

Geospatial Data and Technology in Disasters:

Looking to the past to move forward into the future

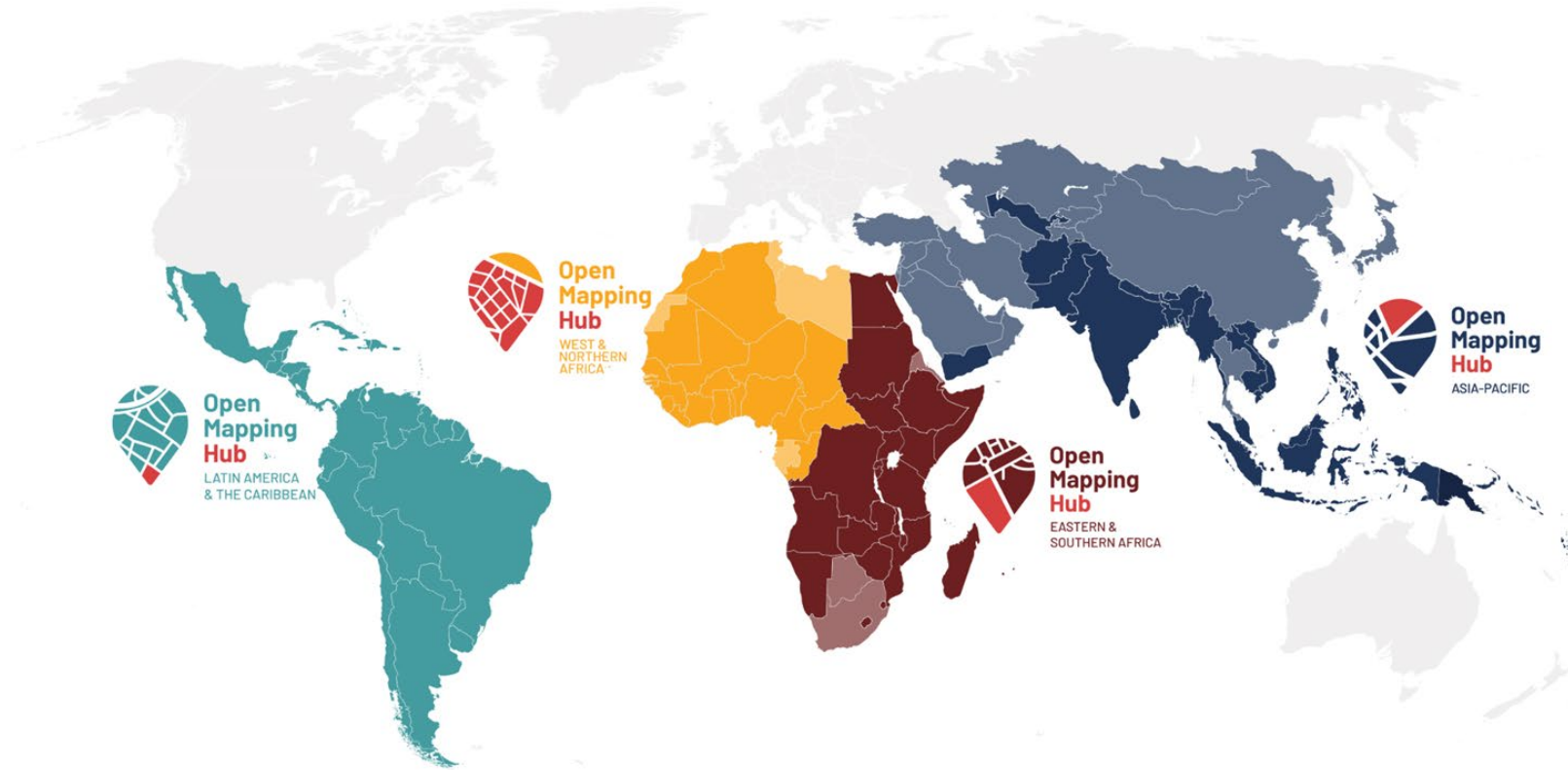
Nama Budhathoki, Regional Director for Asia-Pacific



Humanitarian
OpenStreetMap
Team

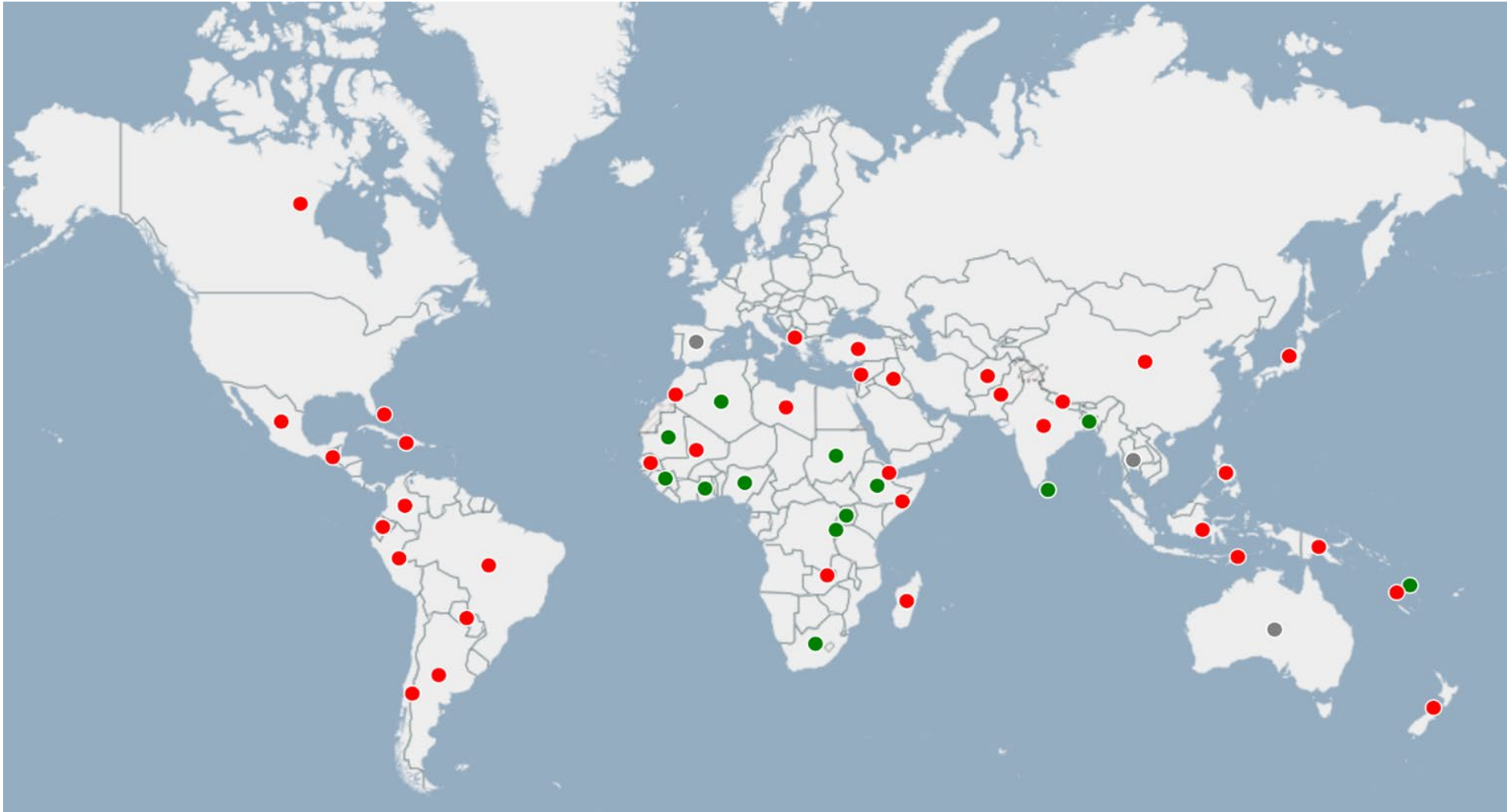


Humanitarian OpenStreetMap Team (HOT)



- US-based non-profit dedicated to promoting Open Mapping around the world
- Mapping goal: home to 1 billion people
- Engage 1 million mappers
- Through 4 regional hubs

HOT's Response to natural disasters



- Led 88
- Supported 58

Key Learning 1

We need a seamless integration of the digital and physical worlds, where the digital effectively supports the physical.



Nama Budhathoki <namabudhathoki@gmail.com>

Apr 25



to Pierre, Robert, Heather, hot

The damage seems to be massive. Reports are coming every minute. The quake has damaged different parts of the country, not just Kathmandu.

I just got access to the internet; lots of congestion in communication. People from Kathmandu Living Labs including myself are safe. We are preparing to spend the night in open space. We will get back to you tomorrow.

Yes, I think we should make the activation.

Nama



Nama Budhathoki <namabudhathoki@gmail.com>

Apr 26



to OpenStreetMap, Saroj, OSM, hot 

Kathmandu Living Labs is working to coordinate the mapping work. It is 6am; give us some time to get establish contact with response agencies and identify the needs.



☆ "Nepal/Kathmandu earthquake Contact details & links - <http://goo.gl/sHoLQG> ➕

▼ 158 people



- (out of the office till 18 August)... [WHO] Luis Hernando AGUILA... +12066832560 +17732064588 Aidan McGuire Ajay Kumar
alexhatoum andreas.reimer1717 andrejverity Andrew Buck Andrew Schroeder andrew.weinert.mit Ane becky_day
Benson Funk Wilder bertouta bishwa_pandey BRC - Bruno Raimbault Brian Steckler Brooks King caroline teyssier

pierzen13

April 25, 2015



It is probably only on sand.

10:36 PM

andrewbuck40



so we probably have all or nearly all of them then since 2 of the 5 or so I couldn't find are already there.

10:38 PM

pierzen13



What's about Helico locations?

10:39 PM

andrewbuck40



lots in osm already, actual helipads. about 20 or so in the region affected by the quake.



pierzen13



And they are well knowned I think. This is a trekking area. Chame, Manang is on the Annapurna round trek. Nowadays ten of thousands of trekkers. If problems, the helico are taking them out.

10:41 PM

dgpugh



Helis land often in the mountains, the pilots are hot. this is a good initiative to plot them. reality is that air drops will be the best way to get emergency food in and i am betting the Nepali military are on that already. helis were in the air over KTM today.

10:42 PM

maningsambale

on my last hours of monitoring this channel today.

2182 mappers have made 58250 edits to highways and 91850 edits to buildings in 31094 changesets since April 25, 2015.

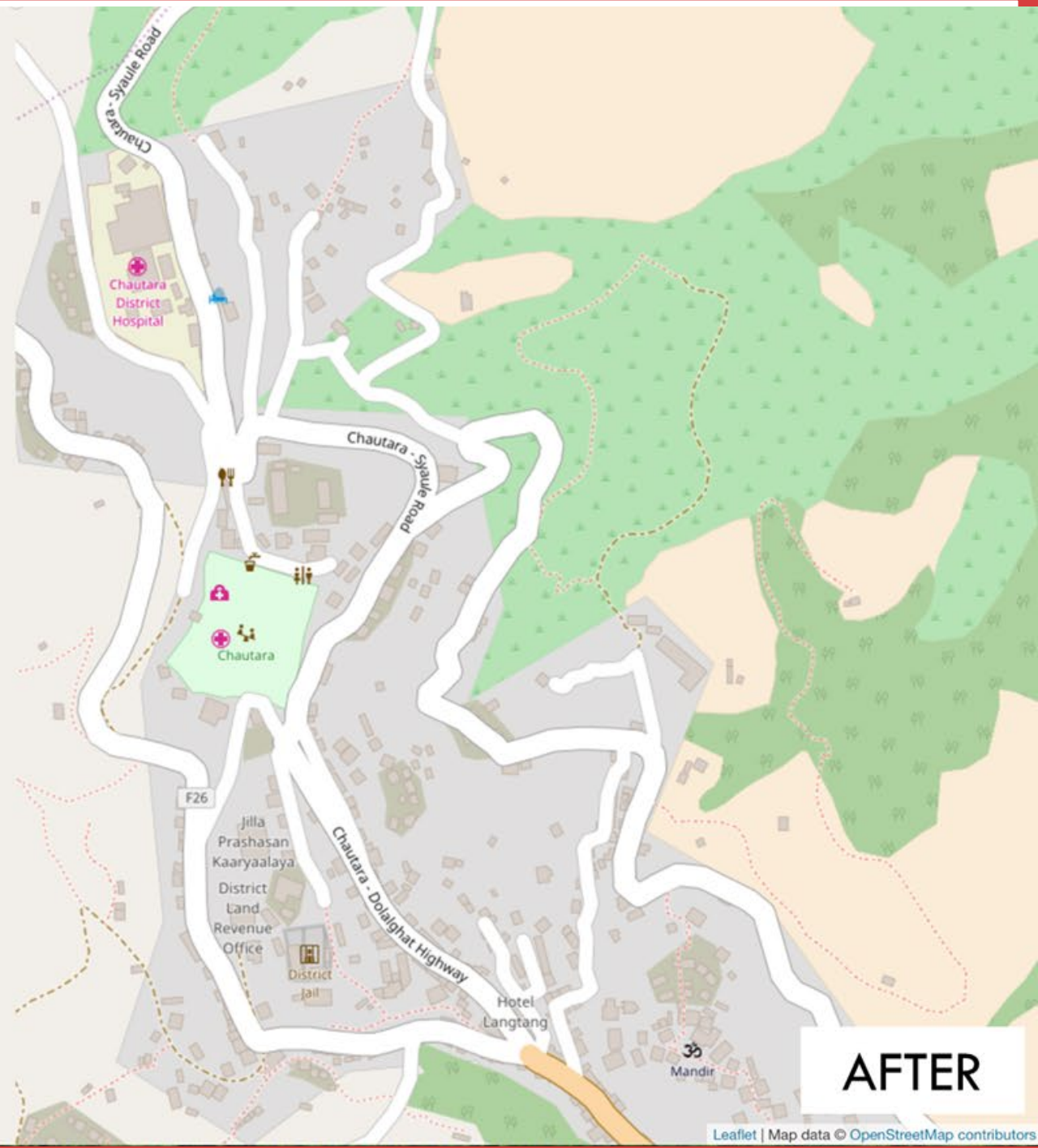
amazing!

not to mention we have great support from the ground. KLL rocks. 😊



SINDHUPALCHOWK

BEFORE



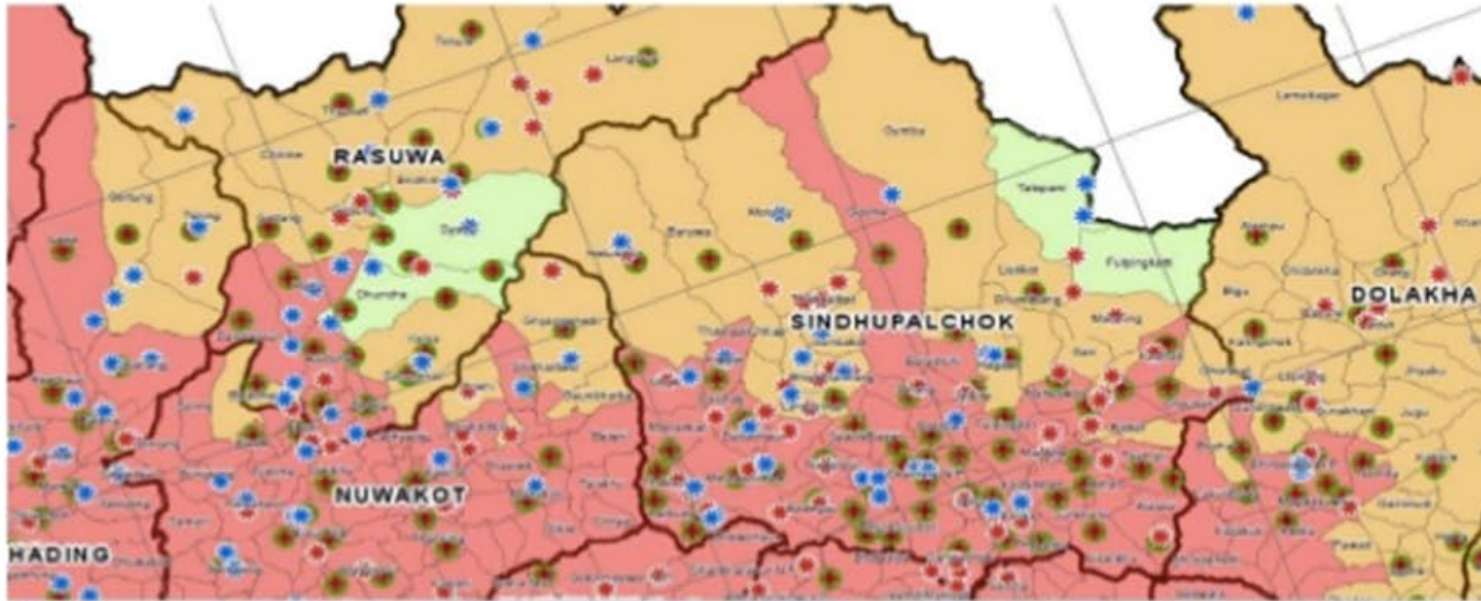
AFTER





Gap Analysis

- Identify gaps using:
 - Security forces on the ground
 - Rescue and Relief operations conducted so far
 - Request from public (Crowd Sourced Data)



Source: Nepal Army

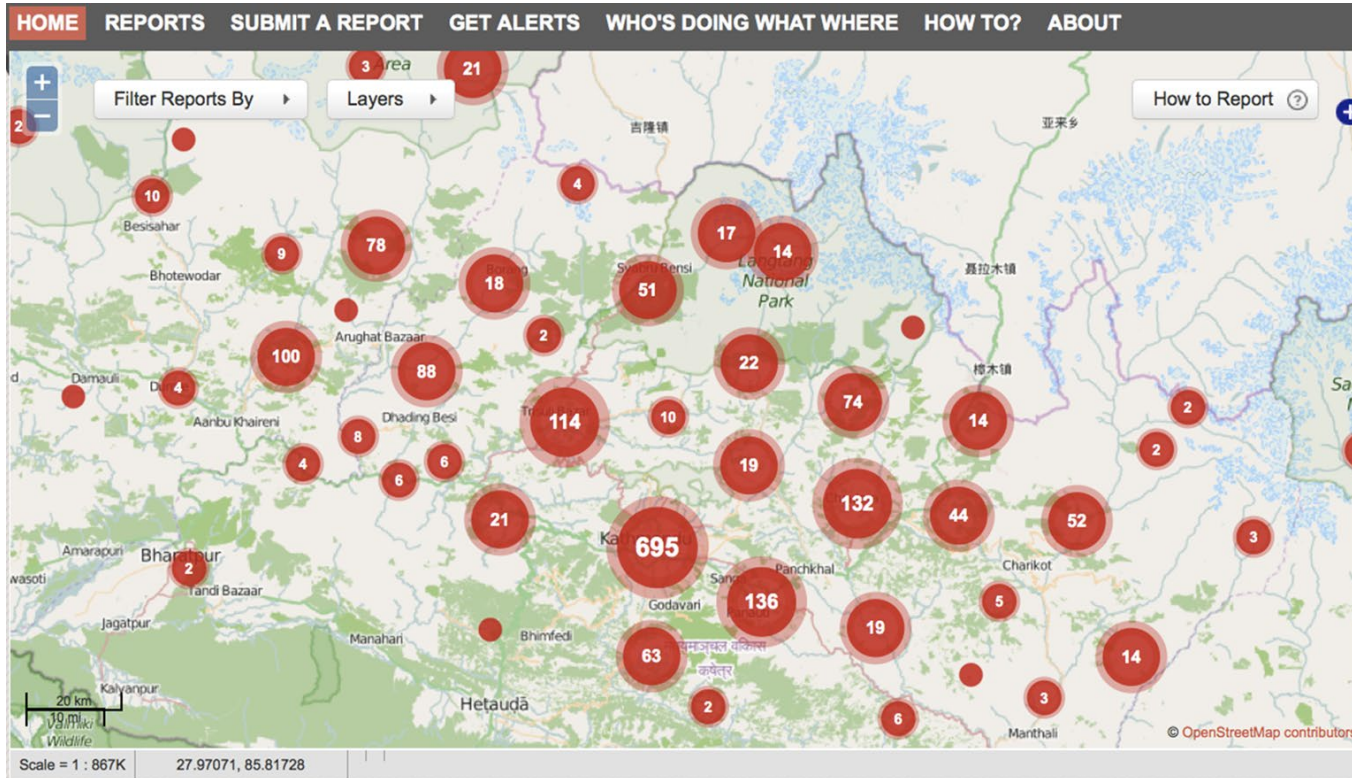
Key Learning 2

Disasters are inherently hyperlocal events, making local knowledge essential.





Quakemap



QUAKEMAP.ORG

HOME REPORTS SUBMIT A REPORT GET ALERTS WHO'S DOING WHAT WHERE HOW TO? ABOUT

Urgent FOOD, WATER, AIRLIFT, Chayarsaba [Edit]

16:43 May 18 2015 Chilankha, Singati, Janakpur, Central Region, Nepal, 45500

Water Sanitation and Hygiene Shelter Blocked Roads

Urgent action needed Action taken Closed

Summary: Local's have reportedly secured new pipes to run to clean water source. Multiple food drops and distributions confirmed. Current need is for solar charging

Description

In Chayarsaba, the situation is bad. Hardly any relief-aid has reached and the people have no access to clean water as the water-supply was damaged by a land-slide. The ground is completely destabilized by the earthquake and landslides and people are taking refuge in the jungle for safe shelter. The road is blocked due to a landslide caused by the 2nd earthquake. sunita tamang is a contact-we hope to provide her number. People have spoken with her and husband.

Comment by SK - Can't find the village. @verifiers, please confirm the place as well.

Additional Data

Phone Number:	9851024624
Most Affected District:	Dolakha
Location Accuracy - the report is from in this: VDC	
For Approval or Status Adjustment	
Number of times contact attempted:	12
Number of times reached:	11
Routed Status - The report has been forwarded to an organization:	Routed
Number of times routed:	5
Dispatch Status - An organization has agreed to respond to this report:	Dispatched
Dispatched organization capacity:	partially meets the needs
Location accuracy checked or fixed by:	KLL

Who is doing what in this District

Additional Reports

- Help needed in Dolakha** 11:02 May 02, 2015 Chilankha, Singati, Janakpur, Central Region, Nepal, 45500, 0 Kms
- Chhilankaha (Dolakha?) - helicopter urgently needed** 10:45 May 14, 2015 Chilankha, Singati, Janakpur, Central Region, Nepal, 45500, 0 Kms
- help needed in Chayarsaba** 18:28 Apr 30, 2015 Chayarsaba, Sindhupalchok, Central Region, Nepal, 45500, 1.05 Kms
- Laduk & Bulung: need for shelter** 18:32 May 02, 2015 Laduk VDC & Bulung VDC, Dolakha, Central Region, Nepal, 1.05 Kms
- Relief needed in Singati near Dolakha** 07:44 May 04, 2015 Singati, Janakpur, Central Region, Nepal, 45500, 1.48 Kms

A Typical Quakemap Report

Who is doing what in this District

Credibility:   

Comments

Leslie Shackelford (May 19 2015)

PLEASE call NABIN (probably Tamang- but no sure- Sunita's Husband that came from the village) at 9849031868

n1schal (May 19 2015)

Talked to Leslie (9851024624). She says the place is near Laduk of Sindhupalchowk. She's provided with the number of a person for the area : Nabin : 9849031868

Leslie Shackelford (May 19 2015)

I have photos of the area- it appears to be DOLAKHA, sorry about the location- maybe on the border.... I sent them to you

n1schal (May 19 2015)

Spoke to Mr. Nabin. The area is in Chilinkha. It is situated on the hillside. It is a 5 hours continuous hike from Singhati of Dolakha and would take about 7-8 hours with load. It has about 35 households. Mostly collapsed and those that are still standing are uninhabitable. People there haven't received much aid. A little aid from the government did reach there. The water supply has been sabotaged by landslide. A foreign team went there with about 3 boxes of drinking water but that very little as compared to what is needed. By the looks of it, the area needs to be accessed by air.

Maya Greet Verbist (May 19 2015)

I have spoken with nabin who just came back from Chayarsaba and I have seen photos of the village. There is a big landslide on top of the village and people are scared it will come down so they can't stay in the village. There is no fresh water-supply and people are hiding in the jungle. Air evacuation might be required urgently! Nabin's number for update on the situation: 98490 31868 My number: 98434 47374

Maya Greet Verbist (May 19 2015)

location of the village according to somebody who knows the area quite well: "Chayarsaba is in Chilangka VDC, Ward no 7 or 8, it has 33 houses, built in a cluster. around 200 people are there, maybe less. it is located in a small valley cut after the village called Soisang - part of Laduk VDC - before you come to the main village of Chilangka. if you walk up the mountain ridge of Chayarsaba and cross it you reach a Sherpa village called Pulukpa. To go from Singati to Bigu (which is at the end of the valley), you have two ways: 1 is along the river where you don't pass the village Chayarsaba - you pass it much further below. 2nd way goes midway of the mountain slope and where you pass Chitre, Laduk then further to Soisang, before Chayarsaba you cross a small river walk up to Chayarsaba, from Chayarsaba you continue to Chilangka."

Administrator (May 19 2015)

Routed to Army and USAR. Status Adjustment: Please do not mark dispatched or action taken until commitment to act received.

n1schal (May 20 2015)

Talked to Nabin again. He doesn't have any new information from Chyarsaba as of now. He's given me a number of a local: Karki : 9614922002

n1schal (May 20 2015)

Talked to a local Karki Tamang. She says she has no information as to what has reached there

n1schal (May 20 2015)

Talked to a local Karki Tamang. She says she has no information as to what has reached there since yesterday as she is away from Chyarsaba at the moment. I've asked her to keep us informed if she hears anything.

n1schal (May 20 2015)

Just contacted Karki Tamang (9641922002) again. She just contacted someone in Chyarsaba. The VDC is out of materials. Will now try to route the report to an organization preferably with a chopper, else with porters.

Kevin Geffe (May 20 2015)

Just spoke with Maya. She confirmed that people are not hurt or injured. The hillside directly above their town has large crack in it. People are scared that the crack is going to become landslide and wipe out their houses and kill them. They are hiding in the jungle. The NEED IS NON-MEDICAL. They REALLY need an environmental engineer to go up (ex army corp of engineers) to evaluate the crack and tell villagers whether they are safe or not. In addition to this, they really need some provisions. Sounds like they have some but are in need. Definitely is a need of governmental in nature

Administrator (May 20 2015)

Routed to contact at Yellow House who has passed it on to DMRT, who has helicopter access and will conduct secondary verification. Status adjustment: no change until commitment received.

Administrator (May 21 2015)

Dispatch or Status adjustment please follow up with Maya Greet Verbist to accurately place marker of the village on the map.

Leslie Shackelford (May 21 2015)

Just talked to some people that made it to Singati late yesterday distributing relief, but they could not make it further. Help with a helicopter is probably needed, at least to get food, water system, shelter.

Administrator (May 21 2015)

Dispatch: Please follow up with Dolakha CDO to convey Kevin Geffe's comments in addition to current efforts for provisions.

Ayesha Lissanevitch (May 21 2015)

Working on getting the army there. Have already contacted someone in the army, they are verifying the data. If cleared they should be on it soon. Will keep everyone posted.

n1schal (May 21 2015)

Routed to Ayesha Lissanevitch of PRAN Nepal.

n1schal (May 21 2015)

Ayesha Lissanevitch just texted me to say that she had gotten the information to the army. The army are currently verifying it and should get on it if the need for evacuation is high. If not, they will work with Yellow House to Supply of Relief goods by helicopter.

n1schal (May 21 2015)

The CDO didn't pick up both the numbers we have (about 8 calls in the space of 2 hours)

Administrator (May 21 2015)

Status adjustment: please mark dispatched and put some useful info in action summary. Dispatch: please keep following up with report (particularly Ayesha) as a priority.

n1schal (May 22 2015)

<http://quakemap.org/reports/view/1099> This seems to be in the neighboring area as well. Would probably be wise if organizations knew about this as well.

Ayesha Lissanevitch (May 22 2015)

Finally got a hold of someone in the army, and they have said that the area is being watched closely by them for potential landslides. They also mentioned that they had received some aid

Crowd Sourced Data

- Provider: Kathmandu Living Labs
 - Direct Access to Spreadsheet
 - Data:
 - Organized
 - Categorized
 - With Geo-location
 - Ready to Use
 - One level of Verification done by KLL
 - With contact details

600 AIR OPERATIONS

Source: Nepal Army



redcrossmom

very different

▼ 8:33 AM

Just wanted to share - having been involved with every catastrophic disaster since 2010 using Ushahidi - what is being done by KLL has never been done before. And Nepal is paving way for repeatable processes - just giving hats off and kudos to them for stepping up to take on that challenge

✎ 8:34 AM



pierzen13

KLL is doing more then the Event quakemap. They provide a lot of mapping services, teach how to use OSMand, etc.

8:38 AM



redcrossmom

@Pierre - yes - KLL have collaborated and incorporated mapping products and processes faster than any org I have ever seen.

8:39 AM

KLL working with teams on ground and digital response orgs, traditional aid agencies, gov, military, civilian, engineering, health...OSM, Ushahidi, platforms and processes.... @Nama you must be very proud. I am for you. Before dust settles - and folks leave - I need to share - what you are doing is incredible.

8:41 AM

3 Ways Nepalis Are Using Crowdsourcing to Aid in Quake Relief

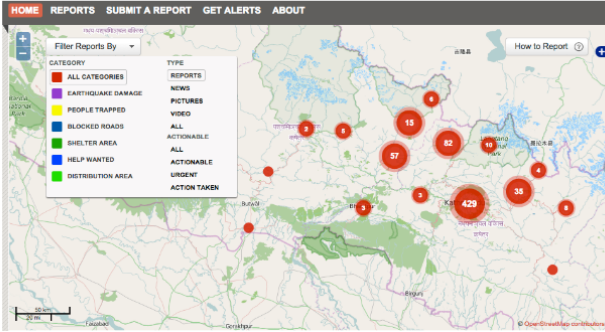
Share full article

By Shreeya Sinha
May 1, 2015

In the wake of the [7.8 magnitude earthquake that hit their country over the weekend](#), many Nepalis at home and abroad have found a new way to help — as digital volunteers, spending hours hunched over their laptops, using crowdsourcing technologies and social platforms to participate in the relief effort.

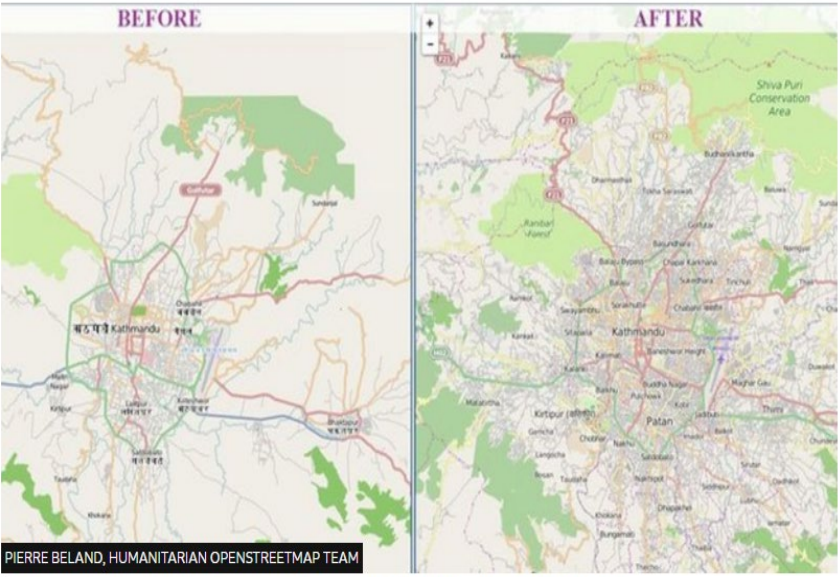
Here are three examples of initiatives led by Nepalis to assist their countrymen as they try to rebuild, using open-source mapping, crowdfunding and crowdsourcing, and how experts see the effort.

Open Mapping: [Kathmandu Living Labs](#)



How 'crisis mapping' is helping relief efforts in Nepal

6 May 2015



Kathmandu, and nearby areas before and after mapping efforts were ramped up after the quake

This article is more than 8 years old

Could mapping tech revolutionise disaster response?



A woman dries vegetables on the rubble of a building damaged in the 2015 earthquake in Nepal. Photograph: Niranjan Shrestha/AP

After pioneering crowdsourced mapping in wake of the Nepal earthquake last year Nama Budhathoki's organisation wants to take the technology to the rest of the world

Most viewed

Key Learning 3

- Effective disaster response requires coordination among various organizations, groups, and individuals. This presents an opportunity for us to develop technology that bridges the gaps and enhances collaboration.

Overall Reflection and Conclusion

- While data and technology are crucial, they alone are not sufficient to ensure effective disaster response, relief, and reconstruction.
- Boeing 747s don't fly; Airlines fly.

-Bruno Latour, 1994

HOT's Approach

- Focussing on making concerted efforts towards localization.
- Taking on more of a catalyst role.



Thank you for listening.
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