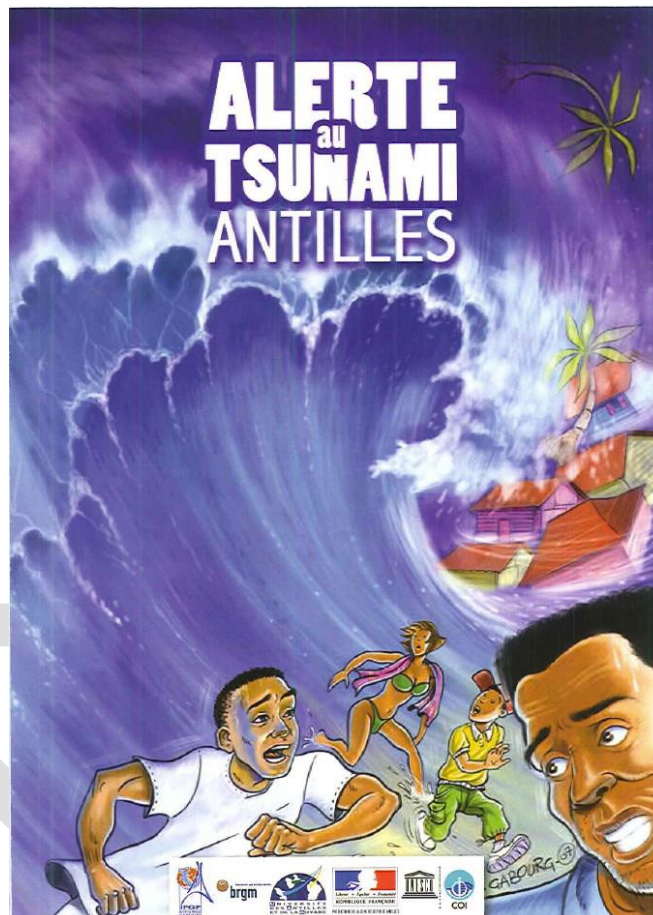


Methodological guidelines

How to prepare, conduct and evaluate a community-based tsunami response exercise



Tsunami warnings French West Indies

27/03/2017

DRAFT 1

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INTRODUCTION

This guide is designed to provide community leaders with a methodology and tools, which are easy both to grasp and to use in preparing, conducting and evaluating a tsunami evacuation exercise. It is particularly relevant for bodies that would be directly exposed to the effects of a tsunami (local government, schools, associations, businesses). The guide highlights that a progressive approach is needed, which should include the development of a multi-annual programme of exercises. It is advisable to take a progressive approach to allow the guide's target audience to develop their know-how. This can be done by progressing from a relatively simply designed exercise that is straightforward to conduct towards exercises that are more complex to formulate and monitor, as well as being more logistically demanding.

This progressive approach is also crucial for selecting the type of exercise that would be best suited to achieving the objectives set, while also taking account of a community's existing level of readiness. The first phase might be a tabletop exercise. This might be most appropriate if the objective is to raise awareness among a teaching team within a school setting about tsunami-related dangers and to teach people about the counter-measures they should take to make their classroom safe. The second phase could take account of lessons learned during the tabletop exercise and enable a partial tsunami evacuation exercise to be developed. It could involve the same teaching team, each of whose members could be required to know the escape route to a tsunami safe location. In the third phase, community leaders could design an exercise in which the objective would be for all or part of a school community to evacuate to a predetermined safe location in less than 15 minutes.

This guide also aims to encourage a shared culture of exercises to develop between, on the one hand, the municipal authorities tasked with ensuring the safety of those living in their area, and on the other, community leaders – stakeholders in the social and economic life of the area.

The guide is divided into three chapters:

- The first relates to knowledge of the tsunami as a hazard. It provides the information needed to understand the different forms that a tsunami can take, the dangers involved and safety procedures.
- The second focuses on establishing a multi-annual programme of exercises.
- The third deals with preparing and conducting a tsunami evacuation exercise. Chapter three presents the different stages involved in developing an exercise, as well as the practicalities of conducting and evaluating one. This chapter also concentrates on the different functions that should be in place, the methodological approach to be followed and the practical tools that should be used.

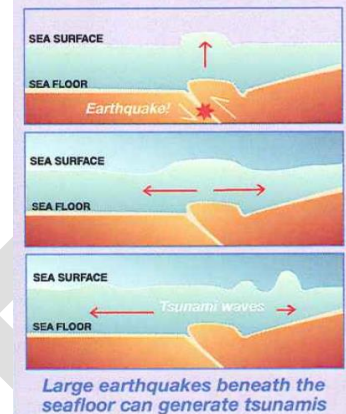
1. What are tsunamis and how can you prepare for them?

a. What is a tsunami?

A tsunami (soo-nah-mee) is a series of waves generated by a major disturbance in a body of water.

ORIGINS

Tsunamis essentially occur because of underwater earthquakes. However, they can also be caused by volcanoes, gravity (landslides), human activity (nuclear tests, construction) or even outer-space events (meteorites). All known potential tsunami sources can be found in the Caribbean and adjacent regions. There are also some distant sources in the Atlantic.



TIMING

A tsunami develops in deep water and can travel at speeds of more than 800km/h. Tsunami waves can occur a number of minutes apart from each other, but can also be separated by several hours. Depending on the distance to be travelled, the first wave can break either after a number of minutes or a number of hours.

The time required for a tsunami to travel from the epicentre of its cause to the coast enables us to identify:

- Local tsunamis, which can strike in a number of minutes;
- Regional tsunamis, which develop at distances of between 100 km and 1,000 km from the coast, and which can strike within tens of minutes;
- Long-distance tsunamis, which take several hours to cross an ocean.

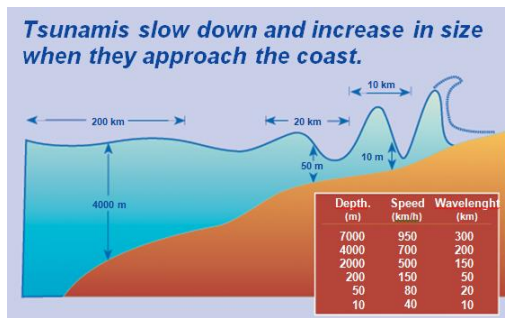
Over the last 500 years, at least 75 tsunamis have hit the Caribbean and the neighbouring region. These have included:

- Two transoceanic tsunamis. One was a result of the Lisbon earthquake of 1 November 1755 and generated waves of between three and four metres high on the eastern coasts of the Lesser Antilles. The other was associated with an earthquake that occurred on the coast of the Iberian peninsula on 31 March 1761 and caused 1.2-metre-high waves off Barbados.
- Sixty-two tsunamis linked to a regional earthquake in a range of different tectonic contexts. There were fatalities in about 20 cases, including estimates of more than 3,000 deaths since 1843.



Damage caused by a 3–4 metre tsunami wave at Saint-Pierre, 5 May 1902.

MAGNITUDE



A tsunami is made up of several waves of varying sizes. The first wave is not always the largest. In the Caribbean and neighbouring regions, low-lying coastal areas that are less than 10 metres above sea level are considered as highly exposed to tsunami risk.

b. What should the community be protected from?

During an event triggered by a tsunami, the population, possessions and the environment can be affected in a number of ways.

Protection must therefore be ensured against:

- **Earthquake tremors**, if they occur, and all associated knock-on effects: landslides, buildings collapsing, fire...
- **The impact of tsunami waves** in light of their speed and height;
- **Flooding** in low-lying areas, which can last for a long time after the last tsunami wave has struck;
- **Logjams** formed by the build-up of a range of buoyant objects of varying sizes that have been carried off by the waves;
- **Tsunami-induced currents**, which can be very strong and can last for several hours after the final tsunami wave has made landfall.

c. How can a community prepare for tsunami-related hazards?

By developing an awareness of the risks

It is crucial to disseminate relevant information to members of the community so as to make them aware of the risks associated with tsunami events, and ensure that they take ownership of that information. It is also essential to make sure that everyone knows what happens during a tsunami event and what the outward signs are.

By learning to recognize signals from the natural world indicating that a tsunami is about to occur

A high-intensity or prolonged earthquake indicates that a tsunami might have been triggered and could soon be about to break on the coast. If earthquake tremors can be felt strongly or last for a long time, the trigger for the tsunami is probably close by. There is therefore little time to evacuate.

However, there are other natural-world signals and it is important to know how to recognize them:

- An abnormal rise in sea level or a swift withdrawal of the sea from the coast;
- A rapid change in the water level of a river;
- A strange noise or rumbling sound coming from the sea that is similar to a train.

By finding out from the authorities about warning procedures

The local authorities (prefect and mayor) are responsible for sending out warnings. They are provided by the Pacific Tsunami Warning Centre in Hawaii. The Centre can operate the tsunami warning system (Tsunami-Caribe/EWS) in the Caribbean and neighbouring regions. It uses a network of sensors that detect and provide details about the nature of any earthquakes likely to have generated a tsunami. When required, the Centre sends the relevant information to local authorities in less than 10 minutes so that a warning can be issued to those in danger. Warnings from the authorities can be sent out in different ways, depending on the resources and time available: radio and television broadcasts, loudhailer vehicles, sirens, helicopters, SMS text messages, variable message display panels, social media etc.




By identifying evacuation routes to safe locations:

A safe location is high enough – between 15 and 20 metres above sea level – to allow people to shelter from tsunami waves. Safe locations and secure evacuation routes that afford quickest access to the location are shown using signs set into the ground. People should locate these routes, as it allows them to leave the danger zone or evacuation zone and arrive at a safe location after a 15- to 20- minute walk. It may be helpful to practice walking the route. If there are no signs on the ground, ask the authorities to find out which evacuation routes to prioritize if a tsunami occurs.



By finding out about how to behave before, during and after a tsunami:

The Caribbean Tsunami Information Center has produced a guide in English, French and Spanish about being prepared for a tsunami. It lists the essential actions and crucial procedures that everyone must be familiar with and follow carefully before, during and after a tsunami.

Before a Tsunami	During a Tsunami	After a Tsunami
<ol style="list-style-type: none"> Contact your local authorities regarding the tsunami alerting procedures, threat and preparedness activities for your community. With the help of your local disaster management officials, identify the potentially vulnerable areas and assembly locations using inundation and evacuation maps where available. Specifically include your home and workplace in your discussions. Determine escape routes to high ground or inland, avoiding low lying coastal areas and river plains. In the nearby coastal areas, identify concrete, steel-reinforced multi-storey buildings preferably at least three-storeys that can possibly be used for vertical evacuation if necessary. Ensure that all family members and co-workers can recognize the natural tsunami warning signs, as timely, official Tsunami Warnings from authorities may not be possible. Prepare a tsunami emergency plan, and teach and practice your plan with all family members and co-workers. Prepare a safety backpack, including emergency supplies and equipment such as canned foods, medication, flashlights, battery-powered radios, clean water and first aid kits.  <p><small>Practicing tsunami evacuation in the Virgin Islands (UK). Source: b7news.com</small></p>	<ol style="list-style-type: none"> Follow official guidance. However, if you recognize any of the natural tsunami warning signs, do not wait for an official warning before evacuating; authorities may not have enough time to issue a Tsunami Warning. If you are at the beach and recognize any of the natural tsunami warning signs - move immediately (preferably by foot) to an assembly point or higher ground. Abandon belongings; focus on saving your life, not your possessions. If you are unable to move to higher ground, go to an upper floor (preferably at least the 3rd storey) or roof of a concrete, steel-reinforced building. Sometimes tsunamis may occur without the initial pulling back of the sea. In this case, a massive wall of water may be seen approaching land. If you can see the wave you are already too close to outrun it. As a last resort, climb a strong tree if trapped on low ground. If time permits, vessels should navigate offshore to waters 100-400 meters deep. Prepare a safety backpack with all the essential items (at least water, non-perishable food, battery or hand held radio and flashlight) you will need if you are trapped or have to evacuate. Tsunami waves may flood areas much further inland than storm surges. If swept up by a tsunami, look for something to use to keep you afloat. A tsunami is not a single wave, but a series of waves and very strong currents that can come ashore and affect beaches and harbours for hours. The first wave may not be the largest. If a Tsunami Warning is issued NEVER go down to the beach to watch the waves come in. Stay in the safe area until a recognised authority e.g. your local disaster management office issues the "ALL CLEAR," THIS MAY TAKE MANY HOURS. 	<p>If possible, stay tuned to a radio or television to get the latest emergency information. ONLY venture out of your safe area, return home or go to the coast when authorities give the ALL CLEAR indicating it is safe to do so.</p> <p>Once the ALL CLEAR is given:</p> <ul style="list-style-type: none"> Keep out of stagnant water. Stay out of damaged buildings. Help injured or trapped people if possible and call for help if necessary. Check for damage to gas, sewer and water lines. Open windows and doors to help dry buildings. Check food supply and test drinking water. Fresh food that has come in contact with floodwater may be contaminated and should be discarded. Remove mud while it is still moist to give walls and floors an opportunity to dry.  <p><small>Tsunamis often leave behind stagnant water which contains dangerous debris. American Samoa, September 2009. Photo: Gordon Yamasaki.</small></p>
<p>IF YOU RECOGNIZE ANY SIGNS OF A TSUNAMI, MOVE IMMEDIATELY TO HIGHER GROUND.</p>		

If violent tremors occur and you are on the coast, do not wait for the authorities to instruct you to evacuate: it could be too late.

DURING EARTHQUAKE TREMORS, PROTECT YOURSELF

<p>1</p>  <p>DROP!</p>	<p>2</p>  <p>COVER!</p>	<p>3</p>  <p>HOLD ON!</p>
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BE TSUNAMI SMART, KNOW THE NATURAL SIGNS



FEEL	→ RUN	
<small>a very strong or long earthquake?</small>		
SEE	→ RUN	
<small>a sudden rise or fall of the sea level?</small>		
HEAR	→ RUN	
<small>a strange or loud noise coming from the sea?</small>		
RUN		
<small>to high ground or inland if ANY of these signs occur</small>		

By practising

To be able to react better when a real warning is issued, you must practise acting on the instructions and recommendations of the authorities.

You can practise by playing map-based games, by holding discussion and reflection sessions in small groups, or by doing tabletop simulation exercises. You can also practise by carrying out simulation exercises in the field, which could involve partial or total evacuations in real life.



2. What is a multi-annual exercise programme and how can you set one up?

a. What is it?

It is a suite of exercises related to the hazards of tsunami-related events to which the land and people are subjected. The aim of these simulations is to establish a virtuous cycle of constant improvement. Once the overall objectives have been achieved and the programme has ended, a new programme with new objectives will be set up.

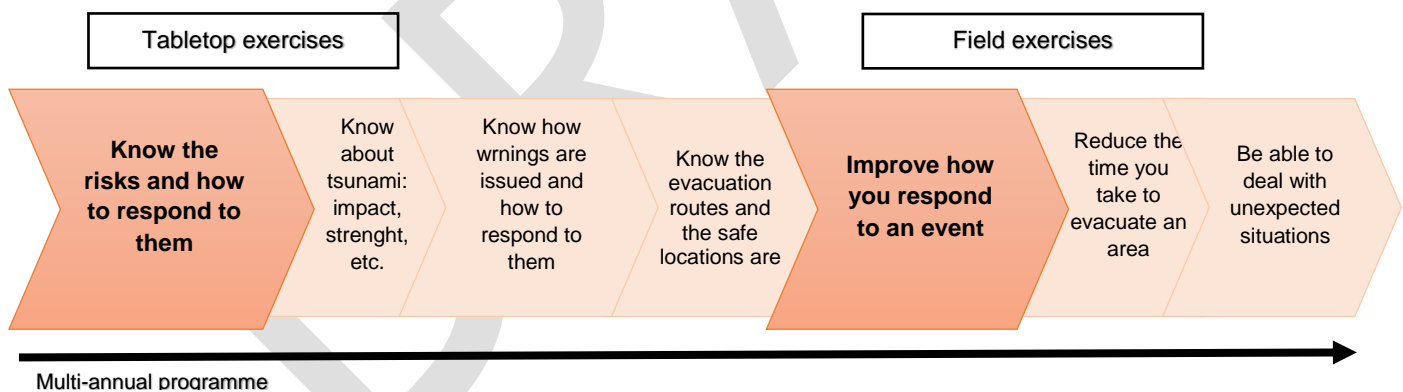
b. Why?

To learn or be reminded of the procedures that the community uses; to improve response times and communication; to identify any lack of resources and remedy the situation. If a programme has objectives, progress can be evaluated.

c. How?

To develop a multi-annual exercise programme, the needs of the community should be analysed in advance so as to identify a coherent objective. The programme can combine tabletop and field exercises to better respond to those needs. This allows the exercises to be planned and evaluated.

Figure N°1



A team drawn from the community will develop the programme. Members of the team will then be deployed to implement the exercises and make them a reality.

Do you already have a multi-annual exercise programme in place? If so, you will only need to add some objectives related to preparing your community for earthquake and tsunami risks.

3. How should you prepare for and run an exercise? Where should you start?

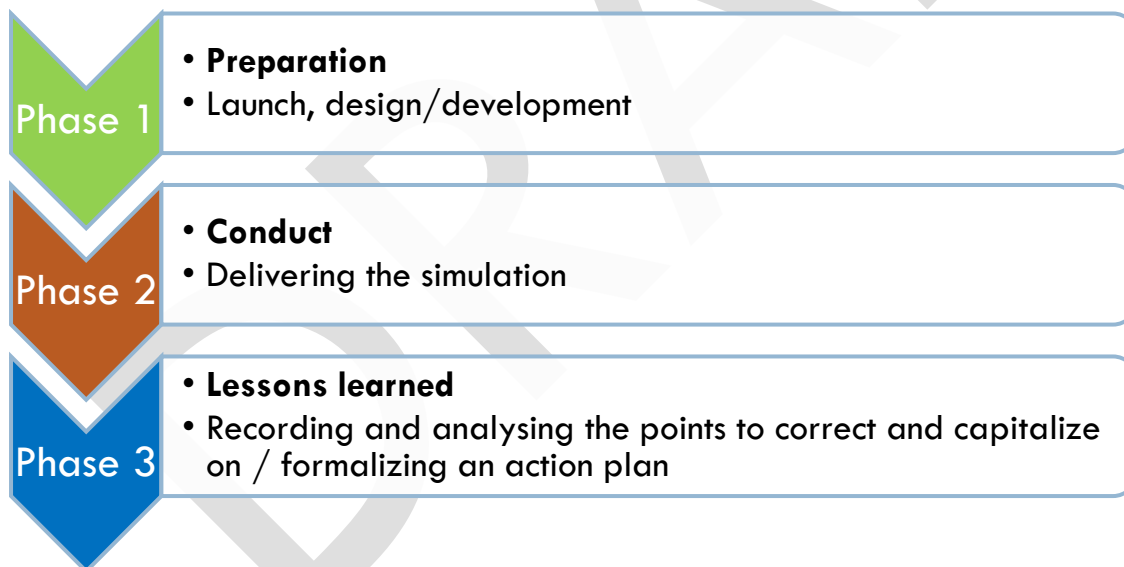
Make sure you do not run before you can walk. Your exercise may not be the perfectly finished product on the first attempt. The important thing is to define what can be improved in order to do a better job next time. It is crucial not to conduct just one exercise and then stop.

Making progress between each exercise is what counts!

To make that progress, you should refer back to the multi-annual programme from one exercise to the next. That will allow you to define the objectives you want to achieve in line with the programme and ensure that the community progresses through the different levels of complexity (see Figure N°1).

The construction of an exercise contains generally a phase of more or less long preparation according to the type of exercise, followed by the phase itself of exercise phase of conduct and a phase of evaluation of the objectives which will be made through an informal or formal lessons learnt. The plan N°2 presents these 3 phases which are after retailed.

The three major phases of an exercise



a. How should you prepare for an exercise?

What objectives do you want to achieve? What sort of exercise should you choose? How can you find a realistic scenario? How much time should you plan for? Where should you start?

Start with the objectives that you want to achieve. These should be set for each stage of the multi-annual programme as it progresses. When you begin preparing an exercise, you will need to ask the right questions to identify your objectives and focus on your needs. This will allow you to run a tailor-made exercise.

To prepare and run an exercise, you should form a team made up of people from the community and from elsewhere if necessary. The team, which can be split into smaller groups if required, should be structured around the different responsibilities and activities of coordinating, delivering and evaluating the exercise. To be effective, the team should follow a methodology, which will be detailed later on in this guide.

b. Forming the teams

The size of the teams set up to prepare and run the exercise should be defined by how extensive the simulation is to be when delivered.

The roles that are generally allocated are as follows:

- **Exercise command team** (often uses a short-form title) ensures the overall coordination of the exercise. For larger-scale exercises, a **coordination committee** may be formed. The committee is overseen by the command team and brings together the **director of delivery**, the evaluation officer and their teams. External participants (fire and rescue, law enforcement etc) can also be included. This multi-disciplinary or even multi-functional coordination committee defines the objectives of the exercise. It authorizes the type of exercise chosen, the preparation and planning, and the resources to be mobilized for the exercise. The command team is also in charge of producing the exercise dossier. This is made up of several sections, including documentation for delivery issues, communications, finance, a list of invited observers etc.

- **Exercise delivery.** This group is responsible for drafting the delivery dossier, which is made up of the **specification note, scenario, synopsis and timeline** for delivering the exercise. These are the crucial tools needed to run an exercise. The delivery group also leads on all the logistics needed for the exercise to take place: preparing those taking part, setting up the materials needed for the simulation, arranging catering for the participants etc. One member of this team is allocated the task of coordinating the work of the delivery group.

- **Evaluation of the exercise** is dealt with by people who are there purely to observe. They do not interact with those playing a role in the simulation. They use an evaluation chart to record the extent to which the objectives have been achieved, and make observations about what went well (what should be capitalized on) and about points for improvement. Together with the command team, they contribute to preparing the *lessons learned* phase.

c. Producing a delivery dossier

The delivery dossier is a specification note with a synopsis and timeline attached. The delivery group uses the two attachments as tools to run the exercise (example specification note, synopsis and timeline are annexed).

- Drafting the specification note

The specification note (annex N°1) summarizes all aspects of the exercise, particularly the objectives, type of exercise, scenario, timeframe, rules of play and safety measures.

- Define the objectives

This is the first and essential step towards delivering the exercise. The choice of exercise type, scenario, duration, people involved etc. will be influenced by the objectives chosen. It is a good idea to try to establish a coherent link between the overall objective of the exercise and the goal defined in the multi-annual programme for the phase in question.

SPECIFICATION NOTE FOR RUNNING AN EXERCISE (Page 1/2)			
Objectives	Overall objective	Interim objectives	Specific objectives
Type of exercise	Location of exercise		Scheduled date
Partial Full-scale Tabletop In the field Planned Unplanned	Outline of the tsunami-related scenario		Timings Day/night Morning Start time End time
Those involved		Low-intensity delivery	High-intensity delivery
	Selected		
	General public		
	Other		
Pace	Fast	Slow	Compressed time
Weather conditions	Real	Fictitious	Hydrogen Wind direction: south-westerly Hydrogen Wind speed:
Communications about the exercise?	Yes	No	If so, who is to provide the communications, where and when?
Communications during the exercise?	Yes	No	If so, who is to provide the simulated media challenge?
Participants	Yes	No	If so, specify which and how many?

What should you ask to define the objectives?

What knowledge, know-how and attitudes will people need to have as a prerequisite for participating in the exercise?

What should the exercise add to the participants' knowledge, know-how and attitudes?

How should the change in the participants' levels of knowledge, know-how and attitudes be measured during the exercise?

One overall objective should be identified, with two or three specific objectives flowing from it.

The objectives should be **SMART: specific** (in line with the overall objective); **measurable** (by one or more objective indicators of success or failure); **achievable** (the participants should be able to achieve them); **realistic** (able to be reproduced in a real-life situation); **time-bounded** (including an idea of deadlines by which tasks should be completed).

Example objectives

Example 1

Overall objective: Carry out a test evacuation of people in an evacuation zone as if a tsunami warning had just been issued.

Specific objectives:

1. 100 per cent of the 1,000 people in the evacuation zone when the warning is issued should know the quickest way to reach a tsunami safe location on foot.
2. 90 per cent of the 1,000 people in the evacuation zone when the warning is issued should have reached a tsunami safe location in less than 15 minutes.
3. 100 per cent of the 1,000 people in the evacuation zone when the warning is issued should have evacuated on foot.

Example 2

Overall objective: Test the system for issuing a tsunami warning via a siren, smartphone messaging or community warning vehicle to those in a given sector of the evacuation zone.

Specific objectives:

1. 100 per cent of those to be evacuated should know that they can receive a tsunami warning by one of the three methods above.
2. 100 per cent of the 1,500 people to be evacuated can receive the warning by at least one of the methods.
3. 90 per cent of those to be evacuated should have received the warning by at least one of the three methods in less than five minutes.

- *Choosing a type of exercise:*

There are several types of exercise, each of which will be more or less suitable depending on the objectives that have been set, the time available, funding levels and how much the participants know about the instructions on how to react to a warning.

There are three types of exercise:

- Tabletop exercise
- Partial field exercise
- Full-scale field exercise

You should choose the type of exercise according to:

- **The level of required knowledge of those taking part.** Knowing about good ways to respond to a tsunami event is an essential prerequisite for those taking part in a field exercise. People can learn about good ways to respond through a tabletop exercise or partial simulation. By the same token, people who have already completed exercises and have a sound understanding of the response procedures can be tested on a wider set of objectives by participating in full-scale field exercises.
- **Allocated time.** Tabletop exercises save time both when preparing and running an exercise. They are well suited to participation by small groups of people, such as those responsible for overseeing the evacuation of members of the community.
- **Objectives.** Some objectives cannot be tested in a tabletop setting, such as "test the time taken for an evacuation to be completed" or "engage all people to be evacuated from the community". Those sorts of objectives must be dealt with in a more realistic situation.

An exercise can either be planned or unplanned

Depending on the objectives and the participants' level of knowledge, the three types of exercise can be **planned** (participants know the date and time of the exercise in advance) or **unplanned** (participants are partially or totally unaware that the exercise is to take place).

Questions to help choose the right type of exercise

Is this the first exercise that we have organized? Do the participants understand the safety procedures? How much time do I have (do I have large or small amount of time)? Do I have the right number of support staff with the right skills to deliver and oversee a field exercise?

Before running a field exercise, you must ensure that the participants have the necessary minimum level of knowledge to respond to a simulated situation. If no preventive information has yet been disseminated, it would be better to start with a tabletop exercise involving those likely to be helping to oversee the evacuation.

- *Choosing a scenario:*

Scenarios must be thought-through and chosen on the basis of your location and events that have the potential to occur. It is pointless practising evacuations that can deal with 20-metre-high tsunamis if the maximum expected wave height is five metres. It is important to be geared to reality.

A scenario must be **credible** and **compatible** with your geographical location.

To choose a scenario, find out from the authorities about the maximum projected height of waves in your region, the sorts of warnings to expect, response times etc.

Varying the scenario for every exercise is one of the best ways to practise. If you plan to conduct two live evacuation exercises during the year, the objective for the first exercise could be to test how the warning is received when the authorities issue it. The scenario could involve a regional or a distant tsunami. The objective of the second exercise could be to test an unplanned evacuation. The scenario could be that a tsunami had formed nearby, so that the area had to be evacuated without waiting for the authorities to issue a warning.

The scenario must relate to the objectives that have been set, not the opposite

✓ *Determining the duration of the exercise*

The scenario can be conducted in real time or compressed time (meaning that the time and space in which the exercise is conducted is less than the time that would be needed in reality). If the exercise was run in compressed time, this would need to be specified.

You should decide the date, day, time and duration of the exercise. You should also choose whether the exercise is to be planned or unplanned (the choice is between warning the participants of the exercise or not).

You should decide in advance whether or not you want the participants to be aware that an exercise is to take place. This choice will affect the ways in which they respond.

✓ *Defining the rules of the exercise*

The rules are instructions given to the participants to define the boundaries of the exercise. In the case of a field exercise, for example, you should clarify what will be played out in reality and what will only be simulated (i.e.: what will not be fully played out).

✓ *Defining the safety measures*

These are all the measures to be taken to ensure the safety of those participating in the exercise, particularly when running a full-scale, live field exercise. This task can be allocated to an appropriate person from the community, or to someone from an external body, such as the fire and rescue service.

➤ **DRAFTING THE SYNOPSIS**

The synopsis sets out how long the exercise will last and the main phases of its delivery from start to finish. It establishes a timeline of the key moments or events that will occur throughout the exercise, as well as the expected responses of the participants. The events are "compulsory stages" in light of the specific objectives set. An example synopsis is at Annex ...

Events	Incidents	Time	Expected response	
			Communal command post	Departmental operations centre
		0800	Delivery room and crisis room set up for the participants.	Delivery room and crisis room set up for the participants.
A road tanker crashes into an (ILLEGIBLE) at the SARA refinery, causing a leak in one of the tanks at 0830. A fire starts in the cab of the road tanker.	Exercise begins	0830	Initial warning from the services, verification of information, preparation of plan etc.	Initial warning from the services, Verification of information, preparation of plan etc.
The Prefect informs departmental operations centre that he wants a situation report at 0900.	Retention tank bursts into flames	0900	Communal command post goes live (official message)	Prefect requested to trigger the targeted intervention plan and inform the mayor
	Message from departmental operations centre: risk of (ILLEGIBLE) of the road tanker	0915	Contain or evacuate?	Contain or evacuate?
		0930	Situation report	Situation report
		1000		
		(-)		
		1600	End of exercise	

➤ **DRAFTING THE TIMELINE**

The timeline sets out a chronology of the groups of actions that will be introduced to elicit a response from the participants throughout the exercise.

The timeline will be more or less detailed depending on whether the scenario is straightforward (an opening situation) or more complex (involving knock-on effects or disruptive factors).

Actual time	Exercise time	Sender	Receiver	Method of communication	Event	Expected response
1030	T0	Town hall	Director of establishment	Phone call	An earthquake measuring 8.4 on the Richter scale occurred in the north of Venezuela. It triggers a tsunami that is to strike Martinique. The warning comes from the Rector's Office - no tremors are felt.	- Activate the targeted safety plan - Alert school groups and evacuate them to Pointe-à-Pitre heights
	T+ 1 min	Prefecture	Rector	Text message	The Prefecture issues a warning to the Rector's Office that a tsunami is likely to strike the coast.	- The text message is forwarded to all head teachers and all directors of establishments - The academic crisis cell is activated.
	T+ 18 mins	Director of establishment	Town hall + Rector's office	Phone call	Situation report issued: school groups (staff and pupils) have reached safety at Pointe-à-Pitre heights. We await instructions from the authorities.	
1145	T+ 1 h 15 mins	Town hall	Director of establishment	Phone call	Warning period ends	

Each element of the timeline should have a start time, sender, receiver, communication method and expected response.

Members of the delivery group introduce each action in the exercise. They should never be participants, as they know how the entire exercise will turn out. For a tabletop or partial field exercise, the delivery group can play certain key roles to allow the exercise to run realistically. For example, in a tabletop exercise the participants might play a group of people that had been evacuated, one of whom had been severely wounded during an earthquake. When the participants need to call the fire and rescue services, a member of the delivery group could take on the role of a firefighter. By contrast, during field exercises, the delivery group are there to launch the exercise and, if necessary, to introduce some disruptive factors that would have been planned out in advance. However, with this type of exercise, the general aim is to let the simulation run its course from start to finish without intervening.

An example of a delivery timeline is at Annex N°2 .

➤ **PREPARING THE PARTICIPANTS**

The participants (who can also be known as actors or even 'bodies') are the human resources. They play a very specific role that will contribute to simulating the exercise

scenario. If necessary, they can be made up to simulate their role and/or their state of health. Participants do not know everything that will happen during the scenario; they are only aware of what they need to do, as directed by the delivery group. One of the main aspects of a field exercise is preparing the participants to act as injured people, those involved in the event or passers by. For example, during an evacuation, a participant might be asked to play the part of a distressed parent who has come to school and wants to collect their child.

➤ PREPARING THE LOGISTICS

The material elements of exercises always need to be organized. For a tabletop exercise, you should prepare what you need to run the activity that you have planned with the participants. For example, if you want to establish an evacuation route, it may be useful to have evacuation maps, paper and pens to hand.

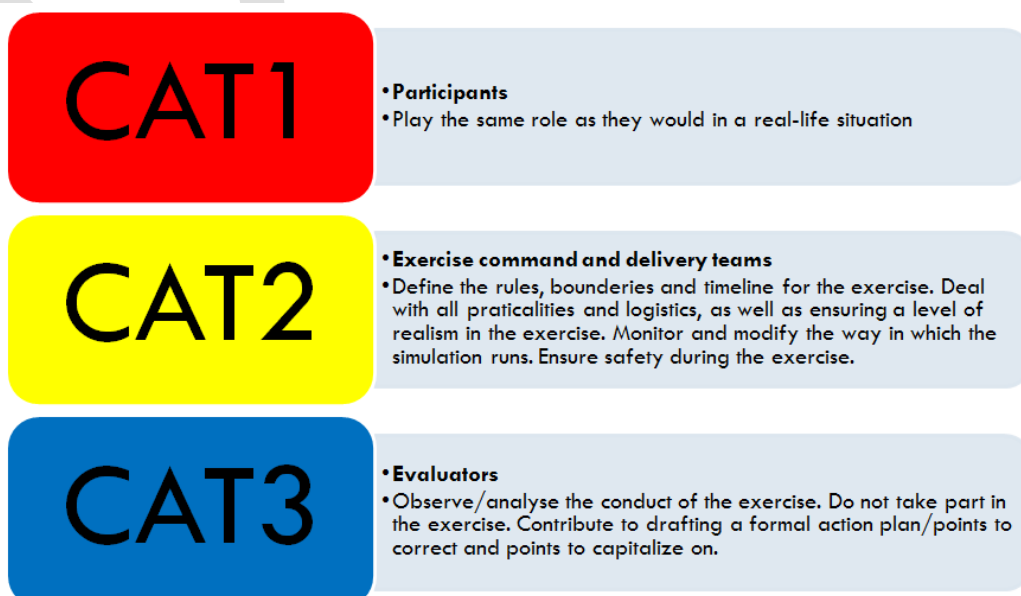
For a field exercise, you will need to make sure that you have available all the equipment that the participants will need, as well as anything that will help the exercise to be as realistic as possible. That is why it is important to choose a location and, where necessary, to "decorate" it so that the exercise runs in a setting that is sufficiently realistic for the participants.

If the exercise is being run over a large area, you should ensure that you have an appropriate way of simultaneously informing all participants about the start and end of the exercise. Depending on the length of the exercise, you might also need to provide the participants (actors, 'bodies' etc) with food and accommodation.

b. How can you ensure the exercise runs smoothly?

The way in which the exercise runs mainly depends on the people that have prepared it. These people should know about and follow certain specific rules according to the type of exercise selected.

The different categories of participant



➤ **Exercise command team**

The team's role is to provide general oversight of the exercise and in particular:

- To launch and end the exercise;
- To anticipate and manage any potential difficulties that might disrupt the smooth running of the exercise;
- To ensure appropriate levels of safety, especially during field exercises;
- To decide to end the exercise earlier than planned if a significant problem arises (such as a serious injury or a real-life situation occurring during the exercise);
- To make sure actions are followed through that will raise the profile of the exercise, especially inviting the authorities to attend and replying to press queries.

Exercise command therefore works very closely with the director of delivery.

➤ **The director of delivery:** their main role is to coordinate the work of those in the delivery group. With support from their team and sometimes from the evaluators, the director is constantly kept informed of how the exercise is running. They can intervene to facilitate the conduct of the exercise, either by increasing the speed at which new actions or factors are introduced in comparison to the planned timeline, or by slowing down the pace of the exercise.

The director of delivery should ensure that the circumstances of the game do not result in stalemate or total failure for the participants. They are allowed to make mistakes. The exercise should always have been of some benefit to them. Mistakes are not a measure of the exercise's lack of success.

Under the leadership of the director of delivery, the delivery group should:

- Brief the players on how the exercise will be run, especially on the rules of the game and the safety instructions;
- Use the synopsis and timeline to trigger the planned events so as to place the participants in a given situation and elicit responses from them.

➤ **The evaluation team:** its main role is to observe the behaviour of the participants and evaluate the extent to which the objectives are met. Each evaluator should record their observations in writing on an evaluation table that will have been prepared in advance (icon with cross-reference). For field exercises, the evaluators can record images and sounds (photos and videos) to substantiate their observations. However, they should make sure that they do not interfere with the participants.

➤ **The participants:** these should be people who have the minimum required know-how and appropriate attitude to be able to respond to the situation that the delivery group creates. They must be comfortable with being placed in a situation and reacting as they would in reality. The participants must not contribute to preparing the delivery of the exercise. They must not know the scenario or the actions to be introduced during the game. It is important to observe this rule as it allows the participants to practise and improve their know-how.

➤ **Specific guidance for choosing, preparing and running a tabletop exercise**

A tabletop exercise is well suited to testing the organizational capacity of a community in a crisis situation. It is also useful for testing team relations among those in leadership positions, and relations with people outside the community (institutional and public authorities, emergency services, law enforcement ...)

The objective of this sort of exercise is often centred on the participants' capacity to structure themselves so that they can collect information, process it to analyse the situation, anticipate potential developments, and propose both setting objectives and taking action that will protect and/or provide assistance to members of the community.

It is a good idea for community leaders to present initial and interim situation reports in order to work out what action should be taken. These situation reports require leaders to formalize their decisions. They are therefore a good way of providing objective evaluation and distinguishing good practices from those that should be avoided.

The delivery group should be made up of people who:

- Will not act as participants in the exercise;
- Have a good understanding of the expected responses of participants when placed in the simulated situation.

One objective that should be achieved is to establish a robust delivery group within the community. Its members should be chosen for their good grasp of what should be done to manage a simulated crisis situation in the most effective way. These people can hone their skills over time and become a "professional" team, capable of preparing and conducting exercises that allow the community to improve through practice.

The delivery group should observe certain rules:

- Keep details of the scenario (synopsis and timeline) confidential so that the exercise retains credibility and enables the participants to be properly evaluated;
- Allow participants to interact with the delivery group by establishing methods of audiovisual communication that enable the actions planned in the timeline to be introduced into the exercise. The communication can be by telephone, electronic messaging, video conference ... For example, a member of the delivery team might play the role of a fire and rescue operations centre and call the participants by phone: "Hello, firefighters calling...". The participant could then ring back on the same number to contact the firefighters: "Hello, is that the firefighters? This is the community leader calling..."
- Draw up an exercise directory where all communication methods (telephone, email address, video calling) are made available to the participants to contact the authorities and partners being simulated by the delivery team.
- Be capable of making adjustments to their work in line with the participants' reactions. The exercise has an educational objective. This means that while it is running, the director of delivery should take account of the participants' reactions and slow down, speed up or sometimes adjust the actions planned out on the timeline.

➤ **Specific guidance for choosing, preparing and running a field exercise (partial or full-scale)**

The general principles laid out above for tabletop exercises also apply to field exercises. But field exercises have a few specificities.

The delivery team should produce an exercise dossier containing the same delivery tools, including:

- A specification note that lays out the logistical and safety issues with further details as added below. It is more important to take account of these details in a field exercise than during a tabletop game.
- A synopsis to identify the key phases of the exercise; this should allow the participants responses to be evaluated so as to check whether they are in line with the objectives set for the exercise.
- A timeline: this will be shorter than for a tabletop exercise. In a field exercise, the aim is for the delivery team to place the participants in a situation and leave them to respond. Take, for example, an exercise that simulates an earthquake followed by a tsunami that hits a school community. The delivery group would launch the exercise by sounding a siren that denoted the beginning and end of the tremors. The group would observe the responses of the participants who should take shelter during the tremors and then evacuate to higher ground. The delivery group could introduce some obstacles along the evacuation route. This would test the capacity of the community leaders to find solutions to unexpected situations.
- A plan for the more significant logistical and safety issues. Field exercises require a smaller delivery team but a larger number of people to prepare all the logistical matters needed to run the exercise. A number of matters should be borne in mind to ensure that the simulated scenario that the participants are to be confronted with is as realistic as possible.
- In the case of a tsunami evacuation exercise, these matters are:
 - The method used to signal the beginning and end of tremors or to issue a tsunami warning;
 - The signage set up to mark out the zone to be evacuated, the route to follow and the safe location that must be reached in order to be out of danger;
 - What methods to deploy to secure the route that should be followed during the evacuation, particularly when that route follows roads normally used by cars;
 - Information to disseminate to residents in the community so that they are aware that an exercise is being conducted;
 - Make up and/or briefing for people ('bodies') whose role is to play a wounded individual or to disrupt proceedings;
 - Tabards or other methods of distinguishing the delivery group, participants and observers / evaluators.
- Field exercises also mobilize a large number of participants, people who ensure the safety of the players, and people placed at various locations where the exercise is taking place tasked with observing the responses of the players and evaluating the exercise. For a tsunami evacuation exercise, it might be useful to record how much time elapses between the first and the last participant reaching the safe location.

c. Completing the 'lessons learned' phase of the exercise

The lessons learned phase is essential in order to learn from past experience of conducting an exercise, capitalize on good practices and avoid making the same mistakes again.

The lessons learned phase generally breaks down into two parts:

- **'Hot lessons learned' or debriefing** occurs directly after the end of the exercise. The exercise command team facilitates this phase in which the various people that took part make comments. The team ensures that key points are recorded. This allows reference to be made later to the opinions of the participants, players, delivery team and evaluators regarding the positive points and the points for improvement.
- **'Cold lessons learned'** takes place several weeks after the exercise and is consolidated in writing. It often involves a smaller group of people. The process deals in more detail with lessons that can be drawn from the exercise. The positive points, the aspects to capitalize on and the points for improvement (objectives that were not achieved or bad practices that should be banned) all form part of the learning process. These lessons should be consolidated in writing and brought to the attention of the participants. They will be the basis of a draft action plan designed to improve the readiness of the participants. The consolidated lessons learned document will be the point of departure for the next exercise.

No exercises should be conducted without objectives or without a lessons learned phase to evaluate the extent to which those objectives were achieved

ANNEX

Annex N°1: Specification note for tsunami evacuation exercise

Collège Robert 3

Thursday 17 March 2016

SPECIFICATION NOTE FOR RUNNING AN EXERCISE (Page 1/2)			
Tsunami exercise – CW16			
Exercise type <input type="radio"/> Tabletop <input type="radio"/> In the field <input type="radio"/> Partial <input type="radio"/> Full scale <input type="radio"/> Planned <input type="radio"/> Unplanned	Location of exercise		Scheduled date Thursday 17 March 2016
	Risk type <input type="radio"/> Natural risk <input type="radio"/> Technological risk <input type="radio"/> Health risk <input type="radio"/> Social risk		Level of participants in the exercise: Establishment director Communal command post Departmental operations centre Academic crisis cell
	Timings: Day/night Morning/Afternoon Start time: 1030 End time: 1200		
Subject	<i>An earthquake measuring 8.4 on the Richter scale has occurred in the north of Venezuela. It has triggered a tsunami that is to strike Martinique. The warning comes from the Rector's Office - no tremors are felt.</i>		
Objectives	<u>Overall objectives:</u> Test the crisis	<u>Interim objectives:</u> <ul style="list-style-type: none"> • Activate the targeted 	<u>Specific objectives:</u> <ul style="list-style-type: none"> • Activate the targeted safety

	<p>cell in the college and the tsunami evacuation route</p>	<p>safety plan.</p> <ul style="list-style-type: none"> • Evacuate, ensuring that no one remains at the college (use checkpoints). • Check the responsibilities of each person in the crisis cell. • Test the tsunami evacuation route 	<p>plan.</p> <ul style="list-style-type: none"> • Walk to the tsunami safe location at Pontalery heights in less than 15 minutes. • Issue a situation report from the safe location to the Rector's Office. • Test the cascaded warning system (Town hall and Rector's Office => college).
Those involved	Selected	Low-intensity delivery	High-intensity delivery
	General public	<ul style="list-style-type: none"> ○ Collège Robert 3 	<ul style="list-style-type: none"> • Town hall • Departmental operations centre • Rector's Office • Fire and rescue service
	Other	<ul style="list-style-type: none"> ○ Media ○ Parents 	
Pace	<ul style="list-style-type: none"> ○ Fast 	<ul style="list-style-type: none"> ○ Slow 	<ul style="list-style-type: none"> ○ Compressed time
Weather conditions	<ul style="list-style-type: none"> ○ Real 	<ul style="list-style-type: none"> ○ Fictitious 	If fictitious:

<p>Communications about the exercise</p>	<p><input type="radio"/> Yes</p>	<p><input type="radio"/> No</p>	<p>If so, who is to provide the communications?</p> <p>Rector's Office</p> <p>Where and when?</p> <p>After the exercise</p>
<p>Communications during the exercise</p>	<p><input type="radio"/> Yes</p>	<p><input type="radio"/> No</p>	<p>If so, who is to provide the simulated media challenge?</p>
<p>Participants</p>	<p><input type="radio"/> Yes</p>	<p><input type="radio"/> No</p>	<p>If so, specify which and how many.</p>

SPECIFICATION NOTE FOR RUNNING AN EXERCISE (Page 2/2)

Tsunami exercise – CW16

<p>Scenario and timeline</p>	<p><u>General overview and breakdown of timings</u></p> <p>T-15 mins: Observers and evaluators to be in place at the college. Participants to be in place at the departmental operations centre.</p> <p>T0: Prefecture issues tsunami risk warning to coastal town halls.</p> <p>T+1 min: Town hall issues tsunami risk warning to college.</p> <p>T+1 min: Rector's office forwards tsunami risk warning to educational establishments in the coastal zone.</p> <p>T+2 mins: Director of establishment activates targeted safety plan and triggers the tsunami evacuation alert.</p> <p>T+3 mins: Evacuation of the school community using a roll</p>
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	<p>call system. Check that no one is left behind and that people with special needs are evacuated.</p> <p>T+15 mins: Muster at the tsunami safe location. Conduct roll call.</p> <p>T+20mins: Issue situation report to town hall and Rector's Office.</p>
Exercise rules	<p>Safety and actions to be either simulated or not played out according to the rules.</p>
Logistics	<p>Departmental operations centre room.</p> <p>Evaluators in educational establishment.</p> <p>Access to safe location secured.</p>
Evaluators	<p>Fire and rescue service</p> <p>Town hall</p>
Observers	
'Hot' lessons learned	<p>What time, where and with whom?</p> <p>In the establishment. With the observers in the establishment crisis cell.</p>
'Cold' lessons learned	<p>What time, where and with whom?</p> <p>Ten minutes after the end of the exercise, in the safe location, with the evaluators and checkpoint volunteers.</p>
Name of Director of exercise command	
Name of Director of delivery	

List of actions to be introduced (optional)	None

Annex N°2 : TIMELINE OF ACTIONS
Exercise CARIBE WAVE, collège Robert 3
Thursday 17 March 2016

Actual time	Exercise time	Sender	Receiver	Method of communication	Event	Expected response
1030	T0	Town hall	Director of establishment	Phone call	<i>An earthquake measuring 8.4 on the Richter scale occurred in the north of Venezuela. It triggers a tsunami that is to strike Martinique. The warning comes from the Rector's Office - no tremors are felt.</i>	<ul style="list-style-type: none"> - Activate the targeted safety plan. - Alert school groups and evacuate them to Pontalery heights.
	T + 1 min	Prefecture	Rector	Text message	The Prefecture issues a warning to the Rector's Office that a tsunami is likely to strike the coast.	<ul style="list-style-type: none"> - The text message is forwarded to all head teachers and directors of establishments. - The academic crisis cell is activated.
	T + 18 mins	Director of establishment	Town hall + Rector's office	Phone call	<p>Situation report issued: school groups (staff and pupils) have reached safety at Pontalery heights.</p> <p>We await instructions from the authorities.</p>	
1145	T + 1 h 15 mins	Town hall	Director of establishment	Phone call	Warning period ends	

Annex N°3: Signage for a tsunami hazard zone



BLUE INFOGRAPHIC ON RIGHT HAND SIDE:

Title reads:

SIGNAGE FOR A T SUNAMI HAZARD ZONE

Legible parts of the graphic with black/yellow triangle (left) and map (right) read:

[Left] Tsunami hazard zone

[Right] Tsunami evacuation plan. Collège du Robert 3

Caption underneath graphic with black/yellow triangle (left) and map (right)

Sign used in a hazard zone within the territories WITH evacuation plan

Each hazard zone symbol must appear together with an evacuation plan.

A sign showing the evacuation route must be on display where the route begins.

BLUE HEADING ABOVE 4 GREEN SIGNS

ESTABLISHING AN EVACUATION ROUTE

Legible parts of green signs read:

Tsunami evacuation route: 300m

Tsunami evacuation route: 430m

Tsunami evacuation route: 620m

Tsunami safe location: Pontaléry heights

Captions for green signs:

Evacuation route signs. These show the most direct routes to an elevated tsunami safe location. They are displayed in strategic places for maximum visibility (squares, junctions etc).

Tsunami safe location sign. This sign designates an assembly point at an elevated location that is more than 15 metres above sea level. It is a safe location that should be used as a priority by those in a given area where there is a risk of a tsunami.