



**Asia-Pacific  
Economic Cooperation**

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**2017/SOM1/EPWG/025**

Agenda Item: 7.3.2

## **Institutionalizing Early Warning Systems**

Purpose: Information

Submitted by: PDC



**11<sup>th</sup> Emergency Preparedness Working Group  
Meeting  
Nha Trang, Viet Nam  
18-19 February 2017**

# Institutionalizing Early Warning Systems

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**APEC EPWG**  
**Nha Trang, VN**  
**18-19 Feb 2017**

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## Presentation Topics

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- PDC Overview
- DisasterAWARE™ Overview
- Institutionalizing EWS Operations

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# PDC Overview

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## In Brief, PDC...

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- Applies **Science and Technology** to help
- Executives (and Disaster Managers)
- Reduce Disaster Risks, and better
- Prepare for and
- Respond to Disasters around the World

Operational Since 1996  
HQ'd in Hawaii, USA  
Managed by University of Hawaii



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## Challenges and Gaps...

- Inadequate Tools for the **Decision Makers**
  - Lack Situational Awareness
  - Warnings are Hard to Digest
  - Information is Scattered
  - Risks are not Understood
  - Dissemination is Limited
- Information not easily understood is not particularly useful ....



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## Overcoming Challenges

- Tools for **Decision Makers**
  - Simplify, Integrate, & Expedite Processing
  - Understand Exposure
  - Disseminate Early Warning
    - Social Media, Mobile Apps
  - Support Decisions Based on Latest Assessments
- Info for **Policy Makers & Planners**
  - Assess Socio-Econ Risks & Vulnerabilities
- Capacity for **Practitioners**
  - Training & Exercise
  - Workshops



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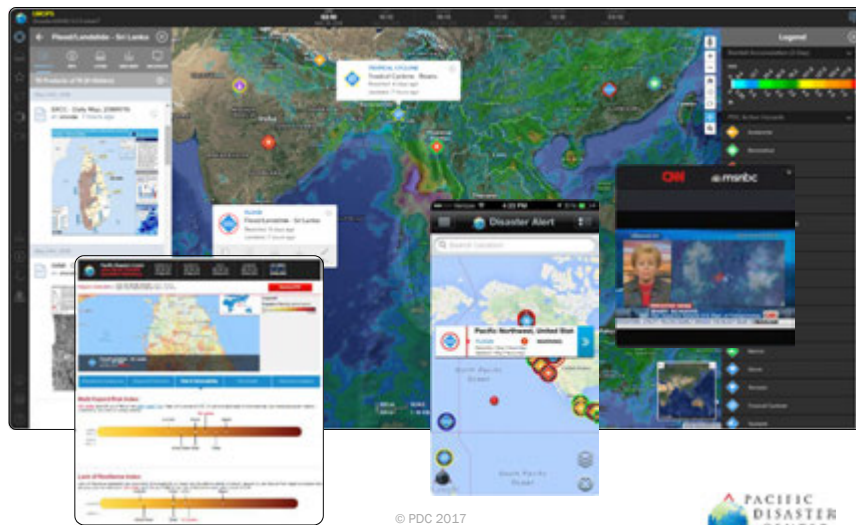


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# DisasterAWARE™

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## DisasterAWARE™: Internet-Based DSS



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## DisasterAWARE in SE Asia

The screenshot displays the DisasterAWARE interface for Southeast Asia. It features a central map of the region with various colored markers indicating hazards. A legend at the top right lists different hazard types and their corresponding colors. Below the map, there is a section titled 'Ancaman & produk' (Threats & Products) which lists specific hazards like 'Gempa Sialit' and 'Gempa Sialit' with associated dates and details. The interface also includes a search bar and various navigation controls.

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## Alerting: From Authoritative Sources to DM Officials and the Public

The diagram illustrates the alerting process. On the left, 'Economy-specific Advisories: NHMS' and 'Puerto Rico (PTW)' are shown as authoritative sources. Arrows point from these sources to a central globe labeled 'PDC'. From the PDC, arrows point to 'Economy-specific App' and 'PD' (Pacific Disaster Center). Below the PDC, there are examples of social media posts from the Pacific Disaster Center, including one about 'Sergio' and another about 'Hortensia Figueroa Velez'. To the right, there are images of a smartphone displaying a map and a tablet displaying a map. At the bottom right, the text 'Web, FB, Twitter, Smart Phone, ...' indicates the various channels used for alerting. The Pacific Disaster Center logo is in the bottom right corner.

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## Institutionalizing EWS: DisasterAWARE Illustrations

- **Concept of Operations**
- **Policy Framework**
- **Standard Operating Procedures (SOP)**
- **Staffing Plan**
- **Training and Exercise**
- **Operational Support and Maintenance**

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## 2016 US-ATAARI- APEC EPWG EWS Study

- Recommendations
  3. Document concepts of operation, decision authorities, and information flows for early warning systems. This activity should incorporate all early warning system stakeholder groups to clarify roles, challenges, and opportunities.
  4. Encourage partnerships with the private and non-profit sectors to augment the capacity, reach, and effectiveness of early warning systems.



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## Concept of Operations (CONOPS)

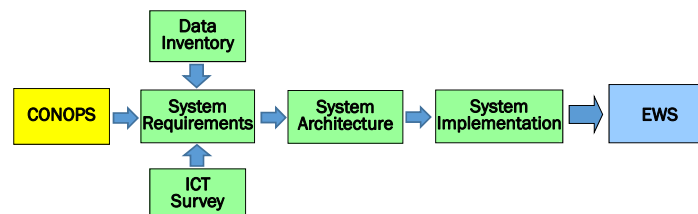
- What is a Concept of Operations?:
  - Describes the information flow (collection, storage, dissemination) and the types of decisions made with the information.
  - Outlines organizational structures, procedures, roles and responsibilities.
  - Identifies gaps between the actual and expected performance of the system and recommends strategies for filling the gaps.

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## CONOPS Purpose

- Provide guidance for the use of the early warning system (EW) within existing decision making context for natural hazard early warning and response



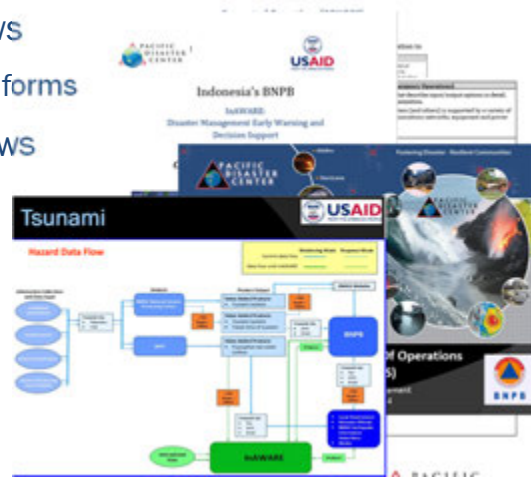
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## CONOPS Process

- Agency interviews
  - Data collection forms
- Legislative reviews
- CONOPS draft, review and socialize
- Put into practice



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## Policy Framework

- Purpose
  - Authorize the use EWS by various stakeholders as outlined in the CONOPS
- Contents
  - Which agencies, what information, by what authorities and processes, how maintained & operated, etc.



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## Standard Operating Procedures (SOPs)

- Provides detailed, step-by-step instructions for using/operating EWS to support monitoring, alerting, decision making and response actions before, during and after a disaster.

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TABLE OF CONTENTS

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3. Response ..... 4

4. Team Roles ..... 4

5. Activation of the system ..... 4

6. Deactivation of the system ..... 4

7. Form 4: Event Activation Notification

Form: (email address of Monitoring and response team)

To: (email address of the three teams, Center Head, Head of Office of CDRPC)

Subject: Event Activation Notification dated: .....

To: Team Leader,

Watch report dated: .....

On-duty staff: .....

Team leader: ..... Email: ..... Telephone: .....

Monitoring and response team would like to notify about Hazard:

Hazard type: .....

Latitude: ..... Longitude: .....

Link: .....

Information source: .....

You are kindly requested to be ready to support and respond.

Information about the Event will be updated every 02 hours starting from this notification.

Remarks: .....

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## SOP Development

### VinAWARE Stakeholders Draft Standard Operating Proc

February 4, 2015



In Hanoi, Vietnam, emergency managers gather to develop Standard Operating Procedures for the operational use of VinAWARE, a customized web-based early warning and decision support system based on Pacific Disaster Center's DisasterWARE platform.

#### 4. Overview of operation process



Monitor	Notify	Activate	Support	Deactivate
Monitoring and response team frequently monitors the early warning system for hazards/events	Monitoring and response team notify the other teams about the hazards/events that require monitoring/reporting support	Monitoring and response team leader issue Activation notifications	Monitoring and response team leader coordinate the activities amongst the teams and final reporting	When support is no longer required, Monitoring and response team leader will reassess the situation and determine when to Deactivate.
	Monitoring and response team assess the indicators and determine if Activation is required.		Members of all teams are ready to support when requested and cooperate with Monitoring and response team leader in response	Monitoring and response team leader will issue the final Deactivation notification.



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## Staffing Plans

- Key positions needed to operate and maintain the EWS

- Description
- Skills
- Duties
- Estimated Level of Effort

The image shows an organizational chart for the Pacific Disaster Center's InAWARE St system. The chart is titled 'Administration' and branches into 'GIS and Hazards Information Analysis' and 'Information Systems'. Below these are 'Map Server' and 'User' roles. To the right is a detailed job description for the 'InAWARE Administrator' role, including a description of the role, a list of duties, and required skills.

**InAWARE St**  
InAWARE: Disaster Management Early Warning Capacity Enhancement with NOAA  
Disaster Watch

**InAWARE Administrator**  
The InAWARE Administrator will be responsible for overall operation of InAWARE and coordination of duties of other InAWARE team members. The InAWARE Administrator will proactively promote the use of InAWARE to staffed stakeholders and best efforts to maintain existing information content and inclusion of new data and information. He or she will also ensure the timely and accurate administration of new user requests, as well as maintaining current users and user groups. The user administrator will also act as a user service liaison.

**Description of Role**

- Lead the overall operation and management of InAWARE within DMDC.
- Promote the appropriate use for disaster management partners and stakeholders in the team.
- Ensure that data issues and information content are up-to-date.
- Seek opportunities to add new data to InAWARE.
- Ensure the proper functioning of InAWARE via DMDC.
- Ensure that hazards are created according to established Standard Operating Procedures.
- Add and manage new InAWARE users.
- Manage user list and user groups.
- Respond to InAWARE site alerts and user issues, and
- Appropriately alert capacity IT and troubleshoot system problems and administrative issues to the relevant InAWARE team member for resolution.

**Skills**

- Basic computer skills

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## Training

- Purpose
  - Build skills and develop experience and confidence to use system during actual emergency
- Training Programs
  - User (Operator)
  - System Admin
  - Train-the-Trainer



## Exercise

- Test (and refine) EWS system components, SOPs, staffing plans (and skills)
- Annual or semi-annual
- Scenario-based
- Table-top (TTX) or Command Post (CPX)



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## Exercise Development

The image shows the cover of a training module. The title is 'AHA Centre Executive Program: Disaster Exercise Development Training'. Below the title, it says 'Module 5: Tools and Applications Supporting Exercise Planning and Execution'. The cover features a globe on the left, a photograph of people in a training exercise, and the ASEAN logo at the bottom left. The text 'Exercise Development Institute' is partially visible on the left side. At the bottom right, there is a logo for the 'AHA CENTER'.

## Operational Support and Maintenance

- System Upkeep
  - Hardware, software, communications, backup procedures, UPS, etc.
- Information Content
  - Baseline data, hazard data, imagery, etc.
- Human Resources
  - Staff turnover
  - Annual training and exercise
- Stakeholders/Partners
  - Outreach
  - Training

ASSETS	UNEP	UNEP	UNEP	UNEP	UNEP
UNEP assets	100	100	100	100	100
UNEP equipment	100	100	100	100	100
UNEP infrastructure	100	100	100	100	100
UNEP services	100	100	100	100	100
UNEP training	100	100	100	100	100
UNEP other	100	100	100	100	100
UNEP total	100	100	100	100	100
UNEP assets	100	100	100	100	100
UNEP equipment	100	100	100	100	100
UNEP infrastructure	100	100	100	100	100
UNEP services	100	100	100	100	100
UNEP training	100	100	100	100	100
UNEP other	100	100	100	100	100
UNEP total	100	100	100	100	100

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## VinAWARE (Viet Nam)

The image displays the VinAWARE software interface. The main window shows a map of Vietnam with various data overlays, including a legend for 'Tropical Cyclones 2014'. A smaller window in the foreground shows a document titled 'QUY TRÌNH VẬN HÀNH TRONG CHỖ PHỤ KIẾN CẤP' (Operational Procedure in the Control Room). The interface includes a top navigation bar with time and date information, and a bottom status bar.

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## InAWARE (Indonesia)



## Summary

- EWS is a scientific and technical capability ...?
  - or -
- EWS in an institutional process ...?
  - or -
- Both!

Mahalo, Thank You,  
Cảm ơn!

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**Questions?**

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