

# Sahana

Engineering a sustainable ICT solution  
for disaster management

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# sustain

1. strengthen or support physically or mentally

- cause to continue or be prolonged for an extended period or without interruption
- bear without breaking or falling

2. undergo or suffer (something unpleasant, esp. an injury)

# Sahana Phase I

Following the 26 Dec. 2004 tsunami

- Developed on the fly over 3-4 weeks
- Over 80 programmers, including volunteers
- Led by Lanka Software Foundation
- Designed to meet immediate needs
- Over 26,000 families tracked

# Sahana Requirements

- Operating system – has been run on various forms of Unix (Linux, BSD, Mac OS X) and Windows platforms
- Core requirements
  - Apache web server
  - MySQL database
  - PHP scripting

# Sahana Phase I Modules

Tsunami impacts drove development  
of four key modules

- People registry
- Organisation registry
- Camp management system
- Request/assistance management system

# Modules (in development)

- Alerts/messaging
- Child protection system
- Data import/export
- Disaster impact assessment
- Intelligence/information
- Inventory/supply chain/logistics
- Response/rescue team management
- Volunteer co-ordination

# Capabilities (in development)

- Mapping, GIS and GPS integration
- Biometrics
- Interoperability standards
- Integration with existing paper-based forms
- PDA applications for field work
- Standalone, networked and Internet-connected operating modes
- Synchronisation between interoperable servers and devices

# Sahana & Digital Earth

- Geospatial framework is currently in planning stage
- Utilise OpenGIS Consortium standards (WMS, WFS, CAT, SFS)
- Eventually utilise Digital Earth applications such as NASA World Wind
- Two key elements
  - Sahana information
  - Fundamental layers

# Sahana Deployments

- Official deployments
  - Sri Lanka tsunami, 2005
  - Pakistan earthquake, 2005
  - Philippines mudslide, 2006
- Unofficial deployments
  - Indonesia, 2006
    - Yogyakarta
    - Mt Merapi

# Sustainable Solutions

- Application – access to source code, development philosophy and licensing
- Data – storage, interoperability and discovery
- Project Management – governance, funding, structures, people, relationships, engagement and communication

# Proprietary Software

- No/restricted access to source code
- Single commercial vendor
- Requires purchase
- Licence generally restricts usage and deployment
- Difficult to customise

# The Sahana Project

Support tool designed to sustain communities impacted by events beyond their capacity to cope

- Share-and-share-alike ethos
- Source code is available
- Free to use
- No licensing costs

# Free and Open Source Software (FOSS)

*“When programmers can read, redistribute, and modify the source code for a piece of software, the software evolves. People improve it, people adapt it, people fix bugs. And this can happen at a speed that, if one is used to the slow pace of conventional software development, seems astonishing.”*

From the Open Source Initiative  
<http://www.opensource.org/>

# Benefits of FOSS (1/2)

- **Source code access**
- Low barrier to entry
- Increased evolution
- Network effect
- Transparency

# Benefits of FOSS (2/2)

- Leveraging previous work
- Integration with existing systems
- Local economy benefits
- Shared development

# Feb. 2004 Flood Event

## Observations and Recommendations from the Reid Report

- Development of a single, consolidated mapping GIS
- Development of systems that support single data entry
- Few examples of agencies sharing and integrating data
- Lack of awareness of databases and spatial information available

# Interoperability Benefits

- Access to data stored in proprietary formats or databases
- Utilise data using the most appropriate tool
- Data 'suffers' network effects
- Notification and aggregation of content
- Discovery of publicly accessible data

# Standards in Sahana

- OASIS – OpenDocument, Common Alerting Protocol, Emergency Data Exchange Language
- OGC – Geography Markup Language, Web Feature Service, Web Map Service, Catalogue Service, Simple Feature Access 2
- Misc. – People Finder Interchange Format, GPS Exchange Format, Really Simple Syndication, Atom & GeoRSS

# Maintaining Project Momentum

- Domain experience
- Volunteer direction
- Communication and awareness
- Strategic management

# Key Challenges

- FOSS is not well understood
- Limited access to fundamental public data
- Lack of funding
- Failure to engage

# Contact

Sahana Project

<http://www.sahana.lk/>

New Zealand Open Source Society

<http://www.nzoss.org.nz/>

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