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UNESCO/IOC Tsunami Ready Recognition Programme

3.3 Preparedness Indicators – Community Evacuation Map, Signage, Outreach and Public Awareness, Exercise

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International Tsunami Information Centre (ITIC)*



USAID
FROM THE AMERICAN PEOPLE

Tsunami Ready Indicators



UNESCO IOC TSUNAMI READY INDICATORS

I ASSESSMENT (ASSESS)

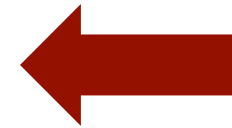
- 1 ASSESS-1. Tsunami hazard zones are mapped and designated
- 2 ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated
- 3 ASSESS-3. Economic, infrastructural, political, and social resources are identified

II PREPAREDNESS (PREP)

- 4 PREP-1. Easily understood tsunami evacuation maps are approved
- 5 PREP-2. Tsunami information is publicly displayed
- 6 PREP-2. Outreach and public awareness and education resources are available and distributed
- 7 PREP-3. Outreach or educational activities are held at least three times a year
- 8 PREP-4. A community tsunami exercise is conducted at least every two years

III RESPONSE (RESP)

- 9 RESP-1. A community tsunami emergency response plan (ERP) 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



Prep-1 Easily understood tsunami evacuation maps are approved

The evacuation map should:

- * show evacuation zones, routes, safer areas as higher ground or tsunami shelter, assembly areas, critical and sensitive facilities
- * use the tsunami hazard map as a basis for its preparation (deliverable of ASSESS-1)
- * The community should be involved in its preparation to incorporate local knowledge



Evacuation map in Praia da Batata, Lagos, Portugal.



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



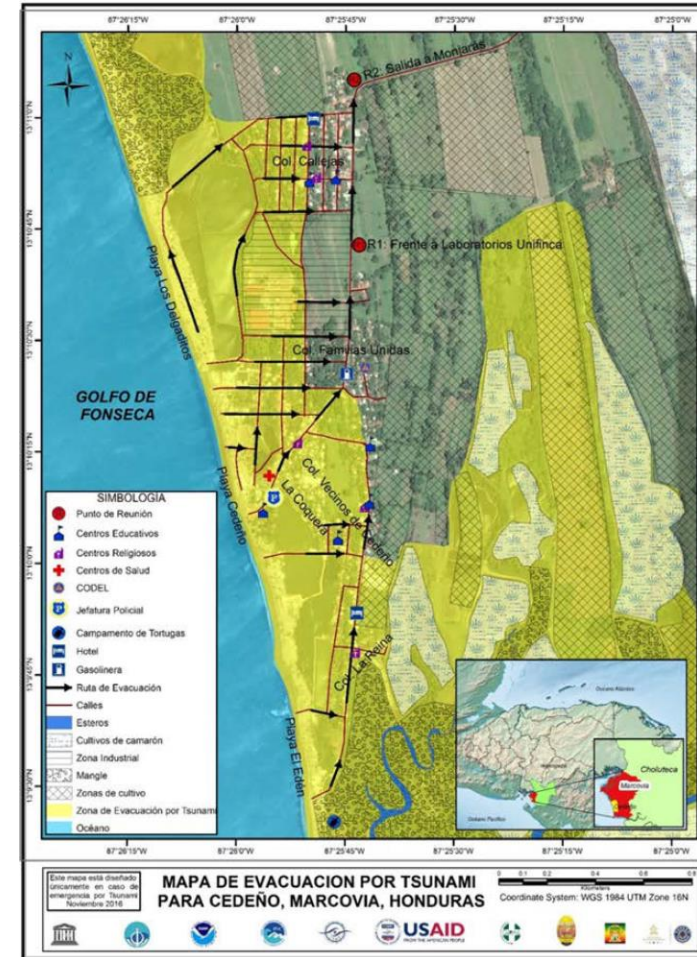
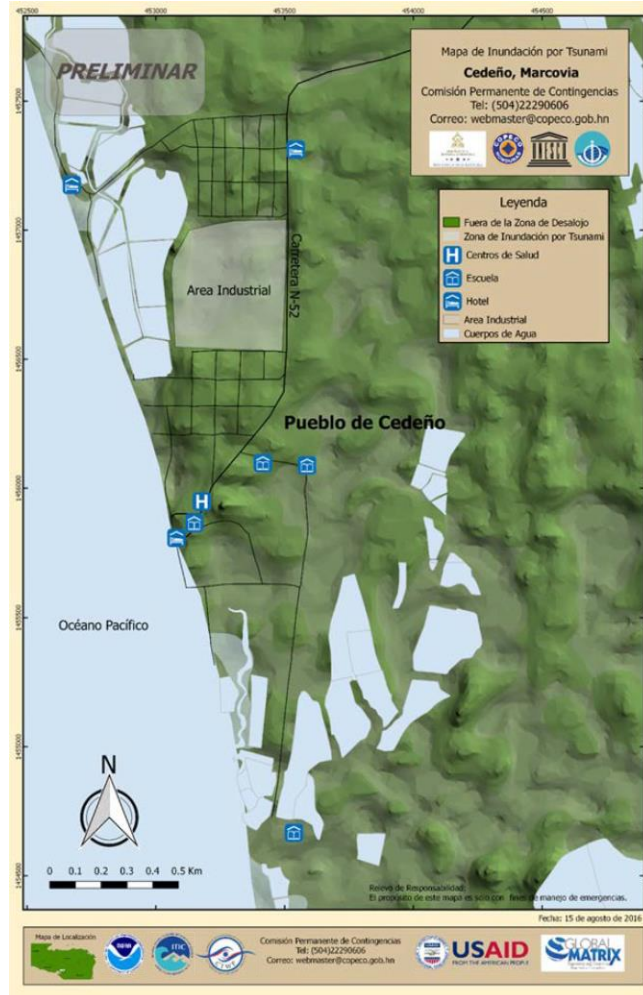
Steps to develop evacuation maps

Evacuation maps should be simple and easy to read and should include essential information

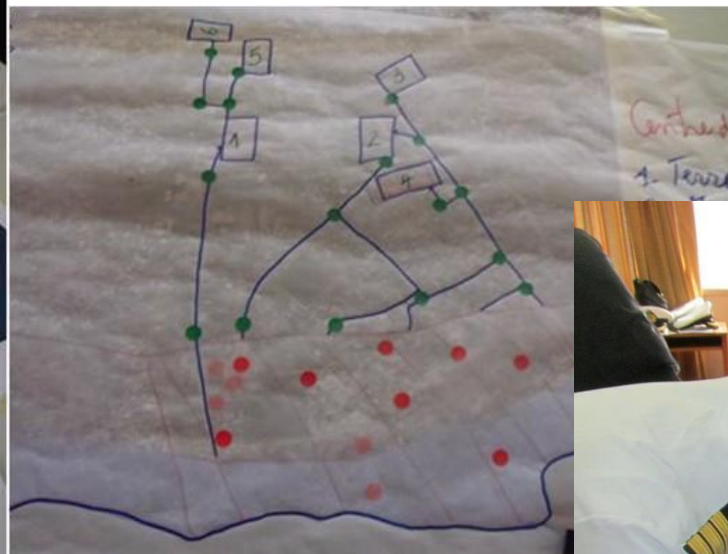
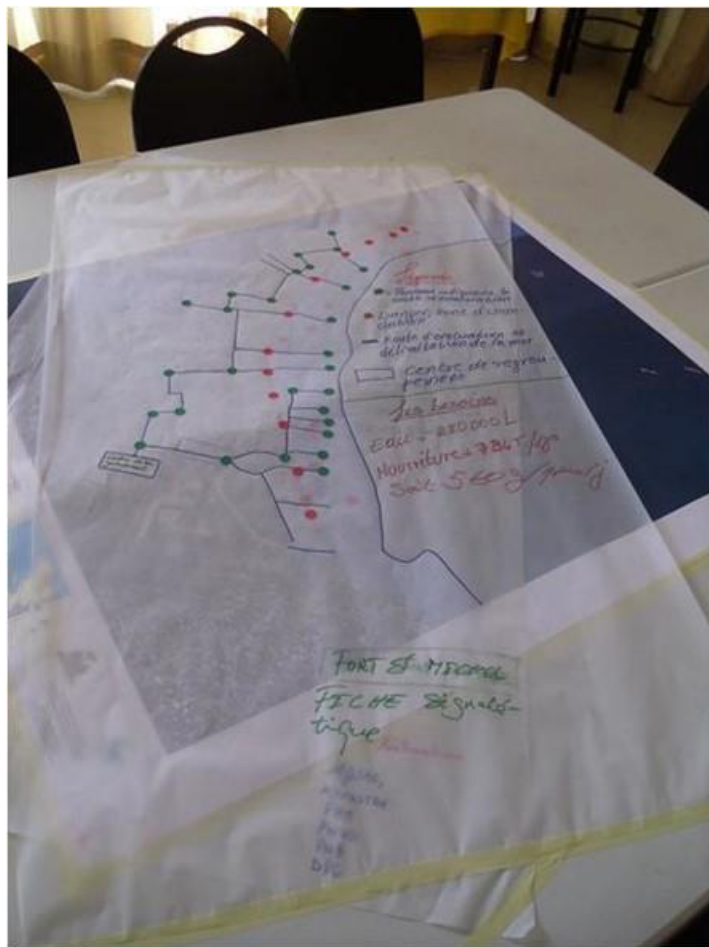
The following 6 steps should be followed to develop evacuation maps:



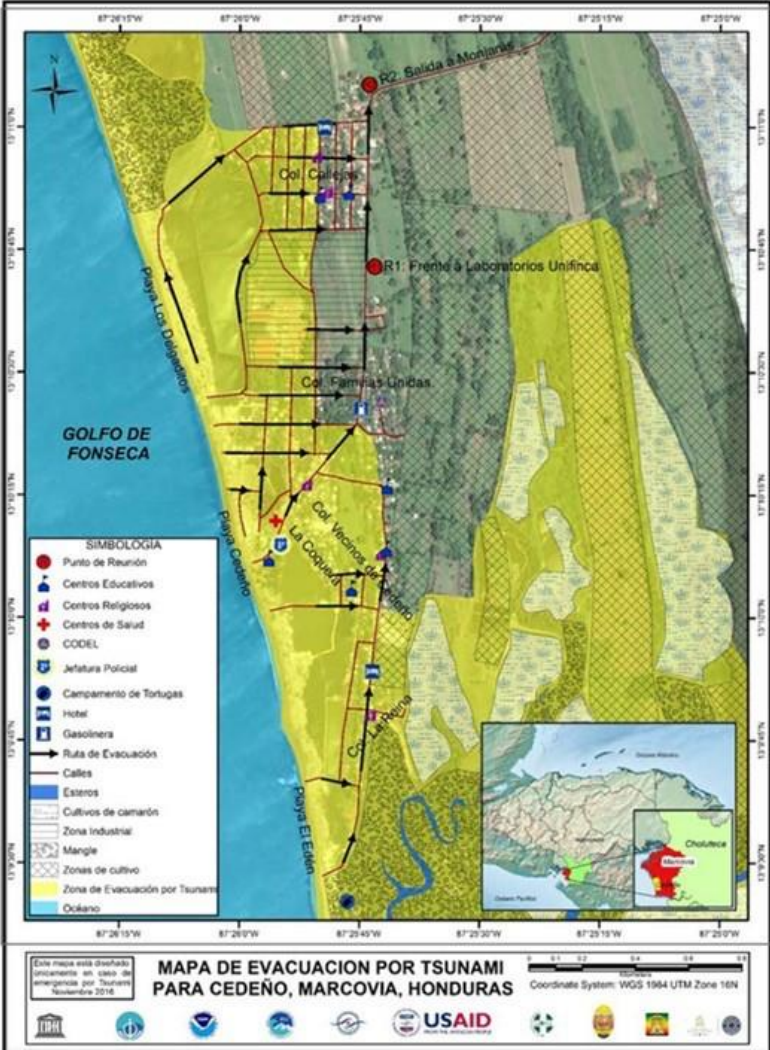
From inundation map to evacuation map – example from Cedeño, Honduras



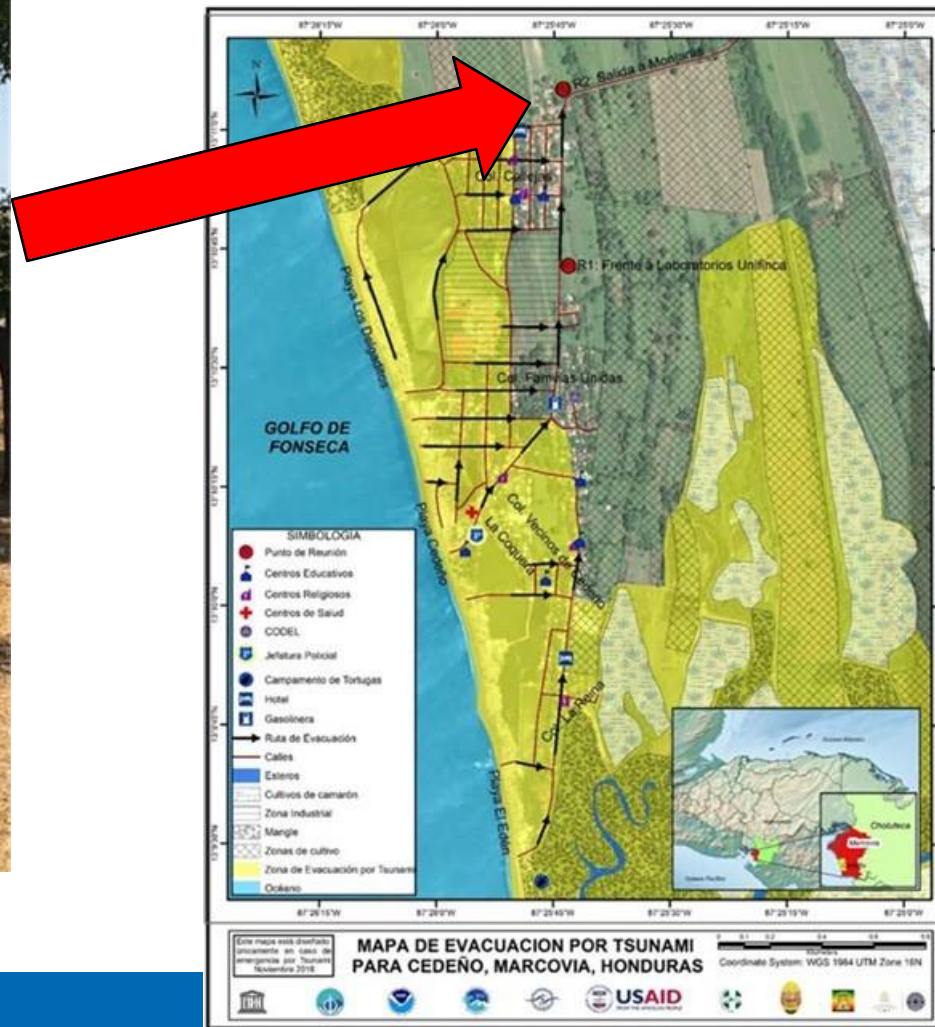
Working on Evacuation Maps



Sensitive Facilities – Cedeño, Honduras



Meeting Point – Cedeño, Honduras example



Community Engagement – Cedeño, Honduras



Tsunami Evacuation Procedure

- If you feel an earthquake - protect yourself**
 - Don't panic!
 - Drop, cover and hold!
- After an earthquake, be aware that a tsunami may follow**
 - Move away from the beach immediately as a precaution measure!
 - Look for more information through TV and Radio!
- After a strong and prolonged earthquake, evacuate immediately!**
 - Don't wait for an official warning, leave the **RED ZONE** immediately if possible or look for shelter in higher buildings
 - If you are around Pratama Street, look for shelter in one of the hotels with higher floors
 - As a visitor in a hotel, please follow the instructions of hotel staff
- The sound of the siren is the official call for evacuation**
 - If the siren sounds, follow the evacuation procedure as indicated above (No. 3)!

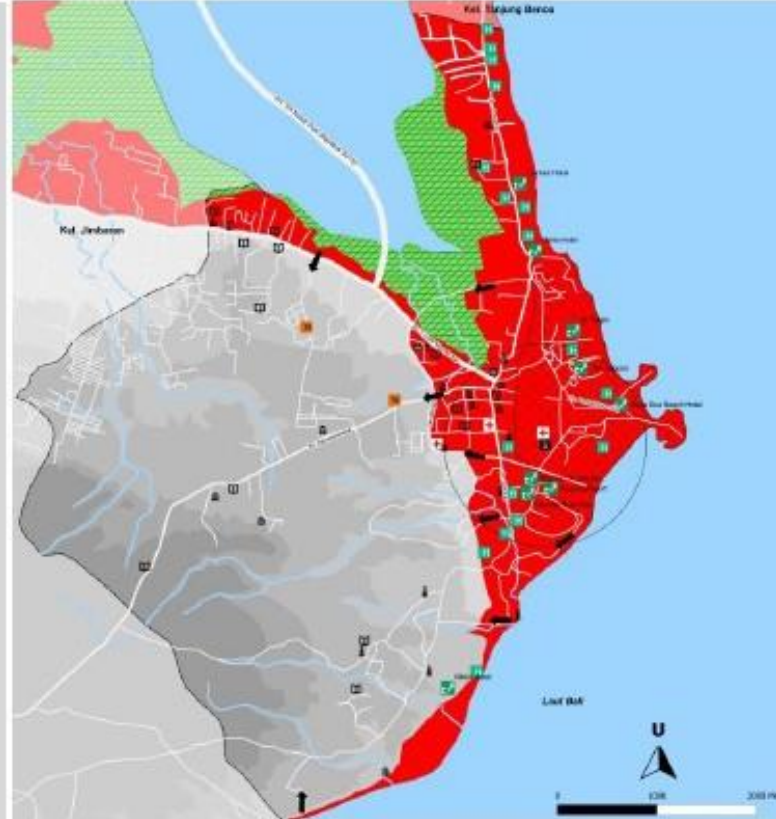
Be aware that the siren may not be heard in all areas.

After the first tsunami wave, more waves are likely to come!

Wait for an official "All Clear" message before leaving shelter

*Please note that BTDC has its own procedure

Tsunami Evacuation Map for Benoa Peta Evakuasi Tsunami di Kelurahan Benoa



Legend/Legends		
■ Tsunami Risk Zone Zona Bahaya Tsunami	Siren	Continuity Hall Sala Bina
■ BTDC Area Kawasan BTDC	Major Vertical Evacuation Building Bangunan Evakuasi Vertikal Utama	Tomb Makam
■ Safe Zone/ Zona Aman	Hotel with 3 Floors or more Hotel bertingkat 3 atau lebih	Traditional Market Pasar
■ Height of 25 m Ketinggian 25 m	Assembly point Titik Berhenti	Street Mark Jalan
■ Height of 50 m Ketinggian 50 m	Hospital RS/Puskesmas	River/Sea Sungai/Laut
■ Height of 75 m Ketinggian 75 m	School	Administrative Border Batas Administrasi
■ Height of 100 m Ketinggian 100 m	Village Office Kantor Kelurahan	Highground Puncak Bukit
■ Height of 150 m Ketinggian 150 m		

December / Desember 2012

Further Information / Informasi lebih lanjut:
BPBD Kabupaten Badung
Jln Raya Raya Sampid, Mengwi
Tel. 0361-7511166

Prosedur Evakuasi Tsunami

- Jika merasakan gempa bumi - lindungi diri anda**
 - Jangan panik
 - Merunduk, berlindung dan berpegangan
- Setelah gempa bumi, sadari bahwa tsunami mungkin terjadi**
 - Segera tinggalkan daerah pantai sebagai langkah pencegahan awal
 - Carilah informasi lebih lanjut melalui TV dan Radio
- Setelah gempa bumi yang kuat dan lama, Segera Evakuasi!**
 - Jangan menunggu peringatan resmi, segera tinggalkan **ZONA MERAH** jika memungkinkan atau mencari tempat berlindung yang lebih tinggi
 - Jika anda berada di sekitar Jln. Pratama, segera berlindung di bangunan bertingkat 3/lebih
 - Jika anda pengunjung, ikuti arahan dari karyawan hotel
- Bunyi sirene adalah panggilan resmi evakuasi**
 - Jika sirene berbunyi, ikuti prosedur evakuasi seperti diatas (No. 3)!

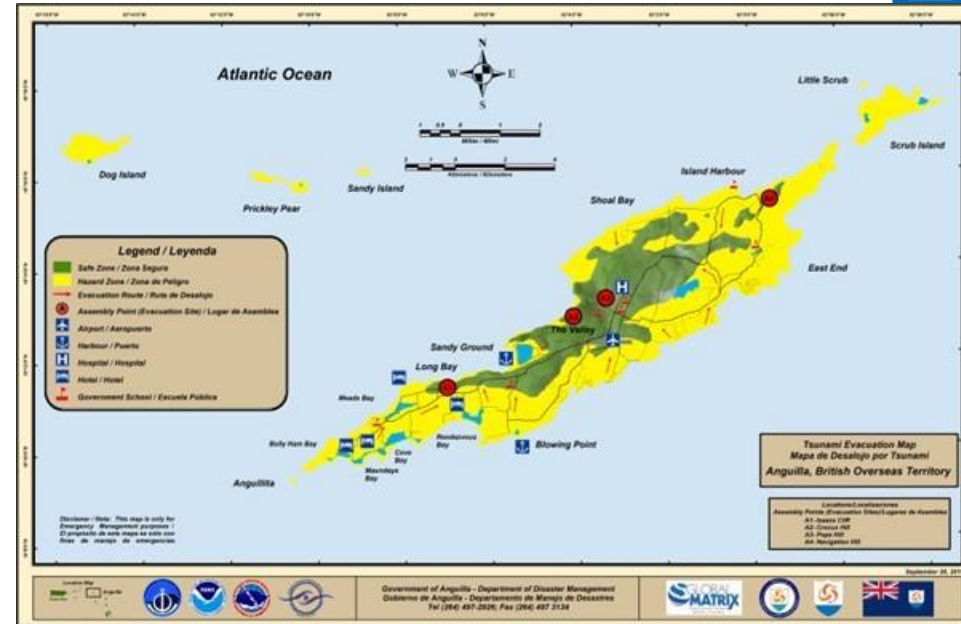
Sadari bahwa mungkin bunyi sirene tidak terdengar di semua area.

Setelah gelombang pertama datang, gelombang yang lain mungkin akan menyusul.

Tunggu pemberitahuan resmi "Tsunami telah berakhir" sebelum meninggalkan tempat perlindungan

*Catatan: Ada prosedur khusus di area BTDC

Haiti



Anguilla









Puerto Rico



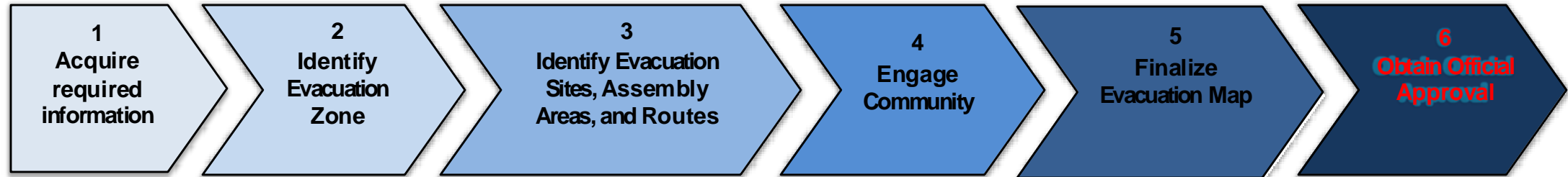
Christ Church West, Barbados (Caribbean)



Text on the back of an Evacuation Map Cedeño, Honduras

<h3>Mensajes Oficiales de Tsunami para Honduras</h3>	<h3>En Honduras Sí Ocurren Tsunamis</h3>	<h3>Alarma Personal Para Terremotos y Tsunamis LOCALES</h3>
 <p>Alerta Roja</p> <ul style="list-style-type: none"> • Impacto de Tsunami Confirmado • Mantenerse en los puntos de reunión • Siga las instrucciones de los encargados de emergencias 	<p>Los Tsunamis en Honduras no son tan frecuentes pero sí han ocurrido y pueden volver a ocurrir en cualquier momento. Las costas Sur y Norte son vulnerables.</p> <p>En Centro América han ocurrido unos 49 tsunamis desde los tiempos coloniales. Se generaron a consecuencia de terremotos en fallas cerca a las costas del Pacifico, como del Caribe y también distantes .</p> <p>Uno de los tsunamis que afectó las costas hondureñas ocurrió el 4 de agosto de 1856. El mismo se generó en el Golfo de Honduras cerca de Belice y bañó toda la costa norte: Tela, La Ceiba, Trujillo y llegó hasta Gracias a Dios.</p> <p>También se han registrado tsunamis en la parte sur, en el Golfo de Fonseca.</p>	<p>Los Terremotos ocurren de forma súbita, y en el caso que sean cercanos y generen tsunamis, las olas pueden llegar antes que le llegue una alerta oficial. Siga estas recomendaciones:</p>
 <p>Alerta Amarilla</p> <ul style="list-style-type: none"> • ¡Peligro de Inundación! • Si está en la zona de evacuación, salga, <i>Diríjase</i> hacia los puntos de reunión • Siga las instrucciones de los encargados de emergencias 	<h3>¿Qué es un Tsunami?</h3>	<p>Protéjase durante el terremoto: Agáchese, Cúbrase y Sujétese</p>
 <p>Alerta Verde</p> <ul style="list-style-type: none"> • Posibles corrientes peligrosas • <i>Salir</i> del agua, playa, puertos marinos • Estar en Observancia • Siga las instrucciones de los encargados de emergencia 	<ul style="list-style-type: none"> • Un tsunami es una serie de olas causada por una fuerte perturbación de un cuerpo de agua. • Estas olas pueden llegar en unos minutos, pero continuar por horas. Las olas arrasan con todo lo que encuentran a su paso ya sea cuando inundan la costa o cuando retroceden. • Los tsunamis pueden ser producidos por grandes terremotos localizados en la costa o en el fondo marino, un deslizamiento o una erupción volcánica. • En Honduras se encuentran fuentes potenciales de tsunamis que se pueden generar localmente y también existen fuentes regionales y distantes , al otro lado del océano. 	<p>Salga rápidamente de la zona de evacuación por tsunami en cualquiera de las siguientes situaciones:</p> <ul style="list-style-type: none"> • Después de SENTIR un terremoto fuerte que te tumbe o dure más de veinte segundos • Si VE un repentino aumento o disminución del nivel del mar • Si OYE un ruido extraño o fuerte que viene del mar
 <p>Boletín Informativo</p> <ul style="list-style-type: none"> • No hay peligro • Estar atento a información oficial 	<p>¡¡PROTÉJASE, VIVA PARA CONTARLO!!!</p>	
<p>Para Más Información Comisión Permanente de Contingencias (COPECO) http://copeco.gob.hn/ y CODEL Cedeño En caso de Emergencia llamar 911</p> 	 	

Steps to develop evacuation maps



Evacuation maps are public safety products that should be approved by the appropriate local (national) governing authority. The type and placement of signage should also be approved by the appropriate authority.

PREP-2. Tsunami information, including signage is publicly displayed

The following types of signs are suggested:

- * Tsunami Danger and/or hazard zones
- * Evacuation Routes
- * Assembly Meeting areas/points
- * Tsunami Response Education
- * Tsunami Evacuation Maps

Consider existing signage used by the country for other hazards



PREP-3. Outreach and public awareness and education resources are available and distributed.

- * Materials should include, where appropriate, tsunami evacuation maps, evacuation routes, safety tips and information about when and how to respond to warnings (including natural warnings for regions with a local tsunami threat).
- * They should be tailored to meet local information needs and be based on location-specific tsunami threats.
- * All schools within the community requesting recognition should receive a copy of the materials.



Tsunamis

1

Antes

Esté siempre preparado(a), un tsunami puede ocurrir en cualquier momento

- a) Prepare un plan familiar de emergencia
- b) Tenga a mano un maletín de seguridad
- c) Conozca las zonas de evacuación y los lugares de Asamblea
- d) Identifique las rutas de evacuación



2

Señales

Esté atento(a) a cualquiera de estas señales

- a) Terremoto muy fuerte (se hace difícil caminar, se caen objetos)
- b) Terremoto de larga duración
- c) Mensaje oficial de la CNE
- d) Cambio repentino en el nivel del mar
- e) Ruido fuerte del mar



3

Terremoto

Protéjase en caso de terremoto

- a) Agáchese
- b) Cúbrase
- c) Agárrese

Evacuación

4

Salga de la zona de evacuación
(En orden de preferencia:)

- a) Vaya a un lugar alto y alejado de la costa
- b) Súbase a un segundo piso o más alto
- c) Súbase a un árbol
- d) Vaya a un lugar de reunión (refugio)
- e) Si hay tiempo, lleve las embarcaciones costa afuera a 100m de profundidad



Regreso

5

Quédese fuera de la zona de evacuación hasta que las autoridades le indiquen que ha pasado el peligro.

Esto puede llevar varias horas



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A simple guide to nine essential items you should pack BEFORE a disaster or emergency occurs.

Plan 9

1 Water

Bottled water. One gallon per person, per day, for at least 7 days, for drinking and sanitation. Keep the water in a cool, dark place and change to a fresh supply every six months.



2 Food

Nonperishable food. A supply of at least 7 days of food per person.

- Ready-to-eat canned meats, fruits and vegetables
- Powdered milk and soup
- Crackers, granola, cereal
- Manual can opener



3 Radio

A battery-powered radio for listening to news and weather.

- Consider buying a crank-operated or solar-powered radio.
- Don't forget extra batteries! Buy them in advance in case they're in short supply.



4 Medications

Collect all medicines worth of any prescription medicines you're taking.

- Be sure to note the expiration date so you don't keep them past their date.



5 Clothes

Collect one change of clothes and footwear per person.

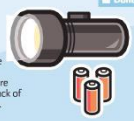
- Consider packing blankets, rain gear and outerwear in case of inclement weather.
- If you wear glasses, consider packing a spare pair.



6 Flashlight

Keep a bright flashlight in case there's no electric power.

- Consider getting a lantern-style light for hands-free use.
- Don't use candles! They're a fire hazard and are easy to lose track of when the lights come back on.



7 Hygiene Items

Just the basics like soap, toilet paper and a toothbrush.

- Moist towelettes can be useful for quick sanitation.



8 First Aid

Basics such as antiseptic, gloves, bandages and non-prescription medicines.

- You can buy a pre-made kit at most pharmacies or grocery stores.



9 Cash

Enough money (in small bills) to purchase extra food, water or other items, for at least 7 days.



For more information about emergency preparedness, contact some of the following organizations:

Hawaii Department of Health	www.health.hawaii.gov
Hawaii Emergency Management Agency	www.hawaii.gov/emergency
(Include Likiep neighbor island)	
Dept of Emergency Mgmt. (Oahu)	www.hawaii.gov/emergency
American Red Cross	www.redcross.org
Centers for Disease Control and Prevention	www.cdc.gov
Federal Emergency Management Agency	www.fema.gov
Department of Homeland Security	www.dhs.gov

HNL.Info

STAY INFORMED

Urgent Traffic Bulletins, Emergency Information, Severe Weather Alerts, City Information and much more.



1



WHAT IS TSUNAMI?

It is a series of waves in the sea produced by a strong earthquake, landslide or volcanic eruption.

2



WHEN DOES IT HAPPEN?

It can occur at any time and arrive in a few minutes to the coast. Tsunamis travel at the speed of a supersonic jet or plane

3



EFFECT OF A TSUNAMI

It floods the coast and devastates everything. A tsunami wave can grow up to 10 meters high or even more

SIGNS OF A TSUNAMI



TSUNAMI EVACUATION DRILL



Source: COPECO HONDURAS, IOTIC, ITIC, LIPI

FOR YOUR SAFETY !

EARTHQUAKE READY



- Be alert, a strong or long earthquake may trigger a tsunami in short time.
- Move away from beaches and river banks, and seek information on what has happened.

TSUNAMI WARNING READY



- Seek warning information from BMKG on national TV, local radio, or public announcement in your area.
- If there is a sound of siren or other warning dissemination devices, evacuate immediately.

BMKG Warning information provides tsunami THREAT LEVEL for each region

MAJOR WARNING

Highest threat level, **The communities must evacuate !**

WARNING

Medium threat level, but still dangerous, **The communities must evacuate !**

ADVISORY

Low threat level, **The communities must move away from beaches and riverbanks !**

EVACUATION READY



- Upon feeling the earthquake or receiving tsunami warning, evacuate immediately to designated safe locations.
- Follow the evacuation route and signage, if available.
- If you don't know the location of the safe zone, run as far as possible from the coast

WARNING INFORMATION DISPLAY ON NATIONAL TV

Information on the time of origin of the earthquake

Information on the magnitude of the earthquake

Information on the epicenter of the earthquake

Information on the regions with tsunami warning :

- Red colour = MAJOR WARNING level
- Orange colour = WARNING level
- Yellow colour = ADVISORY level

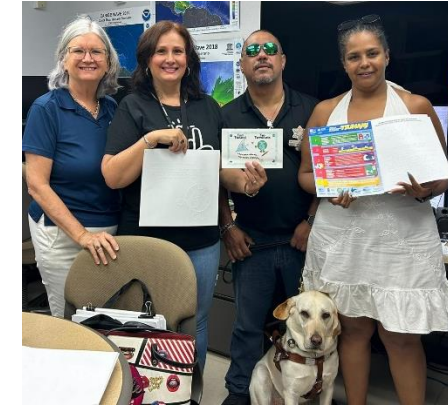
Information on the regions with tsunami warning

Prepare yourself from now !

- Learn about tsunami and its signs !
- Find information from your local government about tsunami evacuation procedures in your area !
- Plan with your family on how to respond to a tsunami !



Examples from Caribbean TR Projects



Material in Braille (request of Saint Lucia gone global)



<https://www.youtube.com/watch?v=RhDLYTkly5o>
Children's video – Saint Kitts and Nevis



Murals painted by the community supported by local artist in Saint Kitts and Nevis

Possible physical locations for distribution of material

Locations for the distribution of outreach material will depend on the nature of the material, some other examples include:

- **Schools**
- **Visitor centres and local tourist businesses (e.g. restaurants, bars etc)**
- **Hotels, motels and campgrounds**
- **Public libraries**
- **Community centres**
- **Kiosks or information centres (e.g. malls, stores etc)**
- **Childcare centres**
- **Banks**
- **Utility companies**
- **Health centres**
- **Ports of entry**



Important considerations in developing awareness material and campaigns



- * Local or traditional knowledge: This can be a powerful tool to support scientific knowledge in community preparedness. Although it may be the most effective means in a more traditional or remote community, in general, local traditional knowledge alone will not be enough to ensure an effective response. Additional information on warning systems and evacuation and return arrangements is required.
- * Community needs: To be effective, awareness activities and material should be tailored to the country or area-specific community needs. Factors such as geography, demographics, language, cultural, religious and social orientations should influence the awareness approach. They will present both strengths and opportunities.
- * Coordination and collaboration: Working together among the different agencies involved is essential. Involvement and commitment by all stakeholders will support sustainability.

-
- * Public policy: A formal tsunami education and awareness programme that is able to sustain itself over political cycles and generations can be highly effective, and may be the only feasible (funded) mitigation for localities where the occurrence of tsunamis is infrequent.
 - * A multi-faceted approach: The awareness programme should target a variety of formal and informal education, and awareness-building and preparedness activities such as exercises or drills
 - * Content: Campaigns and material should anticipate and answer the obvious questions of the target audience simply and clearly.

PREP-4. Outreach or educational activities are held at least three times a year.



Public outreach and educational activities should be conducted annually in the community.

* These activities may be multi-hazard as long as they include tsunamis in the content.

* The number of activities required for a given community will be three, where at least one is a community-wide event. The TRB may determine another amount.

- Leveraging of national, state and regional campaigns, including use of social media.
- Multi-hazard events or presentations.
- Booths at community events and fairs.
- Community tsunami safety workshops, town hall or similar public meetings.
- Presentations or workshops for faith-based or cultural organizations, community or civic groups.
- Local public safety campaigns, such as “Tsunami Preparedness” week/month.
- Media workshops.
- Local business workshops to help them develop response and business continuity plans.
- Information for business owners for employee training, outreach or education that targets high-occupancy businesses in tsunami hazard zones (e.g. hotels, restaurants, fisheries, industrial sites).
- Door-to-door safety campaigns targeted to residents and businesses living or working in the community’s tsunami hazard zone.



Fig 16. Trained Community Disaster Management Committee of Nasautoka village, Wainibuka, Tailevu

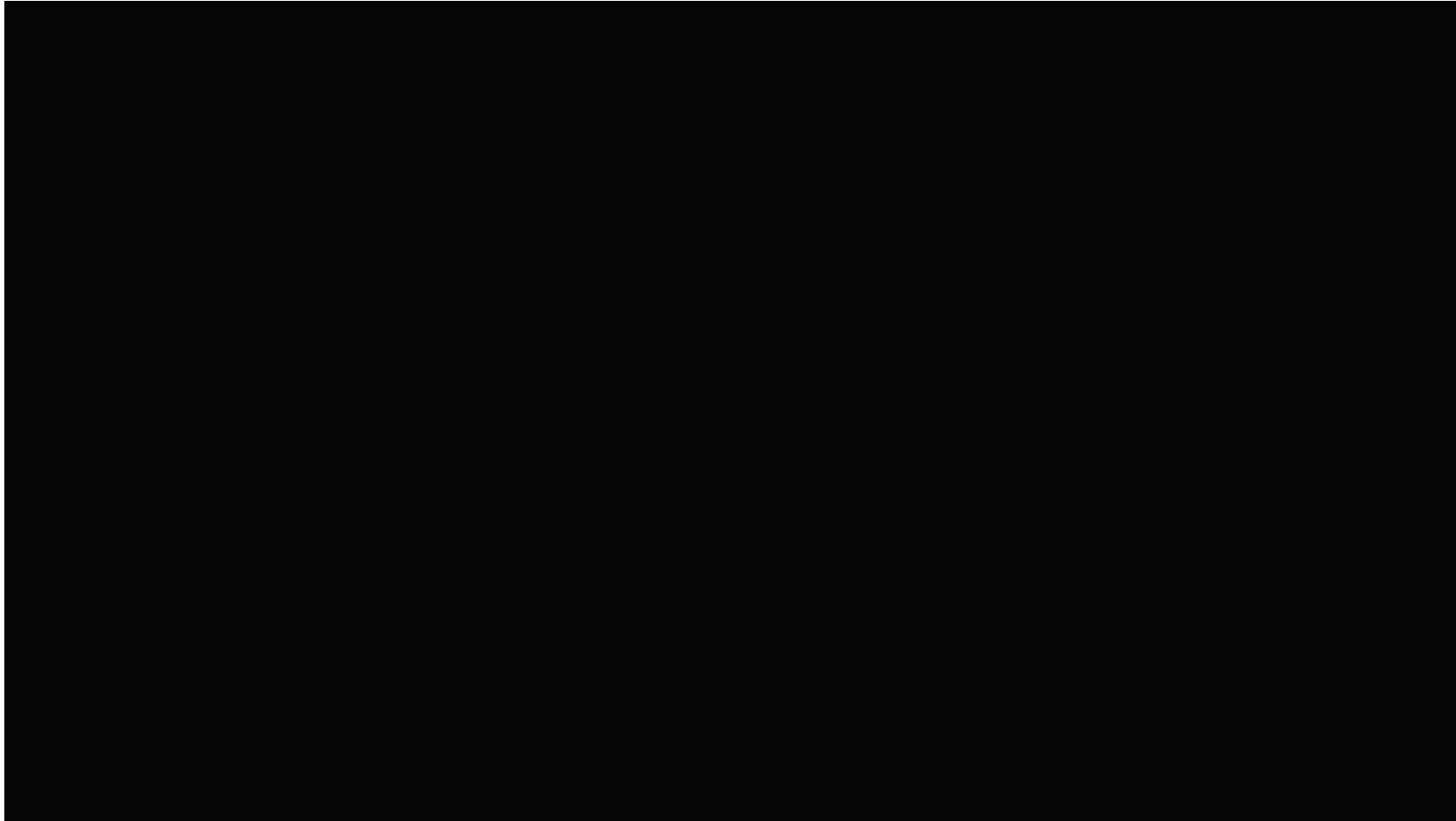
Community Based Disaster Risk Management

PREP-5. A community tsunami exercise is conducted at least every two years



- * Conducting tsunami exercises is **important to test the warning system and the evacuation plan to verify that it is operating effectively** and ensure that the **community understands** what actions have to be taken when a warning is issued.
- * Exercising also provides the opportunity to **review the evacuation plan and fine tune it**. More can be learnt from putting the plan into action and finding any gaps or weak points
- * There are **five types of exercise** ranging in complexity, time to organise and cost:
 - Type#1: Orientation workshops
 - Type#2: Tabletop exercises
 - Type#3: Drills
 - Type#4: Functional exercises
 - Type#5: Full scale exercises
- * **Full scale exercises** represent the **culmination of a progressive exercise programme** and should not be attempted without first conducting at least a tabletop and a functional exercise
- * **Detailed planning is vital** to the success of any exercise, particularly when the public is involved, and a **risk assessment should be conducted before engaging the public in evacuation drills**
- * **Exercise evaluation** is an important component of exercising to **observe, record and report** on the conduct of the exercise - **what went right, what went wrong, what lessons were learned** and **what changes** should be made to the evacuation plan

PREP-5. Community tsunami exercise





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2022 - 2026

THANK YOU

Tagio Tumas

For more information:

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USAID
FROM THE AMERICAN PEOPLE