

Sahana Free and Open Source Software

2004 Indian Ocean Tsunami Tenth Year Anniversary

2014 18 June 2014

Jetwing Beach Hotel, Negombo, Sri Lanka

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<http://www.lirneasia.net/profiles/nuwan-waidyanatha>

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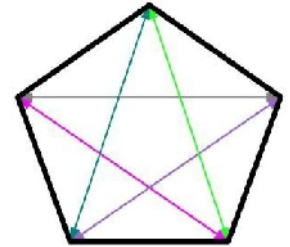


Outline

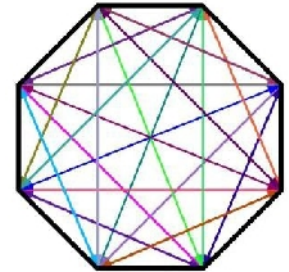
- ❑ Doctrine
- ❑ History
- ❑ The Foundation
- ❑ Software
- ❑ Users
- ❑ Solutions
- ❑ Contact Us

If you were to manage it manually

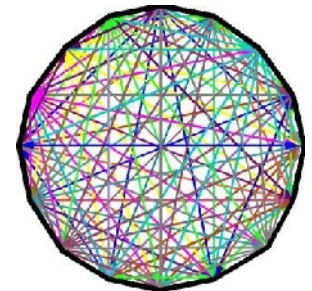
- ❑ Channels $N(N-1)/2 = O(N^2)$
- ❑ Information Lost in relay and propagation
- ❑ Redundant Data Collection
- ❑ Inconsistent Terminology
- ❑ Manual Collation / Calculation
- ❑ Delayed Situational-Awareness



N=5



N=8



N=16

Can IT help?

- ❑ **Scalable** management of information
 - No stacks of forms and files to manage
- ❑ **Efficient** distribution of information
 - Accessibility of information on demand
- ❑ **Automatic** collation and calculation
 - No delay for assessments and calculations
- ❑ **Live** Situation Awareness
 - Reports are updated live as data goes in

IT Improves Manageability = $TotalTime / \sum (Weight_i * Time_i * Steps_i)$

How Sahana got started 10 years ago



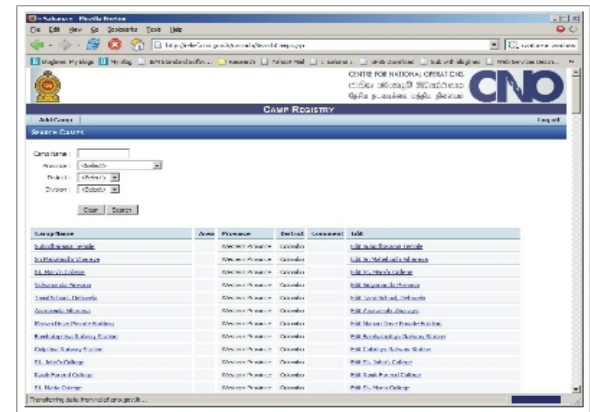
Lanka Software Foundation



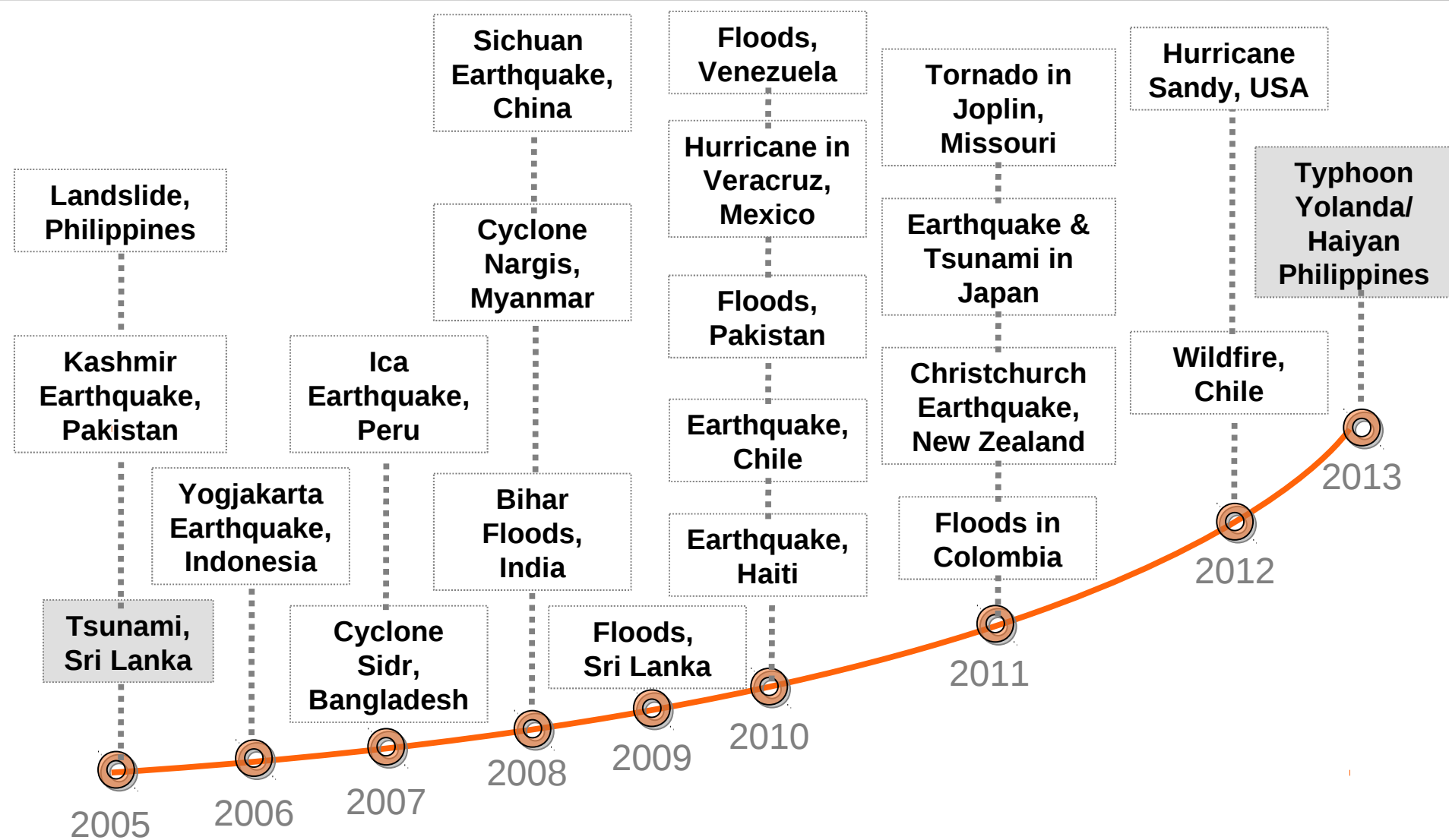
Lanka Linux User Group

IT Industry

Academia



Deployments aiding major catastrophies



Sahana Software Foundation: Community of Practice

- Sahana Software Foundation (501c3)



- Google Summer of Code
- Google Code-In

- Documentation:
 - Wiki
 - Book

- Mailing List
- IRC



- Commercial Companies



SahanaCamps – technical training sessions for anyone wanting learn how to use and develop with Sahana

Implementation training – specialized focused training for organizations adopting Sahana for specific disaster management activities

Deployment Options

Host locally in the
command center
on a **Laptop**



Host in the
Cloud



Synchronize these 2 together...



PostgreSQL



A quick overview

TOOLKIT – Essentially a set of software building blocks



HFOSS – Humanitarian Free and Open Source Software platform built specifically for Disaster Management



MODULAR - Highly Configurable so that it can be used in a wide variety of different contexts

ADAPTABLE - Easy to modify to build Custom Solutions to adapt to changing environments



Avid users

Red Cross



UN World Food Programme



Asia Disaster Preparedness Center



Philippines Government: DSWD



Nepal Government: DHM

Timor-Leste Government: NDMD

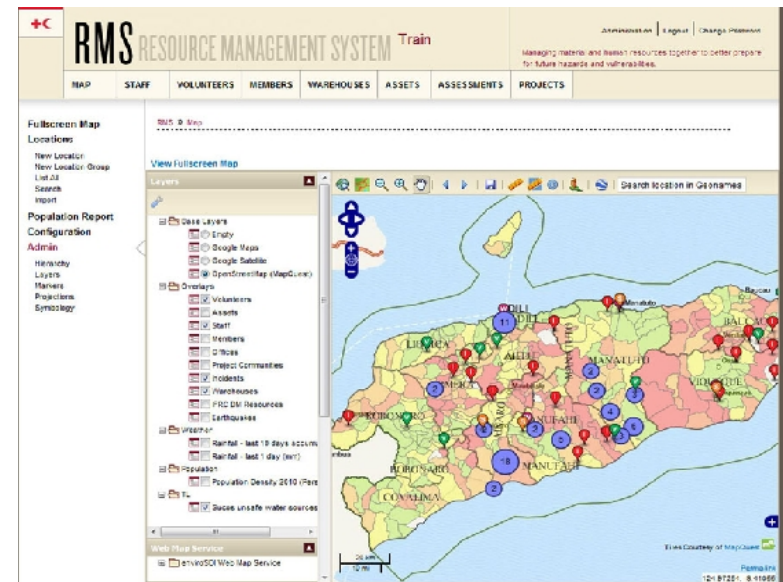


City of Los Angeles



India, Japan, Taiwan, Portugal

IFRC Resource Management System



“The RMS isn’t just a piece of software. For the first time in the history of the Red Cross and Red Crescent, RMS enables National Societies to view and analyze hazards and vulnerabilities together with their material and human resources like volunteers, staff, offices and warehouses on a digital up to date map to examine how well its people and resources are positioned.”

- John Gwynn, Head of Organisational Development
IFRC Asia Pacific zone

Disaster Risk Reduction Portal

DRR Project Portal - Home

drprojects.net/drrp/drrpp/home

DISASTER RISK REDUCTION
DRR PROJECT PORTAL
FOR ASIA AND THE PACIFIC

Sharing information on disaster risk reduction initiatives for effective coordination in Asia Pacific

HOME PROJECT LIST PROJECT ANALYSIS REGIONAL ORGANISATIONS DRR FRAMEWORKS MY PAGE

ADD CURRENT PROJECT
ADD PROPOSED PROJECT
ADD COMPLETED PROJECT
ADD PROJECT OFFLINE
ADD DRR FRAMEWORK

LOGIN
E-MAIL:
PASSWORD:
LOGIN
Register Lost Password

VIDEO TOUR

USER MANUAL

Currently the DRR Projects Portal lists information on:
776 Projects
333 Current Projects
32 Proposed Projects
365 Completed Projects
95 Frameworks

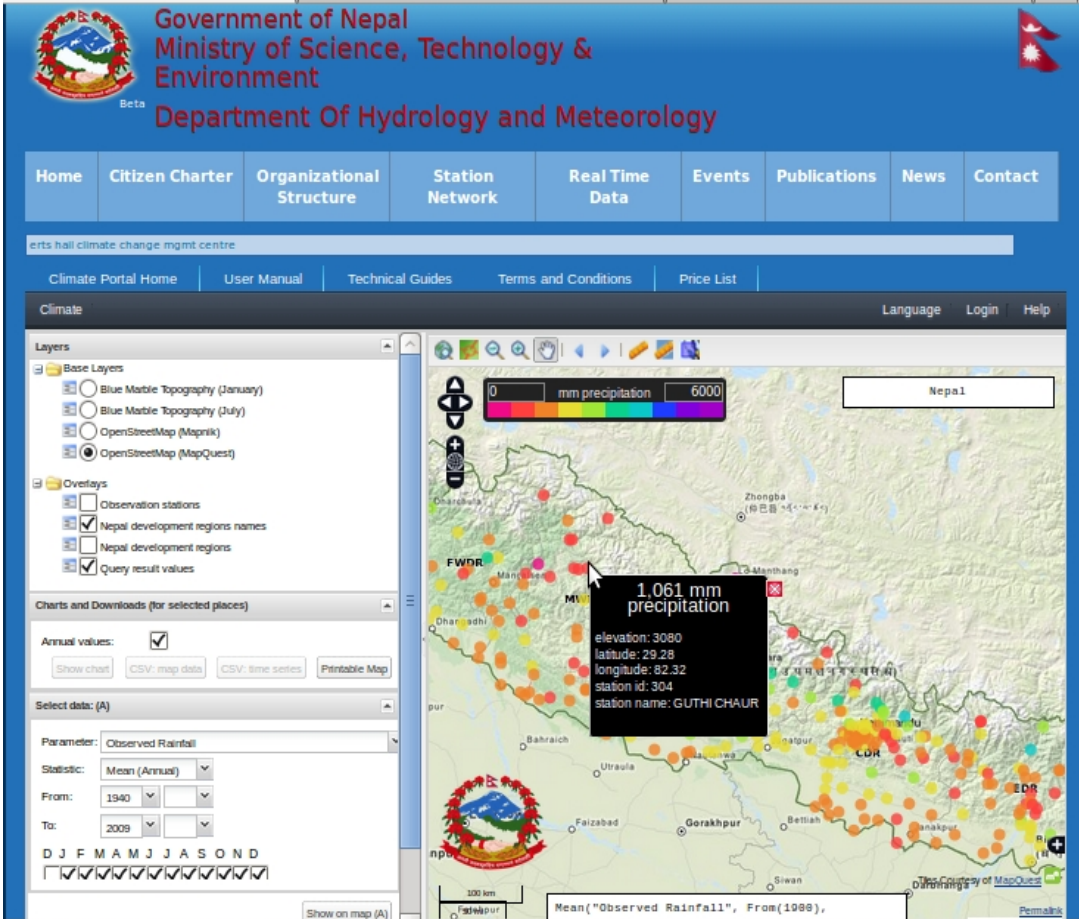
Under Development
DRR PROJECT MARKETPLACE
A platform to coordinate and collaborate on future DRR Projects.

ISDR Asia Partnership ADB ISDR acip Powered by Sahana Edata

Home | About | User Manual | Contact

- An initiative of the UNISDR Asia Partnership on Disaster Reduction (IAP)
- Funding support from the Asian Development Bank (ADP)
- Executed by the Asian Disaster Preparedness Center (ADPC)
 - <http://www.drrprojects.net/>
- Features
 - Project list – a searchable list including links to lead organizations and donors of the projects; projects can be entered by any user
 - Customizable graphs and matrix reports – helping to visualize trends; graphs can be downloaded as images
 - Interactive map showing DRR projects by country – risk layers such as tsunami risk can be shown on the map
 - List of downloadable DRR frameworks, strategies and roadmaps
 - ‘My Page’ where logged in users can save searches, graphs and maps, and subscribe to email updates

Climate Data Portal



- Consolidate and standardize old data
- Build an asset of climate data
- Apply climate models (built using 'R')
- Share data with other analysts
- Project advocated and managed by ADPC

Alerting/Messaging Broker (Sahana Agati - PHP)

Alerts List

List

Name
notify_phi_kuli_2010-03-05_a1
kuli_phi_aler_20100308_v1
kuli_phi_aler_20100308_v2
kuru_phi_2010-03-07-v11
kuru_phi_2010-03-07-v1
kuru_phi_2010-03-07-v1
shoot_wari_moh_20100308_v1
shoot_wari_moh_20100308_v2

Alert	Information	Resource	Area
Message Identifier	<input type="text" value="nwpdhs-1282032795"/>	• ? HELP	
Sender	<input type="text" value="chamindusampath@gmail.c"/>	• ? HELP	
Message Type	<input type="text" value="Alert"/>	• ? HELP	
Status	<input type="text" value="Actual"/>	• ? HELP	
Source	<input type="text" value="rtbp-alert-srv@scdmc.lk"/>	• ? HELP	
Scope	<input type="text" value="Restricted"/>	• ? HELP	
Restriction [Restricted]	<input type="text" value="RE, MOH, MOIC, PHI, PHM, Other I"/>		

Optional

Code	<input type="text"/>	Enter space s
References	<input type="text"/>	
incidents	<input type="text"/>	

Alert Information Resource Area

Language	<input type="text" value="English"/>
Category	<input type="text" value="Health"/>
Event	<input type="text" value="notifiable disease incidence"/> • ? HELP
Priority	<input type="text"/>

Optional

Sender Name	<input type="text"/>
Headline	<input type="text" value="Escalating chickenpox in Ki"/>
Description	<input type="text" value="1 cases of chickenpox for 15=21 age group and all gender(s) were reported in katupotha."/>
Audience	<input type="text"/>

Response Type	<input type="text" value="Monitor"/>		
Effective	<input type="text" value="2010-08-17T16:43:00+05.30"/>	Time Zone	<input type="text" value="+05.30"/>
Onset	<input type="text" value="2010-08-16T16:43:00+05.30"/>	Time Zone	<input type="text" value="+05.30"/>
Expires	<input type="text" value="2010-08-20T16:43:00+05.30"/>	Time Zone	<input type="text" value="+05.30"/>
Instruction	<input type="text" value="This is to notify PHI, MO, and MOH of the incidence NO ACTIONS required."/>		
Web	<input type="text" value="http://www.scdmc.lk/index.j"/>		
Contact	<input type="text" value="+94372222278"/>		

Choice of sending out through various technologies

Recipient List

nuwan@lirneasia.net,
0094773710394

Contacts

- Groups
 - Wayamba_PDHS
 - Kuli_PHIs
 - Pann_PHIs
 - Wari_PHIs
 - Udub_PHIs
 - Pann_MOs
 - Kuli_MOs

Select Delivery Type

Delivery Category	Delivery Type	Select
Short Text	SMS	<input checked="" type="checkbox"/>
	HF	<input type="checkbox"/>
	RDF	<input type="checkbox"/>
	Email	<input type="checkbox"/>
Long Text	Email	<input checked="" type="checkbox"/>
	Web	<input checked="" type="checkbox"/>
Voice Text	VoiceXML	<input type="checkbox"/>
	IVR	<input type="checkbox"/>

Next -> Transform Message

Send Message

Converted CAP Output

Escalating chickenpox in
Katupotha: Actual Alert for
Katupotha area with priority
notifiable disease incidence
issued by ..

Converted Message: Short SMS

Converted CAP Output

Health Actual Alert effective
for Katupotha!
A priority notifiable
disease incidence issued by

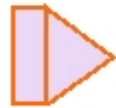
Converted Message: Long Email

Send Message

CAP (XML) → uses XSL to transform → delivery method


```
<?xml?>  
  
<alert>  
  <identifier>nw/dhs-1278923586</identifier>  
  <sender>kapilaraja@gmail.com</sender>  
  <sent>2010-07-12 02:07:42</sent>  
  <status>Exercise</status>  
  <msgType>Alert</msgType>  
  <source>http-alert.srv@scdnc.ic</source>  
  <scope>Restricted</scope>  
  <restriction>RE, MOR, MOIC, PHI, PHM, Other FS</restriction>  
</alert>  
  
<info>  
  <language>en_US</language>  
  <category>Health</category>  
  <event>notifiable disease incidence</event>  
  <responseType>Assess</responseType>  
  <priority>urgent</priority>  
  <urgency>Immediate</urgency>  
  <severity>Extreme</severity>  
  <certainty>Observed</certainty>  
  <effective>2010-07-12T14:06:00+05:30</effective>  
  <onset>2010-07-10T14:06:00+05:30</onset>  
  <expires>2010-07-14T14:06:00+05:30</expires>  
  <headline>Escalating Dengue in Dummalasooriya</headline>  
  <description>  
    4 cases of dengue for all age groups) and all genders) were r  
  </description>  
  <instruction>  
    PHI, MO, and MOH in effective area must respond See Resourc  
  </instruction>  
</web>
```

Common Alerting Protocol
XML File



XSL + sms subroutine




short-text-sms



XSL + email subroutine

short-text-email

long-text-email






XSL + html/css subroutine

long-text-web



XSL + audio subroutine

long-text-voice



SAMBRO Screen Shots



Alert

Identifier	nwpdhs-1281769557
Sender	chamindusampath@gmail.com
Sent	2010-08-14 12:08:26
Status	Actual
Source	rtbp-alert-srv@scdmc.lk
Scope	Restricted
Restriction	RE, MOH, MOIC, PHI, PHM, Other FS

Info

Language	en_US
Category	Health
Event	notifiable disease incidence
Response Type	Monitor
Priority	low
Urgency	Expected
Severity	Moderate
Certainty	Observed
Effective	2010-08-13T12:36:00+05.30
onset	2010-08-06T12:36:00+05.30
Expires	2010-08-18T12:36:00+05.30
Sender Name	Dr. W.G.C.Sampath
Headline	Escalating Chickenpox in Kurunegala District
Description	4 cases of Chickenpox for 06-14 and 15-21 age group(s) and female gender(s) were reported in PHI ares of Munamaldeniya(2 Cases), Bopitiya(1 case), Sandalankawa(1 case)in Kurunegala District
Instruction	This is to notify PHI, MO, and MOH of the incidence NO PREVENTIVE ACTIONS required.But tracing the patients and routing investigation procedures are recommended.

EMAIL

Escalating chickenpox in Katupotha for Katupotha

Inbox | X



Samana Thetha to nuwan

[show details](#) 1:18 PM (51 minutes ago)



[Reply](#)



Health Actual Alert effective for Katupotha!

A priority notifiable disease incidence issued by

Headline: Escalating chickenpox in Katupotha

Message: nwpdhs-1282032795 from rtbp-alert-srv@scdmc.lk sent at 2010-08-17 04:08:11 is a Actual, Restricted (RE, MOH, MOIC, PHI, PHM, Other FS) Alert.

This category - Health - event is and is .

Description: 1 cases of chickenpox for 15=21 age group and all gender(s) were reported in katupotha.

Response Type: Monitor

Instruction(s): This is to notify PHI, MO, and MOH of the incidence NO ACTIONS required.

Alert is effective from: 2010-08-17T16:43:00+05.30 and will expire on: 2010-08-20T16:43:00+05.30

For more details use the following sources -

Web: http://www.scdmc.lk/index.php?mod=msg&act=view_recent_alerts

call: +94372222278



cap_alert.xml

2K [Download](#)

Tweet



Samana Thetha

@HazInfoHub

Exercise Alert floods in Thailand
<http://110.164.198.195/sahana/recent/alerts>
#disaster

↩ Reply 🗑 Delete ★ Favorite ⋮ More

1:19 PM - 8 Dec 2012

Reply to @HazInfoHub

SHOW VIDEO

CAP ITU Software Training Module



CAPITUS

Common Alerting Protocol-enabled ITU Software

User Name

Password

[Sign In](#)

[Request Account](#)

ITU-T X1303



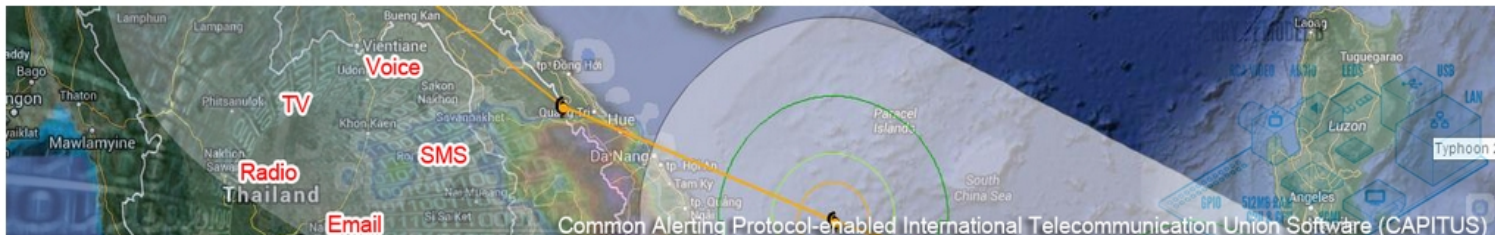
MAIN MENU

[Home](#)

[Alerting Module](#)

[User Preferences](#)

- Oops. There are a few errors :**
- Login Failed : Invalid user name or password.



Welcome to Common Alerting Protocol-enabled International Telecommunication Union Software (CAPITUS)

Developers

Training Material

- [How to grab the code from GitHub](#)
- [Localisation](#)

Administrator (Back end)

Training Material

- [How to install CAPITUS](#)
- [How to administrator users](#)

TUESDAY, JUNE 23, 2009

Sahana HF data platform for alert and situation reports



On my way to the [IDRC meeting in Penang](#) I spent two days with Prof. Ahmad Zuri et al in Cyberjaya, Malaysia evaluating the [Sahana Common Alerting Protocol \(CAP\)](#) messaging over HF spectrum data

platform. Prof. Zuri's team through, a grant from the [Malaysia Communications and Multimedia Commission \(MCMC\)](#) and the support from Mr. Zolkhonain Norizan and Mohd Aris Bernawi of MCMC, a prototype of the transport and application layers were developed by June 2009.

The lab setup was replicated at MCMC with two HF radios connected to two laptops through Pactor II modems; one acting as the remote client and the other as the IP-HF gateway transforming the HF data to the Internet. A third laptop was hosting Sahana on the [LAMP](#) stack. A CAP message sent through Sahana could be first received by the IP-HF gateway, which resolves the string and relays it to the remote station transported as HF data.



Other than a few flood incidences, Malaysia (MY) is perhaps one of the least disaster prone country in the Asia-Pacific. With that in mind, the idea is to setup a hub in MY to transport Sahana specific emergency information through the HF spectrum. As of now, Maldives, Malaysia, and Sri Lanka have agreed to pilot this

system. We await hope a Pacific Island or New Zealand may join the consortium. Proposal is in the working to seek funding.

A short video demonstrating the concept

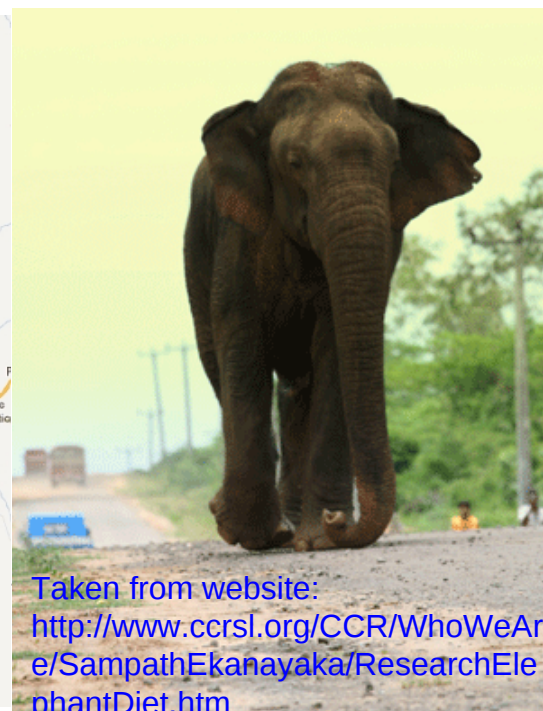
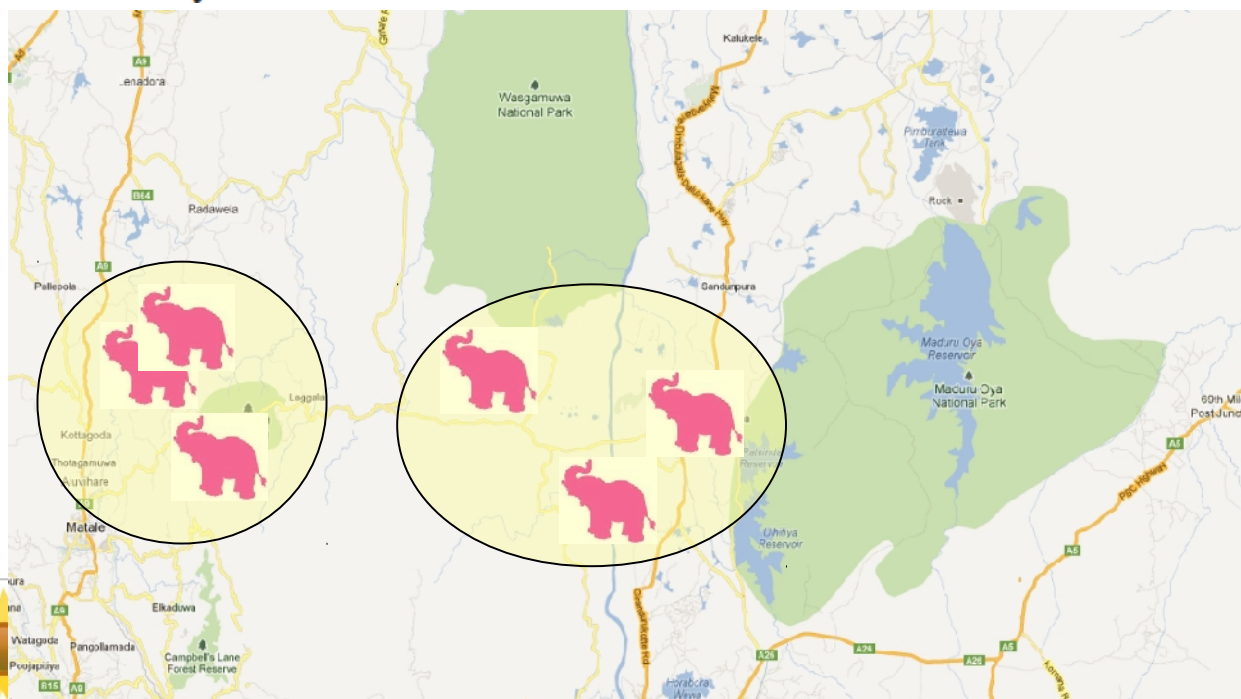
Alerting in support of Situational Awareness

Table 1. Crop damage by elephants. Source: <http://www.asesg.org/PDFfiles/Gajah/31-5-14-Campos-Arceiz.pdf>

Crop	No. of attacks	Consumption*	Consumed parts	Growth stage**		
				E	I	M
Banana	318	100	Pith, tender leaves, and rarely fruit	7	38	55
Paddy	176	97	All plant	10	16	74
Coconut	128	100	Leaves and secondarily rachis	22	38	40
Sugarcane	106	82	Culm	16	45	39
Maize	87	91	Cobs and secondarily leaves	6	14	80
Manioc	85	100	Rhizome	9	28	73
Seasonal vegetables	62	93	All plant	7	10	83
Papaya	52	85	Fruit	4	17	79
Tree	41	97	Fruit, bark and leaves	3	14	83
Sesame	27	0	-	11	33	56

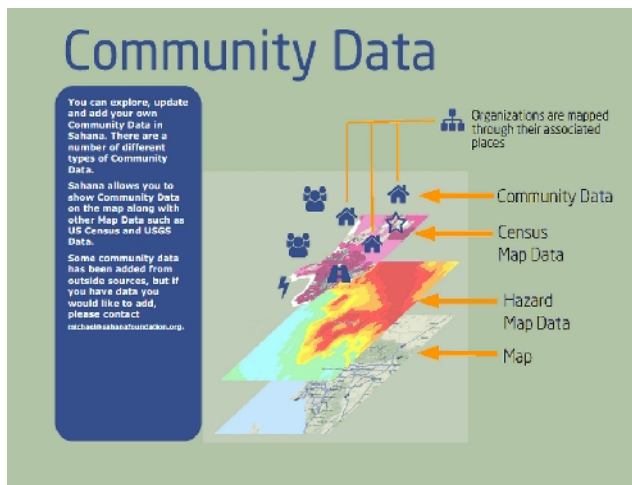
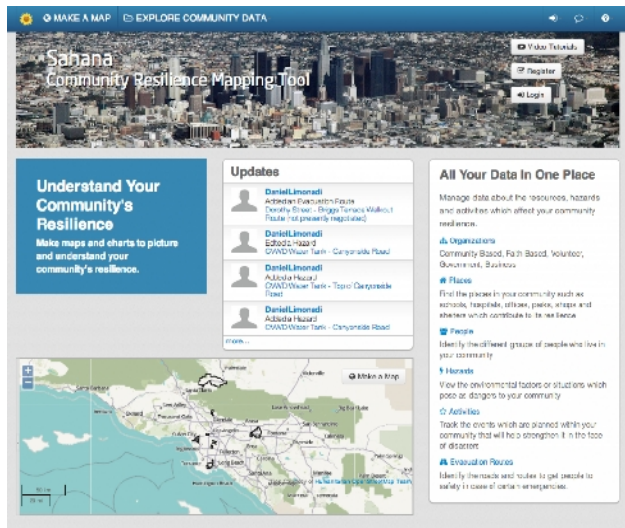
* percentage of cases in which damage was caused for consumption as opposed to trampling.

**E = early, I = intermediate; M = mature.



Taken from website:
<http://www.ccrsl.org/CCR/WhoWeAre/SampathEkanayaka/ResearchElephantDiet.htm>

Community Resilience Mapping Tool



- CRMT provides coalition members with the opportunity to create maps of their neighborhoods that can be overlaid
- Help make communities better prepared with good information about their situation
- System brings together
 - 2010 Census Data,
 - 2011 American Community Survey data,
 - USGS and California Geological Survey Hazards data,
 - FEMA flood zone data,
 - 70,000 points of interest within LA County: schools, churches, health facilities, government offices, municipal services, social services agencies, arts and recreation facilities

CRMT – to – SAMRBO

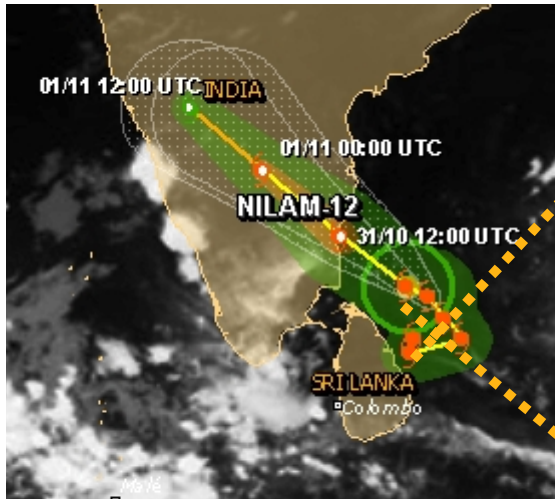


Pomono landslide hazard map

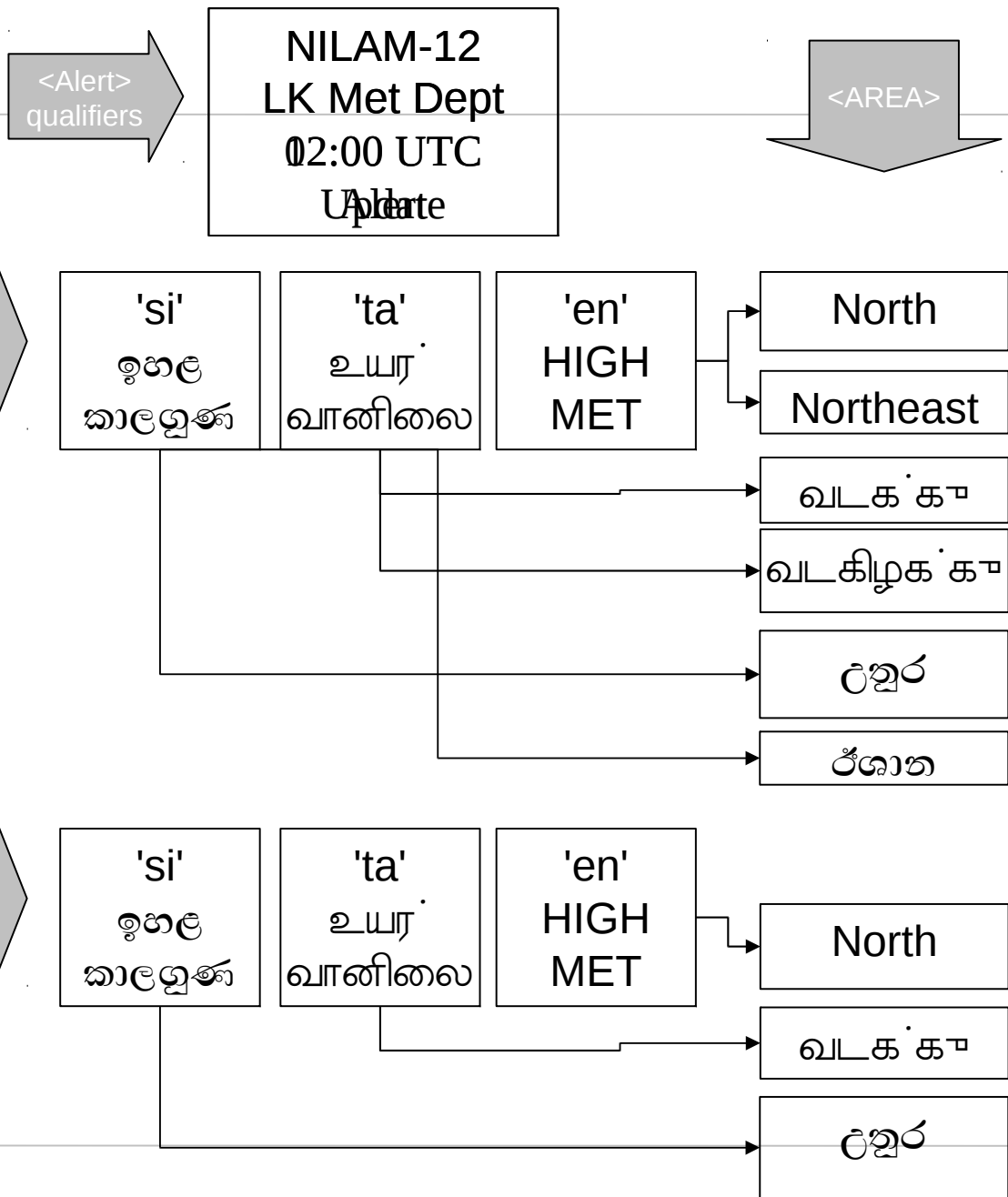
Save the alert polygon in CAP_area_template GIS layer

Use those template names as a separate attribute to auto fill the <areaDesc>, <geocodes>, <polygon>

Purpose of the multiple <INFO> and <AREA>



Cyclone NILAM-12
2012 October 31



Multi info segments

Alert information created

Alert Details

Alert: [Alert - 2014-06-18 05:57:12 - demo.eden.sahanafoundation.org/4](#)



Alert Details Information Area Resource Files

Add alert information

Export as:

Search:

Show 25 entries Showing 1 to 2 of 2 entries

	Language	Category	Event	Response type	Priority	Urgency	Severity	Certainty	Audience	Event code	Effective	Onset	Expires at	Sender's name	Headline
Open Delete	si	-	ආයුධ	Execute - Execute a pre-planned activity identified in instruction	High	Expected	Severe	Observed			2014-06-18 09:00	2014-06-18 08:50	2014-06-19 14:05	සුඛසිංහ මහාචාර්ය	ආයුධ ප්‍රදානය
Open Delete	en	Medical and public health, Law enforcement, military, homeland and local/pr...	Landslide	Execute - Execute a pre-planned activity identified in instruction	-	-	-	-			-	-	-	Nuwan Waidyanatha	Landslide disaster in affect for Kalutara District

Showing 1 to 2 of 2 entries

New bootstrap look-n-feel

SAMBRO - SAHANA ALERTING AND MESSAGING BROKER

Public Alerts

Most Recent |

[Default](#)

Incidents: None

[testin123](#)

Incidents:
[\[civil.demonstrations\]](#)

[More](#)



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Thank You

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