Usability and Acceptability of the Sahana Situational-Awareness Platform in Myanmar Maldives and the Philippines

#CPRsouth2017 - Connecting the Next Billion

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Why Situational-Awareness?

Perception

What is happening?

Comprehension

Why do I care?

Projection

What do I do about it?
Sahana Alerting and Messaging Broker (SAMBRO)

1. **Scope**
   - Application scope lies within disaster **response** and **preparedness**

2. **Function**
   - Key function is to bring **efficiency** to Alerting / Warning dissemination

3. **Architecture**
   - Apply a Messaging Broker architecture for improved **interconnection** and scalability

4. **Keep it Simple**
   - Keep it simple with Map-based visualization and interaction for improved **situational-awareness**
Use CAP for Interoperability

SAMBRO Server (Browser App) and Mobile APP talk to each other through RESTful APIs

Google, IFRC, FIA, Accuweather and any other CAP Alert Hubs can talk to SAMBRO through RSS
“CAP on a Map” project 2015 - 2016

GOAL: Improve institutional responsiveness to coastal hazards through Cross-Agency Situational-awareness in Myanmar, Maldives, and the Philippines through cross-agency situational-awareness

ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness

The ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness was established in 2005, originally to support tsunami early warning through a multi-hazard approach. The destructive Indian Ocean Tsunami that occurred in December 2004 stressed the need for an effective regional disaster preparedness mechanism in the Indian Ocean and Southeast Asia. In 2010, the scope of the Fund was broadened to include overall disaster and climate preparedness within the Fund’s core areas of support. The Fund contributes to narrowing the capacity gaps in the region and ensures the development of an integrated regional early warning system.

http://www.unescap.org/disaster-preparedness-fund

Myanmar Department of Meteorology and Hydrology (DMH)

Philippines Atmospheric, Geophysical, and Astronomical Service Administration (PAGASA)

Maldives National Disaster Management Center (NDMC)
Implementation Strategy

1. User Centered Design
   a. Designing for users
   b. Involving users

2. Rapid Prototyping
   a. Realistic model of the interfaces and functionality
   b. Users involved early in the design
   c. User model, workflows, information needs
   d. Iterate the testing and revising until agreed

3. Agile Software Design (SCRUM)
   a. SCRUM Lightweight software engineering framework
   b. Tightly-knit teams, close collaboration
   c. Business side user stories

4. Action Research
   a. Knowledge generation with planned action
   b. Understand the problem and provoke change, actionable outcomes
Problems in the Previous Practices

1. Each Alerting Authority has their own dissemination system (SMS, facebook, twitter); cost of multiple system and monitoring multiple channels

2. Multiple hops with National to Regional / State / Province to City / Town to Households causing delays and possible information mutation

3. Using labour intensive technologies such as hotlines (phones), FAX that takes several minutes/hours to complete

4. Chances of forgetting to alert / warn and Organization

5. Inconsistent terminology and ambiguous language, requires callbacks to confirm and comprehend
Controlled-Exercise Workflows

ITERATION 1: Issue Alert for the event (first instance)
ITERATION 2: Update alert for wit new information / status of the event
ITERATION 3: Issue an All-Clear to indicate event is no longer a threat
Multi-lingual Multi-sequence Alerting

Cyclone NILAM-12
2012 October 31

<Alert> NILAM-12
LK Met Dept
Alert / Update / All-Clear

<INFO>
02:00 UTC

'_si'
ඉහළ
කාලණ

'ta'
 openFileDialog

'en'
HIGH MET

<INFO>
12:00 UTC

'_si'
ඉහළ
කාලණ

'ta'
开幕式

'en'
HIGH MET

<AREA>
North
Northeast

## Controlled-Exercises Participation

<table>
<thead>
<tr>
<th>Country</th>
<th>Publishers</th>
<th>Subscribers</th>
</tr>
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<tbody>
<tr>
<td>Myanmar</td>
<td>13</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>(DMH, RRD)</td>
<td>(Kunyangon, Nyuangdon)</td>
</tr>
<tr>
<td>Philippines</td>
<td>19</td>
<td>21</td>
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<tr>
<td></td>
<td>(PAGAS, PHIVOLCS)</td>
<td>(Manila Bay, Subic Bay)</td>
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<tr>
<td>Maldives</td>
<td>06</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(NDMC, MOH, MRC)</td>
<td>(Thulesdoo)</td>
</tr>
</tbody>
</table>

DMH - Department of Meteorology and Hydrology  
RRD - Relief and Rehabilitation Department  
PAGASA - Philippines Atmospheric Geophysical and Astronomical Service Administration  
PHIVOLCS - Philippines Institute of Volcanology and Seismology  
NDMC - National Disaster Management Center  
MOH - Ministry of Health  
MRC - Maldives Red Crescent
While Myanmar has a slightly lower opinion, users from all three countries, are inclined to, AGREE that SAMBRO is easy to use and useful for their warning practices.

The attitude of the users from all three countries is that, all things considered SAMBRO is QUITE a GOOD, Beneficial, Wise, and Positive tool.
Philippine users, once again, show a level of inconsistency and uncertainty (drills were a first exposure for some users); Myanmar users have been testing and practicing the use of the system.

Complexities were mostly in populating the INFO block because it requires a lot of detail with respect to the event information.

Some uncertainties with the ALERT block whether or not to change the alert area.

**Step 1**: Login
**Step 2**: Select Template or Message
**Step 3**: Complete ALERT block
**Step 4**: Complete INFO block
**Step 5**: Complete AREA block

1. Philippine users, once again, show a level of inconsistency and uncertainty (drills were a first exposure for some users); Myanmar users have been testing and practicing the use of the system.

2. Complexities were mostly in populating the INFO block because it requires a lot of detail with respect to the event information.

3. Some uncertainties with the ALERT block whether or not to change the alert area.
1. Philippines and Maldives show similar behavior of quickly issuing first alert and then taking time to issue the update after confirming all details; while Myanmar confirms all details before the Alert

2. Take longer to complete the slow onset hazards but relatively faster on rapid and sudden onsets

3. Timing will improve over time and better understanding of the CAP attributes (there were inconsistencies in level of user aptitude)
1. Some uncertainties with setting the update information, relative to the alert
2. Unfamiliar with constructing all-clear messages, such as forgetting to remove the area, instructions, and description information
3. Improperly defined message templates, warning priorities, and area descriptions
Recommendations

1. Establish a CAP Working Group to establish alert authoring policies and procedures that harmonize across all agencies and their divisions.

2. Introduce a national training and certification regime to foster uniformity and scalability.