UNESCO/IOC – NOAA ITIC Training Program in Hawaii (ITP-TEWS Hawaii)
TSUNAMI EARLY WARNING SYSTEMS
AND THE PACIFIC TSUNAMI WARNING CENTER (PTWC) ENHANCED PRODUCTS
TSUNAMI EVACUATION PLANNING AND UNESCO IOC TSUNAMI READY PROGRAMME
15-26 September 2025, Honolulu, Hawaii

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Intergovernmental Oceanographic Commission

IOC Manual & Guides 82 (2020)

Preparing for Community Tsunami Evacuations: From inundation to evacuation maps, response plans and exercises

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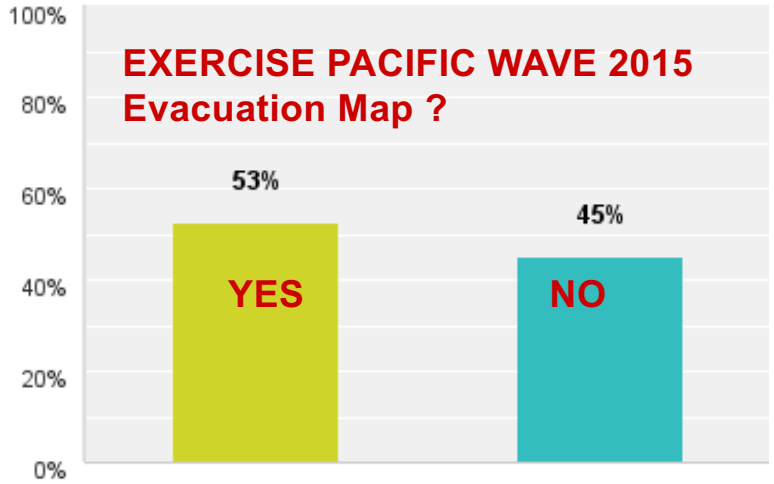
Pacific Community
Communauté du Pacifique

Motivation - PTWS Priority (2015+) – Preparedness

- **2007 – 2019:** Development of and changeover to forecast-based products (PTWC enhanced products, 2014; JMA NWPTAC, 2019)
- **2015 – 2020+:** At ICG/PTWS-XXVI (2015), Member States agreed next focus should be on Preparedness

- ***Communities must know what to do and where to go when a tsunami is imminent (> 50% lack plans)***
- ***ITIC proposed capacity building – Tsunami Evacuation Maps, Plans, and Procedures (TEMPP)***



TEMPP Training – developed as 2015-2017 Pilot

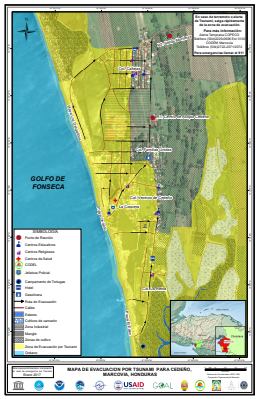
- ***Goal: Reliable evacuation maps by communities and govt***
- **Global standardized tools and methodologies**
- **Direct outcomes for country:**
  - ✓ Communities that know what to do and where to go
  - ✓ Country capability and tools to replicate community evacuation map process elsewhere
  - ✓ Community meets Tsunami Ready Intl guidelines

- **Pilot – Honduras, Central America, in Spanish**
- **Final Product: IOC Publication (Manual and Guides 82) – TEMPP** Review from ICGs, Global TOWS Inter-ICG TT DMP
- **TEMPP process results in UNESCO IOC Tsunami Ready**

TEMPP PROCESS - WORKSHOPS / TRAININGS 2015-17 PILOT (1.5 YRS = 5 1-week trainings)	DATES
TEMPP 1: Tsunami Inundation Modeling – ComMIT/MOST	27-31 July 2015
TEMPP 2: Seismic Tsunami Sources for Honduras Meeting	29 Feb– 1 March 2016
TEMPP 2: Inundation Mapping for Evacuation process	2-3 March 2016
TEMPP 3: Evacuation Mapping process, Intl Tsunami Ready guidelines	15-19 Aug 2016
TEMPP 4: Response Plans and SOPs, Socialization Awareness, Community Exercises	7-11 Nov 2016
TEMPP 5: Functional Exercise (PacWave17), Official TR Recognition Ceremony	15-17 Feb, 2017

TEMPP PROCESS - 2015-17 Pilot

Training 1/2- ComMIT, seismic sources, inundation modeling

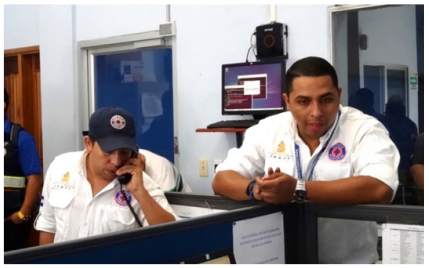


Training 3: Evacuation map, community consultation

Training 4: Awareness, Response Plan, Training 5: Exercise and debrief

Cedeño, Honduras (Feb 2017)

- Tsunami Drill – signage, schools, community
- Tsunami Ready recognition



Cedeño
Drill video

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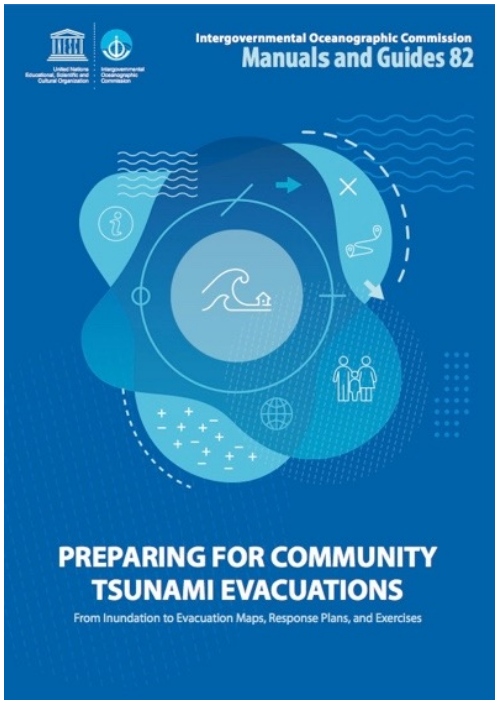
Describes TEMPP process. Consists of:

1. **Manual (Modules) (English, Spanish)**

   QUICK GUIDE (hard copy, EN, ES)

   Introduction, How-to-Steps, Objectives, Target Participants, Requirements, Methodology, Expected Results, Content, References, Glossary



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2. **Supplement 1 (Supplement to Modules) (English)**

   Detailed Module explanation, Templates, TEMPP Pilot docs, Best Practices

3. **Supplement 2**

   Step-by-Step Manual and tutorial:

   How to Create Evacuation Maps from Inundation Maps: ComMIT to QGIS (English)

4. **Specialized Documents** (next slide)

** OTHER REQUIREMENTS (not included)

- **DEM Acquisition – high-resolution bathy, topo, gridding**
- **Earthquake Tsunami Sources (IOC Tsu Sources Expert Mtgs)**

IOC MG 82 (2020) – Specialized Documents

1. HAZARD ASSESSMENT – INUNDATION MODELING

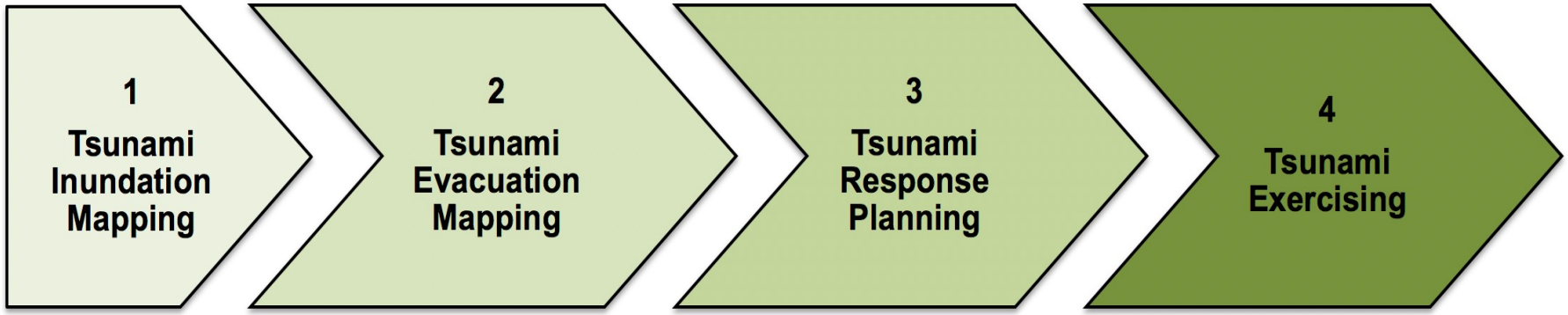
- Numerical Models in Hazard Assessment
- ComMIT tool manual (MOST model), including Appendices (abridged reqs, in Spanish) – inundation mapping for evacuation
- Seismic Worst-Case Scenarios for Tsunami Hazard Assessment (no credible sources)
- Establishing Tsunami Inundation for areas not-modeled or low-hazard (no history, low population, poor DEM)
- Tsunami Coastal Assessment Tool (TsuCAT) - exer scenario, PTWC msgs

2. COMMUNITY – EVAC MAP, RESPONSE, EXERCISES

- Best Practice Country Examples - Chile, Indo, Japan, NZ, Philippines, USA
- How to Create Evacuation Maps (templates)
- How to Create Community Tsunami Response Plans (templates)
- How to Create Community Tsunami Exercises (templates)

IOC Manual and Guide 82 (2019) - TEMPP

PREPARING FOR COMMUNITY TSUNAMI EVACUATIONS: FROM INUNDATION TO EVACUATION MAP, RESPONSE PLANS, AND EXERCISES

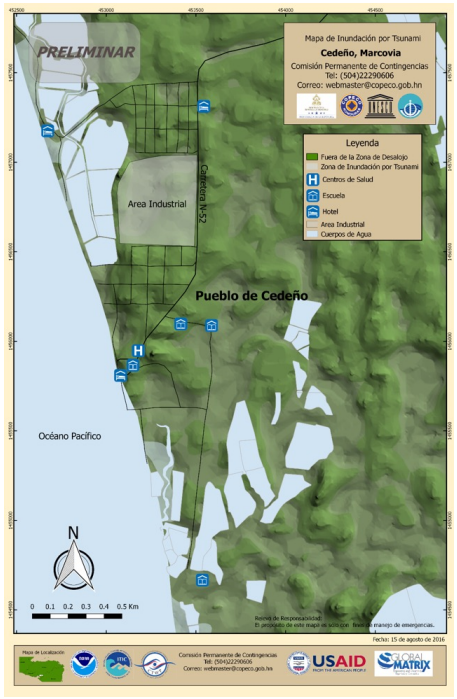


4 Foundation Blocks

- ***Key element of tsunami response involves evacuation, including self-evacuation of exposed people & key assets to safer areas***
- ***Effective and successful evacuations require proper planning by relevant authorities.***

Module 1 – Tsunami Inundation Mapping

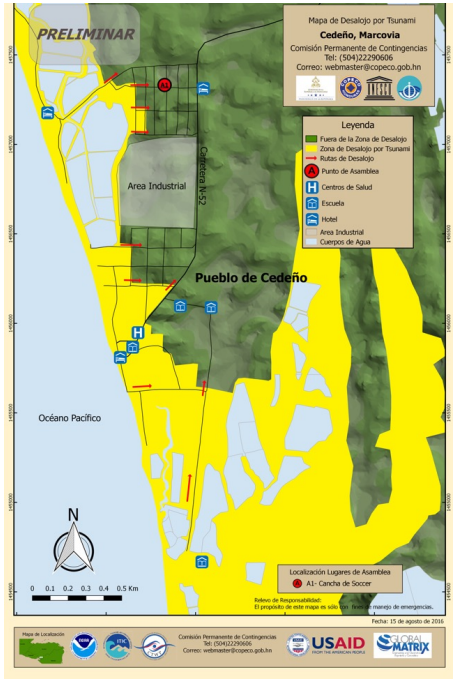
1. **Acquire required information**
2. **Learn basics of tsunami science and numerical modelling**
3. **Conduct tsunami modelling or no modelling**
4. **Create Inundation Map**



Inundation/flooding map developed for Cedeño, Honduras.

Module 2 – Tsunami Evacuation Mapping

1. Acquire required information
2. Identify Evacuation Zone
3. Identify Evacuation Sites, Assembly Areas, and Routes
4. Engage Community
5. Finalise Evacuation Map and Signage
6. Obtain Official Approval

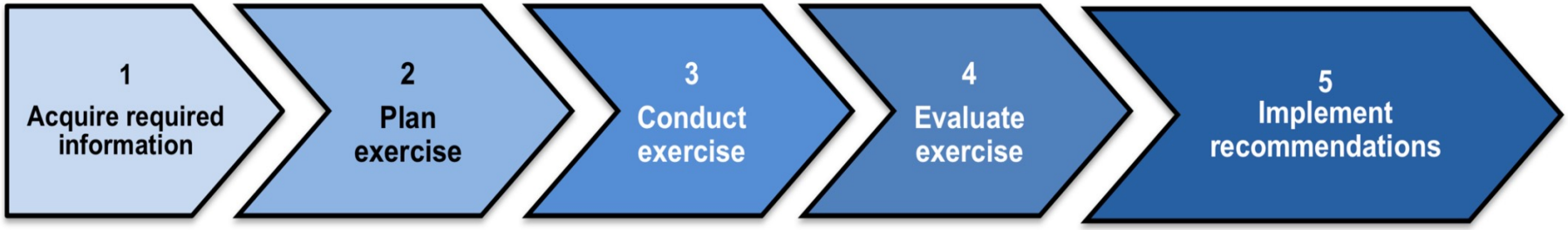


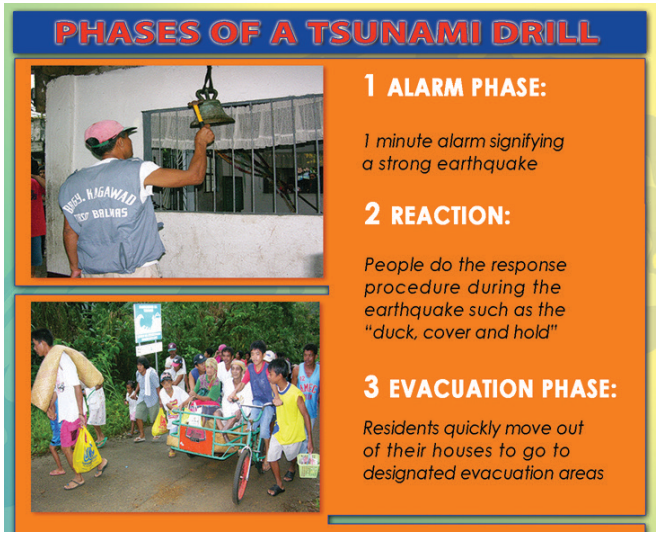
Evacuation map developed for Cedeño, Honduras.

Module 3 – Tsunami Response Planning

TSP Notification	Earthquake	Wave forecast	ETA	NTWC Alert Level	Emergency Response Action
Tsunami Threat Message	**Magnitude:** >7.0 **Depth:** <100km	≥ 1 m	<3 hrs	WARNING	Evacuate xxx zones
			3 - 6 hrs	WATCH	Prepare to evacuate
			>6 hrs	INFORMATION	Monitor for subsequent forecasts
		0.3 to 1 m	<3 hrs	ADVISORY	Evacuate beaches and harbours
			3 - 6 hrs	WATCH	Prepare to evacuate
			>6 hrs	INFORMATION	Monitor for subsequent forecasts
		< 0.3 m	-	INFORMATION	Monitor for subsequent forecasts

Module 4 – Tsunami Exercising





Developing a Tsunami-Prepared Community (Philippine Institute of Volcanology and Seismology, PHIVOLCS, 2008)

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Thank You

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