North-Western Indian Ocean Member States Training Workshop:

Review Standard Operating Procedures (SOPs) and Tsunami Service Provider (TSP) Products in Preparation for Exercise IOWave23

7 – 8 August 2023

Implementing Tsunami Ready in the Indian Ocean

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UNESCO
Intergovernmental Oceanographic Commission

Tsunami Ready and UN Ocean Decade

SAFE OCEAN

Not oceans and shores that do not have coastal hazards (*i.e-Tsunami*).

….. is coastal area and ocean that is understood, observed, can be predicted, and where the people can continue to interact with the sea and oceans for their livelihood and lifestyle without having the fear of coastal hazards (tsunamis), as they already have the awareness, knowledge, preparedness, skills, and abilities to safe themselves in case of an emergency (tsunami)

Implementation Plan for the UN Decade Tsunami Programme (TOWS WG 2021)
Contribute to achieving the societal outcome of A Safe Ocean with the aim of making 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030 through the implementation of the UNESCO/IOCTsunami Ready Programme

Tsunami Ready in Indian Ocean
The ICG/IOTWMS encourages member states to commit to implement the UNESCOIOC Tsunami Ready guideline and indicators and promote open access to high-resolution near shore bathymetry and topography data for accurate inundation and evacuation mapping in support of Tsunami Ready communities (*ICG/IOTWMS Chair at the 53rd IOCEC*)

UNESCO/IOC Tsunami Ready Recognition Programme / UNESCO/IOC Tsunami Ready (TOWS WG 2022)

- Recommended that the IOC Executive Council at its 55th session consider approving the establishment of the UNESCO/IOC Tsunami Ready Recognition Programme (UNESCO/IOC Tsunami Ready)
- To advise countries that are currently in the process of implementing Tsunami Ready, to now follow the MG74 when submitting/applying for Tsunami Recognition, and that MG74 will apply for all future applications.
- Establishment of the Tsunami Ready Coalition.
- ICG Tsunami Information Centres (TICs) to facilitate the UNESCO/IOC Tsunami Ready Recognition Programme in each region.

Why Tsunami Ready ?

- An advance tsunami early warning system will not safe life if the **community at risk does not have the knowledge and capacity to respond** to the early warning.

  - High risk of loss of life and property in coastal community with weak or no **community preparedness** for tsunami emergencies.

    - In **near field tsunami** , the community need to react and take action without official warning or guidance

    - Weak or **broken warning chain** to community.

    - Lack or **limited focus in community preparedness** for tsunami.

The Aims of IOC-UNESCO Tsunami Ready Recognition Program

The Tsunami Ready RecognitionProgramme is a **voluntary international community -based** recognition programme developed by UNESCO/IOC.

It aims to **build resilient communities through awareness and preparedness strategies** that will protect life, livelihoods and property from tsunamis in different regions

Tsunami Ready Community Recognition: 43 Communities

Caribbean (11 communities)
1. St. Kitts and Nevis(1)
2. Anguilla (1)
3. British Virgin Islands (1)
4. Grenada (2)
5. Haiti (1)
6. Antigua and Barbuda (1)
7. Barbados (1)
8. St. Vincent and the Grenadines (1)
9. Trinidad and Tobago (1)
10. Jamaica (1)

Pacific (21 communities)
1. Honduras (3)
2. Costa Rica (11)
3. Samoa (1)
4. El Salvador (2)
5. Guatemala (2)
6. Nicaragua (2)

Indian Ocean (11 communities)
1. Venkatraipur India
2. Noliasahi, India
3. Tanjung Benoa, Indonesia
4. Tambakrejo, Indonesia
5. Panggarangan, Indonesia
6. Glagah, Indonesia
7. Kemadang, Indonesia
8. Pangandaran Indonesia,
9. Mandalika, Indonesia
10. Purus, Indonesia
11. Lolong Belanti, Indonesia

IOC-UNESCO Tsunami Ready Recognition Programme

COMMUNITY-BASED

Based on community performance-based programme.

SUSTAINABLE IMPROVEMENTS

Risk assessments, early warning system, public awareness, exercises, pre-planning, preparedness actions

Tsunami Ready

SYSTEMATIC PREPAREDNESS

Aims to improve coastal community preparedness and ensures structural, systematic, and sustainable approach.

MULTI STAKEHOLDER INVOLVEMENT

Community, Community Leaders, NTWC, NDMO, LDMO, Universities, NGOs and CSOs

CREATE OWNERSHIP

Best practice guidelines and recognition as tsunami prepared community

UNESCO/IOC Tsunami Ready Indicators

| 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 3 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. |

Understanding the Hazard and Risk

Community Awareness

Planning and Capacity

Tsunami Ready "Community"

Community ➔ an ecosystem of society

Tsunami Ready Recognition Process
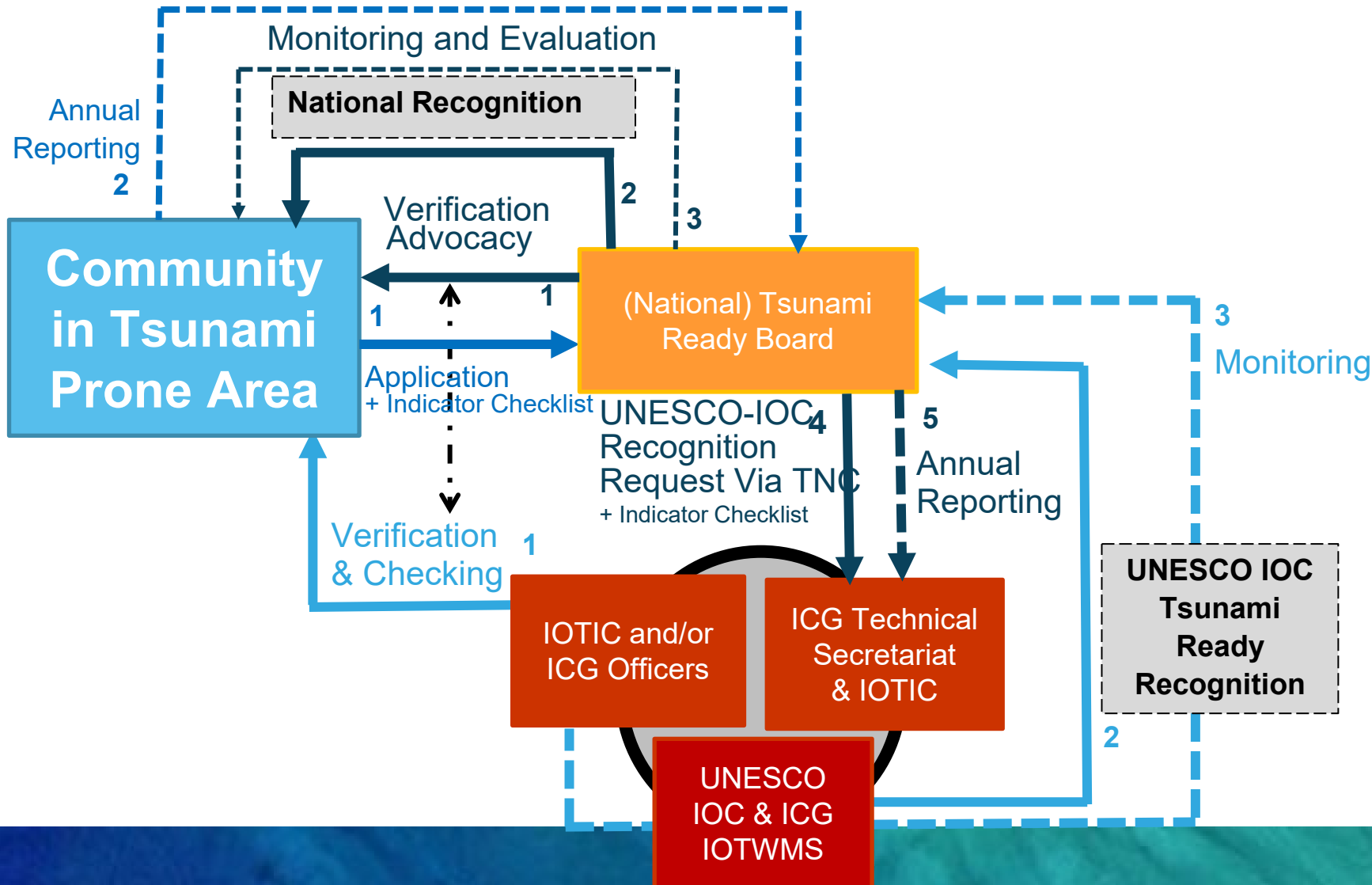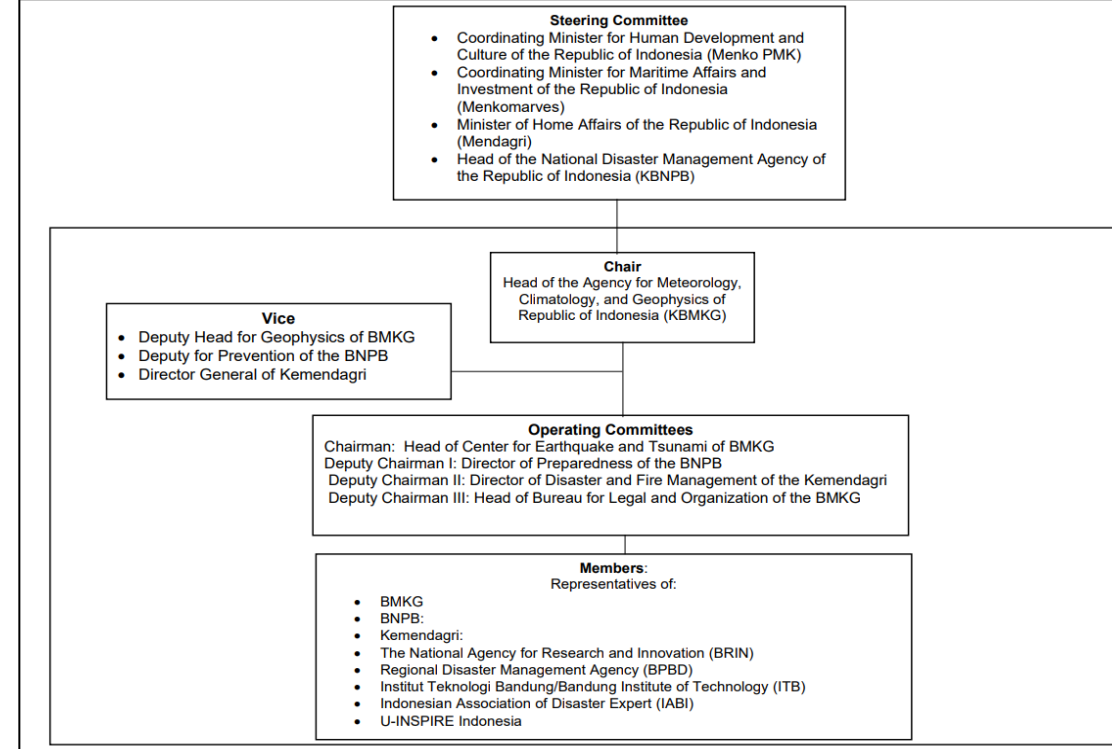
National Tsunami Ready Board

1. Coordinating the implementation of the Tsunami Ready Community through advocacy, promotion,and socialization
2. Ensuring consistency in the implementation of guidelines and UNESCO-IOC Tsunami Ready indicator
3. Checking and providing direction on assessments Tsunami Ready Community on the national level for the proposed coastal communities prone to tsunami;
4. Review, evaluate, and approve requests Tsunami Ready Community Recognition at the national level in accordance with UNESCO-IOC Tsunami Ready guide and indicators
5. Monitor, collect reports, and evaluate Tsunami Ready Community which has received recognition annually;
6. Recommend the Tsunami Ready Community to gain UNESCO-IOC Tsunami Ready Recognition,
7. Monitor and report on annual activities Tsunami Ready Community which has been recognized as UNESCO-IOC Tsunami Ready Community to ICG/IOTWMS;

Steering Committee
- Coordinating Minister for Human Development and Culture of the Republic of Indonesia (Menko PMK)
- Coordinating Minister for Maritime Affairs and Investment of the Republic of Indonesia (Menkomarves)
- Minister of Home Affairs of the Republic of Indonesia (Mendagri)
- Head of the National Disaster Management Agency of the Republic of Indonesia (KBNPB)

Chair
Head of the Agency for Meteorology, Climatology, and Geophysics of Republic of Indonesia (KBMKG)

Vice
- Deputy Head for Geophysics of BMKG
- Deputy for Prevention of the BNPB
- Director General of Kemendagri

Operating Committees
Chairman: Head of Center for Earthquake and Tsunami of BMKG
Deputy Chairman I: Director of Preparedness of the BNPB
Deputy Chairman II: Director of Disaster and Fire Management of the Kemendagri
Deputy Chairman III: Head of Bureau for Legal and Organization of the BMKG

Members:
Representatives of:
- BMKG
- BNPB:
- Kemendagri:
- The National Agency for Research and Innovation (BRIN)
- Regional Disaster Management Agency (BPBD)
- Institut Teknologi Bandung/Bandung Institute of Technology (ITB)
- Indonesian Association of Disaster Expert (IABI)
- U-INSPIRE Indonesia

Indonesian NTRB

National Board to implement and the monitor Tsunami Ready Recognition programme and IOWave18 exercises in India

1	Director, INCOIS	Chairman
2	Representative from NDMA	Member
3	Representative from MHA	Member
4	Representative from MoES	Member
5	Representative from DMO, Andaman & Nicobar Islands	Member
6	Representative from DMO, Odisha	Member
7	Head-TWG, INCOIS	Member
		Secretary

Indian NTRB

The Benefit of Tsunami Ready Recognition

❑ Strengthens tsunami preparedness of coastal communities
  - Improved **assessments of Hazards**, Risk, Inundation, and Evacuation
  - Improved **early warning systems/warning chain**, EOP, and EOC
  - Improved/Increases **public awareness, understanding of tsunami threat, build preparedness, and ensures exercises**.

❑ Strengthen **preparedness for other hazards**

❑ Encourages a consistent and sustainable approach

❑ Contributes to the UN Decade Program

❑ Received **Recognition** from IOC UNESCO as Tsunami Ready Community

- ✓ **11 communities now Tsunami Ready recognized**

- ✓ **Australia, Iran, Maldives, Oman, Pakistan, Seychelles, Sri Lanka, Thailand, and Timor Leste planning to implement**

- ✓ **More support required reach Ocean Decade Goal 100% communities at risk Tsunami Ready**

INDIA:
1. Venkatraipur
2. Noliasahi

INDONESIA:
1. Tanjung Benoa Village - Badung
2. Glagah Village - Kulonprogo
3. Kemadang Village - Gunung Kidul
4. Pangandaran Village - Pangandaran
5. Panggarangan Village - Lebak
6. Desa Tambakrejo - Malang
7. Kuta Mandalika Village - Lombok Tengah
8. Purus Village - Padang Barat
9. Lolong Belanti Village - Padang Utara

Tsunami Ready for critical infrastructure

Implementing Tsunami Ready to the Critical Infrastructures

- I Gusti Ngurah Rai Airport, Bali
- Yogyakarta International Airport
- Cilegon Industrial Area
- Port Of Benoa, Bali
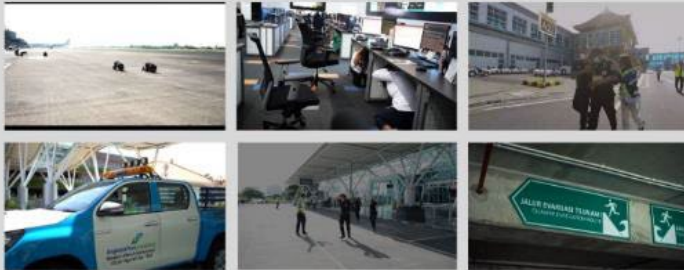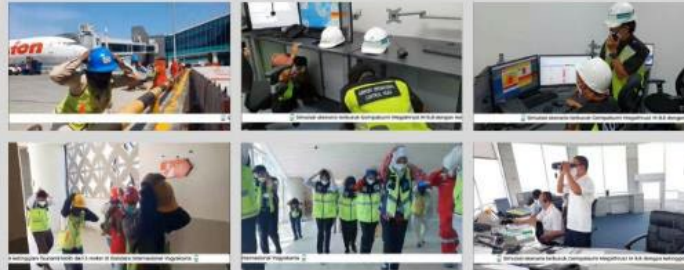
✓ **Tsunami Ready for critical infrastructure eg Airport Tsunami Ready in Indonesia, port, and industrial zones**

Lesson Learnt from Recognized Tsunami Ready Communities (Purus and Lolong Belanti) in responding to the recent 25 Apr 23 Mentawai Earthquake
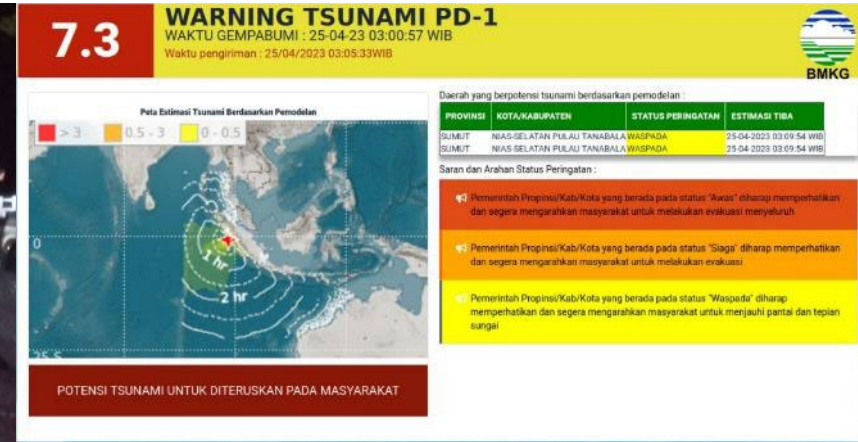
BMKG issued the tsunami warning for the Mentawai Earthquake M7,3, 25th April 2023

- Responded well based on capacities built through 12 Tsunami Ready indicators
- Conducted self–evacuation protocols
- Well-aware of tsunami evacuation plans, routes, and evacuation sites
- Vulnerable people evacuated by their family and assisted by Local Disaster Ready Group
- Understanding of official warnings issued by National Tsunami Warning Centre and able to take action accordingly
- Understanding about hazard in their area reduced panic.
- Although there was no significant tsunami (detected only 11 cm), community accepted action taken was necessary

UNESCO/IOC Tsunami Ready Tools

UNESCO/IOC Tsunami Ready Viewer

Showing UNESCO/IOC Tsunami Ready Recognized Community Globally

https://tsunamireadyviewer.ioc-tsunami.org/

UNESCO/IOC Tsunami Ready Tools

UNESCO/IOC Tsunami Ready Website

http://itic.ioc-unesco.org/index.php?option=com_content&view=category&id=2234&Itemid=2758

UNESCO/IOC Tsunami Ready Tools

Manual and Guide No 74

Intergovernmental Oceanographic Commission
Manuals and Guides

74

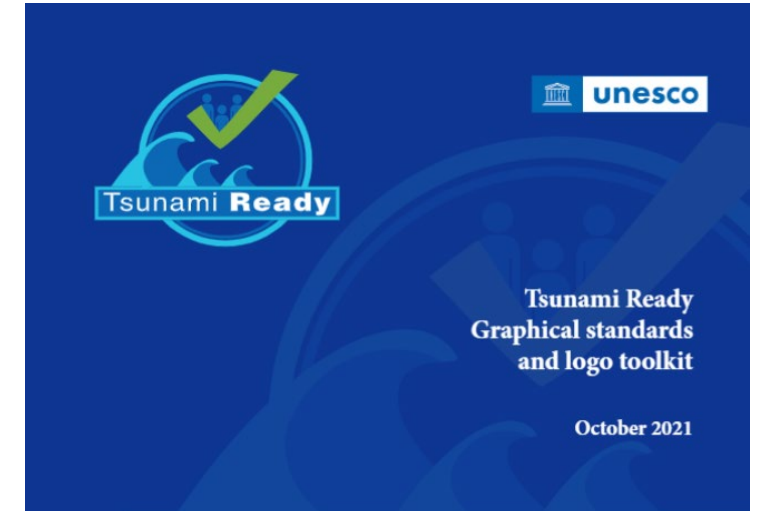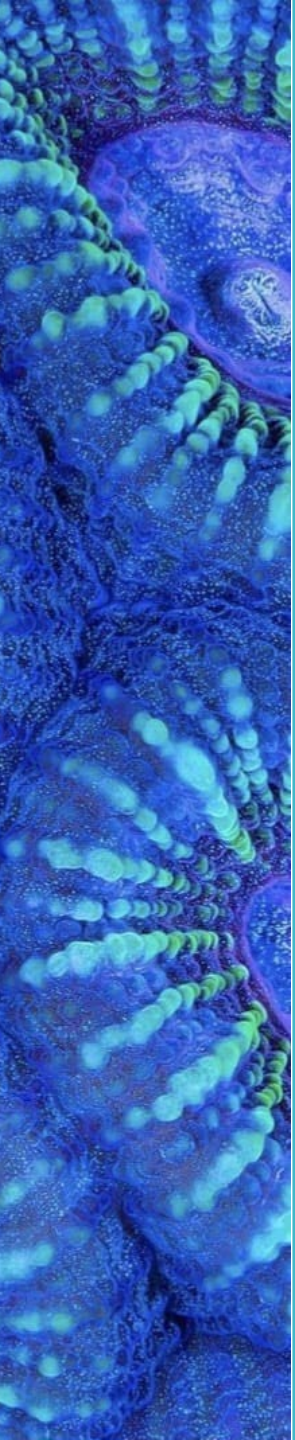**Standard Guidelines for the Tsunami Ready Recognition Programme**

UNESCO

https://oceanexpert.org/downloadFile/50068

Manual and Guide No 82

Intergovernmental Oceanographic Commission
Manuals and Guides 82

PREPARING FOR COMMUNITY TSUNAMI EVACUATIONS

From Inundation to Evacuation Maps, Response Plans, and Exercises

https://unesdoc.unesco.org/ark:/48223/pf0000373019?posInSet=17&queryId=947ca611-1880-4ded-bb5a-4bd61c93c161

Tsunami **Ready**

Tsunami Ready Graphical standards and logo toolkit

October 2021

Use of the Tsunami Ready logo would need to request the approval from UNESCO/IOC Tsunami Unit. Please contact: ioc-tsu@unesco.org for permission.

https://unesdoc.unesco.org/ark:/48223/pf0000380936

Thank you