

Meeting Summary

Resilient Coasts: Enhancing Disaster Preparedness through Regional Collaboration

(81st Session of the Economic and Social Commissions for Asia and the Pacific side event)

25 April 2025, 12:45-13:45 Bangkok Time

Conference Room 4, UN Conference Centre Bangkok, Thailand & Microsoft Teams

Website: <https://www.unescap.org/events/commission81> & <https://oceanexpert.net/event/4762>

Webinar: <https://www.youtube.com/watch?v=6Fd-MMhqhoo>

Co-organized by the Government of India's Ministry of Earth Sciences, Intergovernmental Oceanographic Commission of UNESCO, and ESCAP Disaster Risk Reduction Section, the event highlighted the establishment of the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster and Climate Preparedness, following the 2004 Indian Ocean tsunami. In 2019, a program was initiated to strengthen tsunami warning systems in the North-West Indian Ocean, implemented by IOC-UNESCO. The discussions emphasized the importance of regional cooperation in advancing hazard modeling, early warning systems, and enhancing community-level coastal resilience. The event was joined by 40 in-person and 50 online participants representing over 25 ocean basin countries, including both ESCAP members and non-members.

Opening Statements

Ms. Armida Salsiah Alisjahbana, *Under Secretary-General of the United Nations and Executive Secretary of ESCAP*:

The Executive Secretary highlighted that the Asia-Pacific region faces increasingly frequent and interconnected geophysical and climate-induced disasters, exacerbating vulnerabilities and inequalities. In response, ESCAP's Disaster Risk Reduction Section promotes cross-border cooperation and multilateral solutions. Established in 2005 following the Indian Ocean tsunami, the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster, and Climate Preparedness has supported transboundary tsunami early warning systems and has expanded to cover multi-hazard coastal resilience across the region. The Trust Fund, which promotes South-South and triangular cooperation and is regionally owned, has received contributions from countries including Sweden, Thailand (co-founders), Italy, the Philippines, and Switzerland in the last 12 months.

The Executive Secretary expressed gratitude to the Government of India for hosting the event and demonstrating strong leadership in regional disaster preparedness efforts. The Executive Secretary also thanked His Excellency the Ambassador of India to Thailand for the Government of India's announcement at the 81st Session of the Commission for their new contribution of US\$ 500,000 to enhance tsunami preparedness and broader disaster readiness through the Trust Fund. On behalf of ESCAP, the Executive Secretary reaffirmed commitment to aligning with global frameworks such as the Sendai Framework, the UN Decade of Ocean Science for Sustainable Development, and the 2030 Agenda for Sustainable Development, and the ambitions to achieve "Early Warnings for All" and see 100 per cent of at-risk communities to be 'tsunami ready'.

His Excellency Nagesh Singh, *Ambassador of India to Thailand and Permanent Representative to ESCAP*:

His Excellency reaffirmed the Government of India's commitment to regional disaster preparedness and resilience. Emphasizing the importance of multilateral cooperation, His Excellency highlighted India's efforts to expand early warning systems to cover its 1.4 billion citizens and to strengthen disaster financing frameworks. It was noted that the 2004 Indian Ocean tsunami underscored the need for coordinated long-term disaster preparedness across the Asia-Pacific region. In response, India actively contributed to the ESCAP Multi-Donor Trust Fund for Tsunami, Disaster, and Climate Preparedness, with a US\$ 1 million contribution in 2015 and an additional US\$ 500,000 in 2025.

His Excellency recalled the proposal to establish a BIMSTEC Centre of Excellence for Disaster Management at the 6th BIMSTEC Summit, aiming to enhance regional collaboration in multi-hazard early warning systems, capacity building, and infrastructure investment. He noted that India is supportive of the UN Secretary-General's "Early Warning for All by 2027" initiative and establishment of the G20 working group on Disaster Risk Reduction as a result. His Excellency also highlighted collaborations with UNESCO-IOC on community-based tsunami preparedness through the "Tsunami Ready" program and the country's support for the UN Decade of Ocean Science for Sustainable Development, further demonstrating India's dedication to building resilient coastal communities.

Concluding by noting that with over 68 million people in the Asia-Pacific at risk from tsunamis and coastal hazards, His Excellency reaffirmed India's commitment to continue to lead efforts in promoting integrated preparedness and risk-informed development.

Presentation

Ms. Temily Baker, *Programme Management Officer, Disaster Risk Reduction Section ESCAP:*

The presentation by ESCAP, INCOIS, and UNESCO-IOC, addressed the Asia-Pacific region's heightened vulnerability to disasters, particularly affecting Least Developed Countries (LDCs) and Small Island Developing States (SIDS), which experienced disaster mortality rates five times higher than the global average. Ms. Baker presented the regional risk analytics which have identified coastal hotspots and the imperative to tackle multi-hazard coastal risks such as tsunamis, storm surges, and flooding. The UNESCO-IOC led capacity assessment of tsunami preparedness for the Indian and Pacific Ocean basins was presented, as supported by the Swiss Development and Cooperation Agency and Government of Italy through the Trust Fund for Tsunami, Disaster and Climate Preparedness. For the Indian Ocean, significant progress in tsunami warning systems has been achieved since 2004. Within the last 5 years there has been significant progress in downstream community awareness and preparedness initiatives (such as through the Tsunami Ready Recognition Programme), while the upstream warning and detection system has plateaued despite advancements in technology.

High-risk areas like the Makran Subduction Zone, which was the source of the devastating 1945 tsunami, remains a focus for preparedness initiatives. Ms Baker thus presented the achievements of the 'Strengthening tsunami warning systems in the North-West Indian Ocean through regional cooperation' programme as implemented by IOC-UNESCO. Progress included regional tsunami hazard assessments, improved national SOPs in five countries, development of evacuation maps, and recent training workshop on Tsunami Emergency Maps, Plans and Procedures (TEMPP) conducted at INCOIS.

The presentation was concluded by highlighting how rapid urbanization is leading to the increased exposure to tsunami risks and the pilot cities that will be proposed to undergo tsunami readiness programs in the next phase of the programme. Ms. Baker further mentioned how the partnership and achievements have aligned with the UN Ocean Decade goal of achieving 100 per cent tsunami readiness in at-risk communities and supported the UN Secretary-General's "Early Warning for All" initiative.

Panel Discussion

'Enhancing coastal Urban Disaster Risk Resilience through Regional Cooperation'

Moderated by Ms. Sunanda Manneela, *Chair of the North West Indian Ocean Working Group of the ICG/IOTWMS:* Ms. Manneela welcomed experts from the Northwest Indian Ocean Working Group of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS), the Indian National Centre for Ocean Information Services (INCOIS), and the Intergovernmental Oceanographic Commission of UNESCO

(IOC-UNESCO), to discuss ongoing regional coordination efforts aimed at strengthening coastal urban disaster risk resilience in the North-West Indian Ocean. In this session, the significance of tsunami preparedness as a foundation for broader multi-hazard coastal disaster preparedness was emphasized.

- **Mr Nasser Said Al-Ismaili**, *Director of Forecasting and Early Warning System National Multi-Hazard Early Warning Centre, Oman & Vice Chair of North West Indian Ocean Working Group of the ICG/IOTWMS*: In his statement, Mr Al-Ismaili talked about how the Trust Fund for Tsunami, Disaster and Climate Preparedness adopted a comprehensive multi-hazard approach, addressing risks such as tsunamis in the Makran Subduction Zone and tropical cyclones. He further went on to address the efforts focused on raising awareness among both communities and decision-makers, which led to the establishment of national multi-hazard early warning centers, including in Oman. Mr Al-Ismmaili mentioned how the Trust Fund facilitated the development of warning chains, dissemination systems, and standard operating procedures (SOPs) for national centers. It also promoted bilateral agreements for data sharing and joint coastal studies in the North-West Indian Ocean region. Risk assessments and hazard indication maps were produced, and workshops were organized in collaboration with UNESCO IOC, UNICEF, and other partners. Evacuation plans for tsunamis and tropical cyclones were developed, and community-level resilience was strengthened through initiatives like the Tsunami Ready Program, which encompassed 12 key indicators.
- **Dr Sudheer Joseph**, *Scientist 'G' & Division Head of Applied Research and Research to Operations (ARO), INCOIS*: In his statement, Dr Joseph talked about how the 2004 Indian Ocean tsunami underscored the necessity of prioritizing the protection of the most vulnerable populations. In response, India launched the UNESCO-IOC Tsunami Ready programme, initially focusing on two coastal villages in Odisha, Noliasahi and Venkatraipur, which became the first in the Indian Ocean region to receive official recognition. These communities effectively integrated traditional knowledge of cyclone and storm surge responses with formal early warning systems and UN protocols, which facilitated rapid progress in tsunami preparedness. Building on this foundation, the initiative expanded to encompass 26 villages in Odisha, with plans that aimed to extend to over 400 coastal communities across Odisha and Kerala by 2030.

Concluding his statement, Dr Joseph talked about how lessons learned from Odisha were instrumental in addressing these challenges. Urban coastal areas presented both opportunities, such as utilizing high-rise buildings for vertical evacuation, and challenges, including dense populations and limited infrastructure. Persistent efforts and adaptive strategies were considered essential to achieving comprehensive tsunami readiness in both urban and rural coastal areas by 2030.

- **Dr Srinivasa Kumar Tummala**, *Head of the ICG/IOTWMS Secretariat, UNESCO-IOC*: Dr Tummala presented on the Tsunami Programme and the UN Ocean Decade Tsunami Programme, led by UNESCO's Intergovernmental Oceanographic Commission (IOC), which aims to enhance global tsunami early warning system and community preparedness by 2030. The IOC Tsunami Programme emerged in response to the 2004 Indian Ocean tsunami, which underscored the necessity for robust early warning systems and community resilience. The IOC Tsunami programme united over 130 member states through four regional Intergovernmental Coordination Groups (ICGs) and three Tsunami Information Centers (TICs) to coordinate risk mitigation and early warning activities. A key component has been the UNESCO-IOC Tsunami Ready Recognition Programme, which set standards for community preparedness, including the development of evacuation plans, public education, and regular drills. As of 2025, more than 100 communities across 30+ countries had achieved this recognition. These efforts are aligned with the UN Secretary-General's "Early Warning for All" initiative, which strives to ensure that all at-risk communities were tsunami-ready by 2030.

Open Discussion/ Q&A

Remarks by Mr Shombi Sharp, *UN Resident Coordinator in India*

On behalf of the UN Country Team of India, the UN Resident Coordinator commended the country's significant progress in disaster preparedness, particularly highlighting the advancements in early warning systems. Given India's vulnerability to natural disasters such as cyclones, tsunamis, and floods due to its extensive coastline, the UN emphasized the importance of a comprehensive, whole-of-society approach. Over the preceding 15 years, this strategy led to a remarkable 90 per cent reduction in cyclone-related mortality. The UN continued to partner with the Government of India to support and enhance national disaster response efforts. The Resident Coordinator noted that recent field visits to regions like Odisha and Gujarat showcased the implementation of cyclone-ready municipalities and active engagement from local communities, including fishermen. India's integration of advanced technology into early warning systems, coupled with the involvement of various sectors such as civil society and health centers, ensured that warnings were effectively communicated and acted upon. This coordinated response was further supported by a substantial investment of approximately \$30 billion over five years, underscoring the nation's commitment to building resilience against natural disasters.

Question by Dr Balakrishnan Nair *T. M Director (I/c), INCOIS, Hyderabad India*

When looking at the North West Indian Ocean region, specifically the Makran subduction zone, what are your suggestions on planning for operational early warning systems for a tsunami?

Answered by Panelist Mr Nasser Said Al-Ismaili: Bilateral agreements play a pivotal role in enhancing regional observation systems and earthquake analysis, particularly in the Northwest Indian Ocean region. Oman has proactively implemented projects such as monitoring coastal currents and sharing data through tide gauges and observation tools, contributing to the Intergovernmental Oceanographic Commission's (IOC) monitoring website. These efforts are part of a broader strategy to improve tsunami early warning systems (TEWS) in countries like Iran, Pakistan, and India, which face significant threats from the Makran Subduction Zone, where tsunami travel times can be as short as 30 minutes. Increased collaboration through bilateral agreements with these nations is vital for enhancing observation systems and earthquake analysis. Further strengthening of such agreements and collaborations is necessary to ensure a coordinated and effective regional response to tsunami threats.

Remarks by Dr Mohommad Mokhtari, *Professor at International Institute of Earthquake Engineering & Seismology and founding member of the Tsunami and Earthquake Research Center (TERC), Islamic Republic of Iran*

Dr. Mokhtari expressed his satisfaction in being part of the Northwest Indian Ocean collaborative programme; a partnership that has been working together since the early 2000s. He emphasized the importance of Phase 3 of the UNESCO-IOC implemented ESCAP Trust Fund project, extending his gratitude to UNESCO-IOC and their team for advancing this initiative. Dr Mokhtari explained how Phase 3 will provide the opportunity to focus on scientifically accurately addressing disasters and transferring valuable knowledge to those who need it. Dr. Mokhtari urged all participants to support and focus on Phase 3, as it is a crucial step for the period between 2025 and 2027, and expressed gratitude to the ESCAP Trust Fund secretariat for the instrumental work in the initiative.

Question by Mr Ardito Kojijat, *Head of Indian Ocean Tsunami Information Centre, UNESCO-IOC*

Small Island developing states are one of the most vulnerable to ocean coastal hazard. However, they also see tsunami hazard as not as a high priority, what would be the best strategy in terms of implementing tsunami ready in this coastal communities?

Answered by Panelist Dr Sudheer Joseph:

The integration of multi-hazard strategies into the Tsunami Ready initiative is essential for enhancing community resilience. By preparing communities for tsunamis, readiness for other hazards is naturally bolstered, addressing concerns about low-frequency, high-impact events. Engaging local communities, such as Kerala's fishermen who face daily oceanic challenges, ensures that preparedness measures are relevant and effective. Understanding their perspectives fosters a culture of resilience and builds confidence, as communities equipped for tsunamis are better prepared to handle other hazards. This approach encourages all stakeholders to adopt a multi-hazard perspective in disaster preparedness, ensuring comprehensive safety measures for coastal communities.

Closing Remarks

Ms Duangnapa Uttamangkapong, *Director of Research and International Cooperation Bureau, Department of Disaster Prevention and Mitigation, Thailand*

Following the devastating 2004 Indian Ocean Tsunami, Ms Duangnapa highlighted how the Government of Thailand initiated the ESCAP Multi-Donor Trust Fund to enhance tsunami, disaster and climate preparedness, with a focus on developing early warning systems. Ms Duangnapa highlighted how, with the support of fellow donors, the Trust Fund has mobilised over US\$ 17 million and further grown to mobilize over US\$ 34 million in co-financing support, and as a result has been able to expand into a multi-hazard, regional approach covering coastal hotspots in the Asia-Pacific. On behalf of the Government of Thailand, Ms Duangnapa expressed gratitude to the Government of India and other partner countries for their continued support and emphasized the importance of South-South and Triangular cooperation in promoting early warning for all. Concluding her statement, Ms Duangnapa raised how Thailand remains committed to disaster risk reduction through various frameworks such as the Sendai Framework on Disaster Risk Reduction, ASEAN cooperation, and anticipatory action, and announced to the participants of the latest early warning initiatives in Thailand which include mobile-based emergency alert systems to be tested in 2025, and the 20th commemoration of the 2004 tsunami events held in 2024, in collaboration with international partners.

Conclusion

The "Resilient Coasts" side-event emphasized the urgent need for enhanced regional collaboration to strengthen coastal disaster preparedness across the Asia-Pacific. Building on lessons from past tsunamis, participants highlighted advances in early warning systems, community resilience, and multi-hazard strategies, supported by initiatives like the ESCAP Trust Fund and the Tsunami Ready Recognition Programme. Countries including India, Oman, and Thailand showcased leadership in promoting integrated approaches to disaster risk reduction. The event reinforced the collective commitment to achieving "Early Warning for All" by 2030, ensuring that coastal communities are better protected against future hazards.