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# How to become Tsunami Ready ?

## 4.2 Available Tools and Support Training to achieve indicators

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# Training support for Tsunami Ready

- **What is Tsunami Ready? How to get Tsunami Ready?**

**Modality:**

- This training – in-person
- Ocean Teacher Global Academy (online, hybrid) – programme officials, community, facilitation

- **Achieving Indicators**

**Modality:** OTGA (pass test for certificate), in-person

**Topics:**

- **Tsunami Awareness** – 4-8 hrs, req for later course
- **TWC, TER SOP (IOC MG 76)** – 1 week
- **TEMPP** (Inundation, Evacuation, Response Plan, Exercise) (IOC MG 82) – 4 modules (1 week each)
- **Tsunami Early Warning System** – 2 week

## 3 Course breakdown



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3 Types of modules

	Course 1 Introduction to Tsunami Ready and the Indicators	Course 2 Implementing Tsunami Ready	Course 3 Facilitating Tsunami Ready
Module 1 Tsunami Ready for Decision Makers <i>(Gov Officials, NDMO, DDMO, NTWC)</i>	4 x lectures: # hours Training program (Incl. Quiz)		
Module 2 Tsunami Ready for Community <i>(Community Leader, Community DRM, NGO, DDMO)</i>	4 x lectures: # hours Training program (Incl. Quiz)	2 x lectures: # hours Training program (Incl. Quiz)	
Module 3 Tsunami Ready for Facilitators <i>(Community DRM, NGOs, Students, Youth groups, DDMO)</i>	4 x lectures: # hours Training program (Incl. Quiz)	2 x lectures: # hours Training program (Incl. Quiz)	4 x lectures: # hours Training program (Incl. Quiz)

**Module 1**  
**Tsunami Ready for**  
**Decision Makers**

Training for Government Officials i.e. from National or Local Disaster Management Offices, National Tsunami Warning Centres, Focal Points, and Donors

- 1 Courses
- 4 Lectures (Lecture 1 – 4)
- Approximately 4 x 45 minutes

**Module 2**  
**Tsunami Ready**  
**for Community**

Training for Community leaders, Non-Governmental Organizations (NGOs), Civil Society Organizations (CSOs), Academics and Scientists, Community members, Private, Business, Tourisms sectors, etc.

- 2 Courses (Course 1 - 2)
- 6 Lectures (Lecture 1 – 6)
- Approximately 6 x 45 minutes

**Module 3**  
**Tsunami Ready**  
**for Facilitators**

Training for Disaster Risk Reduction Facilitators for Disaster risk reduction workers and volunteers who are interested in assisting the community in capacity building for tsunami preparedness, etc.

- 3 Courses (Course 1 - 3)
- 10 Lectures (Lecture 1 – 10)
- Approximately 11 meetings x 45 minutes



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Course 1  
Introduction to  
Tsunami Ready

**Lecture 1: What is Tsunami Ready and what are the benefits to the Community?**

**Lecture 2: What is the process for implementing Tsunami Ready?**

**Lecture 3: Overview of the Tsunami Ready Indicators**

**Lecture 4: How do the indicators relate to each other and the community?**

Course 2  
Implementing  
Tsunami Ready

**Lecture 5: How does a community start to implement Tsunami Ready?**

**Lecture 6: Who are the stakeholders and technical organisations involved?**

Course 3  
Facilitating  
Tsunami Ready

**Lecture 7 : How to achieve the indicators – ASSESSMENT**

**Lecture 8 a&b : How to achieve the indicators – PREPAREDNESS**

**Lecture 9 : How to achieve the indicators – RESPONSE**

**Lecture 10 : Engaging the community in a participatory approach**

# Tsunami Ready Courses (available in 2023/2024)



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3 Course breakdown

	Introduction to Tsunami Ready and the Indicators	Implementing Tsunami Ready	Facilitating Tsunami Ready
Tsunami Ready for Officials and Programme Implementors	4 x lectures 4 x 45 minutes		
Tsunami Ready for Community	4 x lectures 4 x 45 minutes	2 x lectures 2 x 45 minutes	
Tsunami Ready for Facilitators	4 x lectures 4 x 45 minutes	2 x lectures 2 x 45 minutes	4 x lectures 4 x 60 minutes

3 Types of modules



**Course 1**  
Introduction to Tsunami Ready & the Indicators

- What is Tsunami Ready
- Why is it important
- What is the benefit of implementing TR
- What are the indicators
- Why are these indicators

**Course 2**  
Implementing Tsunami Ready

- What do community do to start to implement TR
- Who are the stakeholder and the technical organization
- How to approach the organizations

**Course 3**  
Facilitating Tsunami Ready

- What does each of these indicator means and the relation of each indicators
- How to work on each of the Indicators

**Module 1**  
Tsunami Ready for Officials and Programme Implementors (1 Course)

The training is targeted for Government Officials (i.e. from National or Local Disaster Management Offices, National Tsunami Warning Centres, Gov Institutions) and Programme / Project planner and implementor (Donors, Funding agencies), etc.

**Module 2**  
Tsunami Ready for Community (2 Courses)

The training is targeted for Community leaders, Non-Governmental Organizations (NGOs), Civil Society Organizations (CSOs), Academics and Scientists, Community members, Private, Business, etc.

**Module 3**  
Tsunami Ready for Facilitators (3 Courses)

The training is targeted for Disaster Risk Reduction Facilitators for Disaster risk reduction workers and volunteers who are interested in assisting the community in capacity building for tsunami preparedness, etc.

# Tsunami Awareness – 3 Modules

1. Tsunami Basics – 1, 2
2. Tsunami Warning Systems – 1, 2
3. Tsunami Preparedness – 1, 2

### INTRODUCTION

**Tsunami** – The Japanese term meaning wave (tsunami) in a harbour (tsu). A series of travelling waves of extremely long length and period, usually generated by disturbances associated with earthquakes occurring below or near the ocean floor (also called seismic sea wave and, incorrectly, tidal wave). Volcanic eruptions, submarine landslides, and coastal rock falls can also generate tsunamis, as can a large meteorite impacting the ocean (ITIC, Glossary, 2019).

According to the Global Historical Tsunami Database, tsunamis that cause damage or deaths near their source occur approximately twice per year.

Tsunamis that cause damage or deaths on distant shores (more than 1,000 kilometers, 620 miles, away) occur about twice per decade.

Ref: [Tsunami Strike: Japan](#)

### APPROACHING THE COAST

Because the speed of a tsunami depends on the depth of the water it is traveling through, the deeper the water, the faster the tsunami moves. As tsunamis have very long wavelengths (tenths or hundreds of kms) they might be barely noticeable in the deep ocean.

Depth meters	Wavelength kilometers	Speed km/h
7,000	213	943
4,000	213	713
2,000	119	504
500	48	199
50	25	79
10	10.5	34

When tsunamis propagate into shallow water near the coast they slow down (as depth decreases) wavelengths decrease and consequently waves grow in height, and currents intensify.

Close to the shore, most tsunamis slow to the speed of a car, approximately 30 to 50 km/h. Just note you can not run away: the 100m world recordist runs 100m in app 10 seconds or 36km/h.

### TSUNAMI WARNING CENTRE

The mission of a Tsunami Warning Centre (TWC) is to provide tsunami early warnings on potentially destructive tsunamis.

It provides this information to emergency officials, and as appropriate, directly to the public. In order to carry out its mission, the TWC uses local and global seismographic networks transmitting seismograms in real-time to continuously monitor seismicity in order to locate and size potentially tsunami-generating earthquakes.

TWC also use sea level networks reporting data in real and near real-time to verify the generation and evaluate the severity of a tsunami. TWC then disseminate tsunami advisory and warning messages to designated national or local emergency response authorities for their subsequent action.

South Korea National Tsunami Warning Center, Korea Meteorological Administration

### INDIVIDUAL PREPAREDNESS. LEARN NATURAL WARNING

# FEEL

- Big local earthquakes may cause tsunamis
- FEEL the ground shaking severely, or for a long time?

**IF the earth shakes a tsunami may follow!**

The earthquake shakes the coast before the arrival of the tsunami. The shaking is a natural warning for people to run to higher ground.

### THE TRANSATLANTIC TSUNAMI THAT SHOCKED EUROPE. LISBON 1st NOVEMBER 1755

The 1755 Great Lisbon earthquake and tsunami is the greatest seismic generated disaster that shook western Europe and North Morocco and triggered a transatlantic tsunami that impacted the Caribbean and Brazil. Its direct cost is evaluated between 32-48% of the Portuguese GDP.

The tsunami impacted the Caribbean islands 8 hours after the earthquake.

Water height	0-1 m	1-2 m	2-6 m	5-10 m	10+
Title Gauges / Deep Ocean Gauges	1	1	1	1	1

### COMMUNICATION INFRASTRUCTURE

### COMMUNITY PREPAREDNESS. IDENTIFY SHELTER AND ASSEMBLY POINTS

## Shelter Zones should be:

- Outside the inundation zone
- Reachable within a short walking distance
- Easily identified by locals and visitors and available to all
- In flat coastal locations with no tall buildings or other shelter sites, people should head as far inland as they can.

### ACTIVITY 3.8

Read up about why the 5th November is the World Tsunami Awareness day  
Hint: Inamura no Hi



# ITIC Training - TEMPP

- ❑ **Tsunami Evacuation Maps, Plans, and Procedures (TEMPP) – IOC MG 82** *Preparing for Community Tsunami Evacuations: from inundation to evacuation maps, response plans and exercises (2020)*
- ❑ Manual (English, Spanish)
- ❑ Supplement 1 (Detail Module Explanations, Guidance) (English)
- ❑ Specialized Documents

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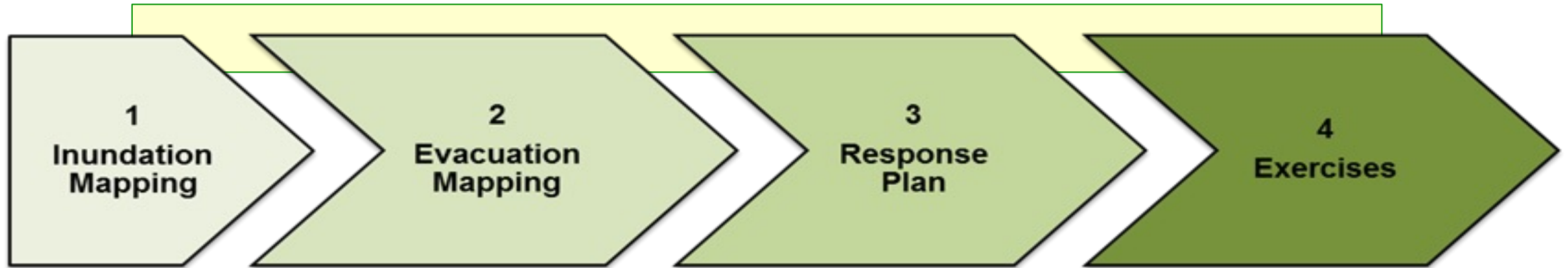


**Preparing for Community Tsunami Evacuations**  
**From Inundation to Evacuation Maps, Response Plans, and Exercises** ... communities knowing what to do and where to go



## 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.*

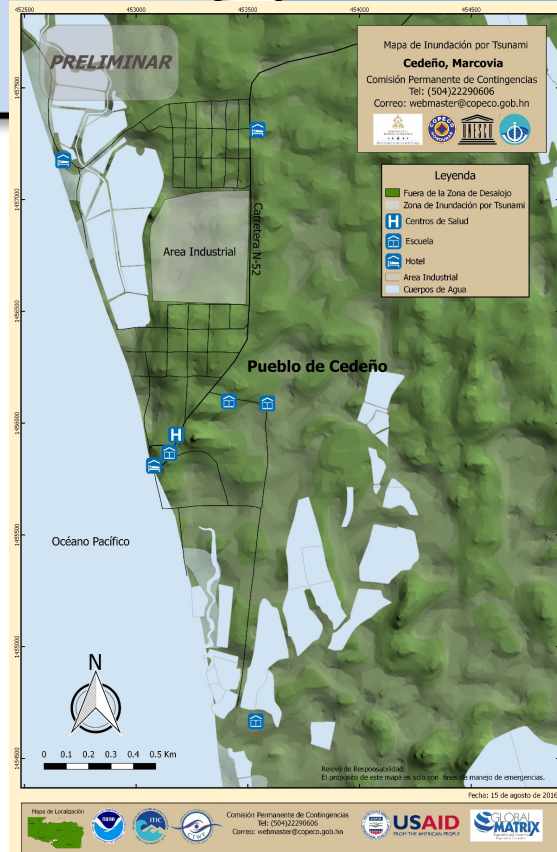
# Module 1 – Inundation Mapping

1 Establish the required information

2 Learn the basics of tsunami science and numerical modelling

3 Conduct tsunami modelling or no modelling

4 Create an inundation map



Inundation/flooding map developed for Cedeño, Honduras.

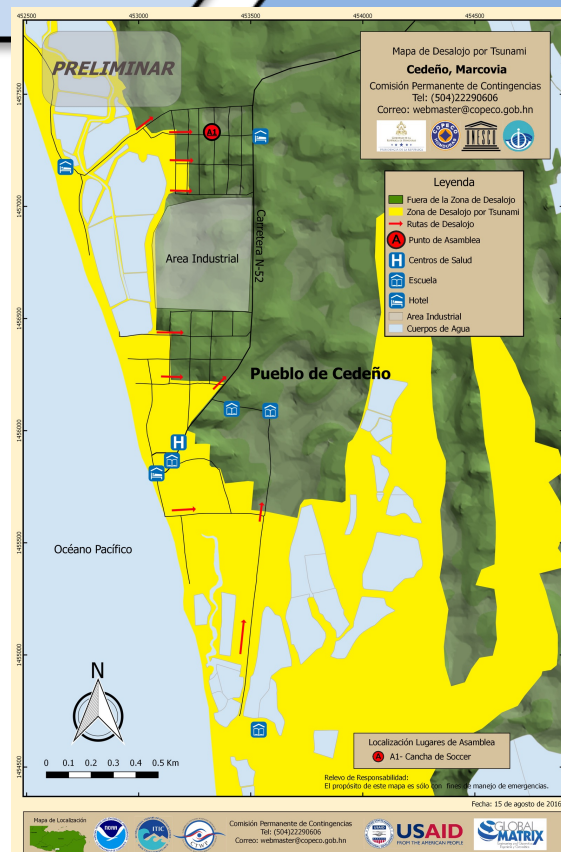
# Module 2 – Evacuation Mapping

1 Establish the required information

2 Learn the basics of tsunami science and numerical modelling

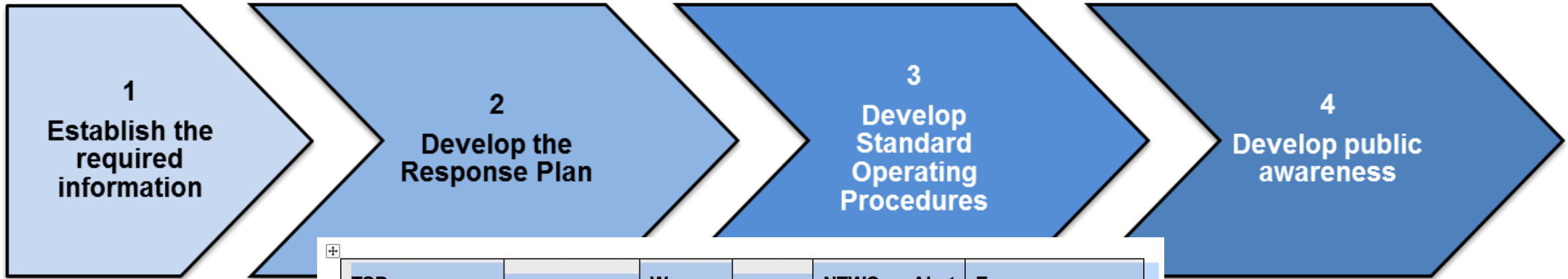
3 Conduct tsunami modelling or no modelling

4 Create an inundation map



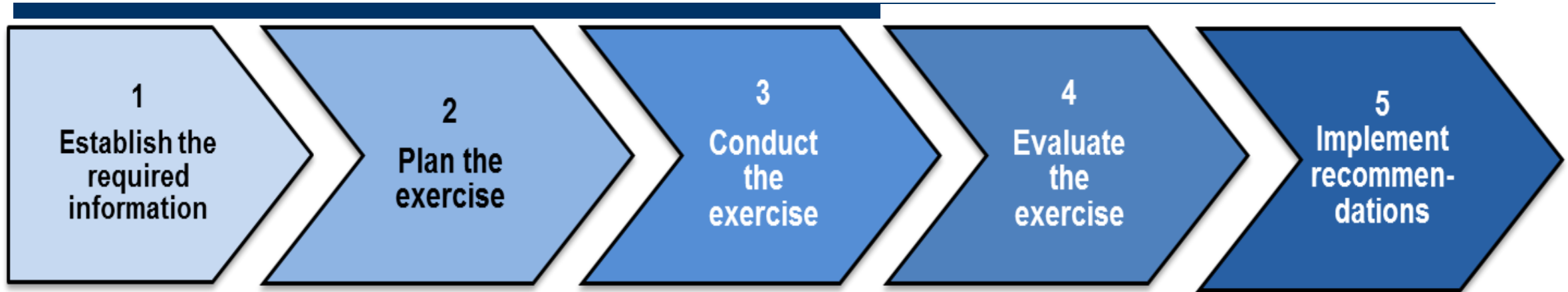
Evacuation map developed for Cedeño, Honduras.

# Module 3 – Tsunami Response Planning



TSP Notification	Earthquake	Wave forecast	ETA	NTWC Level	Alert	Emergency Response Action
<b>Tsunami Threat Message</b>	<b>Magnitude:</b> >7.0 <b>Depth:</b> <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 – Evacuation Exercising



### PHASES OF A TSUNAMI DRILL



**1 ALARM PHASE:**  
1 minute alarm signifying a strong earthquake

**2 REACTION:**  
People do the response procedure during the earthquake such as the "duck, cover and hold"



**3 EVACUATION PHASE:**  
Residents quickly move out of their houses to go to designated evacuation areas

**4 ASSEMBLY PHASE:**  
Families from the same area or puroks should group together to better facilitate headcount/ accounting of residents



**5 HEADCOUNT PHASE:**  
How many are expected to arrive based on barangay population information?

**6 DRILL TERMINATION:**  
The drill master should inform the participants that the drill has ended



**7 POST-DRILL EVALUATION:**  
Assessing the conduct of drill is important for improving future activities



# IOC MG 82 – Topics, Templates, etc

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## 1. HAZARD ASSESSMENT – INUNDATION MODELING

- Numerical Models in Hazard Assessment
- ComMIT tool (MOST model) – 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)
- Tsu Coastal Assessment Tool (TsuCAT) - exercise scenario, PTWC msgs

## 2. COMMUNITY – EVAC MAP, RESPONSE, EXERCISES

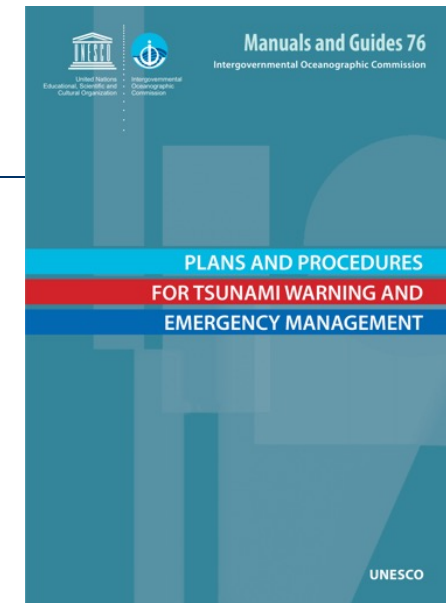
- Best Practice Country Examples - Chile, Indonesia, Japan, New Zealand, Philippines, USA
- How to Create Evacuation Maps (templates)
- How to Create Community Tsunami Response Plans (templates)
- How to Create Community Tsunami Exercises (templates)



# ITIC Training – SOPs

- **Tsunami Warning Center and Tsunami Emergency Response Standard Operating Procedures (TWC TER SOPs) – IOC MG 76** *Plans and Procedures for Tsunami Warning and Emergency Management, Guidance for countries in strengthening tsunami warning and emergency response through the development of Plans and Standard Operating Procedures for their warning and emergency management authorities (2017)*
- **Manual (English)**

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# THANK YOU

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