TEWS Supporting Tool

A visual-based approach to support multi-stakeholder work processes on tsunami warning chains

on behalf of the ICG/IOTWMS WG-1

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Warning chains are the backbone of end-to-end TEWS, connecting NTWCs with communities at risk

The process of consolidating and operating warning chains is often complex and involves many stakeholders, as well as many challenges. In IOTWMS, **we use graphics for visualizing warning chains as a tool** to support stakeholder in addressing these challenges.

This is how it started in the SOP Workshop 2011 in Jakarta…

…and this is the template we use nowadays in the IOTWMS
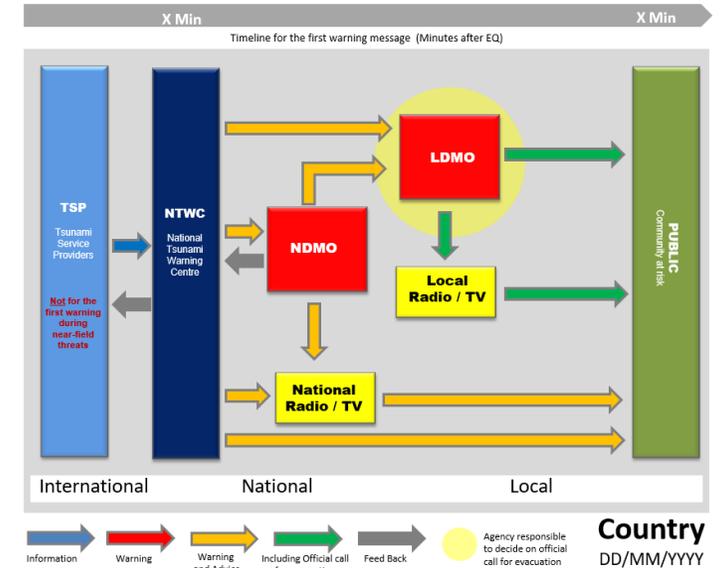
The features of the template

*The **timeline** provides information about the available time to run the warning dissemination process*

*A simplified graphical representation of the **end-to-end warning chain**, including all **key players** is at the heart of the approach*

*Coloured arrows indicate the **role & mandate** of institutions in regard to the type of information they can publish or pass on*

*Yellow circle shows institution responsible for **decision making on evacuation***

*Coloured arrows visualize how different **contents of warning information** are passed on. We distinguish between information, warning, guidance and official call for evacuation as well as feedback*

*Coloured arrows reaching the "Public" allow for easy check on the level of **redundancy** and **coherence***

*Warning chain graphics are a living document – Date shows **when last updated***
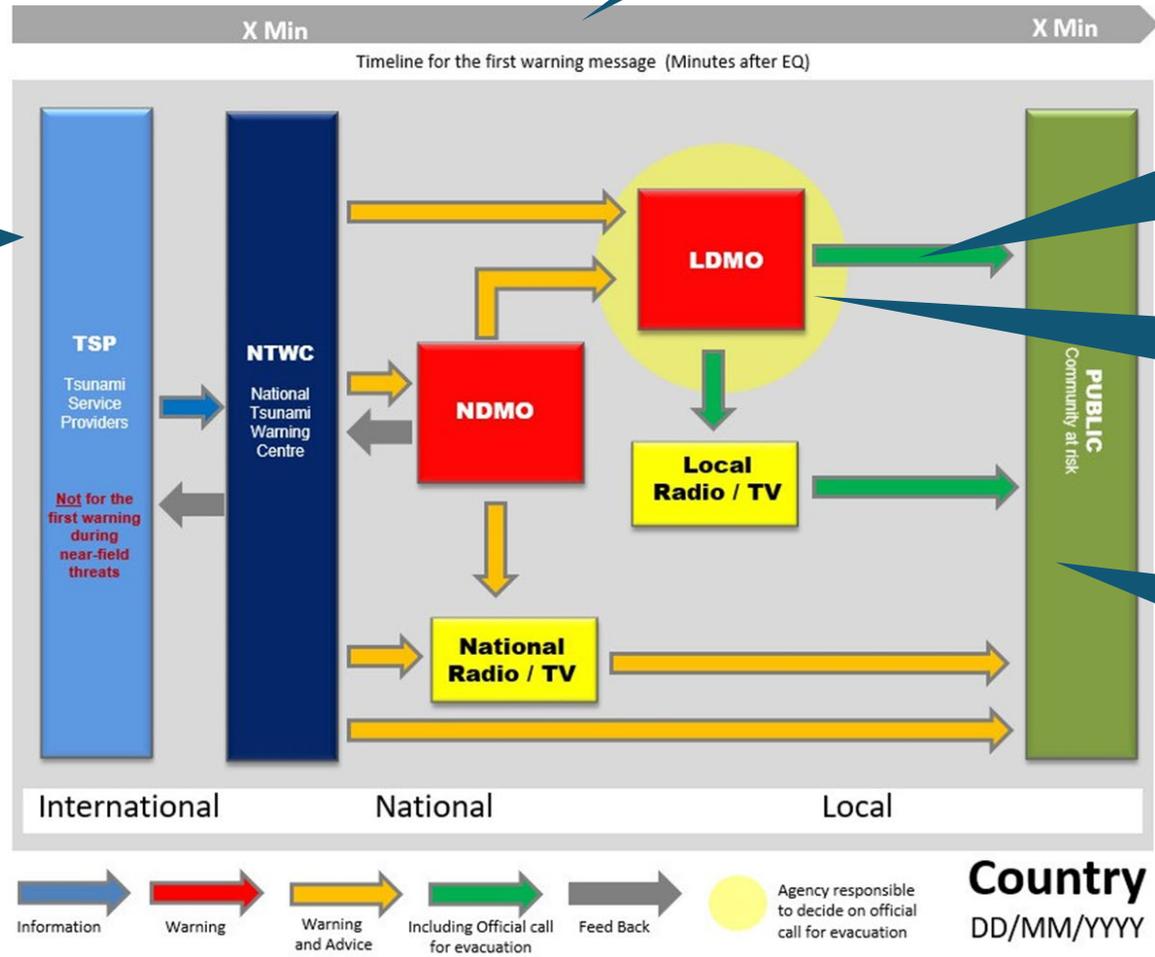
The features of the template

*The visualization of the **status of SOP development** helps to monitor the **functionality of the warning chain** and shows where action for improvement is needed*

*Position of the symbols remind that SOPs to operate the warning chain are needed at **institutional levels***
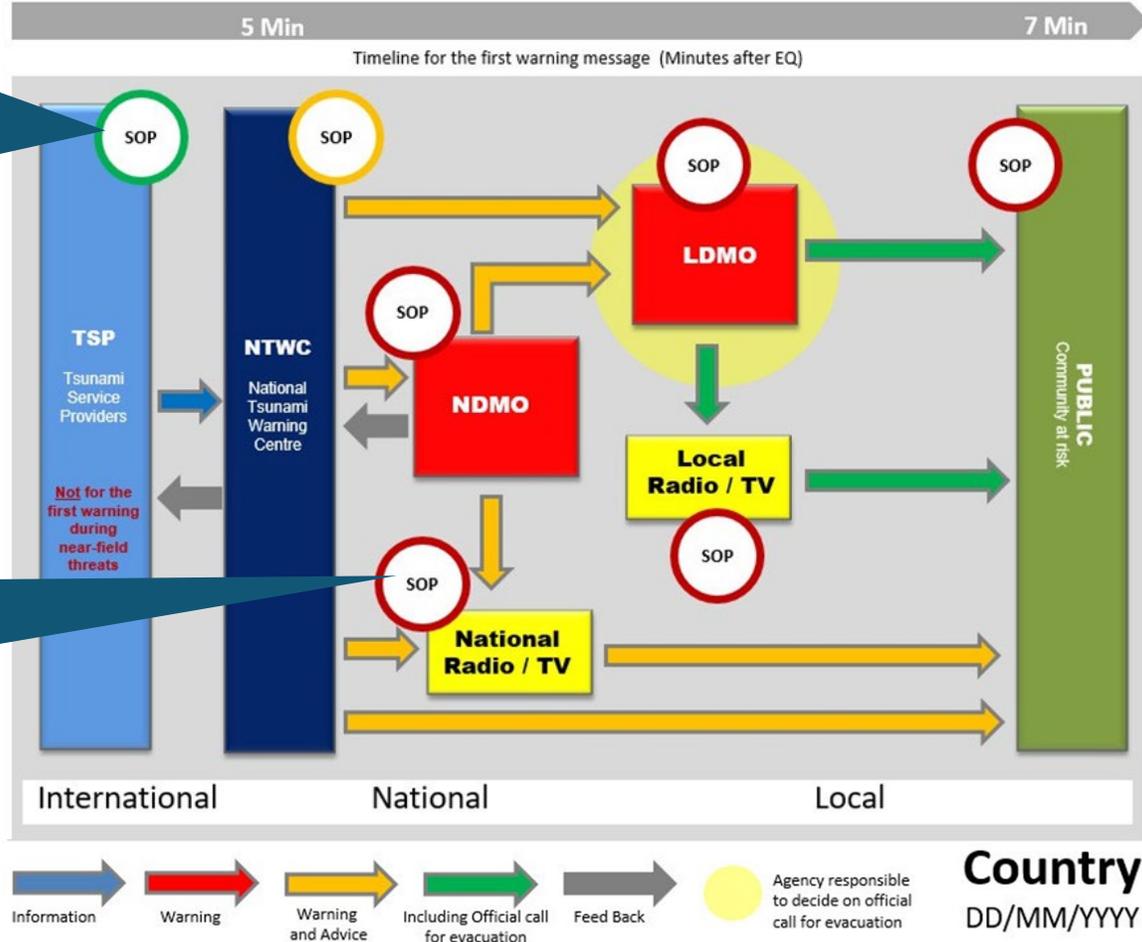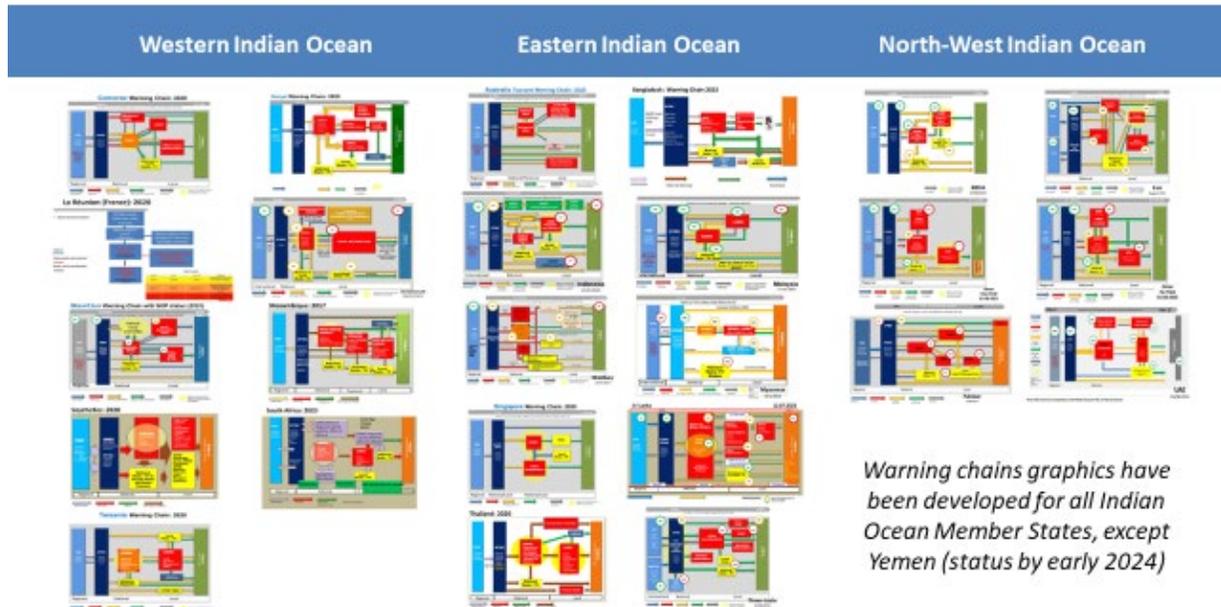
*SOPs must be integrated and **timeline-driven***

*A simple set of **colour codes** provides a quick overview*

The approach is fully integrated into IOTWMS working processes and adopted by all Member States since many years

| Western Indian Ocean | Eastern Indian Ocean | North-West Indian Ocean |

Warning chains graphics have been developed for all Indian Ocean Member States, except Yemen (status by early 2024)

Warning chains and SOPs have so far been designed exclusively for seismically induced tsunamis. Possible non-seismic events still need to be taken into account

IOTWMS Member States have adopted this approach from the very beginning and contributed significantly to its consolidation by developing, reviewing, and refining their national warning chain graphics

IOTWMS Member States use the tool…

- to **enhance and improve their national warning chains** and related **SOPs**
- to **routinely update their national warning chains** and review **status of SOPs**
- as a key reference for **practicing and testing warning chains and SOPs in IOWave exercises**
- for **sharing information on their warning process** internally and externally

IOTWMS experts use the tool…

- in **SOP trainings** to guide stakeholder on the development of timeline-driven and integrated SOPs
- for **regular assessments** of the warning chain and SOPs status in the IOTWMS and to develop **recommendations for support and capacity development**

A booklet provides an overview of the visual approach…

Strengthening Tsunami Warning Chains
A visual-based approach to support multi-stakeholder work processes

- **Short and informative** 13 pages including front & back cover
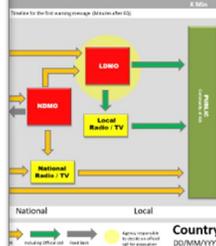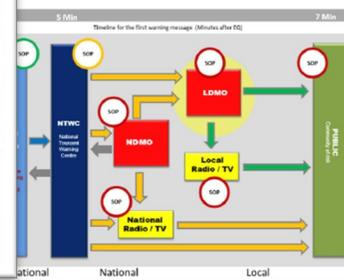- **Down to the point** through key messages & short explanations
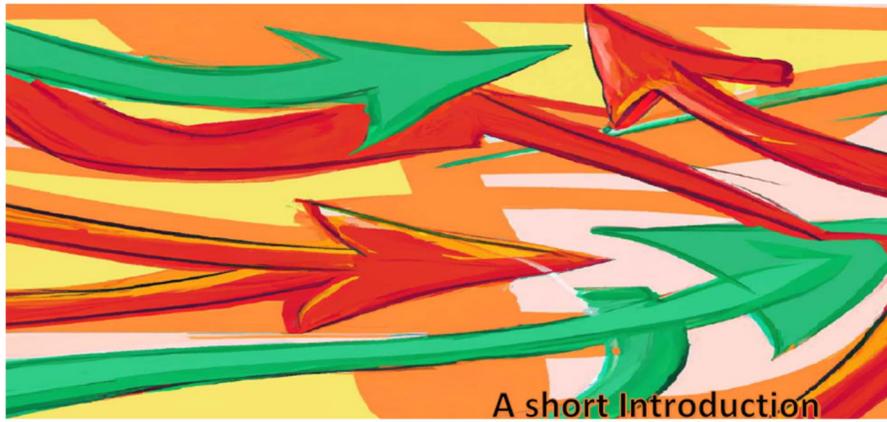
  - Describes **practical areas of application**
  - Can be used as **quick reference guide for users**

Acknowledgment

The booklet has been developed under the auspices of the ICG/IOTWMS as an output of Working Group 1 "Tsunami Risk, Community Awareness and Preparedness" with Harald Spahn as lead author and contributions from Working Groups 2 and 3, the Steering Group, IOTIC and the IOTWMS Secretariat.

Potential for use beyond IOTWMS

We see significant potential for this tool to also be used in other regions to support the work on warning chains and SOP development, as...

- it addresses an issue that is **relevant to the TEWS in all ocean basins**
- this approach is **universal and globally applicable**, and easy to transfer...
- ...and complements **IOC Manuals and Guides 76** by adding guidance for practical work on this topic
- "A picture is worth a thousand words" – The visual nature makes it a **universal language, facilitating shared understanding** (across language barriers)
- it has already been presented to **NEAMTWS** and created interest - Turkey and Greece have already tested it
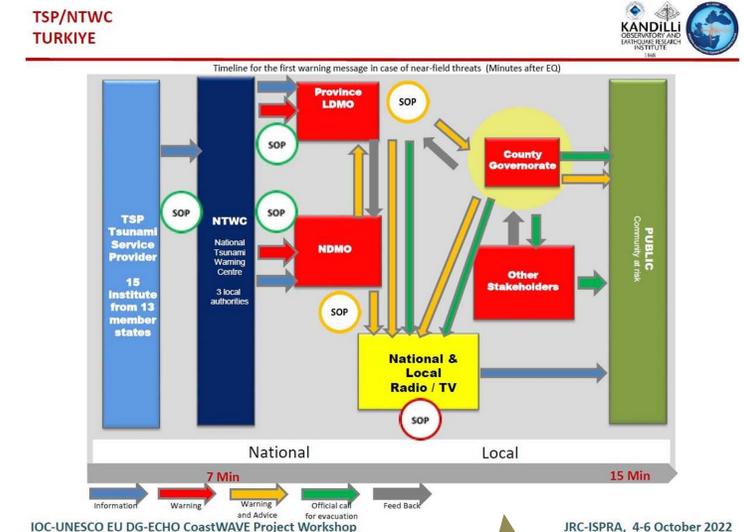
...applied in the NEAMTWS by Turkey

Sharing our experiences through Publications

Publication as an ICG/IOTWMS document

- Based on a recommendation of the IOTWMS Steering Group at its 19th Meeting in June 2025, Working Group-1 has revised the draft version of the Booklet on the Visual-based Approach for publication as an ICG document. The reviewed document is now scheduled to be adopted at the next ICG/IOTWMS meeting in November 2026.

Publication as an IOC Document

- The IOTWMS Steering Group also recommended that the document be submitted in parallel to the TOWS WG TTs for possible adoption as an IOC document.
- Accordingly, this document is hereby presented to the TOWS-WG Task Teams and submitted for approval.

THANK YOU