



# Humanitarian FOSS: A Case Study on Disaster Management

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

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# Overview

- **Case study on the Sahana Project**
- **The natural alignment of FOSS to the disaster management domain**
- **Sahana future direction (Phase II)**

# Historic Trigger: The Asian Tsunami 2004

- **26 December 2004, 0058 GMT**
  - **Magnitude 9** earthquake
    - A force = **23,000** hiroshima atomic bombs
  - Few hours later..
    - Tsunami waves devastate coastal areas of mainly **Indonesia, Sri Lanka, Thailand** and **India**



# The Magnitude of this Humanitarian Disaster

- At least **226,000 dead**
- Up to **5 million** people lost homes, or access to food and water
- **1 million** people left without a means to make a living
- At least **\$7.5 billion** in the cost of damages



# How Could IT Help?

- Help find missing people **quickly** in the chaos
- Ensure every single person is being **accounted** for and tracked
- Help **prioritize** relief response to the critically affected



# How Could IT Help?

- **Connect** donors, volunteers, NGOs, gov orgs to enable them to operate as one
- Help **balance the distribution** of aid and supplies
- **Transparency** of relief effort



IT helps manage the scale of the disaster

# How Did IT Help? Sahana Project

## A collection of FOSS Web applications:

Sahana Main Page - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://relief.cno.gov.lk/

Centre for National Operations  
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**CNO Data Center**

Click [here](#) for the CNO Homepage.

Welcome to Sahana, a web application that hosts a number of services for the needy and for those who want to assist in easing the burden of those affected.

If you are not a registered organization/user please **register** to start using the facilities provided through Sahana.

- » Sahana Organization Registry
- » Sahana Request Management System
- » Sahana People Registry
- » Sahana Camp Registry
- » Sahana Assistance Database

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Software Developed Collaboratively by the Sri Lankan ICT Industry. Contributors include (in alphabetical order): Eurocenter, Finder2000, hSenid, IBM, ICTA, JKCS, LKLU, LSF, Sri Lanka Telecom, UCSC, Univ. of Moratuwa, and Virtusa.



- **People Registry**
- **Organization Registry**
- **Request / Assistance Management System**
- **Camp registry**
- **Reports and Statistics**

http://relief.cno.gov.lk/mambo/ - Mozilla Firefox

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http://relief.cno.gov.lk/mambo/index.php?option=com\_report&step=0

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Search for people!

[Sahana home page](#)  
[People registry home page](#)  
[Report a missing person](#)  
[Important links](#)  
[Statistics and charts](#)  
[Confused? See the FAQ](#)

## Report a Missing Person

- Please enter all available details of the person
- All fields below are optional
- If you need assistance please call this hotline xxx-xxxx-xxx

Name:

Other names:

Gender:

Date of birth (yyyy-mm-dd):

Age:  OR

Image:

National ID number:

Passport number:

Marital status:

Religion:

Race:

Done

**The People Registry helps track and find missing, deceased, injured and displaced people and families**




Sahana Organization Registry :: Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://relief.cno.gov.lk/orgreg/Search\_org.jsp

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**ORGANIZATION REGISTRY**

Organization Name	Organization Address	Organization Contact Number	Organization Email Address	Country of Origin	Facilities available	Working
Action Contre	410/35, Baudhdhaloka Mawatha, Colombo - 07.	011-2674285,0777-421418	acf@sri.lanka.net	France	Agricultural tool kits, Income generation kits (mason, carpenter, fishung kits), rehabilitation and claining of wells and of most v latrines.	Action A
Adventist Relief Agency	37, Purana Road, Wategedara, Maharagama.	011-2841940,0777-517780	alanwright@sltnet.lk	Denmark	Care of victims of torture & Severe trauma	Victims o
Agency for Technical Cooperation and Development	33, rue godot de Mauroy 75009 Paris	0033 1 42 65 33 33	paris@acted.org	France		
Aid 24/Hungarian Baptist Aid	HU-2481 Velence Szabolcsi ut 3.	0776-940-489	ferenc@hbaid.org	Hungary		orphan / reconstru
Aide Medicale Internationale (AMI)	119 rue des amandiers, 75020 Paris, France. In Sri lanka, AMI stays in Colombo 7 area	077 69 25 148	missionexplo@amifrance.org	France		Health si and medic institution
alisei	P.zza F. Filzi, 3 Milan, Italy	0776959038	nfemergenza@alisei.org	Italy	funds for relief work	Galle, Tr
ALL CEYLON HINDU CONGRESS	NO 91/5, SIR CHITTAMPALAM GARDINER MAWATHA COLOMBO 2.	2434990 or 0712723456	neela@sri.lanka.net	Sri Lanka	SOCIAL & HUMANITARIAN SERVICE PROJECTS FOR SOCIAL DEVELOPMENT	1.ALL AS
Alliance Development	24, Ebenezer					

Done

**The Organization Registry helps maintain data (contact, services, region, etc) of authorized donor and coordinating organizations in the disaster**


Sahana :: Mozilla Firefox

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http://relief.cno.gov.lk/erms/Search\_Request.jsp

capture in windows

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**REQUEST MANAGEMENT SYSTEM**

**Add Request** **Log off**

**SEARCH REQUEST**

**Organization : Lanka Software Foundation User : sanjiva Date : 2005-01-16**

Organization: <select>  
 Requester Name:   
 Site Name:   
 Site District: Hambantota  
 Site Area:   
 Category: <select>  
 Item:   
 Priority: <select>  
 Status: <select>

ITEM	UNIT	QUANTITY	PRIORITY	STATUS	SITE DISTRICT	SITE AREA	SITE NAME	CATEGORY
blue shorts - age 6-10	units	175	2	Open	HAM	Tissamaharama	Yodhakandiye Refugee Camp	11
white shirtsq - age 6-10	units	175	2	Open	HAM	Tissamaharama	Yodhakandiye Refugee Camp	11
shoes and socks (boys) - age 6-10	units	175	2	Open	HAM	Tissamaharama	Yodhakandiye Refugee Camp	11
white girls uniforms - age 6-10	units	150	2	Open	HAM	Tissamaharama	Yodhakandiye Refugee Camp	11

shoes and socks (gi  
Transferring data fr


**The Request Management System tracks all requests and helps match pledges for support, aid and supplies to fulfilment**

Sahana :: - Mozilla Firefox

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http://relief.cno.gov.lk/campdb/SearchCamps.jsp

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**CAMP REGISTRY**

[Add Camp](#) [Log off](#)

**SEARCH CAMPS**

Camp Name :

Province :

District :

Division :

Camp Name	Area	Province	District	Comment	Edit
<a href="#">Subodharama Temple</a>		Western Province	Colombo		<a href="#">Edit Subodharama Temple</a>
<a href="#">Sri Mahabodhi Viharaya</a>		Western Province	Colombo		<a href="#">Edit Sri Mahabodhi Viharaya</a>
<a href="#">St. Mary's College</a>		Western Province	Colombo		<a href="#">Edit St. Mary's College</a>
<a href="#">Vidyananda Pirevina</a>		Western Province	Colombo		<a href="#">Edit Vidyananda Pirevina</a>
<a href="#">Tamil School, Dehiwela</a>		Western Province	Colombo		<a href="#">Edit Tamil School, Dehiwela</a>
<a href="#">Avaramola Viharaya</a>		Western Province	Colombo		<a href="#">Edit Avaramola Viharaya</a>
<a href="#">Marian Drive Private Building</a>		Western Province	Colombo		<a href="#">Edit Marian Drive Private Building</a>
<a href="#">Bambalapitiya Railway Station</a>		Western Province	Colombo		<a href="#">Edit Bambalapitiya Railway Station</a>
<a href="#">Colpitiya Railway Station</a>		Western Province	Colombo		<a href="#">Edit Colpitiya Railway Station</a>
<a href="#">St. John's College</a>		Western Province	Colombo		<a href="#">Edit St. John's College</a>
<a href="#">Rasik Fareed College</a>					
<a href="#">St. Maria College</a>					

Transferring data from relief.cno.gov.lk...

**The Camp Registry helps track data on all temporary shelters setup following the Disaster**

# Why is FOSS the Natural Choice?

- **Many countries cannot afford or do not invest**
  - Budgeting for disaster management when no disaster is present
  - Not a commercially lucrative product domain
- **World IT community are keen volunteers**
  - “Good will” opportunity to alleviate suffering using IT
  - Shared global ownership
- **No restrictions to deploy and modify**
  - No royalties, license costs, etc
- **Open system => Transparent and trustworthy**
  - No proprietary “hidden” code
  - Adherence to open standards
- **Rapid integration requirements requires source code**

# Crisis Mode: Sahana Phase I Results

- **Implementation:**
  - By 80+ volunteers in 3-4 weeks
- **Used as official data center by:**
  - Center of National Operation, Sri Lanka
  - CHA (NGO coordination authority), Sri Lanka
- **Usage (in Sri Lanka)**
  - 26,000+ families tracked in people registry
  - Most donor/NPO organizations registered
  - Request M.S. used by CHA
- **Response**
  - Redhat Summit Award, ICTA Awards
  - Positive response (IBM, Intel, NGOs, etc)
  - Interest from humanitarian and DM experts

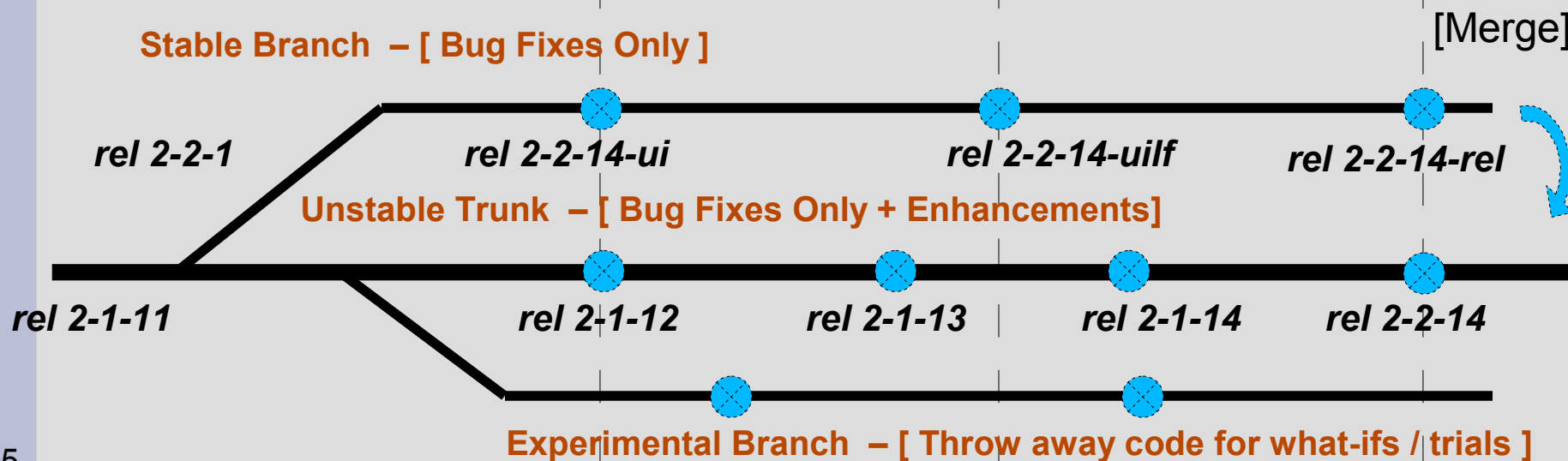
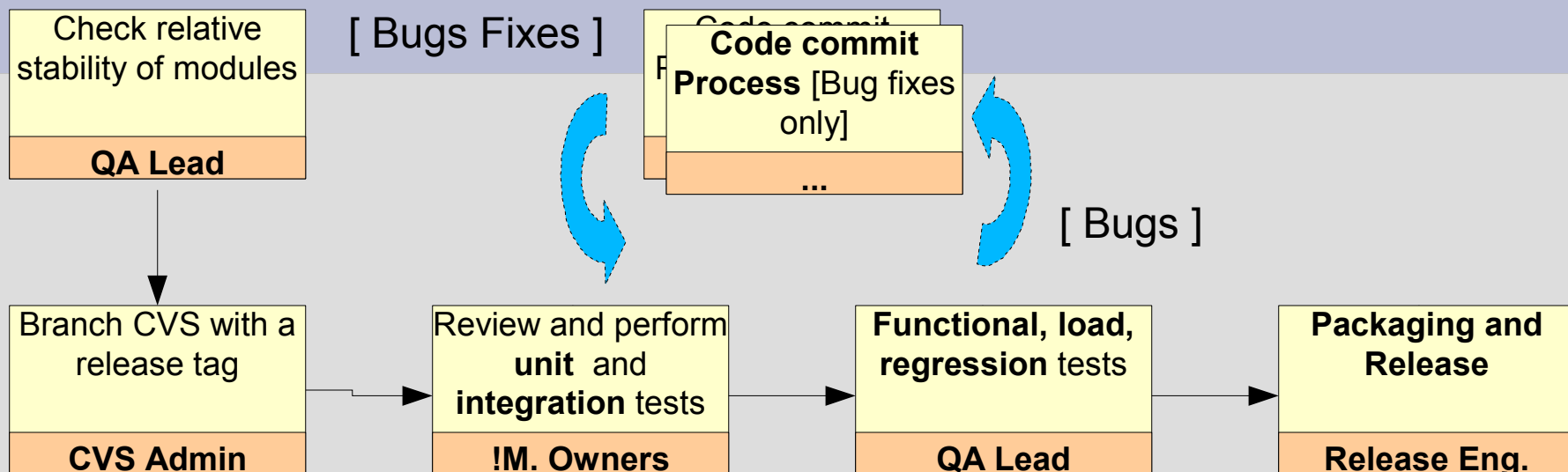
# Crisis Mode: Sahana Phase I Challenges

- **Reusability and extendability of system was compromised for the sake of meeting the “live” requirement deadlines**
  - Chaotic development cycles
  - Dual LAMP(PHP/Mambo), LAM-Java stacks
  - Not scalable

## **Phase II Solutions**

- Simple configuration management and release process
- Strict LAMP (PHP) adherence in terms of scalability

# Release Process



# Crisis Mode: Sahana Phase I Challenges

- **Managing 80+ volunteers and a real requirement, hard deadlines + stability**
  - Not easy!

## **Phase II Solutions**

- Hybrid development model with the community supported by a sponsored core team
- Core team assures the stability of the code base, adherence to community agreed standards + packaging and publishing



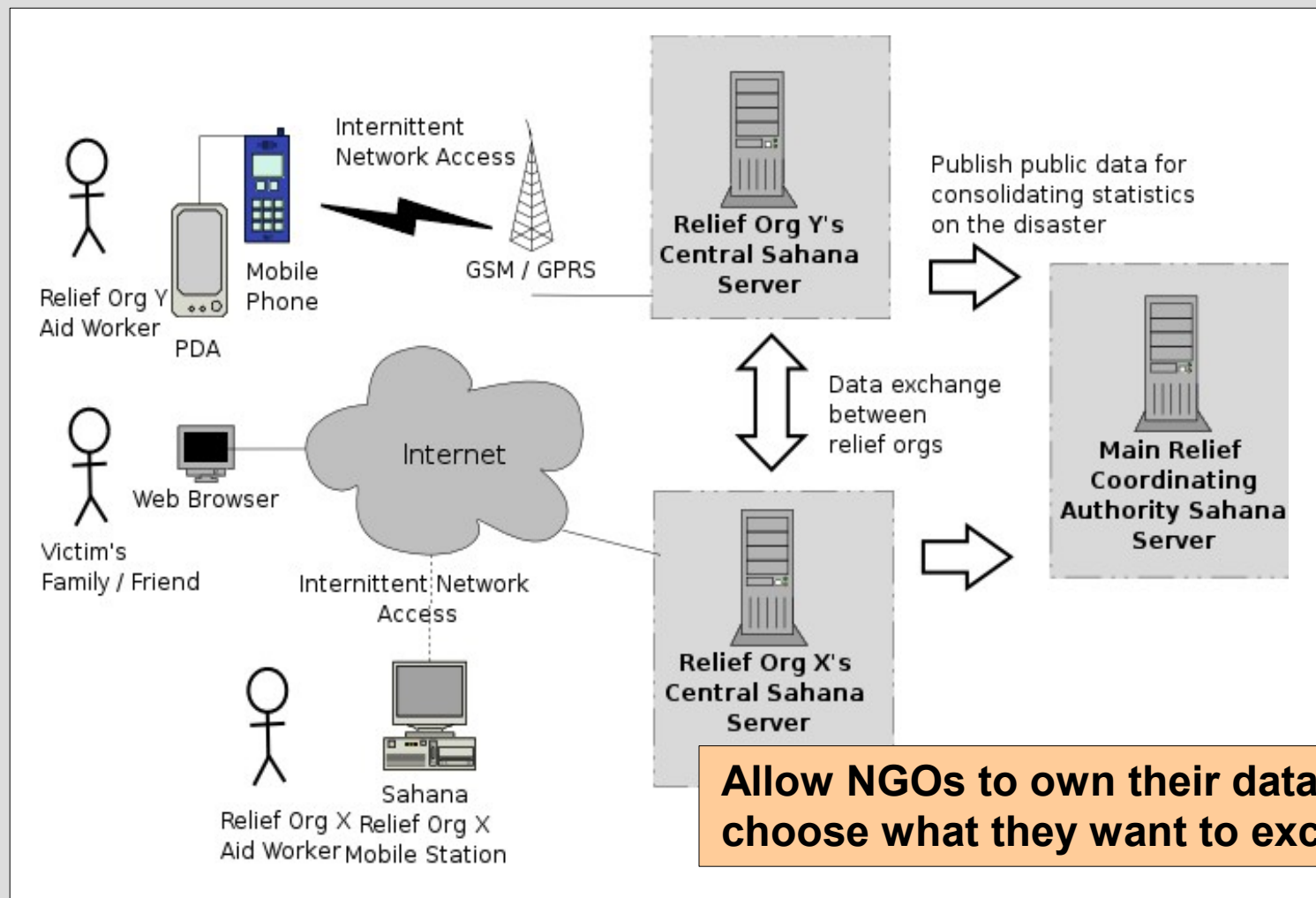
# Crisis Mode: Sahana Phase I Challenges

- **Privacy of Data**
  - NGOs default is to keep data private
  - Risks of data abuse (e.g. identity theft)

## Phase II Solutions

- All Sahana to decentralize data ownership ( P2P data exchange )
- Authorized data exchange
- Data encryption on storage

# Deployment Vision



# Sahana Project: Status Today

- **Code released as FOSS on sourceforge**
  - <http://sahana.sourceforge.net> (GPL)
  - Adhering to all 4 levels of freedom
- **Structure to chaos with a core team**
  - Hybrid FOSS development model. A simple version of Mozilla-Firefox
  - Sponsored core development team by LSF with SIDA backing (5 developers)
- **Sahana Phase II has just started..**

# Sahana Project: Status Today

- **Global community on Humanitarian-FOSS**
  - 30 member EM and Humanitarian Consultants/Experts, FOSS contributors
  - <http://www.iosn.net/foss/humanitarian>
- **Main Domain Contributors**
  - **Paul Currion (UK)** : Interagency Working Group on Emergency Capacity (IWG). Information management consultant for humanitarian operations, UN WFP consultant
  - **Don Cameron (Australia)** : Regional officer NSW Fire Services, Emergency Management (NSW Police Academy)
  - **Gavin ThreadGold (New Zealand)** :Risk and Emergency Management Expert. Director of Kestrel
  - **Tom Worthing (Australia)** :Experience with disaster management in the defense background with a found on usable and efficient web interfaces

# Sahana Phase II Objectives

- **Generalize** the system to handle any disaster situation and target it for global use
  - I18N/L10N, Usability, Terminology, Configurability, LiveCD deployment
- **Target NGOs primarily, then Gov**
  - Budget constraints
- **Accomodate for distributed data ownership**
  - Give choice in data privacy and ownership
- **Overhaul all modules (LAMP) + introduce**
  - Camp Management, Request/Assistance trading, Damage database, Mobility, etc
- **Adhere to Humanitarian and E.M. Standards**
  - Promote interop with existing systems

# Contributing.. Join Us!

- **As a FOSS project everyone is welcome to contribute :-)**
  - Contribute to domain requirements
    - [humanitarian-ict@yahogroups.com](mailto:humanitarian-ict@yahogroups.com)
  - Contribute to Sahana development
    - <http://www.sourceforge.net/projects/sahana>
  - Contribute by promoting consolidation
    - <http://www.iosn.net/foss/humanitarian>
  - Contribute just by using it and giving us feedback

# Thank You

**Any Questions  
or Feedback?**

# Appendix



# Guiding Principles in Implementation

We aspire to help:

- Ensure all disaster victims are **tracked** and their needs **accounted** for
- Maximize the use of funds to the **end-victims**
- Bring about **efficiencies** in the response effort
- Protect the **privacy** of data and reduce data abuse
- Reduce data redundancy and improve **data validity**
- Provide a degree of **transparency** to the relief effort
- Adhere to **standards** in humanitarian and emergency management domain

We provide the tools to support NGOs/Orgs

# Sahana Phase II Modules

- **Strict LAMP implementation**
- **Overhaul of:**
  - People Reg, Org Reg, Reports
- **Camps management system ( vs Camps Reg)**
  - To help manage all aspects of refugees in camps
- **Assistance / Request Managemnt system**
  - To keep track of offers of assistance and trade with requests
- **Damage database**
  - To record damage for various purposes
- **Volunteer coordination system**
  - To help coordinate well-intentioned volunteers
- **Mobile station and mobile device access**
  - Access in the field with mobile information / data entry