Warning and Information Dissemination System in the Philippines

Submitted by: Philippines
Warning and Information Dissemination System in the Philippines

Anthony Joseph R R Lucero
Philippines
Contents:

- Background Information
  - Philippines’ vulnerability to extreme climate, floods and geological events,
  - Philippine Disaster Risk Reduction Framework
  - PAGASA in a nutshell

- Communicating Warning and Information
  - Information Media – websites and social media
  - Governing Laws and Guidelines
  - Developing Partnership with Local Communities and NGOs
  - Mainstreaming DRR
BACKGROUND INFORMATION

• 3rd country most exposed and at risk to natural hazards (World Risk Report 2015)

• 20 Tropical Cyclones in a year

• Tropical Cyclone Hazards
  (Hazards differs from storm to storm)
  - Strong Winds
  - Excessive Rainfall
  - Floods
  - Landslides/Mudflows
  - Tornado
  - Storm Surges

• EL NIÑO/LA NIÑA – droughts/floods

• Monsoons (Southwest/Northeast)

• Intertropical Convergence Zone (ITCZ)
<table>
<thead>
<tr>
<th>Weather systems</th>
<th>Description</th>
<th>Associated hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thunderstorms</td>
<td>From cumulonimbus clouds characterized by thunder and lightning.</td>
<td>Thunder &amp; Lightning; Heavy Rains;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tornado or Waterspout; Hail/Hailstones</td>
</tr>
<tr>
<td>Cold Front / tail end of cold</td>
<td>Meeting of cold and warm air mass; along the front clouds develop</td>
<td>Brings heavy rainfall</td>
</tr>
<tr>
<td>front</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monsoon (NE &amp; SW)</td>
<td>SW-April-September NE – Oct. to March</td>
<td>Heavy rainfall</td>
</tr>
<tr>
<td>Easterly wave</td>
<td>Wave-like perturbation</td>
<td>During transition period</td>
</tr>
<tr>
<td>Low Pressure Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intertropical Convergence Zone</td>
<td>Series of LPAs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tropical Cyclones</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Philippine Archipelago occupies the western ring of the Pacific Ocean (Western Segment of the Pacific Ring of Fire), a most active part of the earth that is characterized by an ocean-encircling belt of active volcanoes and earthquake generators (faults) making it vulnerable to tsunami.
TSUNAMI INFORMATION

Attachments:

*Tsunami Information No.01 (No Tsunami Threat)* [issued on 06 September 2018]

SITUATIONAL REPORT RE PREPAREDNESS MEASURES AND EFFECTS OF SOUTHWEST MONSOON ENHANCED BY TROPICAL DEPRESSION LUIS

Attachments:
Legal Basis

PD 1566
JUNE 11, 1978

MALACAÑANG
Manila

PRESIDENTIAL DECREE No. 1566
STRENGTHENING THE PHILIPPINE DISASTER CONTROL, CAPABILITY AND ESTABLISHING THE NATIONAL PROGRAM ON COMMUNITY DISASTER PREPAREDNESS
HIGHEST POLICY MAKING, COORDINATING AND SUPERVISING BODY AT THE NATIONAL LEVEL FOR DISASTER MANAGEMENT IN THE COUNTRY

ADVISES THE PRESIDENT ON THE STATUS OF NATIONAL DISASTER PREPAREDNESS & MANAGEMENT PLANS

RECOMMENDS TO THE PRESIDENT THE DECLARATION OF STATE OF CALAMITY AND RELEASE OF NATIONAL CALAMITY FUND AS NEEDED
Secretary, National Defense - Chairman

Secretary, Interior & Local Gov’t - Member
Secretary, Public Works - Member
Secretary, Transportation & Communication - Member
Secretary, Social Welfare & Development - Member
Secretary, Agriculture - Member
Secretary, Education - Member
Secretary, Finance - Member
Secretary, Labor & Employment - Member
Secretary, Trade & Industry - Member
Secretary, Health - Member
Secretary, Science & Technology - Member
Secretary, Budget - Member
Secretary, Justice - Member
Secretary, Natural Resources – Member
Secretary, Foreign Affairs - Member
Director, Phil. Information Agency - Member
Sec-Gen, Phil National Red Cross - Member
Chief of Staff, AFP - Member

Administrator, Office of Civil Defense –
Member & Executive Officer
DCC ORGANIZATIONAL NETWORK

NATIONAL DISASTER COORDINATING COUNCIL

17 REGIONAL DISASTER COORDINATING COUNCILS

80 PROVINCIAL DISASTER COORDINATING COUNCILS

117 CITY DISASTER COORDINATING COUNCILS

1,496 MUNICIPAL DISASTER COORDINATING COUNCILS

41,945 BARANGAY DISASTER COORDINATING COUNCILS
The operating arm and secretariat of the National Disaster Coordinating Council.

- LOI NO.19, S-1972

... has the primary task of coordinating the activities and functions of various government agencies and instrumentalities, private institutions and civic organizations for the protection and preservation of life and property during emergencies...
OFFICE OF CIVIL DEFENSE

Vision

A service-oriented organization
A prepared population
A safe nation

Mission

To administer a comprehensive national civil defense and civil assistance program by providing leadership in the continuous development of measures to reduce risk to communities and manage the consequence of disasters.
17 OCD REGIONAL OFFICES

REGION I
REGION II
REGION III
REGION IV-A
REGION IV-B
REGION V
REGION VI
REGION VII
REGION VIII
REGION IX
REGION X
REGION XI
REGION XII
CAR
NCR
CARAGA
ARMM
ALL HAZARDS APPROACH

GEOPHYSICAL

HYDRO-METEOROLOGICAL

TERRORISM

EPIDEMICS

CIVIL DISTURBANCE

INFESTATION

NUCLEAR & RADIOLOGICAL

PHIVOLCS

PAGASA

AFP

DOH

PNP

DA

PNRI

Hazard Surveillance
The NDRRMF shall provide for a comprehensive, all hazards, multi-sectoral, inter-agency and community –based approach to DRRM. The NDRRMF shall serve as the principal guide to disaster risk reduction and management efforts to the country and shall be reviewed on a five year interval, or as may be deemed necessary, in order to ensure relevance.
National Disaster Risk Reduction and Management Framework

Safer, adaptive and disaster resilient Filipino communities toward sustainable development

Prevention & Mitigation
Preparedness
Response
Rehabilitation & Recovery

Mainstreaming DRR and CCA in Planning and Implementation

RISK FACTORS
Hazards
Exposures
Vulnerabilities
Capacities
Adoption of The Strategic National Action Plan
June 7, 2010 (Aligned with the HFA)

MALACAÑANG
Manila

EXECUTIVE ORDER NO. 888

ADOPTING THE STRATEGIC NATIONAL ACTION PLAN (SNAP) ON
DISASTER RISK REDUCTION (DRR), 2009-2019 AND
INSTITUTIONALIZING DRR

WHEREAS, the Philippines is exposed to various types of hazards such as
typhoons, floods, landslides, volcanic eruptions and earthquakes;

WHEREAS, the adverse impacts from climate variability and change including
extreme events has not spared the Philippines;

WHEREAS, the estimated direct economic losses to the country have exceeded
PHP28 billion annual average from 1990 to 2008 or reaching up to as high as
0.7% of the gross domestic product, on top of the losses in lives, to the social
and environmental assets of communities;

WHEREAS, there is a need to reduce these losses and causative vulnerability as
the country undergoes economic growth, population increase, and rapid urbanization;

WHEREAS, the Philippines has committed to work toward the goal of building
communities resilient to natural disasters through active engagement with
stakeholders.
Enactment of law RA 10121 provides a strong legal and institutional basis for DRRM in the country and gives a boost to the development of policies and plans, implementation of actions and measures pertaining to all aspects of disaster risk reduction and management, including good governance, risk assessment and early warning, knowledge building and awareness raising, reducing underlying risk factors, and preparedness for effective response and early recovery.
National Disaster Risk Reduction and Management Plan 2011-2018. The NDRRMP sets down expected outcomes, outputs, key activities, indicators, lead agencies, implementing partners and timelines under each of the four distinct yet mutually reinforcing thematic areas. The goals of each thematic area lead to the attainment of the country’s overall DRRM vision.
### Thematic Area 2: Disaster Preparedness

Overall responsible agency: Department of Interior and Local Government (DILG)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Lead agency(ies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Increased level of awareness and enhanced capacity of the community to the threats and impacts of all hazards</td>
<td>Philippine Information Agency (PIA)</td>
</tr>
<tr>
<td>8. Communities are equipped with necessary skills and capability to cope with the impacts of disasters</td>
<td>Department of Interior and Local Government (to coordinate) and OCD (to implement)</td>
</tr>
<tr>
<td>9. Increased DRRM and CCA capacity of Local DRRM Councils, Offices and Operation Centers at all levels</td>
<td>DILG</td>
</tr>
<tr>
<td>10. Developed and implemented comprehensive national and local preparedness and response policies, plans, and systems</td>
<td>DILG and OCD</td>
</tr>
<tr>
<td>11. Strengthened partnership and coordination among all key players and stakeholders</td>
<td>DILG</td>
</tr>
</tbody>
</table>
PAGASA

To provide weather, flood, climate and astronomical products & services to promote the people’s safety and well-being, and contribute to national development

Philippine, Atmospheric, Geophysical & Astronomical Services Administration (PAGASA) - Presidential Decree No. 78 (Dec. 1972) as amended by PD No. 1149 (June 1977)

PAGASA is an attached agency of the Department of Science and Technology (DOST)
PAGASA is a Member of the National Disaster Risk Reduction and Management Council (NDRRMC)

The Philippines, through the PAGASA, is a Member of the World Meteorological Organization (WMO), a specialized body of the United Nations.

The PAGASA Administrator is the Permanent Representative with WMO.
Current initiatives on DRR & CCA

- Maintains a nationwide network pertaining to observation and forecasting of weather, climate, flood and other conditions affecting national safety, welfare and economy:
  - 58 Synoptic Stations
  - 25 Agromet Stations
  - 6 Upper-air Stations + 1 Mobile
  - 18 Radar Stations
  - 2 AWOS
  - 158 AWS, 187 ARG & 47 WLS
  - 1 Wind Profiler
  - 2 Marine Buoys
  - 78 Climat/Rain Stations
  - 1 Background Pollution Monitoring Station
FACILITIES/EQUIPMENT

Legend:
- 58 Synoptic Stations
- 25 Agromet Stations

Network of Observations

Meteorological Satellite Facilities

Legend:
- MTSAT
- NOAA
- Chinese FY2
- MODIS
- WAFS
- HIMAWARI

Upper-Air Stations

LEGEND:
- Synoptic Stations
- Agromet Stations

Laog
Tanay
Puerto Princesa
Cebu
Legazpi
Davao
Automatic Weather Observing System (AWOS) installed at NAIA and Mactan, Cebu
DOPPLER RADAR PROGRAM

18 Doppler Weather Radars

Note: Additional Future site Masbate/Romblon

Mobile radar – can be deployed quickly in cases where meteorological alerts occur in areas with significant hydrological risk, as an important tool for civil protection emergencies.
WEATHER FORECASTING CAPABILITIES

Integrated High Performance Computing System (iHPCS)

iHPCS Integrates, Processes & Display data
- to have an accurate and timely hourly warnings of severe weather disturbances that develop/enter the PAR.

Hydromet Decision Support System (HDSS) accessible thru PAGASA website

Mesoscale Decision Support System MesoDSS (available at PAGASA website)

http://meteopilipinas.gov.ph/map.php
FLOOD MONITORING AND FORECASTING CAPABILITIES
REAL-TIME FLOOD MONITORING AND FORECASTING – Cagayan River Basin
• Installation of more AWS, WLS and RGs (in collaboration with ASTI, UP and DOST ROs.)
STRENGTHENING FLOOD MONITORING, FORECASTING & WARNING SYSTEM

Updated List of Rain Gauge and Water Level Gauge in Pampanga, Agno, Bicol & Cagayan (PABC) River Basins

<table>
<thead>
<tr>
<th></th>
<th>Rain Gauge</th>
<th>Water Level Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pampanga</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Agno</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Bicol</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Cagayan</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

For Metro Manila under KOICA 2 Project

<table>
<thead>
<tr>
<th></th>
<th>Rain Gauge</th>
<th>Water Level Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro Manila</td>
<td>17</td>
<td>16</td>
</tr>
</tbody>
</table>
ENHANCEMENT OF FLOOD FORECASTING

Telemetered FFWS for 13 Major Rivers in the Philippines

Agusan River Basin / Agus Lake / Cagayan De Oro / Tagum / Mindanao River Basin / Davao River Basin / Tagoloan River Basin / Buayan-Malungon / Panay River Basin / Ilog-Hilabangan / Jalaur / Abra / Abulug

Establishment of a Pilot Automatic Warning System (AWS) in Cagayan de Oro

Cagayan de Oro river basin – NDMI (Korea)
PAGASA Unified Meteorological Information System (PUMIS)

- Integrate PAGASA’s current observing facilities (satellite, radar, AWS, upper air, wind profiler, synoptic/agromet/climat station, marine bouys, etc.) that will serve as data input for research and operation.
- Serves as a central repository of historical, present and future climate information.
- A database system under a Distributed Computing Environment (DCE) to increase overall functionality and security that meets a full range of technology requirements, from data encoding and processing, including data rescue, to high-end research computing and e-commerce.
R&D: STRENGTHENING SUPPORT TO CLIMATE CHANGE ADAPTATION MEASURES

- Rolling-out of Climate Change Projection Scenarios Information
- Seasonal Climate Forecast
- ENSO/Drought Monitoring
### SEASONAL FORECAST for Climate Risk Management

Consensus Forecast System for Sub-seasonal to Seasonal time scale

<table>
<thead>
<tr>
<th>Forecast Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-day forecast</td>
</tr>
<tr>
<td>(14-day – forecast)</td>
</tr>
<tr>
<td>1-month forecast</td>
</tr>
<tr>
<td>6-month forecast</td>
</tr>
<tr>
<td>1-year forecast</td>
</tr>
<tr>
<td>Climate change projections (up to 2100)</td>
</tr>
</tbody>
</table>

PAGASA
The Weather and Climate Authority
Innovation

We recognize that there is a growing need for spatial visualization of information to facilitate decision-making and planning across different sectors. We also understand that better access to information translates to easy data retrieval via the internet. Finally, we recognize the difficulties arising from the geographic proximity of PAGASA central office from local government units especially in remote areas.

Figure 1. Main web interface of PAGASA Climate Change Projections

Figure 2. Sample dataset that could be downloaded
MAJOR SERVICES

Weather Forecasting and Tropical Cyclone Warning Services

- 24-Hr Public Weather Forecasts and Severe Weather Bulletins
- Hourly Tropical Cyclone Warning Update
- Shipping Forecasts & Tropical Cyclone Warning for Shipping
- Gale Warning Information
- Meteorological Aviation Services for Aeronautical Users through Access to the World Area Forecasts System (WAFS)
MAJOR SERVICES

Flood Forecasting & Warning Services

- Basin Flood Bulletins for the Telemetered Basins and General Flood Advisories for the Non-Telemetered River Basins
- Dam Discharge Warning Information During Spilling Operation of the Monitored Dams
- Establishment of Community-based Flood Early Warning System
- Daily Hydrological Forecasts During Non-flood Watch
- Public Information Drives for the Target Areas of Monitored Dams
Climatological & Farm Weather Services

- Daily Farm Weather Forecast & Advisories
- 10-day Regional Agroclimatic Weather & Advisories
- 10-day Philippine Agroclimatic Review & Outlook
- El Niño/La Niña Advisories and Information
- Monitoring and provision of 8-day, 14-day, monthly, 6-monthly Rainfall Forecast
**PAGASA Climate Forecast**

**MAJOR SERVICES**

**CPC/IRI Probabilistic ENSO Outlook (Updated March 5, 2015)**

<table>
<thead>
<tr>
<th>INTERNATIONAL PREDICTION CENTERS</th>
<th>SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Research Institute (IRI) As of: 05 March 2015</td>
<td>• The consensus of ENSO prediction models indicate warm neutral to borderline El Niño conditions during the February-April season in progress, continuing into northern spring 2015, with some suggestion of strengthening El Niño toward mid-2015.</td>
</tr>
<tr>
<td>Tokyo Climate Center/JMA - Japan As of: 10 March 2015</td>
<td>• El Niño event, which had emerged since Northern Hemisphere summer 2014, is likely to have ended. • It is more likely that El Niño conditions will redevelop by Northern Hemisphere summer than that ENSO neutral conditions will continue.</td>
</tr>
<tr>
<td>Bureau of Meteorology (BOM) - Australia As of: 03 March 2015</td>
<td>• El Niño WATCH indicates about a 50% chance of El Niño forming in 2015.</td>
</tr>
</tbody>
</table>

**Tropical Cyclone Forecast (March to July 2015)**

<table>
<thead>
<tr>
<th>MONTH</th>
<th>FORECAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>0 - 1</td>
</tr>
<tr>
<td>April</td>
<td>0 - 1</td>
</tr>
<tr>
<td>May</td>
<td>1 - 2</td>
</tr>
<tr>
<td>June</td>
<td>2 - 3</td>
</tr>
<tr>
<td>July</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Total Range</td>
<td>5 to 10</td>
</tr>
</tbody>
</table>
Official Sources of Vital Public Information from the internet....
Lava flow on the Bonga channel on southeast Mayon Volcano. (Photos taken at 2008H PST 28 January 2018 from Mayon Volcano Observatory, Lignon Hill, Legazpi City, Albay)
PHIVOLCS Awareness and Preparedness Materials

EARTHQUAKE

English version:

Earthquake and Earthquake Hazards
Earthquake: What to do BEFORE, DURING and AFTER an Earthquake
Pocket size: Earthquake Preparedness Guide
How to Conduct an Earthquake Drill in School
Earthquake Safety in Schools (A Primer for Teachers)
Pocket size: PHIVOLCS Earthquake Intensity Scale (PEIS)

Filipino version:
Lindol at Mga Panganib na Dulot Nito
Lindol: Alamin ang Dapat Gawin BAGO, HABANG nagaganap at MATAPOS ang lindol

TSUNAMI

English version:

Tsunami Primer
Tsunami
Tsunami Comics
Information Materials

Department of Science and Technology
Service Institute

PHIVOLCS
Philippine Institute of Volcanology and Seismology

TSUNAMI

English version:
Tsunami Primer
Tsunami
Tsunami Comics
Developing A Tsunami Prepared Community

Filipino version:
Tsunami (Filipino)
Tsunami Komiks
Tsunami Posters:
Tsunami (English)
Tsunami (Filipino)

VOLCANO

Flyers:
Volcanoes of the Philippines
Bulusan Volcano
Bulusan Volcano Profile
Kanlaon Volcano
Kanlaon Volcano Profile
Kanlaon Volcanic Hazards
Monitoring Kanlaon Volcano
Mayon Volcano
Mayon Volcano Profile
Monitoring Mayon Volcano
Taal Volcano
Taal Volcano Profile

Posters:

For instructions on how to produce hazard maps and technical reports:

What to do BEFORE, DURING and AFTER an ASH FALL
How to Predict Volcanic Eruption
PAGASA website

Low Pressure Area (LPA)
At 10:00 AM today, the Low Pressure Area (LPA) was estimated based on all available data.

Port Area Synoptic Station, Metro Manila
PARTLY CLOUDY SKIES WITH ISOLATED RAINSHOWERS
High 30°C | Low 24°C

Temperature: 30°C
Rainfall: 0 mm
Winds: 14.4 km/hr NNW

Automatic Weather Station: Temperature: 23°C
Precipitation: 0 mm/hr
Humidity: 89%
Winds: 26.8 km/hr WNW

5-Day Weather Outlook for Metropolitan Manila

<table>
<thead>
<tr>
<th>Sep 8</th>
<th>Sep 9</th>
<th>Sep 10</th>
<th>Sep 11</th>
<th>Sep 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
<td>Sunday</td>
<td>Monday</td>
<td>Tuesday</td>
<td>Wednesday</td>
</tr>
</tbody>
</table>

Hourly Forecast for Port Area Synoptic Station, Manila
Data Source: PAGASA WRF Model | As of: September 8, 2018, 8:00 AM

Relative Humidity
Temperature
Precipitation
Wind
PAGASA Twitter Account

Official Twitter Account of Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA-DOST)

Have an account?
Phone, email, or username
Password
Remember me - Forgot password?

Log in

New to Twitter?
Sign up

PAGASA-DOST @dost_pagasa
Thunderstorm Advisory No. 5 #NCR_PRSD
Issued at: 05:45 AM 08 September 2018

Thunderstorm Advisory No. 6 #NCR_PRSD
Issued at: 05:45 AM 08 September 2018
Heavy rains with lightning and strong winds due to thunderstorms are
Communicating Vital Information And Warning thru SMS Messaging

THUNDERSTORM:
Thunderstorm Adv 8 (3:05PM 8Sep18) Hvy rains w/ lightning & strong winds due 2 thunderstorms area being experienced in Tarlac (Capas, Bamban, Concepcion), Pampanga (Mabalacat, Magalang, Angeles, Mexico, Bacolor, Candaba, Sn Luis), Bulacan (Sn Rafael, Sn Ildefonso), N.Ecija (Cabiao, San Antonio), & Quezon (Mauban, Sampaloc) w/c may persist for 2hrs & may affect nearby areas. This is a free msg.
Recognizing Individuals and Institutions in their efforts to help PAGASA promote environmental protection and safety leading to sustainable development.

PAGASA Loyalty Awards
Conferment of Wind Vane Awards
3-Day Trade Fair
Planetarium: Open House (19-23 March 2018)
Infographics Competition

152nd National / 68th World Meteorological Day
23 March 2018

Government recognizes FAO's support in developing decision support tools for disaster and climate resilience planning

Natural disasters such as typhoons, flooding and drought have cost the agriculture sector in the Philippines more than USD 4 billion in damages over the last ten years.

As weather extremes and climate policies, operations and actions that will significantly influence the future of the country's food and nutrition security, its battle against poverty and climate change, among others," he added.

PAGASA confers Wind Vane Award to FAO institution's mandates. The awarding ceremony was one of the highlights of PAGASA's 152nd anniversary and National World Meteorological Day Celebration. FAO is the first UN agency in the country to receive the award.
Common Alerting Protocol (CAP)
What is CAP?

Common Alerting Protocol (CAP), ITU-T Recommendation X.1303, is a standard message format designed for All-Media, All-Hazard, communications:

✧ **over any and all media** *(television, radio, telephone, fax, highway signs, e-mail, Web sites, RSS "Blogs", ...)*

✧ **about any and all kinds of hazard** *(Weather, Fires, Earthquakes, Volcanoes, Landslides, Disease Outbreaks, Air Quality Warnings, Transportation Problems, Power Outages ...)*

✧ **to anyone:** the public at large; designated groups *(civic authority, responders, etc.)*; specific people
Development of Tool (version 1)

Outputs:
1. CAP Alert

Using the ff:
- OASIS
- google.org
- Common Alerting Protocol Validator
- GitHub
- php
- laravel
Birth of CAP in the Philippines
CAP alert on HAGUPIT (Ruby)
CAP: General Flood Advisory

General Flood Advisory (Severe) for Region 4-A (CALABARZON)

Issued for week 4 Filipino: Flood

Warning/Alerts

Under present weather conditions as of 4:00 AM today, the low pressure area (LPA) was estimated based on available data to affect southern Luzon (Batangas, Tagaytay, Calabarzon, Marikina, Rizal, Antipolo), visayas, central Luzon, the Visayas, and the Mindanao areas. The Bicol Region, and other parts of central Luzon, are under threat.

Recommended Action

People living in the lower slopes of the following areas are under threat: All provinces in the Calabarzon region, including Batangas, Quezon, Lucena, Camarines Sur, Albay, and the low-lying areas of the provinces of Romblon, Quezon, and Quezon City. In these areas, residents are advised to stay vigilant and to evacuate if necessary.

How to prepare and stay safe

 evacuation plans and procedures.
Development of Tool (version 2)

Outputs:
1. CAP Alert
2. PDF (Existing)

Using the ff:
- OASIS
- google.org
- Common Alerting Protocol Validator
- GitHub
- PHP
- Laravel
CAP on a MAP: Implementers Training

SAHANA SOFTWARE FOUNDATION

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

AIT
Asian Institute of Technology
On-Going Activities within PAGASA

- Flood Bulletin
- Thunderstorms Advisory
- Heavy Rainfall Warning
Severe Weather (Tropical Cyclone)
PAGASA in partnership with Rice Watch and Action Network: A Model of Cooperation In Rural Development for the Institutionalization of DRR

Building the community Climate Information Center (CIC)

and

Organizing the Climate Resiliency Field School (CrFS)
Enactment of law RA 10121 provides a strong legal and institutional basis for DRRM in the country and gives a boost to the development of policies and plans, implementation of actions and measures pertaining to all aspects of disaster risk reduction and management, including good governance, risk assessment and early warning, knowledge building and awareness raising, reducing underlying risk factors, and preparedness for effective response and early recovery.
Introduction

Agriculture is highly vulnerable to climate change impacts—extreme weather patterns, unexpected rainfalls, intense tropical cyclones, longer and frequent droughts—causing dramatic crop losses, lower yields, and pest infestations. Needless to say, these affect the farmers’ livelihood, particularly the poor, and pose a big threat to the people’s food security.
Climate-resiliency Field School (CrFS)
A Facilitator's Manual

Table of Contents

Introduction
  Objectives
  Framework
  How to use this guide
  Preparatory stage
  Baselineing instruments

SESSION 1. PRINCIPLES AND CONCEPTS OF CrFS AND SA
  Special Topic 1: Philippine agriculture situation
  Handout 1.1: What is CrFS
  Handout 1.2: Principles of CrFS and SA
  Handout 1.3: Philippine agriculture situation

SESSION 2. WHAT IS CLIMATE CHANGE?
  Special Topic 2.1: Defining Weather and Climate Change and Introduction to Philippine Climatology
  Handout 2.1: Climate and Climate Change
Training and mentoring people...

CIC in the Municipality of Irosin, Sorsogon
The Municipality of Hinatuan, Surigao del Sur

MDRRMC HINATUAN

Composition is based on Rule 5, Section 2 of IRR of R.A. 10121

- NGO - CERD, SPARCDEV
- PO - KARNACHO, PGBI
- Women - GAD Focal Person
- Youth - SK Fed. President
- Others (Religious, Business Sectors) - Religious Org. President

Institutional Mechanism

Preparedness

The Municipality of Hinatuan, Surigao del Sur

Enchanting HINATUAN

www.hinatuanenchantedriver.com
The Municipality of Hinatuan, Surigao del Sur

Enhanced Farmers’ Field School

- Temperature
- Climate
- Relative humidity
- Rainfall data
- Soil Temperature

Enchanting HINATUAN

www.hinatuanenchantedriver.com
Pre-Event
Post-Event
HFA 2005-2015
UNMDG
NDCC PROGRAM THRUSTS

 MITIGATION

 PREPAREDNESS

 REHABILITATION

 RESPONSE

 Defense for Development Agenda
Medium-Term Philippine Development Plan

...building the resilience of communities to disasters...
References


References


7. PAGASA website - https://www.pagasa.dost.gov.ph/


THE END