

**Tsunami Ready Philippines National Workshop  
Park Inn North EDSA, Quezon City, Philippines  
8-11 December 2025**

# **Tsunami Summit Results and the Tsunami Coping Capacity Platform**

Ma. Mylene Martinez- Villegas  
DOST-PHIVOLCS





# 1976

**HISTORICAL LINDOL** 

## 1976 MORO GULF EARTHQUAKE AND TSUNAMI

The strongest and most devastating earthquake recorded in the Philippines' history since 1968.

**17 AUGUST 1976**  
Date

**12:11 AM**  
Time (PST)

**M8.1**  
MAGNITUDE

ADAPTED ROSSI-FOREL EARTHQUAKE INTENSITY SCALE  
**INTENSITY VII**  
Sultan Kudarat, Zamboanga City, Cotabato City, Magulindanao, and the rest of Southern Mindanao  
Highest Intensity Observed  
(Woodillo and Astillo, 1978)



**9-meter**  
As high as 9-meter tsunami reached the town of Lelak, Sultan Kudarat.  
(Woodillo and Astillo, 1978)

Earliest wave arrived around **2 to 5 minutes** after the intense shaking.

Affected coastal areas:  
**Pagadian City, Cotabato City, Zamboanga City, provinces of Zamboanga del Sur, Lanao del Sur, Magulindanao, Sultan Kudarat, Basilan, and Sulu.**  
(Woodillo and Astillo, 1978)

**8,000** ESTIMATED DEATHS  
**10,000** MORE THAN INJURED  
**90,000** ABOUT HOMELESS

- Numerous buildings and infrastructure were damaged in Cotabato City.
- Fourteen (14) buildings were partially damaged in Zamboanga City.
- Quina Bridge and Tamontaka Bridge in Cotabato City sustained damages.



 SCAN THE QR CODE FOR MORE INFORMATION ABOUT THE 17 AUGUST 1976 M 8.1 MORO GULF EARTHQUAKE

[phivolcs.dost.gov.ph](http://phivolcs.dost.gov.ph) [/PHIVOLCS](https://www.facebook.com/PHIVOLCS) [@phivolcs\\_dost](https://twitter.com/phivolcs_dost) [DOST-PHIVOLCS](https://www.youtube.com/channel/UCDOST-PHIVOLCS)

# 1994

**HISTORICAL LINDOL** 

## 1994 MINDORO EARTHQUAKE

**15 NOVEMBER 1994**  
Date  
**3:15 AM**  
Philippine Standard Time

**M7.1**  
MAGNITUDE

ADAPTED ROSSI-FOREL SCALE  
**INTENSITY VIII**  
Highest intensity observed: Calapan, Oriental Mindoro

**78 DEAD**  
**5.5 MILLION PESOS**  
ESTIMATED COST OF DAMAGE TO BUILDINGS, INFRASTRUCTURES, AND PROPERTIES

**8.5-meter**  
As high as 8.5-meter tsunami reached Piling Plaza, (Davao Island)



**EARTHQUAKE IMPACTS**

**~35 KM GROUND RUPTURE OF THE AGLUBANG RIVER FAULT**  
stretching from Malaylay Island to the town of Victoria, Oriental Mindoro

**LIQUEFACTION**  
Manifested by lateral spreading and affected a 3-km stretch of the Calapan-Puerto Galera Highway

**GROUND SHAKING**  
Severely-damaged residential houses, buildings, bridges, pier, and other infrastructures

**TSUNAMI**  
Affected the 40-kilometer coastline of Oriental Mindoro from Puerto Galera to Pinamalayan








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# 26 December 2004, Banda Aceh



0 100 m  
0 300 ft.

(a)



(b)



# DOST-PHIVOLCS National Initiatives

YEAR	Major Program/s	Outputs (Tsunami-related)	Funding/ Partners
2005	Establishment of a Local Tsunami Warning System for Manila Bay and vicinity	<ul style="list-style-type: none"> <li>Development of cost-effective tsunami detection instrument (wet and Dry sensors)</li> </ul>	Finland Government
2006-2007	Tsunami Risk Mitigation Program	<ul style="list-style-type: none"> <li>Nationwide Tsunami Hazard Maps (1:50,000 scale) <b>(discussed by Ms Rob Mangahas Day 1)</b></li> <li>4 Pilot sites for Detailed Maps, and IECs (Vigan, Iloilo City, Pagadian City and Calapan, Mindoro)</li> <li>Development of information materials <b>(discussed by Ms Charmaine Villamil, Day2)</b></li> </ul>	DOST-GIA

# 2006-2007 DOST GIA Risk communication at the local level



Philippine Institute of Volcanology and Seismology (PHIVOLCS)  
Department of Science and Technology (DOST)

## DEVELOPING A TSUNAMI-PREPARED COMMUNITY

TSUNAMI RISK MITIGATION PROGRAM

**Together we can save lives**

In the past, people have assumed that emergency planning and preparedness is the sole responsibility of the government. But as proven in the many disasters that have occurred in recent years, positive community response to a crisis can save more lives especially if all sectors in the community have a role to play in its disaster risk mitigation efforts.

The role of national government agencies is to help the local government units and the communities by developing and implementing national programs that would capacitate the communities for disaster preparedness. These include advocacy to policy makers and planners to integrate specific disaster mitigation plans in the national development plan and generating and providing the right information that can be used towards developing a disaster-resilient nation. However, the activities at the national level alone will not save any lives if people at the community level will not use the information made available and are not prepared mentally and physically to respond. For the case of tsunami hazard after a strong earthquake, the coastal communities must take on the responsibility for their own safety.

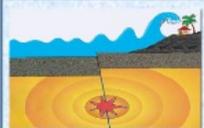
**Why tsunami preparedness?**

Specific interest is put on the importance of tsunami preparedness in the community level, as there is not sufficient time for warning from the national level in case of near-shore or locally-generated tsunamis. This fact has time and again been observed after major disasters such as the 1976 August Moro Gulf and 1994 November Oriental Mindoro tsunamis. In these events, it took only 2 to 5 minutes at the earliest up to 20 minutes after the earthquakes for the tsunami waves to hit the shores of Moro Gulf and Oriental Mindoro. Residents of the coastal communities must be prepared to evacuate and move to higher ground once signs of impending tsunami are observed.

*But how does a community go about preparedness and planning for tsunami?* There are various steps leading to a tsunami-prepared community. Openly discussing facts about tsunami disasters will actually increase awareness and interest instead of propagating speculations that could lead to spread of rumors if the issue on tsunami hazard is avoided. Any tsunami preparedness planning need not be expensive. There is no such thing as poor community that would not be able to prepare for tsunami as many risk-reduction activities are more people-driven. Lastly, tsunamis are considered infrequent but high-impact type events, and it is important to keep in mind that tsunami disasters can destroy any progress that a community has attained in an instant.



**KNOW THE HAZARD**



**What is a tsunami?** A tsunami is a series of sea waves commonly generated by under-the-sea earthquakes and whose heights could be greater than 5 meters. For so long, it has been erroneously called tidal waves and still often mistakenly associated with storm surges (tall coastal waves due to strong winds during a storm event). Tsunamis can occur when the earthquake is shallow-seated and strong enough to vertically displace parts of the seabed and disturb the mass of water over it.

The coastal areas in the Philippines can be affected by tsunamis that may be generated by local earthquakes. Locally-generated tsunamis can occur within very short time, with the first waves reaching the nearest shoreline from the epicenter in 2 to 5 minutes after the main earthquake, before any official warnings can be transmitted from the national level to the community level.



*A Jeepney in South Cotabato smashed by tsunami after the 1976 August Moro Gulf Earthquake*

## PHIVOLCS TSUNAMI KOMIKS



PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY | DEPARTMENT OF SCIENCE AND TECHNOLOGY

### TSUNAMI SAFETY AND PREPAREDNESS



Do not stay in low-lying coastal areas after a strong earthquake. Move to higher grounds immediately.

If unusual sea conditions like rapid lowering of sea level are observed, immediately move towards high grounds.

Never go down the beach to watch for a tsunami. When you see the wave, you are too close to escape it.



During the retreat of sea level, interesting sights are often revealed. Fishes may be stranded on dry land thereby attracting people to collect them. Also, sandbars and coral flats may be exposed. These scenes tempt people to flock to the shoreline thereby increasing the number of people at risk.

Stay out of danger areas until "all clear" is issued by competent authority. A tsunami is not a single wave but a series of waves.

- Conduct community-level awareness about earthquakes and tsunamis focused on natural signs of an approaching tsunami, warning and evacuation procedure.
- Pre-determine high ground in your area and identify routes to get there.
- Put up signage.

# TSUNAMI

PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY  
DEPARTMENT OF SCIENCE AND TECHNOLOGY  
TSUNAMI RISK MITIGATION PROGRAM '06-'07

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R.A. Arante  
November 2006  
Printed with support from DOST-GIA and AID  
Revised November 2007



## TSUNAMI RISK MITIGATION PROGRAM '06-'07

# TSUNAMI 'BICOLANO'

Ang TSUNAMI iyo an sunod-sunod na darakulang alon na nangyayari dara kan paglingon na naghahale sa irarom kan dagat. An langkaw kaini pwedeng umabot sa masobrahan sa 5 metro. An tsunami minsan napagkakamalan na 'tidal waves' asin kun minsan naukumpara sa alon dara nin makusog na bagyo ('storm surge'). Ang tsunami pwedeng mangyari kun an pinaghahalean kan linog hababaw, asin may kusog na pwede magpahiru kan irarom kan dagat tangingan bolabogon an tubig sa ibabaw kaini.

**PARNO NAGIGIBO AN TSUNAMI**

## MGA SINYALES SA SARONG PARANI NA 'LOKAL NA TSUNAMI'

Linog na may kusog para mamatlan

Biglang pagkambayo sa lebel kan tubig dagat, biglang pag-orog, biglang paglangkaw

SUBUDU! DUGI DUGUDUGI!

Kakabang rebok hale

# TSUNAMI

Ang TSUNAMI ay sunod-sunod na dambahalang alon na karaniwang liha ng lindol na nagmumula sa ilalim ng dagat. Ang taas nito ay maaring humigit pa sa 5 metro. Ang tsunami ay napagkakamalan sa 'tidal waves' at kung minsan ay inilaung sa alon ng bagyo ('storm surge'). Ang tsunami ay nangyayari kung ang pinagmulan ng lindol ay mababaw at sapat ang lakas upang magalaw ang ilalim ng dagat at matinig ang tubig na nasa ibabaw nito.

**PARNO NALILIKHA ANG TSUNAMI**

## MGA LIKAS NA PALATANDAAN NG ISANG PAPANLAPIT NA 'LOKAL NA TSUNAMI'

Lindol na may sapat na lakas upang mararamdaman

Kakabang paghahago sa antas ng tubig dagat, biglang pagbaba o pagtaas

SUBUDU! DUGI DUGUDUGI!

Dagundong na liha ng

# TSUNAMI 'CEBUANO'

Ang TSUNAMI usa ka sunod-sunod nga dagkong balod sa dagat nga nahitabo gumikan sa pagtay-og sa yuta ilalum sa dagat, kang kansang gitas-on muabot ngadto sa sobra sa 5 ka metro. Kanunay kini nga masaypan nga 'tidal waves' ug usahay matud pa, tungod sa makusog nga bagyo ('storm surge'). Ang tsunami mahimona mahitabo kung ana adikanan sa linog mabaw ug adunay igong kusog nga kinatibuk-an tubig sa ibabaw niini.

**PARNO**

## MGA TIMAILHAN NG KUN

Makasinatni ug pagt

# TSUNAMI 'ILONGGO'

Ang TSUNAMI amo ang dalagro kag sunod-sunod nga mga balod nga kapin sa 5 ka metro ang ka-taason nga masami dulot sang paglingon sa idalom sang dagat. Masami ini ginakasal-an nga 'tidal waves' o kun indi gani balod nga dulot sang bagyo ('storm surge').

## MGA LIKAS NA PALATANDAAN NG ISANG PAPANLAPIT NA 'LOKAL NA TSUNAMI'

Lindol na may sapat na lakas upang mararamdaman

Kakabang paghahago sa antas ng tubig dagat, biglang pagbaba o pagtaas

SUBUDU! DUGI DUGUDUGI!

Dagundong na liha ng papalapit na mga alon

Ang mga gilid kan dagat nakahahamag sa Pacific China, Sulu asin Celebu tsunami na i-dudulot kan haraning lugar.

Kan Agosto 17, 1976, sa Moro Gulf an nagdulot weste kan Mindanao asin wong gadan asin mga 1 katawo an nagkarolagang harong dulot kan sobra sa

An linog na nangyari sa nagdulot nin tsunami asin

An enot na alon kan mga haraning baybayon hale pagkatapos kan linog, arani sa pinaghahalean o ka makapagtao nin abiso ku

Sa mga kababayonanan sa Pilipinas sa Pacific Ocean, South China Sea mahimong makasinatni ug tsunami. Kaniadtoong Agosto 17, 1976, usa Gulf, nga adunay gikusog (Magani) dan sa tsunami nga miguba sa 1,000 katawo ang matud pa nanga ang nasamdan ug gibanabana i nawad-an ug pinuy-anan gumik balod miabot ngadto sa sobra sa 5 Ang linog sa Mindoro kaniadtoong N-mugna ug tsunami, adunay 78 katawo. Kalit kau kini nga tsunami, ang baybayon sa pinakadulot sa episer human sa linog. Kining maong tsunami (locally generated), wala may igon sa mga susama niini.

Mahimo layo, ka-palibot sa Alaska sa Ang Tsunami gikan sa ug 61 ka gitahon na oras sa p-sa layo (n oras), kir-pasidaan Center for Advisory

On 17 August 1976, a M7.9 earthquake in Moro Gulf produced tsunamis which devastated the southwest coast of Mindanao and left more than 3,000 people dead, with at least 1,000 people missing. More than 8,000 people were injured and approximately 12,000 families were rendered homeless by more than 5-meter high waves.

The 15 November 1994 Mindoro Earthquake also generated tsunamis that left 78 casualties.

These tsunamis occurred within a very short time, with a first wave reaching the shoreline nearest the epicenter, 2 to 5 minutes after the main earthquake. These tsunamis were both locally generated. There will not be enough time for warning in case of locally generated tsunamis.

**2007 English, Tagalog, Cebuano, Ilocano Ilonggo Tsunami Ready**

# TSUNAMI

A TSUNAMI is a series of giant sea waves commonly generated by under-the-sea earthquakes and whose heights could be greater than 5 meters. It is erroneously called tidal waves and sometimes mistakenly associated with storm surges. Tsunamis can occur when the earthquake is shallow-seated and strong enough to displace parts of the seabed and disturb the mass of water over it.



The coastal areas in the Philippines especially those facing the Pacific Ocean, South China Sea, Sulu Sea and Celebes Sea can be affected by tsunamis that may be generated by local earthquakes.

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Tsunamis may also be generated from distant locations, such as those coming from other countries bordering the Pacific Ocean like Chile, Alaska in the USA and Japan (for tidal tsunamis). The tsunami of 2 May 1960 that was generated by a strong earthquake from Chile killed 81 in Hilo, Hawaii while 20 people were reportedly killed in the Philippines. Travel times for tsunamis generated in distant locations are longer (1 to 24 hours) and will generally give enough time for warning from the Pacific Tsunami Warning Center (PTWC) and Northwest Pacific Tsunami Advisory Center (NWPATC).

# TSUNAMI

SOME NATURAL SIGNS OF AN APPROACHING LOCAL TSUNAMI

A felt earthquake.

Unusual sea level change: sudden sea water retreat or rise.

Rumbling sound of approaching waves.

SUBUDU! DUGI DUGUDUGI!

## HOW TSUNAMI IS GENERATED

A. Tsunamis are commonly generated at subduction zones, under the ocean where two plates collide, with one plate (A) moving down under the other (B).

B. When plates get after the overlapping plate (B) gets distorted.

C. Stock area ruptures triggering an earthquake and pushing up the ocean floor and sea water above. This starts the tsunami which moves in opposite directions.

F1-F2. On the side of the downgoing plate A, the sea water surges up and the waves move, but the opposite coast suddenly. For this case, there will be no drift in sea surface of the coast. What can be observed is the sudden rise of water.

D. There are two possible behaviors of the surface that may observed.

E1-E3. On the side where the ocean floor rises (plate B), considerable volume of water is pushed up. This causes the shifting of sea water. As a result, sea water is momentarily pushed back away from the shore (E1) causing the water to drop along the coast, which then rushes back as it will of seawater that hits the coastal areas.

## TSUNAMI PREPAREDNESS AND SAFETY

Conduct community-level awareness about earthquakes and tsunamis focused on natural signs of an approaching tsunami, warning and evacuation procedures. Pre-determine high ground in your area and identify routes to get there. Put up signposts.

If unusual sea conditions like rapid moving of sea level are observed, immediately move towards high grounds.

Never go down the beach to watch for a tsunami. When you can see the waves, you are too close to escape it.

During the retreat of sea level, interesting sights are often revealed. Fishes may be stranded on dry land thereby attracting people to collect them. Also, sandbars and coral reefs may be exposed. These scenes tempt people to flock to the shoreline thereby increasing the number of people at risk. Stay out of danger areas until an "all clear" is issued by competent authority. A tsunami is not a single wave but a series of waves.

## PARNO NALILIKHA ANG TSUNAMI

A. Ang Tsunami ay karaniwang nagmumula sa mga subduksiyon zones sa ilalim ng dagat kung saan may pagkambayo ng lebel ng tubig sa ibabaw ng dagat. Ang mga tsunami ay mababaw at sapat ang lakas upang magalaw ang ilalim ng dagat at matinig ang tubig na nasa ibabaw nito.

B. Sa pagkabit ng dalawang platina, malalubog ang platina sa ibabaw ng ibang.

C. Humina ang magkabit na bahagi ng nagiging sasin ng ibabaw ng ibabaw ng ibang. Ang mga tsunami ay mababaw at sapat ang lakas upang magalaw ang ilalim ng dagat at matinig ang tubig na nasa ibabaw nito.

## TSUNAMI RISK MITIGATION PROGRAM '06-'07

DEPARTMENT OF SCIENCE AND TECHNOLOGY

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## TSUNAMI RISK MITIGATION PROGRAM '06-'07

DEPARTMENT OF SCIENCE AND TECHNOLOGY

PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY

# DOST-PHIVOLCS National Initiatives

YEAR	Major Program/s	Outputs (Tsunami-related)	Funding/ Partners
2006-2009	<p><b>(READY PROJECT)</b>            Hazards mapping and assessment for Effective Community-Based Disaster Risk Management</p>	<ul style="list-style-type: none"> <li>• Tsunami Hazards Maps for 27 Provinces <b>(discussed by Ms. Rob, day 1)</b></li> <li>• Tsunami CBEWS in 21 sites (conduct of tsunami drills, installation of signaes, installation of warning bells)</li> <li>• Development of information materials</li> </ul>	UNDP-AusAID Multi-agency: MGB-DENR, NAMRIA- DENR, PAGASA, PHIVOLCS, OCD
2010-2011	Tsunami Awareness and Preparedness Tools and Assessment and Materials Development	<ul style="list-style-type: none"> <li>• Exchange and adaptation of Tsunami Information Materials (4 participating SEA countries: Philippines, Indonesia, Thailand and Timor Leste)</li> </ul>	UNESCO (Jakarta)-UNESCAP



# Hazards Mapping and Assessment for Effective Community based Disaster Risk Management



**Typhoons, Storm Surges,  
Regional Flood forecast**  
PD 78 (1972)



**Earthquakes, Tsunamis,  
Volcanoes**  
EO 984 (1984), EO 178 (1987)



**Rain-induced  
landslides, Floods**  
NGMAP 2005



**Base maps**



**DRRM**  
PD 1566



**2006-2011**

**27 provinces**

- Harmonized map formats
- Consolidated efforts for information dissemination
- Pilot sites for CBDRM



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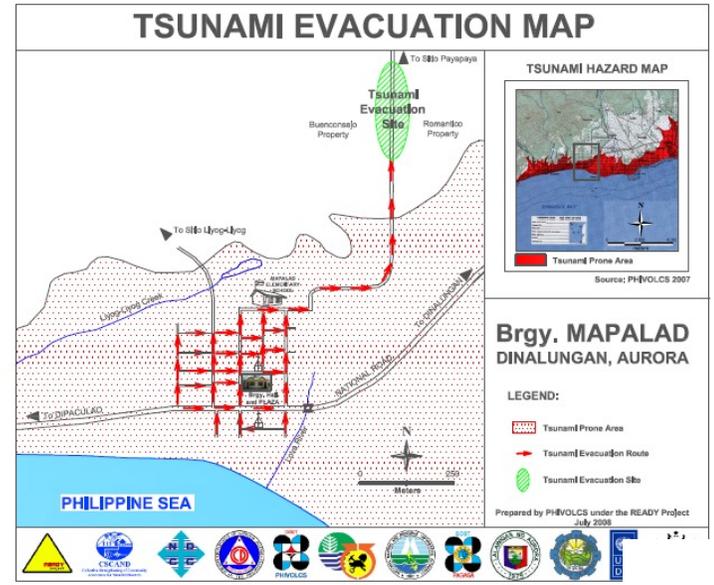
# 2006-2007 READY PROJECT

## Community-based early warning system for tsunami and conduct tsunami preparedness drills in communities

- Evacuation plans and maps
- Signage installation
- IEC seminars
- Community Drills



Installed by partnership LGUs and implementing NGAs



# 2006-2007 READY PROJECT

## GMMA READY, LGU-initiated

### National-Initiated Community- Based Early Warning System (CBEWS)

**2006**  
Gen Luna, Surigao del Norte  
Diatagon, Linaga, Surigao del Sur

**2007**  
Tandag, Surigao del Sur Bislig,  
Surigao del Sur Canmanico,  
Valencia Bohol San Pedro, Duero,  
Bohol San Roque, Tolosa, Leyte  
Bulak, Abuyog, Leyte

**2008**  
Sogod, Southern Leyte  
Pondol, Hinunangan, S. Leyte  
Himatagon, Malibago, Sug-angon,  
St Bernard, S. Leyte  
Sta Mercedes, Maragondon, Cavite  
Bucana, Ternate, Cavite  
Mapalad, Dinalunga, Aurora  
Palanan, Isabela

**2009**  
Barobaybay, Lavezarez,  
Northern Samar  
Cabatuan, Palapag, N. Samar  
Japitan, Dolores, Eastern Samar  
Suribao, Borongan, E. Samar San  
Miguel, Llorente, E. Samar

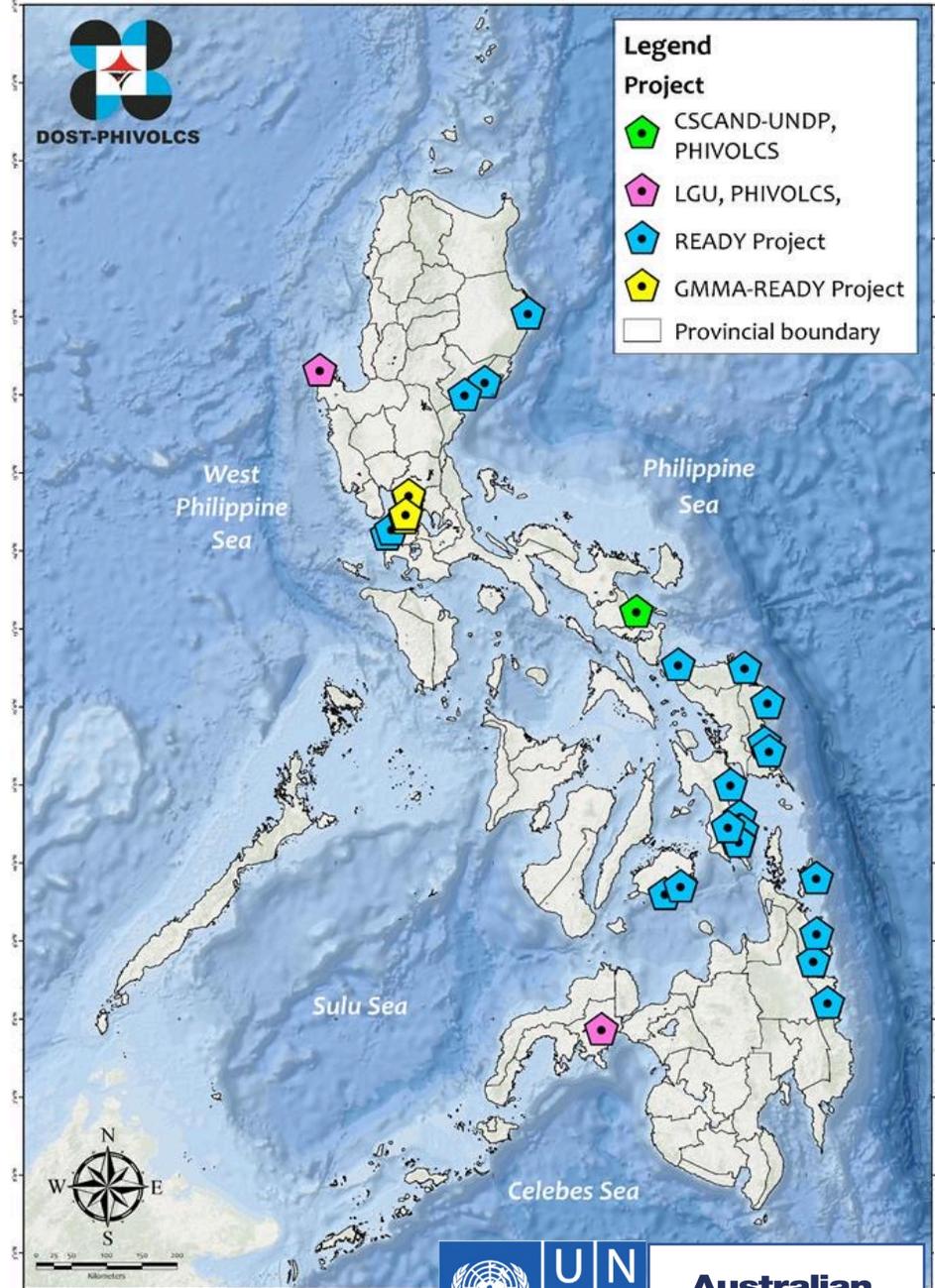
### Post-READY Project

**2011**  
Patar, Bolinao, Pangasinan

**2014**  
Tanza, Navotas City  
Hulo, Obando, Bulacan

**2015**  
Lao-Lao, Cavite City  
San Rafael, Novoleta

Community-Based Early Warning System (CBEWS) Projects (2006-2015)



# 2010-2011: UNESCO-UNESCAP Sharing of Tsunami Information Materials

Philippines  
Indonesia  
Thailand  
Timor Leste

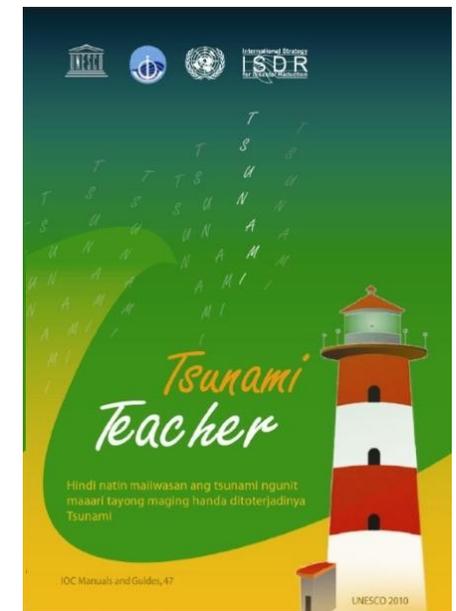


1

**UNAHING PROTEKTAHAN ANG SARILI**

Protektahan ang sarili lalo na ang ulo. Magtago sa ilalim ng matibay na mesa o kama. Sikaping mapanatili ang balanse upang maging ligtas. Halimbawa, kumapit sa paa ng mesa.

Adapted from materials developed by ASB, 2007



# DOST-PHIVOLCS National Initiatives

YEAR	Major Program/s	Outputs (Tsunami-related)	Funding
2010-2012 2013-2014	Establishment of a Cost-Effective Local Tsunami Early Warning System for Selected High-Risk Coastal Communities of the Philippines	<ul style="list-style-type: none"> <li>Installed Tsunami Detection in 5 sites</li> <li>Alerting systems in 20 sites</li> <li>Conduct of IECs</li> <li>Development of Evacuation Maps for host barangays</li> </ul>	DOST-GIA  PHIVOLC S-GAA
2010-2015	Enhancement of Earthquake and Volcano Monitoring and Effective Utilization of Disaster Mitigation Information in the Philippines	<ul style="list-style-type: none"> <li>Tsunami Scenario Database (30,000 scenarios)</li> <li><b>4 Comics (based on Tsunami Survivors' Stories)</b></li> </ul>	JICA-JST SATREPS
2013-2018	Improvement of Tsunami Monitoring	<ul style="list-style-type: none"> <li>19 JMA-type sea level monitoring equipment installed</li> </ul>	JICA Grant- Aid for Disaster Mngt PHIVOLCS-GAA

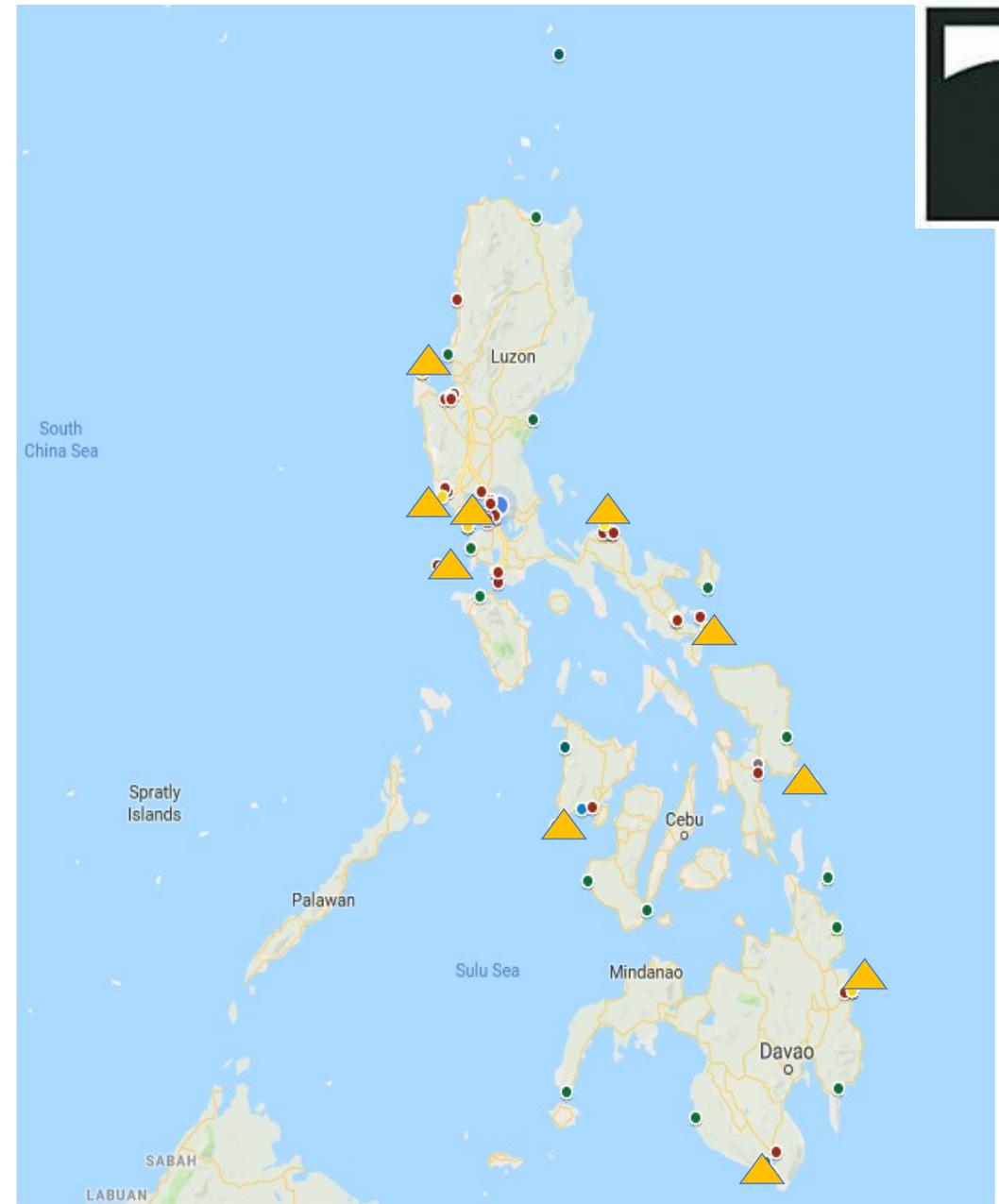
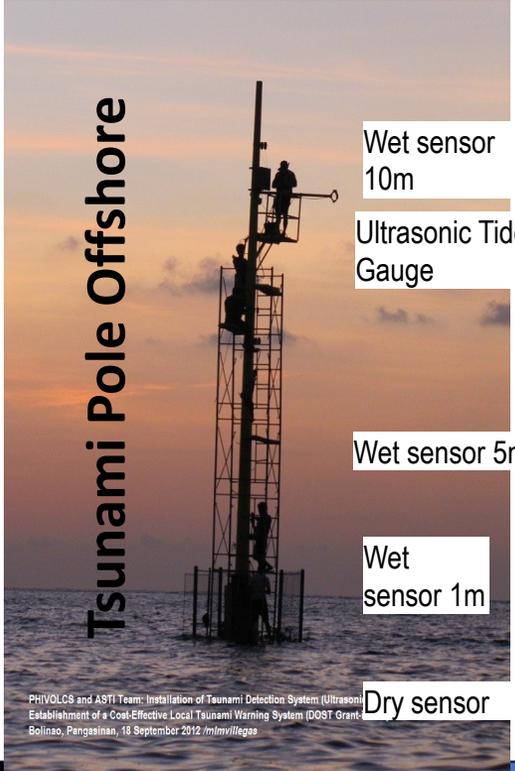


# 2010-2012: Establishment of a Cost-Effective Local Tsunami Early Warning System for Selected High-Risk Coastal Communities of the Philippines

Updated numbers and sites as of 2025 to be discussed by [Angel Lanuza, Day3](#)

▲ 10 detection sites

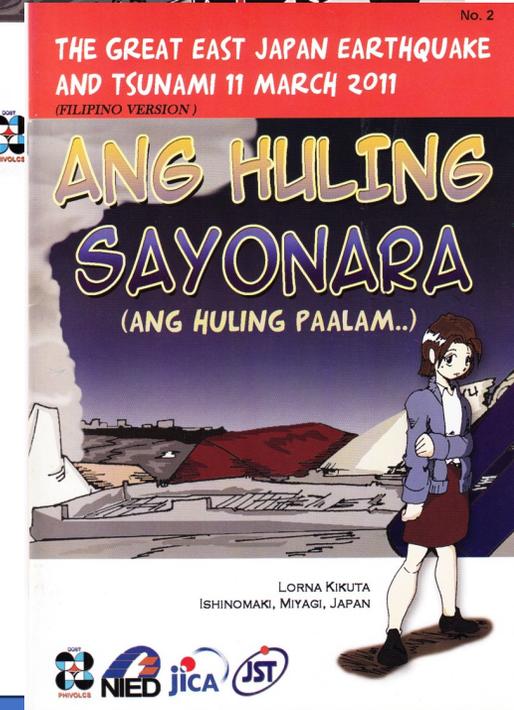
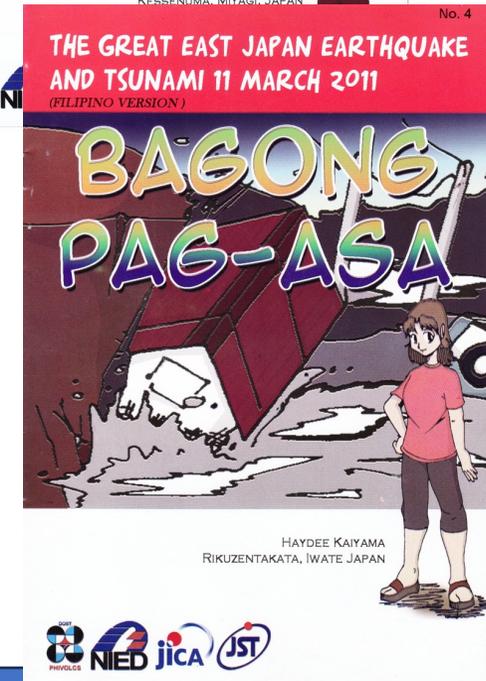
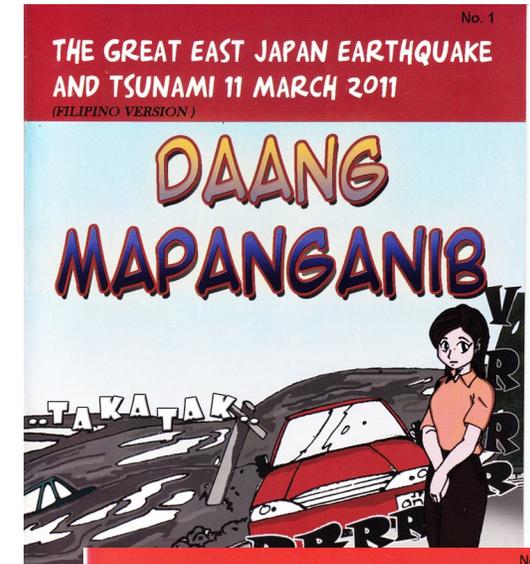
● 47 warning sirens



# 2010-2015 Learning from the experiences of others



Fig. 6. A JICA-Philippines representative with the Director of PHIVOLCS unveiling the first two comics at the launching event, March 2013.



# DOST-PHIVOLCS National Initiatives

YEAR	Major Program/s	Outputs (Tsunami-related)	Funding
2019-2021	Tsunami Summit (stocktaking of tsunami DRR efforts)	<ul style="list-style-type: none"> <li>Identified current/ongoing initiatives on Tsunami DRR of various organizations</li> <li>Mapped out priority areas for future programs/projects/activities</li> </ul>	PHIVOLCS GAA
2022-2023	3R LGU (multi-hazard IEC campaign and includes topics about tsunami)	<ul style="list-style-type: none"> <li>Developed roll out plan for provinces and monitoring tool – <b>discussed by Ms Joan Salcedo, Day2</b></li> </ul>	PHIVOLCS GAA
2023-2024	3R Tsunami Ready Community	<ul style="list-style-type: none"> <li>Assisted tsunami-prone community to be tsunami-ready – <b>discussed by Ms Joan Salcedo, Day2</b></li> </ul>	PHIVOLCS GAA
2023-2025	<b>DANAS Project-</b> Disaster Narratives for Experiential knowledge-based Science communication	<ul style="list-style-type: none"> <li>Sourcebooks on Earthquake and Tsunami in local language with short videos</li> </ul>	DOST-GIA



# 3 known Tsunami Markers

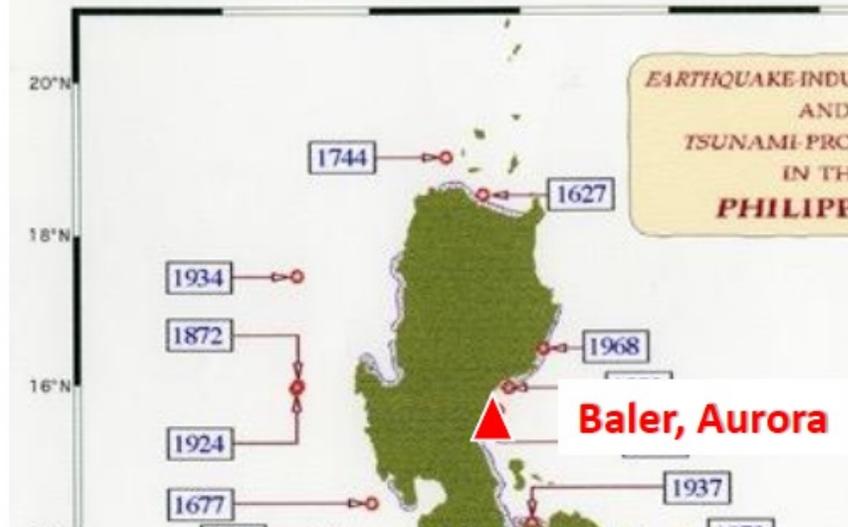
**Wawa, Calapan  
Oriental Mindoro**

15 Nov 1994  
Installed 2014



**Baler, Aurora**

7 April 1970  
Installed January 2005



**Calapan,  
Oriental Mindoro**



**Pagadian,  
Zamboanga del Sur**

**Pagadian**

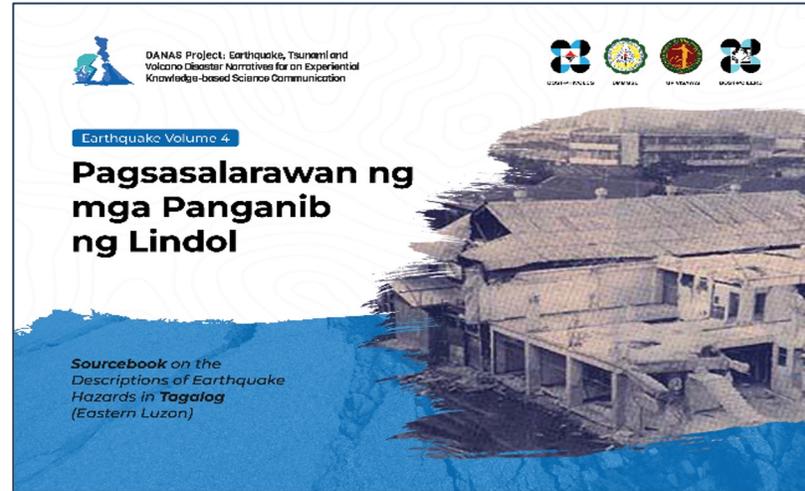
1976 Moro Gulf Earthquake  
installed Aug 2017(?) (permanent)  
Unveiled 2006- temporary



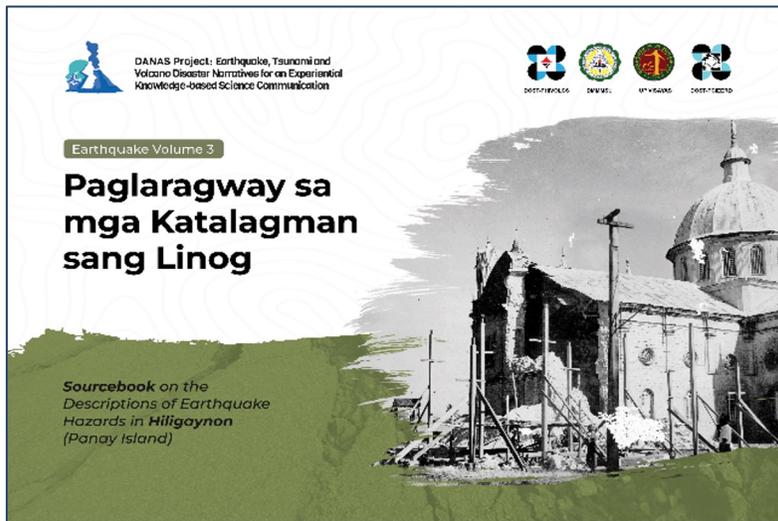
# Ilocano for Northern Luzon Earthquakes



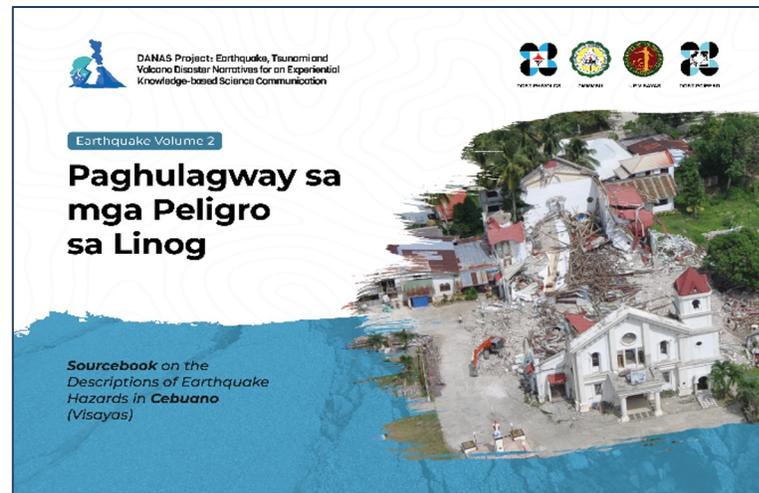
# Tagalog for Aurora, Nueva Ecija Earthquakes



# Kapampangan



# Hiligaynon Panay Earthquakes



# Cebuano for Negros and Bohol Earthquakes



# Cebuano for Mindanao Earthquakes



- Marker for the **Moro Gulf 1976 Earthquake and Tsunami 50<sup>th</sup> year August 2026**
- Currently with ongoing discussions- Cotabato City
- Interested? Please discuss with Mr. Jeff Perez

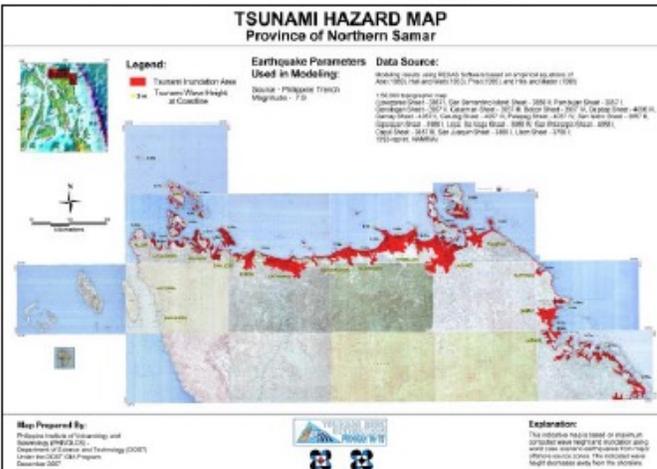
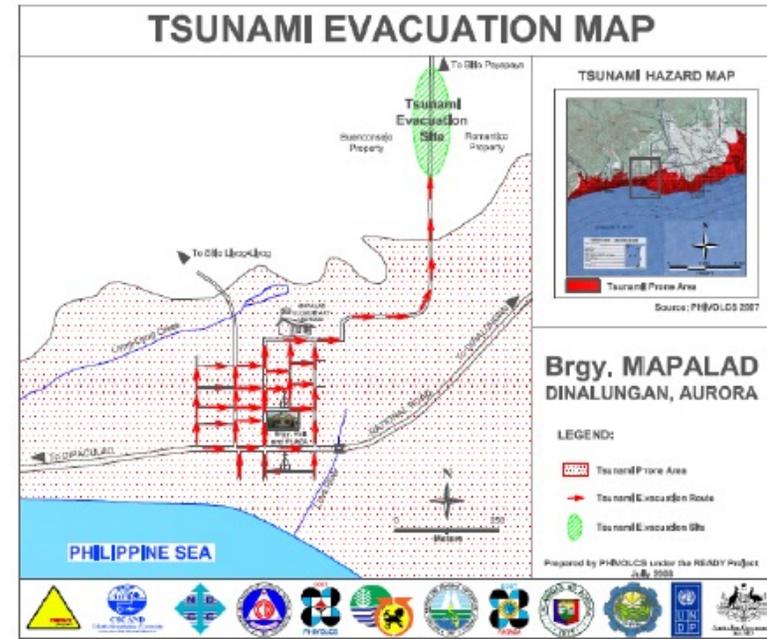


# Develop Communities that are ready to evacuate in the event of tsunami occurrence

## PHIVOLCS



## COMMUNITY



- Available resources
- Various activities at the national and local levels



TSUNAMI SUMMIT 2019-  
2021





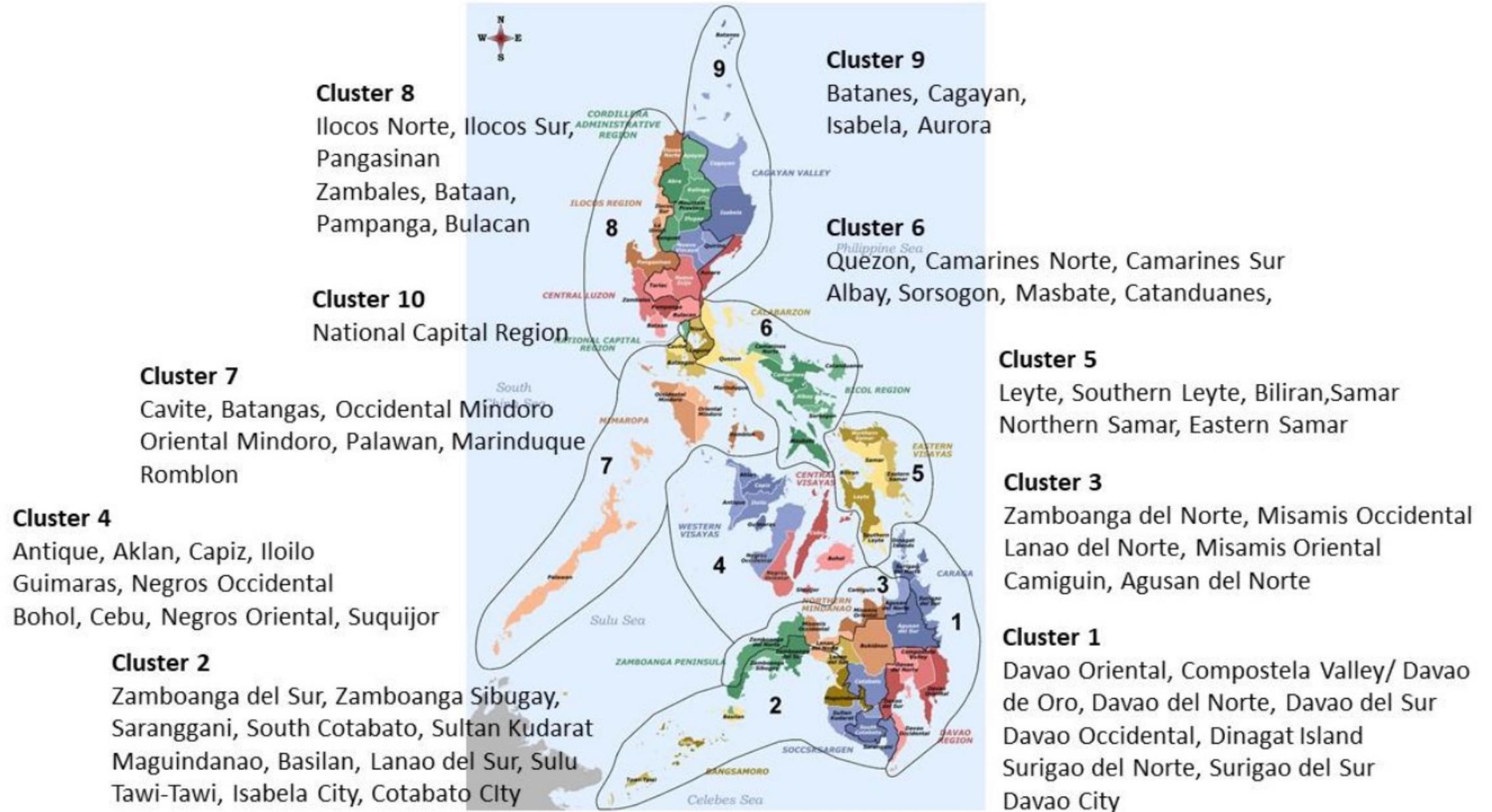
## National Consultation Workshop for Harmonized Tsunami Program 2019

- Venue for a coordinated multi-agency, multi-stakeholder discussion
- Identify current, ongoing initiatives of various organizations on Tsunami DRR
- Identify timetable of implementation of existing Tsunami DRR activities from various organizations for more coordinated activities

## Tsunami Summit 2019



# TSUNAMI SUMMIT CLUSTER- according to earthquake generator

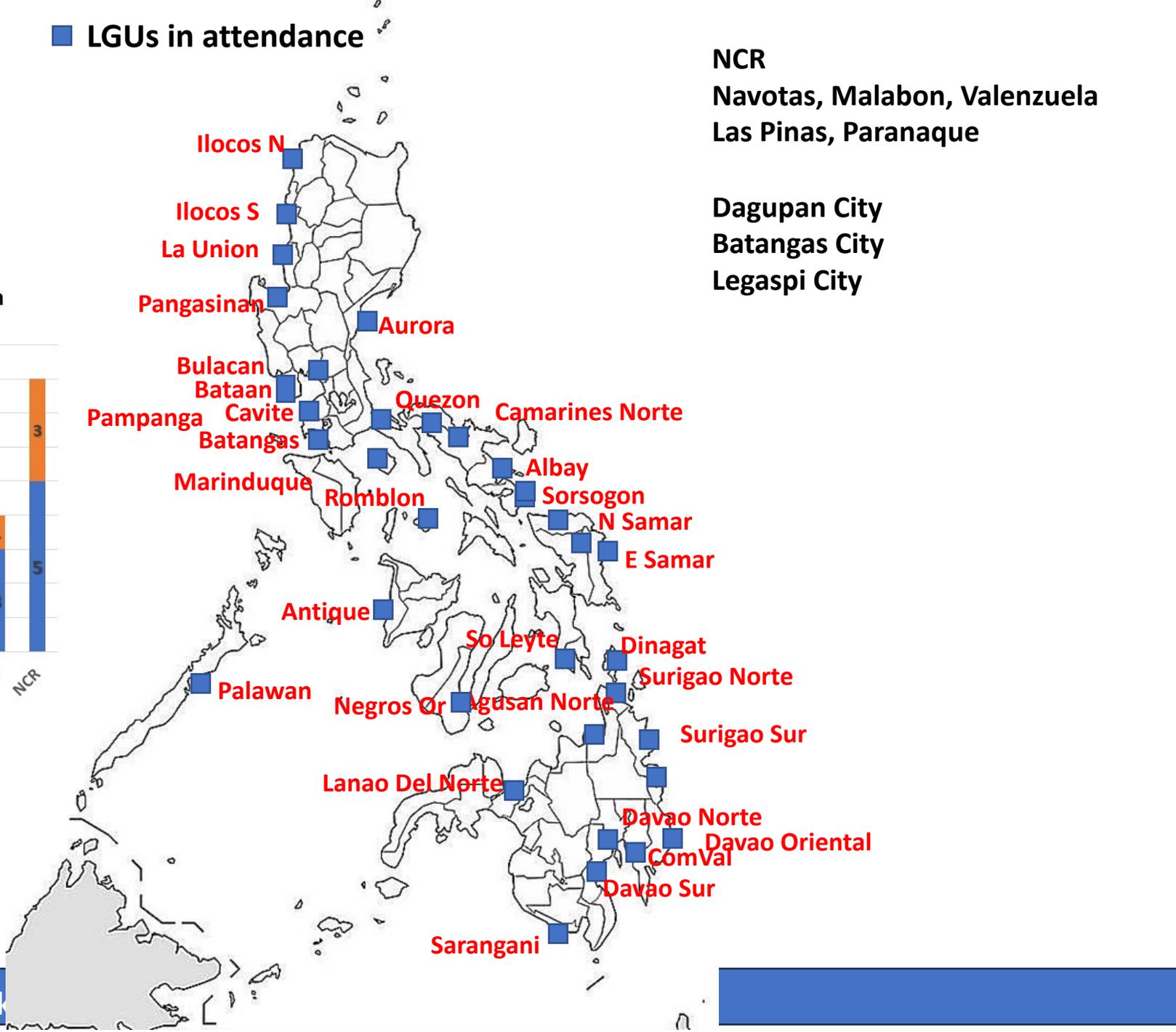
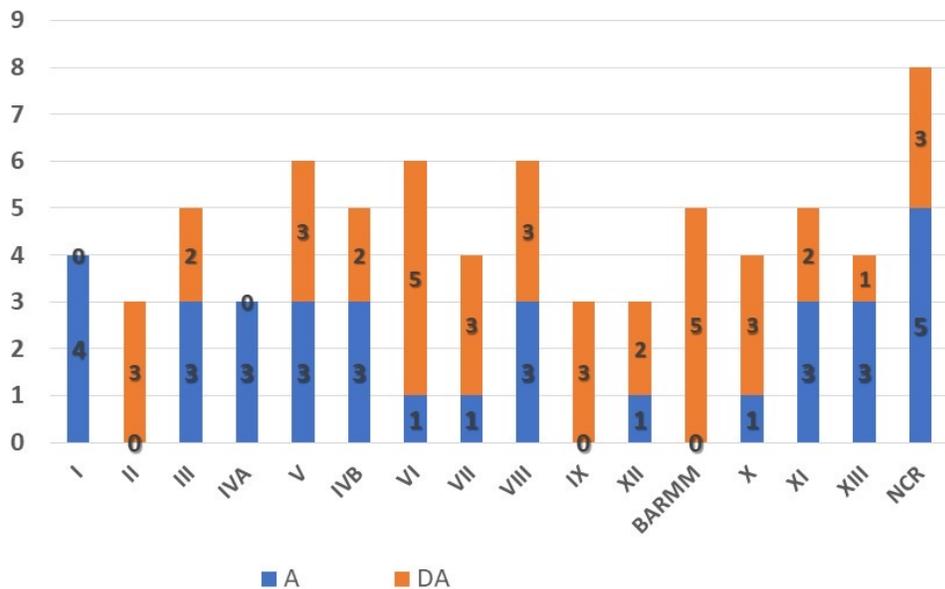


■ LGUs in attendance

NCR  
 Navotas, Malabon, Valenzuela  
 Las Pinas, Paranaque

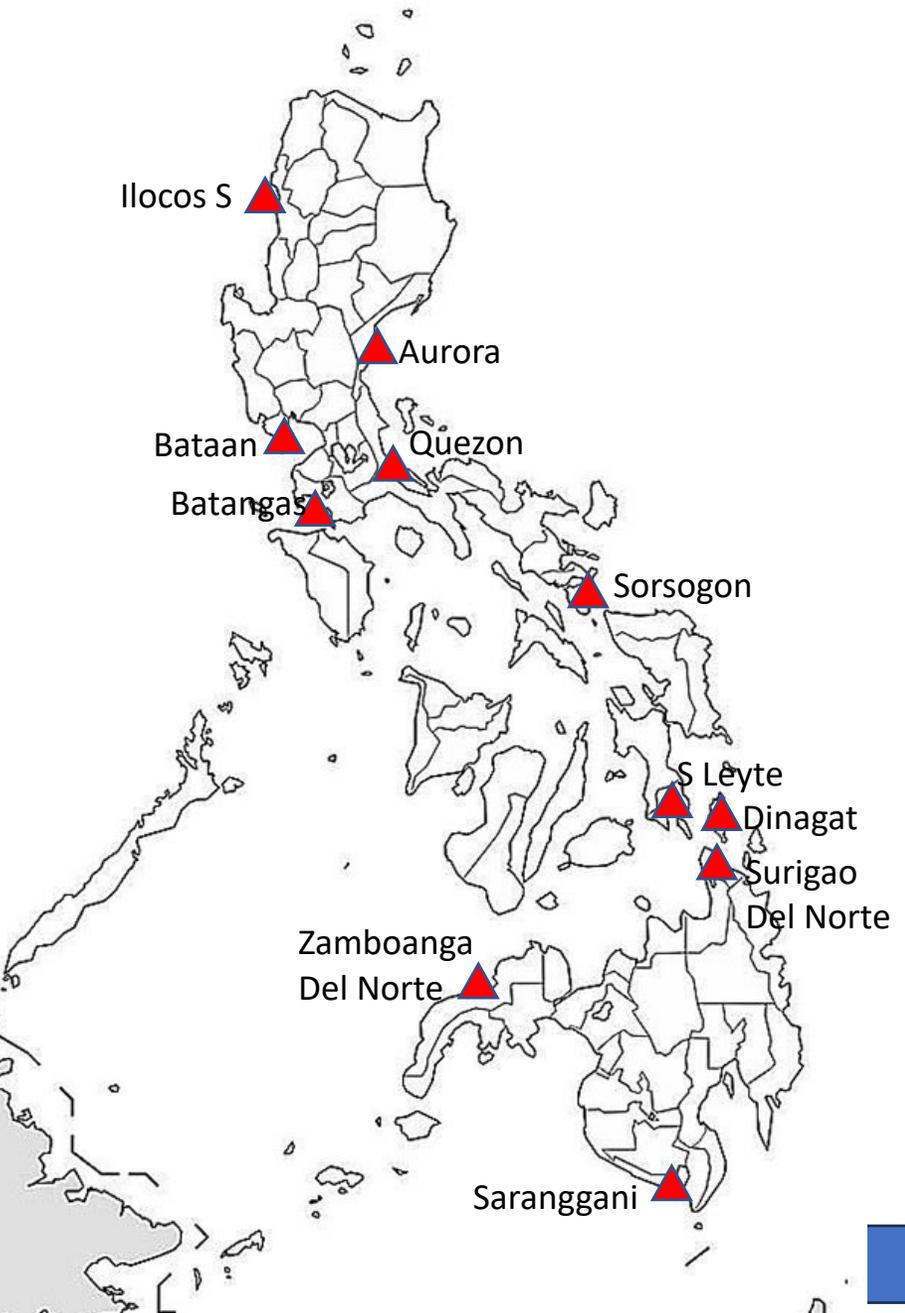
Dagupan City  
 Batangas City  
 Legaspi City

Tsunami Summit 2019 LGU (Province\*) Participation

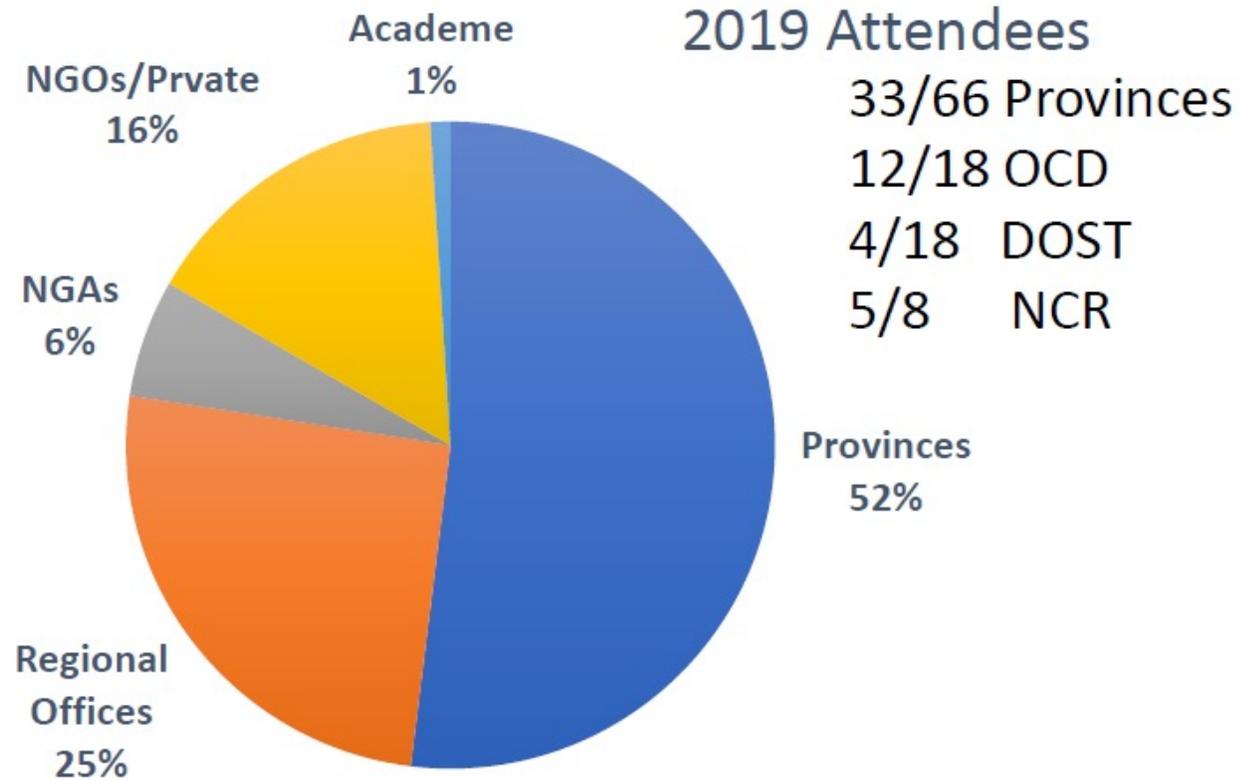


■ LGU- Tsunami Signage Installed

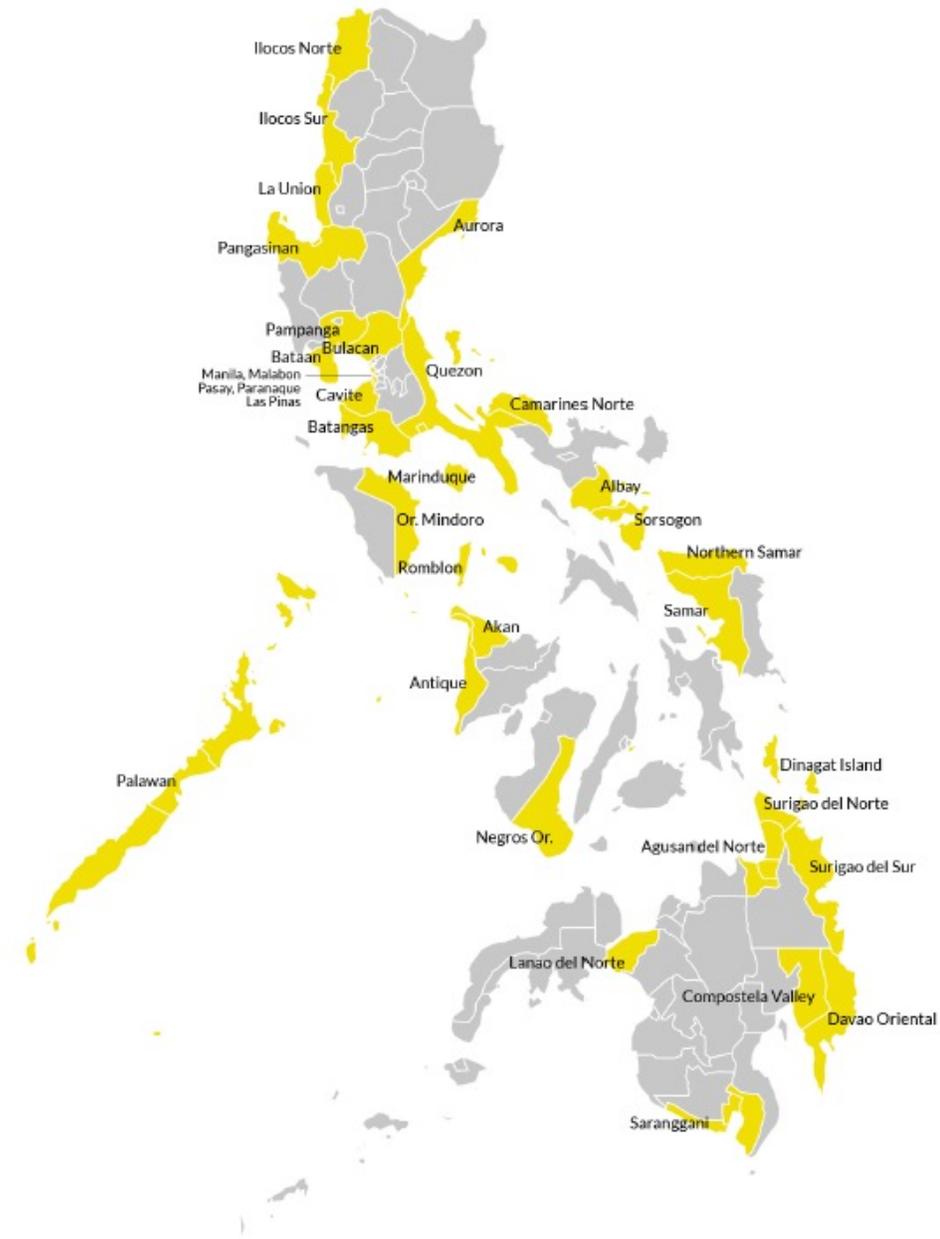
▲ LGU- Tsunami Early Warning System



# 2019 National Consultation Workshop for Harmonized Tsunami



# 2019





## National Consultation Workshop for Harmonized Tsunami Program 2019

- Venue for a coordinated multi-agency, multi-stakeholder discussion
- Identify current, ongoing initiatives of various organizations on Tsunami DRR
- Identify timetable of implementation of existing Tsunami DRR activities from various organizations for more coordinated activities



## National Harmonized Tsunami DRR 2020 (virtual, focus on Clusters 1,2,3 (Mindanao))

- Platform/venue for a coordinated multi-agency, multi-stakeholder discussion
- Toolkit/manual/unified template for reporting past accomplishments, current initiatives and short-term plans/programs on Tsunami DRR
- Create and maintain platform for reporting Tsunami DRRM-related initiatives that is accessible to all partners

**2020- COVID 19 pandemic  
Shifted to online**



# 2020- COVID 19 pandemic Shifted to online



Provinces with Coastal Communities	No. Coastal Mun	2019	2020
<b>Region IX</b>			
Zamboanga del Norte	3/19		X
Zamboanga del Sur	2/16		X
Zamboanga Sibugay	13		
City of Isabela*			
<b>Region X</b>			
Camiguin	2/5	X	X
Lanao del N	1/11		X
Misamis Occ	3/14		X
Misamis Or	2/25		X
<b>Region XI</b>			
Compostela V/ Davao de Oro	3	X	X
Davao del Norte	1/4	X	X
Davao del Sur	1/6		X
Davao Occ	5		
Davao Oriental	1/9		X
Davao City*			X
<b>Region XII</b>			
Saranggani	1/6	X	X
So Cotabato	1		X
Sultan Kudarat	3		
Cotabato City*			X

Provinces with Coastal Communities	No. Coastal Mun	2019	2020
<b>Region XIII</b>			
Agusan del Norte	11	X	X
Dinagat Island	1/7	X	
Surigao del Norte	1/17	X	X
Surigao del Sur	2/17	X	X
<b>BARMM</b>			
Lanao del Sur	4		
Basilan	3/12		X
Maguindanao	6		
<b>BARMM</b>			
Lanao del Sur	4		
Basilan	3/12		X
Maguindanao	6		
Sulu	19		
Tawi-Tawi	1/11		X

Attended 5-6 August 2019																		
OCD	Central	NCR	I	II	III	IVA	IVB	V	CAR	VI	VII	VIII	IX	X	XI	XII	XIII	BARMM
DOST	Central	NCR	I	II	III	IVA	IVB	V	CAR	VI	VII	VIII	IX	X	XI	XII	XIII	BARMM
No Workshop for LUZON and VISAYAS in 2020																		
OCD	Central	NCR	I	II	III	IVA	IVB	V	CAR	VI	VII	VIII	IX	X	XI	XII	XIII	BARMM
DOST	Central	NCR	I	II	III	IVA	IVB	V	CAR	VI	VII	VIII	IX	X	XI	XII	XIII	BARMM

FOCUS ON MINDANAO						
Attended Oct 2020 series						
IX	X	XI	XII	XIII	BARMM	
IX	X	XI	XII	XIII	BARMM	



## National Consultation Workshop for Harmonized Tsunami Program 2019

- Venue for a coordinated multi-agency, multi-stakeholder discussion
- Identify current, ongoing initiatives of various organizations on Tsunami DRR
- Identify timetable of implementation of existing Tsunami DRR activities from various organizations for more coordinated activities



## National Harmonized Tsunami DRR 2020 (virtual, focus on Clusters 1,2,3 (Mindanao))

- Platform/venue for a coordinated multi-agency, multi-stakeholder discussion
- Toolkit/manual/unified template for reporting past accomplishments, current initiatives and short-term plans/programs on Tsunami DRR
- Create and maintain platform for reporting Tsunami DRRM-related initiatives that is accessible to all partners



## National Harmonized Tsunami DRR 2021 (virtual, Clusters 1-9)

- Platform/venue for a coordinated multi-agency, multi-stakeholder discussion
- Toolkit/manual/unified template for reporting past accomplishments, current initiatives and short-term plans/programs on Tsunami DRR
- Create and maintain platform for reporting Tsunami DRRM-related initiatives that is accessible to all

# Platform for LGUs to report their Tsunami-DRR initiatives

2021

**Nationwide Tsunami Coping Capacity Initiatives**  
GeoMapperPH

Search province, city/munic

Layer List

- Barangay boundary (Coastal and Tsunami-Prone)
- City/Municipal boundary (Coastal and Tsunami-Prone)
- Provincial boundary (Coastal and Tsunami-Prone)
- Coastal and Tsunami-Prone LGUs
- LGUs with Mangrove Planting

Query

Search

- Search City/Municipality
- Search Province

Smart Editor

1. Use the **Query** or **Search bar** to zoom in to your LGU
2. Turn on the **City/Municipal** or **Provincial boundary** in the **Layer List**
3. Click the LGU boundary on the map and

Developed by  
GGRDD-  
Geomatics  
Section

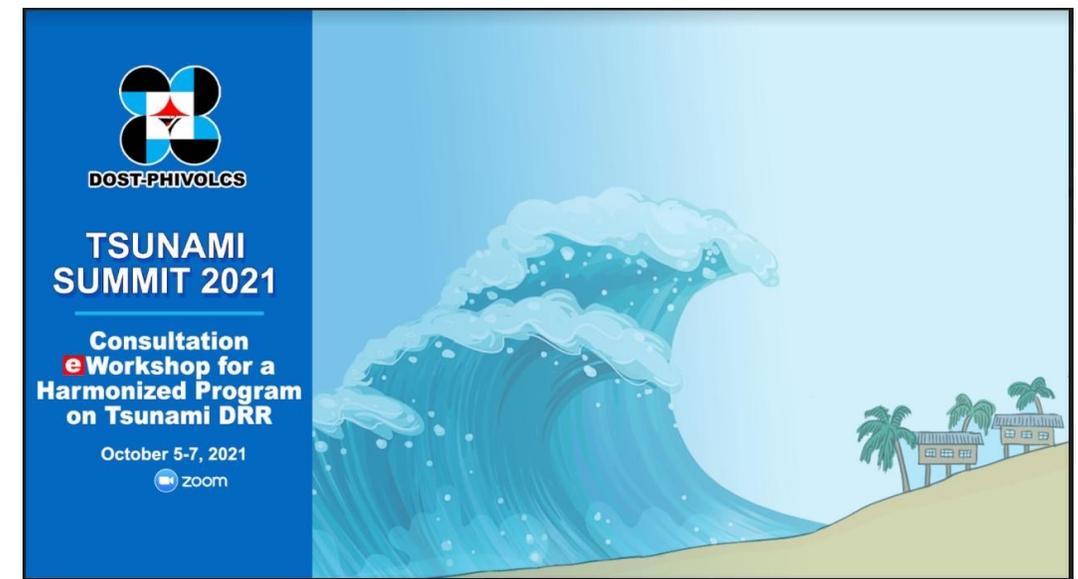
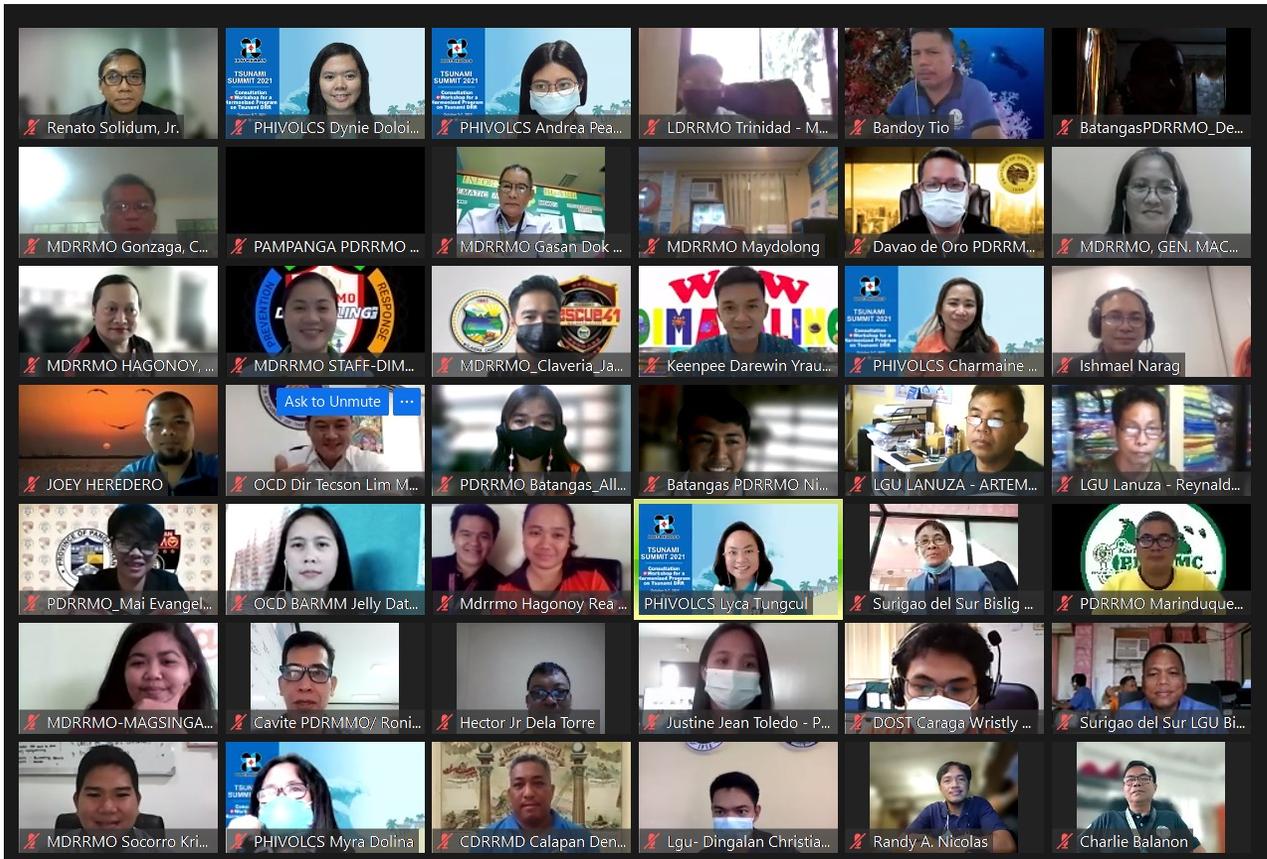
**Nationwide Tsunami Coping Capacity Dashboard**

Click on the chart/s to filter map data

Initiative	No response	No	Yes
LGUs with Mangrove Rehabilitation Program	747	23	169
LGUs with Contingency Plan for Tsunami	849	64	27
LGUs with Warning Siren	908	14	17
LGUs that Conducted Tsunami Evacuation Drills	768	50	122

Summary Cards:

- 56 LGUs with Tsunami Prone Area Signage
- 39 LGUs with Tsunami Evacuation Route Signage
- 38 LGUs with Tsunami Evacuation Area Signage



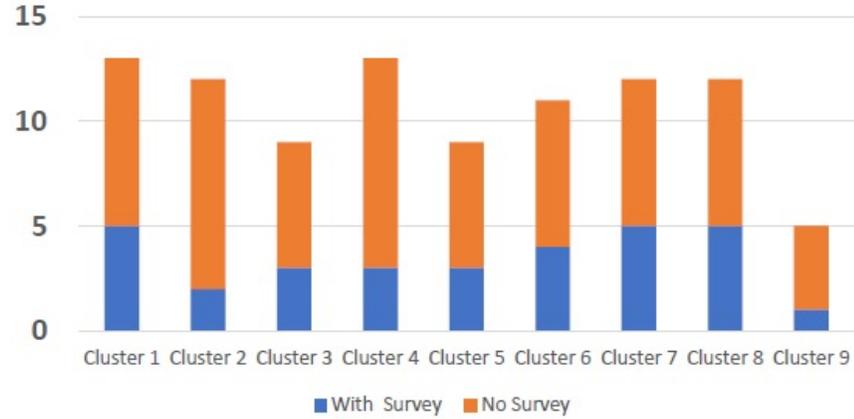
3-day online consultation workshop

	5 Oct	6 Oct	7 Oct
<b>LGUs</b>	<b>253</b>	<b>233</b>	<b>218</b>
<b>DILG</b>	<b>8</b>	<b>10</b>	<b>11</b>
<b>DOST</b>	<b>7</b>	<b>7</b>	<b>7</b>
<b>OCD</b>	<b>30</b>	<b>24</b>	<b>24</b>
<b>MMDA</b>	<b>1</b>	<b>1</b>	<b>0</b>

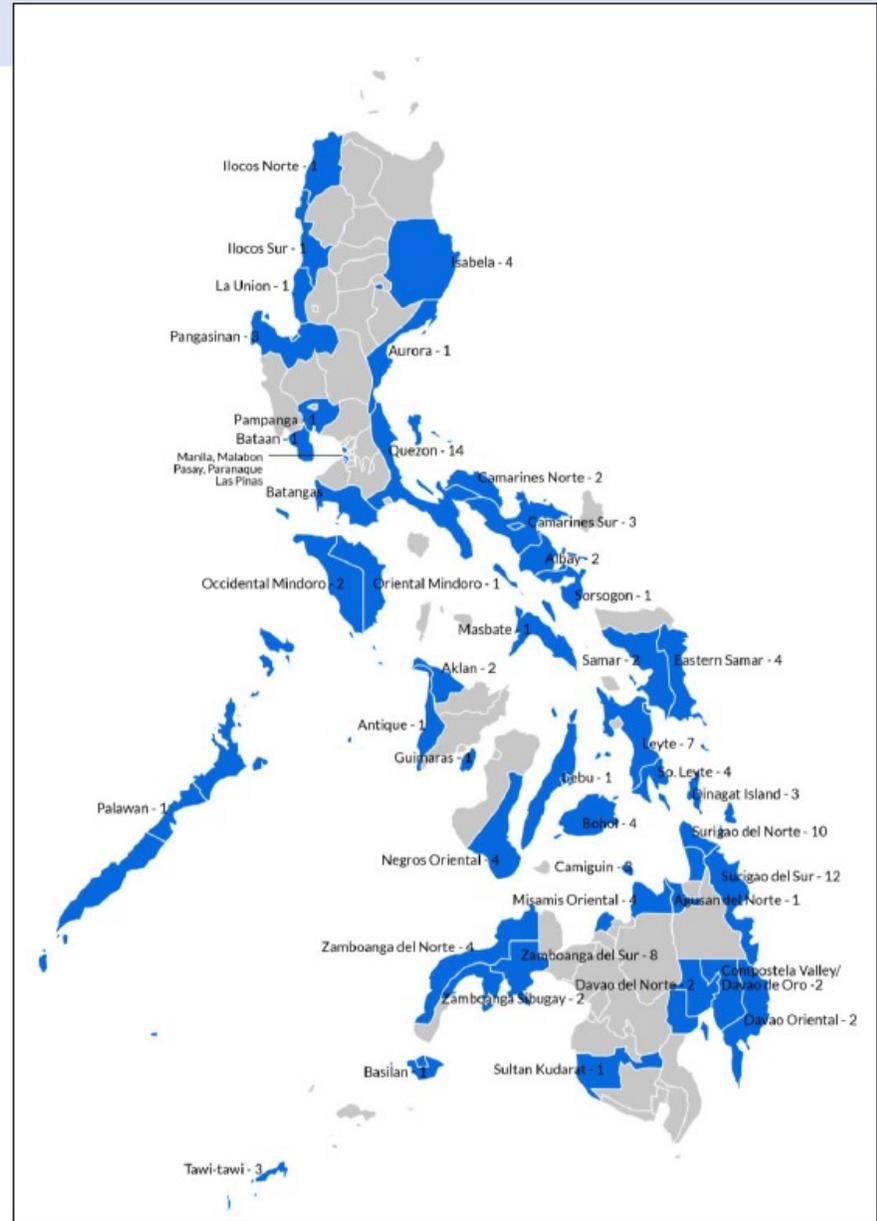
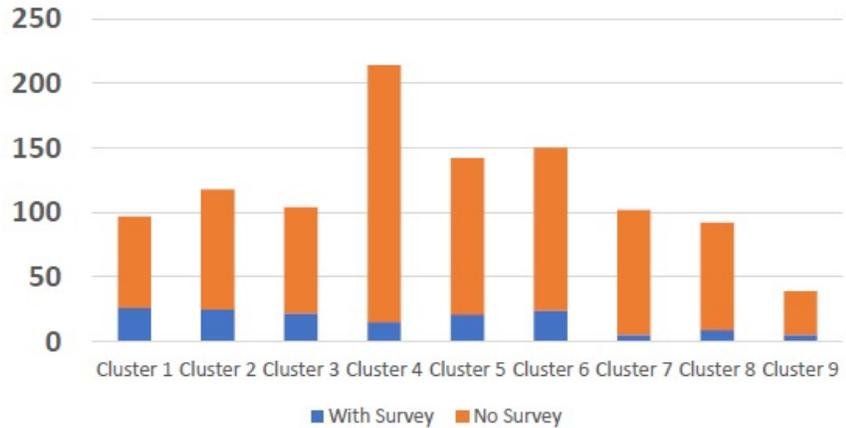
# 2021 National Consultation Workshop for Harmonized Tsunami Program

online

Provinces



Cities and Municipalities



# 2019-2021 Tsunami Summit NTRB creation





# Nationwide Tsunami Coping Capacity Initiatives

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January 2021

Dear Sir/Madam:

DOST-PHIVOLCS is undertaking a comprehensive documentation of all initiatives related to Tsunami DRR, to come up with a national database to be hosted by DOST-PHIVOLCS. The objective is to establish baseline data and use this for a Harmonized National Tsunami DRR Planning. In relation to this, we would like to request your time to fill out this survey form.

Please bear with this all-inclusive questionnaire. This survey adapted the Intergovernmental Oceanographic Commission – Pacific Tsunami Warning and Mitigation System (IOC-PTWS) Framework, Future Goals and Performance Monitoring of Tsunami Risk Reduction, Hazard Warning and Mitigation.

Thank you.  
 Mylene Martinez-Villegas  
 Chief SRS- DOST-PHIVOLCS

Please return accomplished form to [tsunami2021.phivolcs@gmail.com](mailto:tsunami2021.phivolcs@gmail.com)

**“Participate! Share your initiatives in building a Tsunami-ready Philippines”**

Name of Organization \_\_\_\_\_  
 Province/City/Municipality \_\_\_\_\_  
 Address \_\_\_\_\_  
 Name of Focal Person accomplishing this form \_\_\_\_\_ Date \_\_\_\_\_  
 Position/ Designation \_\_\_\_\_  
 Office/Division/ Unit \_\_\_\_\_  
 Email (active) \_\_\_\_\_  
 Landline \_\_\_\_\_ Mobile \_\_\_\_\_

Goal 1. Understanding and Managing Tsunami Hazard and Risk			
<b>1.1. Tsunami Hazard Modelling</b>			
1.1.1. Utilized Hazard Map. LGU used Tsunami Hazard Map from PHIVOLCS LGU used Tsunami Hazard Map from other sources	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please provide details (year used, etc)
1.1.2. LGU Utilized available Tsunami hazard map to identify tsunami prone areas LGU Utilized available Tsunami hazard map for planning for evacuation Procedure	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please identify specific municipalities/cities/ <u>brgy</u> s with Tsunami evacuation map
<b>1.2. Tsunami Hazard Risk Assessment</b>			
1.2.1. Methodologies for tsunami hazard risk assessments. LGU conducted tsunami hazard risk assessment	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Indicate what kind of assessment (e.g. single-scenario, multi-scenario, location-based?) and what kinds of tools were used? (e.g. REDAS?)

1.2.2. LGU conducted periodic review of tsunami hazard risk assessment	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Others?) Please describe
1.2.3. Strengthened technical scientific capability LGU identified training needs for DRRMO Staff undertook trainings to increase capacities	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please describe Please specify type, title of training, years, etc- for details pls go to <b>ANNEX A.1</b>
1.2.4. Strengthened technical and scientific information LGU engaged in or participated in local/regional dialogues	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please describe
<b>1.3. Tsunami Risk Reduction</b>			
1.3.1. Identified and planned for ways to reduce tsunami risk	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• LGU with Medium-Term Development Plan (coastal zoning, siting of critical facilities/ infrastructures)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Specify location and year
• LGU with specific land-use plans on coastal areas	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please provide copy of document
• Mangrove Rehabilitation Program	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Specify location and year (please fill out attached separate sheet <b>ANNEX A.2</b> for details)
• Seawalls, dikes and other coastal protection measures	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Specify location and year (please fill out attached separate sheet <b>ANNEX A.3</b> for details)
<b>1.4. Tsunami Response and Recovery</b>			
1.4.1. LGU developed local response plan (multi-hazard) LGU developed local response plan specific for Tsunami LGU developed contingency plan (multi-hazard) LGU developed contingency plan specific for Tsunami	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	Please attach/submit document, specify year/version
1.4.2. LGU undertook post-event analysis by evaluating, recording and integrating tsunami related impacts and losses into assessments to improve knowledge of tsunami hazard frequency and impacts	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please put details
1.4.3. Existence of LGU Emergency Operations Center (EOC) Status: Developed and functioning Still being established	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	Year EOC was established
<b>GOAL 2. Tsunami Detection, Warning and Dissemination</b>			
<b>2.1. Monitoring and Detection Networks</b>			
2.1.1. LGU accesses earthquake information from DOST-PHIVOLCS for updates	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Choose: (circle which applies) Website, Facebook, Twitter, others
LGU accesses earthquake information from other sources	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Please specify source of information

# LGU Tsunami Coping Capacity Initiatives Survey



## Paper Survey

- Email-in surveys, hard paper surveys, and phone interviews
- Important for documentation, monitoring, and identification of gaps and opportunities

**2019**



## Online Survey

- Makes data collection and consolidation faster and more efficient
- Better results visualization
- Easier DRRM initiatives monitoring

**2020-2021**





Using any web browser  
(such as Chrome, Edge, or Firefox),  
go to:



[georisk.gov.ph/](https://georisk.gov.ph/)

2025





Dashboard

OTHER GEORISKPH PLATFORMS

GeoAnalyticsPH

HazardHunterPH

PlanSmartPH



Data Collection Tool - For Trainings Only

Training GeoMapperPH

[View Application](#)



Tsunami Coping Capacity

Training GeoMapperPH

[View Application](#)



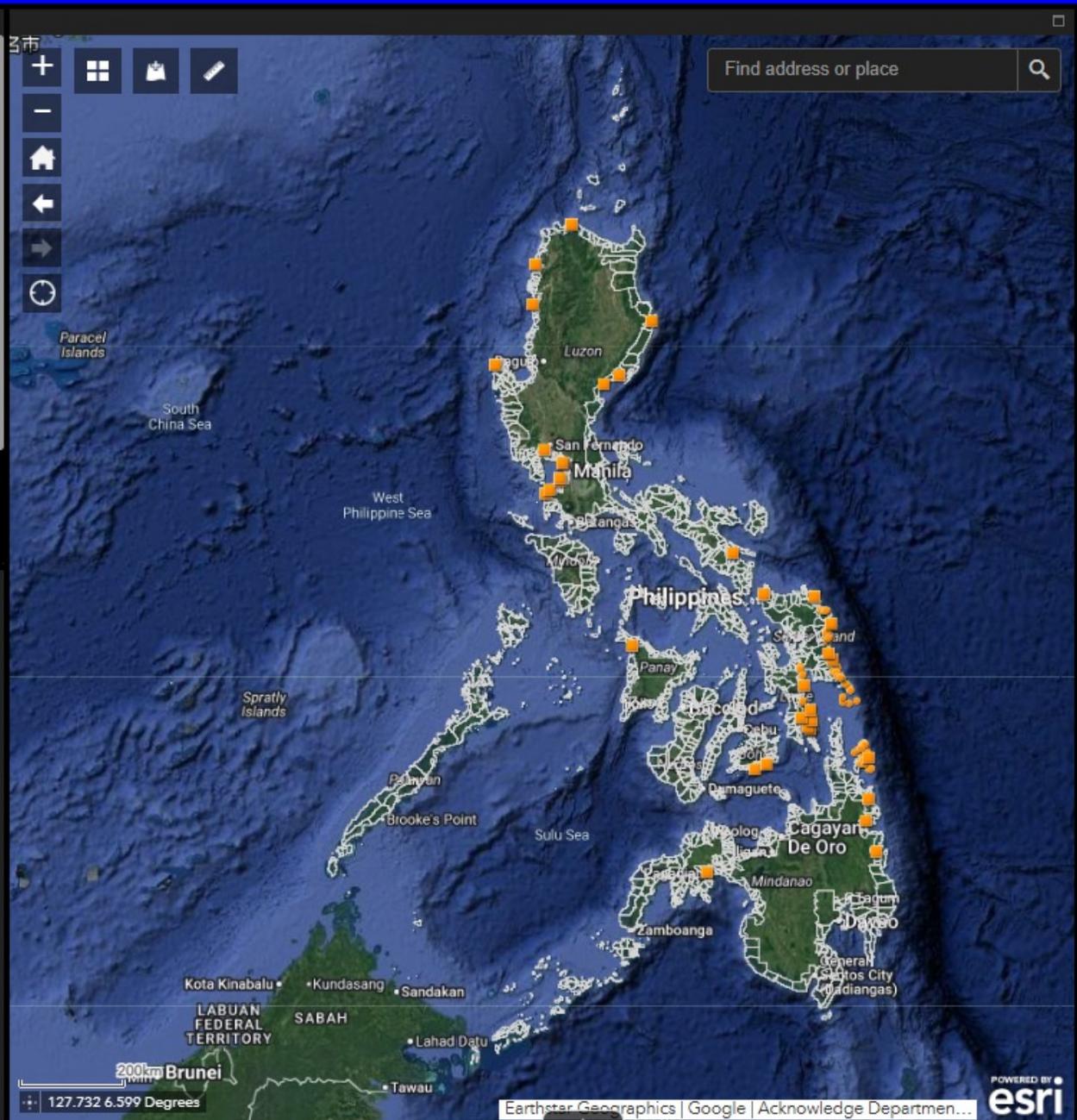


Layer List Legend

- Layers**
- PSA - Barangay boundary (Tsunami DRR Survey) ...
  - PSA - City/Municipal boundary (Tsunami DRR Survey) ...
  - PSA - Provincial boundary (Tsunami DRR Survey) ...
  - Tsunami Signages (point location) ...
  - Community-based EWS (point location) ...
  - Schools that Conducted Tsunami Drills ...
  - Coastal and Tsunami-Prone LGUs (viewing only) ...
  - LGUs that conducted TEWS (viewing only) ...
  - LGUs with Mangrove Planting (viewing only) ...

Query

- Search** Results
- Search City/Municipality
  - Search Province



Smart Editor

1. Use the **Query** or **Search bar** to zoom in to your LGU

Query

Tasks	Results
<input type="checkbox"/> Search City/Municipality	
<input type="checkbox"/> Search Province	

2. Turn on the City/Municipal or Provincial boundary (Tsunami DRR Survey) in the **Layer List**

**Layers**

- Barangay boundary (Tsunami DRR Survey) ...
- City/Municipal boundary (Tsunami DRR Survey) ...
- Provincial boundary (Tsunami DRR Survey) ...

3. Click the LGU boundary on the map and select **"Smart Editor"** in the **ellipsis options**

(1 of 2)

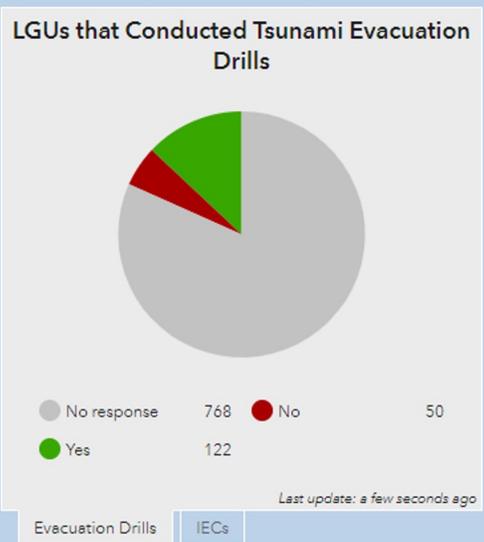
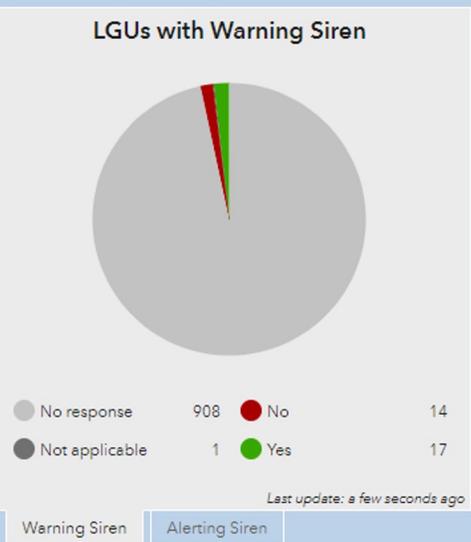
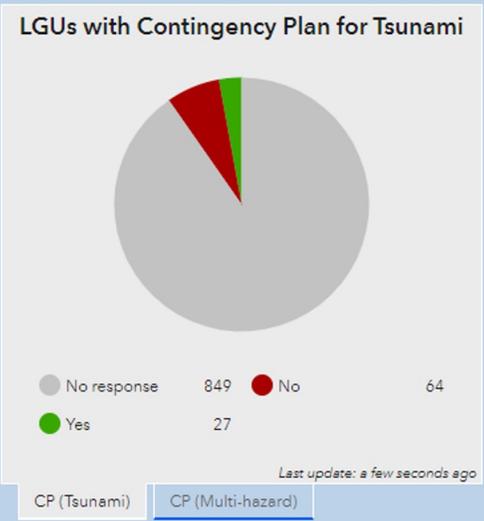
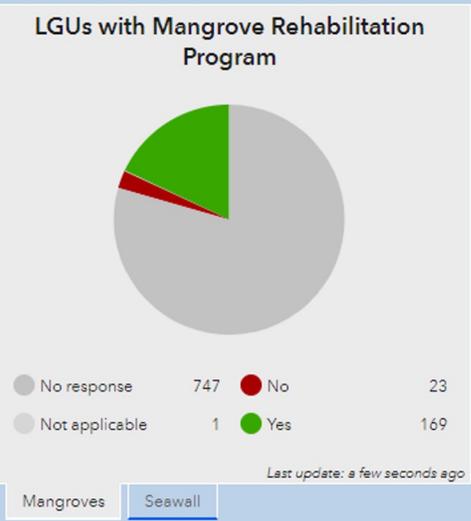
LGU used Tsunami Hazard Map from PHIVOLCS	Yes
LGU used Tsunami Hazard Map from other sources	Yes
Please provide tsunami hazard map details (year used, etc.)	
Please identify specific LGUs with tsunami evacuation map	
LGU conducted Tsunami risk assessment	Yes
LGU identified training needs for DRRMO	Yes

- Answering Survey Questions
- Adding points for tsunami signages
- Adding Points for PHIVOLCS Community- Based Early Warning systems (CBEWS)
- Adding Points for Schools that Conducted Tsunami Drills
- Dashboard



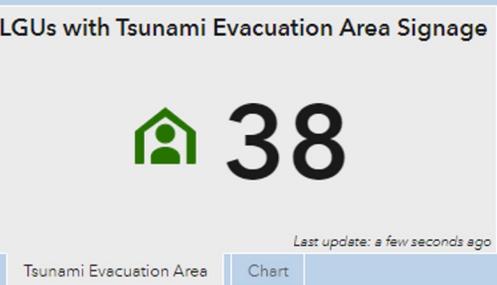
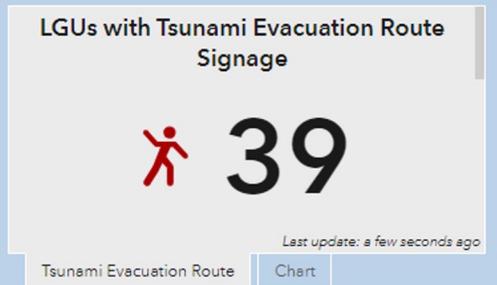
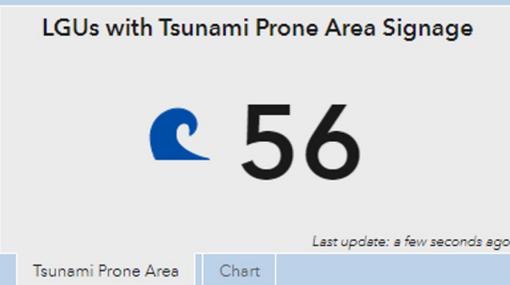
Nationwide Tsunami Coping Capacity Dashboard Filter Data by Region: None | Filter Data by Province: None

Click on the chart/s to filter map data



#### Legend

Coastal and Tsunami-Prone LGUs



If you wish to avail of an in-depth Tsunami Coping Capacity training using GeoMapperPH, you may register through the link provided.

[bit.ly/Tsunami Coping](https://bit.ly/TsunamiCoping)

