Lives on the Line

Securing Crisis Maps in Libya, Sudan, and Pakistan

DEFCON 19 - 2011

george chamales - rogue genius llc

The Humanitarian Technology Community needs your help.

CRISIS



Aid

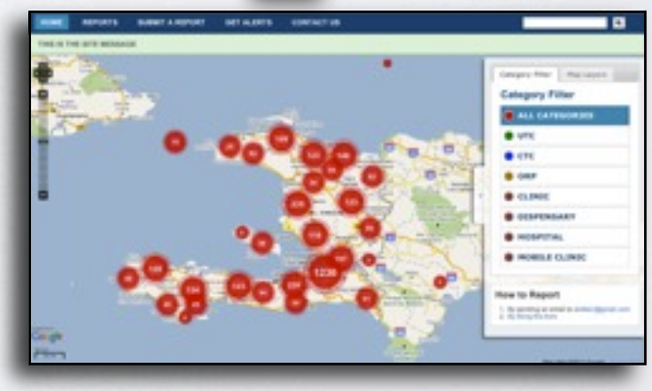
Aid

Aid

Information

UNITED STATES AGENCY
USAID
OCHA
FEDERAL EMERGENCY MANAGEMENT AGENCY
PACE AC BELLO MERITA

Reports



Crisis Mapping Platform

Text

HAITI

http://news.bbc.co.uk/2/hi/8460574.stm

Demande aide 4636
je suis perdu enbas
une maison 2 etage
no 147 av christophe
chanel cafour

I'm asking for help. I
am lost beneath a
house. Second Floor
147 Avenue Christophe
Chanel Carrefour

MISSION 4636

Natural Disasters Don't Shoot Back

http://southallpakistanfloodsappeal.org/2010/08/24/urgent-appeal-for-pakistan-floods/ss-100730-pakistan-flood-05_ss_full/



http://southallpakistanfloodsappeal.org/2010/08/24/urgent-appeal-for-pakistan-floods/ss-100730-pakistan-flood-05_ss_full/

WHAT YOU SEE ABOUT FLOODS

SMS TO 3441

{ FL + Your Message + Exact Location }

SHARE | English (US) | SUBMIT A REPORT

HOME | REPORTS | BLOG | SUBMIT A REPORT | GET ALERTS | ABOUT US | VOLUNTEE

FILTERS → REPORTS | NEWS | PICTURES | VIDEO | ALL



CATEGORY FILT

ALL CAT
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HOW TO R

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submit@pak
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3. Calling 021 3
a voice mess
4. Sending SMS
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Taliban issues threat to 'foreign horde' of aid workers in Pakistan helping flood relief effort

By JAMES WHITE

Last updated at 5:28 PM on 27th August 2010

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Foreign aid workers could become a target for Taliban fighters as they help Pakistani flood victims, a spokesman for the militant group claimed today.

As increasing numbers of aid agencies fly into the disaster-hit country to offer assistance spokesman Azam Tariq said the 'horde of foreigners' could be at risk.

The terrorist group has a history of attacking aid workers, including agencies under the UN umbrella.

Pakistani Taliban spokesman Tariq claimed that the U.S. and other countries that have pledged support are not really focused on providing aid to flood victims but have other motives he did not specify.

'Behind the scenes they have certain intentions, but on the face they are talking of relief and help,' he said.

'No relief is reaching the affected people, and when the victims are not receiving help, then this horde of foreigners is not acceptable to us at all.'

UN humanitarian chief John Holmes said it remains committed to helping flood victims in Pakistan.



Threat: Pakistan Taliban spokesman Azam Tariq, pictured in 2002, has spoken of his group's

17 JUNE

4 JULY

CLUSTER OF WHITE OBJECTS
CONSISTENT WITH REPORTS OF BODY BAGS

LIGHT VEHICLES

SUDAN

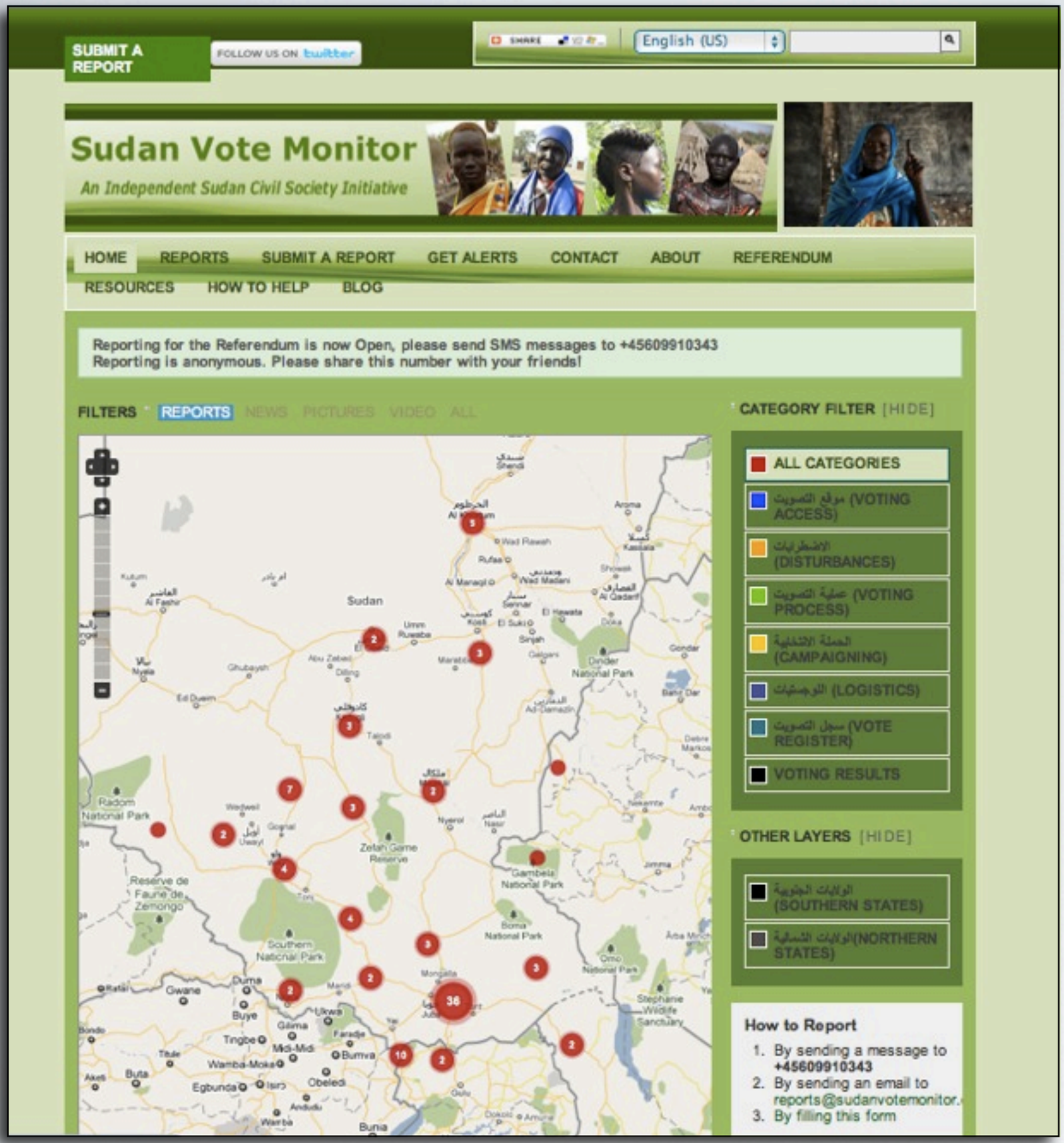
Satellite Sentinel Project

Harvard Humanitarian Initiative

enough

COMPARISION: 17 JUNE - 4 JULY 2011 | FIG 4
OBJECT CLUSTER IN KADUGLI TOWN | KADUGLI, SOUTH KORDOFAN

http://www.satsentinel.org/sites/default/files/SSP%2016%20Final%20Smaller.pdf



Obviously
Faked Reports

Site Blocked
by IP address

Inadvertent
Spam DOS



LIBYA

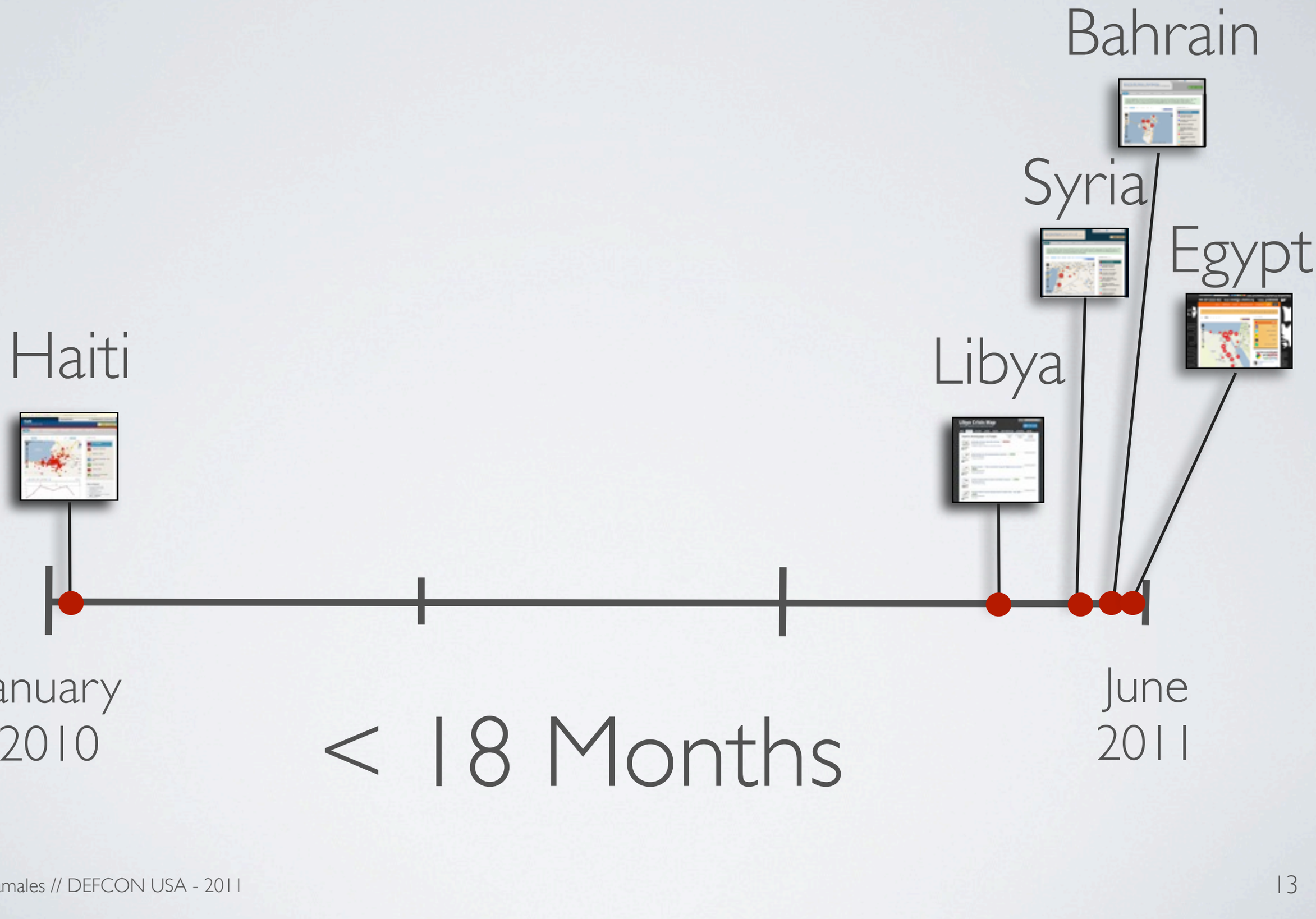
http://warincontext.org/2011/03/08/the-fight-for-libya-6/



Protecting Observers

Verifying Information

Trusting Volunteer Analysts


Bahrain
Syria
Egypt
Libya
Haiti
January
2010
< 18 Months
June
2011



http://twitter.com/#!/JosetteSheeran/status/44358346014334976



"We gave Egyptian National Security a dedicated username and password [to access the Ushahidi platform]"

http://irevolution.net/2011/05/25/u-shahid-interviews/



"Ooh Shiny!"

"Oh $#!@!"

"Don't just stand there,
DO SOMETHING!"

Users' Identities Compromised → People Arrested

Site Knocked Offline → Lifeline Lost

Deployment Compromised → Technology Abandoned

This is where you come in

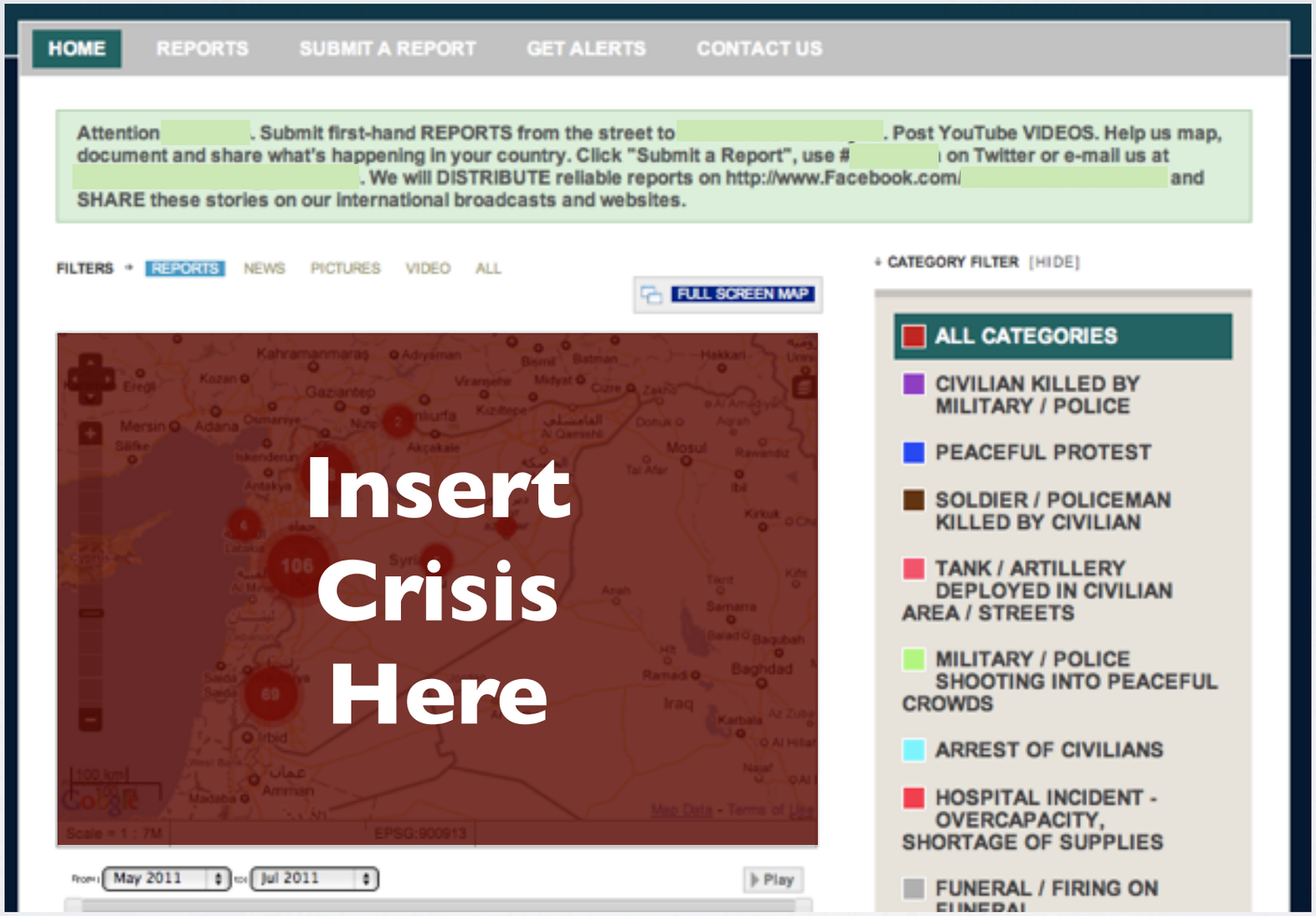
http://southallpakistanfloodsappeal.org/2010/08/24/urgent-appeal-for-pakistan-floods/ss-100730-pakistan-flood-05_ss_full/

Present What's Been Done So Far

Feedback on Current Best Practices

Generate Interest in the Security Community

LIVE SIMULATION



There has just been a _____ in the country of _____.

As a team from _____ we are responsible for deploying a crisis map in order to _____.

There has just been a _____

REVOLUTION

NATURAL DISASTER

MILITARY CRACKDOWN

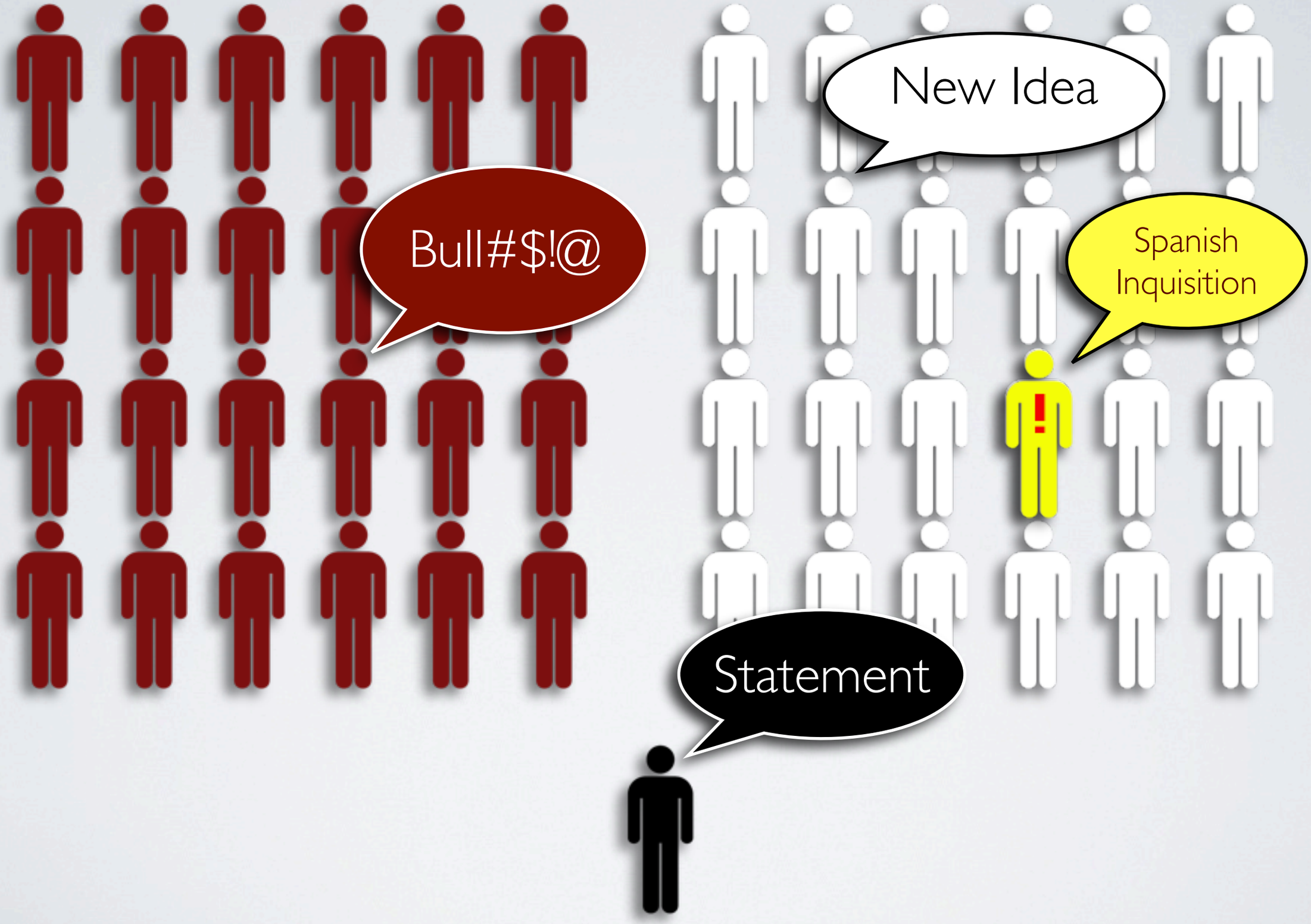
CONTESTED ELECTION

OUTBREAK OF SECTARIAN VIOLENCE

...in the country of _____



http://upload.wikimedia.org/wikipedia/commons/0/09/BlankMap-World-v2.png


Bull#$!@
New Idea
Spanish Inquisition
Statement

...as a team from the _____



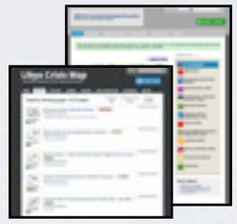
Individual



Local NGO



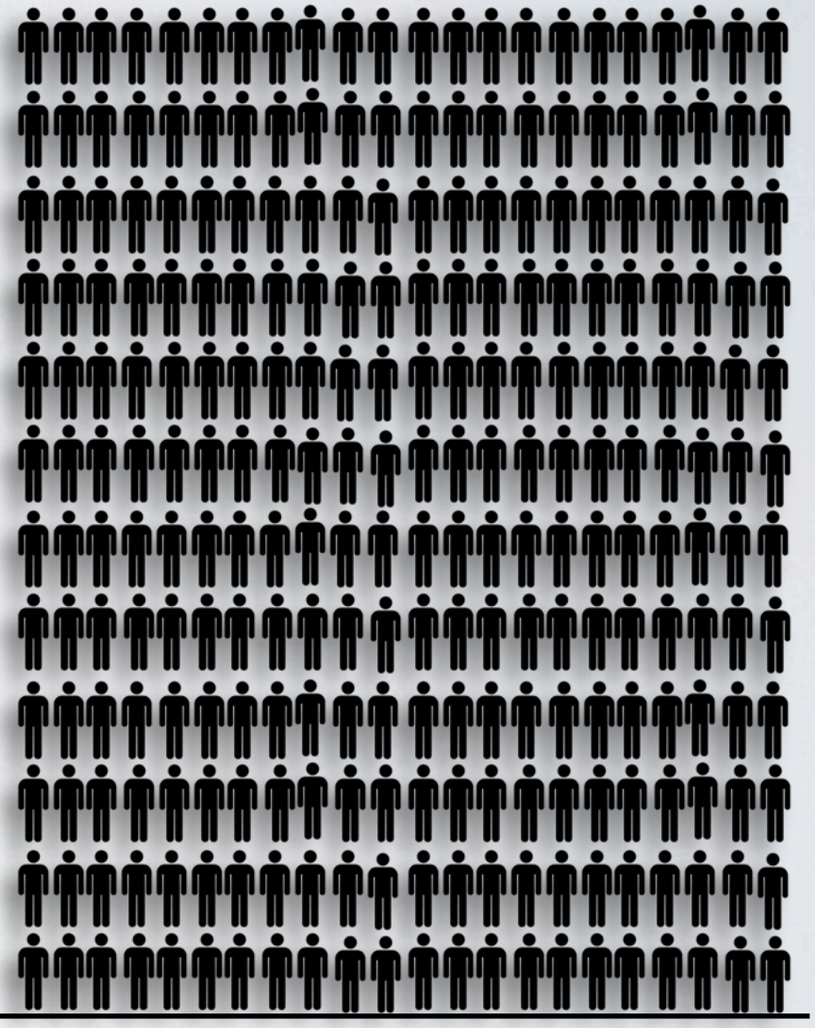
Media Org



International NGO



Military



ON THE GROUND

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Committee to Protect Journalists

Defending Journalists Worldwide

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- Protest Letters
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- Killed in 2011
- Imprisoned
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Bahraini blogger dies in custody; journalists under attack



Newspaper headlines
Al-Wasat. (Reuters)

New York, April 12, 2011-- The
to launch an immediate and tho
custody. Bahraini authorities, m
against three senior editors at t
months-long pattern of violence
widespread civil unrest. CPJ docu

Iranian blogger arrested before Germany trip

AP Associated Press

AP – Mon, Jul 18, 2011

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TEHRAN, Iran (AP) — A dissident I
arrested as she prepared to leave fo
the Deutsche Welle radio station ab
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Pegah Ahangarani, 27, was arrested
prosecutor's office in Tehran. She h
after the disputed presidential elect
role in the postelection riots.

Ahangarani is the daughter of Irania
and Jamshid Ahangarani.

The investigation into her case was

Deutsche Welle said Monday it has
Ahangarani that the actress is being
prison.

The broadcaster urged Iranian auth
her.

guardian.co.uk

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Jailing Maikel Nabil betrays the Egyptian people's revolution

By unjustly imprisoning the blogger Maikel Nabil, the Egyptian army only amplifies his simplistic pro-Israel rantings



Mohammad Talat
guardian.co.uk, Sunday 24 April 2011 11.00 BST
Article history

Maikel Nabil is an Egyptian citizen and blogger who was sentenced to three years' imprisonment on 10 April by a secretive military tribunal on the dubious charge of "insulting the army". This is a grave violation of human rights and a betrayal of the objectives of the Egyptian people's revolution. His sentence must be overturned regardless of what one thinks of Nabil's writings or of his politics. Patriotism cannot be invoked to defend injustice.

http://www.cpj.org/2011/04/bahraini-blogger-dies-in-custody-journalists-under.php

http://news.yahoo.com/iranian-blogger-arrested-germany-trip-150454623.html

http://www.guardian.co.uk/commentisfree/2011/apr/24/egypt-blogger-maikel-nabil-jailed



"We gave Egyptian National Security a dedicated username and password [to access the Ushahidi platform]"

http://irevolution.net/2011/05/25/u-shahid-interviews/

Military

International NGO

Media Org

Local NGO

Individual



MOST VULNERABLE

Direct Attacks

LEAST VULNERABLE

Individual

Local NGO

Media Org

International NGO

Military



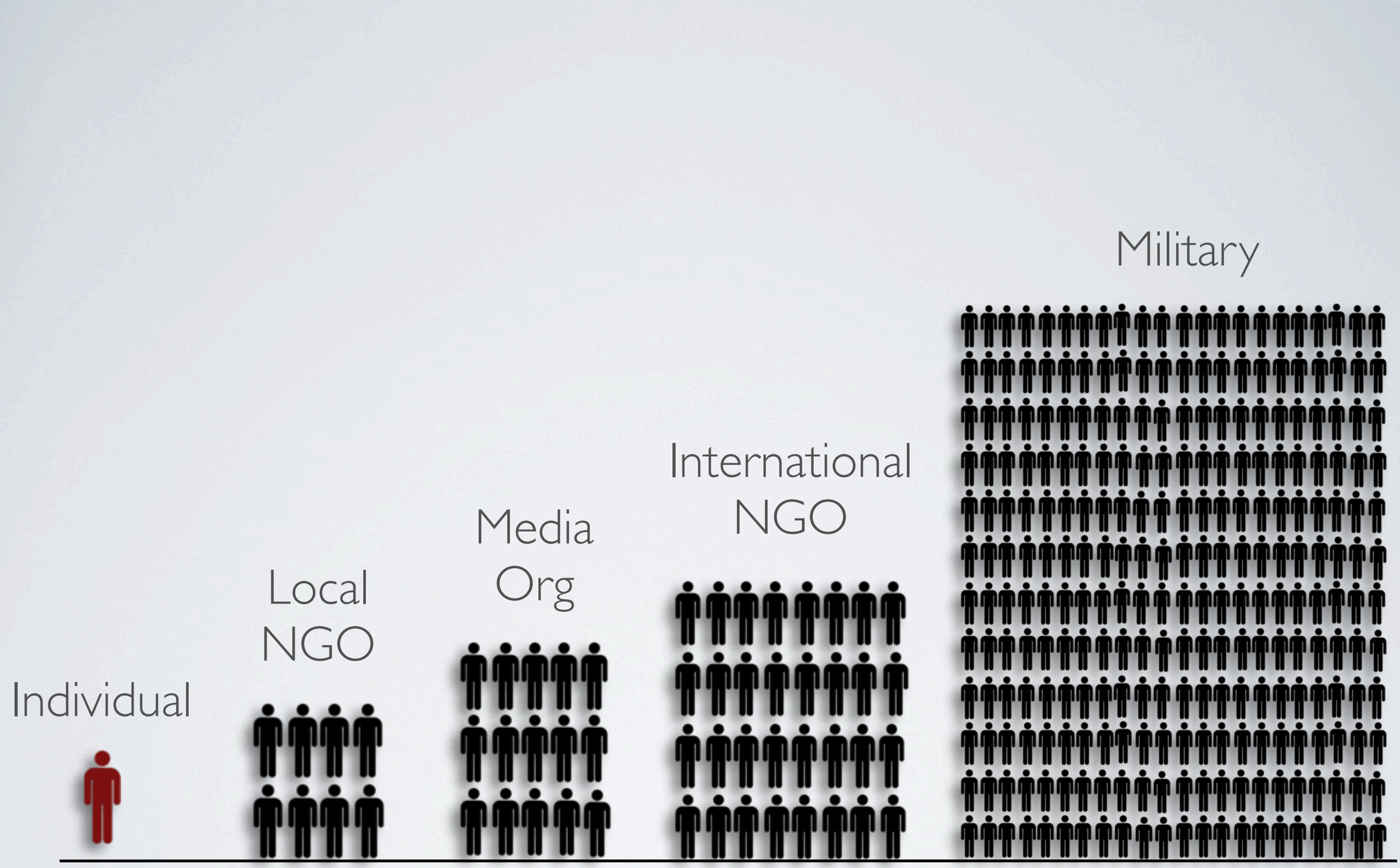
Individual

Local NGO

Media Org

International NGO

Military



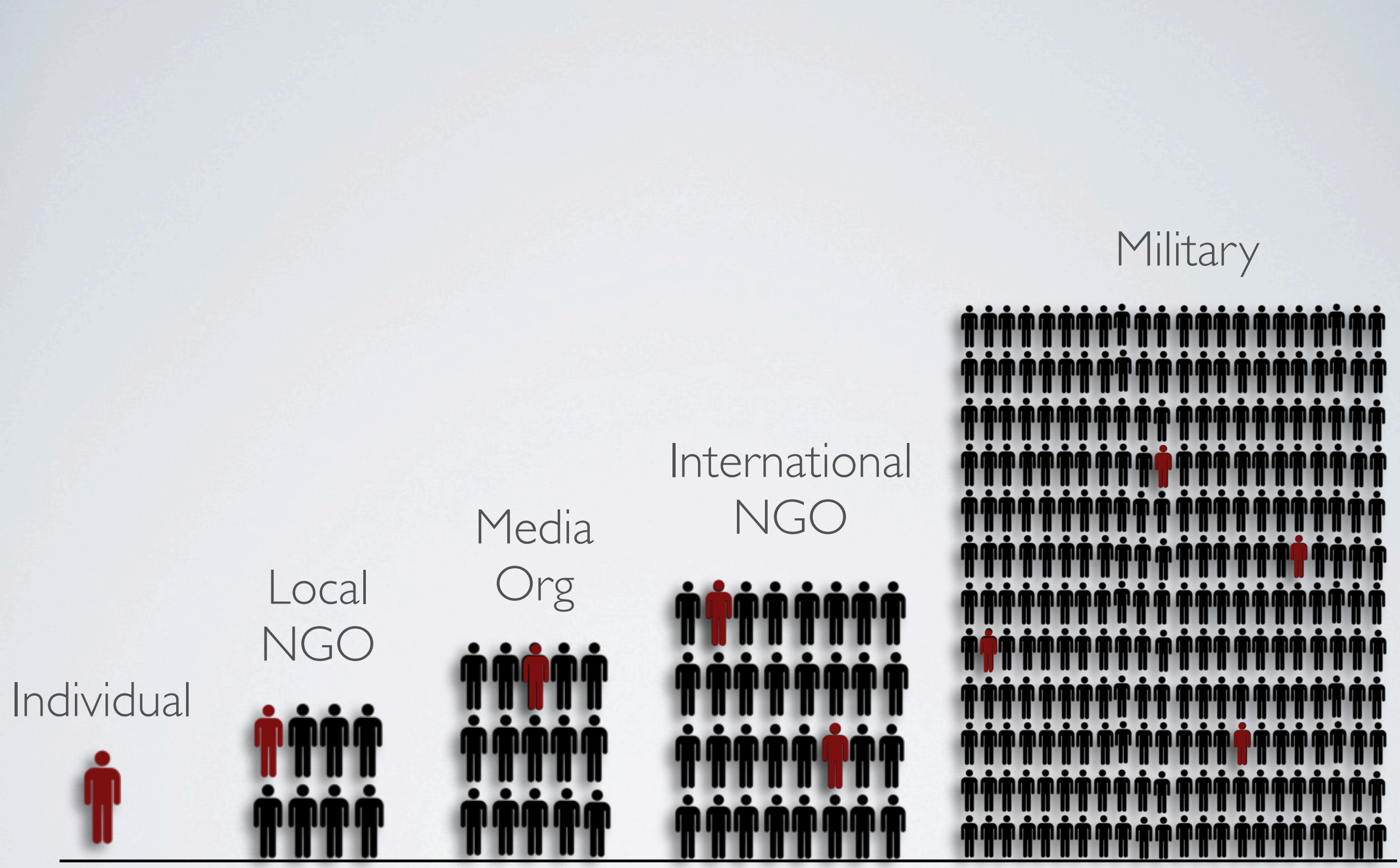
Individual

Local NGO

Media Org

International NGO

Military





TED Fellow



Colleague's Consulting



Worked on Pakreport

Reputation

Individual

Local NGO

Media Org

International NGO

Military



Isolation of Operations

Threats to Deployment Managers

Ignorance

Education
Standards
Best Practices

Direct Attacks

Anonymity
Bigger the Better

Infiltration

Reputation
Isolate Operations

...we are responsible for deploying a crisis map

Message Collection → Report Processing → Report Presentation

...we are responsible for deploying a crisis map



Code it Yourself



Open Source Crisis Mapping Apps



Kludge Existing Services


ushahidi.com
http://legacy.ushahidi.com/
Ushahidi.com
HOME
REPORT AN INCIDENT
CONTACT US
ABOUT
BLOG
HOW TO HELP
View A Timeline Of Events »
Filter By Category
ALL CATEGORIES
KIDS
DEATHS
PROPERTY LOSS
GOVERNMENT FORCES
CIVILIANS
LOOTING
RAPE
PEACE EFFORTS
INTERNALLY DISPLACED PEOPLE
GO
Submit An Incident!
Submit Via SMS
Send your SMS to 6907 on your phone (Safaricom/Celtel)
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TAGS: ALL, Riots, Deaths, Property Damage, Government Forces, Civilians, Looting, Rape, Peace
Incident
Location
Date
Description
Images
Anxiety increases in IDP Camps as supplies
Matchare
Apr 7, 2008
Food and other essential supplies are fast dwindling in the camps for Internally Displaced


SMS TO
3441
klikJKT

2008

2011

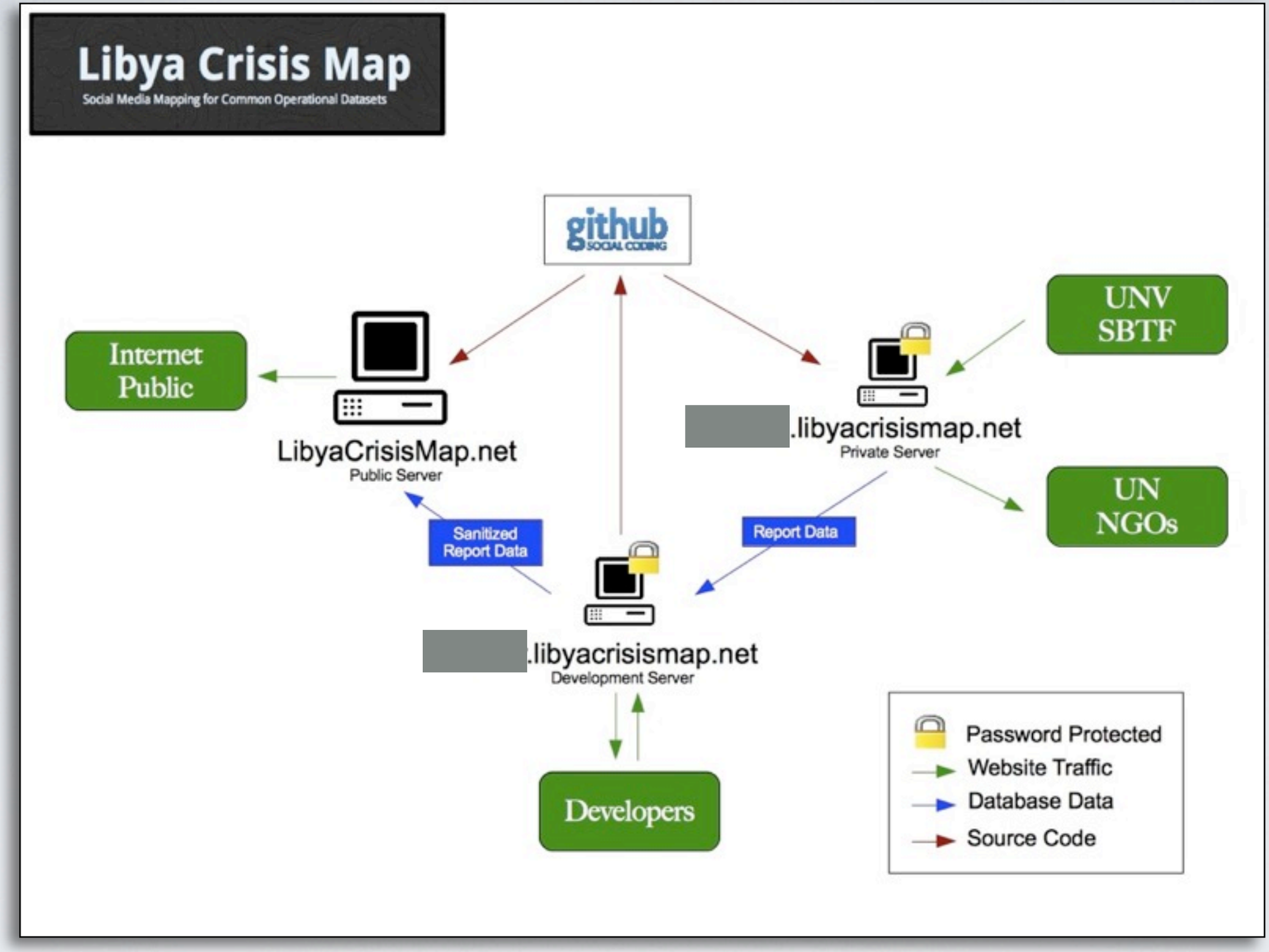
Direct URL Access

Search Leakage

Reports Listing



Reports are private until approved.....unless


Libya Crisis Map
Social Media Mapping for Common Operational Datasets
github
SOCIAL CODING
Internet
Public
LibyaCrisisMap.net
Public Server
UNV
SBTF
.libyacrisismap.net
Private Server
UN
NGOs
Sanitized
Report Data
Report Data
.libyacrisismap.net
Development Server
Developers
Password Protected
Website Traffic
Database Data
Source Code

Platform Considerations

Security

Code Vetting
Secure Coding

Adaptability

Source Access
Helpful Authors
Previous Additions

...we are responsible for <u>deploying</u> a crisis map













Local Server

Internet Server

The Cloud

Slate

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HOME / TECHNOLOGY : THE FUTURE AND WHAT TO DO ABOUT IT.

Block Like an Egyptian

How did the Egyptian government turn off the Internet?

By Christopher Beam

Posted Friday, Jan. 28, 2011, at 4:55 PM ET



As protesters take to the streets in Egypt, government has reportedly shut down the Internet. How does that work? Does Egyp Internet have an on/off switch?

No. While we don't

or anyone—can push government official c providers—Link Egyp Misr—and told them cooperated because t such a halt.) An engi of all the IP addresse addresses, thus cutti country. That doesn't

THE WALL STREET JOURNAL. Digital Network | WSJ | MARKETWATCH | BARRON'S | SMARTMONEY | ALLTHINGSD | FINS | MORE | News, Quotes, Companies, Videos | SEARCH

Wednesday, June 1, 2011 As of 12:00 AM New York 80° | 60°

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2 of 12 Ameritrade to Discuss Pursuit of E*Trade

3 of 12 Google+'s Bradley Horowitz Joins Board of Wordnik

TECHNOLOGY | JUNE 1, 2011

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IT thought leaders and end users uds built storage

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Adweek's complete coverage of Rupert Murdoch and the phone hacking scandal

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Syria Cuts the Internet Government halts connection, hoping to halt protests By Kari Lipschutz

June 04 2011 | Technology | Share 47 | Like | Tweet 13 | 0

Syria pulled the plug on the Internet. As an unwavering anti-government movement continues to demonstrate against Syrian President Bashar al-Assad, government officials blocked most of the country's Internet network, cutting off a vital

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http://www.slate.com/id/2283000/

http://www.adweek.com/news/technology/syria-cuts-internet-132245

http://online.wsj.com/article/SB10001424052702304520804576345970862420038.html#ixzz1O46A44T9

Platform Location

Observable



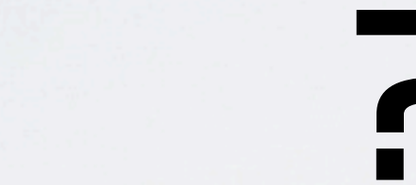
Encryption
Obfuscation

Attackable



DOS Prevention
IP Mobility
Synchronization
Expect Outages

...in order to _____.



Setup Platform

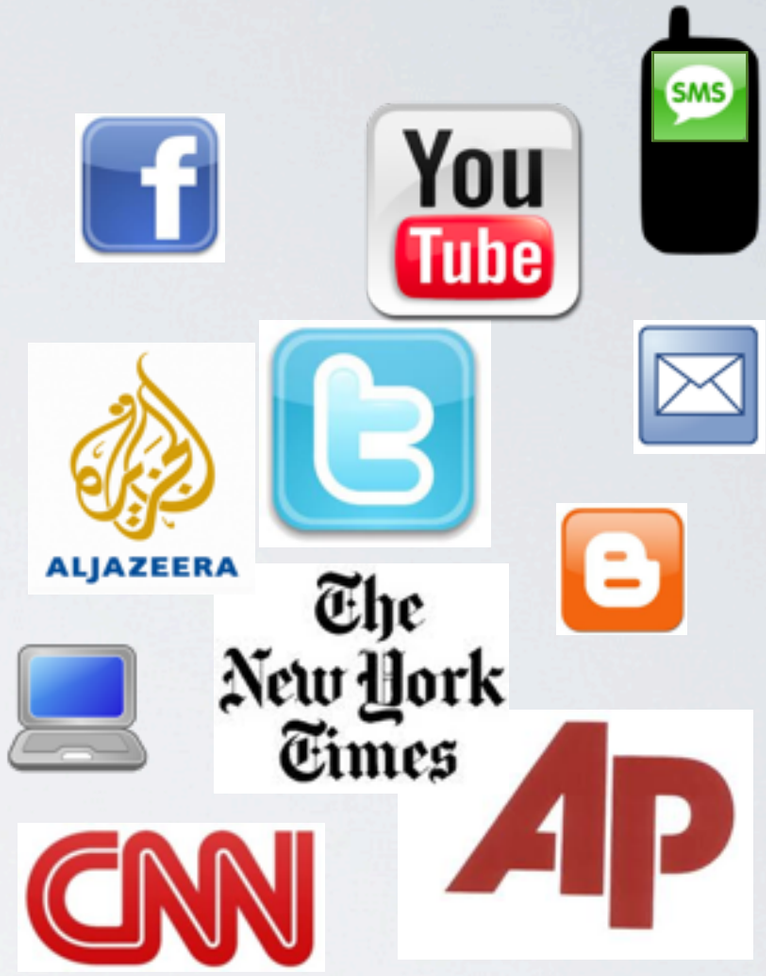
basic tech skills + server

Operate Successfully

the skills needed to perform the deployment effectively, securely

Spreading the Word





No One

Private Network

Everyone



Message Corruption

Spreading the Word

Misinterpretation



Anonymity
Bigger the Better

Corruption



Source Access
Helpful Authors

Collection Sources





Direct Messages



Social Media



Professional Media



A Gay Girl
In Damascus



A Heterosexual
Married American
Guy in Ireland

http://www.guardian.co.uk/world/2011/jun/13/syrian-lesbian-blogger-tom-macmaster

Collecting Reports

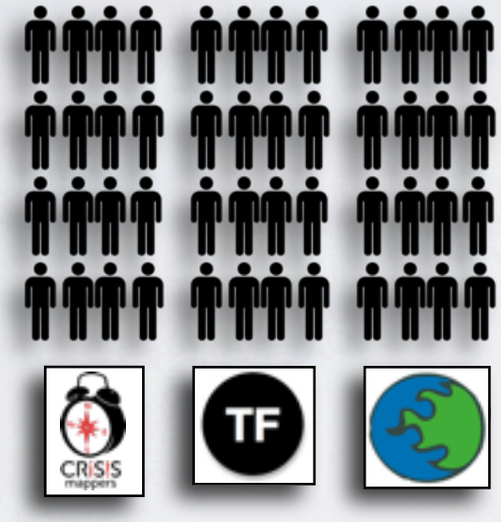
Verification

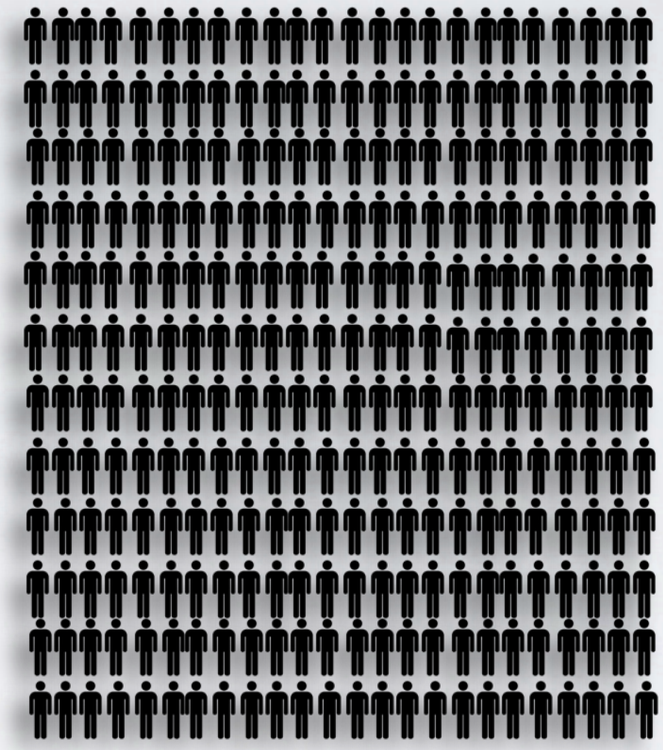
History
Reputation
Collaboration

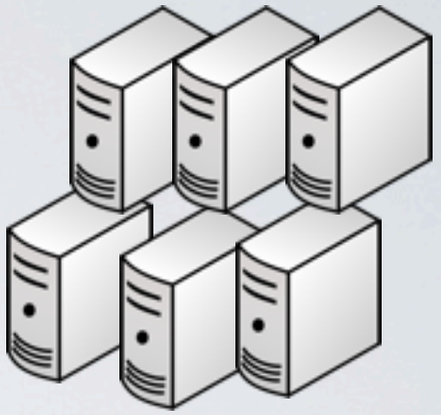
Collection

Multiple Methods
Expect Outages

Message Processing

















Local Team

Crisis Mapping Community

Any Online Volunteers

Automated Analysis

Mail Calendar **Documents** Sites Groups more » george@roguegenius.com

Google docs ☆ Libya Geolocations Anyone with the link Updated 140 days ago by r.kirk.morris Saved Share

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Formula: # Show all formulas

	A	B	C	D	E	F	G	H	I
1	#	INCIDENT TITLE	LOCATION	CATEGORY	LATITUDE	LONGITUDE	APPROVE	VERIFIED	
2	347	Economiste	: 4, Rue Abdelaziz Ethaalbi ,Äì El Menzah V Tunis	Geo-Located, Print, Other,	36.846959	10.174695	YES	YES	
3	349	Le Temps	1004 El Menzah - Tunis - Tunisie T√©l : +216 71 238 222 Fax: +216 71 232 761	Geo-Located, Print, Other,	36.846959	10.174695	YES	YES	
4	340	Nessma TV	14, Rue 8006, Monplaisir 1073, Tunis	Geo-Located, TV Stations, Other,	36.815458	10.185734	YES	YES	
5	359	Al-Chourouk	25, Rue Jean Jaures, Tunis 1000, Tunisia	Geo-Located, Print, Other,	36.80325	10.182649	YES	YES	
6	69	Health Clinic - Gasser Ben Ghashir	32.683284,13.175867	Geo-Located, Hospital Location, Other,	32.683115	13.176142	YES	NO	
7	38	HOSPITAL ,Äì Tripoli ,Äì Tripoli Medical Centre	32.854679,13.229728	Geo-Located, Hospital Location, Media News,	32.853498	13.230099	YES	NO	
8	64	Psychiatric Hospital - Tripoli	32.874938, 13.137975	Geo-Located, Hospital Location,	32.875027	13.140584	YES	NO	
9	41	HOSPITAL ,Äì Tripoli ,Äì Tripoli Central Hospital	32.880596,13.190106	Geo-Located, Hospital Location,	32.880717	13.190981	YES	NO	
10	48	HOSPITAL - Tripoli - Al Jalaa Children Hospital.	32.8851, 13.1633	Geo-Located, Hospital Location, Media News,	32.884705	13.164151	YES	NO	
11	39	HOSPITAL ,Äì Tripoli ,Äì Tripoli Eyes Hospital	32.8962,13.200803	Geo-Located, Hospital Location, Media News,	32.895103	13.201043	YES	NO	
12		Desperate refugees continue to flow to Libya's border		Geo-Located, Border Crossing, Refugees/IDPs,					

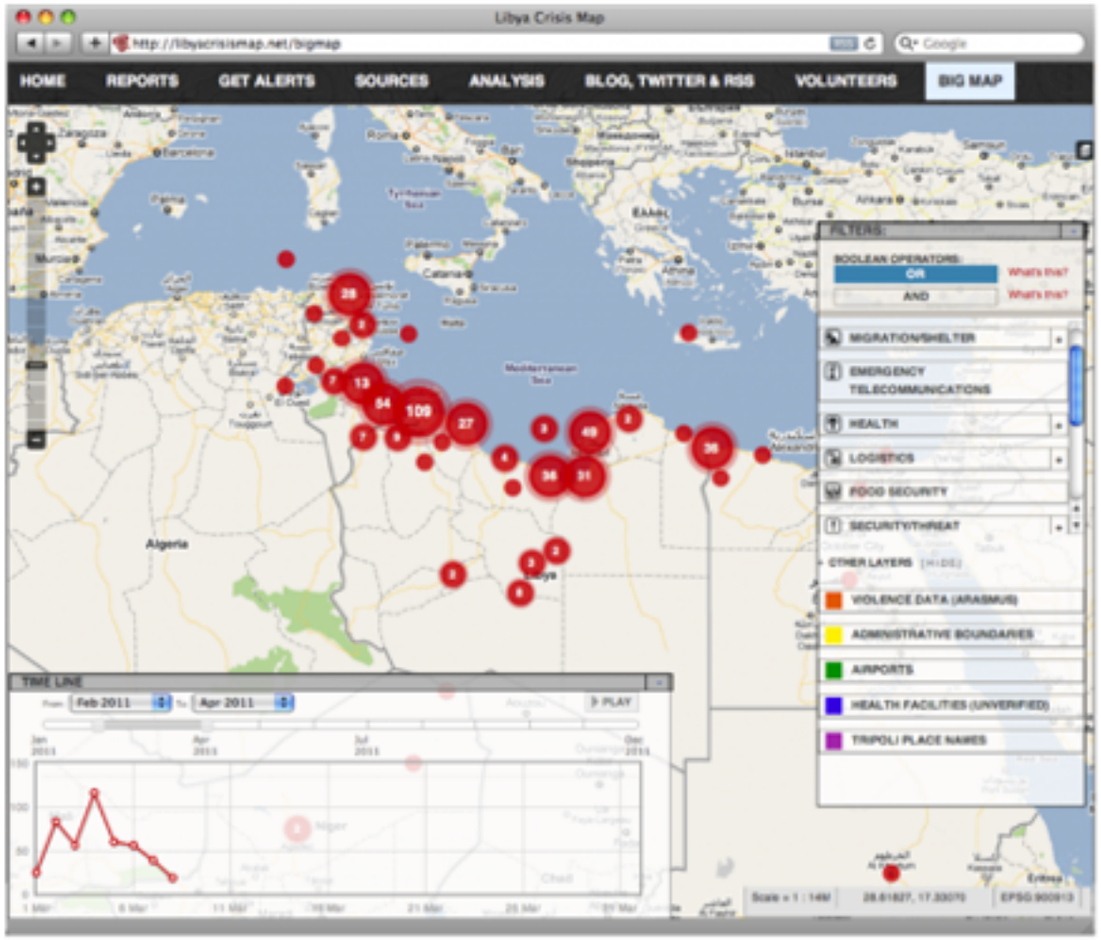
Low-Tech Crowdsourcing

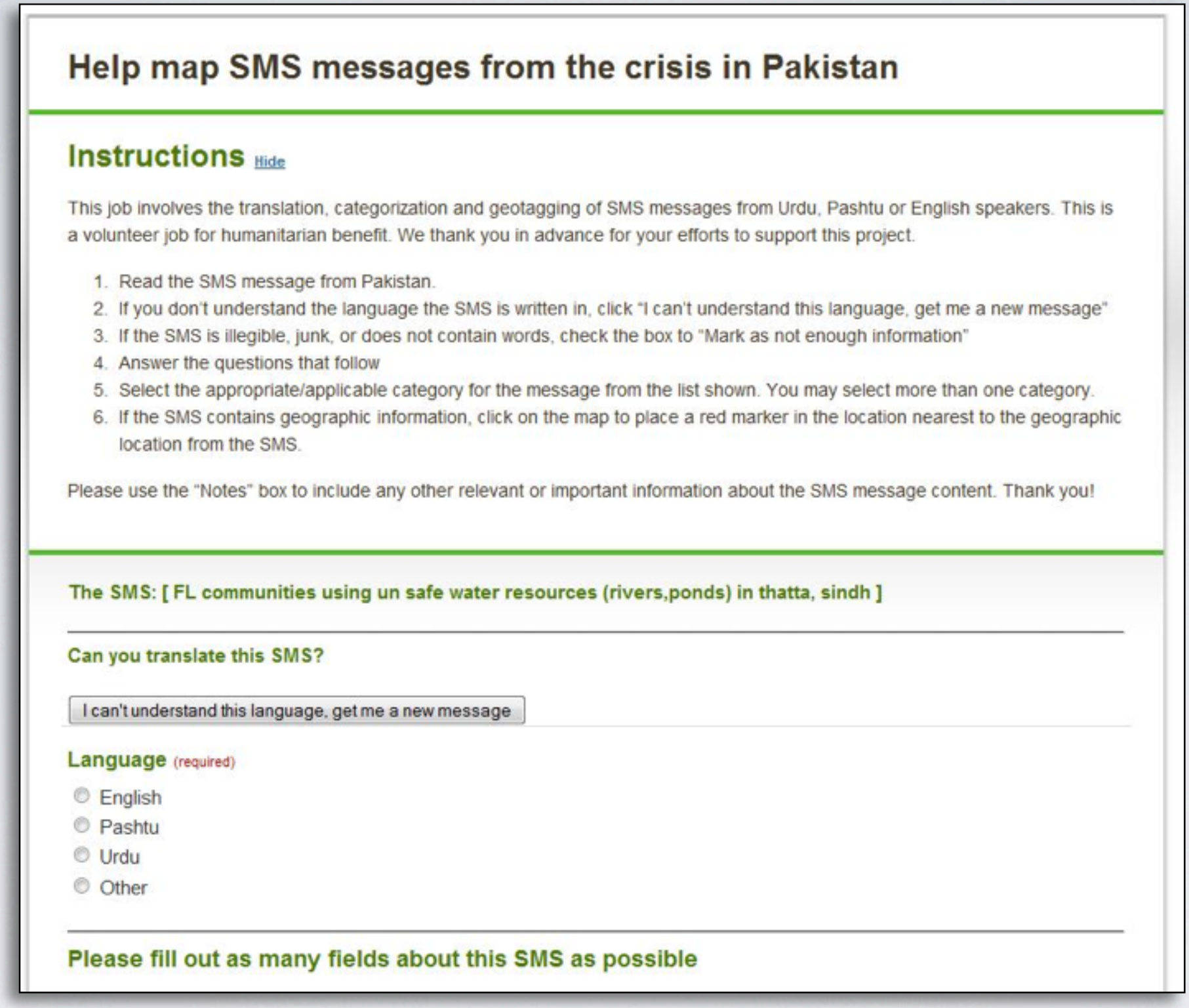
Want to Help Humanitarian Operations in Libya using your Laptop? Join UN Volunteers Online Now!

By PATRICK | *Published:* MARCH 10, 2011

The UN Online Volunteer Service (OVS) has now teamed up with the UN Office for the Coordination of Humanitarian Affairs (OCHA) and the Standby Task Force to support crisis mapping efforts in Libya. This means you can now join the UN as a volunteer to provide direct support to the humanitarian response in Libya.

0 tweets
tweet





Hi-Tech Crowdsourcing

Crowdsourced Micro-Tasking

Message

00479 - the people in the village of god need food and water so that they can stay . It is isn the university of Kiskeya (in the area of delams 35 right of the main delmas road) . pleas respond - 00479 GeoLoc ( ) ** Preprocessed by the QN Plugin SMS Parser**

Spam | Can't Understand | No Location | Not Actionable | Actionable

Filtering Tips

1. **PRETEND THE LATITUDE / LONGITUDE DOESN't E**
   the message words itself mention a location. Ignor
2. **Super-critical messages:** If you see a message tha
   major impact to responders, significant violence r
3. **When in doubt, mark NO LOCATION**If a message
   "no location"
4. **Use your best judgement on whether or not a m**
   information in the message is something that you
   information you can use to do your job.
5. **A location can be anything that could be used to**
   district, name of hospital / school / etc.
6. **When in doubt, mark "No Location**

Description

- Spam: Message is completely out of context.
- Can't Understand: Have no idea what is being said
- Not Actionable: No description of needs or inform
- No Location: No location is mentioned in the mess
- Actionable: Message has a location and a clear ne

Message

00479 - the people in the village of god need food and water so that they can stay . It is isn the university of Kiskeya (in the area of delams 35 right of the main delmas road) . pleas respond - 00479 GeoLoc ( ) ** Preprocessed by the QN Plugin SMS Parser**

Categories

- ☐ Agriculture
- ☐ Camp Mgmt
- ☐ Comms
- ☐ Education
- ☐ Functioning communication hubs
- ☐ Health
- ☐ Logistics
- ☐ Medical Emergency
- ☐ Not Actionable
- ☐ Nutrition
- ☐ Other
- ☐ Personal Security
- ☐ Priority
- ☐ Protection
- ☐ Recovery
- ☐ Search and Rescue
  - ☐ Missing persons
  - ☐ Removal of corpses
  - ☐ Buried and injured persons
- ☐ Shelter
- ☐ Unspecified help requests
- ☐ Water and Sanitation

Submit

Message

00479 - the people in the village of god need food and water so that they can stay . It is isn the university of Kiskeya (in the area of delams 35 right of the main delmas road) . pleas respond - 00479 GeoLoc ( ) ** Preprocessed by the QN Plugin SMS Parser**

Incident Location Latitude: 18.64527 Longitude: -72.59834



City, State and/or Country | FIND LOCATION

* Search for your location using a location name of latitude,longitude coordinates (format: 38.19,-85.61), or click on the map to pinpoint the correct location.

Refine Location name
Example: Corner of City Market, 5th Street & 4th Avenue, Johannesburg
QuickNets Test Center

Not Found | Approx to City / Village | Approx to 10KM | Approx to 1KM | Exact

Message Processing

Infiltration



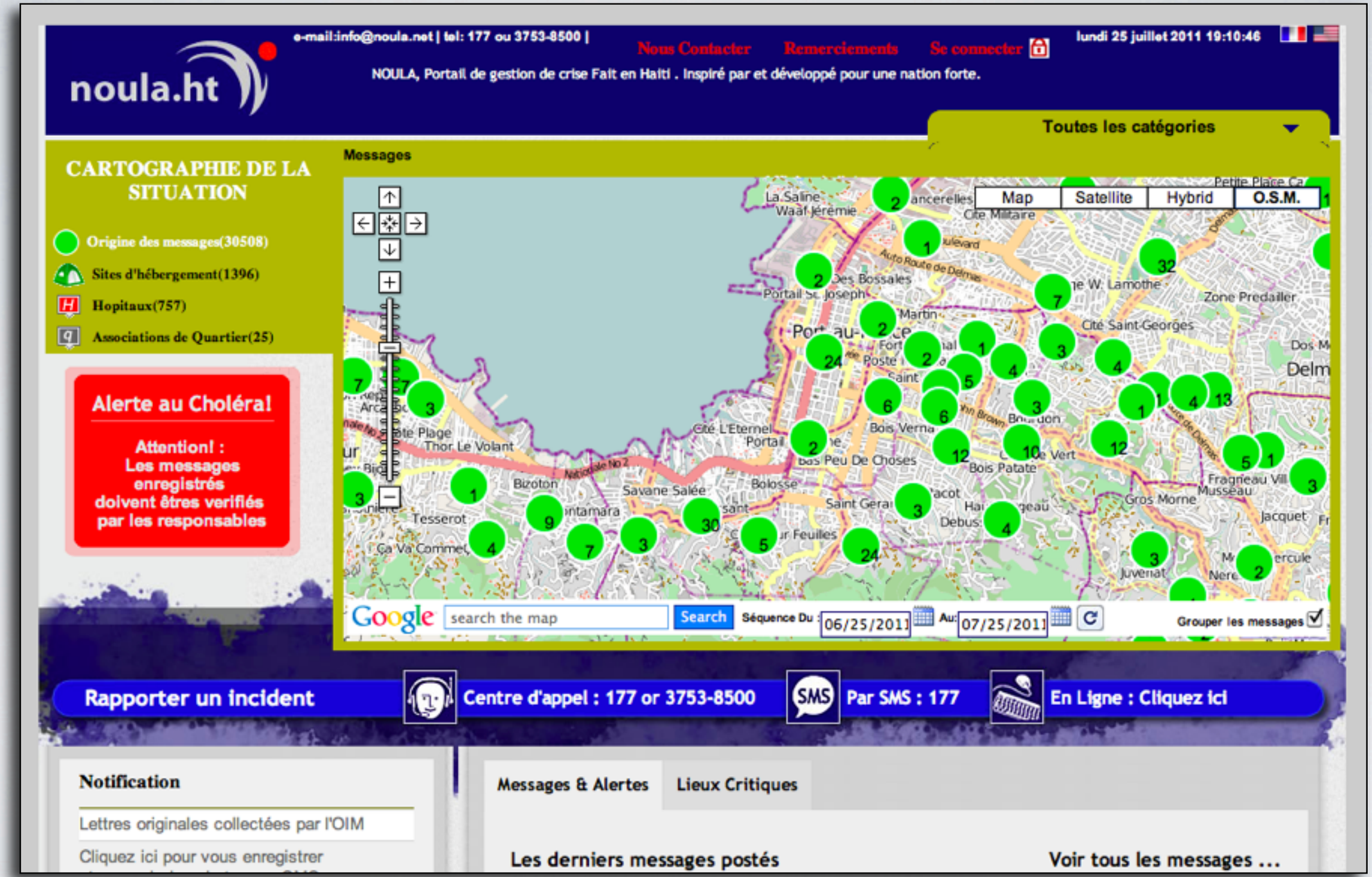
Need to Know
Corroboration

Inaccuracy



Corroboration
Reputation
History

Post-Crisis Opportunities



YES

Worth it?

Crisis Commons

Ushahidi

CRiSIS mappers

FRONTLINESMS

TF

OpenStreetMap

SAHANA
Disaster Management System
'coz disasters are NEVER proprietary.
www.sahana.lk

Lives on the Line

Defending Crisis Maps in Libya, Sudan, and Pakistan



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