Humanitarian
OpenStreetMap
Team

ANNUAL REPORT 2017

CONTENTS

HOT Executive Director Tyler Radford undertaking lifeline infrastructure mapping in Jakarta, Indonesia with HOT staff members Randy Nanda, Rizki Mutiara, Fadlila Ananingtyas.

A Message from Our Executive Director

Looking back on 2017, one of the things I'm most proud of is our community's ability to adapt and respond to some of the most complex humanitarian and development challenges. This year, HOT pioneered new approaches for working directly with Syrian refugees in Turkey and South Sudanese refugees in Uganda. By teaching use of OpenStreetMap to document services (and gaps) in their new countries, refugees and host community members took an active role in humanitarian response, pushing the system to become more accountable to the populations it seeks to serve. HOT also pioneered new methods of open data collection to make cities more resilient to natural hazards. These approaches were field tested in some of the world's largest and fastest growing cities: Jakarta and Dar es Salaam, respectively.

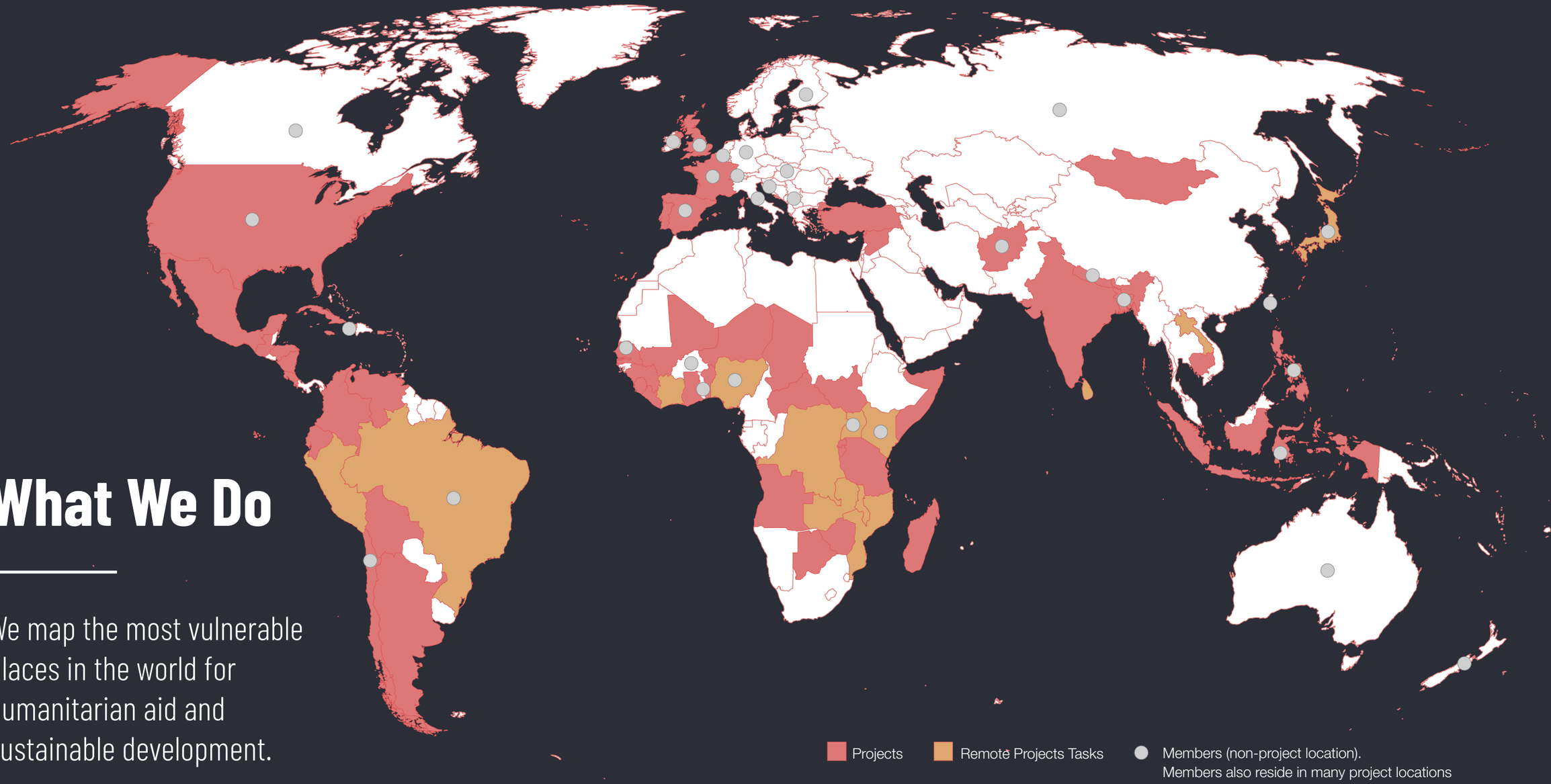
Where we did not have staff on the ground, HOT donors came together to fund "Microgrants" for seven small-scale, big-impact open mapping projects. Each grantee's project focused on increasing resilience to or responding to local hazards and was designed and executed entirely by local leaders. The HOT global volunteer community activated a total of 11 times for disaster responses, delivering critical base map data to humanitarian partner organizations. We proudly launched a new version of our Tasking Manager and "bridged the gap" between citizen generated data and the humanitarian information management community by connecting OpenStreetMap data to UN OCHA's Humanitarian Data Exchange.

As we closed the year, HOT's community expanded to more than 100,000 people with members in more than 60 countries. The great part about our community is that there are few barriers to entry: anyone who wants to contribute is encouraged to map or share their time, talent, or expertise. Whether you're an individual or represent a government agency, NGO, university, community group or company, we welcome you to join our global family in furthering HOT's humanitarian mission.

Tyler Radford
@TylerSRadford

What We Do

We map the most vulnerable places in the world for humanitarian aid and sustainable development.



Reaching those in need through maps

When major disaster strikes anywhere in the world, thousands of HOT volunteers come together online and on the ground to create open map data that enables disaster responders to reach those in need.

Developing innovative new technology to serve the humanitarian and development communities

HOT develops open source apps and tools for collaborative mapping and geospatial data collection. Our tools are free for all to use and leveraged by partners such as Red Cross societies, Médecins Sans Frontières, UN agencies and programmes, government agencies, and local NGOs and communities.

Putting the world's most vulnerable people and places on the map

Through the Missing Maps project, the HOT global community creates maps of high vulnerability areas where data is scarce, putting millions of people onto the world map in OpenStreetMap.

Expanding knowledge across partners and communities

HOT enables communities, NGOs, international organizations, and government partners to use and contribute to OpenStreetMap for locally-relevant challenges through provision of training, equipment, knowledge exchange, and field projects.

1

Refugee Response

The world is witnessing the highest levels of displacement on record, with 65.5 million people forced from home, among them 22.5 million refugees. Refugees are often resettling outside of traditional camps in cities and host communities. The need for maps which track human displacement, resettlement, and access to services has become vital to these new, geographically dispersed responses. HOT programs train and equip community leaders in refugee communities to map services, vulnerabilities and assets in the places they live. The resulting multilanguage maps and map data are then made accessible in various forms in refugee social/community centers, provided to host country governments, UNHCR, NGOs, and used by refugees themselves to navigate their new environments.

Students receive training in OpenStreetMap to help produce a multi-lingual map of refugee services in Istanbul, Turkey.

HOT staff member Geoffrey Kateregga working with refugees to collect data on access to water in Northern Uganda.

> “Mapping has made me learn how to use a smart phone to collect data and direct people to places they didn’t know around the district.” I have also started teaching other people how to use smart phones to locate places around the district.”

Micheal Yani, a refugee from Sudan who currently resides in Rhino Refugee Settlement

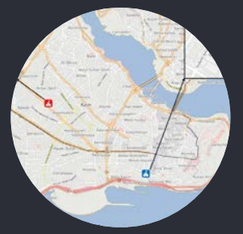
Supported by

TURKEY & UGANDA

Over 300,000 shelter and buildings mapped in Uganda and Turkey. More than 200 refugees trained on data collection and mapping.

Over 300 NGO and government staff and open data/ OpenStreetMap used across the refugee response in (Northern) Uganda for planning, service delivery and coordination.

> Mapping of Istanbul, Turkey



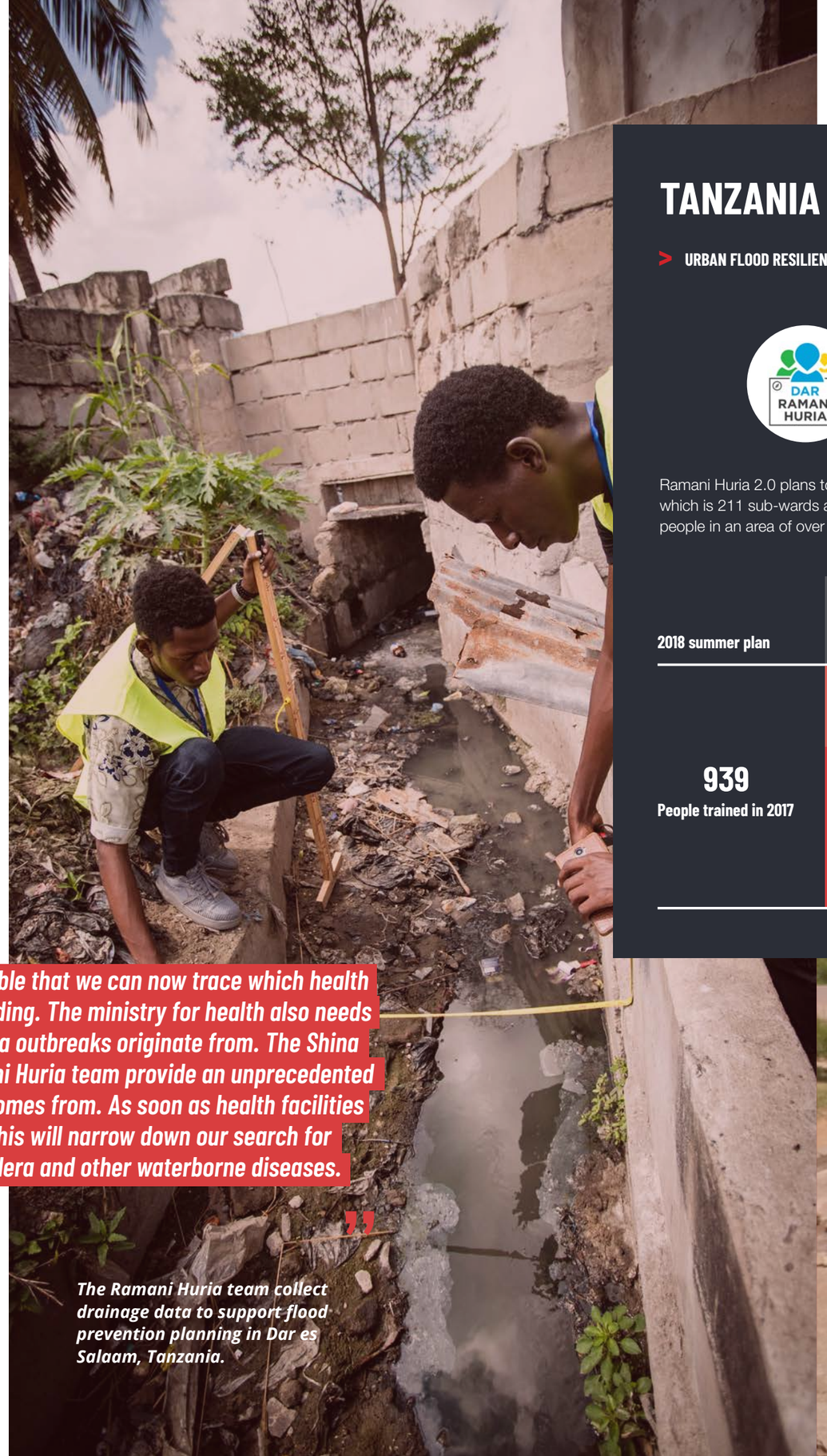
> Mapping of Uganda

2

Sustainable Cities

HOT uses open mapping as a tool to improve equity, resilience, and quality of life for urban residents. With support from the World Bank in Tanzania and USAID and DAI in Liberia, HOT engages city residents throughout the mapping process.

In 2015 HOT began an initiative to mapping infrastructure data in various parts of Dar es Salaam. Now in its second phase, Ramani Huria 2.0, is combining exposure data and flood hazard data to conduct risk analysis of potential future disasters. The team are using community mapping techniques to engage with local leaders and teach community inhabitants free, open source smartphone data collection tools. The data collected is enabling people across all levels of society to improve flood mitigation plans and raise awareness and resilience to natural hazards.



TANZANIA

> **URBAN FLOOD RESILIENCE: RAMANI HURIA**

DAR RAMANI HURIA

Ramani Huria 2.0 plans to cover 44 wards which is 211 sub-wards and 2.3+ million people in an area of over 380km^2

2018 summer plan

Train 350+ students

313 summer 2017 students
♀41% ; ♀59%

625 community members
♀36% ; ♀64%

939
People trained in 2017

LIBERIA

> **SUPPORTING DECENTRALIZATION IN LIBERIAN CITIES**

HOT worked with city administrations, MIA, LISGIS, and local leaders in a participatory mapping exercise to jointly agree on the official city, zone, and community boundaries as well as official street names. Mapping these boundaries and street names will reduce conflict while improving local governance and planning.

Buildings	52,730	58.7%
Amenities	18,177	20.3%
Toilets	10,115	11.3%
Water Points	4,732	5.3%
Shops	3,382	3.8%
Educational Facilties	380	0.4%
Health Facilities	181	0.2%
Financial Facilities	62	0.1%

The Ramani Huria team collect drainage data to support flood prevention planning in Dar es Salaam, Tanzania.

A field mapper adds water points to the basemap of Monrovia, Liberia using OpenMapKit.

> *"The workshop made it very tangible that we can now trace which health facilities are under threat of flooding. The ministry for health also needs to be able to trace where cholera outbreaks originate from. The Shina boundaries mapped by the Ramani Huria team provide an unprecedented detail to trace where a person comes from. As soon as health facilities ask patients for their Shina this will narrow down our search for contamination sources of Cholera and other waterborne diseases."*

Ali Nyanga, Ministry for Health Representative

Supported by THE WORLD BANK IBRD • IDA | WORLD BANK GROUP USAID FROM THE AMERICAN PEOPLE

> Liberia: In collaboration with DAI.
Tanzania: See www.ramanihuria.org for collaborating partners.

3

Disaster Risk Reduction

HOT works with communities and disaster management agencies to map and understand risk by developing comprehensive data sets on buildings, roads, and key lifeline infrastructure data.

Data can be used in InaSAFE to produce realistic natural hazard impact scenarios for better planning, preparedness and response activities across multiple hazards such as hurricanes, earthquakes, floods, hurricanes/cyclones and volcanic eruptions.

Field teams use Fieldpapers and GPS readings to create disaster preparedness maps in Indonesia.

> *“The spatial data that government officially owns is not complete. This is why we want to use OpenStreetMap data to complement what is missing from what we have. OSM enables us to perform damage and loss estimation when a disaster strikes. We could also locate strategic places for IDP camps and identify supporting facilities surrounding it. This allows us to respond more rapidly.”*

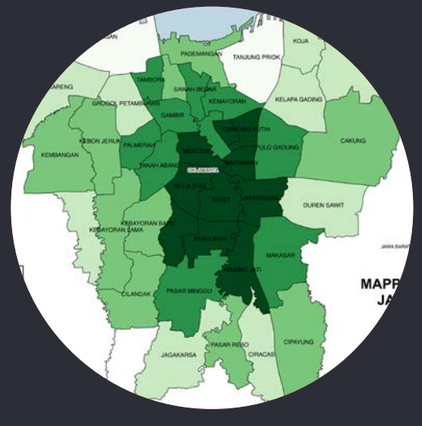
Basuki Rakhmat,
Jakarta’s Regional Disaster Management Agency
(BPBD DKI)

Supported by USAID FROM THE AMERICAN PEOPLE · Australian Government

> In collaboration with Pacific Disaster Center; Indonesia National Disaster Management Agency (BNPB); MIT Urban Risk Lab

INDONESIA

> **Mapping of Jakarta DKI (March - August 2017)**



> **Lifeline Infrastructure of DKI Jakarta Province**

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	Before Survey	After Survey	Validated
Education Facilities	2,822	5,274	5,849
Place of Worships	759	3,908	5,380
Sport and Recretion Facilities	638	1,175	3,274
Government Establishments	28	2,455	2,458
Electrical Power Systems	110	1,604	1,781
Health Facilities	563	1,283	1,581
Bank	89	1,409	1,513
Water Supply Systems	30	1,049	1,048
Evacuation center	435	248	576
Communications Tower	9	513	572
Gas Stations	109	315	348
Daily Needs and Logistics	179	261	322
Emergency Services	170	206	282
Transportation	34	64	79
Total	5,975	19,764	25,063

4

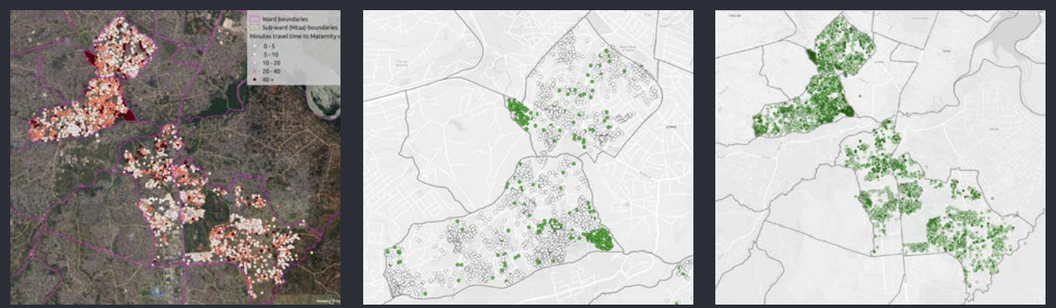
Public Health

Our public health projects provide data to support NGO and government initiatives on issues such as malaria prevention, cholera outbreaks, maternal healthcare, vaccination campaigns, and HIV awareness. The maps created help connect local people to health services, and highlight areas to improve public health provision and quality.

HOT staff member Asha Mustapher training local leaders how to use maps to understand access to health services and HIV hotspots in Mbeya, Tanzania.

4,740,576
Buildings mapped by Sep 6, 2017

MALARIA ELIMINATION

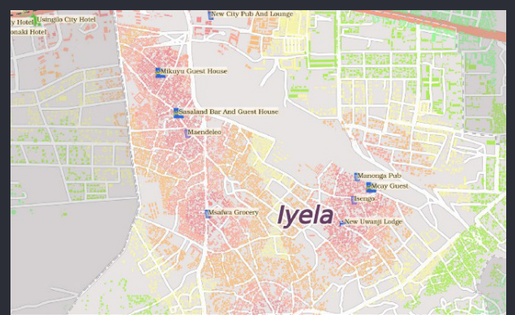


Throughout 2017, HOT mappers contributed roughly 5 million buildings to OpenStreetMap during the mapping to eliminate malaria campaign in Zambia, Botswana, Zimbabwe, Laos, Cambodia, Honduras and Guatemala.

Supported by Bill & Melinda Gates foundation

> In collaboration with Digital Globe, Clinton Health Access Initiative, PATH, Mapbox.

DATA ZETU



Community-generated maps showing time taken to access maternal health clinics in Dar es Salaam, Tanzania.

Supported by Millennium Challenge Corporation

> In collaboration with IREX

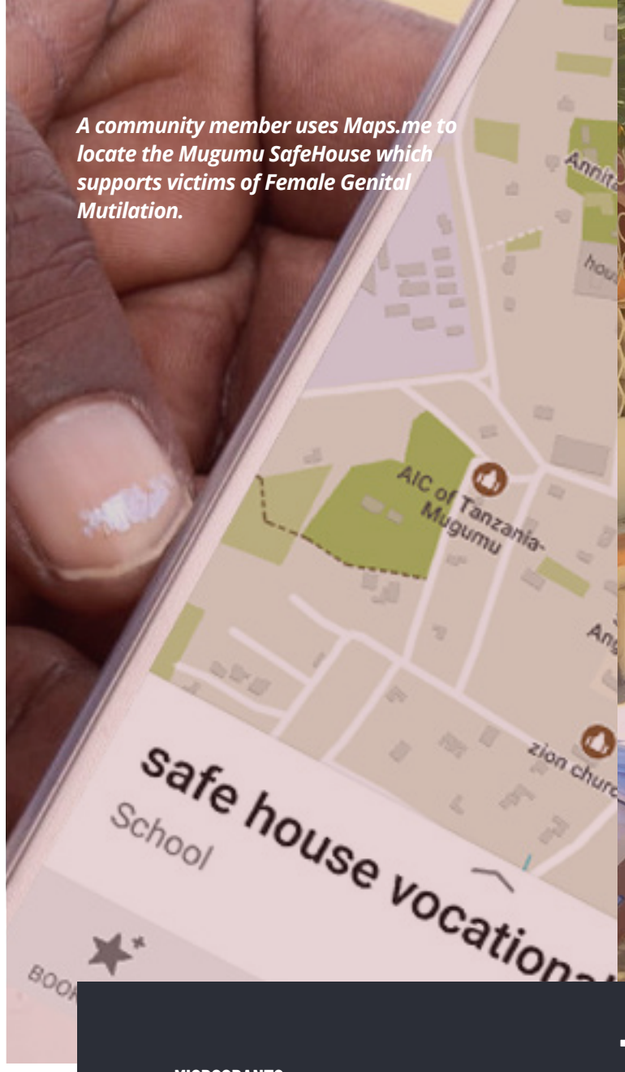
> *"The workshop made it very tangible that we can now trace which health facilities are under threat of flooding. The ministry for health also needs to be able to trace where cholera outbreaks originate from. The Shina boundaries mapped by the Ramani Huria team provide an unprecedented detail to trace where a person comes from. As soon as health facilities ask patients for their Shina this will narrow down our search for contamination sources of Cholera and other waterborne diseases."*
>
> **Ali Nyanga, Ministry for Health Representative**

5

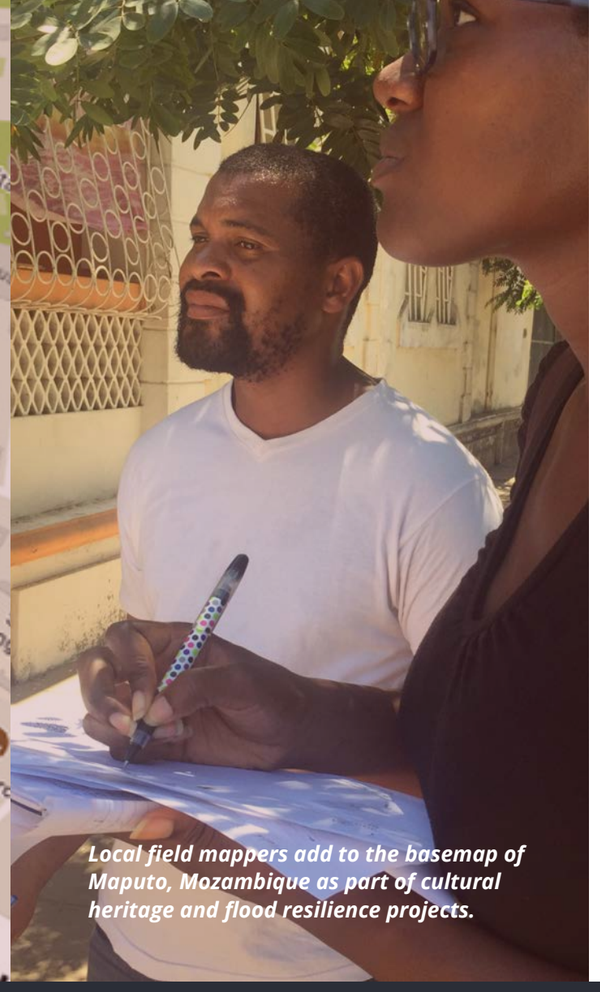
Volunteer Community Support

Each year, HOT provides Microgrants of up to $5,000 to help communities expand their activities and grow the use of OpenStreetMap in their local area. Microgrant projects focus on a range of mapping and capacity building activities. The 2017 Microgrants were made possible by the generous donations of the HOT community in the 2016 #mapthedifference fundraising campaign.

In 2017, we provided microgrants to eight communities working to advance the Sustainable Development Goals through mapping. In total the Microgrants Projects delivered training to 7,000 new OpenStreetMap users, and made over 2.3 million local edits in OpenStreetMap.



A community member uses Maps.me to locate the Mugumu SafeHouse which supports victims of Female Genital Mutilation.



Local field mappers add to the basemap of Maputo, Mozambique as part of cultural heritage and flood resilience projects.

> *We invite everyone who shares this passion for mapping as a means for development, to continue (or to start) donating to HOT, so that HOT in turn can continue to support projects like ours, not only in Mozambique but worldwide, projects that help so many communities, specially the unprivileged communities of our planet.*

Remigio Chilaule, Community leader

> *Very few women in rural Tanzania have access to smartphones. The microgrant from HOT allowed us to train female mappers to map their villages and so help protect local girls from Female Genital Mutilation (FGM). Thank you HOT for helping us empower Tanzanian women and girls!*

Rhobi Samwelly, FGM Activist and Founder of Hope for Girls and Women, Tanzania

MICROGRANTS:	TANZANIA > CROWD2MAP	MOZAMBIQUE > MAPEANDO MEU BAIRRO
Community age at time of grant:	18 months	less than 6 months
Grant:	$5,000 USD	$4,000 USD
Community growth:	277%	200%
Mapping achievements:	• Digitisation of 2.9 million buildings and 370,000km of road • Field mapping of 9000 villages • Training of local mappers in 26 additional areas in 7 topics (map literacy, ID editor, JOSM, Maps.Me, QGIS, benefits of maps for development, use of open data) • Over 7500 remote mappers engaged, 50% new to OSM	• Cultural mapping of Mafalala, a historic and vulnerable neighbourhood • Mapping of bus routes in Maputo • Expanding to replicate Ramani Huria drainage mapping • 8000+ edits made to OSM • Training of 50 local mappers in topics including ID editor, JOSM, Maps.Me, and OpenDataKit

> Supported by hundreds of individual donors from around the HOT community. To donate visit donate.hotosm.org

6

Disaster Response

Location is critical to disaster response: first responders need fast, reliable information to reach affected areas post-disaster and prioritize aid. Through rapid response activations, the HOT community works together online using satellite and drone imagery to rapidly generate map data in OpenStreetMap. The resulting data is made available via the Humanitarian Data Exchange (HDX) and can be used to create printed maps, for analysis, or for navigation on the ground.

> *The speed and quality of mapping by HOT has enabled us to identify and ensure that we are working effectively within a community and respond to change as the map continually updates.*
>
> Paul Knight,
> GIS Analyst, British Red Cross

In 2017 HOT led or supported the response to 11 major disaster incidents, many of which happened in a short period of time around the beginning of October:

2017 Mexico Earthquakes

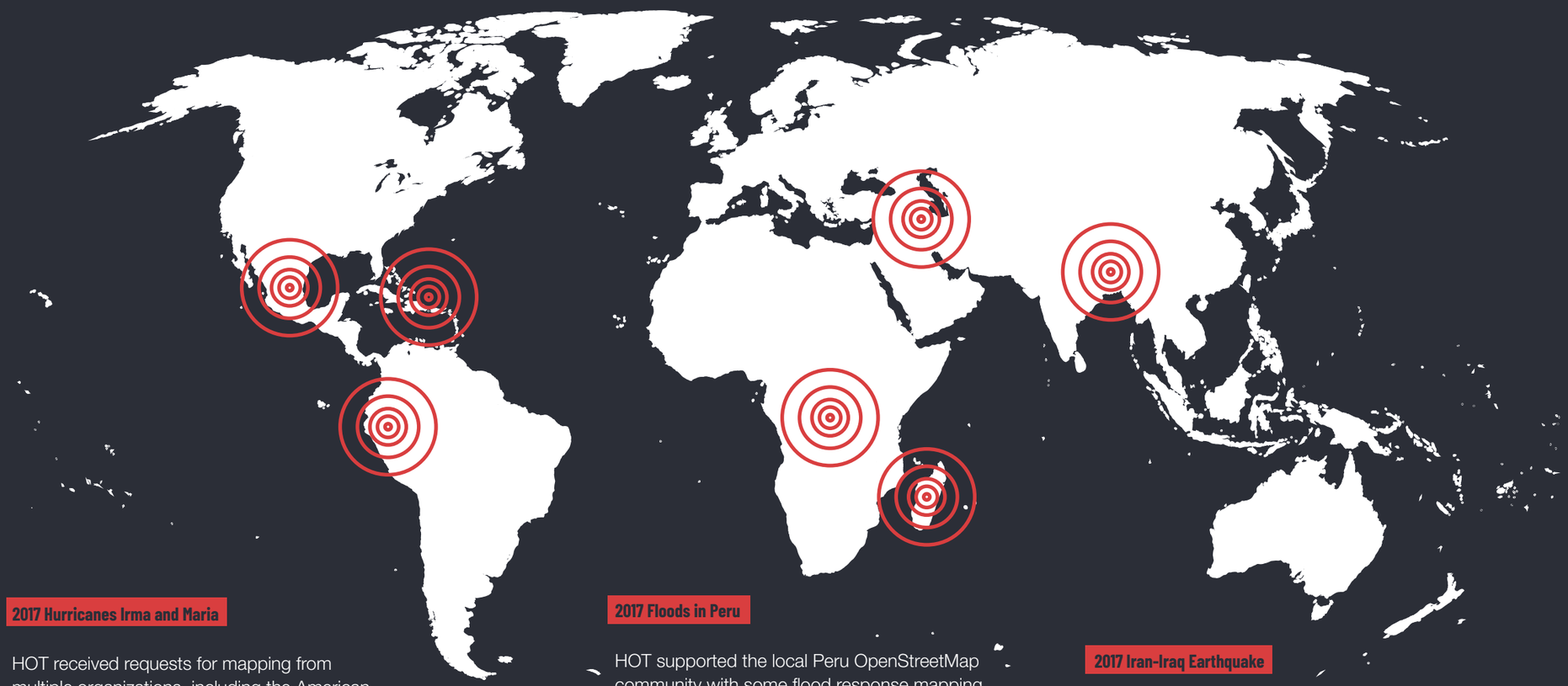
HOT, by request of OSM-Mexico and the Mexico National Institute of Statistics and Geography (INEGI), coordinated the response of over 1,500 mappers to digitize over 300,000 buildings and almost 25,000 kilometers of road for two major earthquake impacted areas.

2017 Ebola outbreak in Democratic Republic of Congo

Earlier in the year, the OSM-RDC community responded to an outbreak of Ebola with several mapping projects. HOT was only needed for minor support.

2017 South Asian Floods

Kathmandu Living Labs and OSM-Bangladesh led the mapping response to flooding in their respective countries with the support of some key HOT Disaster Coordinators; over 800 mappers came together to add about 18,000 buildings and 48,000 kilometers of road network in the affected areas.



2017 Hurricanes Irma and Maria

HOT received requests for mapping from multiple organizations, including the American Red Cross and the United States Federal Emergency Management Agency (FEMA), for buildings and a basemap of Puerto Rico. Combined, all our efforts on several Caribbean islands, as well as the US mainland resulted in over 5,000 mappers collaboratively mapping over 1.4 million buildings and creating a complete basemap of Puerto Rico.

2017 Floods in Peru

HOT supported the local Peru OpenStreetMap community with some flood response mapping they initiated.

2017 Cyclone Enawo in Madagascar

HOT supported the International Federation of the Red Cross, Red Crescent in March of 2017 with coordinating the mapping of areas impacted.

2017 Iran-Iraq Earthquake

As the multiple responses were just beginning to wind down, we were requested by the United Nations Institute for Training and Research to map buildings in the area affected by an earthquake on the border of Iran and Iraq. As the area was fairly sparsely populated, we were able to quickly map all buildings in the area of concern.

Tech Update

Tasking Manager

HOT launched a brand new version of the Tasking Manager in the Fall of 2017. The Tasking Manager was redesigned with features to improve user engagement and validation.

Humanitarian Data Exchange

HOT Export Tool was updated in 2017 with a new integration to make specific OSM data available within the Humanitarian Data Exchange. Over 570 datasets have been made available for humanitarian organizations since the launch of the integration.

OpenAerialMap

OpenAerialMap was updated with user accounts and improved data management to make it easier to upload and contribute imagery. Over 5,694 images have been uploaded and helped support HOT's disaster response activities.

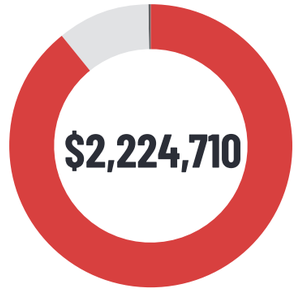
Students from local Universities map areas of Dar es Salaam, Tanzania as part of the Ramani Huria program.

HOT staff member Cristiano Giovando demonstrating use of a drone for aerial imagery capture to community members of all ages in Tonga

2017 Financials

> FINANCIAL ACCOUNTABILITY & TRANSPARENCY

YOUR CONTRIBUTIONS AT WORK



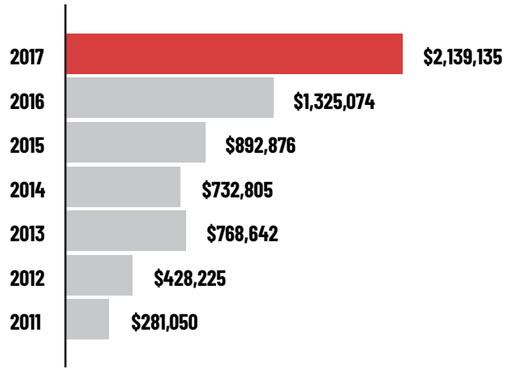
Programs: 88%

Data Collection & Mapping:	46%	Other Prorams:	7%
Technology Innovation:	25%	Microgrants:	2%
Indonesia:	20%		

Management & Admin: 9%

Fundraising: 3%

GROWTH IN PUBLIC SUPPORT



The Highest Level of Recognition Offered by GuideStar

Please contact us for full audited financial statements Year Ended Dec 31, 2017.

You can make a difference.

When disaster strikes, HOT mobilizes our global network of thousands of volunteers who work together to map the affected area in OpenStreetMap. We don't only do it after a disaster. Every day, HOT volunteers work tirelessly to put the most vulnerable people and places on the map before disaster strikes. Access to maps is vital to saving lives in an emergency.

HOW TO CONTRIBUTE

Thank you for supporting this critical work. When you give to HOT, your donation is used where it is needed most to carry out our humanitarian mission.

visit > www.hotosm.org/donate **email** > donations@hotosm.org

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