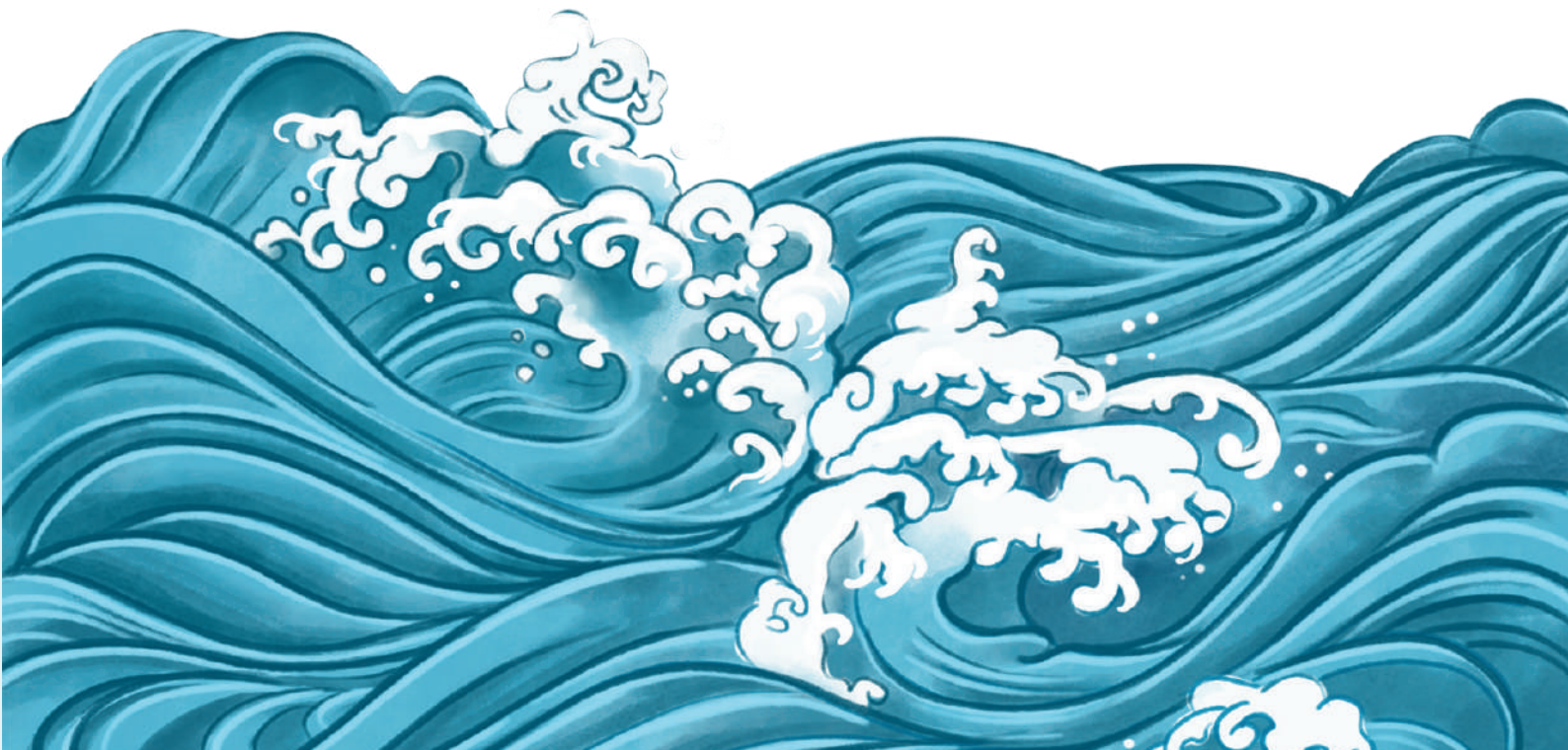




UNESCO/IOC TSUNAMI READY RECOGNITION PROGRAMME HANDBOOK

“For Tsunami Resilient Coastal Communities”

2024



KERALA STATE DISASTER MANAGEMENT AUTHORITY

UNESCO/IOC Tsunami Ready Programme Handbook

Prepared by
Dr Midhila Mallika
State Project Officer
KSDMA

Reviewer
Dr Sekhar L Kuriakose
Member Secretary
KSDMA & KSEOC



**Published by: Kerala State Disaster Management Authority with the support
from UNESCO**

July 2024

**Reference: Intergovernmental Oceanographic Commission - Manuals and Guides 74
& 82**

Kerala State Disaster Management Authority
Vikas Bhavan, P.O, Observatory Hills,
Opposite Kanakakkunnu Palace, Nanthancodu,
Thiruvananthapuram, Kerala 695033

Email: keralasdma@gmail.com
Website: www.sdma.kerala.gov.in

CONTENTS

1

PART 1 : WHAT IS TSUNAMI READY?

Introduction	2
TRRP Definition	3
TRRP Aim	3
TRRP Approachs	3

2

PART 2 : HOW OUR GRAMA PANCHAYAT CAN BE TSUNAMI READY?

TRRP Indicators	5
Significant Partners of TEP	6
Tsunami Rescue Plan – 6 Steps to Prepare	7
Step 1 - Assessment : Tsunami Inundation Mapping	9
Step 2 - Preparedness : Tsunami Evacuation Mapping	10
Step 3 - Response : Tsunami Response Planning	26
Step 4 - Tsunami Exercise - Mock Drill	31
TEP Check list	34

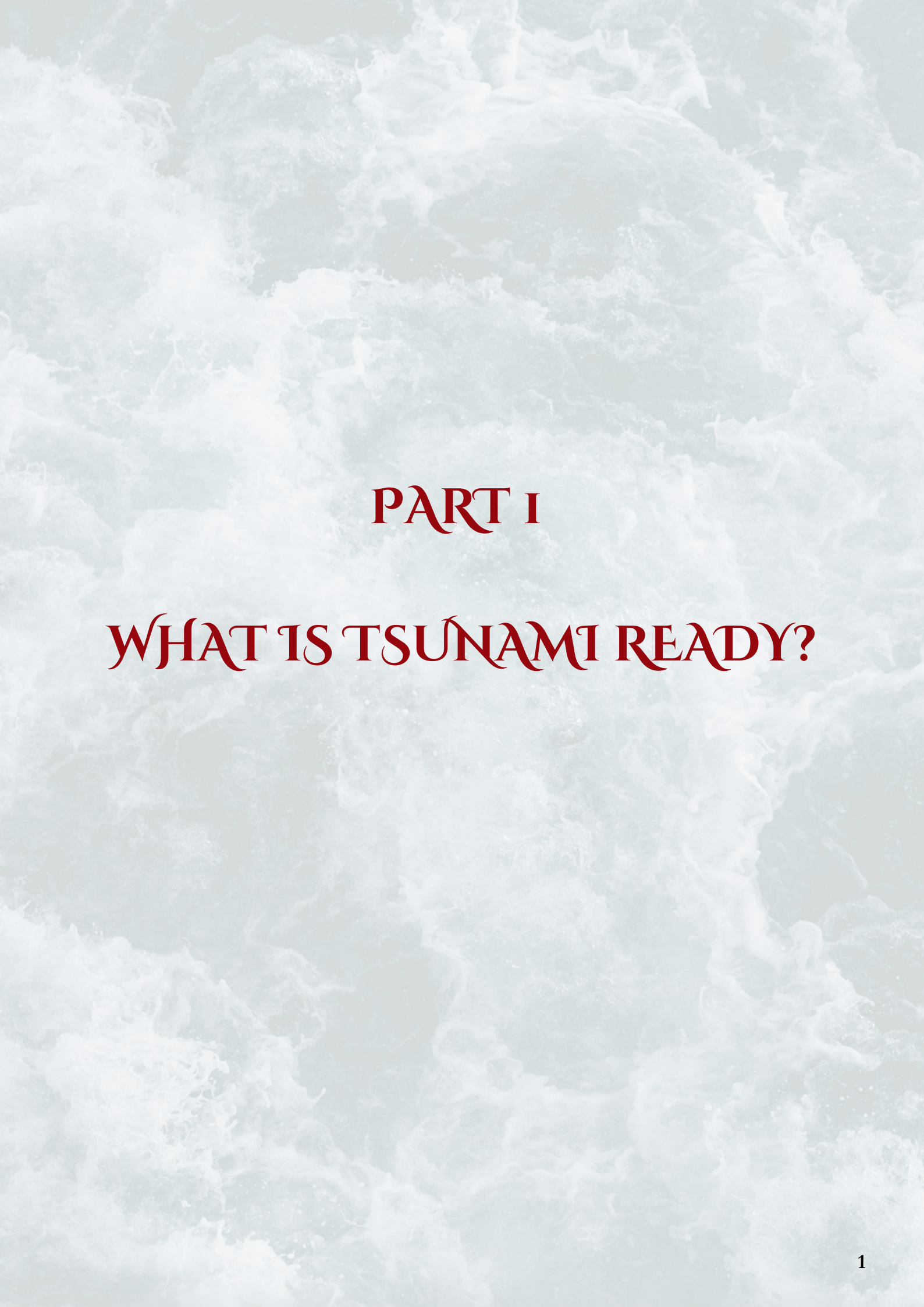
3

PART 3 : TSUNAMI PREPAREDNESS CHECKLIST FOR GRAMA PANCHAYATS

Guidelines for Official TEP Approval	37
Significant points to analyze before Official Approval	38
Pubic Evaluation Phases	38
Additional TEP Activities for Gram Panchayats	39

4

Appendix	40
----------------	----



PART I

WHAT IS TSUNAMI READY?

INTRODUCTION

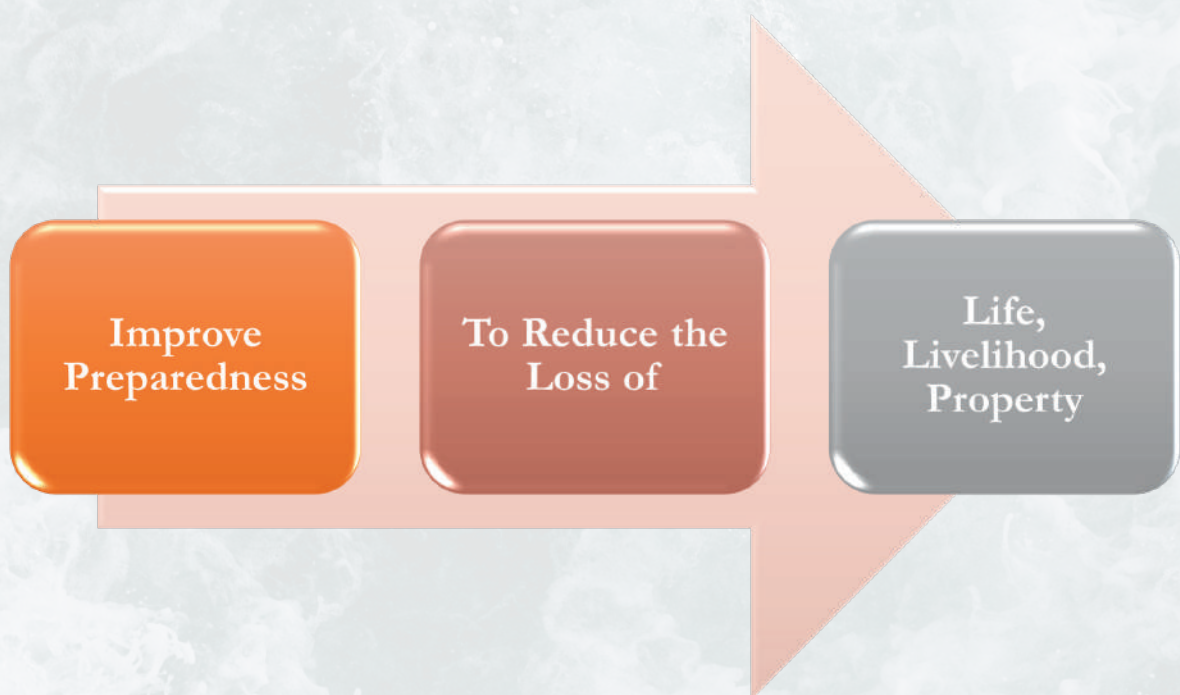
The UNESCO/IOC Tsunami Ready Recognition Programme (TRRP) is an international initiative aimed at reducing tsunami risks through community-based efforts.

This voluntary program encourages collaboration among national and local authorities, scientists, community leaders, and the public to foster a culture of tsunami preparedness. The primary goal is to minimize loss of life, livelihoods, and property by enhancing coastal community resilience.

To achieve the TRRP recognition, coastal communities must adhere to specific guidelines and fulfill all 12 prescribed indicators. This recognition is valid for four years and requires periodic re-evaluation.

TRRP DEFINITION

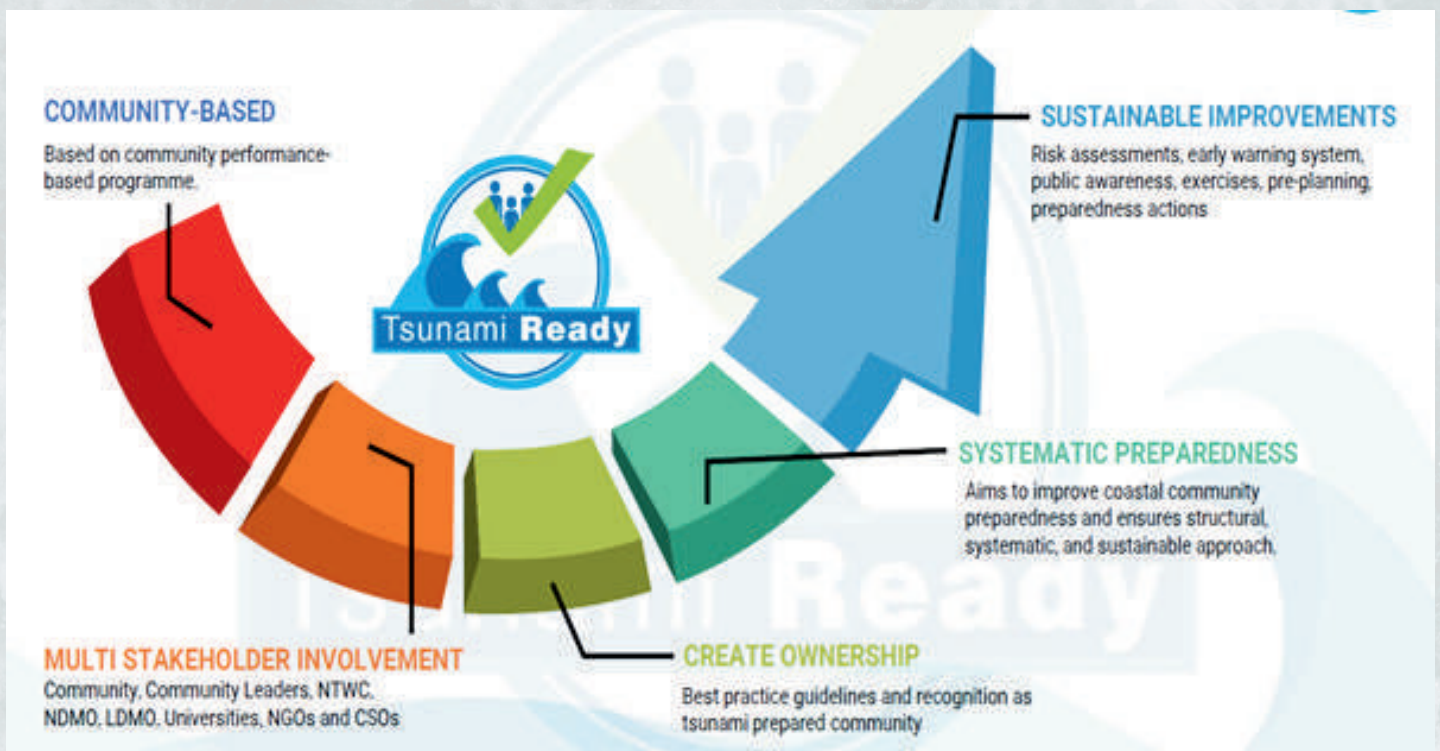
A concerted, community-led effort to enhance tsunami preparedness by adhering to established best practices and indicators, promoting voluntary and bottom-up approaches.



TRRP AIM



TRRP APPROACHS



PART 2

HOW OUR GRAMA PANCHAYAT CAN BE TSUNAMI READY?

4 BASIC ELEMENTS OF TSUNAMI READY EVACUATION PLANNING

4

Tsunami Exercise - Mock Drill

3

Tsunami Response Planning

2

Tsunami Evacuation Mapping

1

Tsunami Inundation Mapping

12-POINT CHECKLIST FOR TSUNAMI-READY GRAMA PANCHAYATS

TRRP INDICATORS



I ASSESSMENT (ASSESS)

1. Tsunami hazard zones are mapped and designated
2. The number of people at risk in the tsunami hazard zone is estimated
3. Economical, Infrastructural, Political, and social resources are identified



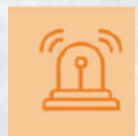
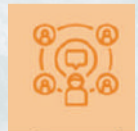
II PREPAREDNESS (PREP)

1. Easily understood tsunami evacuation maps are approved
2. Tsunami information including signage is publicly displayed
3. Outreach and public awareness and education resource are available and distributed
4. Outreach or education activities are held at least 3 times a year
5. A community tsunami exercise is conducted at least every 2 years

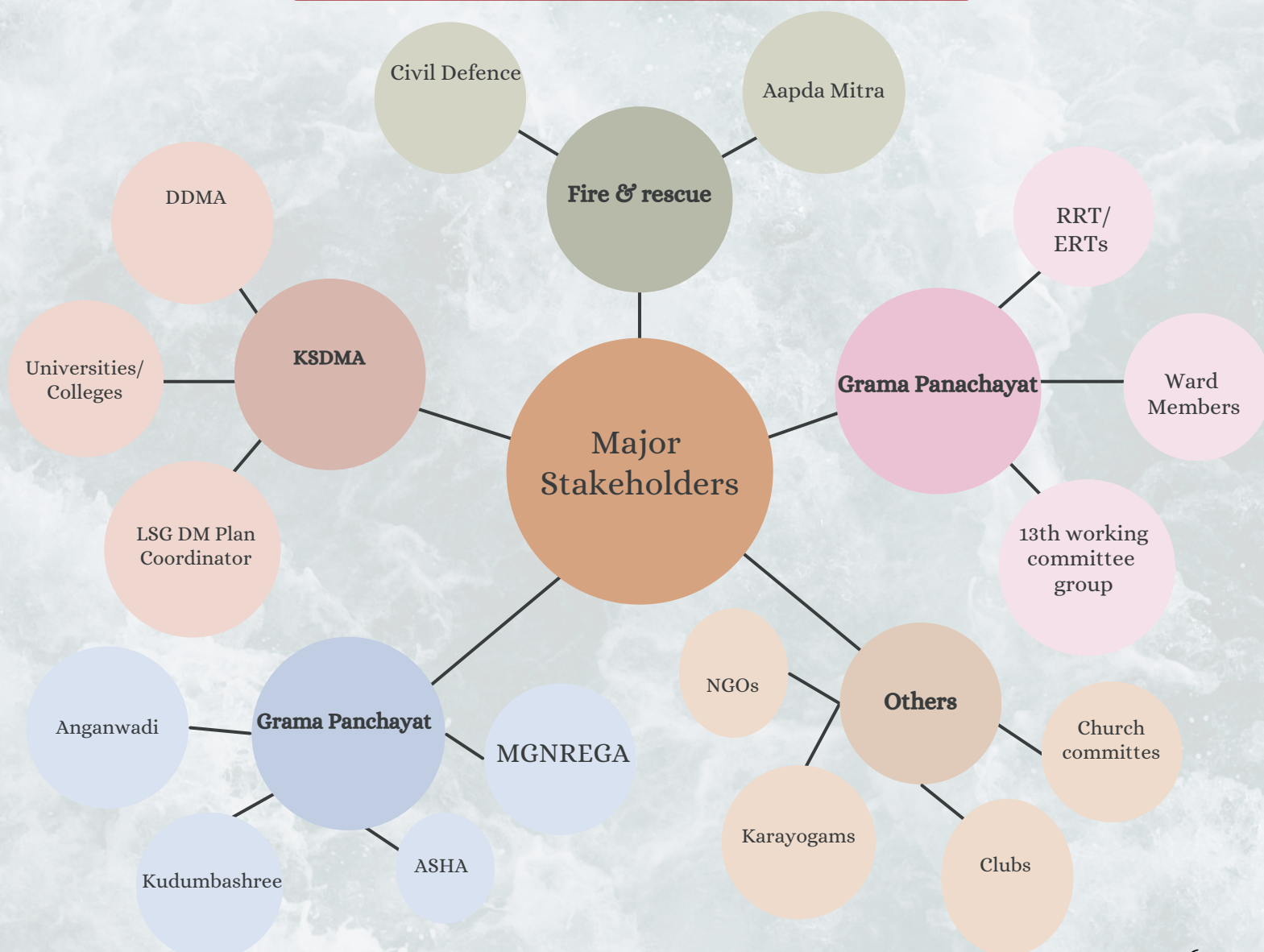


III RESPONSE (RESP)

1. A community tsunami Emergency response plan is approved
2. The capacity to manage emergency response operations during a tsunami in place
3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place
4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place



SIGNIFICANT PARTNERS OF TEP



TSUNAMI RESCUE PLAN – 6 STEPS TO PREPARE

No:	STEPS	NEEDS	ACTIONS	RESPONSIBLE STAKEHOLDERS
1	Planning	Planning Group	Team Determination	Working Group on Biodiversity, Climate Change and Disaster Management
			Training the Teams	District Disaster Management Authority (District Hazard Analyst and LSG DM Plan Coordinator), University/College
		Timeline to prepare the plan	Considering the State and Districts and Grama Panchayats Specificities and Requirements	The working group on Biodiversity, Climate Change and Disaster Management
		Finance	State Disaster Response Fund, Local Self- Government Unique/Development Fund	KSDMA, Grama Panchayat, UNESCO
2	Disaster Risk Analysis	Maps	Based on the information provided by INCOIS	State Disaster Management Authority
3	Draft Evacuation Plan	Strategy of Evacuation plan	Empower Civil Defence, Apada Mitra, Kudumbashree, NGO, Karayogam, Church Committees, IAGs and Clubs	The working group on Biodiversity, Climate Change and Disaster Management
		Areas where Evacuation is required	Are identified from areas as per the Maps provided by the State Disaster Management Authority (inspected locally)	University/College/Research Institutions

No:	STEPS	NEEDS	ACTIONS	RESPONSIBLE STAKEHOLDERS
		Evacuation Method	Priority will be given to Pregnant Women, Children, PwDs/differently-abled people, Bedridden Patients, Senior Citizens, Women and Men	The working group on Biodiversity, Climate Change and Disaster Management
4	Project Review, Approval, Implementation	Social Analysis	By Civil Defence, Apada Mitra, Kudumbashree, NGO, Karayogam, Church Committees, IAGs and Clubs	With the support of university/college/research institutions
		Identifying Areas to be Evacuated and Routes to be used	Based on Maps provided by the State Disaster Management Authority	The working group on Biodiversity, Climate Change and Disaster Management
5	Awareness among the Public/Communities	IECs, Notices, leaflets, Reels, Video, Social Medias	Meetings, through Social Media Groups, Household based Communication	The working group on Biodiversity, Climate Change and Disaster Management
6	Mock Drill	Practical review of the prepared plan	Implement timely evacuations of at-risk populations along pre-determined escape paths	State/District Disaster Management Authority, Working Group on Biodiversity, Climate Change and Disaster Management, State Forces

I ASSESSMENT (ASSESS)

TSUNAMI INUNDATION MAPPING

1. Tsunami Hazard Zones are Mapped and Designated

The primary source for mapping potential tsunami hazard zones is inundation modelling, which illustrates expected areas to be flooded by the tsunami. The result of an inundation modelling study is the tsunami inundation map depicting the tsunami hazard zone.

The maps are to be done by INCOIS, who is in charge of this phase under the leadership of the State Disaster Management Authority.

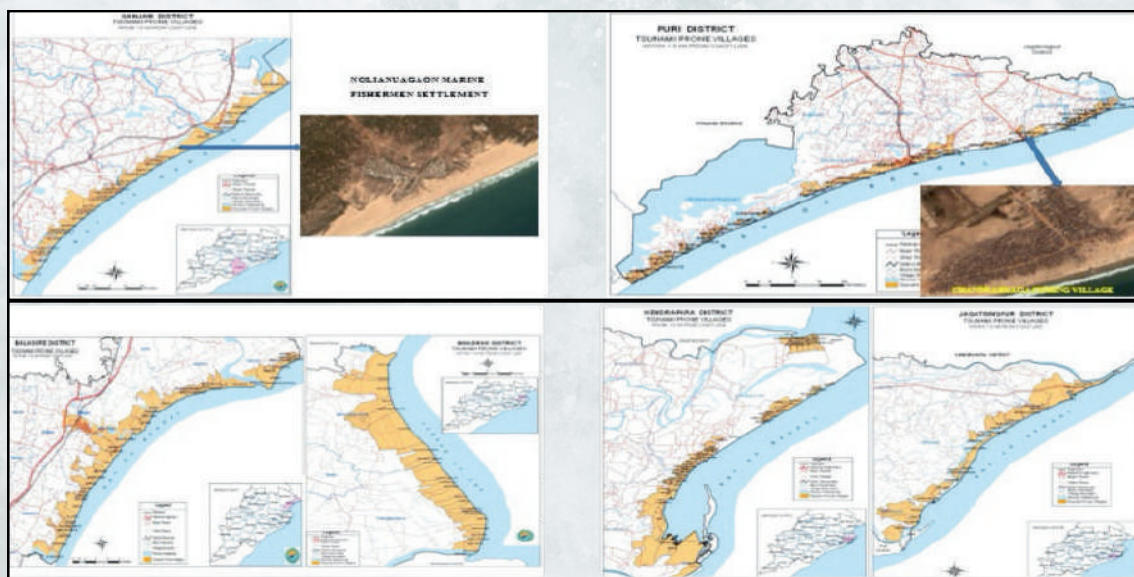


Figure 1: Example of inundation map

2. The number of people at Risk in the Tsunami Hazard Zone is estimated

This assessment should include local residents, vulnerable populations (persons with disabilities, elderly, young, etc.) and non residents (workers and tourists) that are at risk. It is also recommended to estimate both the daytime and nighttime population in the hazard zone.

Knowing the number of people in the hazard zone is necessary for guiding the response and is also relevant for planning evacuation shelters and defining evacuation routes.

Documents to refer for assistance:

- Grama Panchayat Disaster Management Plan.
- Data collection with ASHA workers and Grama Panchayat.



Figure 2: For Example

The 13th Working Committee of the Grama Panchayat, LSG DM Plan Coordinators, Hazard Analyst's and the University/Colleges will oversee this process.

3. Economic, Infrastructural, Political, and Social Resources are identified

The data will recognize the available local resources in the community to reduce its tsunami risk. This inventory could be a basic estimate that can be used as a reference in case of a tsunami incident. Being aware of local resources and capacities that are available, be these tangibles or intangibles, can strengthen the resilience of the community to cope with tsunamis.

The 13th Working Committee of the Grama Panchayat, LSG DM Plan Coordinators, Hazard Analyst's and the University/Colleges will oversee this process.

II PREPAREDNESS (PREP)

TSUNAMI EVACUATION MAPPING

4. Easily understood tsunami evacuation maps are approved

Tsunami evacuation maps should depict tsunami evacuation routes and assembly areas. Maps should be based on tsunami hazard zone mapping and in accordance with the community's TRP.

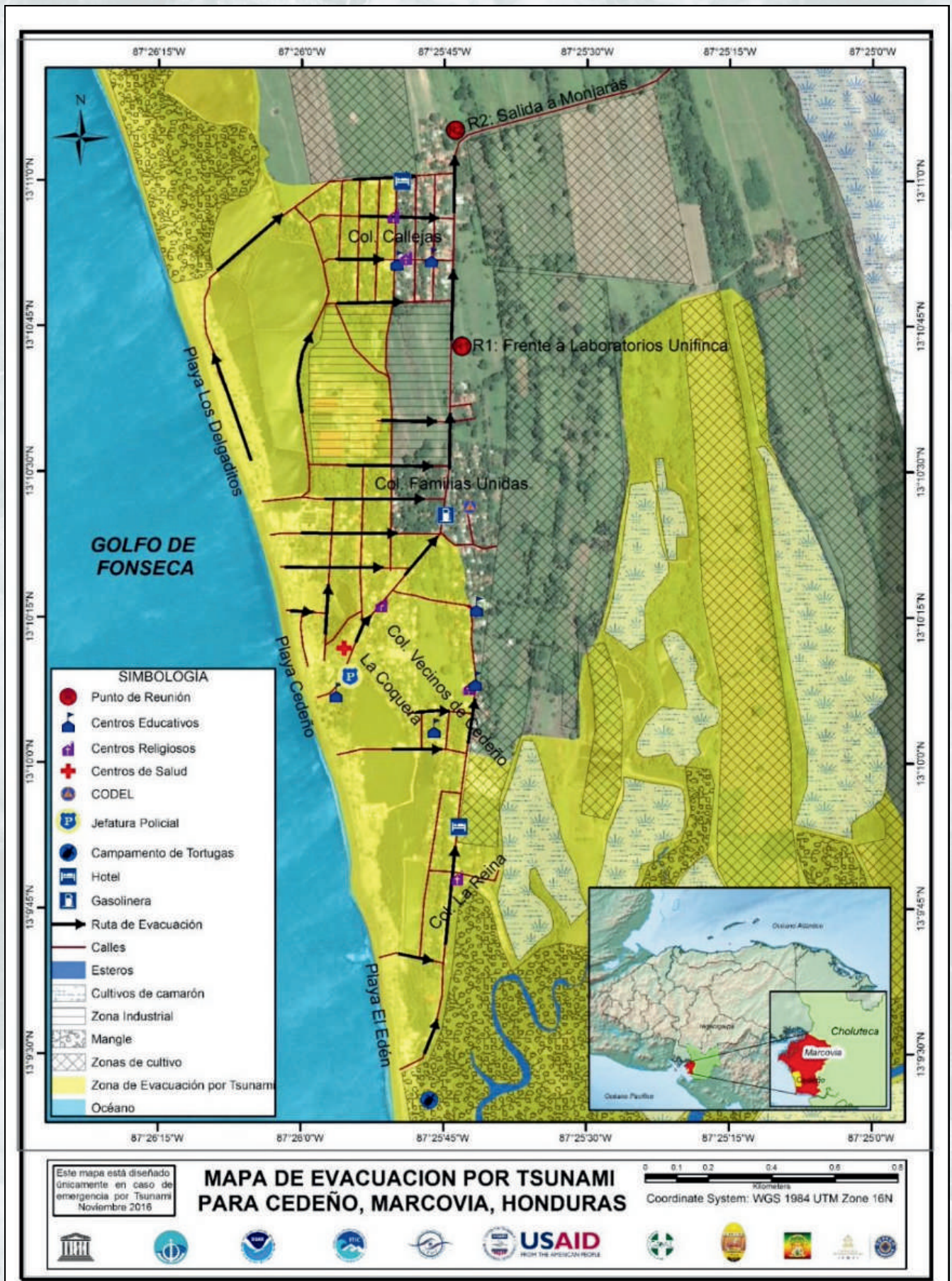


Figure 3: For Example

Maps should be made available via appropriate print and/or Digital Media.

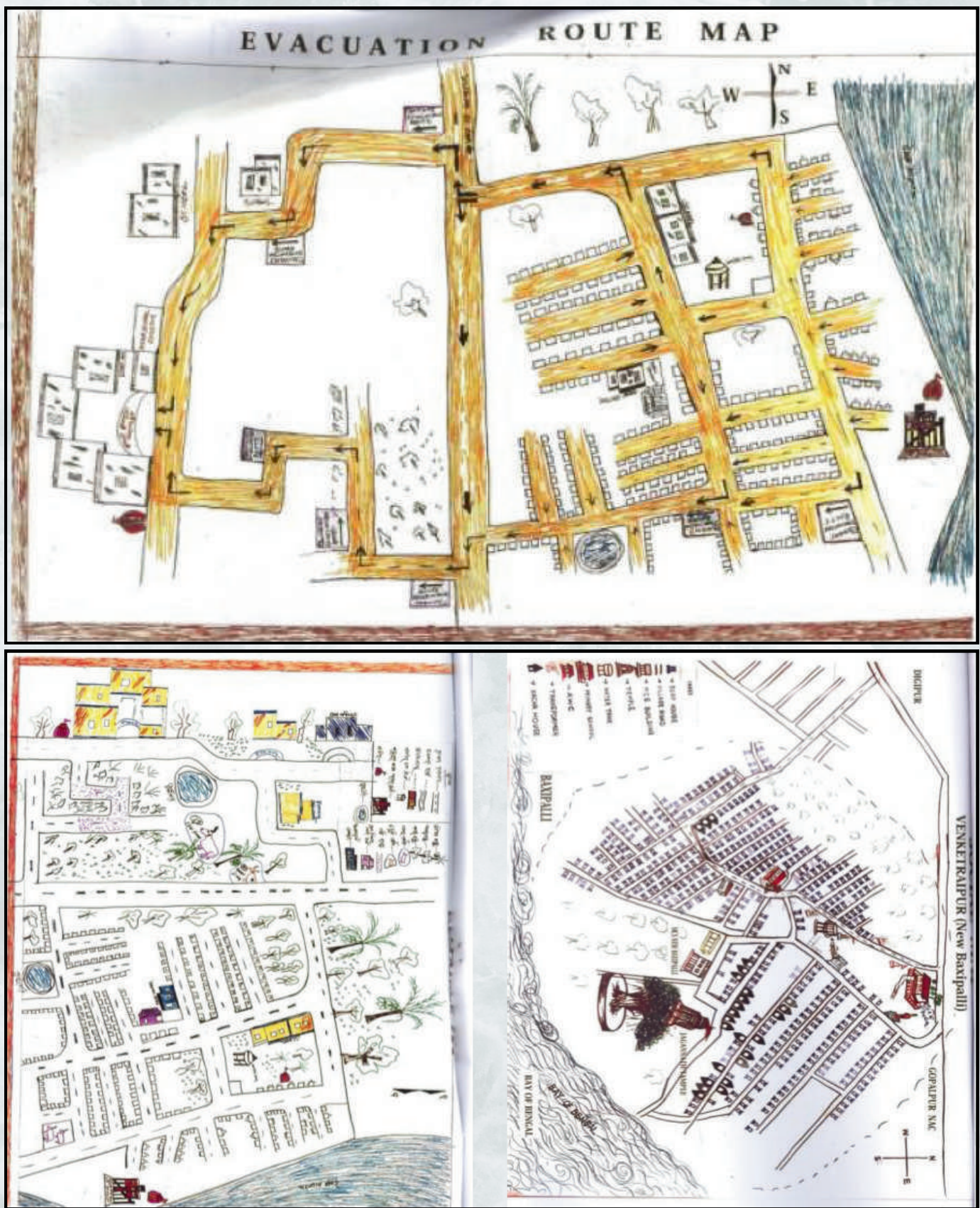


Figure 4: For Example: Easy-to-understand Tsunami Evacuation Maps prepared with the support of local communities/authorities.

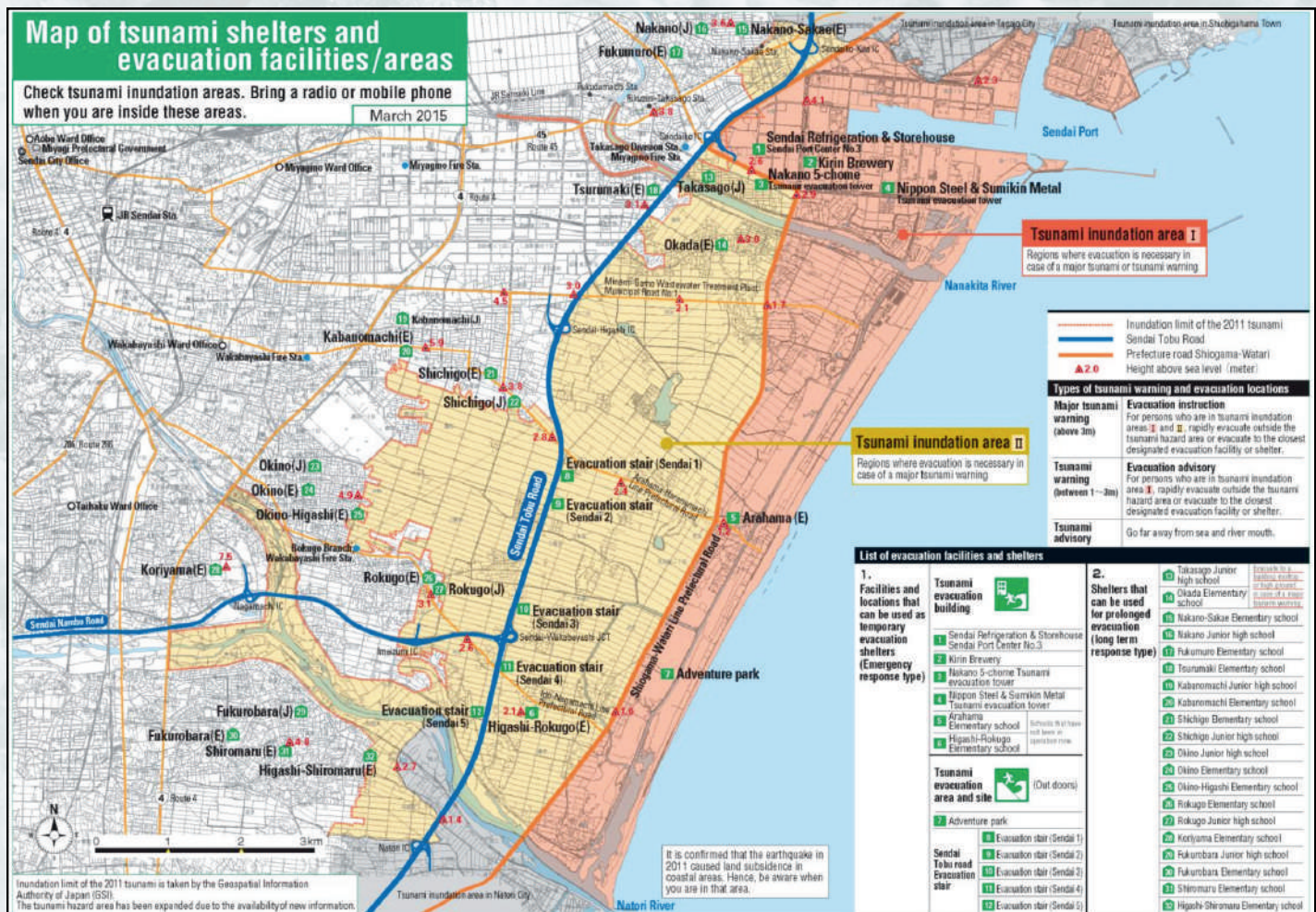


Figure 5: For Example

Essential Factors for Effective Map Creation

- Communities should be involved in the preparation of evacuation maps to incorporate local knowledge.
- (E.g. accessibility/difficulties to reach or to take certain evacuation routes).
- An evacuation map should illustrates the evacuation zones, routes and safer areas.
- (E.g. as higher ground or tsunami shelter, assembly areas and critical and sensitive facilities).

The 13th Working Committee of the Grama Panchayat, LSG DM Plan Coordinators, Hazard Analyst's and the University/Colleges will oversee this process.

CONTENTS FOR EVACUATION MAPS

- Symbols
- Color codes
- Base maps to be used
- Scale
- Legends
- Logos
- Overall layout of the Evacuation Map

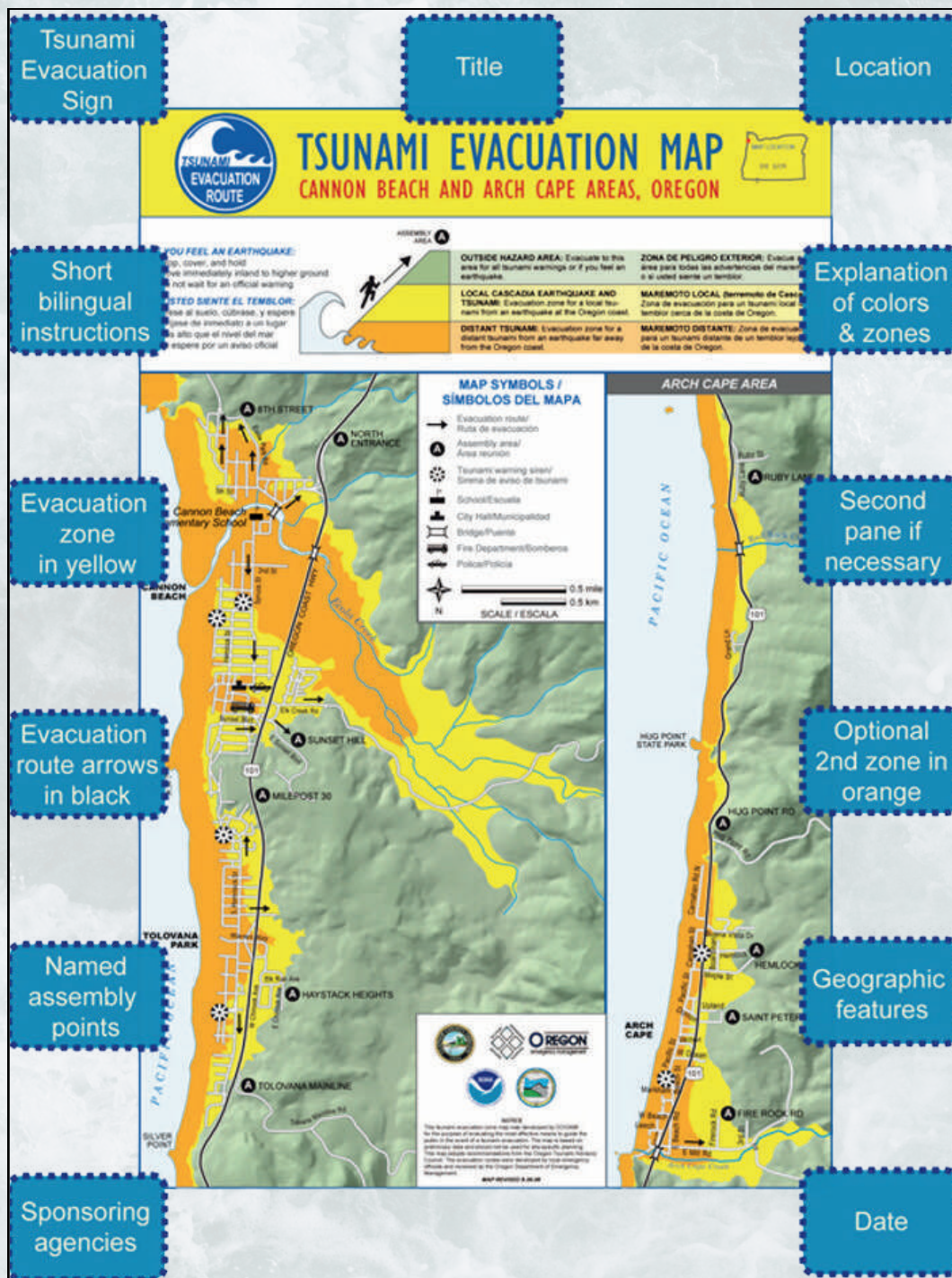
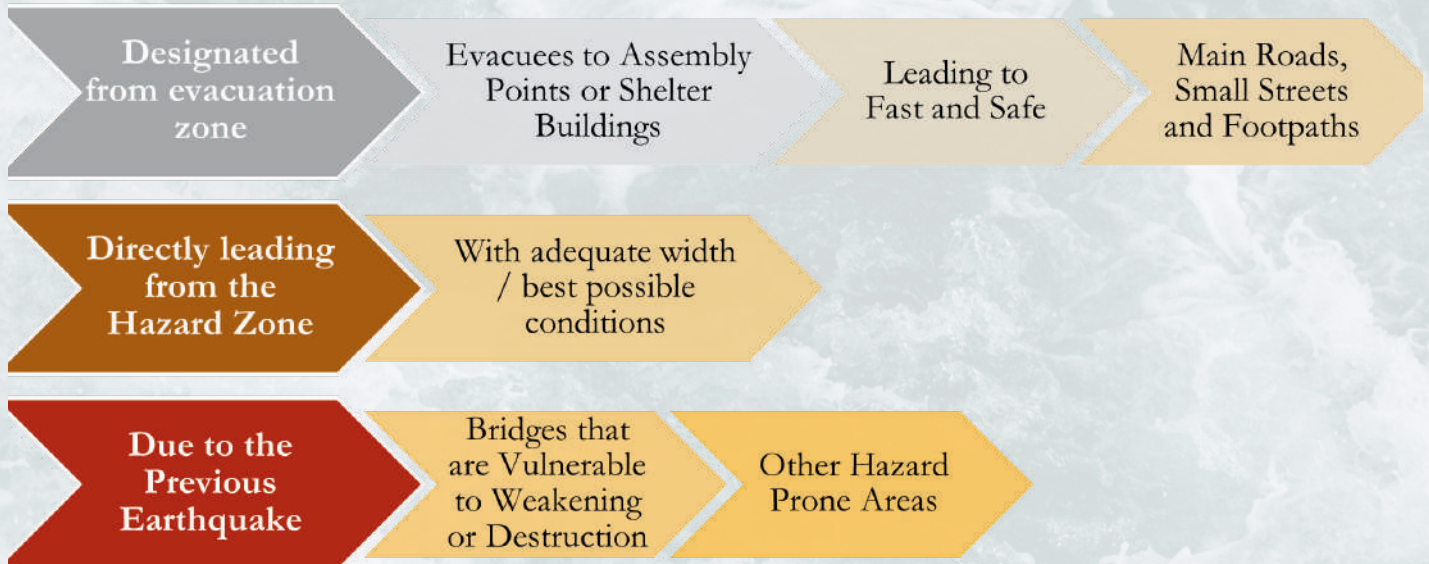


Figure 6: The evacuation map should include the following markings.

CHARACTERISTICS FEATURES OF THE ROUTES

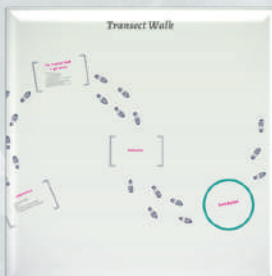


FOR THE APPROVAL OF MAPS - CONSIDER



Involve local residents to understand their perspective and learn about shortcuts in the community that can serve as fast evacuation routes

Field visits to Hazard prone areas to better understand the local situations



Conduct Walking Audits of Evacuation Routes to evaluate accessibility and timeframes

The community/beneficiaries can recommend alternative structural measures to make routes more navigable or to build additional routes if existing ones are inadequate



5. Tsunami information including signage is publicly displayed

The public display should provide signage about tsunami risk information, as well as public education on how to respond in the community in the event of a tsunami.

The most visible way to educate the public about the tsunami hazard in the coastal zone is by using signboards. The tsunami signage will contribute to public awareness of the risk posed by tsunamis and better understanding of what should be done by the community in response to the event. It is critical that residents and tourists be aware of tsunami hazard zones, evacuation routes and safe zones in coastal areas.

Public display signage related to tsunami information and response should follow the following 4 categories:



Essential Considerations

- Signage needs to be in accordance with national and local policies, and as deemed appropriate by authorities with possible assistance from partners.
- Signage needs to comply with national and/or international standards specifications.

(International Organization for Standardization (ISO 20712))



Evacuation route to tsunami
evacuation area



Evacuation route to tsunami
evacuation Building

1. Hazard / evacuation zone
2. Horizontal safe point
3. Vertical shelter

(Signage should be integrated with regional education, preparedness and mitigation programs)

Warning: Tsunami hazard zone To warn of a hazard from tsunami waves	Tsunami Evacuation Area To indicate the location of a safe place/uphill area for evacuation in the event of a tsunami	Tsunami Evacuation Building To indicate the location of a safe building for evacuation in the event of a tsunami

- Signage must inform both the local population and international visitors.
- Local or national authorities have to define the number of signs by localities.
- There must be signs for public education and signage for evacuation.



Figure 7: For Example



Figure 8: Example: Public display of Information Maps of Tsunami Hazard Zone, Tsunami Evacuation, Route, Signage, Safe Shelter and Tsunami Safe Location/ Assembly Area



KEY CONSIDERATIONS FOR INFORMATION BOARD DESIGN

TSUNAMI EVACUATION	TSUNAMI HAZARD	UNDERSTANDING THE WARNINGS
- Evacuation Map and Procedures - Explanations of Signage Symbols - Tsunami Warning Procedures	- Tsunami Hazard Zone - Type of Tsunami - Significant facts about Tsunami - Tsunami Histories	- Official Warning - Unofficial Warning - Natural Warning Signs

Language and Signs/ Signboards

- Sign and Information boards should be in Malayalam.
- But if there are guest workers in the respective area then the language they mainly speak can also be considered.
- A few Sign / Information boards may be in English if there are tourist centers in the respective Grama Panchayat.



Figure 11: ഉദാഹരണം: പ്രാദേശിക ഭാഷകളിലെ സൈൻ ബോർഡുകൾ

Location and Signs/signboards

- The number and location of tsunami signs boards should be consistent with tsunami prone areas.
- Boards should be installed in vulnerable areas of Grama Panchayat.
- Sign boards should be installed in public places.

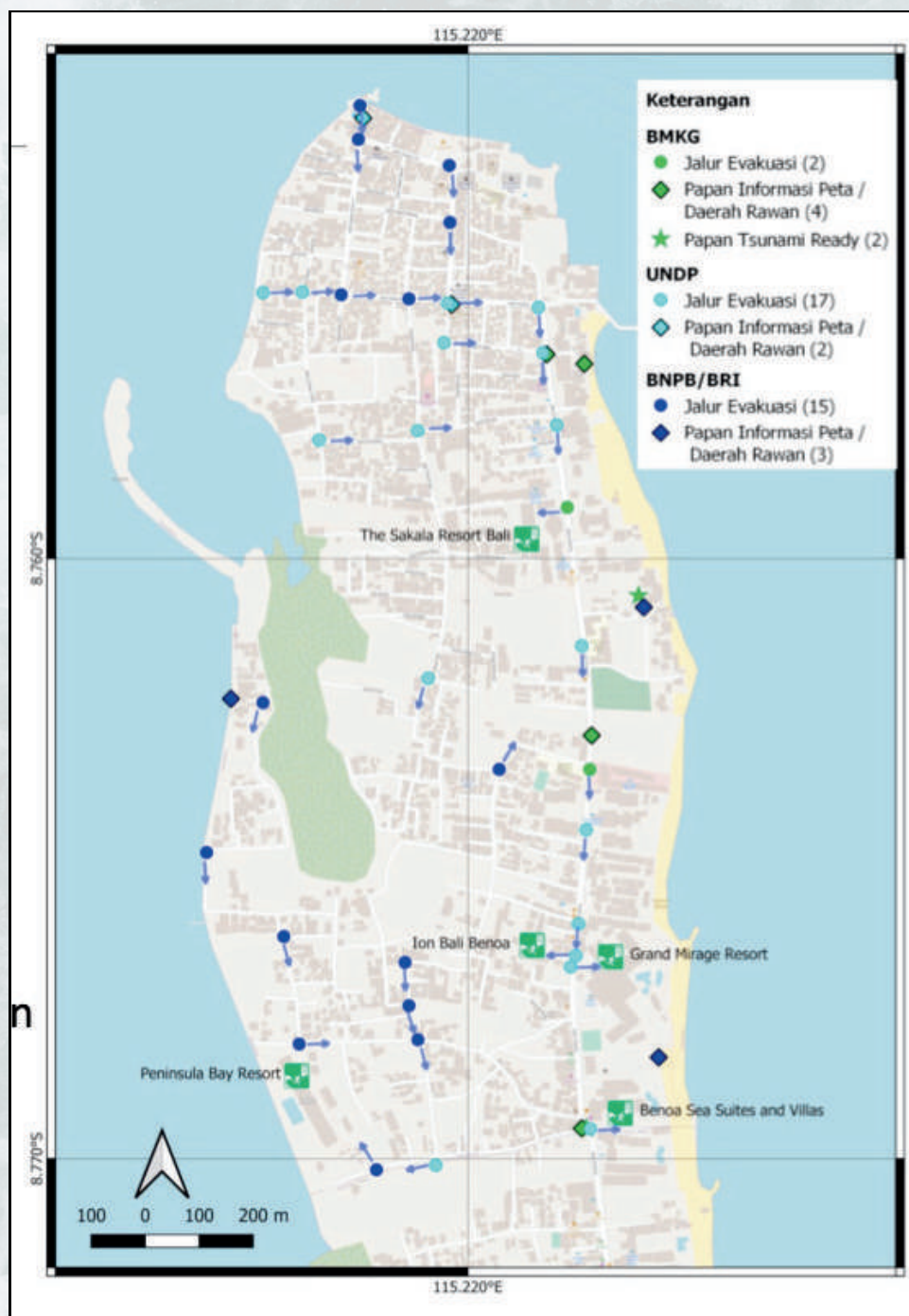


Figure 12: Example: Visual Guide to Tsunami Evacuation Signage Locations

For more information on ISO approved International Signages:

http://itic.ioc-unesco.org/index.php?option=com_content&view=article&id=1645&Itemid=2322



The 13th Working Committee of Grama Panchayat, LSG DM Plan Coordinators, District Disaster Management Authority, University/College, State Disaster Management Authority and NATPAC are to oversee this process.

6. Outreach and public awareness and education resources are available and distributed

Educational materials tailored to the local context should include the following:

- Tsunami evacuation maps.
- Evacuation routes.
- Safety tips and information's.
- 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.

DISTRIBUTION SHOULD USE THREE OR MORE WIDE-REACHING DIVERSE METHODS, INCLUDING, BUT NOT LIMITED TO:

- Brochures and flyers distributed at public venues and/or bulk mailed to local residents and businesses.
- Newspaper inserts.
- Public utility/service industry bill safety notices.
- Local faith-based and civic organization bulletins/mailings.
- Local radio and television.
- Billboard, roadside, highway or educational signs.
- Historical markers and interpretative signs.
- Informational or safety videos.
- Public service announcements (voice, video).
- Bulk email.
- Websites/social media.



Figure 13: Examples of educational resources

Grama Panchayat, State Disaster Management Authority, District Disaster Management Authority and LSG DM Plan Coordinators are to supervise this process.

7. Outreach or educational activities are held at least three times a year

Public outreach and educational activities should be conducted annually in the community. The aim is to educate community residents, businesses, and visitors, with an emphasis on those in the tsunami hazard zone, on tsunami hazards, evacuation routes, how warning information will be received (including natural warnings for regions with a local tsunami threat), safety, and response.

Focuses on:

- **Tsunami Hazards:** Raise awareness about the risks and effects of tsunamis.
- **Evacuation Routes:** Educate participants on designated evacuation routes and proper evacuation procedures.
- **Warning Systems:** Explain how tsunami warnings are disseminated (including interpreting natural warning signs for relevant areas) and the importance of prompt response.
- **Safety measures:** Provide guidance on safety practices during a tsunami incident.
- **Multi-Hazard Approach:** Integrate tsunami awareness with preparedness for other natural disasters as long as the content emphasizes tsunami risks.
- **Multi-Hazard Approach:** Integrate tsunami awareness with preparedness for other natural disasters as long as the content emphasizes tsunami risks.

OPERATING FREQUENCY

•**Minimum Requirement:** A minimum of three public outreach activities per year should be conducted in each community.

•**Community Wide Event:** At least one of these activities should be a large-scale event involving the entire community.

Acceptable activities include, but are not limited to:

- 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.



Grama Panchayat, District Disaster Management Authority and LSG DM Plan Coordinators are to supervise this process.

8. A community tsunami exercise is conducted at least every two years

COMMUNITY EXERCISE OPTIONS

- **Focus:** The exercise can focus solely on the tsunami hazard or can be a multi-hazard exercise that also addresses the tsunami hazard combined with a fire, flood etc.
- **Types:** The exercises could be tabletop, functional or full scale
- **Tabletop:** Discussions and simulations focused on decision-making processes.
- **Functional:** Simulations involving simulated interactions and response actions.
- **Full Scale:** Realistic simulations involving deployment of personnel and resources.

ESSENTIAL ELEMENTS

- **Communication testing:** Exercises should include testing of communication channels within the tsunami warning system.
- **School Participation:** Schools within the mapped evacuation zone should be strongly encouraged to participate by conducting an evacuation drill during the exercise.
- **Post-Exercise Assessment:** Developing a comprehensive drill assessment after the community exercise is critical to identify strengths, weaknesses, and areas for improvement.

Grama Panchayat, 13th Working Committee of Grama Panchayat, LSG DM Plan Coordinators, Hazard Analyst's, District Disaster Management Authority and Fire and Rescue and other significant state forces will supervise this process.

III RESPONSE (RESP)

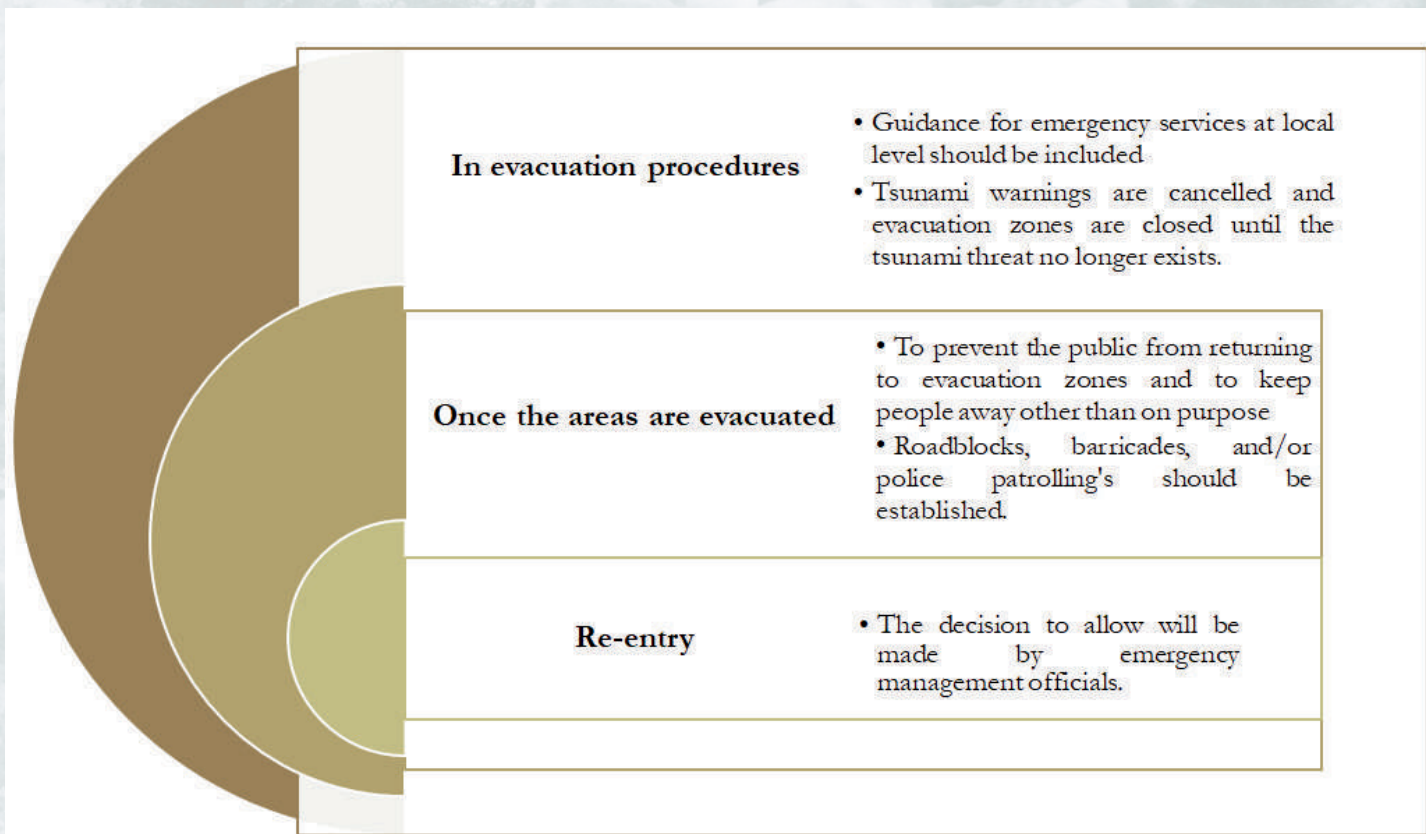
TSUNAMI RESPONSE PLANNING

9. A community tsunami emergency response plan is approved

The community must have a community TRP in place that addresses responding to a tsunami incident. This can be part of a multi-hazard emergency response plan as long as it covers a specific plan for tsunamis. If a community-level plan does not exist, other acceptable plans include a countywide emergency response plan or a state or local (province, district or village) comprehensive emergency management plan.

To meet this requirement, plans should:

- Identify the hazards associated with tsunamis.
- Present tsunami-hazard profile, including source locations, extent of inundation, run-up or height that a wave reaches above sea level, previous tsunami occurrences and likelihood of future tsunamis in the community.
- Describe community vulnerability, including areas exposed to inundation and an impact summary of the resident population and specific sub-populations of people expected to be affected (e.g. persons with disabilities, visitors, seasonal workers), businesses, and critical infrastructure.
- Detail 24-hour warning procedures relating to tsunamis.
- Specify criteria and procedures for the activation of the public warning system in its area of responsibility, e.g. criteria and procedures for siren activation, broadcasting/cable television override, and/or local activation in accordance with emergency warning system plans, warning fan-out procedures, and communication to persons with disabilities.
- Include evacuation plans for tsunamis, roles of community entities/agencies, tsunami hazard zone maps with evacuation routes, and protocols for evacuation, including persons with disabilities.
- Include procedures for updating information and determining when to advise it is safe for (1) emergency response personnel to enter the evacuated zones, and (2) when it is for the public to return to homes and businesses in the evacuated zone(s), e.g. “All Clear” status has been given.
- Include procedures for providing security for the evacuated zone(s).
- Include procedures for reporting tsunami impacts in the community.
- List schools and critical infrastructure. Schools and infrastructure facilities should be encouraged to include tsunamis in their emergency response plans.



Grama Panchayat, District Disaster Management Authority and State Disaster Management Authority are to supervise this process.

11. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place

The community should be able to receive tsunami threat notifications at any time (24-hour) from the Emergency Operation Center or Disaster Management Authority, or other officially recognized alerting authorities such as local emergency management agencies.



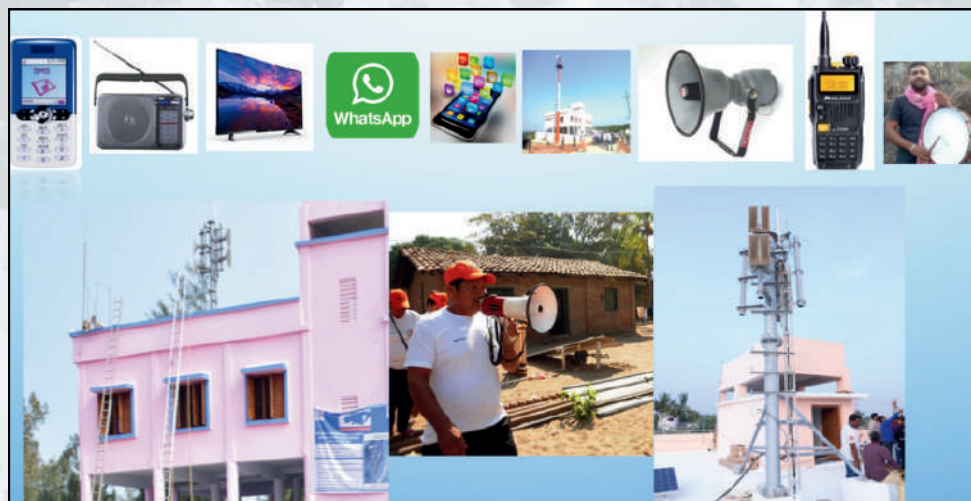
Notifications must be able to reach the 24-hour receipt point by at least three of the following methods:

- Public Alert Radio Systems, like Radio Digital Signals (RDS).
- National/Territorial warning call-out tree system (documented in writing with backup indicated).
- Instant messaging programs available via the Internet used by operational personnel to share critical warning decision expertise and other significant information.
- Amateur Radio transceiver: Potential communications directly to NTWC or TWFP or Emergency or Disaster Management Office or other official alerting authority.
- Through a third-party provider: Typically received via phone, email and/or a texting service to a smartphone, tablet, or computer.
- Local Radio: Emergency Alert System (EAS).
- Active Internet monitoring capability, including social media such as Facebook, Twitter, WhatsApp, Viber, Signal, others.
- Direct email from NTWC, TWFP and/or Disaster Management Office.
- Direct fax from NTWC, TWFP and/or Disaster Management Office.
- Text message, direct pager or social media message from NTWC, TWFP and/or Disaster Management Office.
- Coast Guard (CG) or other maritime agency official broadcasts: warning point monitoring of CG marine channels.

District Disaster Management Authority and State Disaster Management Authority are to supervise this process.

12. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place

The community should be able to disseminate tsunami alerts, especially warnings to all of its members.



Alerts must be able to be disseminated at any time of the day from the warning point (24-hour) and/or EOC through at least three of the following methods:

- Country EAS message initiation and broadcast.
- Public/private television and audio/video overrides (broadcast of 'breaking news').
- Local flood warning systems ideally with no single point of failure.
- Audible alerts, such as outdoor warning sirens, siren/megaphone mounted on emergency vehicles, school or church bells or mosque loudspeakers, village 'bells' (old propane tank hung from tree hit with metal rod).
- Visual alerts, such as roadway signs (electronic billboards), flags or banners (colour coded or with specific symbology).
- Local pager/texting system.
- Other local alert broadcast system and Amateur radio operator network.
- Call out tree.
- Telephone mass notification system (automatic dialing).
- Telephone mass notification system (automatic dialing).
- For counties, parishes, islands and boroughs, a countywide communications network that ensures the flow of information between all cities and towns within its borders, including acting as the surrogate warning point and/or EOC for com
- Social media usage (Twitter, Facebook, WhatsApp, Viber, Signal, others.).
- Water safety officials, such as lifeguards on beaches and on patrol.
- Airborne notification, such as by low-flying airplanes equipped with speakers, and/or flags/banners flying pre-planned routes along coastlines.

Grama Panchayat, District Disaster Management Authority and State Disaster Management Authority are to supervise this process.

TSUNAMI EXERCISE - MOCK DRILL



- At least every 2 years
- An opportunity to train communities, the public and institutions
- Check/examine communities' ability to evacuate
- Increase overall tsunami awareness, preparedness and education.
- Empower communities

PREPARATION

- Form a team.
- Define Goals and Objectives.
- Key performance indicators and success criteria.
- Scope (what will be tested, who will be involved, situation, location, date, time).
- Bring Realism.
- Information for the public and stakeholders.
- Written Documentation.
- Community Briefing.



SCALE

- Community Exercising/ Mock Drill
- Evacuation drills and small exercising regularly
- Tabletop Exercising/ Mock Drill
- Full Exercising/ Mock Drill

TIME

- Follow the country's tsunami warning network, standard operating procedures and evacuation plan.
- Try not to make up procedures on the day and instead follow through on what has already been agreed upon.
- Pre-prepared activity checklists and flow charts can be useful to refer to during exercise.

EVALUATION

- An effective evaluation and improvement measures should be developed and implemented.
- Don't expect perfect results, evaluate holistically. A Tsunami exercise is to test what works.
- Define evaluation criteria and use observation sheets or checklists to record observations
- You can include internal/external observers. Make sure the results are well documented.
- "Hot debriefs" can be done directly after the exercise to capture new impressions and experiences from participants and partners.
- "Cold debriefs" are usually held within 4 weeks of the exercise, after participants have had time to reflect on what went well and what needs improvement.



Figure 15: Mock Drill Examples (Pictures from tsunami mock drills conducted by KSDMA).

EVACUATION STRATEGY CHECK LIST

Components	Your findings
Evacuation Zone Is the evacuation zone explained?	
Evacuation Time - Minimum ETA in your area? - What triggers an evacuation? - Total time available for evacuation?	
Type of evacuation - Voluntary / Mandatory? - Self evacuation?	
The decision to formally call for evacuation - Who? - Based on what information? - Is there an SOP? - How to spread?	
Methods of evacuation - Horizontally by any means (by foot, bike or car)? - Vertical?	
Assembly areas - What type? - Place? - Capacity (number of people)?	
Difficult to evacuate areas Outline locations on the map	
Support measures for vulnerable facilities - For which facilities need support? - Where are they	
Traffic management - Yes / No? - If yes, at what stages?	

PART 3
TSUNAMI PREPAREDNESS
CHECKLIST FOR GRAMA
PANCHAYATS

TSUNAMI EVACUATION MAPPING

1. Obtain necessary information (Tsunami Inundation and arrival time, community map or plan)

2. Identify the Evacuation Zone.

3. Identify Evacuation Assembly Sites or Areas and Routes.

4. Work with the community/people for feedback

5. Finalize Tsunami Evacuation Map and Signage.

6. Get Official Permission

TSUNAMI RESPONSE PLANNING

1. Get the necessary information

2. Develop a Response Plan

3. Develop Standard Operating Procedures (SOP)

4. Develop Public Awareness

TSUNAMI EXERCISING/ MOCK DRILL

1. Get the necessary information

2. Plan Exercising/ Mock Drill

3. Conduct Exercising/ Mock Drill

4. Evaluate Exercising/ Mock Drill

5. Implement recommendations

GUIDELINES FOR OFFICIAL TEP APPROVAL



TEP preparatory activities



Identify areas to be evacuated and conduct vulnerability analysis



Analyze the vulnerability



Describe the overall evacuation strategy and procedures



Designating assembly areas for first response



Establish the most appropriate routes to exit the evacuation zone and reach the assembly areas



Design useful evacuation maps



Signage



Engage with the community

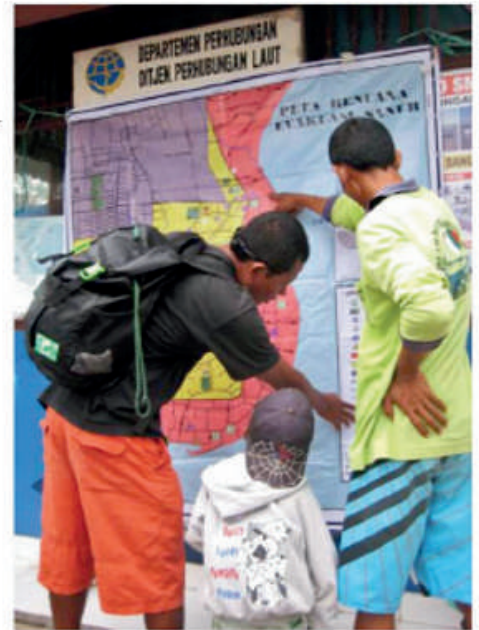


Obtain approval / approval from the authorities

SIGNIFICANT POINTS TO ANALYZE BEFORE OFFICIAL APPROVAL

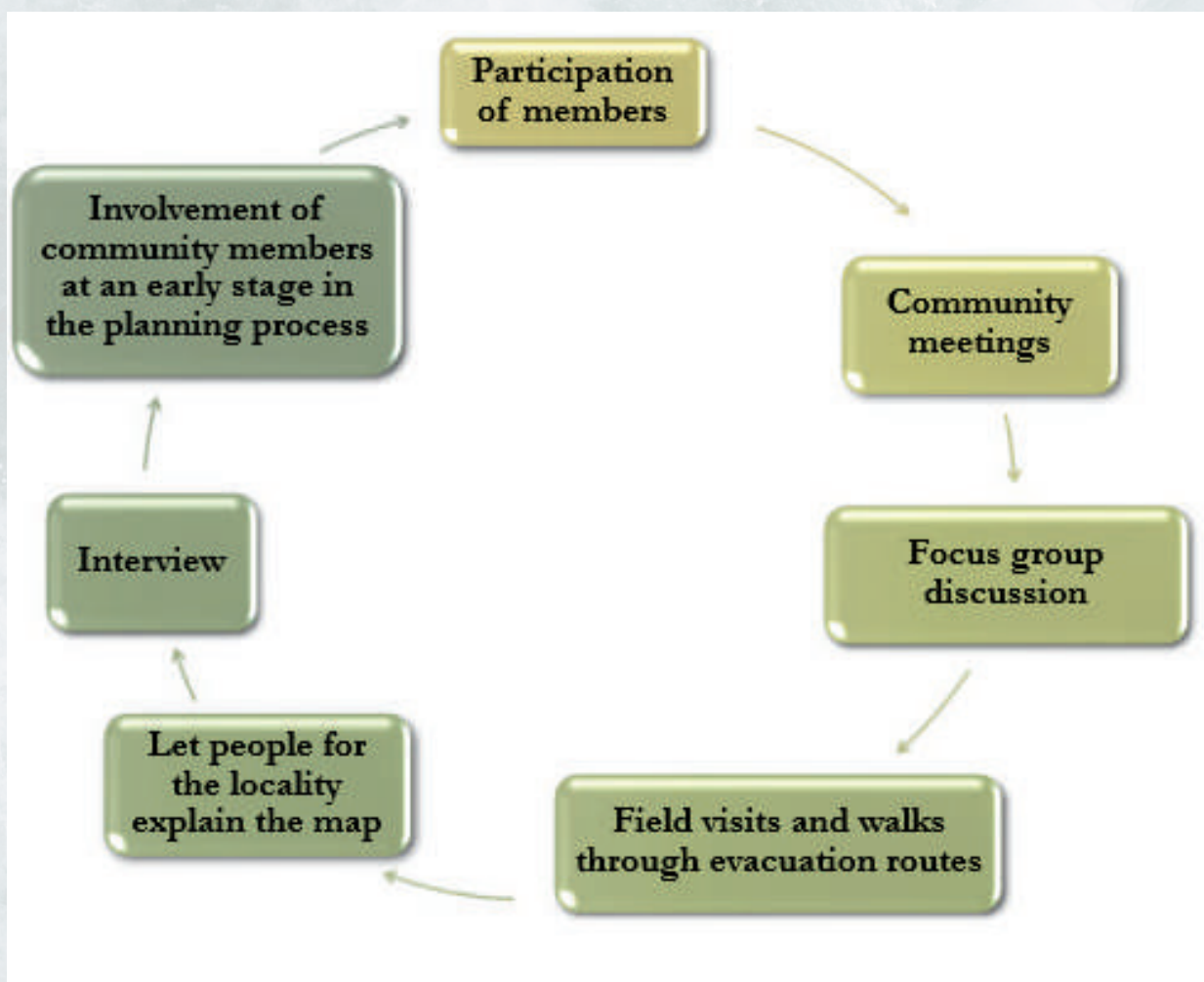
GENERAL ASSESSMENT :

- Are Evacuation Zones clearly delineated?
- Does the plan clearly state how to get to the Safe Zone or Shelter buildings?
- Are the Evacuation Routes realistic and seamless?
- Does the plan ensure that timely Evacuation warnings will be issued?
- Does the plan say how to evacuate?
- Is it easy to memorize and understand the prepared plan?
- What can be improved?



OFFICIAL TEP ENDORSEMENT!

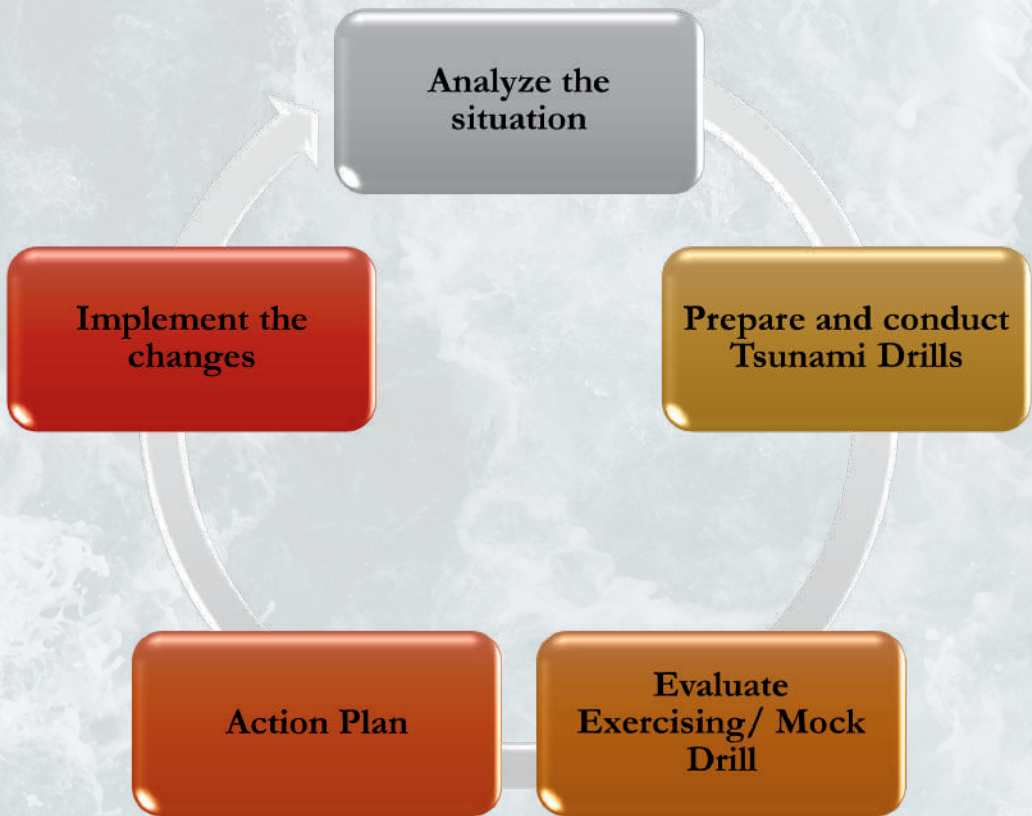
PUBIC EVALUATION PHASES



THREE OTHER ACTIVITIES TO BE UNDERTAKEN BY GRAM PANCHAYATS AS PART OF TEP



TSUNAMI READY MEANS THE SYSTEMATIC PREPARATION OF A GRAMA PANCHAYAT FROM STUDY TO ACTION



APPENDIX

TSUNAMI AWARENESS MATERIALS FOR REFERENCE

¡TSUNAMI! ¡Olas destructivas!

- 

¿Qué es un Tsunami?
Es una serie de olas en el mar producidas por un fuerte sismo, deslizamiento o erupción volcánica.
- 

¿Cuándo puede suceder?
Puede ocurrir en cualquier momento y lugar en el océano, incluso a la costa. Los tsunamis viajan a la velocidad de un jet a altas temperaturas.
- 

¿Cuáles son sus efectos?
Puede destruir edificios, carreteras, puentes, barcos, etc. y causar muchas víctimas.



Utiliza tus sentidos, reconoce las señales de un ¡TSUNAMI!

¡Siente! Fuertes sismos, la tierra se sacudirá severamente o por tiempo largo.
¡Mira! Un descenso del nivel del mar como si éste se retirara, podrás observar el fondo marino.
¡Escucha! Un tsunami acercándose crea un fuerte ruido, similar al de un tren o avión supersónico.
¡Corre! Una muralla de agua que se acerca a la costa.

No espere, ordene, oficiales de evacuación, alijate de las zonas costeras y busque las zonas más altas.

#PREVENIRESVIVIR



¡TSUNAMI! Utiliza estos pasos para el Simulacro

¿Qué hacer si se acerca un tsunami?

- Reacción:**
Actúa como si estuviera ocurriendo un terremoto, durante un minuto, cubrete, agáchate y sujétate.
- Reacción:**
La población participante debe dirigirse al sitio de evacuación del lugar establecido.
- Reunión:**
Según el plan de emergencia la población se reúne por grupos.
- Conteo:**
Verifiquen el número de personas movilizadas según censo de la comunidad.
- Finalización:**
El coordinador del simulacro informará sobre el final de la acción.
- Emisión de la Alarma:**
Escucharás un fuerte sonido que se emitirá al simular que habido un terremoto fuerte.



WHAT IS A TSUNAMI?

This poster draws public-safety lessons from previous experiences with fast-arriving tsunamis. Tsunamis can be detected using our human senses. Recognize a tsunami's natural warning signs. Be aware of tsunami facts. This knowledge could save your life! Share this knowledge with family and friends. It could save their lives!



NEAMTIC



A tsunami is a series of enormous waves created by an underwater disturbance usually associated with earthquakes occurring below or near the ocean. A tsunami propagation velocity is reduced in shallow water while the height of its waves rapidly increase. On the coastline the speed of tsunami waves is like a running horse

1 Not all earthquakes cause tsunamis, but many do. When you know that an earthquake has occurred, stand by for a tsunami emergency message.



2 An earthquake in your area is one of nature's tsunami warning signals. Do not stay in low-lying coastal areas after a strong earthquake has been felt.



4 A tsunami is not a single wave, but a series of waves carrying a massive volume of water that can flood and inundate land for hours. The first wave may not be the largest. Stay out of danger areas until an "all-clear" is issued by a recognized authority.



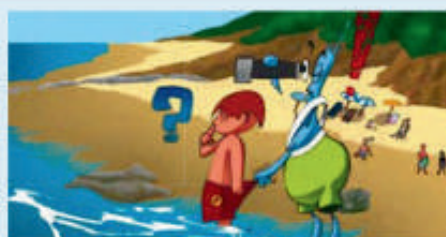
6/7 All warnings to the public must be taken very seriously, even if some are for non-destructive events. All tsunamis are potentially dangerous, even though they may not damage every coastline they strike.



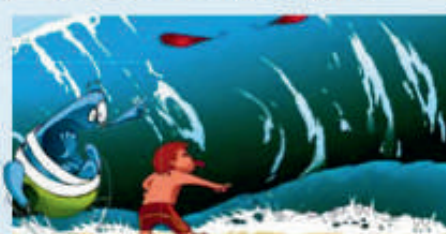
9 If you live in a coastal area, be prepared and know nature's tsunami warning signals.



10 During a tsunami emergency, your local civil defense, police, and other emergency organizations will try to save your life. Give them your fullest cooperation.



3 Tsunamis are sometimes preceded by a noticeable and rapid but (reversed) retreats seaward exposing the seafloor. A roar like an oncoming train may sometimes be heard as the tsunami wave rushes toward the shore. These are also nature's tsunami warning signals.



5 Small tsunami at one point on the shore can be extremely large a few kilometers away.



8 Never go down to the shore to watch for a tsunami. When you can see the waves, you are too close to outrun it. Most tsunamis are like flash floods full of debris. Tsunami waves typically do not curl and break, so do not try to surf a tsunami.



THE (HAPPY) END

Although less frequent than in the Pacific and Indian Oceans, tsunamis can hit the Mediterranean and North East Atlantic coastal areas. Major tsunamis happened for example in 365 (Crete), in 1755 (Portugal, Civil Gulf and Morocco), in 1906 (Massina and Chabris), in 1999 (Angsan Sea).

Even recently a tsunami has been impacted in 1989 Ionian Bay (Turkey), 2002 Sirenik (Italy) and 2003 Algeria and Balearic islands (Spain).





CTIC

TSUNAMI SAFETY RULES

1

ALWAYS BE PREPARED, A TSUNAMI MAY OCCUR ANYTIME

- Prepare a family emergency plan
- Prepare a safety backpack including medicine and first aid items
- Identify danger zones, assembly locations, designated evacuation routes or the quickest way to reach higher ground safely with the help of your local disaster management officials



2

IN CASE OF AN EARTHQUAKE PROTECT YOURSELF

- Drop
- Cover
- Hold on



DROP



COVER



HOLD

3

RUN TO HIGH GROUND IF ANY OF THESE WARNING SIGNS OCCUR AT THE COAST

- FEEL a very strong or long earthquake (it is difficult to walk, there are falling objects, damage to structures, earthquake lasts for about 1 minute or more)
- SEE a sudden rise or fall (exposing the ocean floor, reefs and fish) of the sea level
- HEAR a strange or loud noise (can be a roar) coming from the sea, or receive official tsunami warning messages by siren, radio, television, commercial radio or emergency alert radios



4

MOVE AWAY FROM HAZARDOUS AREAS (IN PREFERENCE ORDER DEPENDING ON YOUR LOCATION OR SITUATION)

- Run away from the coast to an assembly point or higher ground
- Go to the third floor of a building or higher
- Climb a tree
- If time permits, vessels should navigate offshore to waters 100-400 meters deep



5

STAY IN THE SAFE AREA UNTIL LOCAL AUTHORITIES INDICATE THAT THE DANGER HAS PASSED, THIS MAY TAKE MANY HOURS



www.bh.undp.org



www.ctic.ioc.unesco.org



www.weready.org



www.tsunami.gov



www.cimh.edu.bh

Contributing Sources: US NWS Caribbean Tsunami Warning Program, the Puerto Rico Seismic Network, MCDM New Zealand and the International Tsunami Information Center



Kerala State Disaster Management Authority
Vikas Bhavan P.O, Observatory Hills, Opposite Kanakakkunnu Palace, Nanthancodu,
Thiruvananthapuram, Kerala 695033
Phone : +91-471-2778855, Email : keralasdma@gmail.com
Website : www.sdma.kerala.gov.in