



National Information and Communications Technology Architectures

Presented by:

**Mr. Kelvin Art T. Ofrecio
Officer-in-Charge**

Communications, Electronics and Information Systems Division

Scope of Presentation

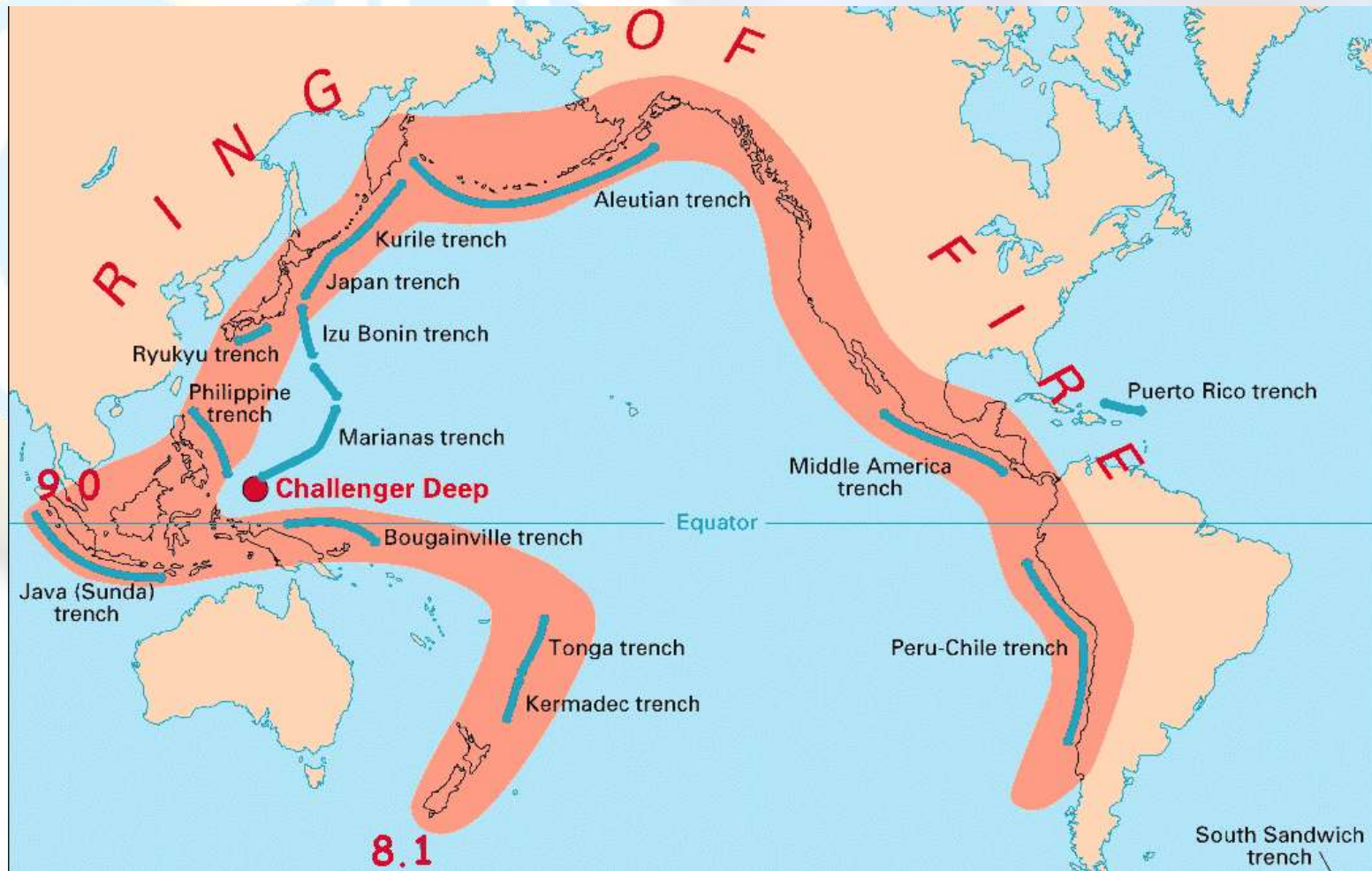
- I. PHILIPPINE DISASTER PROFILE
- II. OFFICE OF CIVIL DEFENSE (OCD)
- III. NATIONAL DISASTER RISK
REDUCTION AND MANAGEMENT
COUNCIL (NDRRMC)
- IV. NDRRM OPERATIONS CENTER
(NDRRMOC)
- V. NDRRMC INFORMATION FLOW
- VI. ICT TOOLS USED



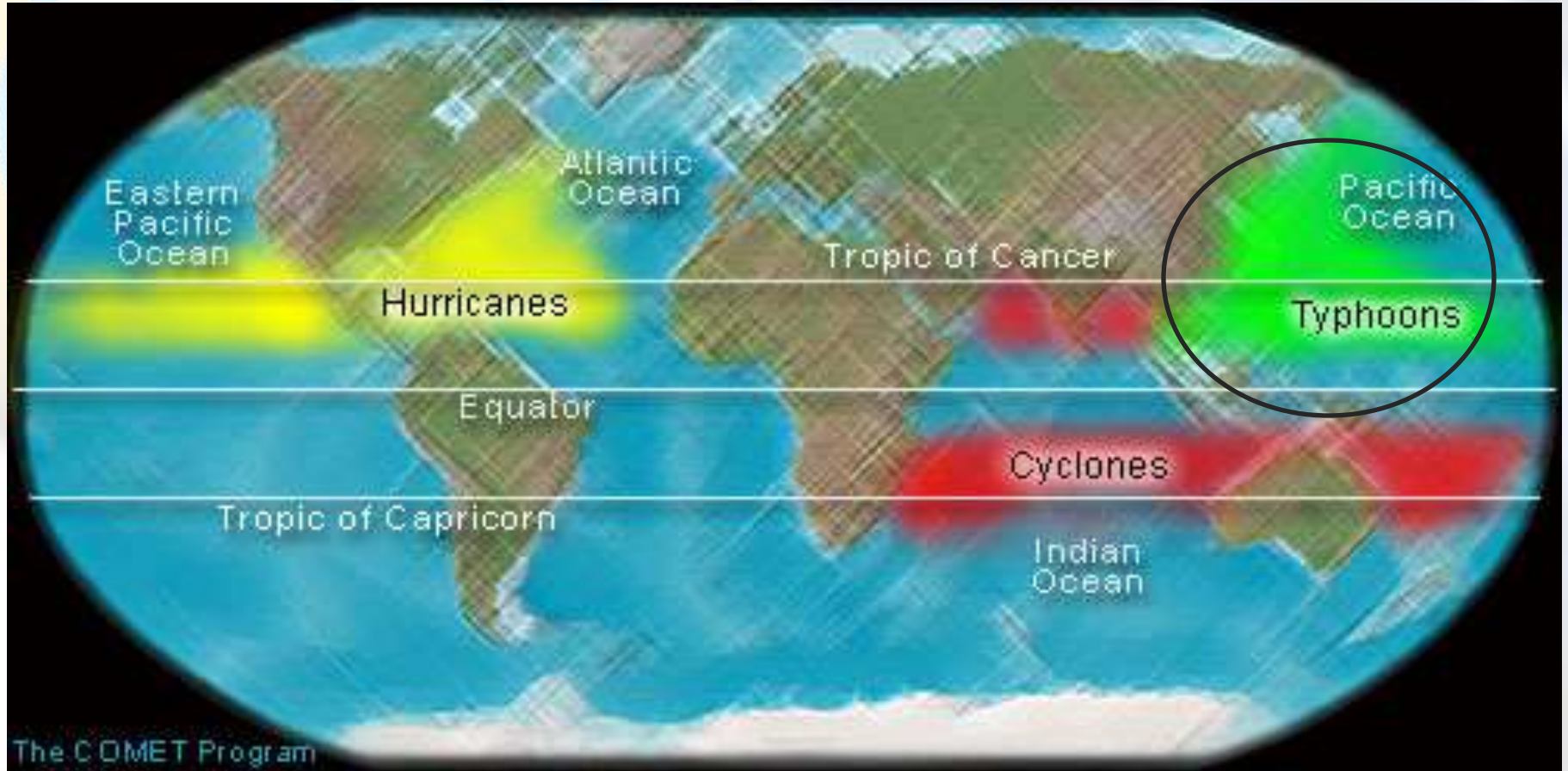
Philippine Disaster Profile



PACIFIC RING OF FIRE

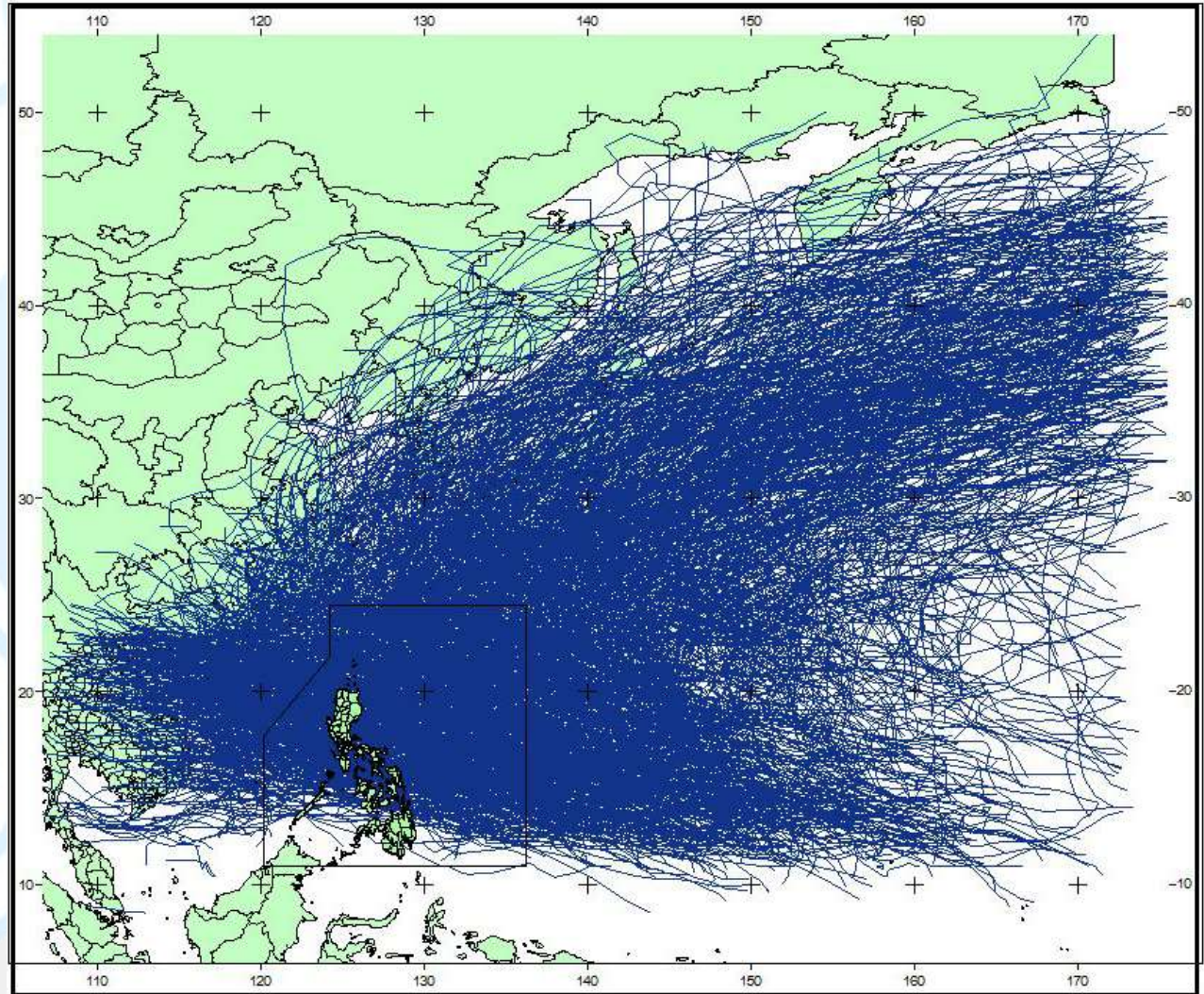


PACIFIC TYPHOON PATH



EXPORTER OF TYPHOONS

**Tracks of
Tropical
Cyclones in the
Western North
Pacific from
1948 to 2010.**



Ref: Japan Meteorological Agency (n.d.) as cited by Godillano (2014)

NATURAL HAZARDS

Geological:

- Volcanic eruptions
- Earthquakes
- Tsunamis
- Earthquake-induced landslide



NATURAL HAZARDS

Hydro-meteorological:

- Typhoons (severe wind)
- Storm Surges
- Floods
- Rain-induced Landslides
- Drought



HUMAN-INDUCED HAZARDS



- **Fire**
- **Maritime accidents**
- **Aircraft crash**
- **Land accidents**
- **Industrial accidents**
- **Pollution**
- **Civil disturbance**
- **Terrorism**
- **Armed conflict**

EFFECTS OF DISASTERS



- **HUMAN TOLL**
 - **Dead, injured and missing**
 - **Families displaced**
 - **Lost livelihood**
- **DAMAGE and LOSSES**
 - **Productive Sectors**
 - **Social Sectors**
 - **Infrastructure**
 - **Cross Sectoral**
- **SLOWS ECONOMIC DEV'T**
- **HAMPERS DELIVERY OF SERVICES**

UN INT'L STRATEGY FOR DISASTER RESPONSE (UNISDR) WORLD RISK INDEX REPORT 2015

9th in 2009

6th in 2010

3rd in 2011

3rd in 2012

3rd in 2013

2nd in 2014

WeltRisikoIndex

Rang	Land	Risiko (%)
1.	Vanuatu	36,72
2.	Tonga	28,45
3.	Philippinen	27,98
4.	Guatemala	20,10
5.	Salomonen	19,29
6.	Bangladesch	19,26
7.	Costa Rica	17,17
8.	Kambodscha	16,82
9.	Papua-Neuguinea	16,82
10.	El Salvador	16,80
11.	Timor-Leste	16,23
12.	Brunei Darussalam	16,15
13.	Mauritius	14,66
14.	Nicaragua	14,63
15.	Guinea-Bissau	13,78

Philippine Earthquake – 16 July 1990 (1,283 dead)



- **1,283 dead**
- **1,255,249 affected persons**
- **PHP12.2B damage**

Photo credit: Google Images

Mt. Pinatubo Eruption– 15 June 1991



- **2.4B cu. meters of lahar**
- **Volcanic ashes in the atmosphere around the globe**
- **Impacts continue to this day**

Photo credit: Google Images

Typhoon "Uring" ("Thelma") – 5 November 1991



- **Flooding in Ormoc City**
- **5,101 dead**
- **PHP1.413B damage**

Photo credit: Google Images

Guinsaugon Landslide – 17 February 2006



- **Buried Barangay Guinsaugon in St. Bernard, Southern Leyte**
- **154 dead**
- **PHP114M damage**

Guimaras Strait Oil Spill – 11 August, 2006



- **Oil tanker MT Solar sunk with 500,000 liters of oil**
- **Effects on the environment**

Typhoon "Reming" ("Durian") – 30 November 2006



- **734 dead**
- **3.5M affected persons**
- **PHP5.438B damage**

Photo credit: Google Images

SARS Outbreak – 1st Semester, 2003

In China, Taiwan, Hongkong and Singapore



- **2 dead and 92 cases**
- **Affected the tourism industry**

Sinking of Princess of the Stars

- Romblon, 21 June 2008



- **437 dead**
- **605 missing**

Photo credit: Google Images

Tropical Storm “Ondoy” (“Ketsana”)

– 26 September 2009 (massive flooding in MM)



- **Massive flooding in Metro Manila**
- **464 dead**
- **PHP10.92B damage**

Office of Civil Defense (OCD)



OFFICE OF CIVIL DEFENSE



Mandated to act as the Executive Arm and Secretariat of the NDRRMC.

Mission:

To administer a comprehensive national civil defense and disaster risk reduction and management program by providing leadership in the continuous development of strategic and systematic approaches as well as measures to reduce the vulnerabilities and risks to hazards and manage the consequences of disasters.

Vision:

- a. A service-oriented organization,**
- b. A prepared population**
- c. A safe nation.**

National Disaster Risk Reduction And Management Council (NDRRMC)

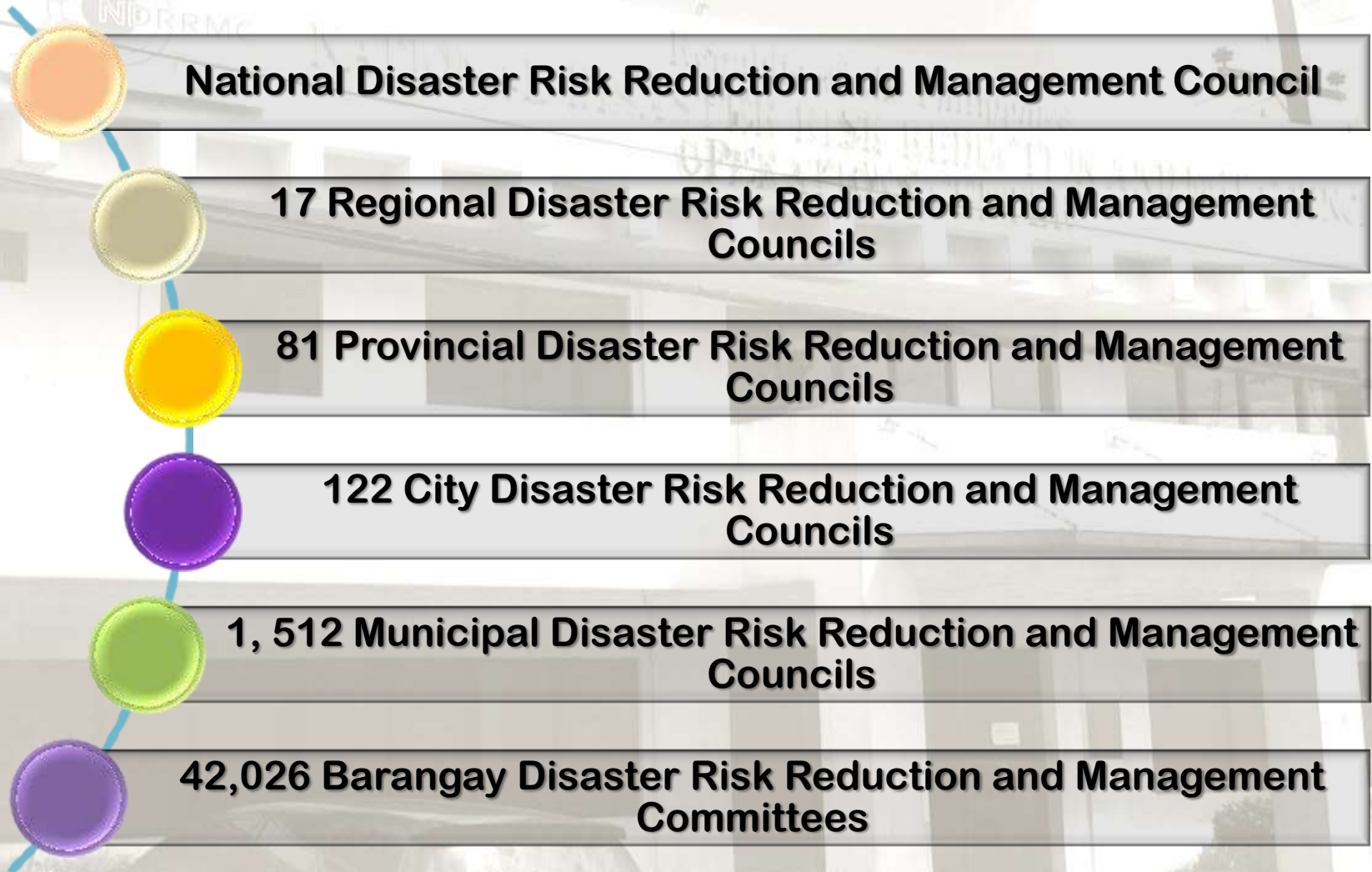


NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT COUNCIL (NDRRMC)

MANDATE under the Philippine Disaster Risk Reduction and Management Act of 2010: National Disaster Risk Reduction and Management Council (NDRRMC) is empowered with policy-making, coordination, integration, supervision, monitoring, and evaluation functions with regard to the Disaster Risk Reduction and Management (DRRM) initiatives of the Philippines



DRRMCs NETWORK



NDRRM Operations Center (NDRRMOC)



NDRRMOC WARNING DISSEMINATION



Surveillance/Warning Agencies



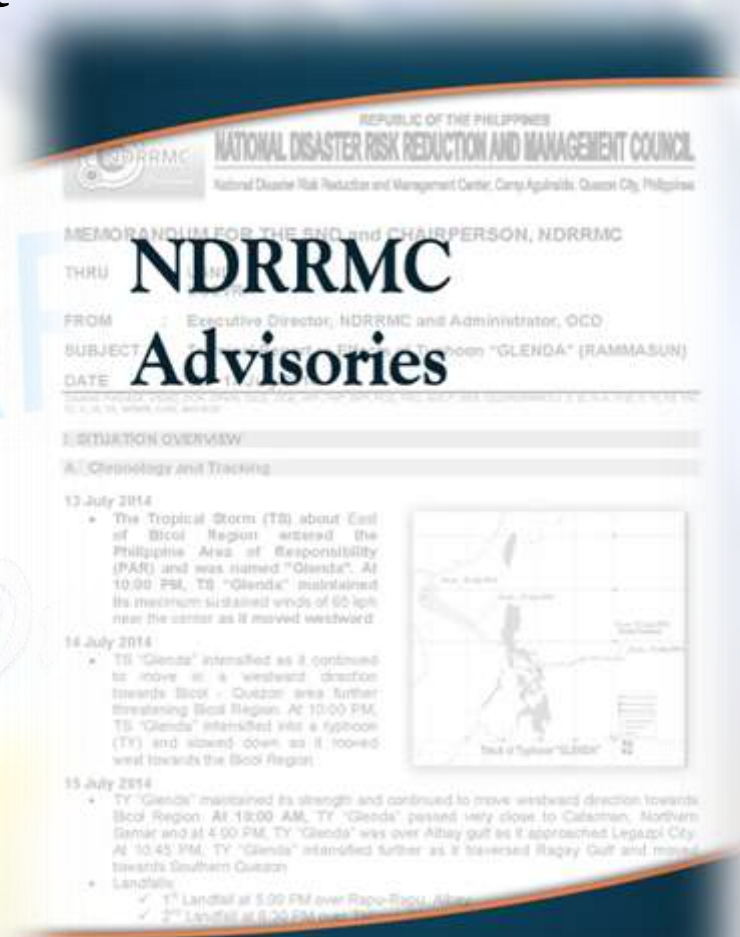
- Key Officials
- NDRRMOC Member-Agencies
- OCD/ROs
- Other Stakeholders
- General Public/Media



[NDRRMOC Website
www.ndrrmc.gov.ph](http://www.ndrrmc.gov.ph)

ADVISORIES RECEIVED FROM SURVEILLANCE AGENCIES

- 24-hour Public Weather Forecast
- Weather Advisory
- Severe Weather Bulletin
- Gale Warning
- Rainfall Advisory
- General Flood Advisory/Bulletin
- Thunderstorm Advisory
- Weather Outlook
- El Niño/La Niña Advisory
- Dam Monitoring
- Tsunami Alert/Warning
- Volcano Bulletin
- Earthquake Information
- Notice to Airmen/ Mariners



REPORTING SYSTEM

The DRRMCs from the regional down to the local levels ensure that all major and minor incidents, both natural and human-induced, are:

1. **Monitored**
2. **Recorded**
3. **Documented**
4. **Reported**





NDRRMC Information Flow



NDRRMC INFORMATION FLOW

Chairperson, NDRRMC

President of the Philippines

**Executive Director, NDRRMC/
Administrator, OCD**

NDRRMC/OCD (24/7)

RDRRMCs/OCDRCs
(Regional level)

P/DRRMCs
(Provincial)

C/M DRRMCs
(City/ Municipal)

B/DRRMCs
(Barangays)

**LOCAL DRRMCs
P/C/M/B**

Media/ Other Stakeholders

PUBLIC

Surveillance Agencies
(Field Stations)

COMMUNITIES
(Frontline/ community-based responders)

Official Disaster Reports

NDRRMC SITREPs

Situation Reports

RDRRMC Warning Advisories/ Reverse SITREPs

NDRRMC Warning Advisories/ Reverse SITREPs

NDRRMC Alerts/ Advisories/ SITREPs

NDRRMCs Member-Agencies (Opn Ctrs)

DILG	CHED
DSWD	AFP
DOST	PNP
NEDA	PRESS SEC
DOH	PRC
DENR	NAPC-VDC
DA	NCRFW
DEPED	HUDCC
DOE	CCC
DOF	GSIS
DTI	SSS
DOTC	PHIC
DBM	ULAP
DPWH	LPP
DFA	LCP
DOJ	LMP
DOLE	LMB
DOTC	CSOs (4)
THE EXEC SECRETARY	PRIVATE SECTOR
OPAPP	

HAZARDS

HYDRO-METEOROLOGICAL
GEOPHYSICAL
TERRORISM
HUMAN EPIDEMICS
ANIMAL EPIDEMICS
CIVIL DISTURBANCE
INFESTATION
RADIOLOGICAL & NUCLEAR

DOST PAGASA
DOST PHIVOLCS
AFP/PNP
DOH
DA BAI
PNP
DA
DOST PNRI


(Field Stations)

(Frontline/ community-based responders)

Situation Reports

(City/ Municipal)

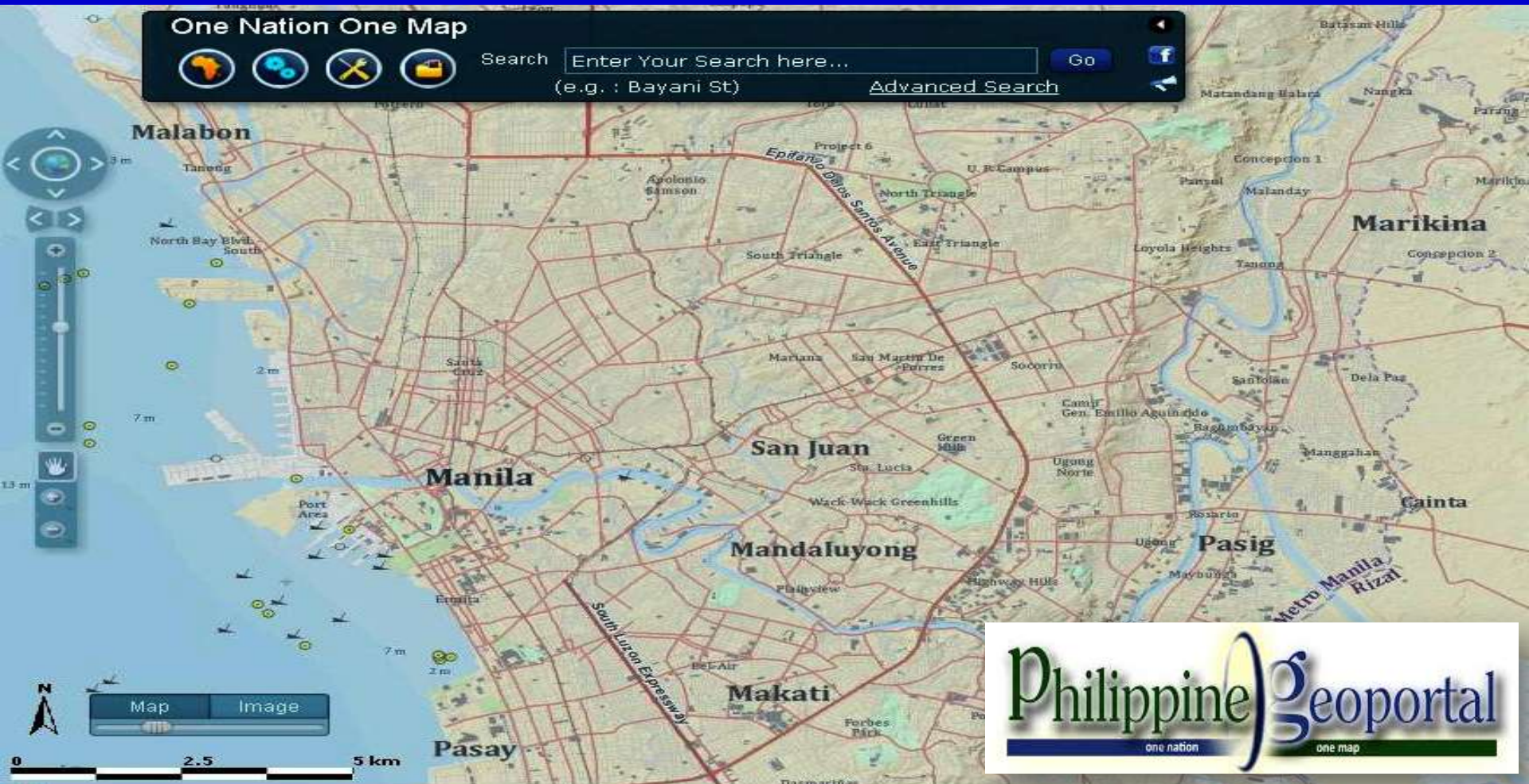
(Barangays)



ICT Systems Used for Disaster Risk Reduction and Management



DRRM Information Systems



- ✓ Platform for the Philippines' National Spatial Data Infrastructure
- ✓ Serves as geospatial data center
- ✓ An Internet-based mechanism for sharing of geospatial information
- ✓ A policy for the government's one-basemap advocacy

DRRM Information Systems



- ✓ Project NOAH's mission is to undertake disaster science research and development, advance the use of cutting edge technologies and recommend innovative information services in the government's disaster mitigation and prevention efforts.
- ✓ Project NOAH aims to provide assistance and assessment to disaster prevention and warning against possible floods, typhoons and other hazards.

DRRM Information Systems




- ✓ Consists of Web-GIS module and Database Management System
- ✓ Five (5) databases for DRRM: Historical Disaster DB, Disaster Incidents DB, Emergency Responders DB, DRRM Training DB and LDRRM Plan/Office DB.
- ✓ Capable of visualizing thematic layers such as areas affected, casualties, tropical cyclone track, cost of assistance and cost of damages.

DRRM Information Systems

REDAS Version 2.6d Root Drive Used = C:\

REDAS 2.8d

Rapid Earthquake Damage Assessment System

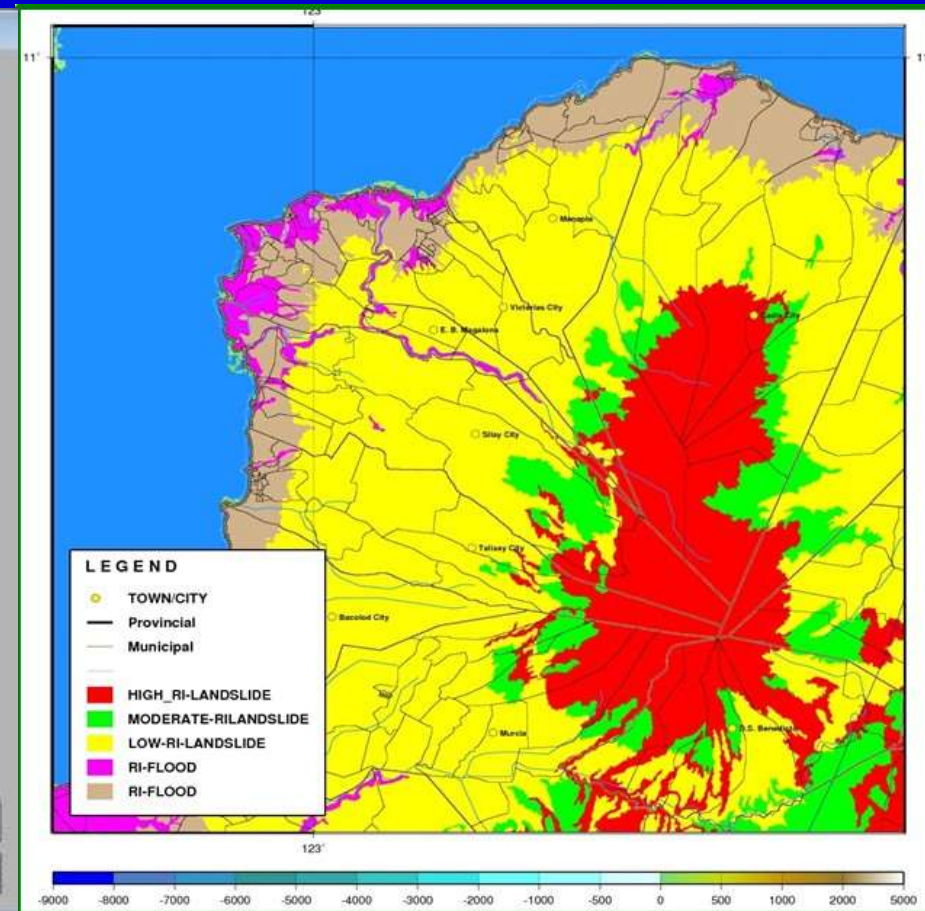


PHIVOLCS - DOST

Programmed by Bart C. Bautista Last updated JULY 27, 2013

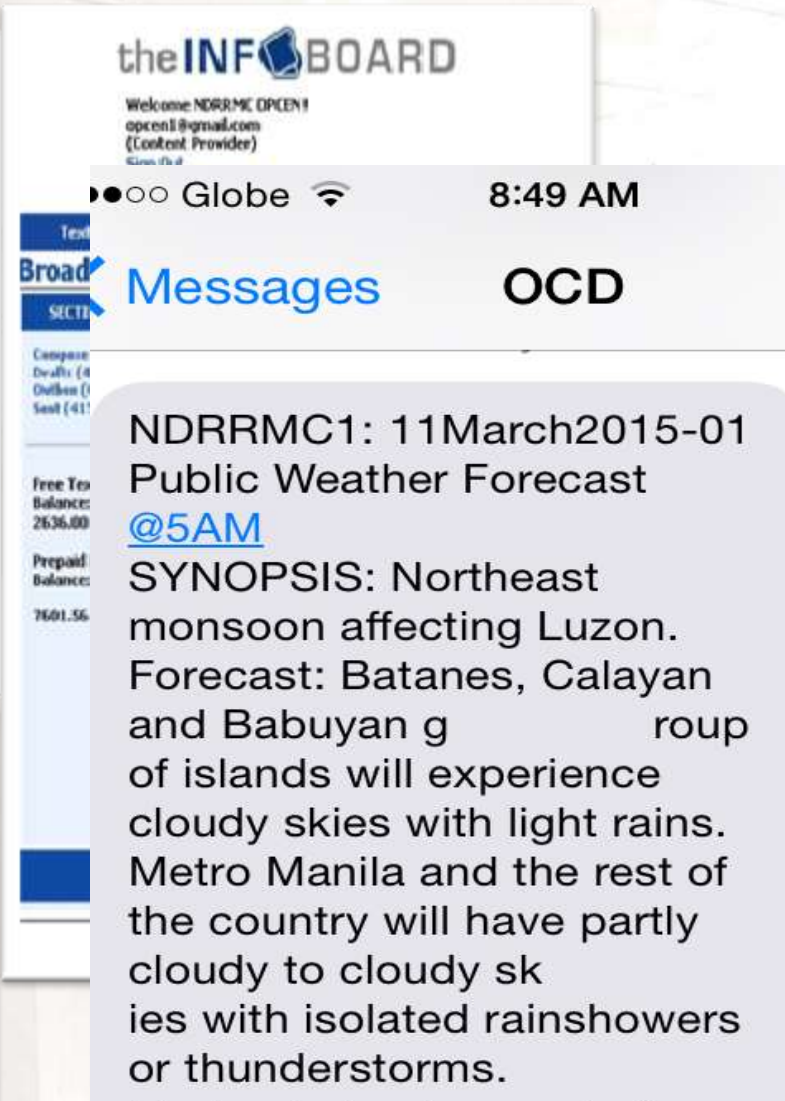
CONTINUE

EXIT



- ✓ A simulation tool that provides a rapid estimate of the possible seismic hazards which can be used in inferring the severity of impacts to various elements-at-risk
- ✓ It aims to provide quick and near real-time simulated earthquake hazard information to disaster managers which will help them in assessing the distribution and extent of the impacts of a strong earthquake.

Early Warning System



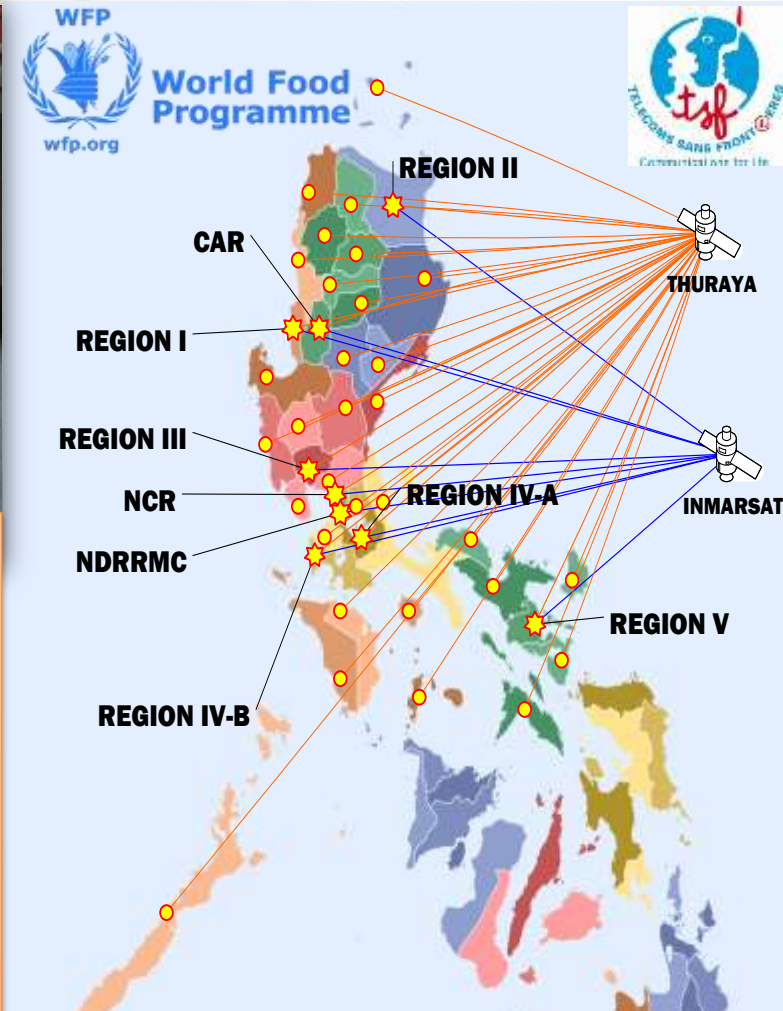
- ✓ Provide advisories, announcements to pre-registered subscribers to more or less 100,000 disaster managers
- ✓ Send information to desired disaster managers to any specific locality
- ✓ Receive feedback, comments, suggestions, queries and other user-specific messages
- ✓ Official Mask Name - OCD

Mobile Applications



✓ “Batingaw” is a Filipino word for siren or bell which is used by the natives in providing warning to its populace. Project Batingaw is a free-to-download mobile application software that is intended for the public which focuses on disaster awareness and management.

Emergency Communications Systems



- ✓ THURAYA satellite phone w/ docking station
- TSF - 37 sets (2 national, 8 regional & 27 provincial)
- WFP – 40 sets (6 national, 34 national)
- Voice
- Facsimile
- SMS
- ✓ BGAN (INMARSAT) w/ power box and solar panel
- 10 sets (2 national & 8 regional)
- Internet



Information, Education and Communication



- ✓ Online DRRM audio-visual learning platform
- ✓ Gauge the level of public awareness
- ✓ Tips on what to do before, during & after a disaster
- ✓ Downloadable video materials
- ✓ General public viewing for 12 y/o and above
- ✓ Informative, educational & entertaining

NO
PARKING

Internet Presence



Home Transparency ▾

Contact Us

Search Here..



REPUBLIC OF THE PHILIPPINES

NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT COUNCIL

Member Agencies Issuances ▾ InfoBoard System Response Pillar

www.ndrrmc.gov.ph

NDRRMC Advisory

Alert Status and Activity of Taal, Mayon and Bulusan Volcanoes

Weather Advisory for Low Pressure Area

Gale Warning

Flood Advisory/Flood Bulletin

Severe Weather Bulletin for Typhoon LANDO (I.N. KOPPU)

Home

Incidents Monitored Covering the Period 261700H-270800H October 2015

HITS: 21

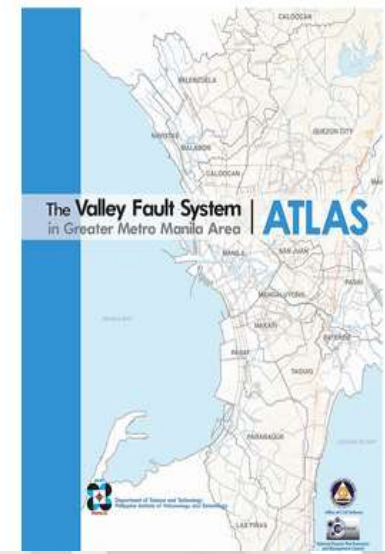
Attachments:

 Incidents Monitored Covering the Period 261700H-270800H October 2015 [as of 27 October 2015]

Preparedness Measures and Effects of Typhoon "LANDO" (I.N. KOPPU)

HITS: 680

NDRRMC Update re Preparedness Measures and Effects of Typhoon "LANDO" (I.N.



- ✓ Serves as an online information hub for the National Council .
- ✓ A platform used to disseminate Situational Reports, Advisories, Updates and other related DRRM information.
- ✓ It also serves as an e-Library of DRRM related policies, guidelines and materials.

Internet Presence



**BE PREPARED FOR
#HAGUPIT
#RUBYPH**

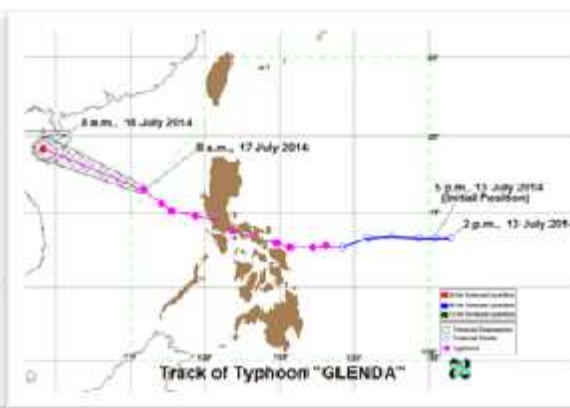
- ✓ Facebook and Twitter was utilized to ensure widest dissemination of disaster information to the communities.
- ✓ A Unified Hashtag System was placed to ensure that the government through the NDRRMC Response Pillar can monitor and respond to calls for rescue of citizens using social media sites.

COMPARATIVE ANALYSIS of recent TYPHOONS in the Philippines

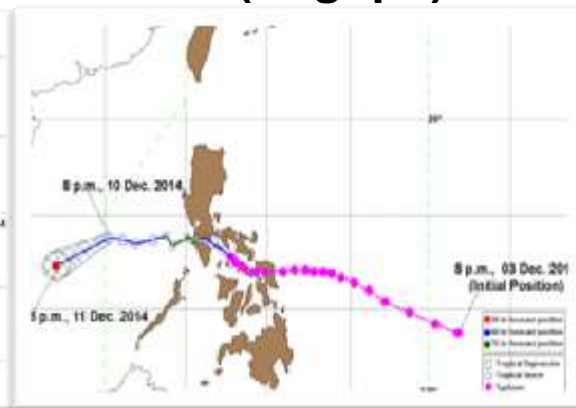
**Typhoon “Yolanda”
(Haiyan)**



**Typhoon “Glenda”
(Ramasun)**



**Typhoon “Ruby”
(Hagupit)**



Characteristics	TYPHOON YOLANDA (“HAIYAN”)	TYPHOON GLEND (“RAMASUN”)	TYPHOON RUBY (“HAGUPIT”)
Maximum winds	235 kph	150 kph	215 kph
Gustiness	275 kph	180 kph	250 kph
Duration	4days 06-09 November 2013	5days 13-17 July 2014	7days 04-10 December 2014

Summary of Effects

TY YOLANDA

TY GLENDA

TY RUBY



CASUALTIES

6,300

people dead

106

people dead

18

people dead

23,869

injured

1,250

injured

916

injured

1,061

Missing

5

Missing

NONE

Missing

AFFECTED POPULATION

3,424,593

families

1,024,251

families

944,249

families

16,078,181

persons

4,653,716

persons

4,149,485

persons

Summary of Effects



**DAMAGED
HOUSES**

TY YOLANDA

1,084,312

489,163

totally

595,149

partially

TY GLENDA

633,680

112,067

totally

521,613

partially

TY RUBY

290,670

42,466

totally

248,204

partially

AFFECTED REGIONS

9

Regions
(Regions IV-A, IV-B, V, VI, VII, VIII, X, XI, & CARAGA)

7

Regions
(Regions I, III, IV-A, IV-B, V, VIII, & NCR)

9

Regions
(Regions III, IV-A, IV-B, V, VI, VII, VIII, & NCR)





THANK YOU



SMS

(63) 917-891-6322



Telefax

(632) 912-2665 / 912-5668
911-1406



Facebook

Ndrmmc Opcen



Twitter

@NDRRMC Opcen



Email

dopcenbackup@gmail.com



Website

www.ndrrmc.gov.ph

