CAP on a MAP

Improving Institutional Responsiveness to Coastal Hazards through Multi-Agency Situational Awareness

Organized by Asian Institute of Technology and SAHANA Software Foundation in collaboration with UNESCAP
DMH is mainly responsible for End to End Early Warning System.

- **Meteorology**: To detect/monitor the cyclone and issue the weather forecast, warning, bulletin and news.
- **Hydrology**: To monitor and analysis of the river stage and issue the flood warning and bulletin issues.
- **Seismology**: To detect the earthquake and Tsunami and issues the earthquake news and Tsunami Warnings.
- **Argo. Met.**: To collect and analysis of agro-met records and issue the agro-met bulletins and news.
Hazard Events and Affected Areas

Source: Myanmar National Standing Order for Disaster Prevention
Current Work Flow in DMH

- **Cyclone**
  - Satellite map Observation Data

- **Flood**
  - Satellite map Observation Data

- **Tsunami/Earthquake**
  - Information from Regional Tsunami Services Provider/Seiscomp3/Local Network

- **DMH**

- **Communities**
  - President office
  - Local Government
  - Relief and Resettlement Dept.
  - Ministry of Defense
  - Fire Services Department
  - Local DMH Office
  - Ministry of Health
  - Myanmar Red Cross Society
  - NGO

- **Media**
  - TV/Radio/FM

DMH
Challenge of Existing EWS in DMH

- Unable to get the real time data because we use SSB, Phone and Fax etc.
- Take too much time to send the alert message by using existing communication system.
  - Manually somebody need to call each station.
  - Manually need to send the alert using by Fax, one by one.
- Not reach communities in time.
- Warning message with mostly in “text” format
- Limited availability of hazard and risk maps
Addressing the challenges through SAHANA-SAMBRO

- SAMBRO is very useful tool for dissemination of Warning Alert.
- Alert message issuing by using SAMBRO
  - Easy to understand
  - Easy to define the area according to hazard/risk levels
  - Easy to send alert to different users by one time
- It save the time for warning and bulletin dissemination
- Alerts or early warning can be received in near real time.
- Reduce risk through timely dissemination of alerts/warnings
- Improves the coordination among multi-agencies
Requirements

➢ We need reliable hazard and risk maps to improve our Alerting and Early Warning System
➢ We need support for developing an incident command system
➢ Our Emergency Operation Center needs a situational awareness reporting system for better coordination
➢ Need to build IT capacity at DMH, Myanmar
Thankyou
Mr. Abdulla Hafiz (NDMC)
Mr. Abdulla Muaz (MMS)
Country Overview

- Population: 399,393 (2014)
- Division: 1200 coral islands into 26 natural atolls-188 inhabited
- Land area: 298 square kilometers only
- Tourist Resorts: 105
- Highest Natural elevation: 2.4 meters
- Average elevation: 1.5m sea level
- Terrain: Flat, white sandy beaches
- Two monsoons: southwest (rainy) and northeast (dry)
- Main industries: Tourism, fishing, agriculture, construction
Natural Hazards in MALDIVES

- Tropical Cyclone
- Tornado
- Lightning
- Tidal Waves
- Strong Winds
- Tsunami
- Flash Flood
Weather advisories and warnings flow chart

Alert Message from Maldives Meteorological Service (MMS)

- TVs
- VOM
- NDMC
- MNDF
- MPS
- LGA/NGOs

Pass the message to the public via TV and radio
Pass the message to the concerned Authorities. Take necessary action
Pass the message to the concerned sectors within their responsible organization
National Disaster Management Center (NDMC)

DISASTER MANAGEMENT

COORDINATION
PREVENTION
MITIGATION
PREPAREDNESS

COMMAND CONTROL COORD.
EMERGENCY RESPONSE

COORDINATION
RECOVERY

BEFORE
DURING
AFTER
Common Incidents 2014-2015

Note: Total 187 incidents of which 176 water related (94.1%)
Current Challenges

• Lack of coordination among agencies;
• Lack of a common knowledge and information systems;
• Lack of mass communication systems;
• Lack of protocols and standards for communications;
• Lack of hazard/risk maps;
• Limited efforts for capacity building;
• Lack of public awareness.
How SAHANA-SAMBRO will help?

- All hazard and all media approach will improve coordination among agencies;
- Interoperability with other systems through use of a common standard (EDXL-CAP) will also help information Exchange and coordination;
- Will build a robust information system by bringing all hazard and risk information to one platform for efficient alerting/early warning;
- Available alerting/early warning templates will make mass communication easy;
- Intuitive GUI will reduce the learning curve and help in capacity building;
- Multi-lingual alerts/early warning will increase the reach & efficacy of the system and improve the public awareness.
Recommendations

1) **Situational awareness system**
   - A situational awareness system will be helpful for better response.

2) **Incident-based reporting system**
   - Such system will be helpful to know the effectiveness of the alerting/early warning sys. in reducing damage or loss, injuries, deaths etc.

3) **Resource Management System**
   - Managing inventory goods and database of volunteers, experts etc.;
   - Real time tracking and management of resources;
End to End Early Warning Systems
Advantages / Disadvantages of the SAHANA CAP Broker
Gaps and challenges
Way forward (Recommendations)

Mr. Erlinton Antonio B. Olavere*
Mr. Harry V. Alcantara**
Mr. Lester Kim M. Lagrimas**

PHIVOLCS*  - Philippine Institute of Volcanology and Seismology
PAGASA**  - Philippine Atmospheric, Geophysical and Astronomical Services Administration
PHILIPPINES

PAGASA

Products/Services

- 24-HR public weather forecast
- Severe Weather Bulletins
- Shipping Forecasts
- Gale warning
- Dam Discharge Warning Information
- General Flood Advisories
- Daily Hydrological Forecasts
- Daily Farm Weather forecasts
- 10-day Regional Agroclimatic Weather

PHIVOLCS

Mandates:

- Predict the occurrence of volcanic eruptions and earthquakes;
- Generate sufficient data for forecasting volcanic eruptions and earthquakes;
- Mitigate hazards of volcanic activities through appropriate detection, forecast and warning systems; and
- Formulate appropriate disaster-preparedness and mitigation plans.
How to attain a Multi hazard / multi agency End to End Early Warning System with Common Alerting Protocol”?

NDRRMC operation Center

17 Regions [Regional offices]

81 provinces

1490 Cities/Municipalities

42,028 Barangays
National Disaster Response Plan (NDRP)

PAGASA
- Cyclone Track
- General Flood Advisory
- General Flood Bulletin

PHIVOLCS
- Earthquake
- Tsunami
- Volcano

Alert/Early Warning Communication Flow

NDRRMC OP Center

17 RDRRMO

81 PDRRMO

1490 C/MDRRMO

42,028 BDRRMO

Barangays (communities)
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Advantages / Disadvantages of the SAMBRO

**Advantages:**
- Multi Hazard/ Multi Agency capable
- Fast transmittal
- Multi-platform
- Incremental cost effective ratio
- Uses Standard Protocol
- Flexible
- Scalable
- Systematic Approach

**Disadvantages:**
- Non-availability of internet connection in remote areas
- Power/link disruption in time of disaster
Gaps/Challenges

- Adaptation of other agencies / users to the systems.
- Training of staffs from top to bottom on how to use CAP.
- Producing output of our existing system (bulletins & warnings in PDF) and a CAP will require time.
- Creating a consensus on scales based on existing and new CAP scales.
- Integration of existing technology to SAMBRO (i.e. Tsunami Warning Sirens, Flood Warning Sirens)
- Sustainability
Recommendations

- SAMBRO notification for expiring alerts.
- Implement Markdown for styling the messages.
- Implement Public Key Infrastructure (PKI) between sender & receiver.
- A Content Management System (CMS) for Geocoding thru Shapefiles.
- Exporting CAP Alerts to a report, like existing bulletins, warnings (PDF).
- Policy to create CAP within a timeframe of an identified alert.
Maraming Salamat Po!

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