DUMBO: an example of ICT research in action

By

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And

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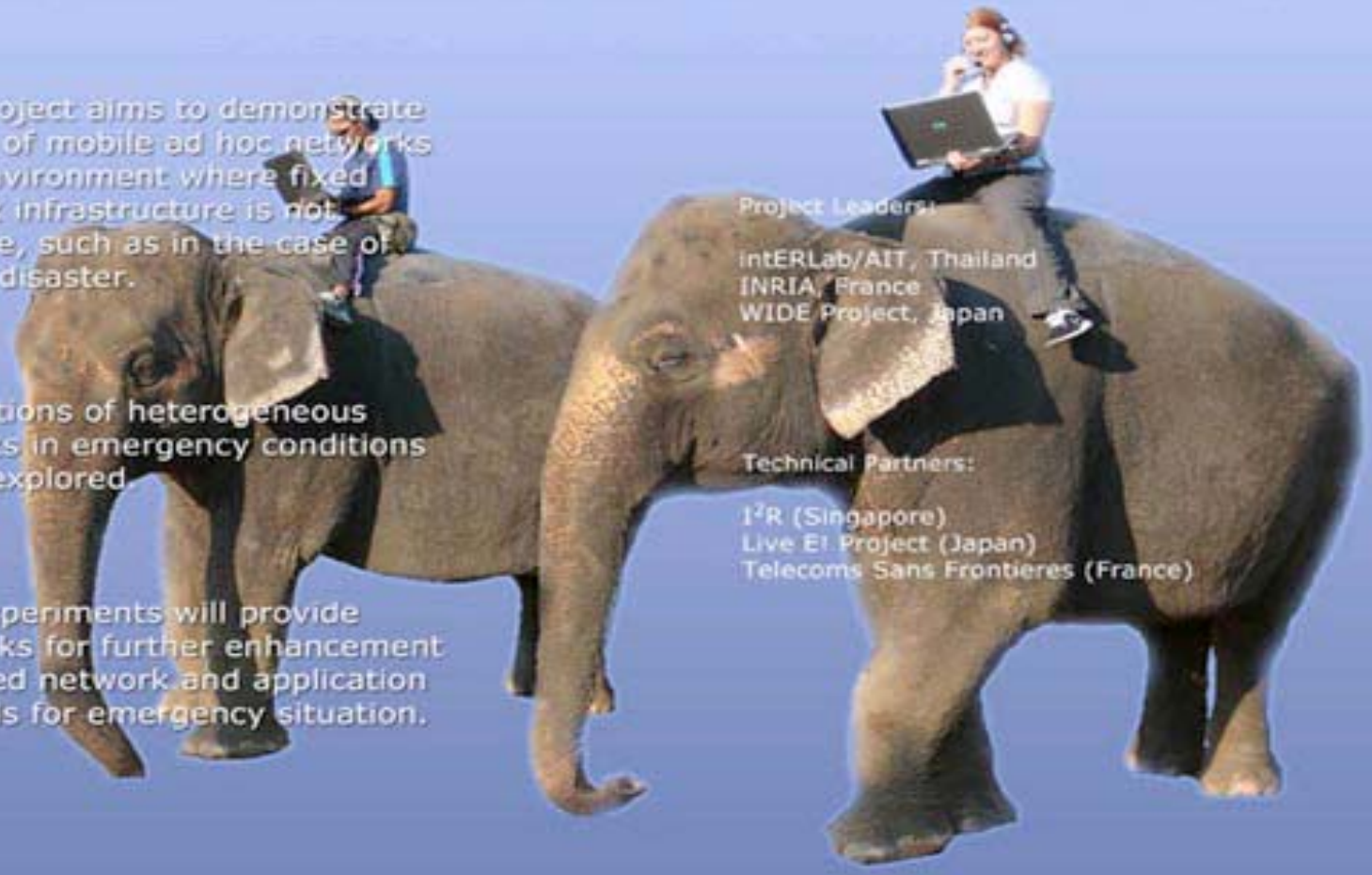
Asian Institute of Technology

Digital Ubiquitous Mobile Broadband OLSR (DUMBO)

The project aims to demonstrate the use of mobile ad hoc networks in an environment where fixed network infrastructure is not available, such as in the case of natural disaster.

Operations of heterogeneous networks in emergency conditions will be explored.

The experiments will provide feedbacks for further enhancement of related network and application protocols for emergency situation.



Project Leaders:

intERLab/AIT, Thailand
INRIA, France
WIDE Project, Japan

Technical Partners:

I²R (Singapore)
Live E! Project (Japan)
Telecoms Sans Frontieres (France)

About DUMBO Research Project

Digital Ubiquitous Mobile Broadband OLSR

- Interlab, AIT, Thailand
- Hipercom Project, INRIA, France
- WIDE Project, Japan

Funded by the French ICT-Asia Project

With partners

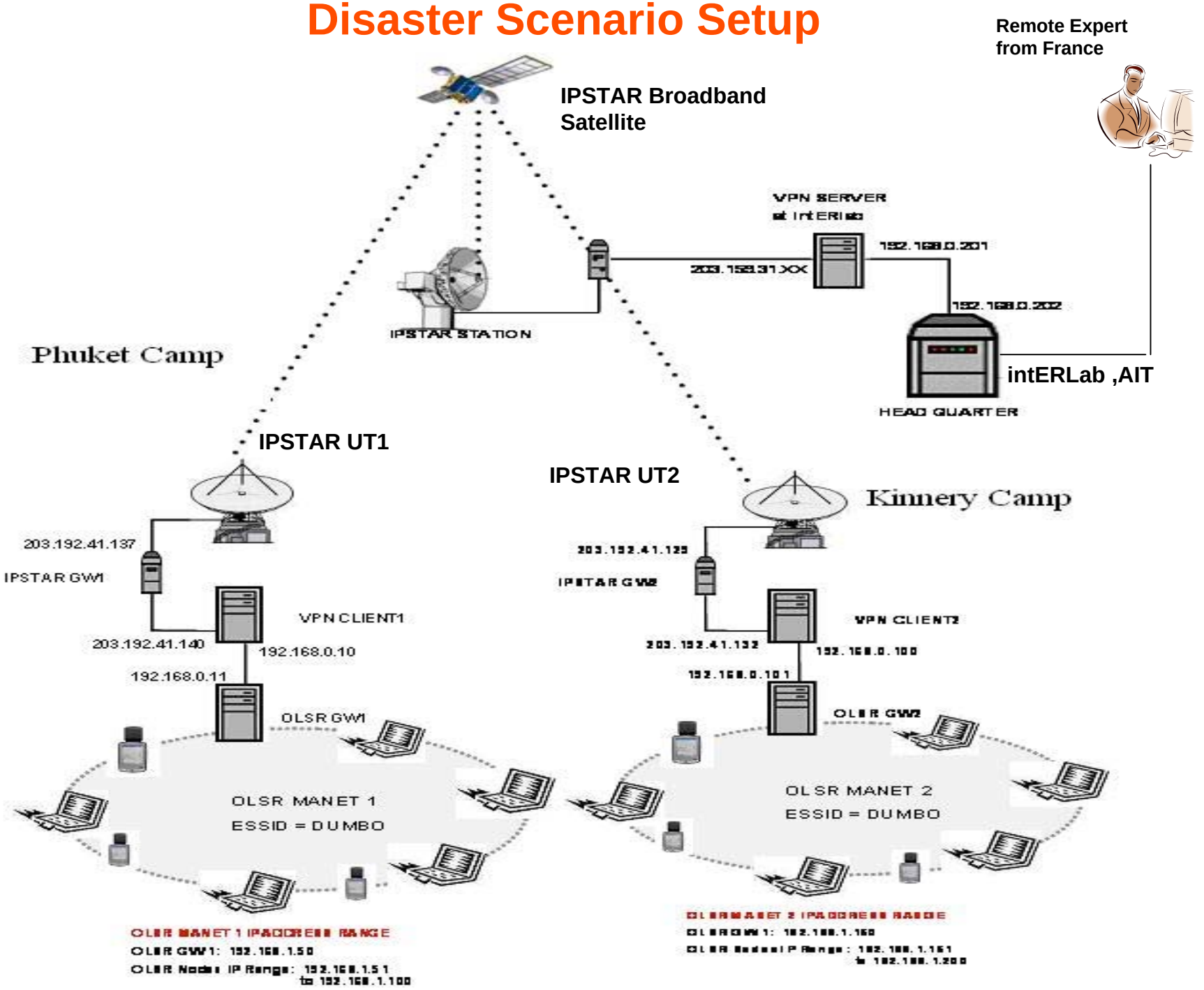
I2R (Singapore), Live!E Project (Japan)

- DUMBO I demonstration Dec 2006
- DUMBO II demonstration Oct 2008

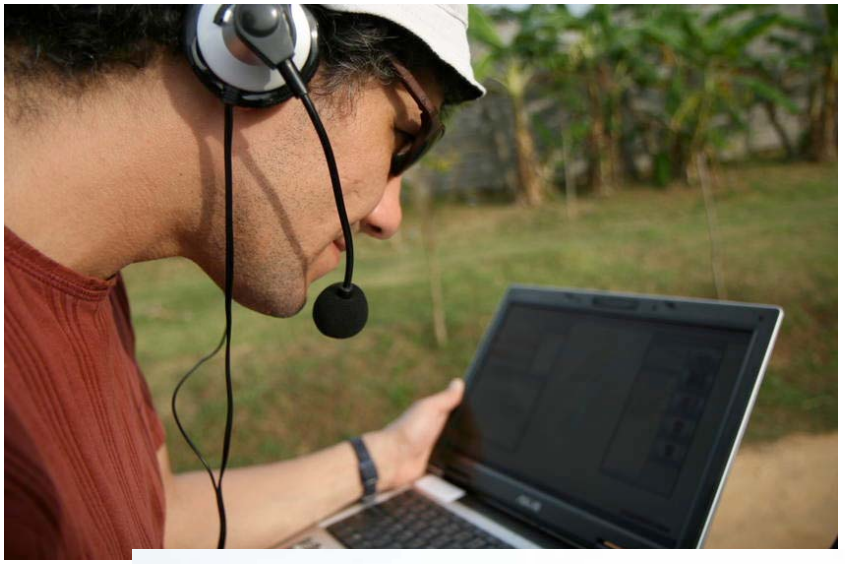
Design Considerations

- Use of day-to-day equipments: laptops, PC and PDA's
- Minimum technical training required: self-configuring/healing
- Able to meet the diversity of requirements in the emergency situation, thus wireless solution:
  - Long range communication by satellite links or WiMax
  - For the short range requirement, commercial solutions with widely available IEEE 802.11
- Multimedia Applications
  - Rich conversations, sensor integration, face recognition

Disaster Scenario Setup



Experimental Testbed

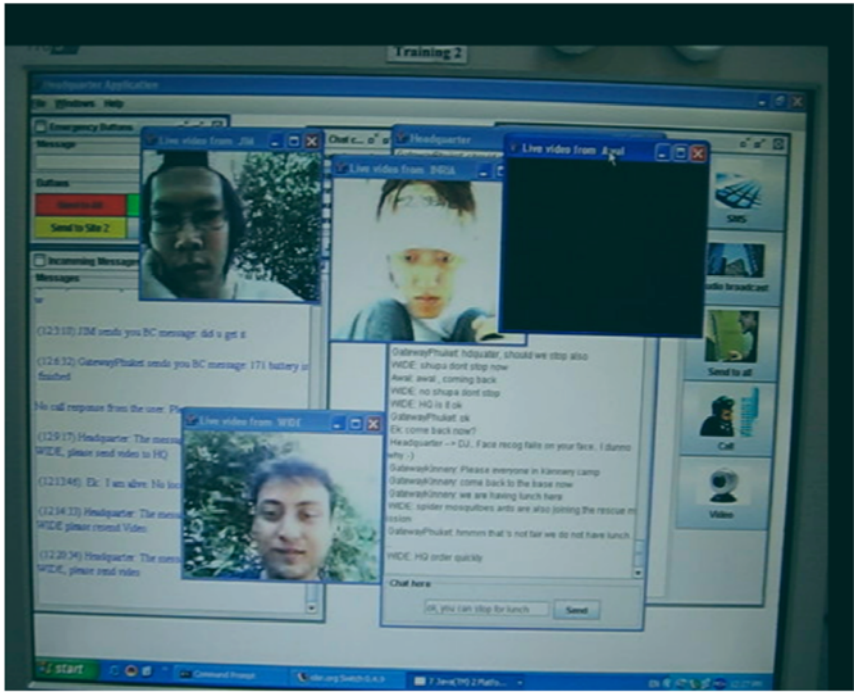


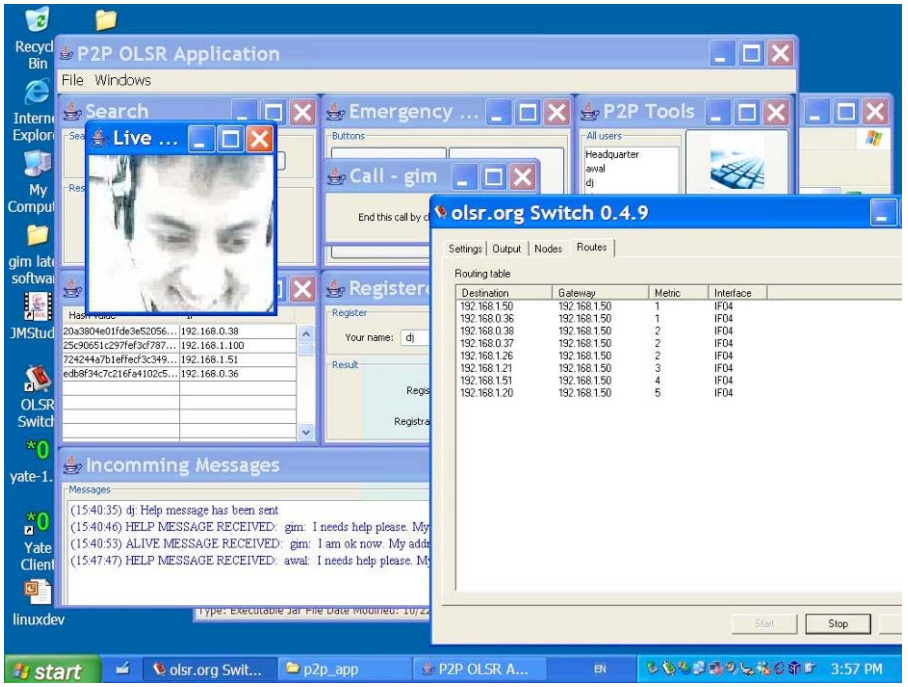
DUMBO 2006

Simulated head command center in AIT

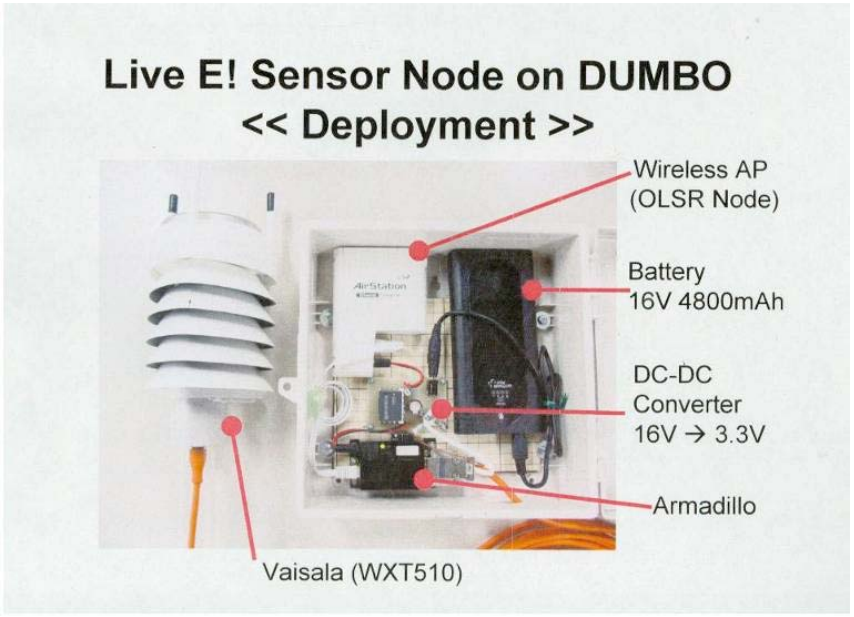
Multimedia Communications for Disaster Emergency Responses

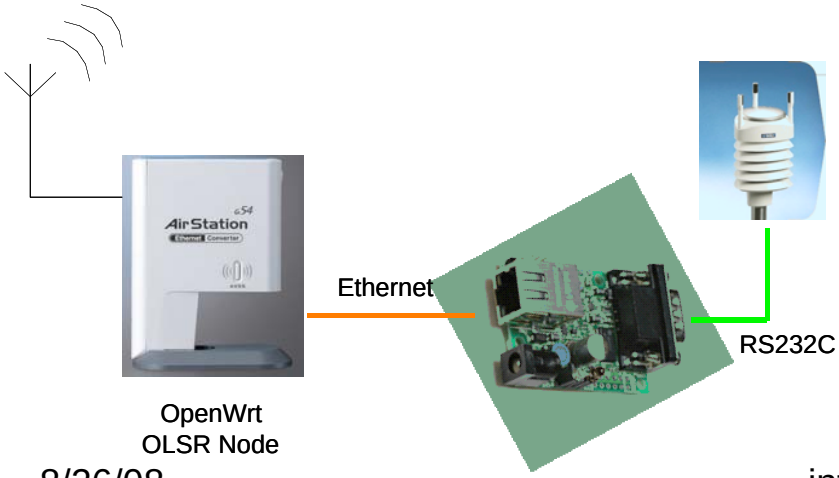
- Interactive Video, Voice, and Instant Messaging
  - very important to situational awareness
- Peer-to-Peer Paradigm (no centralized server **)





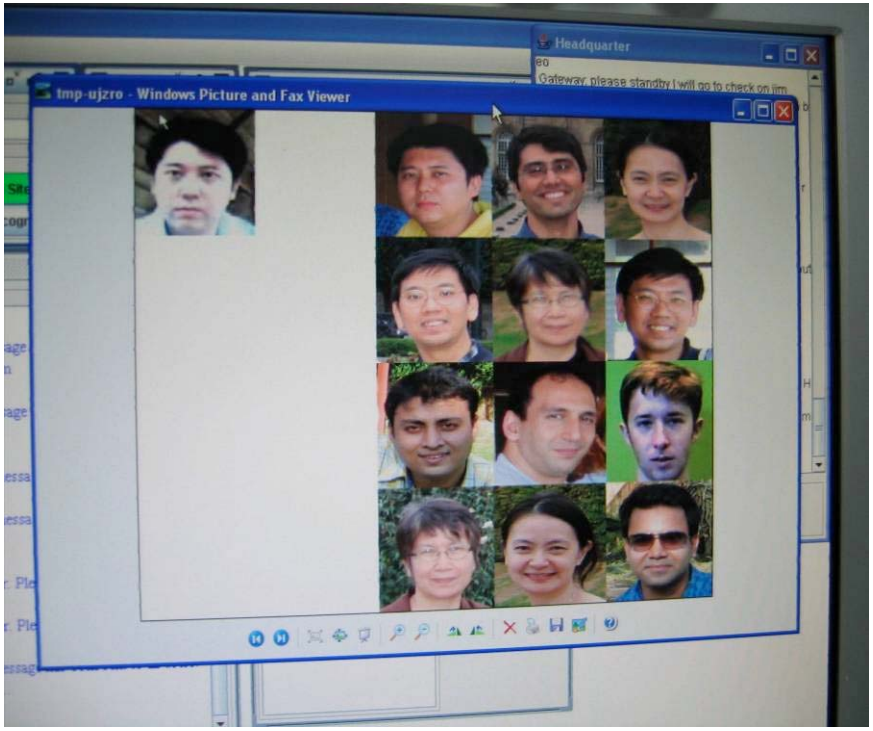
Climate Sensors

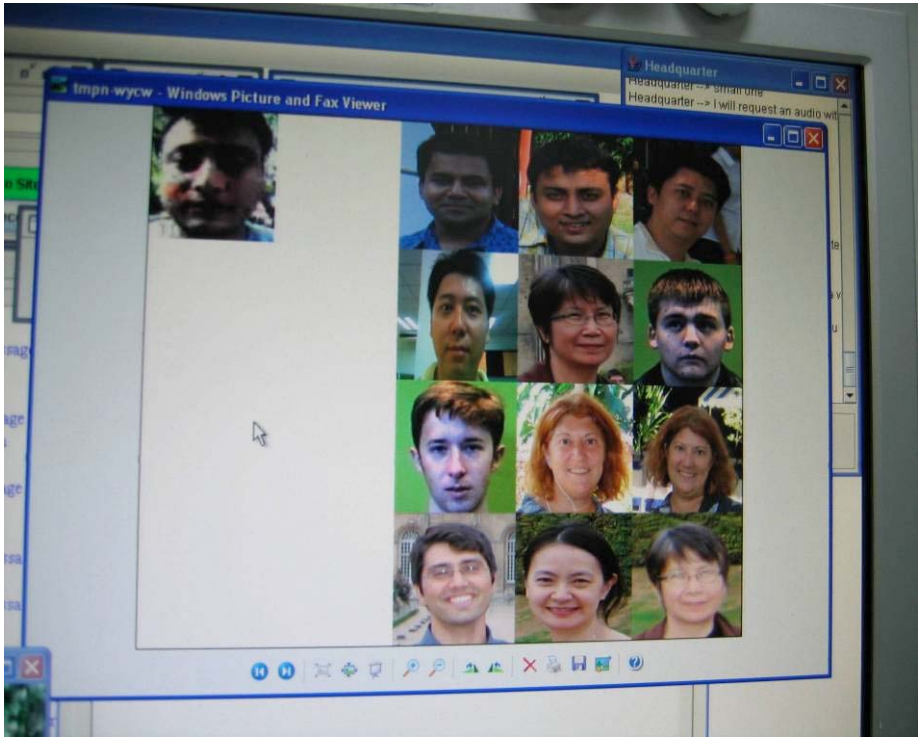




Courtesy of Live E!

Face Recognition System





Face Recognition : to search and identify people

Sahana

- **Sahana is a free and open source disaster management system that grew out of the 2004**
- **Asian Tsunami disaster. In Sri Lanka, volunteers put together the Sahana Disaster**
- **Management System to help track families and coordinate work among relief organizations during and after the tsunami disaster. Sahana has been deployed in government, NGO, UN and volunteer community level in many countries including Pakistan, Philippines, Indonesia, Peru, Lebanon, Sri Lanka, Bangladesh and more.**

How SAHANA can help

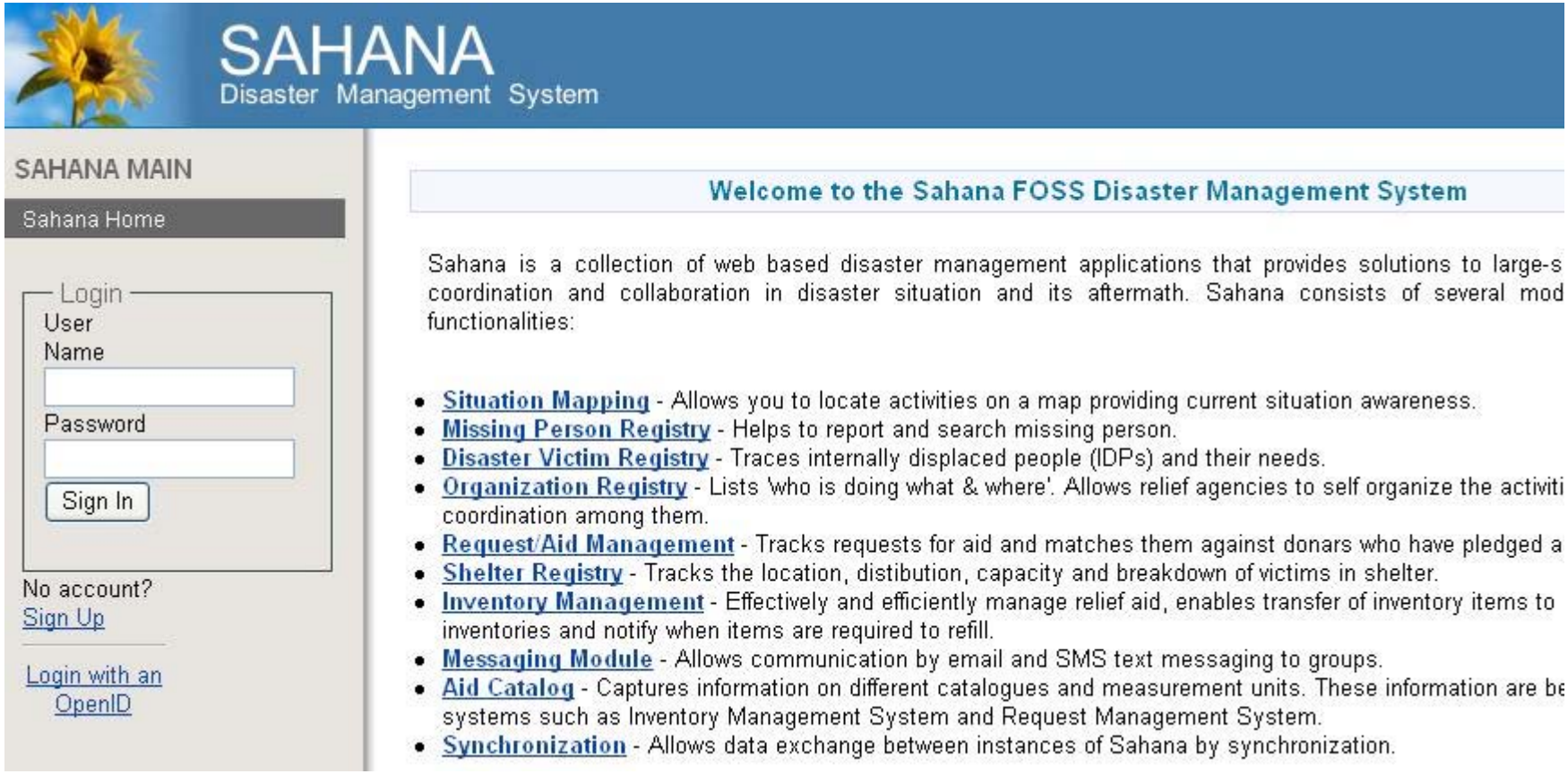
Sahana Disaster Management System consists of several modules enabling it to manage
various aspects of disaster situations. Following is a brief description about main modules.

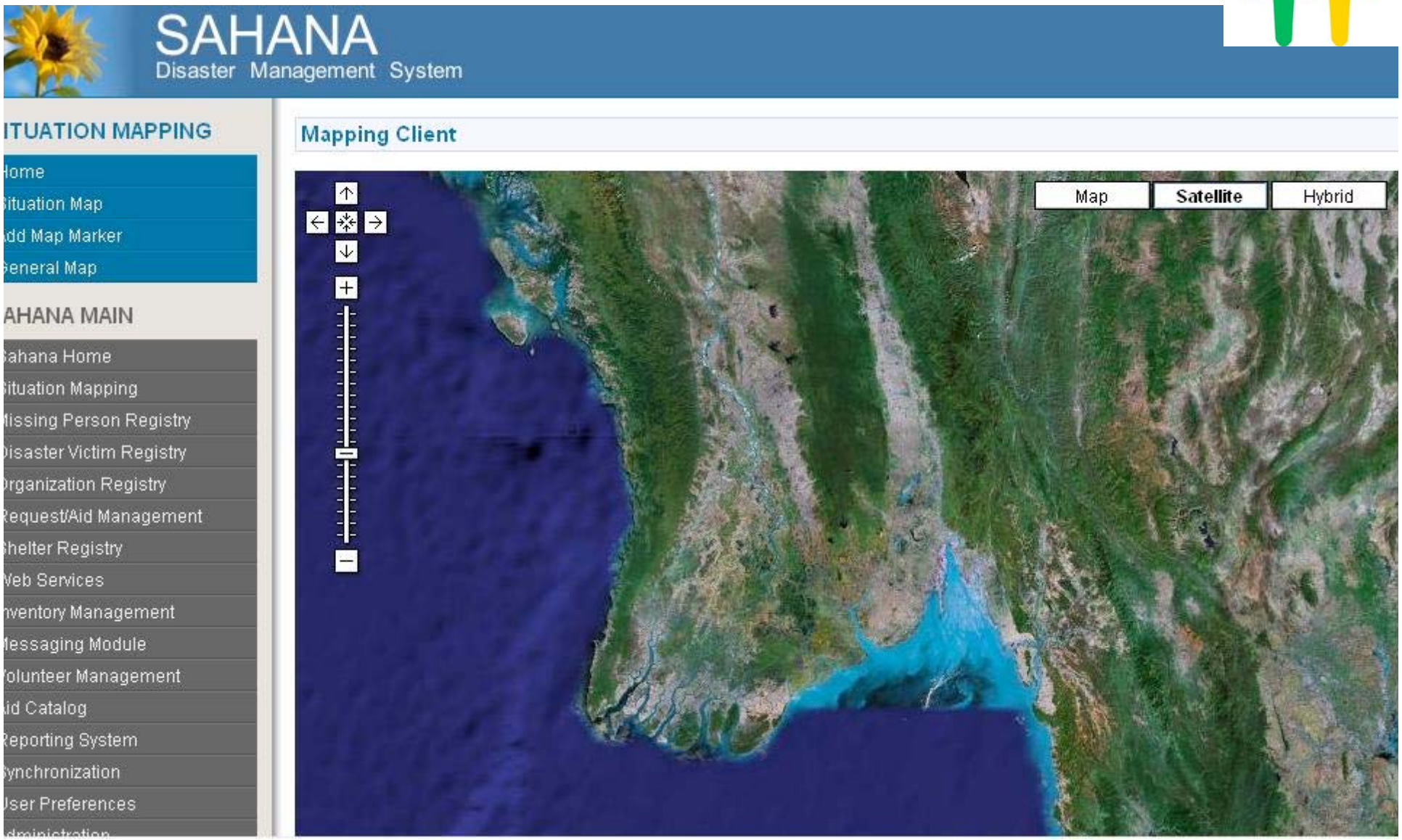
Missing Person Registry - Report and search people missing due to disaster incidents.
This module will function as online dash board in managing missing persons.

Disaster Victim Registry - Traces internally displaced or injured people. This module is
designed to be used by the officials engaged in disaster victim identification process.

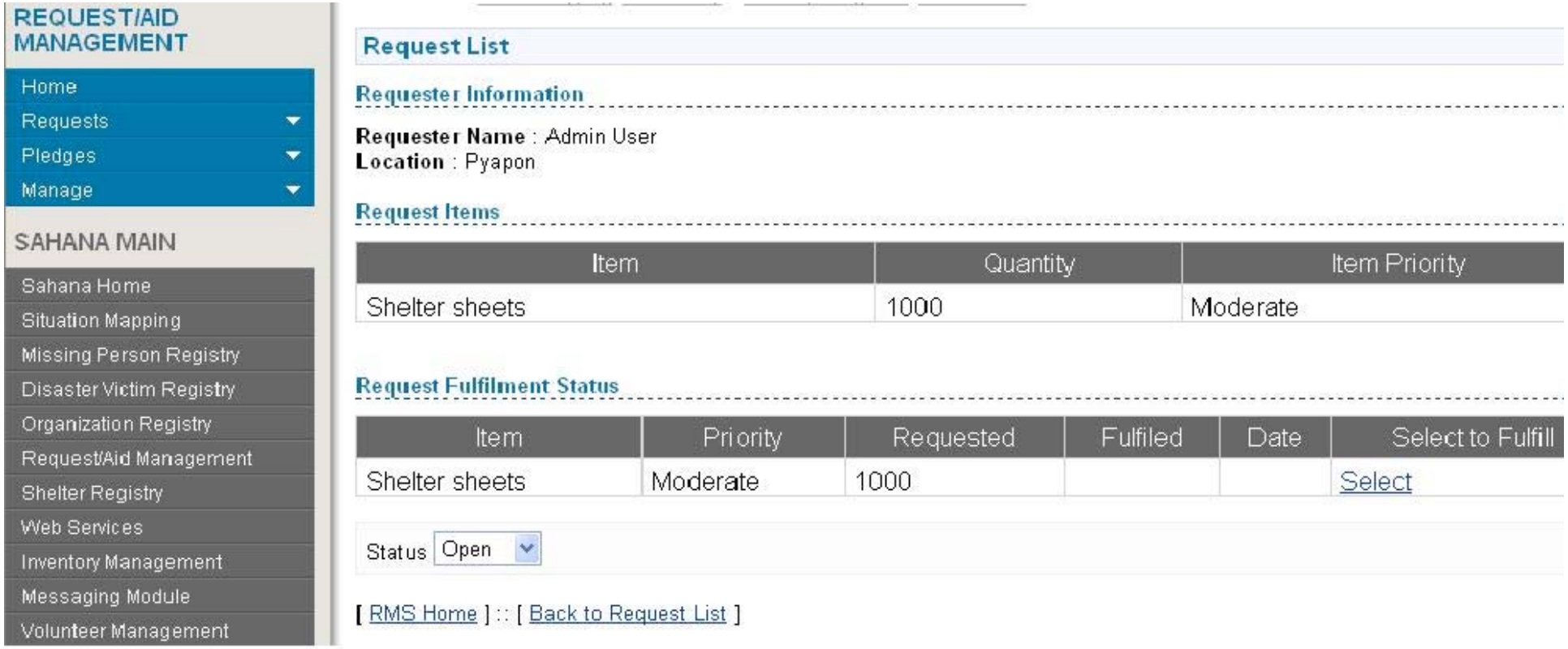
Organization Registry - Coordination of the relief organizations' activities in a particular
disaster affected region. This module will allow set of key organizations (e.g. Government/Ministries etc) to monitor and regulate the activities of volunteer organizations

www.nargisaction.org


SAHANA
Disaster Management System
SAHANA MAIN
Sahana Home
Login
User Name
Password
Sign In
No account?
Sign Up
Login with an OpenID
Welcome to the Sahana FOSS Disaster Management System
Sahana is a collection of web based disaster management applications that provides solutions to large-s coordination and collaboration in disaster situation and its aftermath. Sahana consists of several mod functionalities:
Situation Mapping - Allows you to locate activities on a map providing current situation awareness.
Missing Person Registry - Helps to report and search missing person.
Disaster Victim Registry - Traces internally displaced people (IDPs) and their needs.
Organization Registry - Lists 'who is doing what & where'. Allows relief agencies to self organize the activiti coordination among them.
Request/Aid Management - Tracks requests for aid and matches them against donars who have pledged a
Shelter Registry - Tracks the location, distibution, capacity and breakdown of victims in shelter.
Inventory Management - Effectively and efficiently manage relief aid, enables transfer of inventory items to inventories and notify when items are required to refill.
Messaging Module - Allows communication by email and SMS text messaging to groups.
Aid Catalog - Captures information on different catalogues and measurement units. These information are be systems such as Inventory Management System and Request Management System.
Synchronization - Allows data exchange between instances of Sahana by synchronization.



www.nargisaction.org


REQUEST/AID MANAGEMENT
Home
Requests
Pledges
Manage
SAHANA MAIN
Sahana Home
Situation Mapping
Missing Person Registry
Disaster Victim Registry
Organization Registry
Request/Aid Management
Shelter Registry
Web Services
Inventory Management
Messaging Module
Volunteer Management
Request List
Requester Information
Requester Name : Admin User
Location : Pyapon
Request Items
Item
Quantity
Item Priority
Shelter sheets
1000
Moderate
Request Fulfilment Status
Item
Priority
Requested
Fulfiled
Date
Select to Fulfill
Shelter sheets
Moderate
1000
Select
Status Open
[RMS Home] :: [Back to Request List]

Cyclone Nagis

May 2008

DUMBO & Sahana Training

Five Participants from Myanmar

- Mr Ye Myat Thu
  - President, Myanmar Computer Industries Assn (Mandalay)
  - Director, Myanmar Egress
  - Managing Director, Alpha Info-Tech (Mandalay)
- Mr Thaung Su Nyein
  - EC, Myanmar Computer Professionals Assn
  - Managing Director, Inforithm-Maze
- Mr Nay Lin Than
  - EC, Myanmar Computer Professionals Assn
  - General Manager, M.I.T. Pte., Ltd.
- Mr Nyi Lynn Seck
  - EC, Myanmar Computer Professionals Assn
  - Manager, Inforithm-Maze
- Mr Htain Lin Shwe
  - Member, Myanmar Computer Professionals Assn
  - Web Developer

Tasks

- Inspection of disaster / site
- Hiring and training of staff / volunteers
- Presenting to other stakeholders and getting their cooperation
- Software, hardware, network deployment
- Base data collection, input
- Hosting of server
- Opening up team's offices in affected areas
- Customize / extend applications on this infrastructure

Timeline (draft)

Date	Remarks
May 2-3	Cyclone Nargis struck Myanmar
May 21-25	Training Programme at AIT is held
May 26	Presentation / report to Egress, MCPA & other notable persons -Technical overview -Network requirements -Benefits / features of system -Other uses for DUMBO -Other applications possible on this infrastructure -Project plan (draft)
May 26	Establish operation teams; working committees; supervisory committee
May 27	Prep / working meeting for presentation to authorities

Timeline (draft)

Date	Remarks
May 27-28	-Sahana deployment on server -Test VPN over internet -Configure Micro Clients, Eee PCs, servers
May 27 – June 2	Preliminary data gathering & entry -Geodata, maps (once) -Lists of missing persons, victims (ongoing) -Lists of aid organizations (once, update sometimes) -Aid / relief / supplies information (ongoing) -Lists of refugee centers (once, update sometimes)
May 28	Excursion trip (TSN / YMT) to Pyapon, Bogalay (1-day trip)
May 29	Presentation II to authorities (get approval!!!)
May 30-31	Train the trainers (Egress & MCPA), location: Myanmar Info-Tech, 2 days, 15 persons

After Approval

+ Days	Remarks
AA+1	-Colocation at Myanmar Teleport (ISP) -Yangon Headquarters go online
AA+3	-Presentation III to other organizations -Pilot project staff training (operator-level) for Pyapon & Bogalay
AA+3 – AA+7	iPSTAR terminals & equipment installation at Pyapon or Bogalay
AA+8	**Pilot project LAUNCH!!!** Approximately second week of June

Thank you from the people of Myanmar

EXPERIENCES AND LESSONS LEARNT FROM NARGIS DISASTER RELIEF AND FIELD OPERATIONS

Thet Aung Min Latt
Deputy Chief Information Officer

Nay Yan Oo
Information Officer (Web)

Myanmar Egress
Nargis Action Group Myanmar
http://www.myanmaregress.org
http://www.nargisaction.org

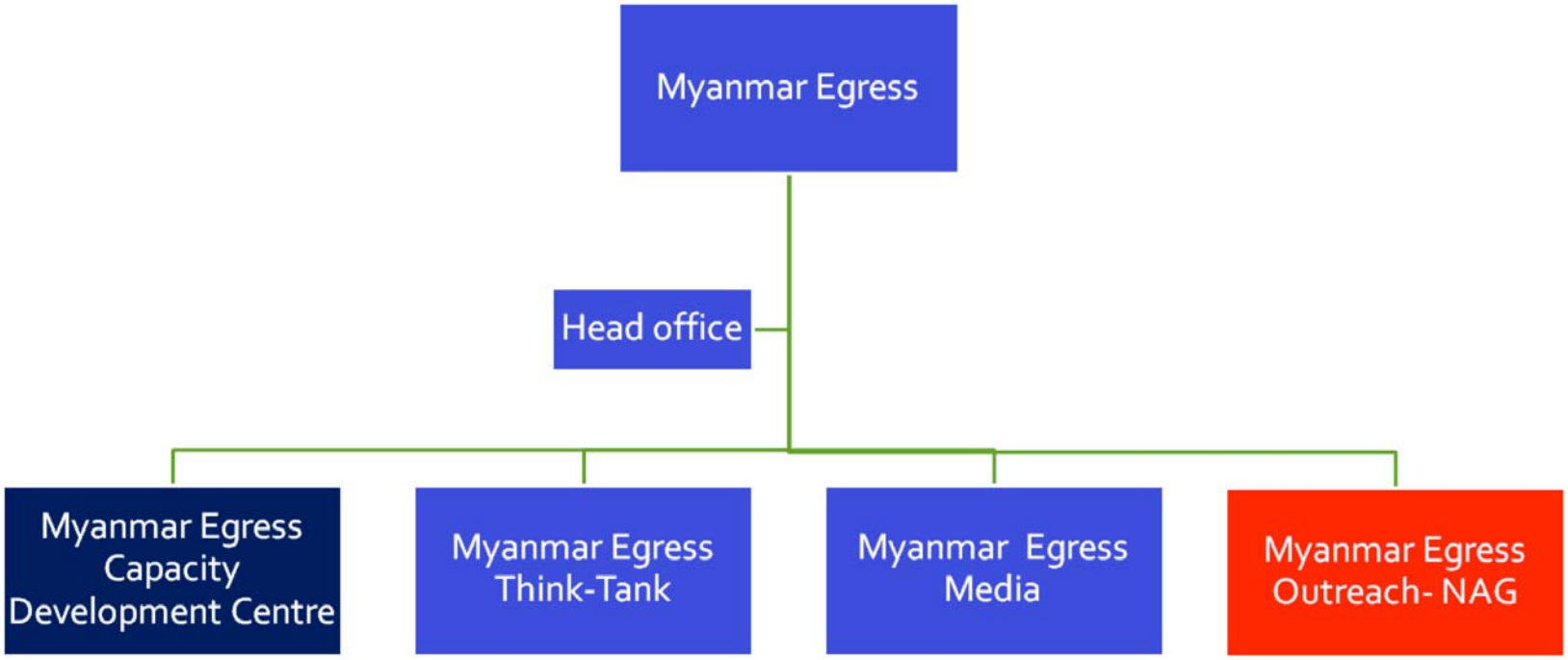
1.About Myanmar Egress/ Nargis Action Group Myanmar

About Myanmar Egress

- **The Myanmar Egress** is a non profit Organization founded by Myanmar scholars and social workers who have been actively involved in various civil society activities in Myanmar in the last fifteen years.
- Myanmar Egress was set up in 2006 by a group of Myanmar nationalists committed to state building through positive change in a progressive yet constructive collaboration and working relationship with the government and all interest groups, both local and foreign.

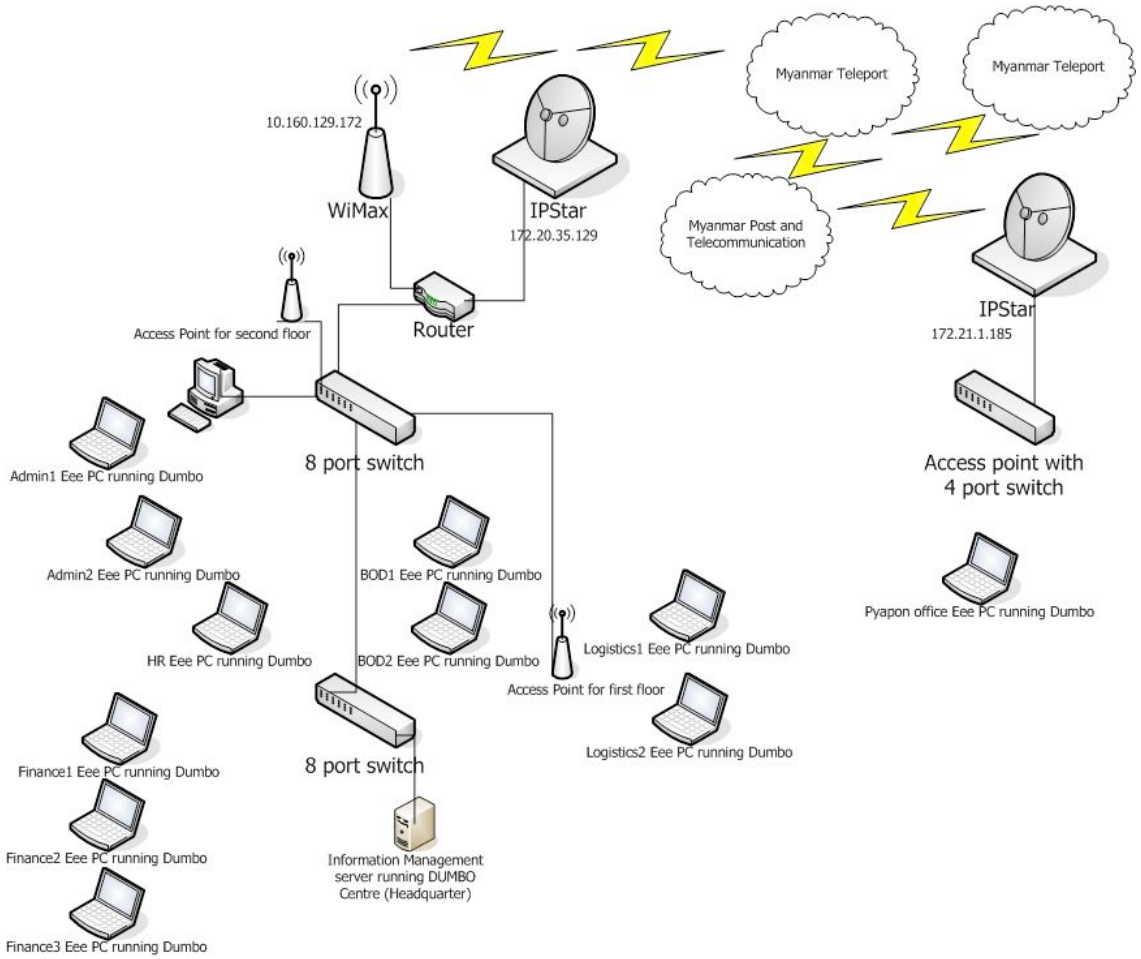
8/26/08

Organization Structure



2. Current DUMBO/Sahana Operation in Myanmar

DUMBO


Myanmar Teleport
Myanmar Teleport
10.160.129.172
WiMax
IPStar
172.20.35.129
Myanmar Post and Telecommunication
IPStar
172.21.1.185
Access Point for second floor
Router
Admin1 Eee PC running Dumbo
8 port switch
Access point with 4 port switch
Admin2 Eee PC running Dumbo
BOD1 Eee PC running Dumbo
Pyapon office Eee PC running Dumbo
HR Eee PC running Dumbo
BOD2 Eee PC running Dumbo
Logistics1 Eee PC running Dumbo
Access Point for first floor
Logistics2 Eee PC running Dumbo
Finance1 Eee PC running Dumbo
8 port switch
Finance2 Eee PC running Dumbo
Information Management server running DUMBO Centre (Headquarter)
Finance3 Eee PC running Dumbo

DUMBO

June 18, 2008

- DUMBO fully tested by Information Management team
- 4 different locations: **NAG Yangon office**, NAG Yangon office w**arehouse**, **Pyae Phoy Kyaw-Yangon** Headquarter and **Pyapon office**.
- Some errors found

DUMBO

DUMBO

July 1, 2008

- Second test with Microclient found the same errors already reported.

DUMBO

July 3, 2008

- Information Management team fully deploy DUMBO in NAG office - all departments.
- Primarily test/use for inter-department communication whilst waiting for permission to test/use long-range antenna in the field

DUMBO

- Pyapon office

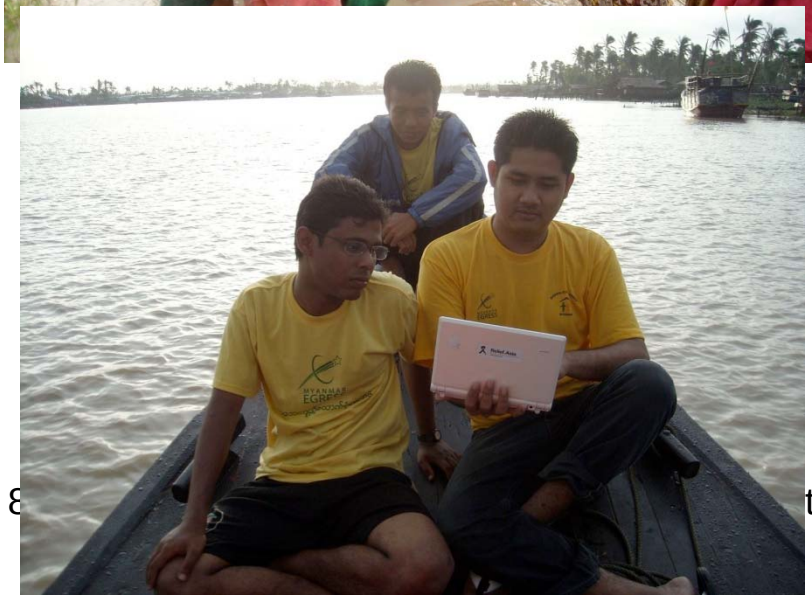
DUMBO

July 23, 2008

- Dumbo fully tested in Pyapone, Myin Ka Kone village.
- Weather prevented more rigorous testing

DUMBO

- Pyapone, Myin Ka Kone village.



DUMBO

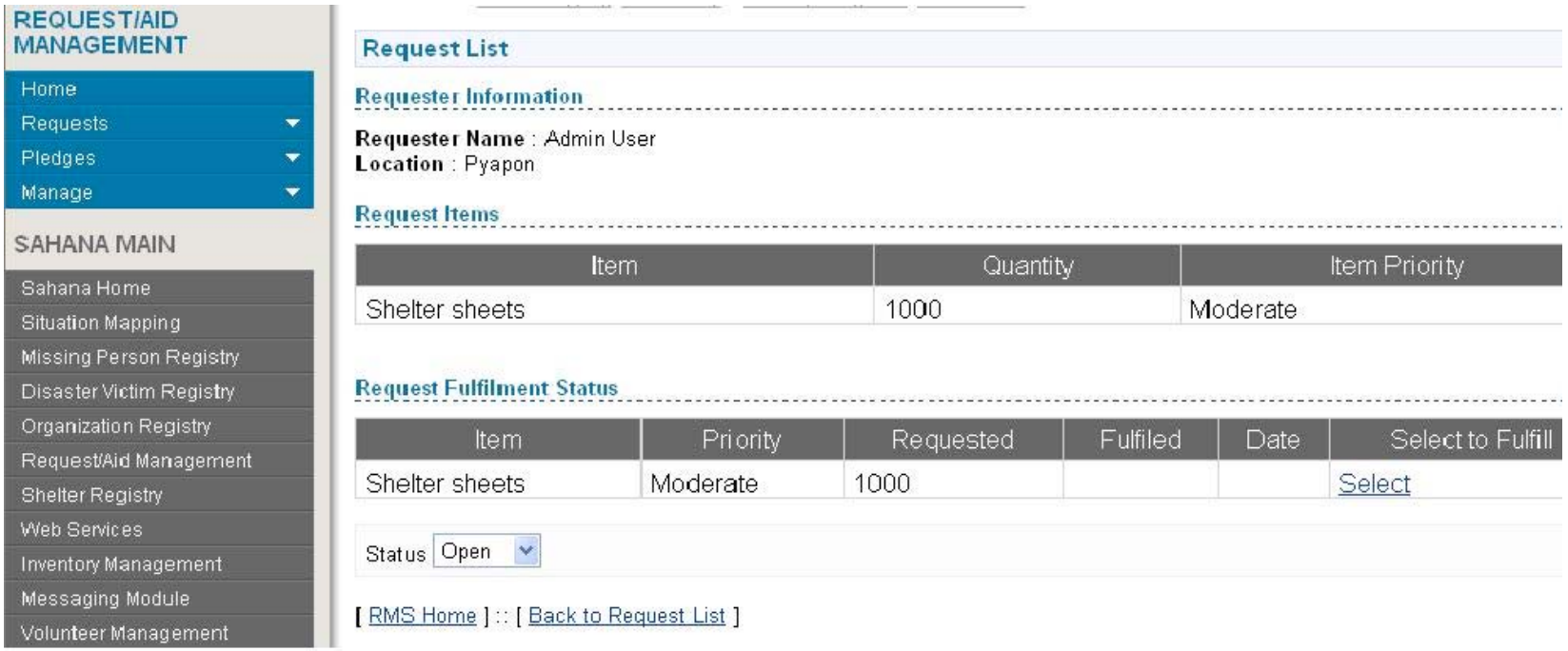
- Train the Trainer (2 day)

DUMBO and Sahana

- Training for NAG staff (1 day)

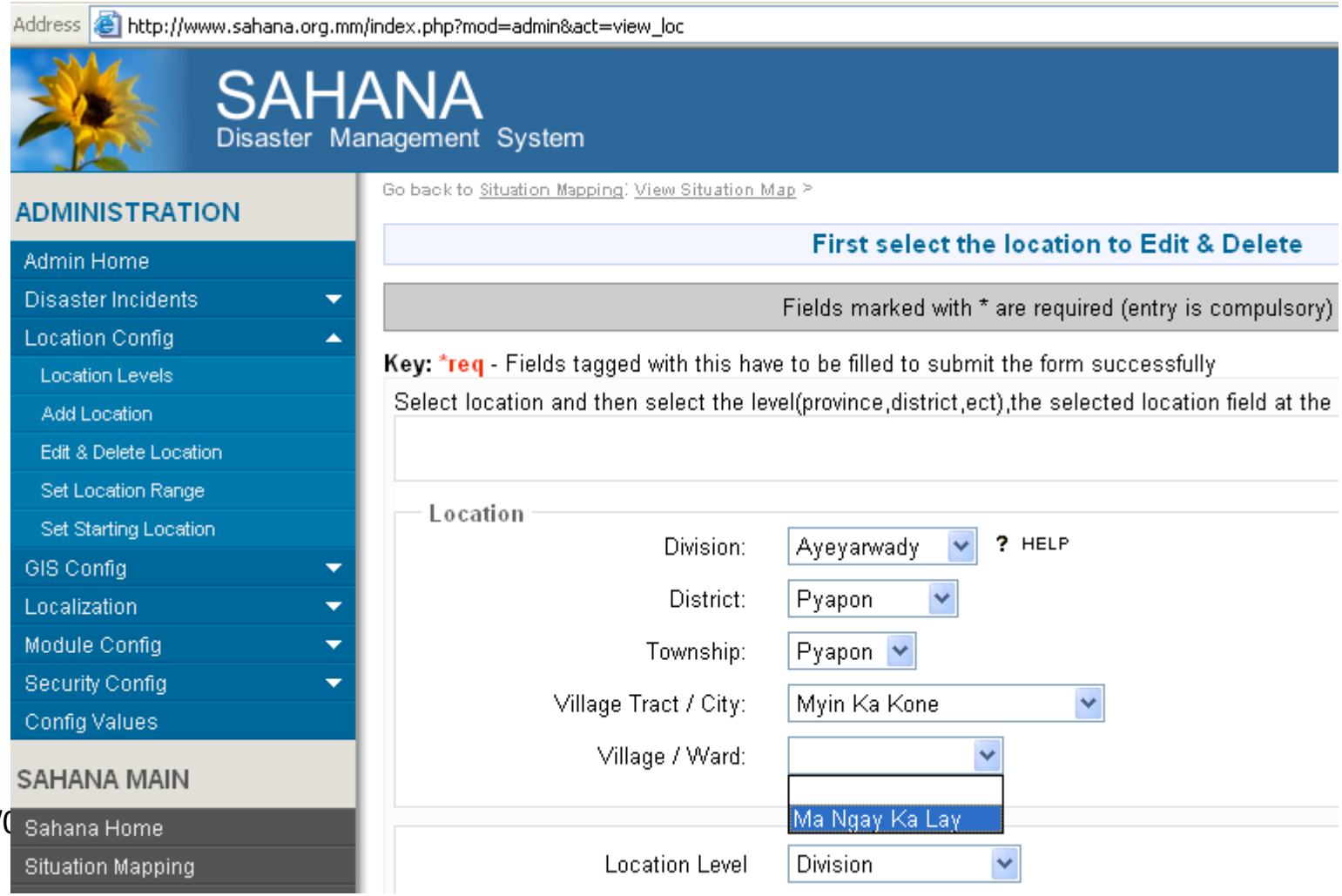
Sahana

- www.sahana.org.mm is up and running.



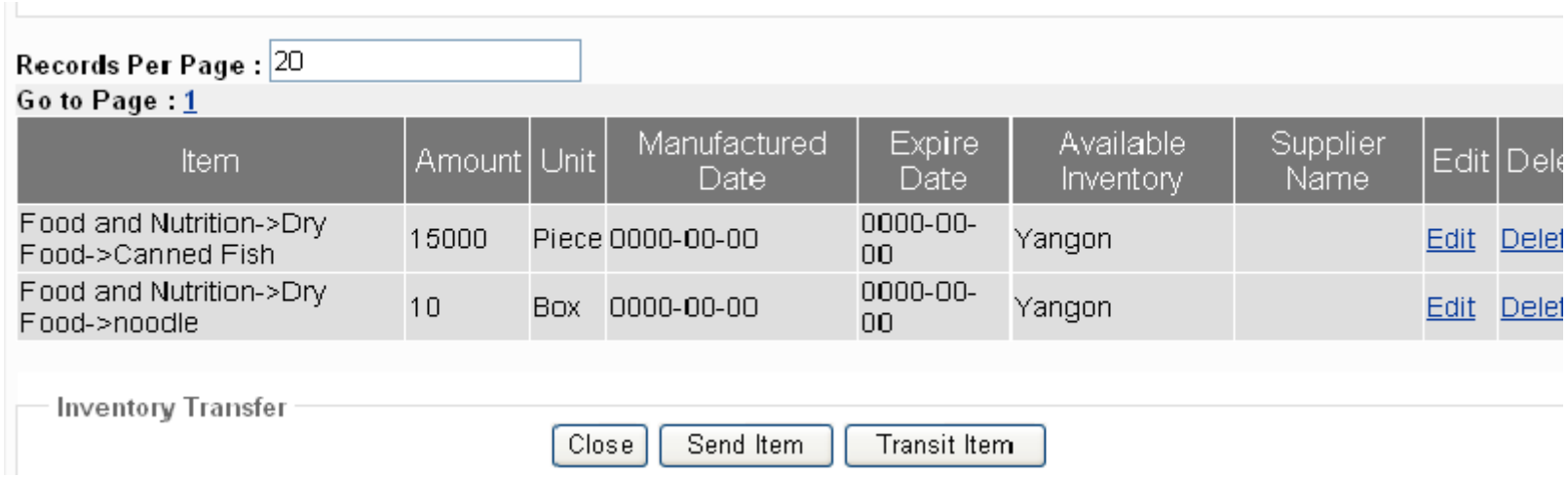
Sahana

- Location data entry finished



Sahana

- Start using of adding Inventory data



3.Issues to be settled

Localization

Beneficiaries database

Location database

Open use of the necessary frequencies – government restrictions (Long range wireless access)

Weather vulnerability

Battery life

Bandwidth limitations

Video option is unreliable

Thanks

- AIT, intERLab
- French ICT-ASIA
- NECTEC ITS Cluster
- Relief.asia
- APIA
- APNIC
- APNG
- APRICOT
- Cisco Systems
- DotAsia
- NetworkTheWorld
- NSRC
- SOI-Asia
- THNIC
- WIDE-Project

Again Thanks

Q & C

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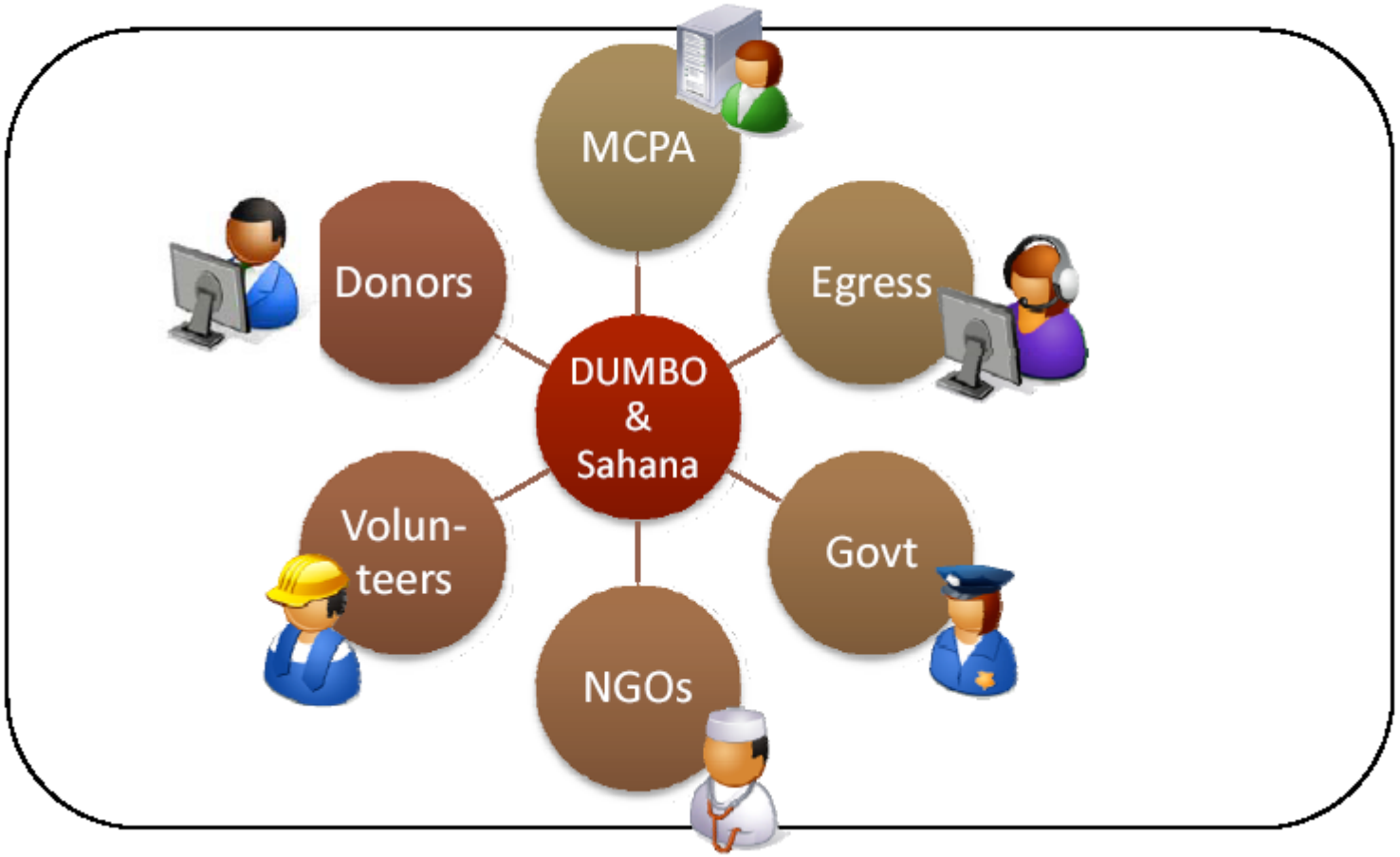
DUMBO-MM

June 15, 2008
Number of sites : 4

-ME office in Yangon
-Yangon's warehouse
-Pyaephyokyaw in Yangon
-Pyar Pon

How they view us?

User Diagram



www.nargisaction.org

Recommendations to IWG

- Internet Disaster Management Co-ordination Center
  - Portal site of relief orgs, useful technologies, knowhow, resources (experts and volunteers), tools as well as funding agencies
  - Shipments of equipments
  - Training of personnel for emergency networks
    - Training of the trainers
    - Support for local training

Thank You

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