Process for Developing SOP Templates

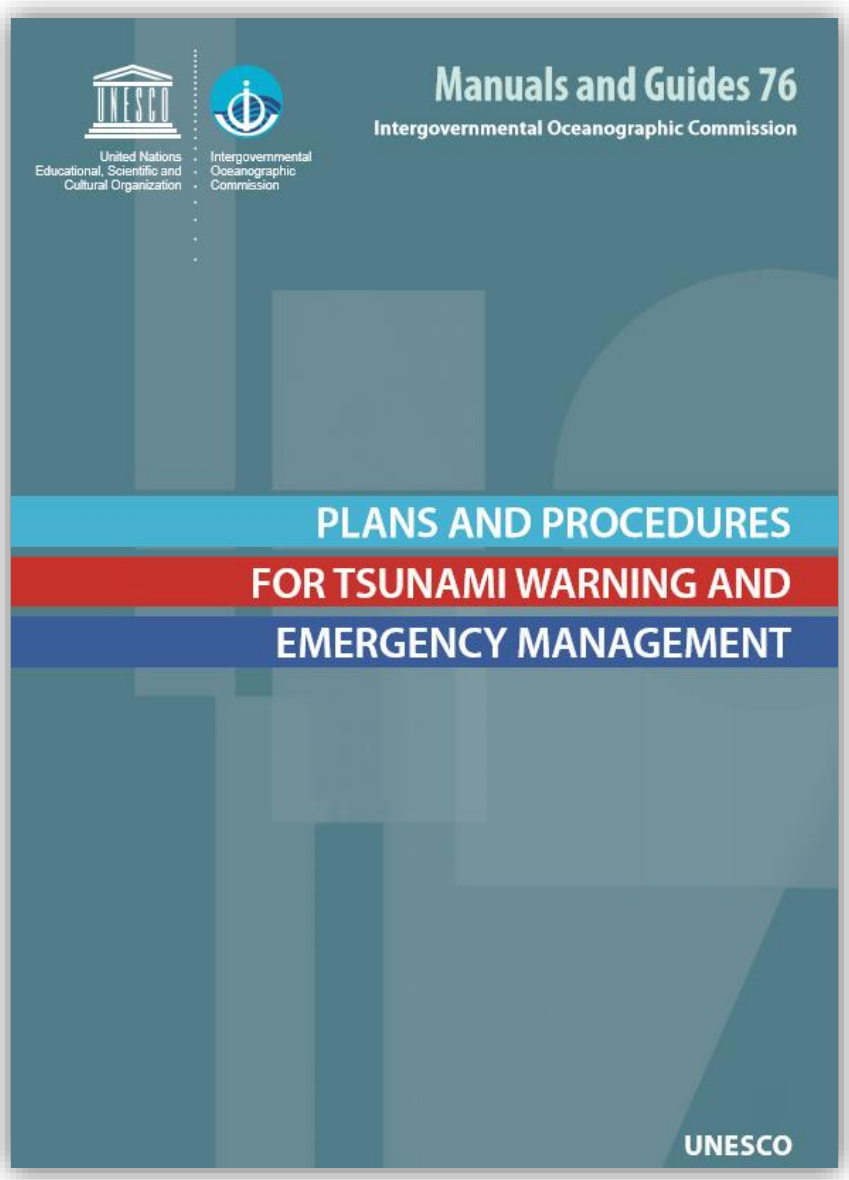
Rick Bailey
Head of Secretariat ICG/IOTWMS

ICG Indian Ocean Tsunami Warning & Mitigation System SOP Workshops July 2023:
Standard Operating Procedures (SOPs) for
National Tsunami Warning Centres (NTWCs) and
Disaster Management Organisations (DMOs)

Overview

1. National Tsunami Warning and Emergency Response Plan
2. Stakeholders, roles and responsibilities
3. End-to-end tsunami warning and response steps
4. Developing Standard Operating Procedures (SOPs)
5. Quality Assurance
6. Competency training

Reference



unesco
Intergovernmental
Oceanographic
Commission

www.ioc-tsunami.org

1. National Tsunami Warning and Emergency Response Plan

unesco
Intergovernmental Oceanographic Commission

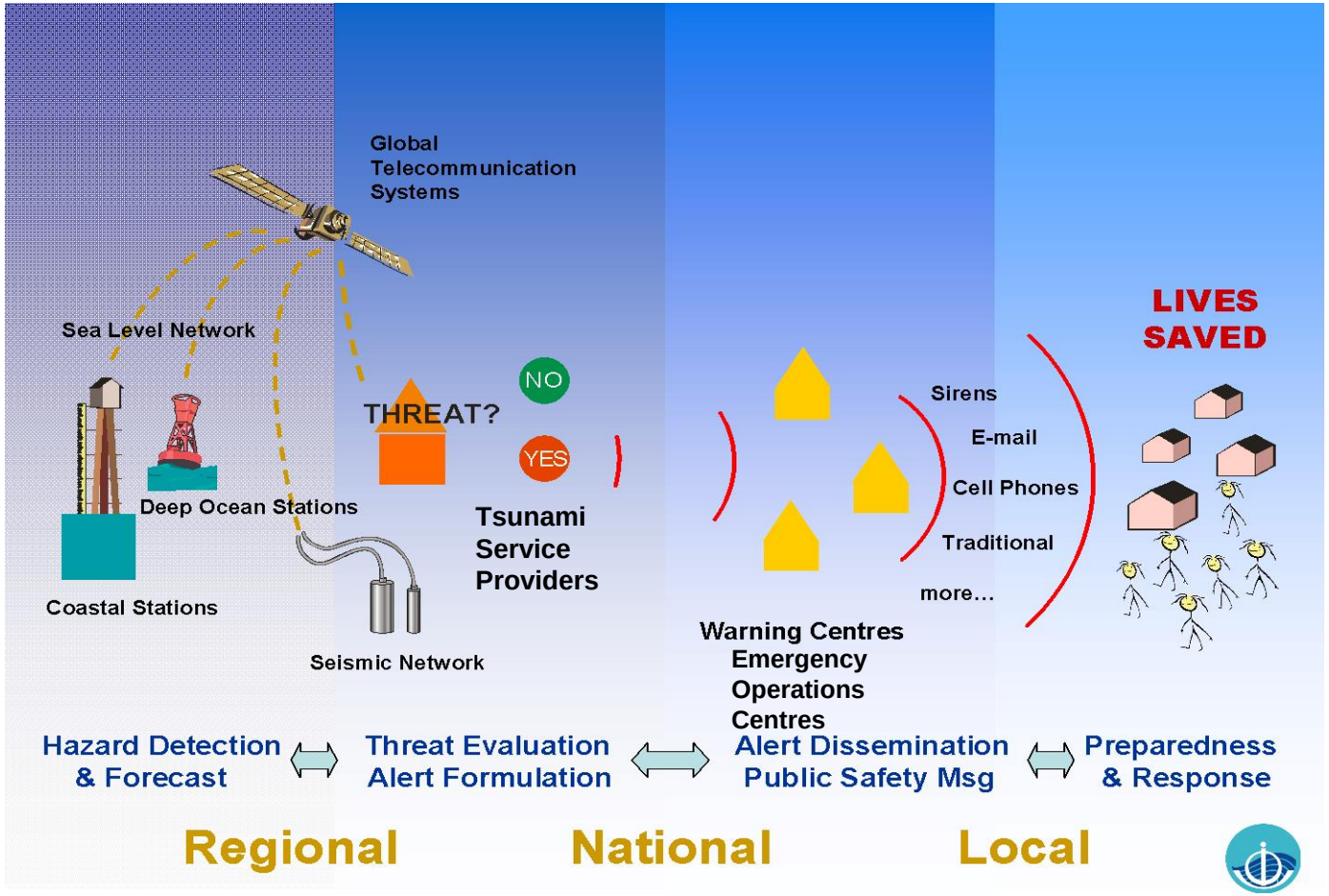
Overview:

Describes the collective components of the Tsunami Warning System (TWS) and the allocation of roles and responsibilities and actions for each component.

Also contains the concepts, thresholds, target times, systems, procedures and templates used in the national tsunami warning chain.

Does not include procedures.

1. National Tsunami Warning and Emergency Response Plan



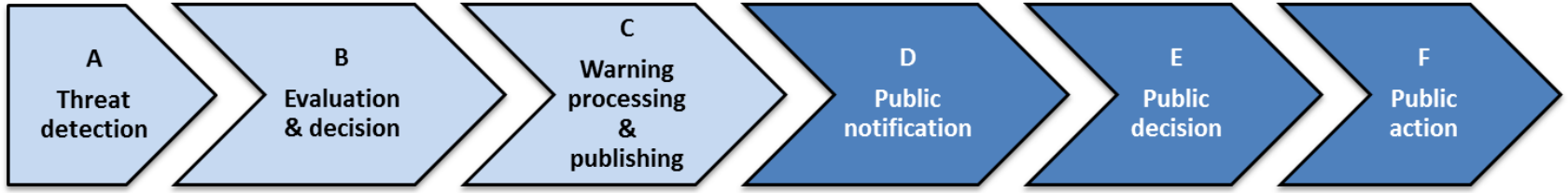
2. Stakeholders, roles and responsibilities

unesco
Intergovernmental Oceanographic Commission

Stakeholders:

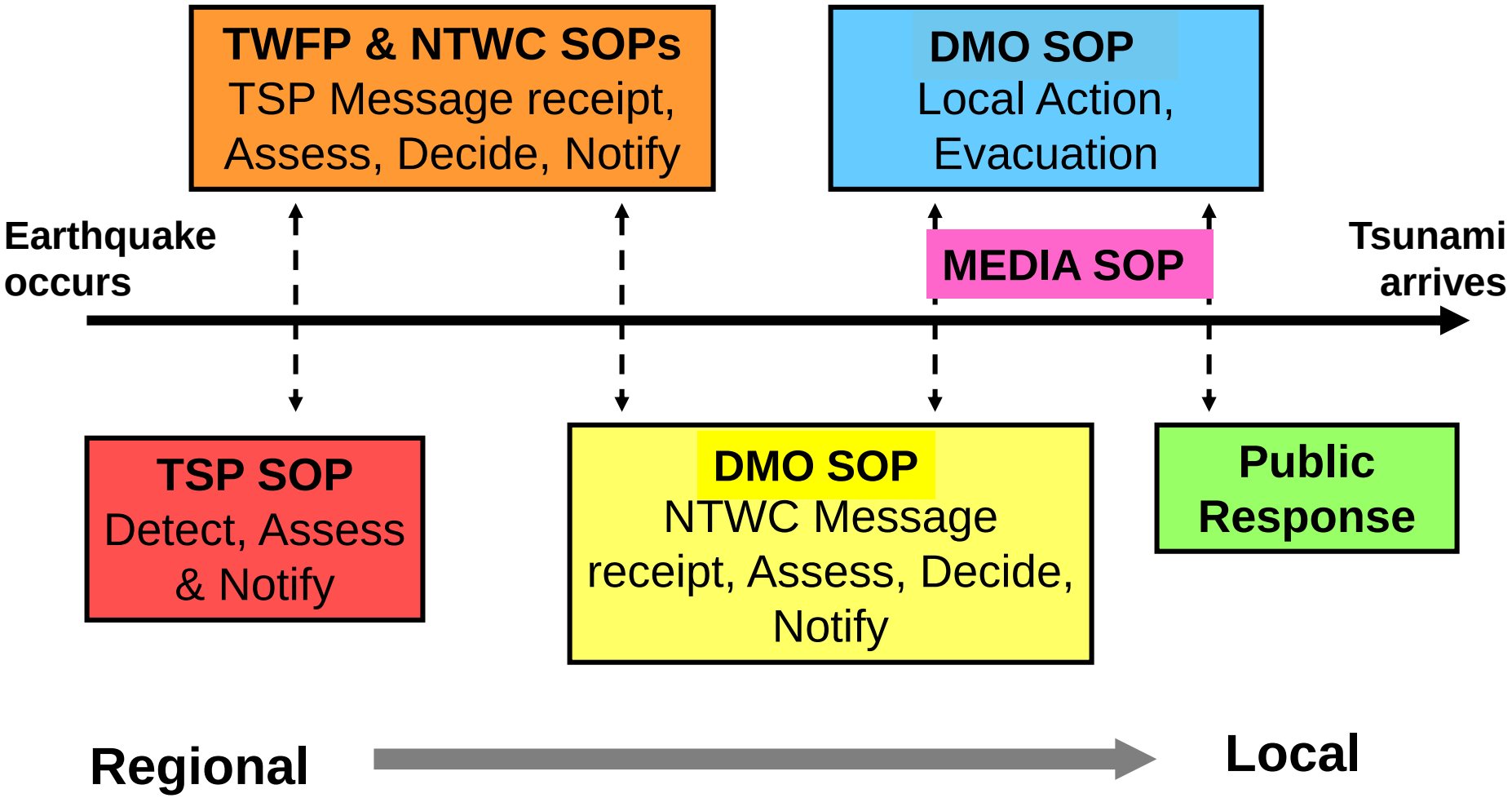
- IOTWMS Tsunami Service Providers (TSPs)
- National Tsunami Warning Centres (NTWCs)
- National/Provincial/Local Disaster Management Offices (NDMO/PDMO/LDMO)/Local Authorities
- Emergency Services (eg fire, police, ambulance, marine rescue,….)
- Broadcast Media
- Public

3. End-to-end tsunami warning and response steps



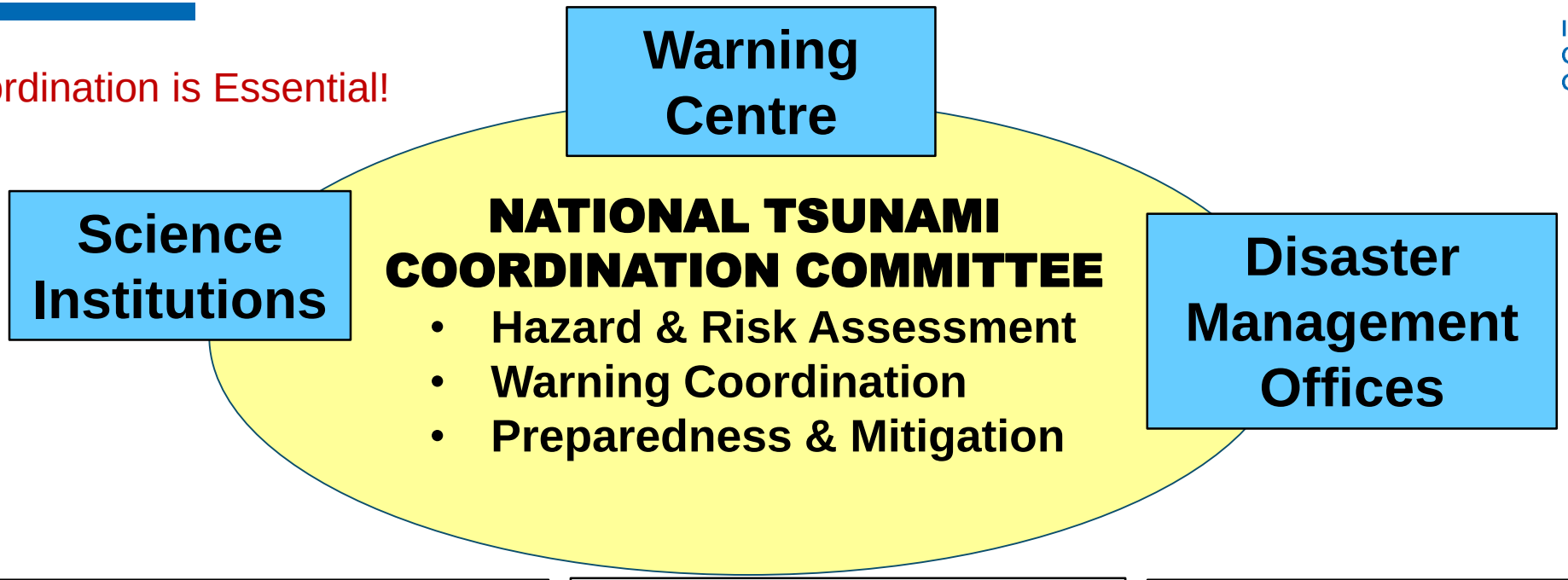
- Steps A, B involve TSPs and NTWCs
- Steps C, D involve NTWCs and DMOs
- Steps D, E, F involve DMOs
- The over-arching objective is to support effective public action (steps E and F) with timely, authoritative and quality information

3. End-to-end tsunami warning and response steps



3. End-to-end tsunami warning and response steps

Stakeholder Coordination is Essential!



Civil Society & NGOs:

- Community organisations
- Trade, business organisations
- Disaster response & relief

Government Agencies:

- Planning & Development
- Transportation
- Health & Education
- Coastal Management
- Social Services

Other:

- Media
- Utilities
- Tourism
- International Agencies

4. Developing Standard Operating Procedures (SOPs)

unesco
Intergovernmental Oceanographic Commission

Why are SOPs important?

- ❑ Foundation of effective, reliable warning systems
- ❑ All warning systems require SOPs, but for tsunami, **rapid** evaluation, warning and response is essential to save lives
- ❑ Ensure best-practice decision-making and helps reduce stress for on-duty staff
- ❑ Required for each stakeholder and major warning and response step
- ❑ Development must be coordinated across each organisation and major step
- ❑ In an end-to-end system, communications links between stakeholders must be robust or warning chain will be broken
- ❑ SOPs should be developed, practiced and modified as necessary – a “living document”

4. Developing Standard Operating Procedures (SOPs)

unesco
Intergovernmental Oceanographic Commission

Cookbook

1. Use National Tsunami Coordination Committee (or similar) to:
   i. Develop National Tsunami Warning and Emergency Response Plan
   ii. Agree national tsunami warning chain, roles and responsibilities.

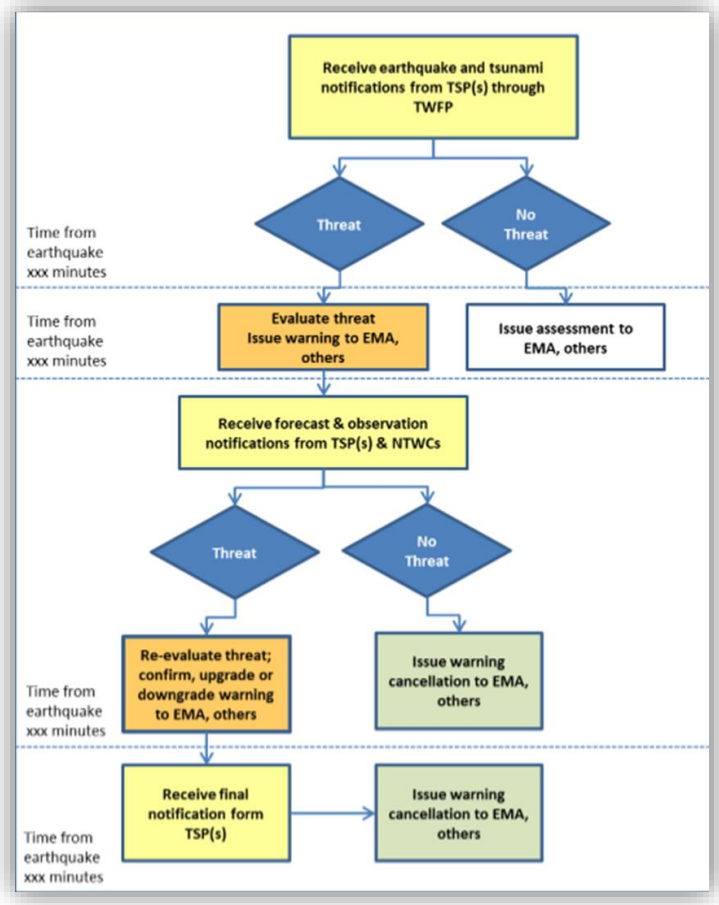
1. Construct SOPs for each stakeholder and major step:
   i. Develop overarching Concept of Operations (CONOPS) and policy guidelines document with objectives, expected outcomes, etc
   ii. Develop timelines for actions and decisions
   iii. Develop flow chart / decision tree, including timings
   iv. Develop manual with detailed SOPs for each action and decision
   v. Develop quick-reference SOPs with checklists to use in crisis situation (no time read manual!)

Timelines & Flow Charts help develop SOPs

- Describe the actions (what will be done)
- Describe the responsibilities (who will do it)
- Are useful as control tools
- Help define processes
- Reality check if timelines meet required deadlines
- Help with SOP development

Timelines & Flowcharts do not:

- Describe how to do the actions
- (Role of SOPs)



Checklists help implement SOPs in crisis situation

unesco
Intergovernmental Oceanographic Commission

NTWC Checklist for Initial Message (simplified)

- [ ] Locate epicentre. Examine location map
- [ ] Review automated solution. Re-pick phases if needed and relocate to finalize
- [ ] Determine depth
- [ ] Determine magnitude (Mwp)
- [ ] Issue Earthquake Information Message (has no tsunami information)
- [ ] Compare solutions from other NTWCs (CISN, USGS, other countries)
- [ ] Select Message Type using Criteria Table
- [ ] Call in other watch-standers to help (if a Warning)
- [ ] Compute ETAs and TTT map (TTT)
- [ ] Run Message Software to create message

Before sending messages, check:

- [ ] Message Number (should be 1)
- [ ] Message Type (Warning, Advisory, Watch, Information, etc.)
- [ ] Which locations placed in Warning/Advisory status
- [ ] Customized information for unusual or unique situations, if needed
- [ ] Earthquake parameters (hypocentre, magnitude, geographic name location)
- [ ] Estimated Tsunami Arrival Times (ETAs)

5: Quality Assurance

unesco
Intergovernmental Oceanographic Commission

- ✓ Quality assurance of the process that generates the warning
- ✓ Gold standard with **ISO compliance:** ISO 9001 (Australian and India) and ISO 22328-3 (Indonesia)
- ✓ Routinely reviewed for recertification
- ✓ ISO 9001 is defined as the international standard that specifies requirements for a quality management system (QMS). Organisations use the standard to demonstrate the ability to consistently provide products and services that meet customer and regulatory requirement
- ✓ Also monitor performance through Key Performance Indicators, like for TSPs

ISO 22328-3 : COMMUNITY BASED EARLY WARNING SYSTEM FOR TSUNAMI BUILDING A RELIABLE EARLY WARNING SYSTEM

- ISO 22328-3 considered public-private based instrument to accelerate achievement of Tsunami Ready Society (beyond the community, such as businesses, critical infrastructures, etc).
- Developed by Indonesia based on 12 indicators of UNESCO-IOC Tsunami Ready and various lessons learned, with objective to engage and involve private sector and government.
- Private sector can benefit from applying ISO for better market exposure
- Guidelines for (1) Risk Assessment; (2) Dissemination and Communication of Knowledge; (3) Monitoring and Warning Services; (4) Improving response Capability; and (5) Commitment of authorities and community at risk in sustainability of tsunami early warning systems

unesco
Intergovernmental Oceanographic Commission

The 6th Plenary Meeting of ISO/TC 292, Sydney, 11-16 March 2018

The 11th Plenary Meeting of ISO/TC 292, Virtual, 10 June 2022

5: Competency Training

unesco
Intergovernmental Oceanographic Commission

Competency is defined as “the ability to do something successfully or efficiently”

In time-critical, emergency situations, on-duty staff must competently:

- ❑ Understand the Warning Process
- ❑ Know their and other’s roles and responsibilities
- ❑ Use required tools and procedures
- ❑ Apply the relevant skills and expertise for their position
- ❑ Undertake their duties within the timelines

Must not develop and introduce untested new procedures on the fly

Competency training for each staff member must be conducted regularly

unesco
Intergovernmental
Oceanographic
Commission

THANK YOU