UNESCO-IOC Tsunami Ready Indicators

Response Indicators

Acknowledgement:
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UNESCO-IOC Tsunami Ready Recognition Programme

Lesson 1: Introduction & Assessment Indicators

Lesson 2: Preparedness Indicators

Lesson 3: Response Indicators

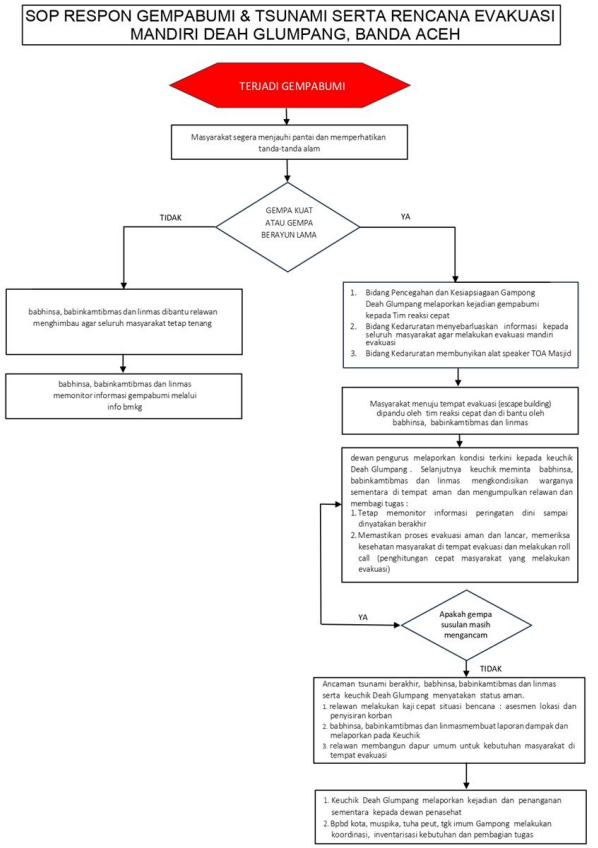
Response Indicators

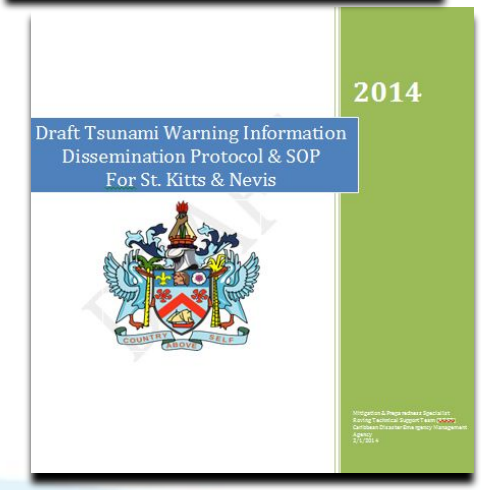
*Response refers to actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected (PreventionWeb, UNDRR *).*

III	RESPONSE (RESP)
9	RESP-1. A community tsunami emergency response plan (TERP) is approved.
10	RESP-2. The capacity to manage emergency response operations during a tsunami is in place.
11	RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place.
12	RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place.

* https://www.preventionweb.net/terminology/response

RESP-1: A community Tsunami Emergency Response Plan is approved





Community tsunami response plans should include Standard Operating Procedures (SOPs), contingency plans, and communication protocols.

The community should have **approved Tsunami Emergency Response** or Operations Plan:

- Can be part of a multi-hazard plan that includes response for tsunami
- Addresses both response to local and distant tsunamis
- Should be part of national or local (province, district, or village) Emergency Response Plan

RESP-1: A community Tsunami Emergency Response Plan is approved

set of instructions detailing what must be done in an emergency.

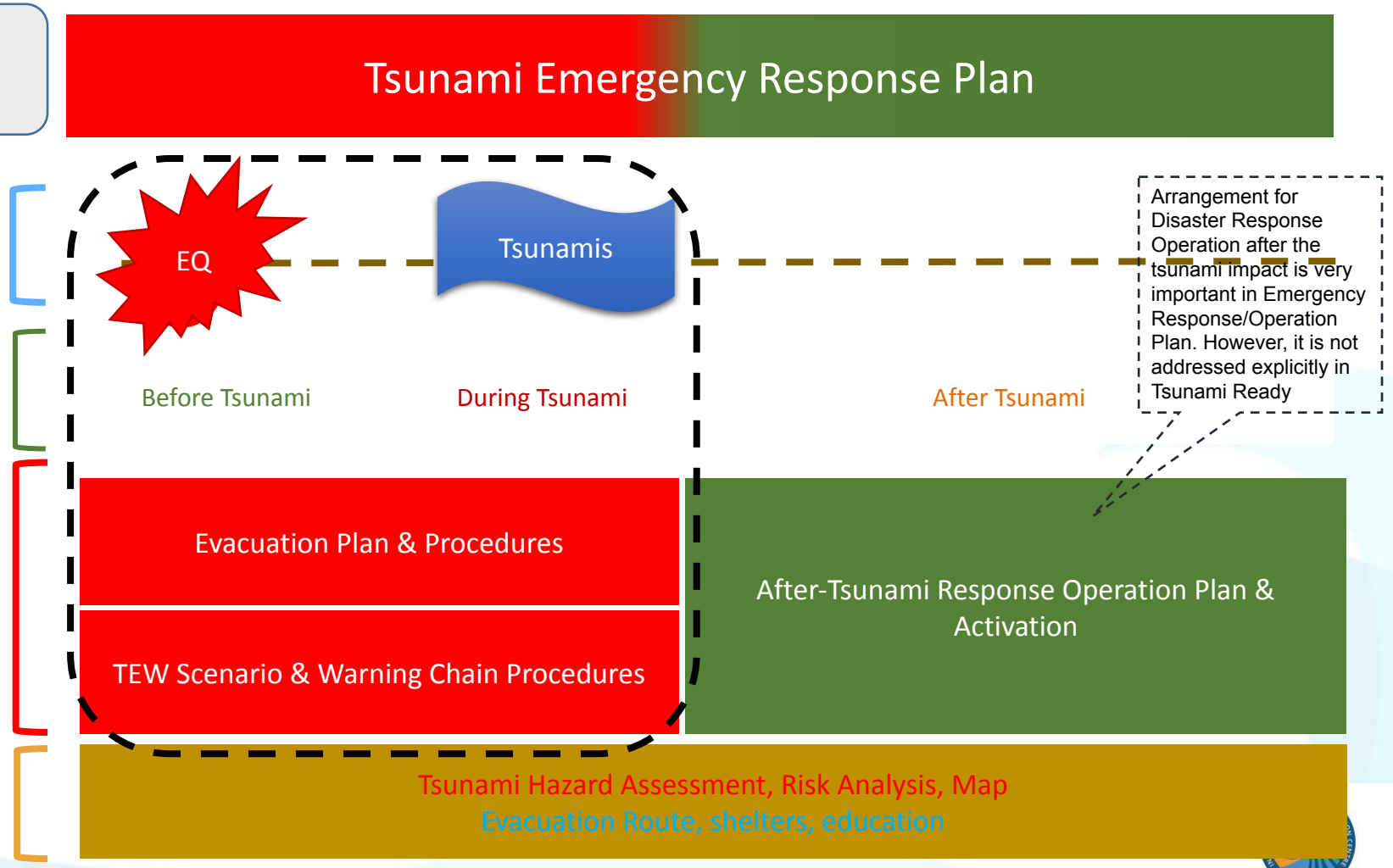
Criteria & What to consider:

Three specific circumstances must be considered for tsunami hazard: 1) Uncertainty; 2) Fast arrival time; 3) Long term impact

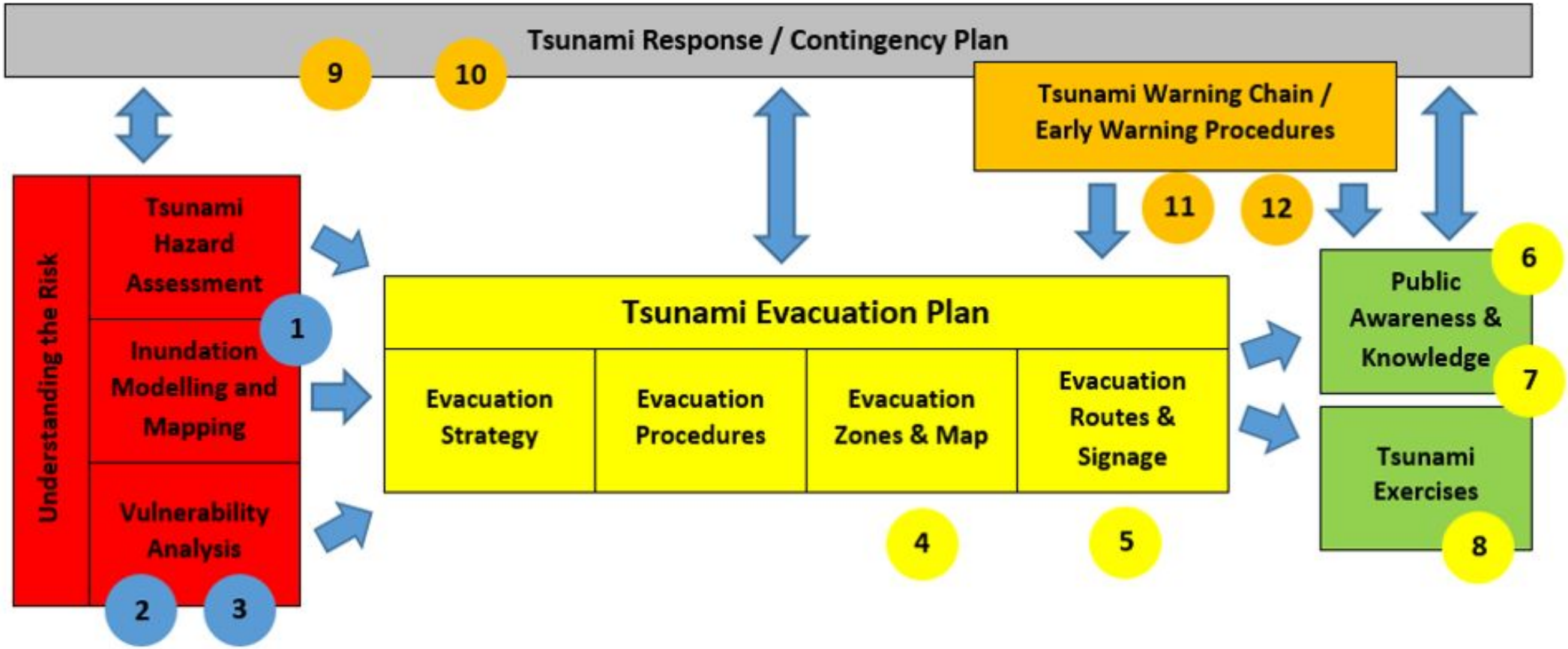
Focus on the 3 key phases of emergency event (before Tsunami, During Tsunami, After Tsunami

Describe Early warning procedures to decide whether or not to issue an evacuation order.
Evacuation Plan must be known by the community and institutions
Describe who activates the after-tsunami operation

must be built on risk assessment and strengthened by preparedness



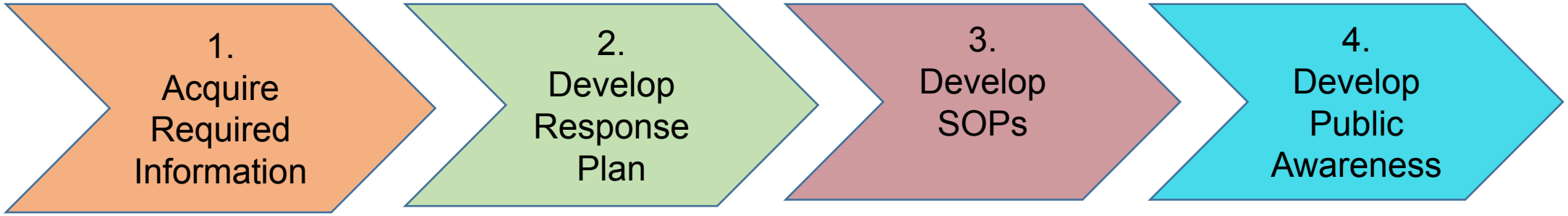
RESP-1: A community Tsunami Emergency Response Plan is approved



… which are related to **arrangements for warnings** and **evacuations**

as well as **public awareness of these arrangements**

Steps for Tsunami Emergency Response Planning

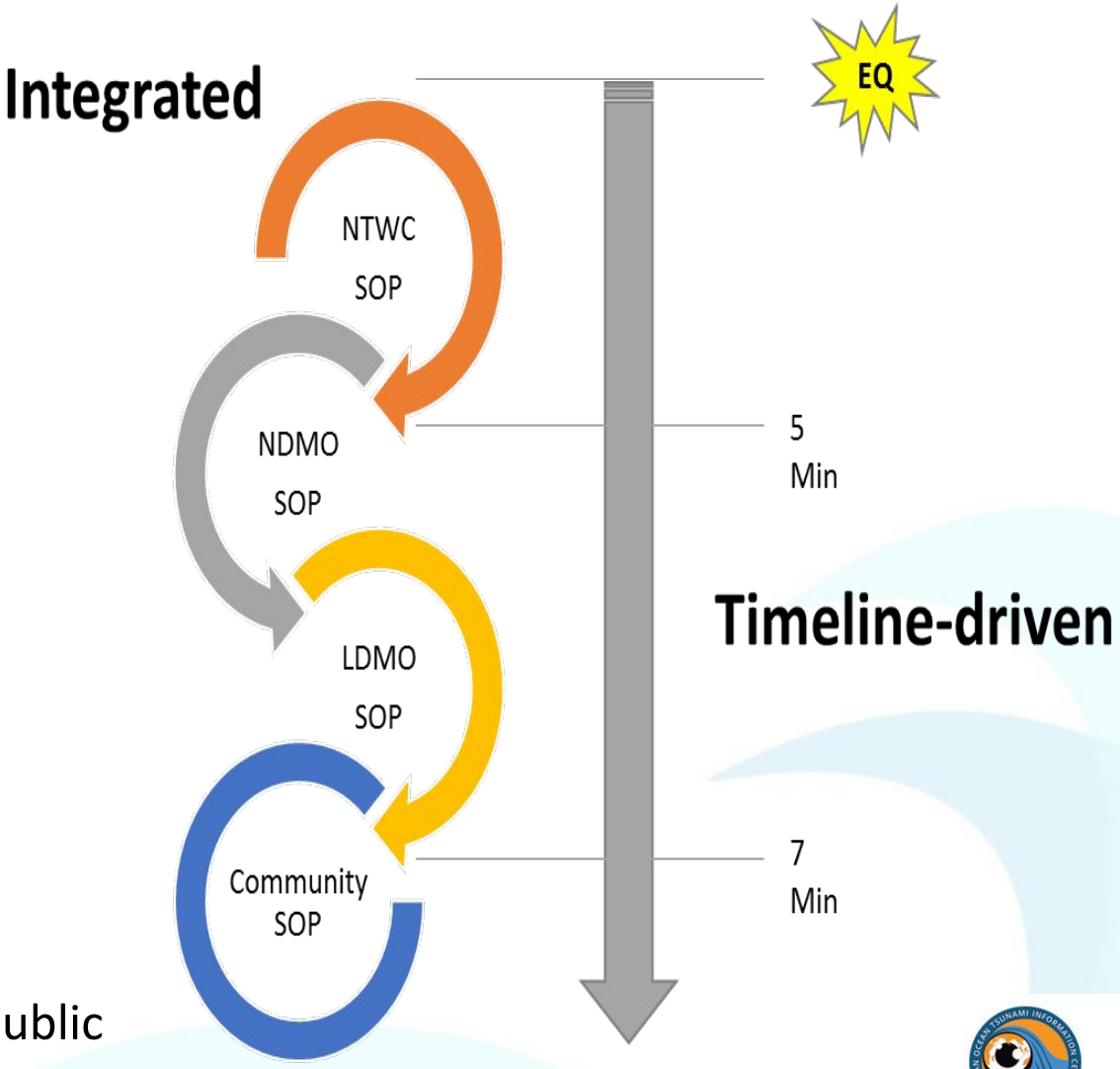


- A TERP is **based on the information that is specific to the community's circumstances** as well as **national references**
- A TERP is supported by **agency-specific SOPs** that will be activated on the receipt of a tsunami warning or during a local source earthquake that may generate a tsunami
- It is vital to **ensure that the community is aware of the TERP** and understands what actions to take in the event the TERP is activated

Standard Operation Procedures (SOPs)

"A description and procedure on agreed steps by institutions/agencies/groups/teams used in coordinating who, what, when, where and how for tsunami early warning and response"*

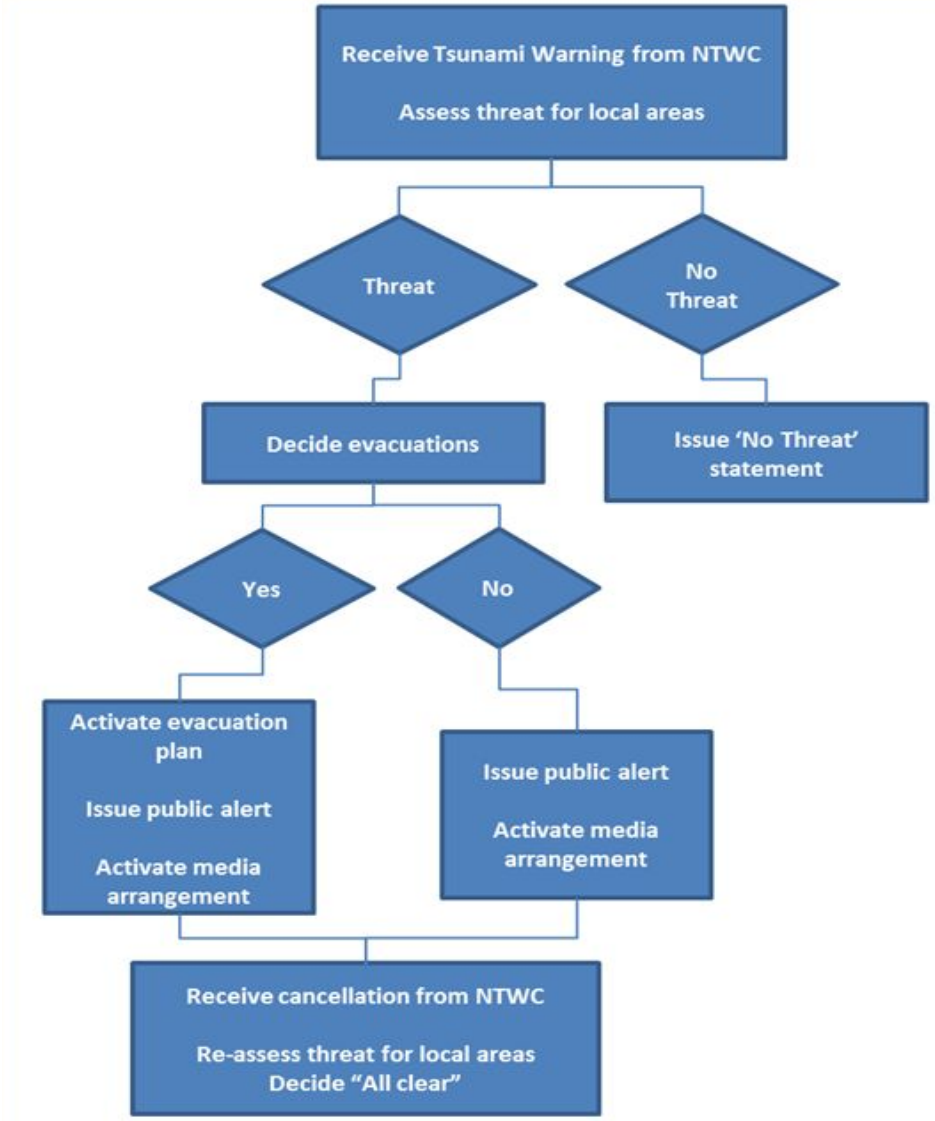
- Describes the actions to be taken in a system or process.
- Specific for certain organisation activities or purposes.
- Contain detail work process. conducted/followed within an organisation
- States the way activities are performed.
- Supports Tsunami emergency response plan.
- Timeline-driven



SOPs related to the TERP at local level:
Tsunami response, emergency response activation, public alerting, all clear and safe return, etc.

Example

Simplified flow chart for **tsunami response** to **NTWC warnings** at local level



RESP-2: The capacity to manage emergency response operations during a tsunami is in place

The community should have the **capacity to execute the response plan**:

- Supports the National or Local Emergency Operations Centre (EOC) during tsunami events, if an Emergency Operation Plan (EOP) is activated
- Has the ability and authority to execute tsunami warning and response actions
- Available on a 24-hour basis

Community capacity in responding tsunami emergency situation, such as having Disaster Preparedness Team, Emergency Protocol, Command Center, or Tsunami shelter

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RESP-2: The capacity to manage emergency response operations during a tsunami is in place

Capacity to manage response includes:

1. **People** who will carry out the emergency response operation
   - SOP
   - Knowledge
   - Skill
2. **Facilities and Infrastructures** to implement the emergency response operations
   - Tools
   - Equipment
   - Logistics

Emergency Operation Center (EOC)

Roles of EOC

Control:
be in charge and coordinates response activities.

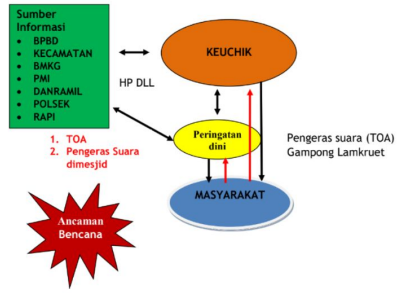
Operates:
Activates relevant agencies during emergency operation.

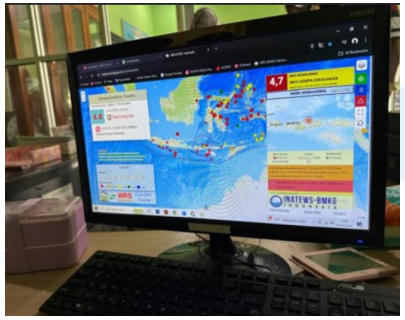
Plan:
Analyse threat and identify gaps.

Administrate:
Tracks budget and ensure operations continuity.

Criteria for EOC functionality

1. 24-Hour Operational Capability
   - Has base of operations and implements shift management.
2. Warning Reception and Dissemination Capability
   - Has equipment and relevant SOPs.
3. Authority to Activate the Alert System
   - Has legal basis (decree/ regulation), relevant SOPS, and trained personnel.
4. Communication within and across jurisdiction
   - Has chain of command/ chain of communication, appointed focal point.
5. Direct communication to NTWC/ DMO
   - Has communication channel.
6. Evacuation and emergency response capacity





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EOC Checklist

1. 24-Hour operational capability

- ☐ Base of operation.
- ☐ team roster/ duty sheet.
- ☐ shift schedule.
- ☐ back-up power

2. Warning reception and dissemination capability

- ☐ reception modes
- ☐ dissemination modes
- ☐ communication SOP
- ☐ maintenance sheet
- ☐ routine test

3. Authority to Activate the Alert System

- ☐ local regulation/ decree
- ☐ EOP activation SOP

4. Communication within and across jurisdiction

- ☐ local tsunami warning chain
- ☐ stakeholders contact list
- ☐ appointed focal point(s)
- ☐ communication channel(s)

5. Direct communication to NTWC/ DMO

- ☐ communication channel/ platform

6. Evacuation and emergency response capacity

- ☐ evacuation route(s)
- ☐ evacuation shelter(s)
- ☐ supporting logistics
- ☐ trained personel
- ☐ routine training/ drill
- ☐ SOPs

RESP-3: Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place

Tsunami alert receiver methods, including cellular, internet, satellite, or radio systems.

The community should have **means to receive tsunami alerts**:

- Have redundant and reliable means to receive official tsunami alerts from the authorities.
- Can reach on 24-hour basis.
- At least **three different systems.**
- At least one system that can function without electricity or cellular/Internet signal.

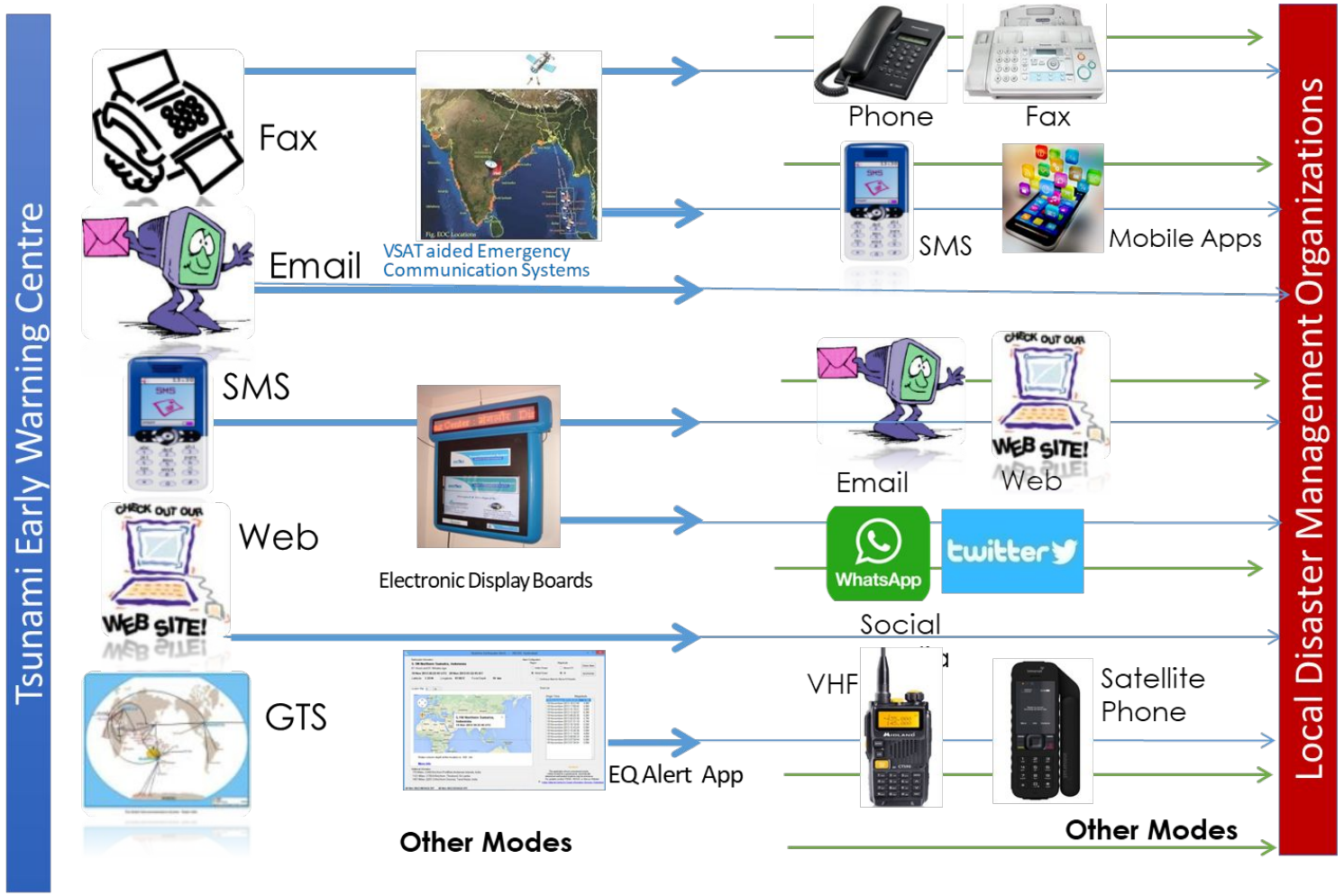
RESP-4: Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place

The community should have **means to disseminate tsunami alerts**:

- Have redundant and reliable means to disseminate official tsunami alerts to the public
- Can reach on a 24-basis
- At least **three different systems**
- At least one system that can function without electricity or cellular/internet signal

Tsunami alert dissemination methods, including electronic methods such as sirens, megaphones, or hand-held radios, and traditional methods such as wood cylinder blocks or church bells.

Receiver Modes



More instruments
=
More effective
(?)

Dissemination Modes

Local Disaster Management Organizations

SMS

Radio

Television

Social Media

Mobile Apps

Sirens

Public Alert System

VHF/ Mega phone

Kentongan (traditional methods)

Door-to-door

Police

Village volunteers

Lifeguards on beaches

Any other modes

Public at Risk

More instruments
=
More effective
(?)

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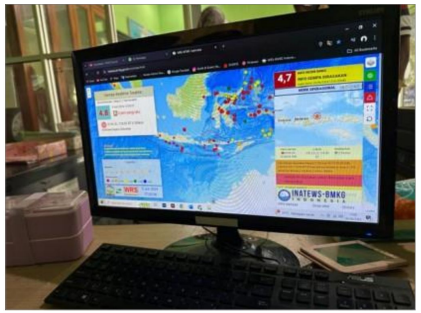
Redudancy ≠ more instruments/ platform

Redundancy in tsunami warning dissemination means:
"Having multiple, independent communication modes that are unlikely to fail at the same time."



Digital, internet-based	:	Social Media (WhatsApp, X, facebook, etc), Mobile Apps, computer apps	(+) Most-popular, wide-coverage, cost-efficient (-) Relies on electricity, Infrastructure-dependence
Digital, satellite-based	:	VSAT Coms, Satellite phone	(+) Resilient, wide-coverage (-) Relies on electricity, expensive
Digital, GSM-based	:	SMS broadcast	(+) wide-coverage, self-powered (-) Infrastructure-dependence, high-latency
Cable-based	:	Terrestrial phone	(+) resilient (-) Infrastructure-dependence, not popular
Radio-based	:	HF/VHF Radio	(+) resilient (-) Infrastructure-dependence, not popular
Mains-powered instrument	:	Fixed siren, fixed loudspeeaker	(+) resilient, cost efficient (-) limited range and message content
Self-powered instrument	:	Portable Radio, HT, Portable megaphone	(+) resilient, cost efficient (-) limited range
Analog, traditional instrument	:	Kulkul/Kentongan, church bell	(+) resilient, cost efficient (-) limited range

Example – Lam Kruet Village

Primary

- Receiver: WhatsApp group with BMKG/ BPBD, InfoBMKG, WRS-NG
- Dissemination: Community WhatsApp group

Fast, simple, wide coverage

Secondary

- Receiver: Two-way radio (HT) to BPBD
- Dissemination: HT to community, mosque loudspeakers

More resilient, good coverage

Tertiary

- Receiver: HF Radio from BPBD->BMKG HQ
- Dissemination: Kentongan, door-to-door alert

Functional in all situation

Summary

Resp-1

- Ensures that the community has a detailed plan to respond to tsunami, that covers: activation procedure, roles & responsibilities, chain of command/communication, decision making.

Resp-2

- Ensures that the community has the operational capacity to manage a tsunami response throug functional Emergency Operations Center (EOC)
- Functional EOC criteria: 24-Hour Operational Capability, can receive & disseminate info, has authority to conduct operation, has communication channel within and outside jurisdiction, and h capacity to perform evacuation.

Resp-3 & Resp-4

- Ensures that the community has redundant systems to receive and disseminate, through redun system that still functional even if one system fails.

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