Building a Citizen Engaged Research Project

Case Study: Humanitarian OpenStreetMap Team

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About

Humanitarian OpenStreetMap Team

OpenStreetMap

MISSING MAPS

Free, up-to-date maps are a critical resource when relief organizations are responding to disasters or political crises. The Humanitarian OpenStreetMap Team (HOT) creates and provides those maps.

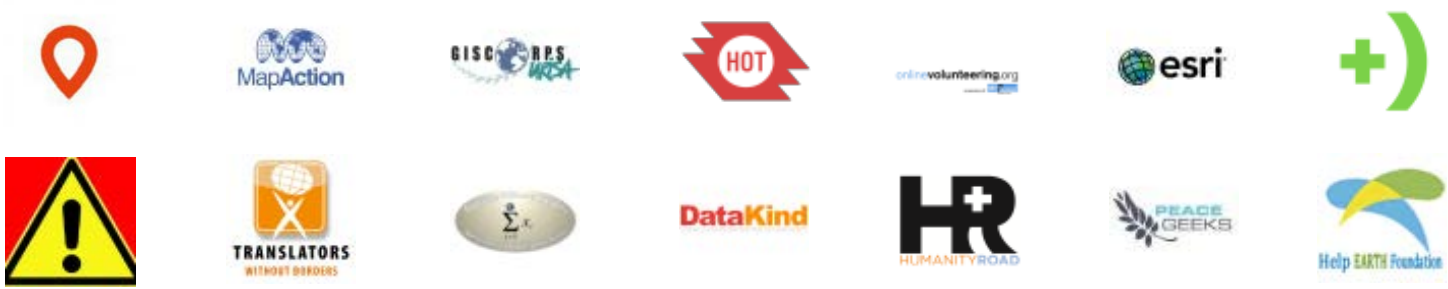
HOT provides community driven mapping, technical tools and training to support the use of OSM for humanitarian and economic development purposes.

Missing Maps is an open, collaborative project in which you can help to map areas where humanitarian organisations are trying to meet the needs of vulnerable people.

Partners include American Red Cross, British Red Cross, Medicine San Frontieres, CartoONG, Dutch Red Cross and HOT.

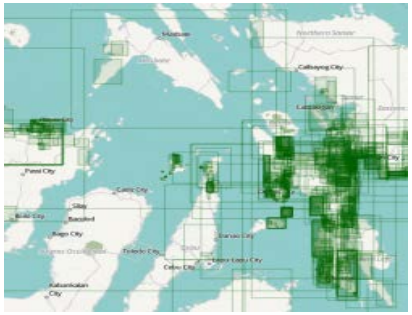
DH Network

Digital Humanitarian Network



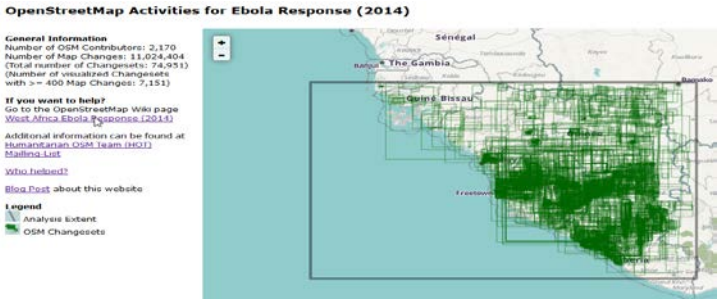
www.DigitalHumanitarians.com

Haiti Earthquake
2010



Typhoon Haiyan
Philippines 2013

Indonesian
Preparedness
2012 - 2015



West African
Ebola Response
2014

Learning and building over time

OpenStreetMap and HOT’s tools are built with large open source tools, software and products.

Data Collection

Mapillary

OpenAerialMap

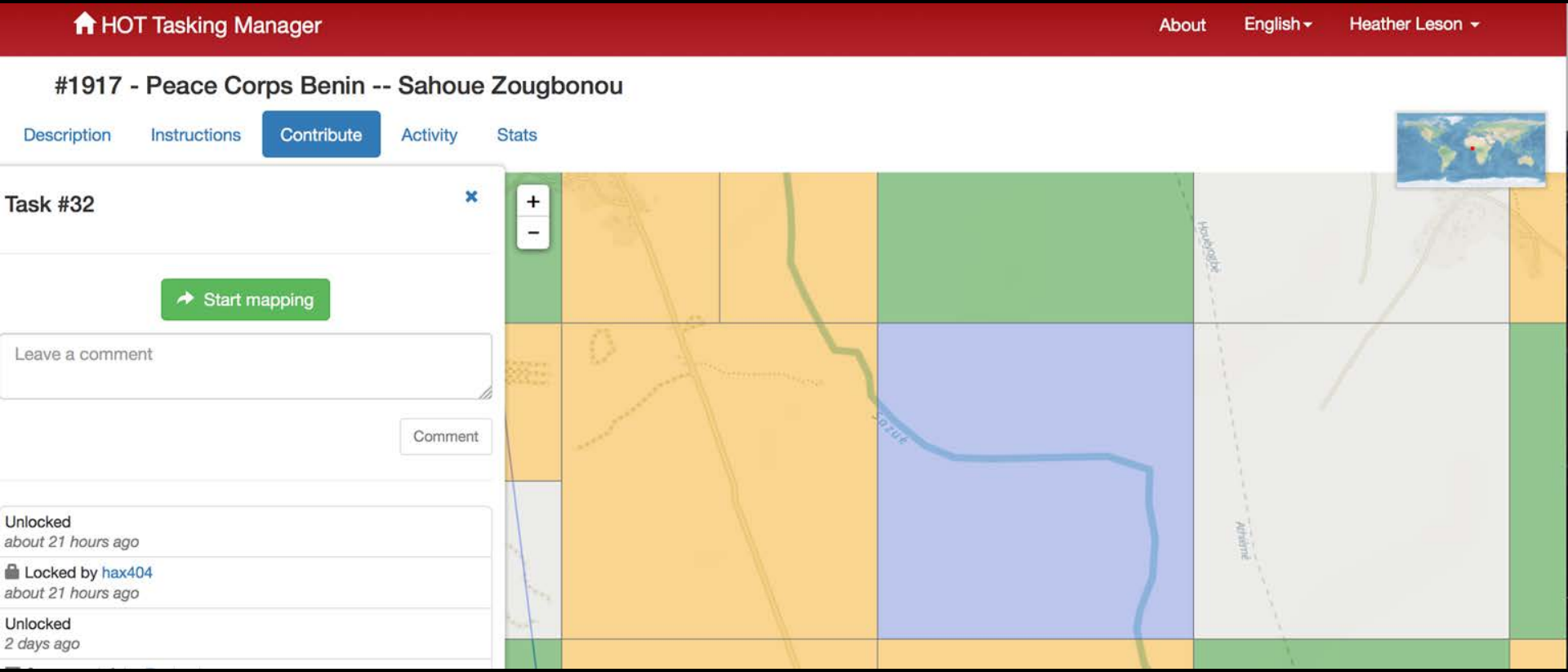
OpenMapKit

Nepal Earthquake: Kathmandu Living Labs and Humanitarian OpenStreetMap Team (HOT)

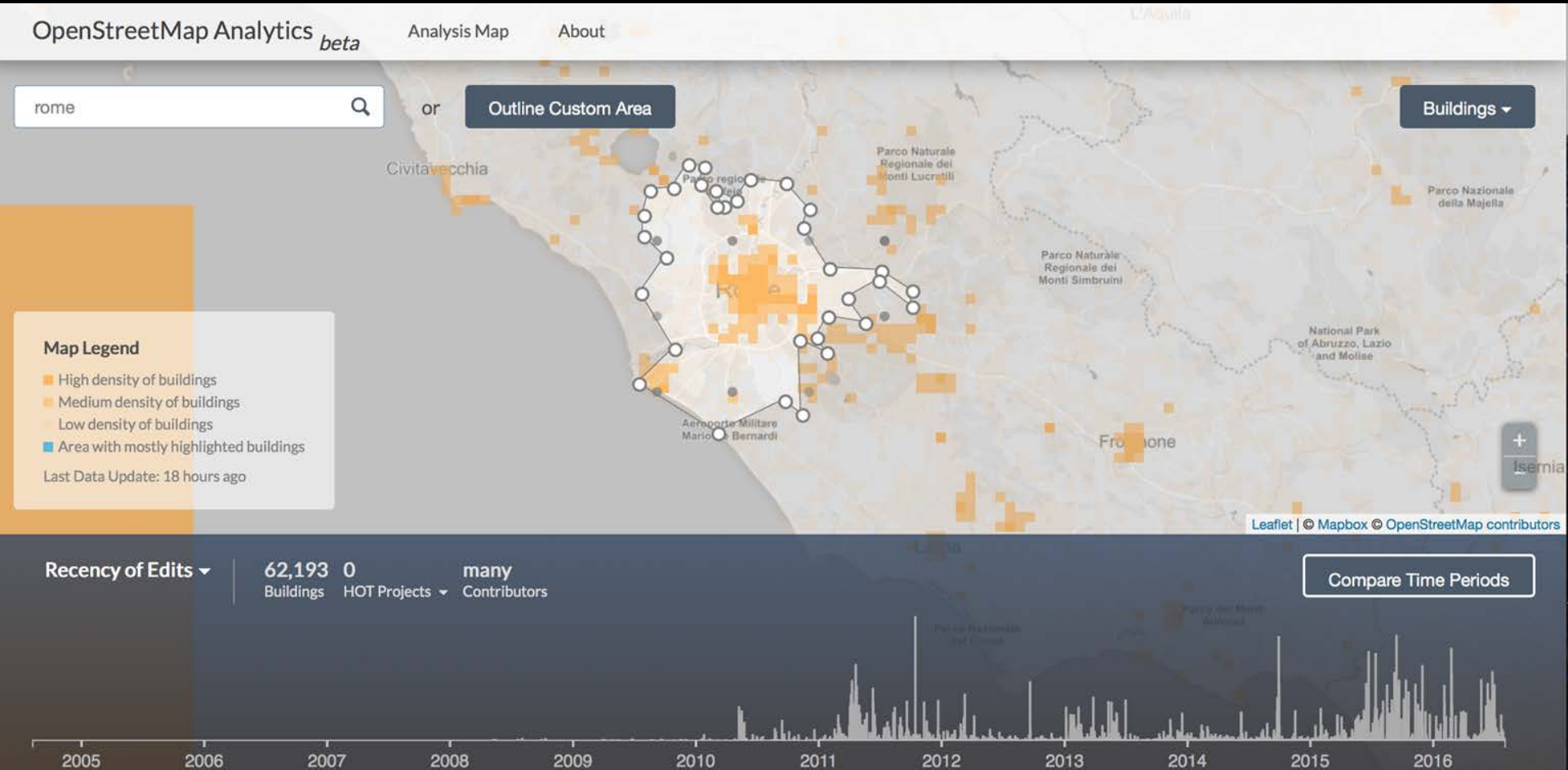
Mapping Financial Inclusion in Uganda with HOT

Remote Mapping - lines/points

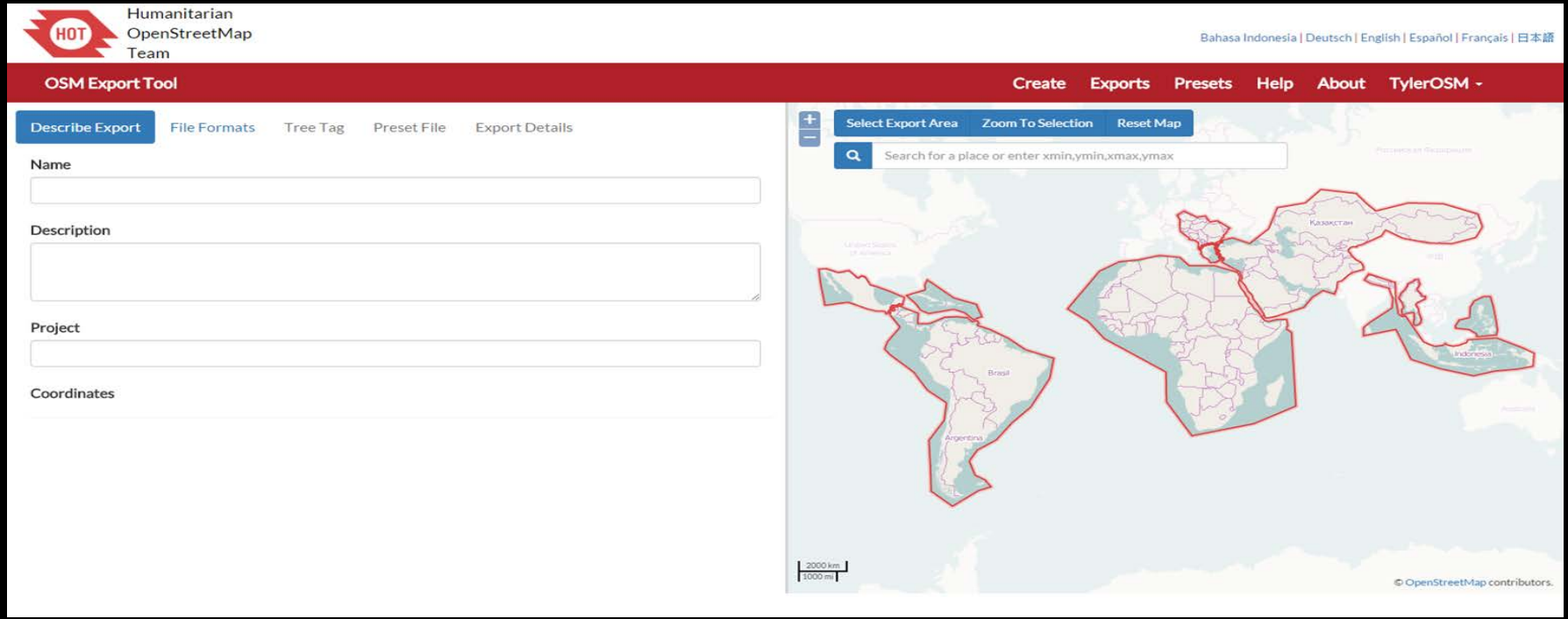
Data and Tools



OSM Analytics



OSM Export Tool



Humanitarian OpenStreetMap Team

Bahasa Indonesia | Deutsch | English | Español | Français | 日本語

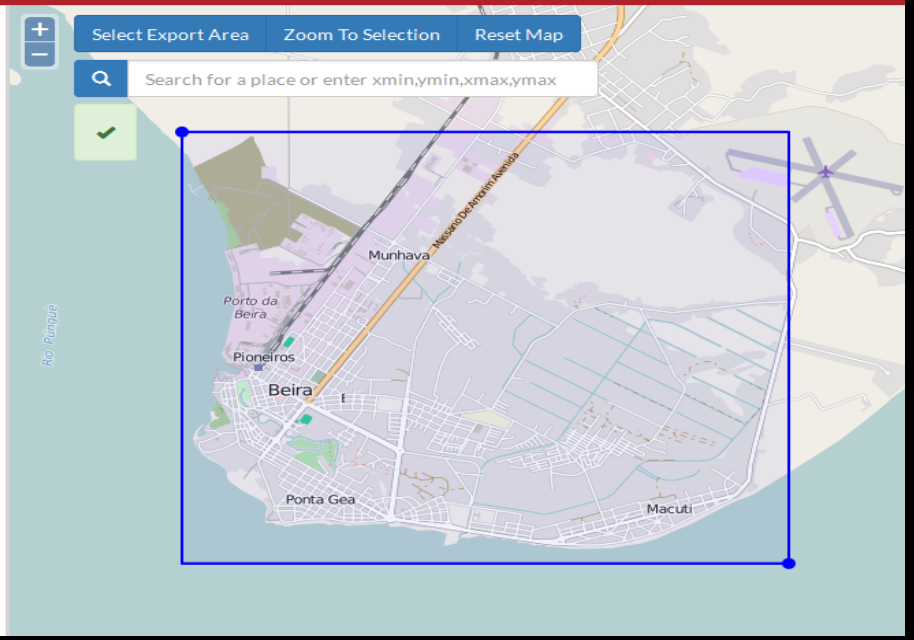
OSM Export Tool Create Exports Presets Help About bgirardot

Describe Export | File Formats | Tree Tag | Preset File | Export Details

Select from either the HDM or OSM data models

Features can only be selected from one tree, either from the HDM or the OSM data model. Feature tags can not be mixed between the two. Deselect the HDM Tree to enable the OSM Tree.

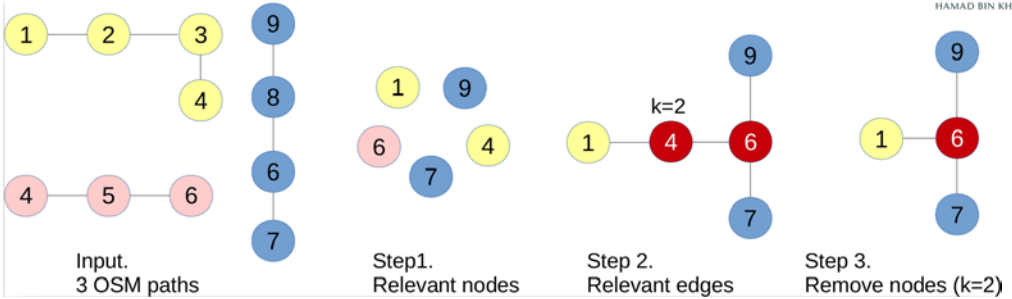
- Humanitarian Data Model
  - Buildings
  - Transportation
    - Barriers
    - Transportation means
    - Other road objects
    - Obstacles
    - Roads
  - Places
  - Hazards
  - Public services
  - Commercial and Economic
  - Physical environment
  - Utilities
- OSM Data Model
  - Water
  - Relations
  - Sports
  - Highways
  - Facilities
  - Shops
  - Man Made
    - Bridges
    - Man Made
    - Power
    - Historic Places
  - Annotation
  - Transport

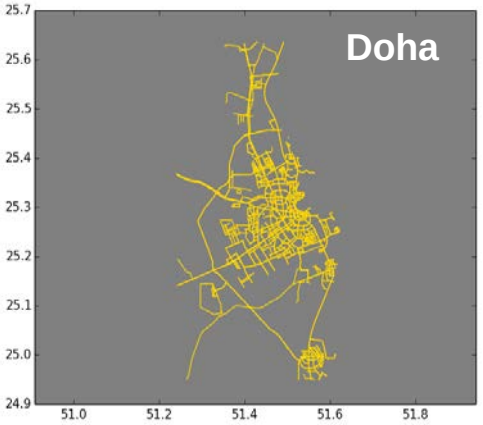


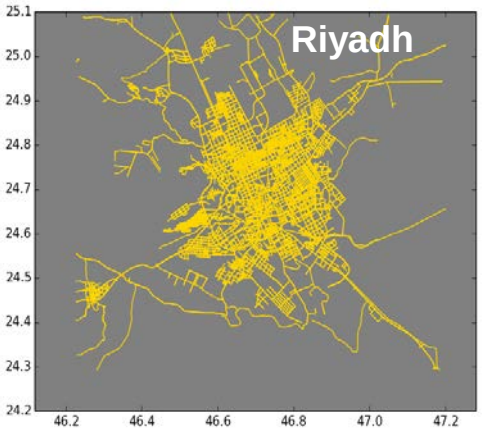
HOT and Missing Maps are not “research” projects. Research is welcome.

City Robustness: Road networks

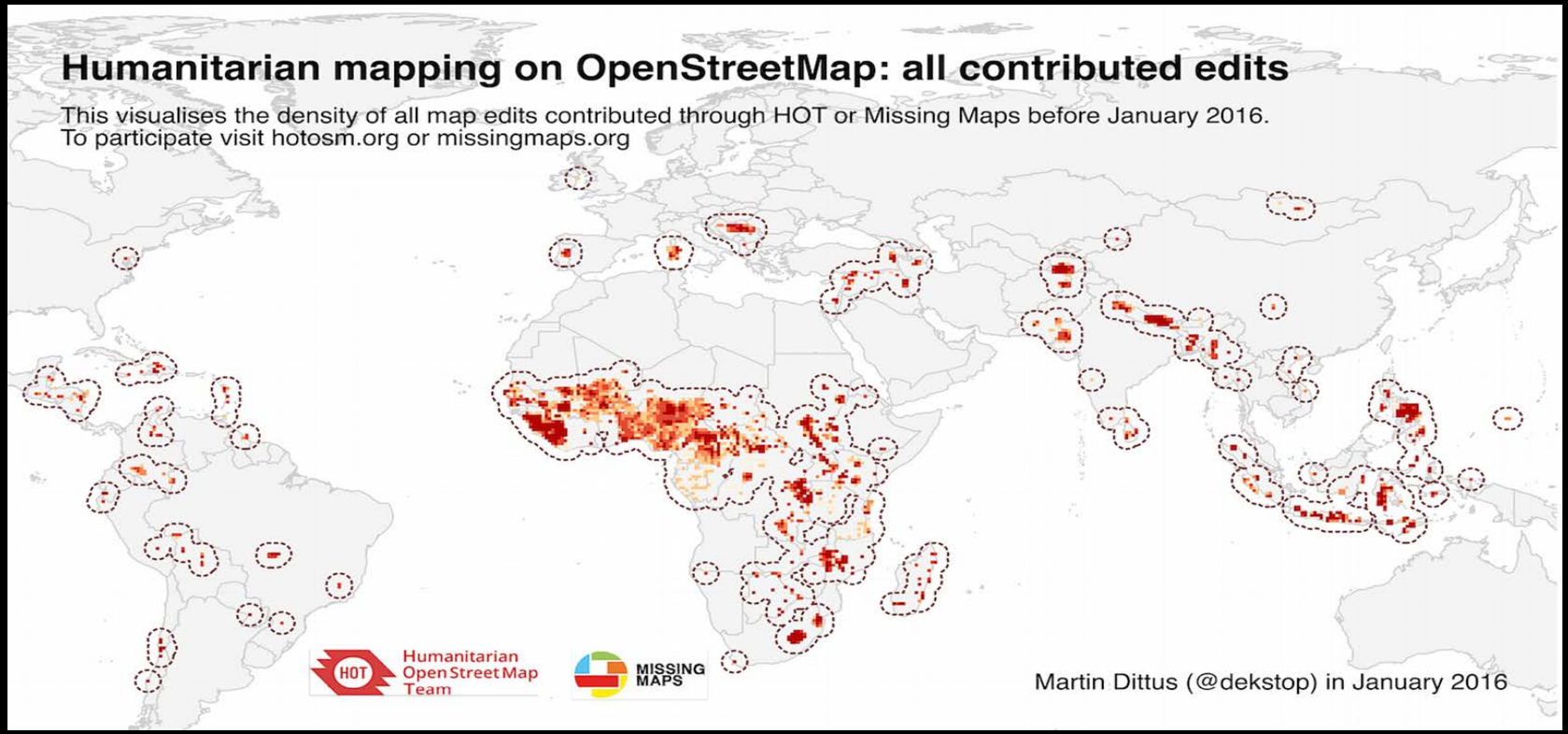
Build road networks from OSM shapefiles



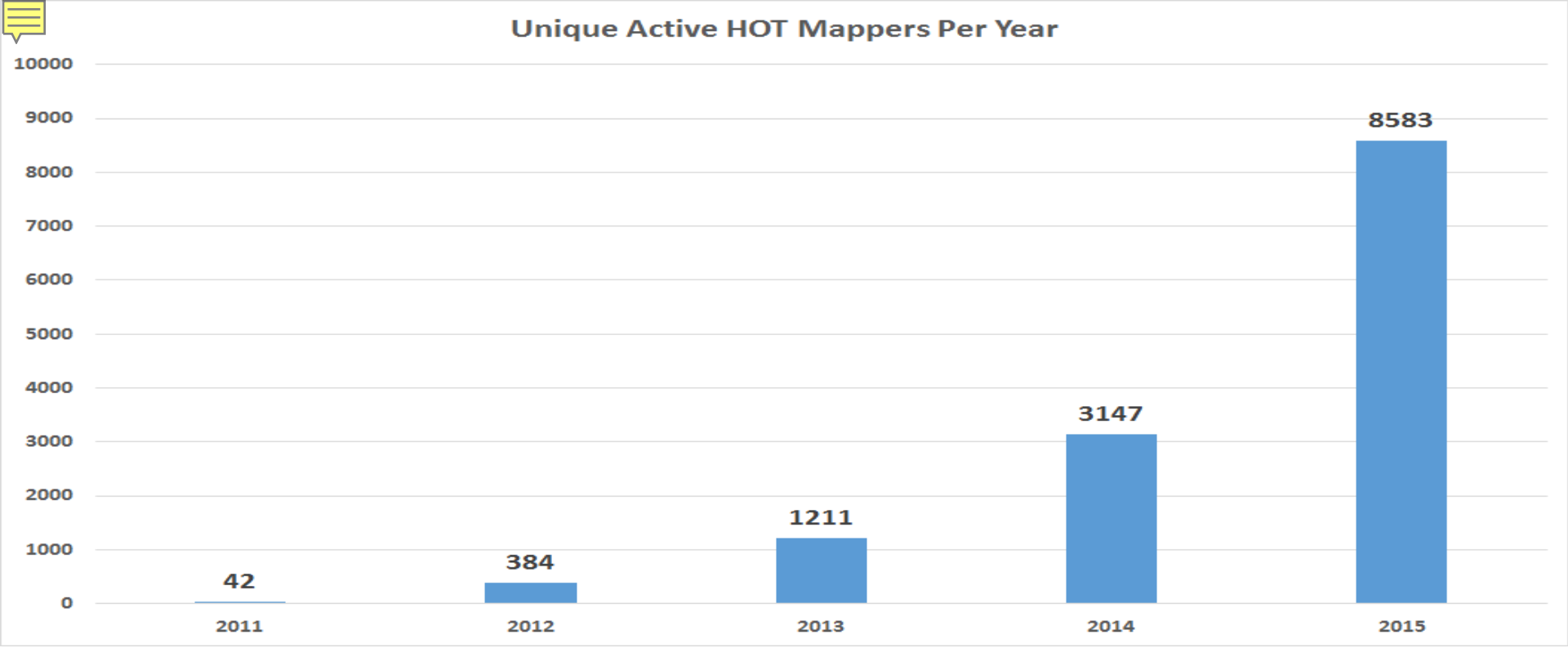




City	||V||	||E||	Length (KM)	K	Mesh	Org
los-angeles	**525246**	**678652**	**113504.437**	2.584	0.146	0.924
paris	369244	503320	54713.641	2.726	0.182	0.915
london	343081	451855	37954.920	2.634	0.159	0.900
dallas	313147	398649	80613.803	2.546	0.137	0.950
chicago	300479	403366	70911.445	2.685	0.171	0.938
melbourne	285671	382855	48425.705	2.680	0.170	0.936
new-york	280797	378542	60445.977	2.696	0.174	0.925
denver-boulder	224441	296232	44696.132	2.640	0.160	0.920
bangkok	205062	251387	64109.417	2.452	0.113	0.966
rotterdam	197785	280381	24081.916	2.835	0.209	**0.867**
mexico-city	184568	246154	36659.346	2.667	0.167	0.944
milan	177746	242894	22686.829	2.733	0.183	0.911
pittsburgh	169723	211419	42600.967	2.491	0.123	0.950
saint-louis	167058	203376	44989.002	2.435	0.109	0.953
rio-de-janeiro	145383	193222	28436.101	2.658	0.165	0.943
lisbon	136740	184803	24091.563	2.703	0.176	0.944
athens	136338	188655	25389.023	2.767	0.192	0.907
sydney	131581	174639	22508.013	2.654	0.164	0.948
montreal	124373	172043	39126.493	2.767	0.192	0.908
rome	111259	147794	17878.176	2.657	0.164	0.920
riyadh	107445	156448	24023.621	**2.912**	**0.228**	**0.980**
santiago	107027	146604	17690.681	2.740	0.185	0.946
san-francisco	99491	134451	17644.981	2.703	0.176	0.898
glasgow	93235	118877	11350.264	2.550	0.138	0.953
bengaluru	88037	114748	14457.036	2.607	0.152	0.959
porto-alegre	79148	108282	23416.511	2.736	0.184	0.918
new-orleans	76438	94395	22442.663	2.470	0.117	0.948
chennai	72277	92720	11950.411	2.566	0.141	0.958
singapore	65333	87039	13641.570	2.664	0.166	0.931
dubai	64462	92849	12127.150	2.881	0.220	0.907
san-juan	61883	72247	9027.872	**2.335**	**0.084**	0.963
barcelona	59165	84178	10104.779	2.846	0.211	0.899
amman	57123	76775	10675.922	2.688	0.172	0.954
el-paso	44326	60167	11000.284	2.715	0.179	0.949
quito	43051	56301	10406.483	2.616	0.154	0.944
durban	42171	53345	8424.425	2.530	0.133	0.942
boston	40375	55573	5656.712	2.753	0.188	0.899
dakar	38640	54164	4208.776	2.804	0.201	0.949
abudhabi	38401	55724	8006.597	2.902	0.226	0.880
doha	34743	48544	7106.840	2.794	0.199	0.968
juarez	33663	46313	7401.811	2.752	0.188	0.949
belgrade	32936	41780	5840.179	2.537	0.134	0.937
wellington	27135	32651	7811.626	2.407	0.102	0.967
manama	26781	37143	3891.066	2.774	0.193	0.957
medellin	24410	33397	5049.379	2.736	0.184	0.902
christchurch	20368	26220	5667.041	2.575	0.144	0.939
cali	20001	28930	3549.279	2.893	0.223	0.923
accra	19838	26079	4070.770	2.629	0.157	0.974
phnom-penh	17283	22296	4075.526	2.580	0.145	0.959
mandalay	7190	9584	1706.192	2.666	0.167	0.944
da-nang	6872	9777	1565.853	2.845	0.212	0.930
kigali	6622	9006	2511.172	2.720	0.180	0.945
surat	**2639**	**3569**	**1040.696**	2.705	0.177	0.958



120M map edits | 20,000 contributors | 1,000 projects



Getting from 8,500 to 85,000 to 850,000

Data with the Community: Tanzania

DAR RAMANI HURIA

Mapping Dar es Salaam

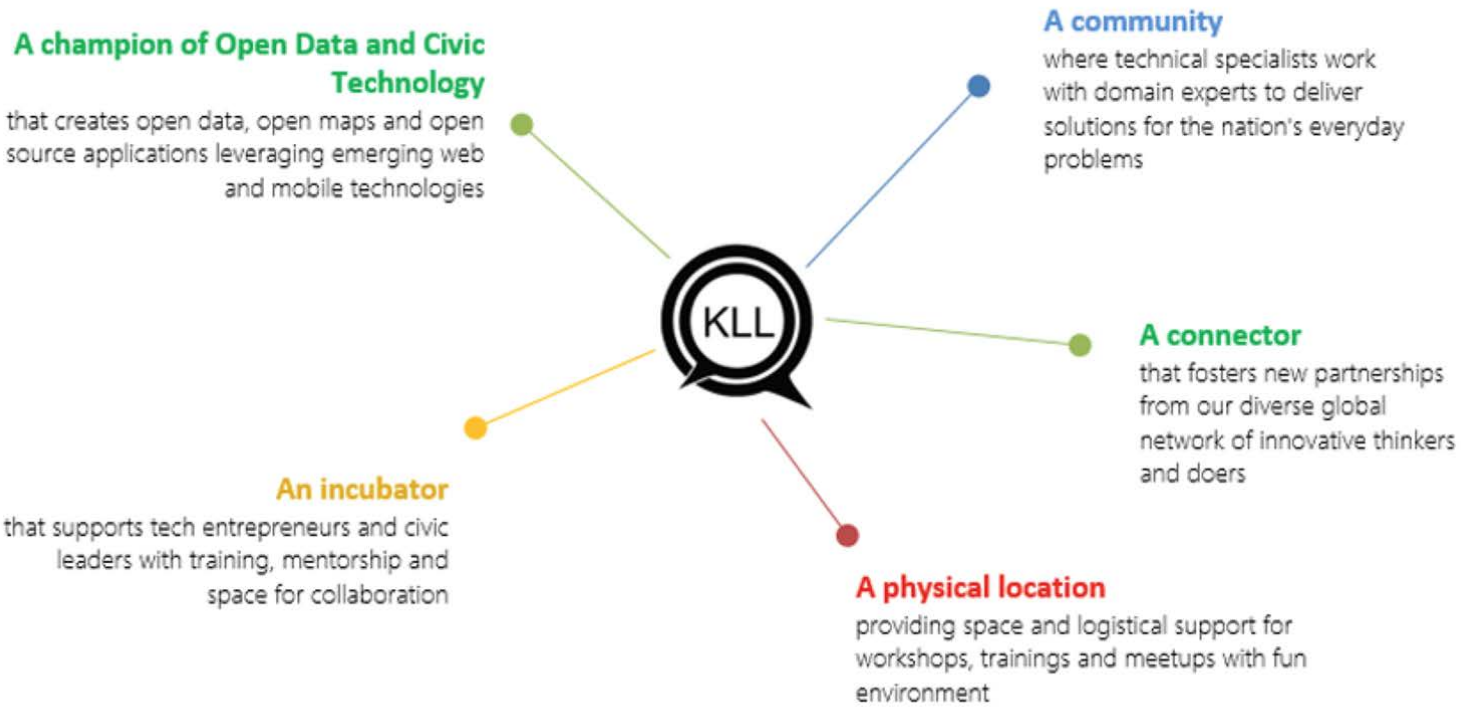
Research Paper

The Praxis of Community Mapping in Developing Countries - Mark Iliffe

- Research done in collaboration with the local communities, HOT and the World Bank.
- The programme was not a result of the research but it informed the work.
- Mark has been advocating for more research in HOT and is setting an example for methodology and community development.

Data with the Community: Nepal

Kathmandu Living Labs



Research Papers

Community as curriculum youth community informatics curriculum integrating inquiry and social action with technology – Nama Budhathoki

Infrastructure in the wild: What mapping in Post-Earthquake Nepal Reveals about infrastructural emergence – Robert Soden, Leysia Palen

Partnerships and Coordination

Potential HOT Research Topics

New Tools

- Satellite quality, Algorithms, Computer Vision
- Help and Local guides

Contributor Experiences

Evaluating/understanding community

Impact of UX on mapping activities

Quality control / Validation

Impact of the map on the lives of affected communities

Diversity in the community

Ask a Researcher!

What is the timeline of the research?

Tell me more about your background and your institution

How much time will a survey /interview take?

Do you have an IRB (Institutional Review Board) process?

Will this call or email be recorded?

Did you user test the survey before sharing?

Who else are you speaking with from the digital community?

Will we (digital community) be cited or just the individual?

Are there anonymization issues that require attention (E.g. the value of your product may be sensitive for first responders and humanitarian workers in the field)?

What other information products/ papers will you produce?

Can I review the work before you publish it?

Can you please confirm that [insert org] will be credited in the notes as a contributor?

HOT Academic Partnerships

1. **Get to know us**
2. **Be clear from the start on your purpose**
3. **Let us help**
4. **Need research ideas? We've got research ideas**
5. **There are other ways to collaborate with HOT**
6. **Let us know about your findings**

Empower with the Community: Mapfugees

Thank you

HOT Summit 2016

Join us
September 22, 2016
Brussels

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