Mr AlKhadouri presented the election results.

128. Nominations were received by the Secretariat before the deadline for all open Officer positions. Each nomination was duly dated, timed, and signed by the Secretariat. The nominations committee duly scrutinized the nomination papers received by the Secretariat. The nominations received were one nomination for Chair and two nominations for Vice-Chair:

- Chair: Mr E Pattabhi Rama Rao (supported by Australia and India)
- Vice-Chair: Dr Yuelong Miao (supported by India and Indonesia)
- Vice-Chair: Dr Harkunti Rahayu (supported by Australia and India)

129. The Elections Committee recommended that the ICG/IOTWMS elect these Officers for the intersessional period commencing at the closing of this 14th session of the ICG/IOTWMS. The ICG elected the Officers by acclamation and welcomed the elected Chair and Vice-Chairs. Mr E Pattabhi Rama Rao will serve his first term as Chair, Dr Yuelong Miao will serve his second term as Vice-Chair, and Dr Harkunti Rahayu will serve her first term as Vice-Chair.

13. WORKING GROUP AND TASK TEAM MEMBERSHIP

130. Dr Tummala introduced the agenda item. He recalled the membership criteria, rules and conditions for ICG/IOTWMS Working Groups and Task Teams.

131. The Chair called for nominations for the Working Group and Task Teams including Chair, Vice-Chair(s) and members.

(i) Working Group 1 on Tsunami Risk, Community Awareness and Preparedness

132. The ICG appointed the Chair and Vice-Chair for Working Group 1 on Tsunami Risk, Community Awareness and Preparedness for the next intersessional period. The second Vice-Chair needs confirmation.

- WG 1 Chair: Dr Weniza (Indonesia)
- WG 1 Vice-Chair: Dr Mahendra S Ranganalli (India)
- WG 1 Vice-Chair: to be confirmed

133. The Chair invited expressions of interest from the floor to join Working Group 1. Australia, Malaysia and Oman expressed interest in membership.

(ii) Working Group 2 on Tsunami Detection, Warning and Dissemination

134. The ICG appointed the Chair and two Vice-Chairs for Working Group 2 on Tsunami Detection, Warning and Dissemination.

- Chair: Mr Jijavarapu Padmanabham (India)
- Vice-Chair: Dr Robert Greenwood (Australia)
- Vice-Chair: Mr Yedi Dermadi (Indonesia)

135. The Chair invited expressions of interest from the floor to join Working Group 2. India, Indonesia, Malaysia and Oman expressed interest in membership.

(iii) Working Group 3 on Tsunami Ready Implementation

136. The ICG appointed the Chair and Vice-Chair for the Working Group 3 on Tsunami Ready Implementation.

- Chair: Ms Suci Dewi Anugrah (Indonesia)
- Vice-Chair: Dr Ali Khoshkholgh (Iran)

(iv) Sub-regional Working Group for the Northwest Indian Ocean

137. The ICG appointed the Chair and Vice-Chair for the Sub-regional Working Group for the Northwest Indian Ocean.

- Chair: Ms V Sunanda Maneela (India)
- Vice-Chair: Mr Nasser Al Ismaili (Oman)

(v) Task Team on Exercise Indian Ocean Wave 2025

138. The ICG appointed a Chair and Vice-Chair for the Task Team on Exercise Indian Ocean Wave 2025 (IOWave25).

- Chair: Dr Ajay Kumar Bandela (India)
- Vice-Chair: Ms Septa Anggraini (Indonesia)

139. The Chair invited expressions of interest from the floor to join the Task Team on IOWave25. Australia, Malaysia, Oman and Seychelles expressed interest in membership.

(vi) Task Team on Medium Term Strategy

140. The ICG appointed the Chair and Co-Chair for the Task Team on Medium Term Strategy.

- Chair: Dr Yuelong Miao (Australia)
- Co-Chair: Dr Harkunti Rahayu (Indonesia)

141. The Chair invited expressions of interest from the floor to join the Task Team on Medium Term Strategy. Oman and the Working Group Chairs expressed interest in membership.

(vii) Task Team on New/Emerging Technologies for Observation and Forecasting

142. The ICG appointed the Chair for the Task Team on New Technologies for Observation and Forecasting.

- Chair: Dr Wahyu Wododo Pandoe (Indonesia)

143. A Vice-Chair was deemed as not required.

144. The Secretariat will follow up with nominations to the Working Groups and Task Teams via a Circular Letter.

14. NEXT SESSION

14.1 CONFIRMATION OF DATE AND VENUE FOR ICG/IOTWMS-XV

145. Mr Abdullah Al Khadouri (Oman) reiterated the standing offer of the Sultanate of Oman to host the 15th session in 2026. The Chair thanked the Sultanate of Oman for its generous offer, which was subsequently accepted by the ICG/IOTWMS. Arrangements will be coordinated through the Secretariat.

14.2 TARGET DATE AND VENUE FOR ICG/IOTWMS-XVI

146. The Chair invited expressions from Member States of the ICG to offer to host the 16th session of ICG/IOTWMS (ICG/IOTWMS-XVI) in 2028. Mr Pattabhi Rama Rao (India) kindly noted that India could be a back-up option should no other Member States come forward. The offer was accepted by the ICG/IOTWMS.

15. OTHER BUSINESS

147. There was no reporting or discussion against this agenda item.

16. ADOPTION OF DECISIONS AND RECOMMENDATIONS

148. Mr Pattabhi Rama Rao, Chair of the Recommendations committee, presented the draft decisions and recommendations of the fourteenth session of the ICG/IOTWMS. The ICG agreed

on the decisions and recommendations with minor modifications. The adopted decision is provided in [Annex II](#).

17. CLOSURE

149. The Chair called upon National Delegations to provide ad hoc closing remarks.

150. Dr Yuelong Miao (Australia) said it was welcoming coming here and seeing old friends. Working under the leadership of Prof Dwikorita has been inspirational and he notes her commitment towards working with the IOTWMS despite other important priorities. He thanked Indonesia for their hospitality.

151. Dr Harkunti Rahayu (Indonesia) thanked Madam Chair for her strong leadership and noted that Mr Pattabhi Rama Rao will have a good example to follow.

152. Ms Azahani Abd Aziz (Malaysia) thanked BMKG and the Secretariat for successfully organizing this meeting. She hopes capacity building collaboration will continue with BMKG, and the ODTP goals for 2030 are achieved.

153. Mr Abdullah AlKhadouri (Oman) expressed gratitude to BMKG Indonesia for the excellent arrangements and hospitality. He looks forward to working on future activities for the benefit of the Member States and welcoming everyone to the ICG/IOTWMS-V in Oman.

154. Ms Doreen Ikula and Ms Catherina Bonnelame (Seychelles) thanked the organisers for hosting them and noted that they have learned a lot through the session.

155. Dr Mohammad Mokhtari (Chair of Regional Working Group for the North-West Indian Ocean) thanked Prof Karnawati for leading the IOTWMS for 5-years. He welcomed Dr Srinivasa Tummala back as Head of the ICG/IOTWMS Secretariat. He thanked Ms Nora Gale and Mr Ardito Kodijat for their commitment and contributions over the years and extended his gratitude to the entire tsunami family. He thanked the Indonesian government for facilitating the session noting the strong leadership of BMKG. To conclude he wished all success, happiness, wealth, and a Happy New Year.

156. The Chair invited closing remarks from the Head of ICG/IOTWMS Secretariat, BMKG representative, and incoming Chair of ICG/IOTWMS.

157. Dr Srinivasa Tummala, Head of ICG/IOTWMS Secretariat, thanked Prof Dwikorita Karnawati and her team at BMKG including Dr Nelly Florida Riama. The hosting and meeting arrangements have been exceptional. The Global Tsunami Symposium was another excellent event. Dr Tummala thanked the Chairs and Vice-Chairs for their contributions to the IOTWMS. He thanked IOC colleagues Mr Ardito Kodijat and Ms Nora Gale, for putting together a rich agenda enabling discussion. It was phenomenal to see so many delegations. The Secretariat will do the best possible to facilitate the ICG work during the intersessional period. He thanked Prof Karnawati for her leadership as Chair ICG/IOTWMS.

158. Dr Nelly Florida Riama, Deputy Head of Geophysics at BMKG, thanked Prof Dwikorita for her leadership as Chair ICG/IOTWMS. It is her first time to join this family, and she feels thankful. She has witnessed the hard work done during this Session. She has learned many things from the Session. She congratulated the new officers for the future. Let's continue our collaboration. She looks forward to seeing everyone in Oman in 2026.

159. Mr Pattabhi Rama Rao, incoming Chair of the ICG/IOTWMS, expressed his profound gratitude to all for the trust placed in him as elected Chair noting it is an honour and privilege to serve. He extended his congratulations to the newly elected vice-chairs and thanked the outgoing officers for their contributions noting the high standards set by Prof Karnawati.

Substantial progress has been made by the ICG/IOTWMS; however, the 2nd Global Tsunami Symposium has reminded us of gaps and challenges. The UN Ocean Decade and its ODTP implementation plan will guide us with clear targets and milestones. Looking ahead we must prioritise regional capacity building, enhancing networks, data sharing, and tsunami ready in communities. In conclusion, he thanked all for electing him as Chair and looks forward to working with all. He thanked Madam Chair and Ibu Harkunti Rahayu for the success of the symposium and sessional meeting. He thanked Prof Karnawati, Dr Riama, and colleagues from BMKG for the excellent hosting arrangements.

160. The final closing remarks were delivered by Prof Dwikorita Karnawati, Chair of ICG/IOTWMS (March 2019 to November 2024). She warmly welcomed Mr Pattabhi Rama Rao as the incoming Chair of ICG/IOTWMS. Prof Karnawati acknowledged the hard work of the Working Groups and Task Teams, and the Secretariat throughout her two terms as Chair. Mr Ardito Kodijat was thanked for his substantial contributions towards IOTIC. Prof Karnawati thanked the experts for their help with the capacity development. She regrets that she could not do more to have all countries in the Indian Ocean actively participate and noted that we must be vigilant for any surprise tsunami events. She expressed the need for regional leaders to promote engagement from all IOTWMS Member States in activities of the ICG/IOTWMS such as the Tsunami Ready programme, capacity building workshops and planning meetings. In conclusion, Prof Karnawati wished all successful future achievements, a pleasant return to Indonesia one day, and safe travels back to your home countries.

ANNEX I

AGENDA

- 1. OPENING**
- 2. ORGANISATION OF THE SESSION**
 - 2.1 ADOPTION OF AGENDA
 - 2.2 DESIGNATION OF RAPPORTEUR
 - 2.3 CONDUCT OF THE SESSION
 - 2.4 ESTABLISHMENT OF SESSIONAL COMMITTEES
- 3. REPORTS ON INTERSESSIONAL ACTIVITIES**
 - 3.1 ICG CHAIR'S REPORT
 - 3.2 IOC SECRETARIAT REPORT
 - 3.3 INDIAN OCEAN TSUNAMI INFORMATION CENTRE REPORT
 - 3.4 TOWS WORKING GROUP REPORT
 - 3.5 STATUS OF PROGRESS IN OTHER ICGS
 - 3.6 REPORTS FROM UN AND NON-UN ORGANISATIONS
 - 3.7 UNESCAP NWIO PROJECT STATUS REPORT
- 4. IOTWMS TSUNAMI SERVICE PROVER (IOTWMS-TSP) REPORTS**
 - 4.1 TSP AUSTRALIA
 - 4.2 TSP INDIA
 - 4.3 TSP INDONESIA
- 5. SPECIAL SESSION ON OUTCOMES FROM 2ND UNESCO-IOC GLOBAL TSUNAMI SYMPOSIUM: REPORT, OUTCOMES, ACTION PLAN**
- 6. TASK TEAM REPORT**
 - 6.1 INDIAN OCEAN WAVE 2023 (IOWAVE23)
- 7. WORKING GROUP PROGRESS REPORTS**
 - 7.1 WORKING GROUP 1 ON TSUNAMI RISK, COMMUNITY AWARENESS AND PREPAREDNESS
 - 7.2 WORKING GROUP 2 ON TSUNAMI DETECTION, WARNING AND DISSEMINATION
 - 7.3 WORKING GROUP 3 ON TSUNAMI READY IMPLEMENTATION
 - 7.4 SUBREGIONAL WORKING GROUP FOR THE NORTH-WEST INDIAN OCEAN
- 8. POLICY MATTERS**
 - 8.1 CAPACITY ASSESSMENT OF TSUNAMI PREPAREDNESS IN THE INDIAN OCEAN
 - 8.2 UN OCEAN DECADE TSUNAMI PROGRAMME (ODTP)
 - 8.3 EXERCISE INDIAN OCEAN WAVE 2025 (IOWAVE25)

- 8.4 IOTWMS GOVERNANCE AND STRUCTURE
- 8.5 TSUNAMI READY FOR CRITICAL INFRASTRUCTURE
- 8.6 PILOTING THE IMPLEMENTATION OF ISO-22328 GUIDELINES FOR THE IMPLEMENTATION OF A COMMUNITY-BASED TSUNAMI EARLY WARNING SYSTEM
- 9. IOTWMS DOCUMENTATION**
 - 9.1 IOTWMS STATUS REPORT
 - 9.2 IOTWMS MEDIUM TERM STRATEGY
 - 9.3 UPDATE TO THE DEFINITION OF SERVICES PROVIDED BY THE IOTWMS TSUNAMI SERVICE PROVIDERS
 - 9.4 UPDATE TO THE NATIONAL TSUNAMI WARNING CENTRE USER'S GUIDE
- 10. REPORTS FROM SESSIONAL COMMITTEES**
- 11. PROGRAMME AND BUDGET**
- 12. ELECTION OF OFFICERS**
- 13. WORKING GROUP AND TASK TEAM MEMBERSHIP**
- 14. NEXT MEETING**
 - 14.1 CONFIRMATION OF DATE AND VENUE FOR ICG/IOTWMS-XV
 - 14.2 TARGET DATE AND VENUE FOR ICG/IOTWMS-XVI
- 15. OTHER BUSINESS**
- 16. ADOPTION OF DECISIONS AND RECOMMENDATIONS**
- 17. CLOSE OF MEETING**

ANNEX II

ADOPTED DECISIONS AND RECOMMENDATIONS

Decision ICG/IOTWMS-XIV.1

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

Having met for its 14th Session from 17-19 November 2024 in Banten, Republic of Indonesia;

Recalling Resolution XXIII-12 that established the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS);

Acknowledging with appreciation the contribution and continued support of the Government of Australia for the UNESCO-IOC ICG/IOTWMS Secretariat Office since 2005;

Acknowledging with appreciation the contribution and continued support of the Government of Republic of Indonesia through Agency for Meteorology, Climatology and Geophysics (BMKG) for the UNESCO-IOC Indian Ocean Tsunami Information Centre (IOTIC) since 2017 with the current support to the period 2023 to 2027;

Acknowledging with appreciation the support from UNESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness for the UNESCO-IOC projects on “Strengthening tsunami early warning in the North-West Indian Ocean through regional cooperation” and “2024 Capacity assessment of tsunami preparedness in the Indian Ocean”;

Having reviewed the progress made in the implementation of the IOTWMS since the 13th Session of the ICG/IOTWMS (28 November to 1 December 2022, Bali, Republic of Indonesia);

Having considered the reports of:

1. ICG/IOTWMS Chair
2. IOC Secretariat
3. IOTIC
4. 16th Meeting of the ICG/IOTWMS Steering Group
5. 16th and 17th Meetings of the TOWS-WG
6. UN Ocean Decade and Ocean Decade Tsunami Programme
7. UNESCAP Makran Project
8. ICG NEAMTWS, ICG PTWS, UNESCAP, IRIDeS
9. TSP Australia, TSP India and TSP Indonesia
10. 2nd UNESCO-IOC Global Tsunami Symposium
11. 2024 Capacity Assessment of Tsunami Preparedness
12. Working Group 1 on Tsunami Risk, Community Awareness, and Preparedness
13. Working Group 2 on Tsunami Detection, Warning and Dissemination
14. Working Group 3 on Tsunami Ready Implementation
15. Sub-regional Working Group for the North-West Indian Ocean
16. Task Team on IOWave23 Exercise

Noting with appreciation the 22 Member State reports provided as part of the 2024 Capacity Assessment of Tsunami Preparedness in the Indian Ocean;

Noting with appreciation the outcomes of the Working Group on Tsunamis and Other Hazards related to Sea-Level Warning and Mitigation Systems (TOWS-WG) in guiding the activities of the ICG and its Working Groups and Task Teams;

Recognizing the progress towards establishing National Tsunami Warning Centres (NTWCs) in all countries around the Indian Ocean since the Indian Ocean Tsunami of 26 December 2004;

Reaffirming that the IOTWMS is a coordinated network of national systems and capacities, and is part of a global network of early-warning systems for all ocean-related hazards;

Reaffirming further that each Member State has the responsibility to issue warnings within its respective territories;

Recalling the *Mauritius Declaration* adopted at the intergovernmental coordination meeting held at Grand Baie, 14–16 April 2005 to openly share and exchange tsunami-relevant real-time observational data in accordance with the UNESCO-IOC Oceanographic Data Exchange Policy;

Considering the outcomes of the 3rd UN World Conference on Disaster Risk Reduction (13–18 March 2015, Sendai, Japan), the Sendai Framework for Disaster Risk Reduction 2015–2030 (A/CONF.224/CRP.1);

Considering the WMO International Network for Multi Hazard Early Warning Systems (IN-MHEWS) initiative;

Taking into account the Summary Statement of the International Conference to commemorate the 10th anniversary of the Indian Ocean Tsunami: 'The Indian Ocean Tsunami Warning and Mitigation System 10 years after the Indian Ocean Tsunami: Achievements, Challenges, Remaining Gaps and Policy Perspectives' (24-25 November 2014, Jakarta, Indonesia; (IOC/BRO/2015/2);

Noting the Summary Statement of the symposium 'Advances in Tsunami Warning to Enhance Community Responses' (12–14 February 2018, Paris, France) that identified the current status of operational tsunami warnings and community resilience and future avenues for improvement (IOC/BRO/2018/3);

Noting the decision by the UN General Assembly, as part of the Omnibus Resolution for Oceans and the law of the sea (A/RES/72/73), to "proclaim the United Nations Decade of Ocean Science for Sustainable Development for the 10-year period beginning on 1 January 2021;

Noting the UN Ocean Decade Tsunami Programme (ODTP) and its two primary goals of 1) Improved accuracy and timelines of the tsunami warnings through enhance and new observing systems and 2) 100% of at-risk Communities resilient and prepared for the tsunami threat by 2030, and the publication of the Research Development and Implementation Plan (RDIP);

Noting the UN Secretary-General's Early Warnings for All initiative, which called for every person on Earth to be protected by early warning systems by 2027;

Noting with appreciation the successful effort of the Republic of Indonesia through its Agency of Meteorology, Climatology and Geophysics (BMKG) to host the 2nd UNESCO-IOC Global Tsunami Symposium, Banda Aceh, Indonesia, 10-14 November 2024 with 682 in-person participants representing 32 countries, 170 virtual participants and many social media viewers;

Noting the outcomes of the 2nd UNESCO-IOC Global Tsunami Symposium in the Banda Aceh Statement on Global Tsunami Warning and Mitigation System: Building Sustainability for the next decade through Transformation and Innovation, UNESCO and its partners call on States and civil society to drastically step up their investments and efforts to achieve 100% of Tsunami Ready Communities across the world by 2030;

Recalling IOC Resolution XXVI-6 on Data Buoy Vandalism: Impact and Responses, IOC Resolution XXVI-7 on Global Coordination of Early Warning and Mitigation Systems for Tsunamis and Other Sea-Level Related Hazards;

Acknowledging the contributions of seismic data through the CTBTO;

Reaffirming that participation in ICG activities should be self-funded by the Member States;

Encouraging Member States to promptly inform the Secretariat of all changes to the TNC/TWFP/NTWC contacts through official channels;

Noting the continued diminishing engagement by some Member States in the activities of the ICG/IOTWMS and **urging** all Member States to participate more actively;

Encouraging Member States to make voluntary contributions to the IOC Special Account set up for the ICG/IOTWMS to support activities identified in the Budget and Programme to underpin successful implementation of the IOTWMS and capacity development for Member States;

Noting with appreciation the efforts of IOTWMS Tsunami Service Providers (TSPs) Australia, India, and Indonesia, including the issuing of public bulletins over the IOC Public Email List server and the GTS;

Noting the importance of the national status of tsunami warnings to be available on the TSP public websites and **urging** Member State National Tsunami Warning Centres to ensure national tsunami warning status is reported back to the TSPs in a timely manner via the agreed web reporting protocols during tsunami events, tests and exercises;

Noting the importance of clarifying the earthquake hazard and tsunami potential of the Makran Subduction Zone;

Encouraging Member States to continue to acquire new datasets such as the Global Navigation Satellite System (GNSS), seismic, paleo-tsunami and other geological data to enhance tsunami hazard assessment and the timeliness and accuracy of tsunami warnings in the North-West Indian Ocean;

Noting the importance of seismic data for timely and accurate determination of tsunami threats by TSPs, and the progress made in bilateral exchange of seismic data among some Member States;

Urging Member States, especially in the North-West Indian Ocean region, to provide all relevant seismic data in real-time to TSPs and other Member States;

Encouraging Member States to acquire high-resolution coastal bathymetry and topography data to improve characterisation of tsunami and other coastal hazards and risks and promote sharing of this data to the extent possible;

Noting with concern the continued instances of tsunami buoy vandalism in the IOTWMS region, and **encouraging** Member States to promptly inform the UNESCO-IOC Secretariat such

occurrences of tsunami buoy vandalism to facilitate incorporation in the Global Vandalism Report of the Data Buoy Cooperation Panel (DBCP);

Encouraging Member States to consider contributing any education or outreach materials related to data buoy vandalism to the DBCP for inclusion in a tool kit of regionally relevant materials to counter vandalism;

Noting the successful outcomes of Phases 1, 2a and 2b of the UNESCAP funded project “Strengthening tsunami early warning in the North-West Indian Ocean through regional cooperation”;

Further noting the implementation of Phase 2c of the NWIO UNESCAP project involving training in inundation and evacuation mapping in support of implementation of the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP) in the region;

Noting the role of IOTIC to facilitate, guide, and support Member States in the implementation of the UNESCO-IOC TRRP in coordination with the UNESCO-IOC Secretariat for the ICG/IOTWMS;

Noting with appreciation the work of the Steering Group in overseeing the 2024 Capacity Assessment of Tsunami Preparedness and the comprehensive nature and value of the assessment;

Noting the value of basin-wide tsunami exercises and drills and the successful conduct by Member States of Exercise IOWave23 with multiple scenarios including a non-seismic (volcanic) source involving participation from 20 Member States, 9 out of which have engaged communities including people with disabilities, all genders, elderly, youth and private sector;

Recognizing the valuable recommendations from the IOTWMS-IOTIC Post-IOWave23 Webinar, 12 - 13 December 2023, on Lessons Learnt during Exercise Indian Ocean Wave 2023;

Encouraging Member States to conduct further exercises and drills at the national level involving communities at least once per year;

Noting with appreciation the recognition of 48 communities in India and Indonesia as UNESCO-IOC Tsunami Ready;

Encouraging all Member States to implement the TRRP in vulnerable communities with UNESCO-IOC recognition to meet the UN Ocean Decade Tsunami Programme goal of 100% at-risk communities resilient and prepared for tsunamis.

Recognizing the Palu, Sunda Strait, Hunga Tonga-Hunga Ha’apai, and South Sandwich Island tsunami events as being complex from an early warning perspective, the current technical limitations of producing timely and accurate forecasts for tsunamis from near-field non-seismic and complex sources (e.g. aerial landslides, submarine landslides, volcanoes) and the value of in situ observations;

Further noting the efforts of the UNESCO-IOC TOWS-WG to develop a better understanding of the threat from tsunamis generated by non-seismic and complex sources and develop guidance on best practices to monitor and warn for such events;

Recognizing tsunamis generated by non-seismic and complex sources are often near-field threats where natural warnings signs are important to understand to facilitate effective community responses;

Encouraging all Member States to continue reviewing their national tsunami warning chains with a view to minimising the number of steps and ensuring clear authorization of responsibilities amongst stakeholders, especially for near-field tsunami threats;

Encouraging Member States to emphasise to Disaster Management Organisations (DMOs) the role they play in strengthening the national warning chain to ensure optimal community response, and stress the importance that all agencies participate in regional tsunami governance and technical forums;

Encouraging Member States to enhance community preparedness for near-field tsunamis, with emphasis on self-evacuation based on natural signs, including tsunamis generated by non-seismic and complex sources;

Encouraging NTWCs and DMOs to continue to develop and routinely review Standard Operating Procedures (SOPs) and provide copies to the UNESCO-IOC Secretariat for the ICG/IOTWMS;

Encouraging the involvement of national and international broadcast media in warning dissemination, SOP training activities, workshops, and exercises;

Urging Member States to ensure DRR based spatial planning is also taken into consideration at the city, province, and national level with respect to overall preparedness and sustainable resilience;

Urging Member States to consider nominating new participants to training activities and workshops to ensure that more in-country experts are trained and available to handle tsunami warning operations and emergency response to the tsunami threat;

Urging Member States to sample sea level data at one-second intervals and transmit this in real-time, given the critical need to resolve and understand the near-field threat to high at-risk communities where a tsunami may arrive within 5-30 minutes.

Noting the extensive task to achieve the outcome 100% of at-risk communities resilient and prepared for tsunamis, **further recognizing** the roles of the ICG/IOTWMS and its work plans are to support the capacity development of Member States to help them achieve this, depending on their risk assessment and national priorities;

Noting the success of Regional Working Group for North-West Indian Ocean in regional cooperation of Member States facing similar risks, resources and capacity;

Noting the approval of the UN ODTP Research Development and Implementation Plan by the 32nd Session of the IOC Assembly and publication of the White Paper on Challenge 6 of the UN Ocean Decade "Increase Community Resilience to Ocean Hazards";

Noting the annual success of the World Tsunami Awareness Day (WTAD) held on 5 November with the support of UNDRR and UNESCO-IOC in developing community awareness;

Urging Member States to advise UNESCO-IOC IOTIC and UNESCO-IOC ICG/IOTWMS Secretariat of their plans two months before the WTAD event each year, so that a more coordinated and targeted approach can be developed to further maximize outcomes;

Decides to:

1. Include the instructions from 57th Session of the IOC Executive Council, and the recommendations from TOWS-WG XVI and XVII in the work plans of the ICG for the next inter-sessional period;

2. Extend the TSP services to include tsunamis generated by non-seismic and complex sources;
3. Accepts the reports of IOWave23 Exercise, IOTWMS Service Definition Version 5, NTWC User's Guide Version 3, incorporating any feedback received from the Member States in four weeks and submission to IOC for publication as an UNESCO-IOC document;
4. Instructs the Steering Group to finalize the 2024 Capacity Assessment Report and Executive Summary in four weeks, for further review by the Member States, incorporate feedback if any, and endorse the final report for publication as an UNESCO-IOC document;
5. Continue existing Working Group 1 with modified Terms of Reference as attached in Annex 1, with Chair Dr. Weniza (Indonesia) and Vice-chair Dr. Mahendra S Ranganalli (India);
6. Continue existing Working Group 2 with modified Terms of Reference as attached in Annex 2, with Chair Mr. Padmanabham Jijavarapu (India) and two Vice-chairs: Dr. Robert Greenwood (Australia) and Mr. Yedi Dermadi (Indonesia);
7. Continue existing Working Group 3 with modified Terms of Reference as attached in Annex 3, with Chair Ms. Suci Dewi Anugrah (Indonesia) and Vice-Chair Dr. Ali Khoshkholgh (Iran);
8. Continue existing Regional Working Group for the North-West Indian Ocean with modified Terms of Reference as attached in Annex 4, and with Chair Ms. V Sunanda Manneela (India) and Vice-chair Mr. Nasser Al Ismaili (Oman);
9. Continue the Steering Group with modified Terms of Reference as attached in Annex 5, with TSP Representatives and NTWC Representative to be confirmed;
10. Establish a new intersessional Task Team on Indian Ocean Wave 25 Exercise (IOWave25) reporting to the Steering Group with Terms of Reference as attached in Annex 6, and with Chair Dr. Ajay Kumar Bandela (India) and Vice-chair Ms. Septa Anggraini (Indonesia) ;
11. Establish a new intersessional Task Team on New/Emerging Technologies for Observations and Forecasting under the WG2 as per the TOR in Annex 7 and with Chair: Dr. Wahyu Widodo Pandoe (Indonesia);
12. Decides to set up a Task Team on Medium Term Strategy (MTS) to prepare a draft MTS 2025-2030 considering key elements and approach as detailed in Annex 8 and with Chair Dr. Yuelong Miao (Australia) and Co-chair Dr. Harkunti Rahayu (Indonesia);
13. Request the Steering Group to supervise the work of the Task Team and to finalise the MTS 2025-2030 by early half of 2025;
14. Continue the Terms of Reference of the Indian Ocean Tsunami Information Centre (IOTIC), as attached in Annex 9;
15. Hold inter-sessional activities as integrated meetings to optimize resources if available;
16. Dissolve the IOWave23 Task Team;
17. Dissolve Task Team on Scientific Tsunami Hazard Assessment of the Makran Subduction Zone;
18. Instructs the Steering Group, Working Groups and Task Teams to consider the

recommendations of the ODTP RDIP, IOWave23, 2024 Capacity Assessment and 2nd Global Tsunami Symposium into their work plans;

19. Continue the capacity development initiatives related to SOPs, TEMPP, TRRP and on-the-job training for warning centre operators by TSPs;
20. Request the Steering Group to explore if there is a need of expanding sub-regional working groups to address regional gaps and strengthen collaborations;
21. Develop the summary statement of the 2nd UNESCO-IOC Global Tsunami Symposium together with the Program Committee for publication as a UNESCO-IOC document.

Requests Working Group 1 to:

1. Develop guidelines for Tsunami Ready Critical Infrastructure in collaboration with WG3 and share with the TOWS-WG in their next meeting
2. Probabilistic Tsunami Hazard Assessment for Indian Ocean including non-seismic sources.
3. Develop Inclusive People Centred Early Warning DMO SOPs for near field tsunami.
4. Develop draft assessment tool for the downstream warning process.

Requests Working Group 2 to:

1. Trial dissemination of maritime bulletins to respective NAVAREA operators in the Area of Service (AoS) for the upcoming communication test and for full operational implementation in 2025.
2. Develop a Standard Operating Procedure (SOP) document for TSPs to address Tsunami-Generating Volcanic Events (TGVEs).
3. Develop an optimal notional observing network design to meet the objectives of ODTP, facilitate the strategic and coordinated submission of projects to the UN Ocean Decade and potential funding sources.
4. Utilise and promote the use of multi-purpose sea level monitoring stations to support MHEWS in enhancing data coverage and reducing costs.
5. Utilise exercises and communication tests as an opportunity to simultaneously monitor data availability and quality.

Requests Working Group 3 to:

1. Encourage Member States to establish National Tsunami Ready Board (NTRB) or consider including its role, responsibilities, and functions in the existing disaster management coordination mechanism.
2. Review the guidance on Tsunami Ready Equivalency of ICG/PTWS.
3. Review national tsunami preparedness programmes in the Member States and prepare guidance on similar initiatives to the UNESCO-IOC Tsunami Ready Recognition Programme as contribution to the UN Decade Tsunami Program.
4. Encourage members to identify potential communities for implementing the Tsunami Ready Recognition Program
5. Continue the capacity development on Tsunami Ready for the Member States and national Tsunami Ready facilitators.
6. Encourage the Member States to explore possibilities for implementation of Tsunami Ready for critical infrastructure.

Requests Sub-regional Working Group for North-West Indian Ocean to:

1. Progress data sharing amongst the North-West Indian Ocean countries, and with the TSPs
2. Formulate a regional Paleo-tsunami study proposal for possible funding and contribution to the UN Ocean Decade Tsunami Programme
3. Extend the inundation and evacuation maps, as developed for the pilot areas under the UNESCAP project, to the other areas of NWIO region in line with the results of the hazard assessments towards implementation of the UNESCO-IOC Tsunami Ready Recognition Programme.
4. Facilitate on-the-job training for National Tsunami Warning Centre representatives.

Requests Task Team IOWave25 to:

1. Plan and conduct the IOWave25.
2. Consider performing exercises outside of working hours, in particular during the night or weekend, but being careful to take into consideration difficulties and possible issues of involving the public in such drills.
3. Encourage the Member States to ensure the participation of the community, especially those recognized as UNESCO-IOC Tsunami Ready Community to participate in IOWave25.

Requests UNESCO-IOC Secretariat for the ICG/IOTWMS:

1. In collaboration with IOTIC, prepare a proposal for Phase 3 of the Makran Project focussing on Tsunami Ready implementation and submit to UNESCAP;
2. Support the Steering Group and Working Groups to build linkages of ICG and IOTWMS Member States activities with the Ocean Decade Tsunami Programme.
3. Facilitate publication of UNESCO-IOC documents including IOWave23 Exercise, 2024 Capacity Assessment, IOTWMS Service Definition Version 5, NTWC User's Guide Version 3 and the report of 14th Session of ICG IOTWMS.
4. Liaise with NAVAREA Coordinators WNWNS Sub-Committee about piloting NAVAREA Maritime Products and to eventual implementation.

Requests the UNESCO-IOC IOTIC to:

1. Create a capacity development work plan jointly with IOTWMS Secretariat for the intersessional period based on the priority needs of the Member States, where possible, utilizing the facilities of ITCOocean, INCOIS in India, and the STC, BMKG in Indonesia.
2. Organize jointly with IOTWMS Secretariat at least one TEMPP Training and one SOP Training during the intersessional period.
3. Organize jointly with IOTWMS Secretariat and BMKG at least two in-country training programmes on implementation of UNESCO-IOC Tsunami Ready Recognition Programme, prioritising SIDS, LDCs and Africa.
4. Publish "*The Unforeseen Threat*", developed by IOTIC, WG-1, and U-INSPIRE Indonesia by considering additional input from WG-2, as a UNESCO-IOC document.
5. Propose mechanisms in consultation with the Steering Group to strengthen the structure, organisation, and management of the IOTIC through possible voluntary contributions from the Member States.
6. Continue to implement the work plan under the IOTIC-BMKG Program including preserving past tsunami information for future preparedness and youth engagement.

Requests UNESCO-IOC TOWS-WG to complete and harmonise the KPI Framework for the global tsunami warning and mitigation system to facilitate monitoring and reporting of implementation of the IOTWMS and progress towards Member State goal of 100% of at-risk communities resilient and prepared for tsunamis;

Requests the UNESCO-IOC Executive Secretary to prepare the Executive Summary Report of the 14th Session of the ICG/IOTWMS within 30 days;

Elects Mr E. Pattabhi Rama Rao (India) as ICG/IOTWMS Chair and Dr Yuelong Miao (Australia) and Dr Harkunti Pertiwi Rahayu (Indonesia) as Vice-chairs for the next intersessional term commencing at the end of the session;

Expresses its gratitude to the Government of the Republic of Indonesia for kindly hosting the 14th Session of the ICG/IOTWMS in Banten;

Accepts with appreciation the kind offer of the Government of the Sultanate of Oman to host the 15th Session of the ICG/IOTWMS in 2026;

Accepts with appreciation the kind offer of India as a backup option to host the 16th Session of the ICG/IOTWMS in 2028.

Financial Implications: Extrabudgetary only

Annex 1 to Decision ICG/IOTWMS-XIV.1

Working Group 1 **Tsunami Risk, Community Awareness and Preparedness** Terms-of-Reference

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

1. Assist, develop and strengthen the overall capacity and capability of Member States in tsunami hazard, risk assessment and mitigation, community awareness and preparedness, including for tsunamis generated by non-seismic and complex sources and multi-hazard framework.
2. Encourage Member States to mainstream tsunami Disaster Risk Reduction into sustainable development to help achieve resilient communities in the region.
3. Support implementation of IOWave Exercises.
4. Identify areas of priority for action following assessments, exercises, and real tsunami events.
5. Provide advice on user requirements and utility of tsunami warning products and services.
6. Provide advice to and collaborate with the UNESCO-IOC Indian Ocean Tsunami Information Centre (IOTIC) on education, awareness and preparedness including for non-seismic and complex sources.
7. Provide special attention to the needs of SIDS, LDCs, Africa in the work program
8. Develop WG1 work plans in line with the broad objectives of ODTP RDIP, Ocean Decade Challenge 6, EW4ALL
9. Promote collaboration among academia, research institutions and disaster management offices to encourage multidisciplinary and multi sectoral interaction in ensuring tsunami

risk knowledge are streamlined to risk reduction strategies.

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

Annex 2 to Decision ICG/IOTWMS-XIV.1

Working Group 2
Tsunami Detection, Warning and Dissemination
Terms-of-Reference

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

1. Coordinate and strengthen the operational implementation of tsunami detection, warning and dissemination, including for tsunamis generated by non-seismic and complex sources, and multi-hazard framework.
2. Support the Tsunami Service Providers (TSPs) delivery of interoperable regional tsunami threat information products to Member States.
3. Support Member States in the development of their national tsunami warning capabilities.
4. Monitor the performance of key observational, warning and communication system components.
5. Support implementation of IOWave Exercises.
6. Identify areas of priority for action following assessments, communications tests, exercises, and real tsunami events.
7. Provide advice to and collaborate with the UNESCO-IOC Indian Ocean Tsunami Information Centre (IOTIC) on capacity development on warning system and services including for non-seismic and complex sources.
8. Provide special attention to the needs of SIDS, LDCs, Africa in the work program.
9. Develop WG2 work plans in line with the broad objectives of ODTP RDIP, Ocean Decade Challenge 6, EW4ALL.
10. In collaboration with UNESCO-IOC IOTIC and UNESCO-IOC Secretariat for ICG/IOTWMS, help strengthen the capacity and capability of Member States.

The Working Group will be composed of members nominated by Member States, Member State representatives for each ICG-designated TSP, at least two representatives of non-TSP National Tsunami Warning Centres, and invited observers, with a chairperson and one or two vice-chairpersons to be elected by the ICG.

Annex 3 to Decision ICG/IOTWMS-XIV.1

Working Group 3 Tsunami Ready Implementation

Terms-of-Reference

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

1. Monitor and evaluate the implementation of the UNESCO-IOC Tsunami Ready Recognition Programme (TRRP) and similar initiatives
2. Promote and provide guidance on how to nationally initiate TRRP and similar initiatives
3. Facilitate the capacity development of TRRP and sharing of experiences between Member States
4. Update Member States on TRRP developments and other related initiatives
5. Explore the possibilities of extending the Tsunami Ready indicators to other sectors such as to critical infrastructures
6. Provide advice to and collaborate with the UNESCO-IOC Indian Ocean Tsunami Information Centre (IOTIC) on capacity building for TRRP
7. Prioritize SIDS, LDCs, Africa and NWIO region in the work program
8. Integrate ODTP RDIP into the WG3 work plan

The Working Group membership will be comprised of ICG/IOTWMS TRRP experts, Member State Tsunami Ready Focal Points (TRFP), invited experts, IOTIC, Secretariat.

Annex 4 to Decision ICG/IOTWMS-XIV.1

Regional Working Group North-West Indian Ocean

Terms-of-Reference

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

1. Evaluate capabilities and ascertain capacity building requirements of Member States in the region for providing end-to-end tsunami warning and mitigation services within the framework of the ICG/IOTWMS and within a multi-hazard framework
2. Facilitate cooperation in the establishment and upgrading of seismic, sea level and GNSS stations and networks and communication systems in the region
3. Facilitate the capacity building and the sharing of the tsunami-related data and information in the region
4. Establish and maintain procedures for National Tsunami Warning Centres (NTWCs) across the region to exchange information on national tsunami warnings, observations, and impacts during events.
5. Support the WG3 effort to implement the Tsunami Ready Recognition Program in the region.

The Working Group will be composed of members representing National Tsunami Warning Centres and Tsunami Ready Focal Points from each of the Member States of India, Iran, Oman, Pakistan, United Arab Emirates, and Yemen in the North-West Indian Ocean region and invited experts.

Annex 5 to Decision ICG/IOTWMS-XIV.1

Steering Group
Terms-of-Reference

Coordinate and integrate the work of ICG/IOTWMS in the inter-sessional periods, as implemented through the ICG's various Working Groups and Task Teams to:

1. Oversee the execution of the Decisions and Recommendations of the ICG.
2. Monitor the overall performance of the IOTWMS.
3. Identify areas of priority for action following assessments, communications tests, exercises, and real tsunami events.
4. Ensure the IOTWMS is implemented in line with the guidance of the TOWS-WG for the harmonisation of global tsunami warning and mitigation systems.
5. Identify and assess resource requirements to support implementation of the IOTWMS.
6. Approve out of session documents as delegated by ICG/IOTWMS.

Membership of the Steering Group includes the ICG Chair and Vice Chairs, Chairs and Vice Chairs of the Working Groups, Member State representatives from each TSP and two other NTWCs. Invited observers include a representative from IOTIC, immediate past Chair of the ICG for one term, and other invited observers as required. The Chair of ICG/IOTWMS is the Chair of the Steering Group. The Steering Group will primarily work offline by correspondence but will meet in person at least once a year if resources are available.

Annex 6 to Decision ICG/IOTWMS-XIV.1

Task Team on IOWave25
Terms-of-Reference

Under the direction of the Steering Group:

1. Plan and coordinate the next IOWave Exercise (IOWave25), taking on-board suggestions from the post-IOWave23 lessons learnt workshop, including an increased focus on involving Local Disaster Management Offices (LDMOs) down to community level and implementation of IOTR.
2. Prepare the IOWave25 Exercise Manual in accordance with the Guideline on "How to Plan, Conduct and Evaluate Tsunami Exercises" (IOC Manuals and Guides No. 58) at least 6 months in advance of the exercise.
3. Prepare the Exercise Report for ICG/IOTWMS-XV.

The Task Team will report to the Steering Group and work in collaboration with Working Group 1, Working Group 2, Working Group 3 and IOTIC, and be composed of members nominated by Member States and representatives from TSPs, with a chairperson and vice-chairperson.

Annex 7 to Decision ICG/IOTWMS-XIV.1

Indian Ocean Tsunami Information Centre

Terms-of-Reference

Goal of IOTIC

The overall goal of IOTIC is to support the UNESCO-IOC ICG/IOTWMS Member States in tsunami risk reduction for Indian Ocean at-risk communities through capacity building in tsunami hazard, awareness, preparedness, education, and mitigation measures.

Objectives

- Strengthening the Indian Ocean (national and regional) tsunami disaster risk reduction and emergency response capacity for an effective tsunami early warning system,
- Supporting preparedness against tsunamis of at-risk communities, especially through the implementation of UNESCO-IOC Tsunami Ready Recognition Programme (TRRP).
- Providing resources in tsunami risk reduction, educational, awareness, and preparedness for the Indian Ocean region.

Terms-of-Reference

1. Help reduce the overall tsunami risk across the Indian Ocean by working closely and in coordination with the UNESCO-IOC ICG/IOTWMS, its Steering Group, Working Groups, Task Teams, UNESCO-IOC ICG/IOTWMS Secretariat, and the TOWS-WG Task Team on Disaster Management & Preparedness (TT DMP) to:
 - a. Contribute to the development of global guidelines in tsunami risk reduction and their implementation in the Indian Ocean.
 - b. Maintain close familiarity of the operations and needs of the Indian Ocean Tsunami Warning and Mitigation System and work closely with the Tsunami Service Providers (TSPs), National Tsunami Warning Centres (NTWCs), and Disaster Management Organisations (DMOs) to assist, as needed, with the socialization, promotion, and capacity building required for an effective tsunami emergency response.
 - c. In coordination with the UNESCO-IOC ICG/IOTWMS Secretariat and as needed, support the ICG/IOTWMS and its Working Groups and Task Teams to conduct training programmes, workshops, and seminars.
 - d. In collaboration with the UNESCO-IOC ICG/IOTWMS Secretariat develop project proposals and assist with project implementation in support of the ICG/IOTWMS programmes and activities in the Indian Ocean Region.
 - e. Manage tsunami post-event performance surveys and compilation of reports in close collaboration with the UNESCO-IOC ICG/IOTWMS Secretariat under the overall direction of the ICG/IOTWMS Steering Group, assisted by the International Tsunami Information Center (ITIC), UNESCO-IOC Tsunami Unit, and teams of experts nominated by the UNESCO-IOC ICG/IOTWMS Steering Group as required
2. Help Member States of the UNESCO-IOC ICG/IOTWMS reduce their tsunami risk by:
 - a. Serving as the focal point under the guidance of the UNESCO-IOC ICG/IOTWMS to guide, facilitate, and process the implementation of the UNESCO/IOC Tsunami Ready Recognition Programme (TRRP) in the Indian Ocean.
 - b. Serving as the focal point under the guidance of the ICG/IOTWMS, in coordination

- with the UNESCO-IOC Secretariat, to guide, facilitate, support, and coordinate the activities of the World Tsunami Awareness Day (WTAD) in the Indian Ocean.
- c. Assisting national stakeholders in the overall improvement of tsunami preparedness and effective tsunami emergency response through tsunami risk assessment, warning guidance and emergency response, education and awareness, tsunami mitigation, and the implementation of national initiatives to reach certification against the UNESCO-IOC Tsunami Ready indicators.
 - d. Serving as an information resource providing for the development, publication, and distribution of resource materials on tsunami hazard, awareness, preparedness, and education for the Indian Ocean.
 - e. Serving as a technical resource and help foster research and its application to strengthen technical and institutional aspects of tsunami preparedness and tsunami emergency response to prevent loss of life and minimize damage to property.
3. Coordinate activities and exchange materials, resources, and information with other Tsunami Information Centres (TICs) of the other ocean basins (Caribbean Tsunami Information Centre (CTIC), International Information Centre (ITIC), and North-East Atlantic and Mediterranean Seas Tsunami Information Centre (NEAMTIC)) to ensure global consistency and potential use of derived products across all regions.
 4. Share information on programmes, activities, and events, as well as information on tsunami education, awareness, and preparedness resources by managing and maintaining the IOTIC Website and social media channels as platforms for information exchange

Governance

The IOTIC is an UNESCO-IOC entity operating under the overall authority of the Executive Secretary of UNESCO-IOC. The day-to-day management is performed by the UNESCO-IOC National Programme Officer stationed in Jakarta under the supervision of the Director of the UNESCO Office Jakarta and the Head of the UNESCO-IOC Tsunami Unit in Paris. The operational and implementation of programmes and activities of IOTIC is in close coordination with the IOC-UNESCO ICG/IOTWMS Secretariat in Perth. The IOTIC reports to each session of the IOC-UNESCO ICG/IOTWMS and to the inter-sessional meetings of the UNESCO-IOC ICG/IOTWMS Steering Group. IOTIC's activities and work plans are guided by and coordinated with the overall needs and requirements of the UNESCO-IOC ICG/IOTWMS, its Working Groups and Task Teams.

Activities IOTIC:

- Organize regular regional workshops and training programmes to meet the capacity development requirements of the IOTWMS Member States including SOP, TEMPP, TRRP etc.
- Support IOTWMS Member States in implementing the UNESCO-IOC Tsunami Ready Recognition Programme.
- Support studies and assessments on community tsunami awareness and preparedness including preserving past tsunami information for future preparedness and youth engagements.
- Support IOTWMS Member States through the development of public tsunami education, awareness, and preparedness materials, and the adaptation of the materials to the local context and need.
- Manage and maintain the IOTIC Website and social media as a platform for sharing information on the IOTWMS and tsunami education, awareness and preparedness.
- Support, document, and communicate IOWave exercises and World Tsunami Awareness Day (WTAD).

- Support the development and implementation of projects and activities through external funding opportunities.

Annex 8 to Decision ICG/IOTWMS-XIV.1

Medium Term Strategy 2025–2030

Approach for the development of the IOTWMS Medium Term Strategy 2025–2030

Use four pillars as adopted in the ODTP and EW4ALL, taking into consideration of similar strategies in other ICGs

- Pillar 1: Disaster risk knowledge
- Pillar 2: Detection, observations, monitoring, analysis and forecasting
- Pillar 3: Warning dissemination and communication
- Pillar 4: Preparedness to respond

Highlight achievements made in current MTS and what remains to be done

Consider all identified gaps and recommendations from

- Capacity Assessment Survey 2024
- 2nd Global Tsunami Symposium
- Learnings from recent events/exercises
- TSP Reports
- WG/TT reports
- TOWS-WG, other ICG reports
- Projects in flight/funded

Also consider

- UN Ocean Decade/Challenge 6 White Paper
- ODTP
- EW4ALL
- New/emerging technologies
- Trend in political, technology, social/economical etc

Do thorough environmental scan (SWOT analysis) against each pillar.

Develop more targeted implementation plan/section

- Should cover short-term and long-term goals and KPIs
- Leverage off ODTP RDIP and EW4ALL

Consider seeking input from external experts for improvement to the Strategy.

Task Team Membership will consist of Chairs of Working Groups, Task Teams, ICG/IOTWMS Secretariat, IOTIC, representatives nominated by Member States at the ICG Session.

Annex 9 to Decision ICG/IOTWMS-XIV.1

Task Team on New/Emerging Technologies for Observations and Forecasting

Terms of Reference

This expert Task Team will establish integrating new and emerging techniques and technologies by:

1. Developing a methodology for gap and sensitivity analysis that combines multiple sensing technologies for tsunami detection and characterisation
2. Designing optimal notional seismic and sea level networks to enhance the timelines of Tsunami Early Warning by TSPs and NTCs
3. Integrating emerging techniques and sensor technologies (e.g. better use of tide gauges; GNSS technology and processing; sensors on SMART Cables) with the existing sensing network to meet tsunami warning service requirements in support of UN ODTP goals
4. Where possible, include cost-benefit analysis of the potential technologies being considered
5. Undertake to establish direct collaboration between ICG/IOTWMS Member States, with other ICGs, and expert groups (such as International Association of Geodesy (IAG), International GNSS Service (IGS) for the purpose of collaborating on data sharing and research efforts that are adaptable to the tsunami warning systems and operations
6. Assess the utility and limitations of emergent technologies and techniques, e. g. GNSS and SMART Cable, that have potential to deliver ocean height in real-time
7. Investigate emerging methods including PTF, AI/ML, real-time data assimilation and modelling etc for suitability to be adopted for operational tsunami warning
8. Share information and procedures on deployments of new technologies to monitor sea level variations used for tsunami warning purposes, including undersea cable installations being deployed by Indonesia and India.

The Task Team will be open to TSPs, members nominated by Member States, and invited experts.

ANNEX III

REMARKS FROM ESCAP

The remarks were delivered by Ms Temily Baker, Programme Management Officer of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), on 17 November 2024 in contribution to agenda item 10.3: Reports from UN and Non-UN Organisations.

Distinguished Chair, Vice-Chairs, ICG working group chairs and officers, and of course the IOC-UNESCO secretariat, and all distinguished representatives in Jakarta and online.

On behalf of ESCAP, I sincerely thank the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System for the kind invitation to join your 14th Session. I am sorry that I could not join this week in person in Jakarta, but it was certainly a pleasure to meet with everyone last week at the 2nd Global Tsunami Symposium in Banda Aceh.

ESCAP, through the **Trust Fund for Tsunami, Disaster and Climate Preparedness**, has been a strong supporter of regional cooperation for tsunami warning and mitigation since its inception - 23 out of the 32 Trust Fund supported projects have been dedicated to Tsunami preparedness across 21 Indian Ocean basin countries – and UNESCO-IOC has remained a key implementing partner for many of these projects, since as early as 2007.

ESCAP is also committed to being a core partner with the Pillar leads of the UN Secretary-General's Early Warning for All initiative in Asia and the Pacific and to supporting the efforts of the Ocean Decade, especially relating to Challenge 6 to increase community resilience to ocean hazards.

Concretely, let me highlight the related work of ESCAP since the 13th session of the ICG/IOTWMS in 2022,

- Hosted a regional World Tsunami Awareness Day event in Bangkok, 6 November 2023 in line with the 23rd meeting of the Advisory Council to the Trust Fund for Tsunami, Disaster and Climate Preparedness
- Participated in World Tsunami Awareness Day events in India on 5 November 2024 in Hyderabad and Odisha, also in line with the 25th meeting of the Advisory Council to the Trust Fund for Tsunami, Disaster and Climate Preparedness
- In July 2023, ESCAP hosted the Regional Learning Platform for Multi-Hazard Early Warning Systems in Bangkok, which featured statements by esteemed ICG chair and IOC-UNESCO. These deliberations were then amplified at the 8th Session of the Committee on DRR. I wish to thank once again Professor Karnawati for attending this session and for providing an expert statement to the committee. The committee deliberations consequently led to requesting ESCAP to support the EW4All initiative through a regional strategy and requested member states to contribute to the Trust Fund in support of this strategy.
- Concluded the Strengthening Tsunami Preparedness NWIO through regional cooperation Phase 2ab and initiated 2c. A no-cost extension for 2c work was also granted to April 2025. I look forward to Agenda 3.8 for more on this programme of work and look forward to working with the secretariat on Phase 3 proposal next year upon completion of Phase 2c.
- Supported the capacity assessment of the IOTWMS with dedicated funding for the validation workshop in September and for the publication of a companion summary for Indian Ocean basin policy and decision makers. I would like to acknowledge the Governments of Italy and Switzerland and the Asian Development Bank for dedicated financial support to this assessment initiative. I look forward to this being further discussed in tomorrow's Agenda 9.1, to launching the ESCAP companion policy paper

on 26 December 2024, and to expanding this assessment initiative to the Pacific Tsunami Warning and Mitigation System in 2025.

- Analysis on Coastal risk hotspots, presenting Tsunami risk and a multi-hazard context in the poster sessions of the 2nd Global tsunami symposium. We look forward to incorporating further hazards such as sea level rise, coastal erosion the latest accessible PTHA and additional exposed sectors such as tourism in this analysis, to be highlighted in the 2025 Asia-Pacific Disaster Report and incorporated in the Risk and Resilience Portal available for all 53 ESCAP members.

Looking to the future, ESCAP remains committed to further working with the ICG and IOC-UNESCO to see tsunami preparedness being reflected in the collective advocacy for multi-hazard early warning coverage to all coastal at-risk communities, through our Trust Fund programming, the Risk and Resilience Portal analytics, flagship Asia-Pacific Disaster Report, and high-level Committee on Disaster Risk Reduction intergovernmental dialogues.

Let me close these remarks by commending the distinguished ICG Members,

The leadership of regional and national tsunami preparedness practitioners like yourselves in advancing science, establishing shared warning systems, and developing mutually beneficial frameworks for early warning are successes to be proud of and to be shared as we shift from single to multi-hazard approaches.

Your collective commitment to cooperation, to this regional mechanism, and to supporting your neighbours through shared technology and innovation is truly the reason why the United Nations exists today.

And finally, I cannot conclude without taking the opportunity to expressing gratitude to the donors to this work who are joining in this ICG. Thailand was our founding donor and remains the largest contributor to date, Bangladesh became our fourth donor in 2010 and later India joined in 2015 through a generous contribution of 1 million USD. Oman and UAE also represent generous co-financiers of the Makran programme. In commemoration of 20 years since the Indian Ocean tsunami I would like to thank those donors who are preparing for their renewed contribution to the Trust Fund and would encourage others to join these efforts.

Thank you.

Temily Baker
17 November 2024

ANNEX IV

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Attendance: in-person

ANNEX V

LIST OF ACRONYMS

AoS	Area of Service
BMKG	Indonesian Meteorology, Climatology, and Geophysical Agency
BPR	Bottom Pressure Recorder
CAP	Common Alerting Protocol
CARIBE-EWS	Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions
CCTV	Closed Circuit Television
CDF	Capacity Development Facility
CIFI	Coastal Inundation Forecasting Initiative
CTIC	Caribbean Tsunami Information Center
ESCAP	Economic and Social Commission for Asia and the Pacific
EW4All	Early Warning for All
DMO	Disaster Management Organisation
GEMPA	Global Earthquake Monitoring Processing Analysis
GIZ	Gesellschaft für Internationale Zusammenarbeit [German Society for International Cooperation]
GNSS	Global Navigation Satellite System
ICG	Intergovernmental Coordination Group
IGCP	International Geoscience Programme
INGV	Istituto Nazionale di Geofisica e Vulcanologia [National Institute of Geophysics and Volcanology]
InaTEWS	Indonesian Tsunami Early Warning System
InaTNT	Indonesian Tsunami Non-Tectonic
INCOIS	Indian National Center for Ocean Information Services
IOC	Intergovernmental Oceanographic Commission
IOTIC	Indian Ocean Tsunami Information Centre
IOTWMS	Indian Ocean Tsunami Warning and Mitigation System
IOWave	Indian Ocean Wave
IOWave23	Indian Ocean Wave 2023
IOWave25	Indian Ocean Wave 2025
ISO	International Organization for Standardization
ITCOcean	International Training Centre for Operational Oceanography
KPI	Key Performance Indicators
LDCs	Least Developed Countries
MHEWS	Multi-Hazard Early Warning System
MTS	Medium Term Strategy
NEAMTWS	North-Eastern Atlantic, the Mediterranean and Connected Seas
NAVAREA	Navigational Area
NTWC	National Tsunami Warning Centre
OBS	Ocean Bottom Seismometer
ODTP	Ocean Decade Tsunami Programme
PTHA	Probabilistic Tsunami Hazard Assessment
PTWS	Pacific Tsunami Warning and Mitigation System
RDIP	Research, Development and Implementation Plan

SAMUDRA	Smart Access to Marine Users for ocean Data Resources and Advisories
SIDS	Small Island Developing States
SOP	Standard Operating Procedure
SWOT	Strengths, Weaknesses, Opportunities, Threats
SYnOPS	Synergistic Ocean Observations, Prediction and Services Lab
TARANG	High-Performing Computing Facility at INCOIS
TEMPP	Tsunami Evacuation Maps, Plans and Procedures
TGVs	Tsunami Generated by Volcanoes
TGVE	Tsunami-Generating Volcanic Events
TOAST	Tsunami Observation and Simulation Terminal
TOWS-WG	Working Group on Tsunami and Other Hazards Related to Sea-Level Warning and Mitigation Systems
TRFP	Tsunami Ready Focal Point
TRRP	Tsunami Ready Recognition Programme
TSP	Tsunami Service Provider
TT-DMP	Task Team on Disaster Management Preparedness
TT-TWO	Task Team on Tsunami Watch Operations
VAAC	Volcanic Ash Advisory Centers
WG-1	Working Group 1 on Tsunami Risk, Community Awareness and Preparedness
WG-2	Working Group 2 on Tsunami Detection, Warning and Dissemination
WG-2	Working Group 3 on Tsunami Ready Implementation
WG-NWIO	Regional Working Group for the North-West Indian Ocean
WMO	World Meteorological Organization
WRS	Warning Receiver System
WTAD	World Tsunami Awareness Day
UN	United Nations
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Cultural and Scientific Organisation
UTC	Universal Time Coordinated

