



National Platform for Tsunami & Multi Hazard Early Warning System

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**National
Tsunami & Other Natural Hazard
Early Warning Framework**

Risk Assessment & Hazard Map

Legend

Inundation Area

Evacuation Building

Evacuation Building (w/ external staircase)

Loudspeaker

Community Center



KANO River

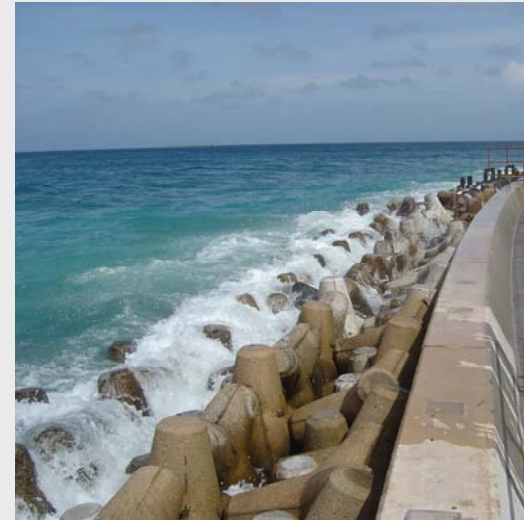
Tsunami Hazard Map

NUMAZU Port Area

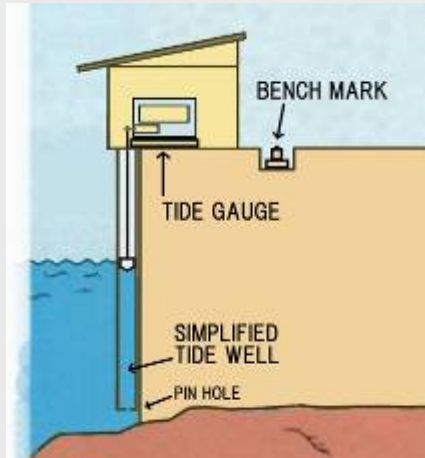
National Tsunami Early Warning Framework

Assessment of Tsunami Hazard and Risks

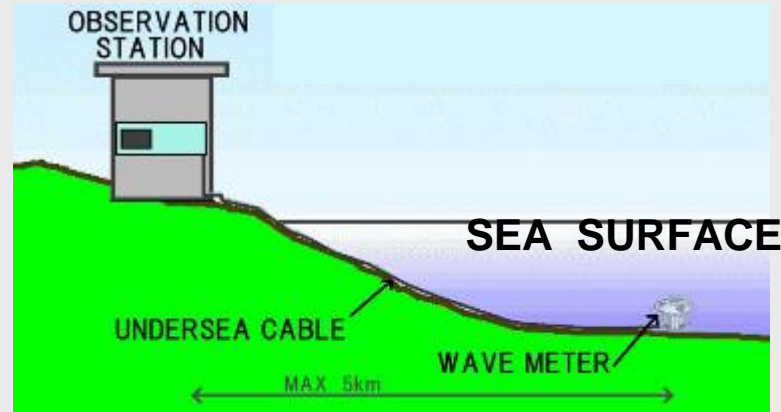
- **Develop capacity for disaster risk assessment**
- **Collect topographic and bathymetric information for inundation mapping and risk evaluation**
- **Undertake vulnerability assessment**
- **Develop Geographic Information System as decision support tools display hazards, inundation and evacuation maps**



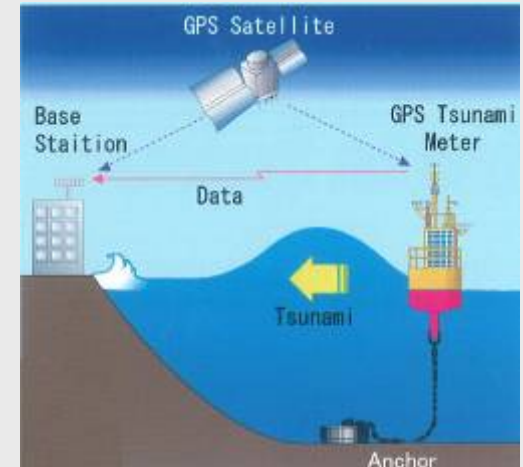
Tide, Wave & Off Coast Tsunami



TIDE GAUGE
Continuous
Water-Level
Coverage



WAVE METER
Wave-State
Off Shore
Monitoring



GPS TSUNAMI BUOY
Water-Level, Wave, Tsunami
Sea-State
Early Detection of Tsunami
off the Nation

Forecast of Wave, Sea-State

based on monitoring of Tide, Wave and Wave off coast
and with precise meteorological observation and weather forecast

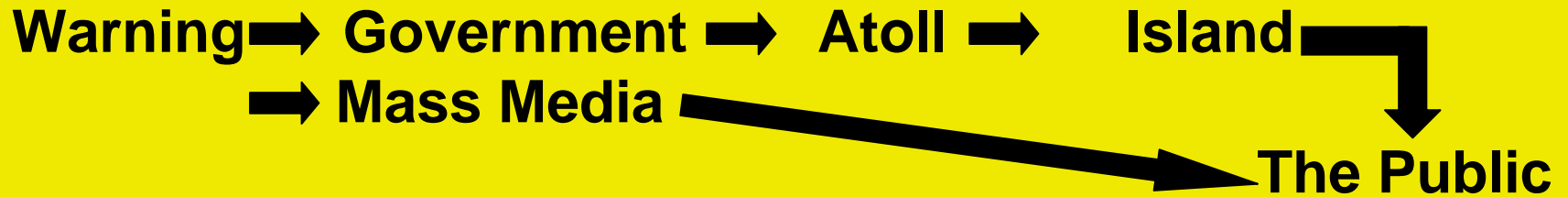
National Tsunami Early Warning Framework

Tsunami Monitoring and Warning Services

- **Establish and strengthen the Tsunami Warning Services**
- **Continuously monitor for large submarine earthquakes that have the potential to generate tsunamis**
- **Monitor sea levels using coastal sea level gauges to confirm tsunami generation,**
- **Provide tsunami wave forecasts when needed to estimate potential impacts along coasts**



FLOW OF WARNING MESSAGE



24 hour Operation for Warning Message

Emergency Call of Responsible Personnel / Team

Office / Organizations: Government, Atoll, Island, Public Facility

Siren / Voice with Loudspeaker to the Public

Main & Back Up for

**Electricity Power Supply
Communication System**

National Tsunami Early Warning Framework

Warning Dissemination and Communication

- **Build a robust nationwide telecommunications infrastructure**
- **Establish an Emergency Operations Centre**
- **Develop Tsunami Response Plans at all levels (national, regional, atoll & island)**
- **Conduct regular drills and exercises**
- **Develop education and public awareness programmes**



National Tsunami Early Warning Framework

Response Capability

- **Establish pilot community preparedness programmes**
- **Designate a “Tsunami Awareness Day”**
- **Enhance media through training**
- **Include tsunami early warning and preparedness as part of all-hazards disaster preparedness in school activities**



Implementation of

National Tsunami Early Warning Framework

National Tsunami Early Warning Framework

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National Tsunami Early Warning Framework

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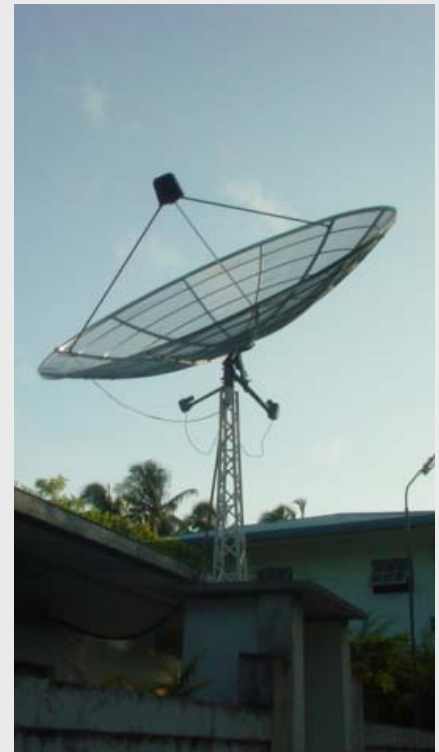
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Roles and Responsibilities of the Stakeholders

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- The mandate for the government
- The strategic objectives of the National Disaster Management Policy
- The mandate of the NDMC and the Government Ministries.
- Mandate of the EOC

Strategic objectives of the Draft DM Policy

- To periodically review and revise, if necessary, the National Plan of Disaster Management Mitigation.
- To strategically plan for mitigating disasters, in line with local and international procedures.
- To take steps and implement plans to normalize the situation after a disaster.
- To conduct programs to increase community bond and self dependence after a disaster
- To conduct training programs for all those involved from the government and on individual basis, at various levels of relief efforts;
- To conduct training programs for government and private agencies at least once a year to increase disaster awareness

Strengthening Capacity for

National Tsunami Early Warning System

Assessment of Tsunami Hazard and Risks

- Assessment of the critical environmental risk and vulnerability for coastal hazards for enhancing the risk knowledge for the tsunami early warning system
- Establishment of a Geographic Information System to integrate Risk Assessment and Monitoring for Enhancing Disasters Preparedness

Tsunami Monitoring & Warning Services

- Enhancing the Tsunami Warning Services for the establishment of National Tsunami Warning Centre
- Strengthening of operational 24/7 National Tsunami Warnings Services through the National Meteorological Services as part of multi-hazard approach to national warning systems
- Developing a sustainable end-to-end tsunami warning and response system

Warning Dissemination and Communication

- Implement an evacuation drill at a regional level to check the readiness of the community and the disaster response plan
- Development of School Safety and Disaster Management Plan and Provide Disaster Education for Students, Teachers and Parents
- Creating awareness on tsunami early warning and responses to media and to use the mass media for its dissemination
- Establishment of a Geographic Information System to integrate Risk Assessment and Monitoring for Enhancing Disasters Preparedness
- Building technical capacity for disaster assessment and disaster risk reduction

Response Capability

- Establishing a reliable telecommunication back bone to support an end to end tsunami early warning system in the Maldives
- Implement a table-top simulation exercise to test the tsunami early warning system and response plan at national, regional, atoll and island level

STRENGTHENING THE TSUNAMI EARLY WARNING SYSTEM

- Objective 1: Enhancing the Tsunami Warning Services.
 - Project: Enhance the Tsunami Warning Services for the establishment of National Tsunami Warning Centre

STRENGTHENING THE TSUNAMI EARLY WARNING SYSTEM

- Objectives 2: Strengthen of the operation of the national warning service.
 - Project: Strengthening of operational 24/7 National Tsunami Warning Services through the National Meteorological Services as part of multi-hazard approach to national Warning systems

STRENGTHENING THE TSUNAMI EARLY WARNING SYSTEM

- Objectives 3: Early warning exercise at island level.
 - Project: Implement a table-top simulation exercise to test the tsunami early warning system and response plan at national, regional, atoll, and island level.
 - Implement an evacuation drill at a regional level to check the readiness of the community and the disaster response plan.

STRENGTHENING THE TSUNAMI EARLY WARNING SYSTEM

- Objective 4: Awareness-raising and education campaign on tsunami impacts.
 - Project: Development of School Safety and Disaster Management Plan and Provide Disaster Education for Students, Teachers and Parents.
 - Creating awareness on tsunami early warning and responses to media and to use the mass media for its dissemination.
 - Enhance community preparedness for natural hazards through participatory process

STRENGTHENING THE TSUNAMI EARLY WARNING SYSTEM

- Objective 5: Assessment of environmental flashpoints in early warning system.
 - Projects: Build the capacity for the development of environmental risk reduction platforms in national multi hazard early warning system
 - Assessment of the critical environmental risk and vulnerability for coastal hazards for enhancing the risk knowledge for the tsunami early warning system.

STRENGTHENING THE TSUNAMI EARLY WARNING SYSTEM

- Objective 6: Development of sustainable early warning system.
 - Projects: Establishment of a Geographic Information System to integrate Risk Assessment and Monitoring for Enhancing Disaster Preparedness.
 - Building technical capacity for disaster assessment and disaster risk reduction.
 - Developing a sustainable end-to-end tsunami warning and response system establishing a reliable telecommunication back bone to support an end to end tsunami warning system in the Maldives

Thank you