

# Geospatial IM and Disaster Risk Management: *What's New? Innovative Research and Practices*

@TylerSRadford | 31 July 2017

*“When a crisis occurs, each decision made, each additional minute spent on an issue, directly impacts the way affected populations will receive and benefit from much needed aid and relief, sometimes to the point of making a difference between life and death.”*

UN GGIM Disasters International Forum Concept Paper

# Strategic Framework on Geospatial Information and Services for Disasters 2016-2030

*“Recent large scale events...have demonstrated the gap between the state of geospatial information and informed decision-making”*

*“To encourage the Open Data Community and government institutions to engage more actively with each other to align the datasets produced by volunteers with the official registries and nomenclatures.*

November 2016



UN-GGIM

United Nations Committee of Experts on  
Global Geospatial Information Management

[ggim.un.org](http://ggim.un.org)

Search by region or HOT Project ID



Outline Custom Area

Build

**Map Legend**

- High density of buildings
- Medium density of buildings
- Low density of buildings
- Area with mostly highlighted buildings

Last Data Update: 11 hours ago

Huge areas of the world have been mapped in detail...  
...But lots left to do

# Partnership to fill gaps in exposure data on a global scale



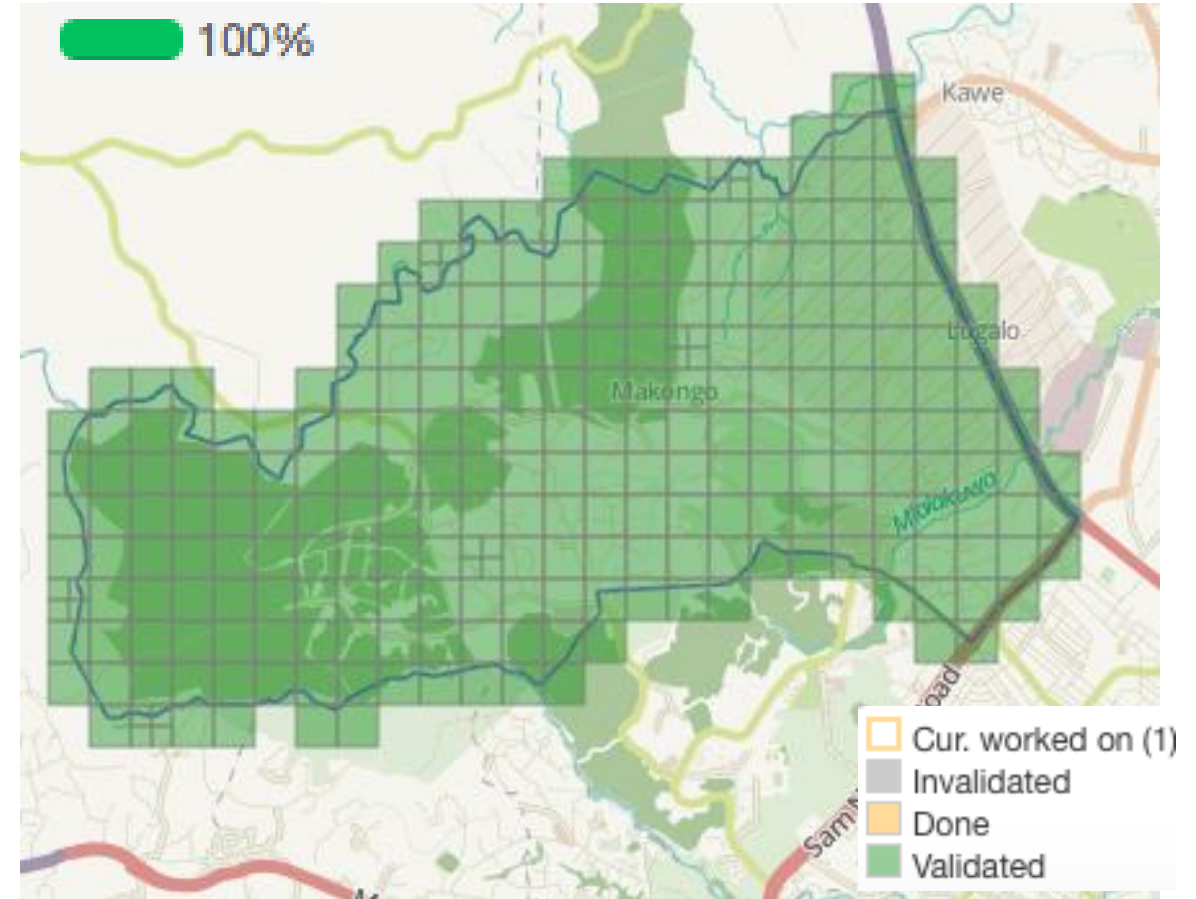
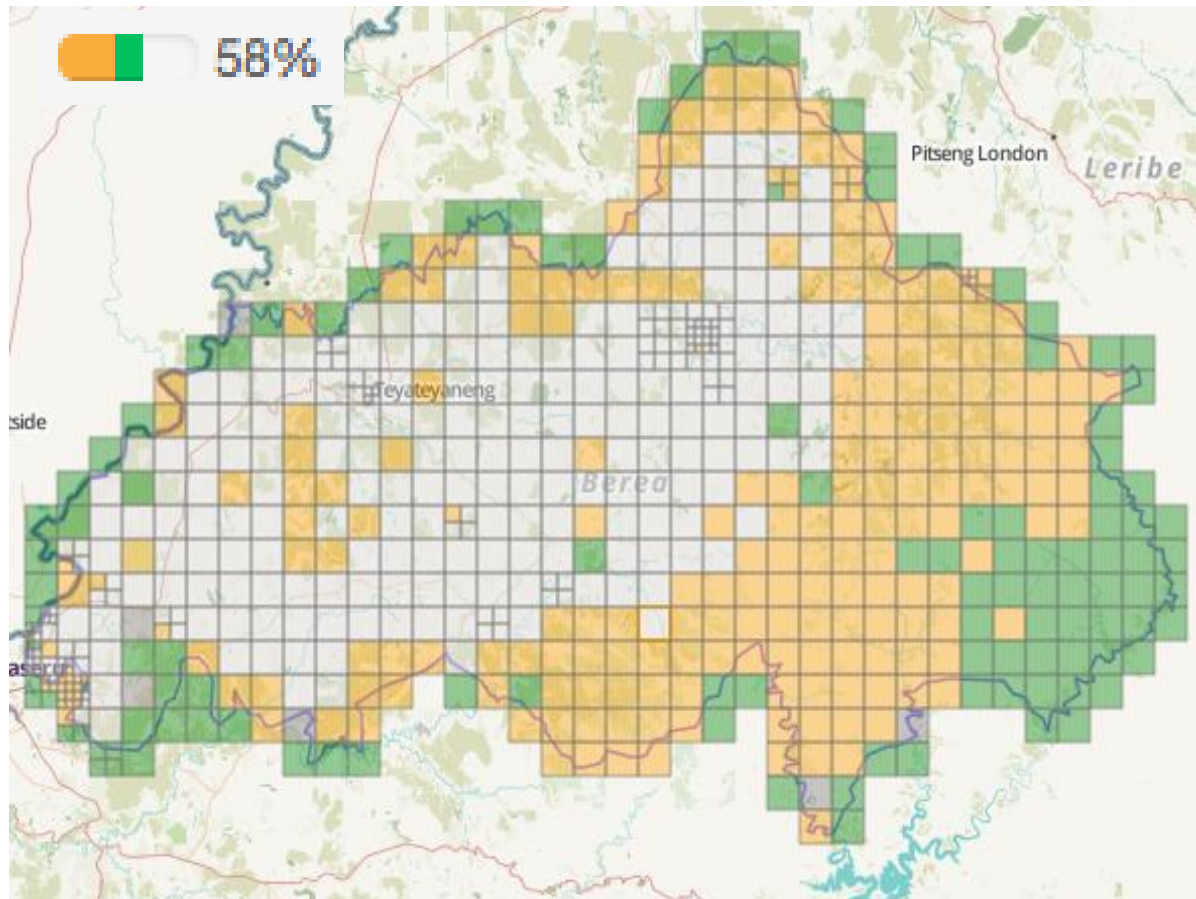


You can call on this global community before, during, after





# HOT Tasking Manager: [tasks.hotosm.org](https://tasks.hotosm.org)



Color-coded progress encourages volunteer crowd





**Remote mapping: Aerial imagery**





# Remote mapping: Digitization





**Remote mapping: Vector data**

Search by region or HOT Project ID




or

Outline Custom Area

Map Legend

 Buildings

 Highlighted buildings

Last Data Update: an hour ago

2015

3,259  
Buildings

454,341  
Buildings

# Hananasif, Dar es Salaam, Tanzania January 2017

2008

2009

2010

2012

2013

2014

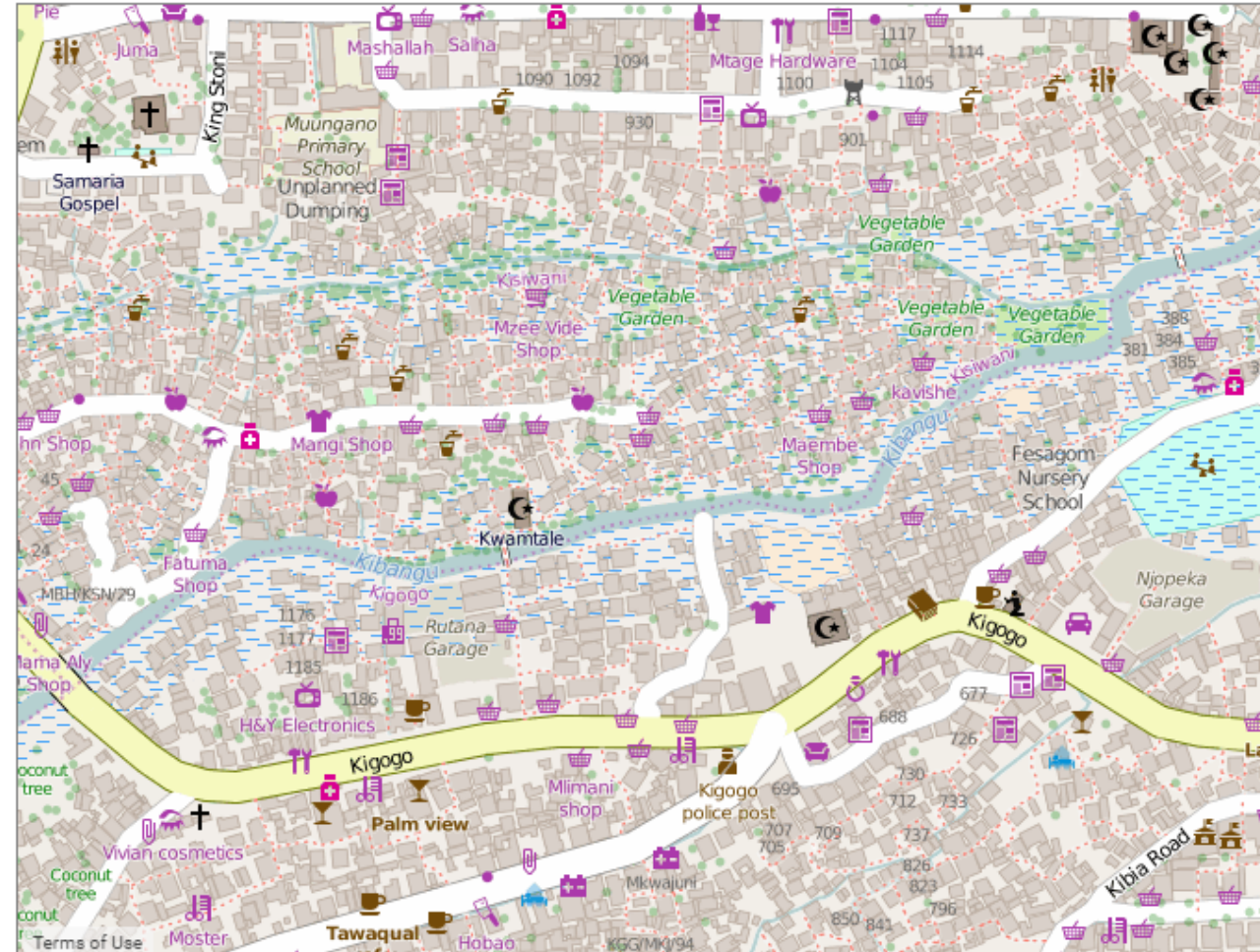
2015



Choose map type: Google Map



Choose map type: OSM Mapnik



39.24340, -6.81760 zoom=17 number of maps: 1 2 3 4 6 8

All maps except Bing/Google/HERE based on OSM data © OpenStreetMap (License: ODbL 1.0), OSM Tiles licensed CC-BY-SA 2.0 - help - contact - fullscreen

# CROWDSOURCED Open Geodata/VGI – Huge role in filling gaps for preparedness/DRM



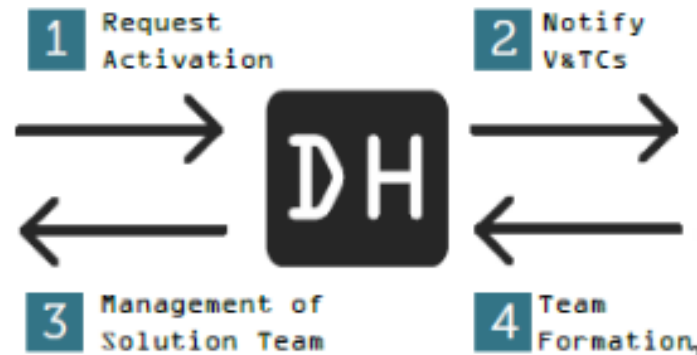
Working together before disaster is best.  
But crowdsourcing can also fill data gaps in hours.





# Formal Humanitarian Responders

# Volunteer & Technical Communities (V&TCs)



Activation Facilitation Process

The Digital Humanitarians Network







**HOTOSM**  
@hotsm · FOLLOWS YOU  
We are the Humanitarian OpenStreetMap Team. Our focus: OSM for humanitarian response & economic development.  
#mapthedifference #opendata #openstreetmap  
Joined May 2010

 **HOTOSM**  
@hotsm

 **Following**

HOT is activating to support relief in Sri Lanka, if you have a few moments, please visit [tasks.hotosm.org](https://tasks.hotosm.org) [wiki.openstreetmap.org/wiki/2016\\_Sri\\_Lanka](https://wiki.openstreetmap.org/wiki/2016_Sri_Lanka)

RETWEETS 69 LIKES 29 

2:41 PM - 18 May 2016

  69  29 


 Reply to @hotsm

Trends

#RingsMovie Promoted by Rings Movie Leslie Jones #WednesdayWisdom  
#NationalWaffleDay Guaranteed Rate Field Earth-like American University in Kabul Proxima Centauri #Proximab #AdobeChat #AdweekChat



OpenStreetMap for  
an Respo  
c Develop

  
  
**Activation Protocol**  
Defining the HOT Disaster Mapping Program

HOT Disaster Activations: Massive rapid response mapping





Nepal:

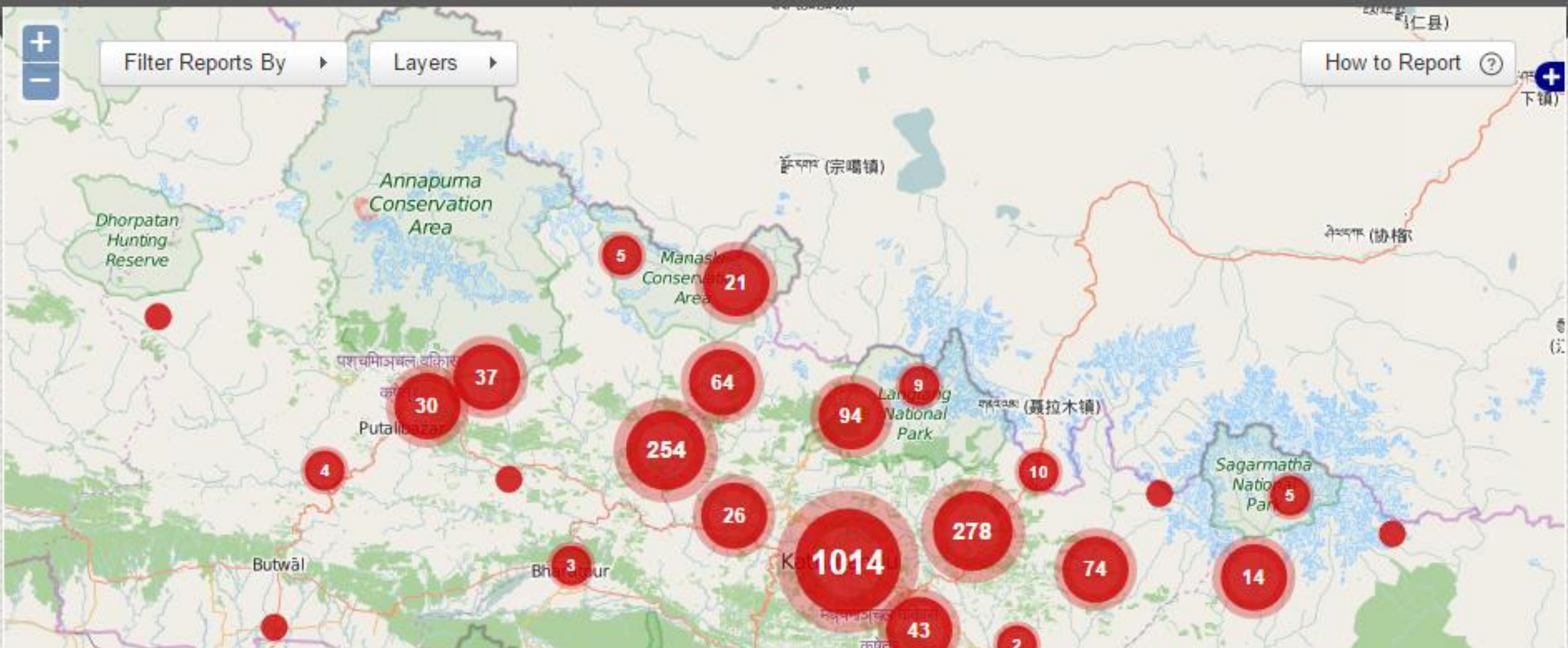
*Right  
people,  
right  
resources,  
right place  
right time*





USAID DART  
using OSM-  
based map,  
of Gorkha  
district Nepal





Quakemap.org: Used in relief ops by Nepal Army, others



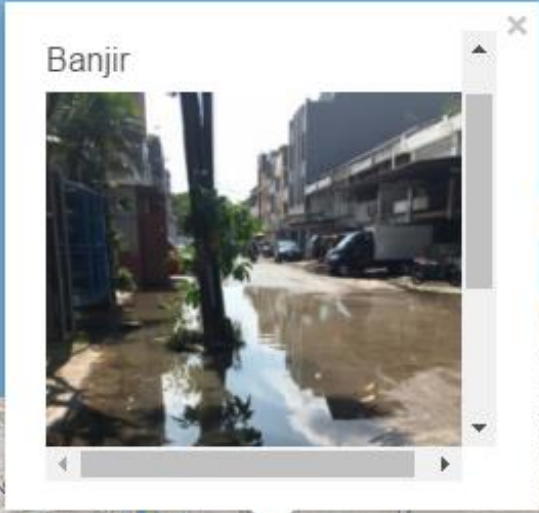
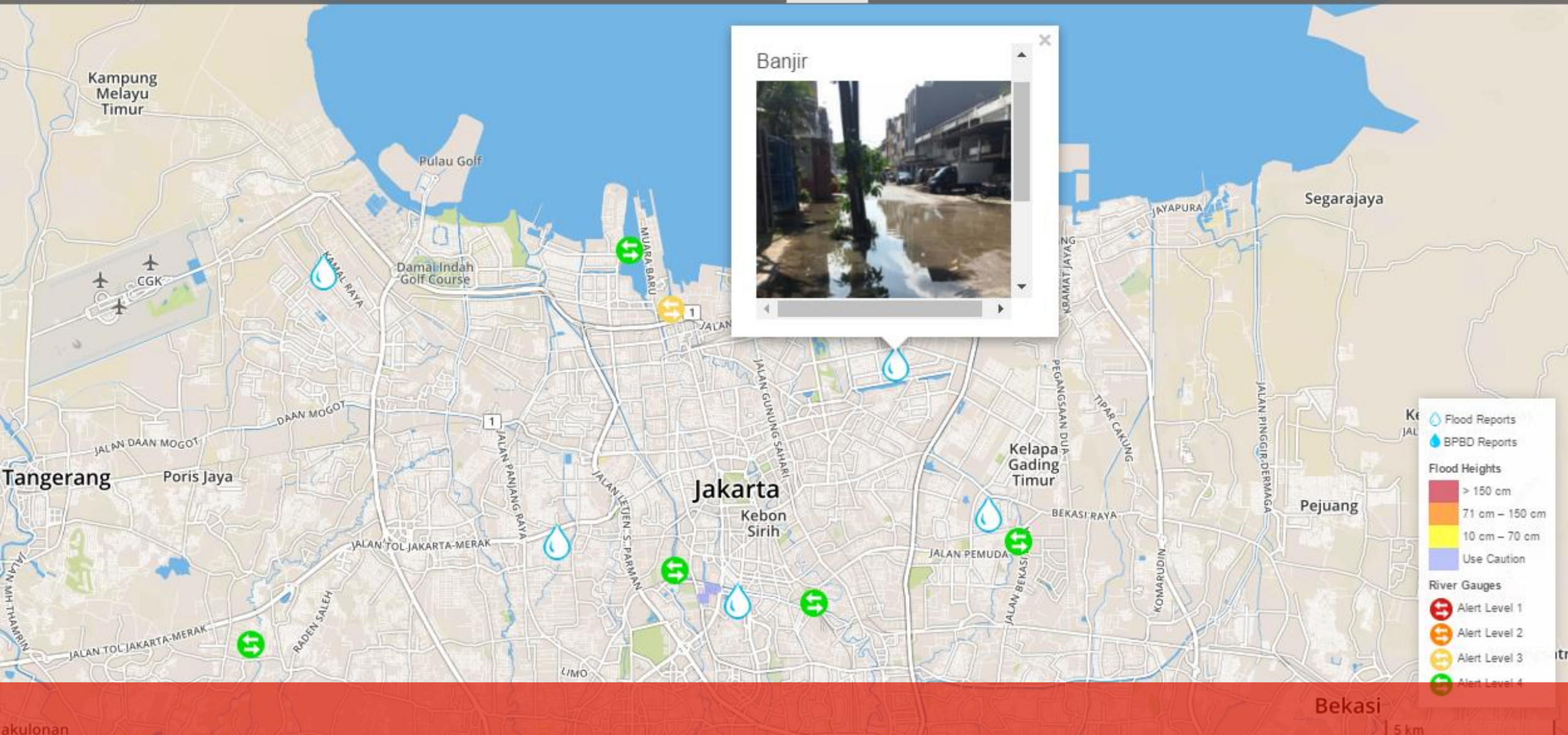


Photo courtesy British Red Cross

# OSM in action: Portoviejo, Ecuador



**A few new things happening now**



Peta Jakarta: Real-time flood info using social media





Unofficial sources complementing authoritative data sets



Click on the image that shows a higher level of damage



Images Classified: 0

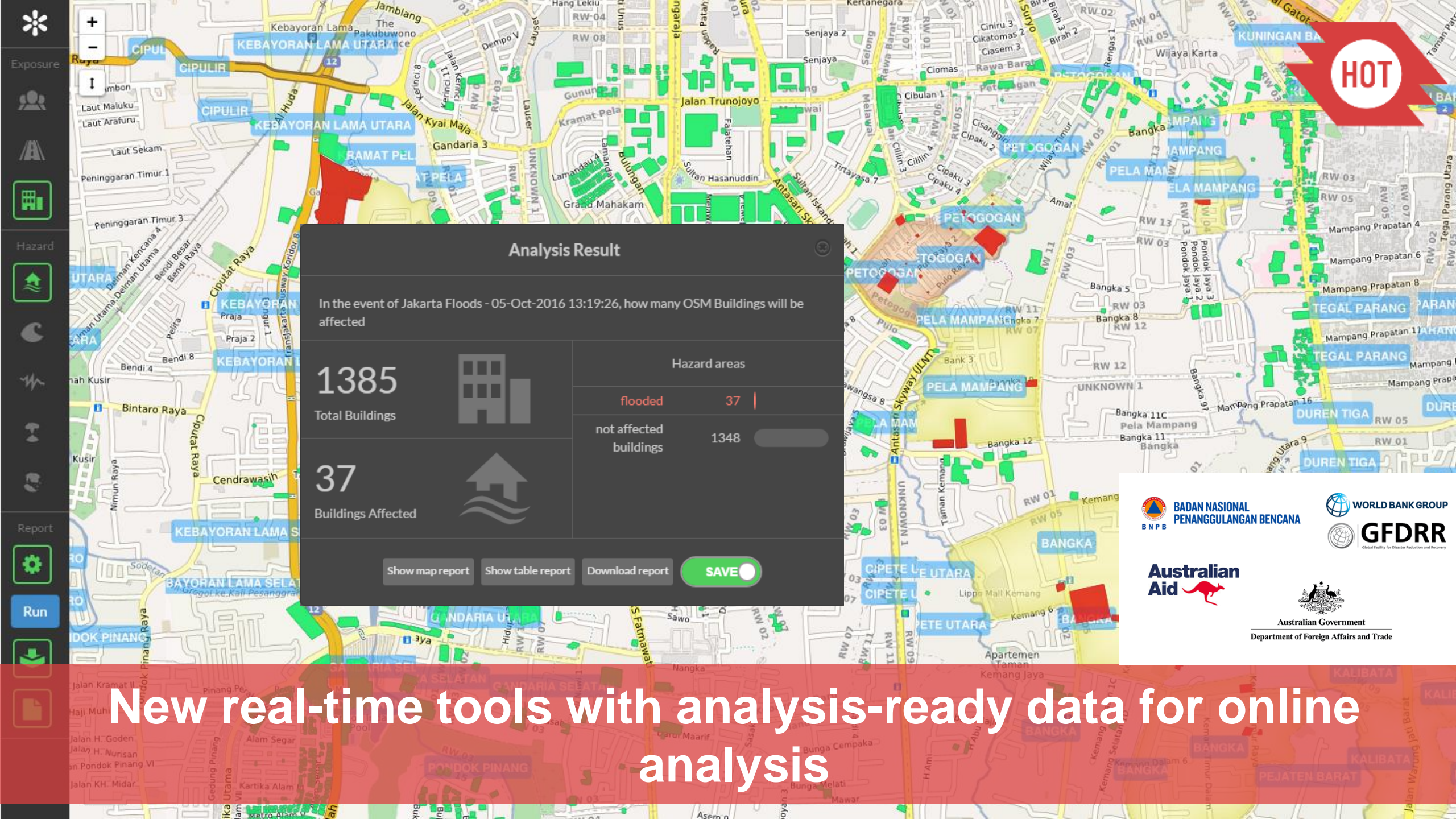
Show Tutorial

Provide Feedback

## Researching rapid complements to PDNA: crowdsourced damage assessments

Same damage in both images





### Analysis Result

In the event of Jakarta Floods - 05-Oct-2016 13:19:26, how many OSM Buildings will be affected

<p><b>1385</b></p> <p>Total Buildings</p>	<p>Hazard areas</p>	
	<p>flooded 37</p>	<p>not affected buildings 1348</p>
<p><b>37</b></p> <p>Buildings Affected</p>		

[Show map report](#)
[Show table report](#)
[Download report](#)
[SAVE](#)



New real-time tools with analysis-ready data for online analysis

**Individuals have incredible (geospatial) knowledge  
about the places they live.**

**Let's take advantage of this collective knowledge.**

**3 concrete steps**





1. Engage with universities & OSM communities before disaster






Photo: YouthMappers at Texas Tech University



## Crowdsourcing



# Mapping your community through crowdsourcing

Welcome to crowdsourcing at Statistics Canada—  
a new pilot project

**2. Collaborate with civil society / private sector on projects**

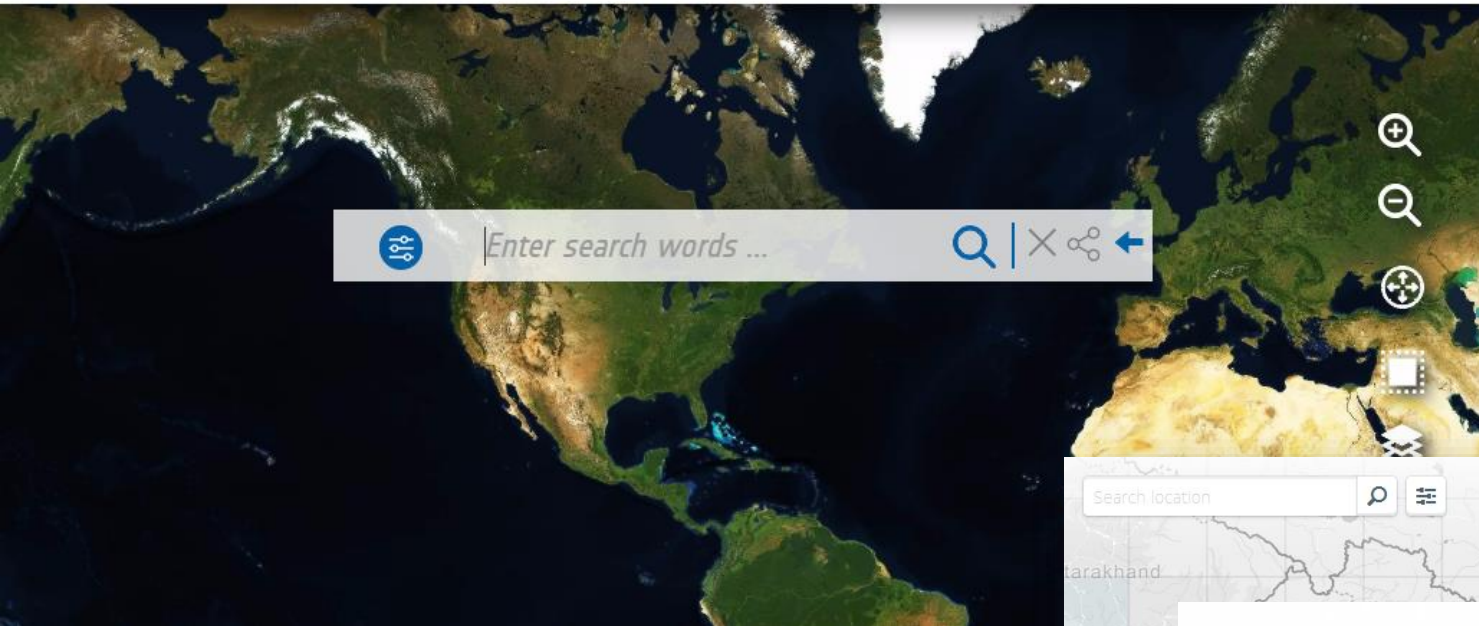


[OpenCitiesProject.org](http://OpenCitiesProject.org)



[Data4SDGs.org](http://Data4SDGs.org)





OpenAerialMap BETA

Search location

OpenAerialMap

Nepal

Kathmandu

Available Imagery

103 results

TYPE Image DATE 2015-04-29 RES 50 cm	TYPE Image DATE 2015-04-29 RES 50 cm
TYPE Image DATE 2015-04-29 RES 50 cm	TYPE Image + Map Layer DATE 2014-10-04 RES 34 m
TYPE Image + Map Layer	TYPE Image + Map Layer

3. Locate (and contribute) openly licensed data sets



**Register: [summit.hotosm.org](https://summit.hotosm.org)**

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