



Humanitarian  
OpenStreetMap  
Team

# ANNUAL REPORT 2018



**Everyone is counted.**

**Map data is  
accessible and used.**

**Everyone can  
engage and contribute  
to the map.**



Humanitarian  
OpenStreetMap  
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# A Message from Our Executive Director

In 2018 the HOT community worked together to formulate a vision and strategy to guide our work over the next three years. The three parts to our vision, articulated on [What We Do](#), are simple, but at the same time, incredibly ambitious. The Sustainable Development Goals place emphasis on leaving no one behind - but at the same time millions of people are still not represented in OpenStreetMap, the humanitarian and development community's best open map data source. The HOT community made huge strides forward to reduce this gap in 2018, but we need to get better: working faster, producing even higher quality data, and covering a larger area in more detail. As we enter 2019, we'll pilot new tools, methods, and innovations to do just this, including machine learning to "supercharge" the power of each map contributor.

We believe that the best map of the world we can build is a map where individuals and communities can represent themselves. The HOT community continued to innovate in this area in 2018: involving South Sudanese refugees in mapping refugee settlements in Uganda, supporting displaced Venezuelans in the Caribbean, and mapping dense, flood-prone urban areas in Accra, Kampala, and Monrovia as part of Open Cities Africa. We also strived for greater inclusion of unrepresented communities, such as women and girls, by supporting these groups through providing Microgrants and the WomenConnect project in Peru and Tanzania. Our contributor community grew 60%: from 100,000 to nearly 160,000 people.



The process of mapping itself can be life-transforming. Individuals become part of a global, interconnected community and more aware of assets and threats in the world around them. The real game-changer, however, is when the very map data this community produces is used in decisions that save and improve lives – and push the humanitarian system to be more accountable to them. In 2018, the HOT community was a top three contributor to the UN's Humanitarian Data Exchange, and our datasets were downloaded nearly 38,000 times by humanitarian actors. Impact was wide-ranging: informing electrification of rural villages, supporting girls at risk of female genital mutilation in Tanzania, supporting Malaria elimination, and responding to 23 disasters such as the Sunda Strait tsunami in Indonesia.

As we enter 2019, we have laid out massive ambitions for ourselves in our strategic plan, including mapping an area home to one billion people over the next three years. This won't be easy. But I'm optimistic because of what HOT has become: a global network and movement of people working to improve our world through data. Let's keep mapping our world together to make it happen.

Tyler Radford  
@TylerSRadford



“

How to better describe what we want to say than with a big thank you! A big thank you to our amazing community, our voting members, and our staff as well as to partners and supporting organizations – all of whom have really made HOT what it is today.

HOT is not easy to define.

It is at the same time a community of remote mappers and volunteers, local individuals, groups and organisations, an NGO and a proud part of the OpenStreetMap ecosystem.

We hope that his report can go some way to providing an overview of HOT's activities and achievements from last year, all of which are thanks to a multitude of committed and talented people.

2018 was also a year in which we assessed our current status and, together, envisioned what the future may hold, both in terms of likely opportunities and challenge, but also in terms of our direction of travel and ways of working and contributing.

Initiatives like the new website, strategic planning, and the development of indicators of success allow us to better understand HOT, our impact, how we can engage and what we stand for.

It was also a year in which we, as the board, assessed and acknowledged our own strengths and weaknesses as part of work to make sure that the board continues to serve all aspects of HOT's mission and vision.

As always, this work is ongoing.

HOT must continue to be brave enough, smart enough and honest enough to continue to improve the way we serve people and communities affected by humanitarian crises. In this spirit, we are very much looking forward to further working further with you in the coming year towards this goal and we thank you for your trust and for the honour of representing you.

”

**HOT Board Members**

## Board Members



**Ahasanul Hoque**

BANGLADESH



**Gertrude (Trudy Hope) Namitala**

ZAMBIA



**Melanie Eckle**

GERMANY



**Natalie Sidibe**

MALI



**Pete Masters**

UNITED KINGDOM





**1,033** mapping projects  
created in 2018

**993,000km** of road mapped.

**39 million** buildings mapped.

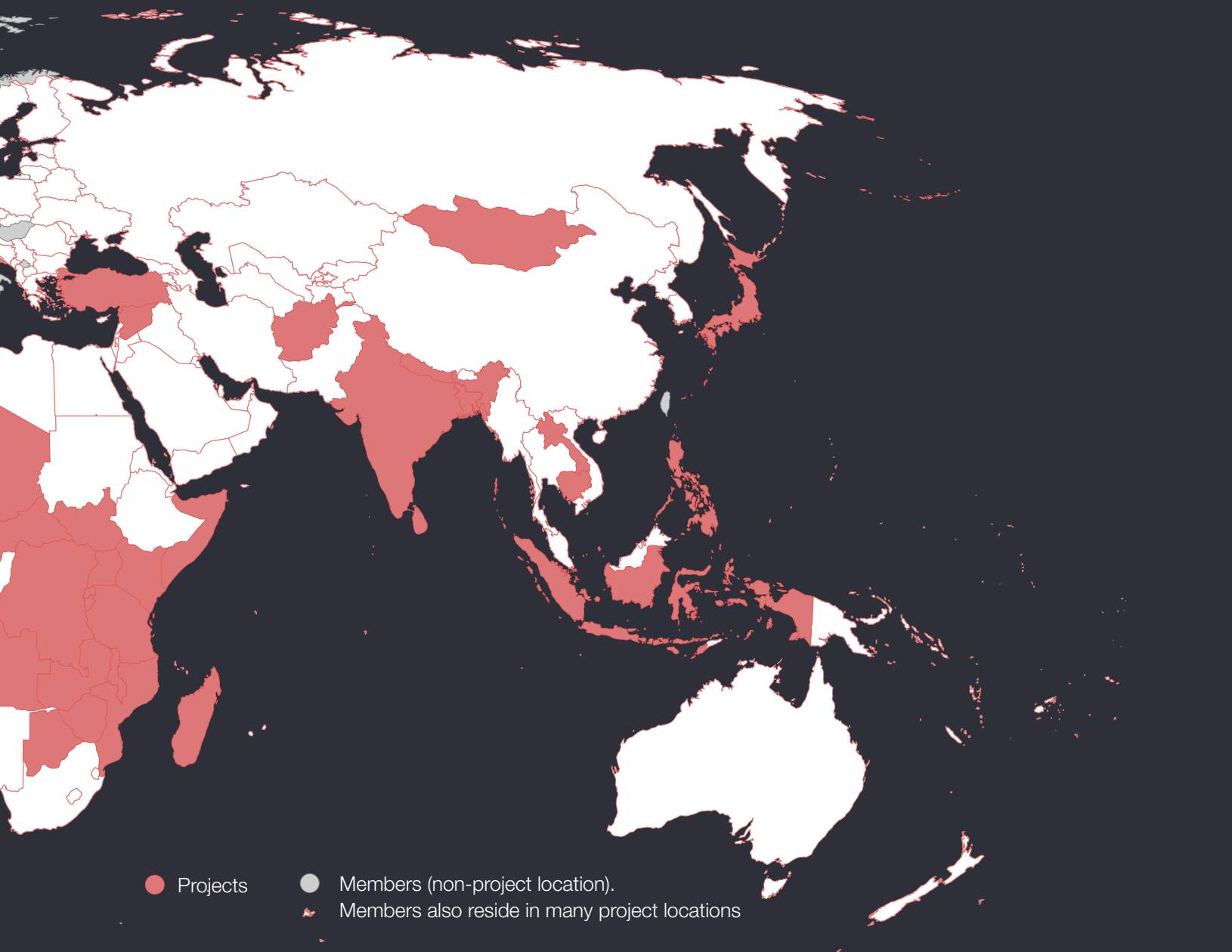
## What We Do

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

### Everyone is counted

At HOT, our goal is to create an open high-quality base map for the whole world. This year we continued to map more of the globe, amounting to nearly 993,000km of roads and almost 39 million buildings mapped.





### Map data is accessible and used

We want humanitarian and development actors, individuals, and communities to have access to and the ability to use this data in decision making that can save lives, reduce suffering, and achieve the Sustainable Development Goals (SDGs).

### Everyone can engage and contribute to the map

Every community and institution should have the tools and knowledge to represent themselves and catalyze change through open mapping.



1

# Refugee Response

The global refugee crisis continues to be one of the largest humanitarian responses of our time, with 68.5 million refugees displaced in 2018, of which 80% are hosted by developing countries. Informal and formal refugee camps and settlements are growing, as well as large numbers of people resettling longer term in host communities.

By mapping displacement and resettlement, HOT can provide humanitarian organizations with vital geographical, access and demographic data they need to provide better assistance to refugee communities.

In Istanbul, Turkey, HOT partnered with a local organization to work with refugee communities and generate a large dataset in Arabic and Turkish. With 13,000 service points, the team then partnered with NGOs and created service maps relevant to their activities.



*South Sudanese refugees and other HOT Uganda field surveyors setting off for field data collection in Bidibidi Refugee Settlement.*



## PROJECT

# MISSING MILLIONS

An estimated 30.6 million people are living in informal refugee or internally displaced persons settlements, absent from global and local surveys and at risk of 'being left behind'. HOT, Development Seed and Oregon State University partnered to create Missing Millions, an open geospatial dataset dedicated to capturing all informal settlements across the globe. This will be done through collecting available data, crowdsourcing new data and training machine learning algorithms to locate settlements.



**164,063** Community Mappers



**46,494,982** Total Map Edits



**38,832,759** Buildings Mapped



**992,339km** Roads Mapped

> Supported by



Global Partnership  
for Sustainable  
Development Data



Find out more about the  
[Missing Millions project](#)





## COUNTRY FOCUS

# UGANDA

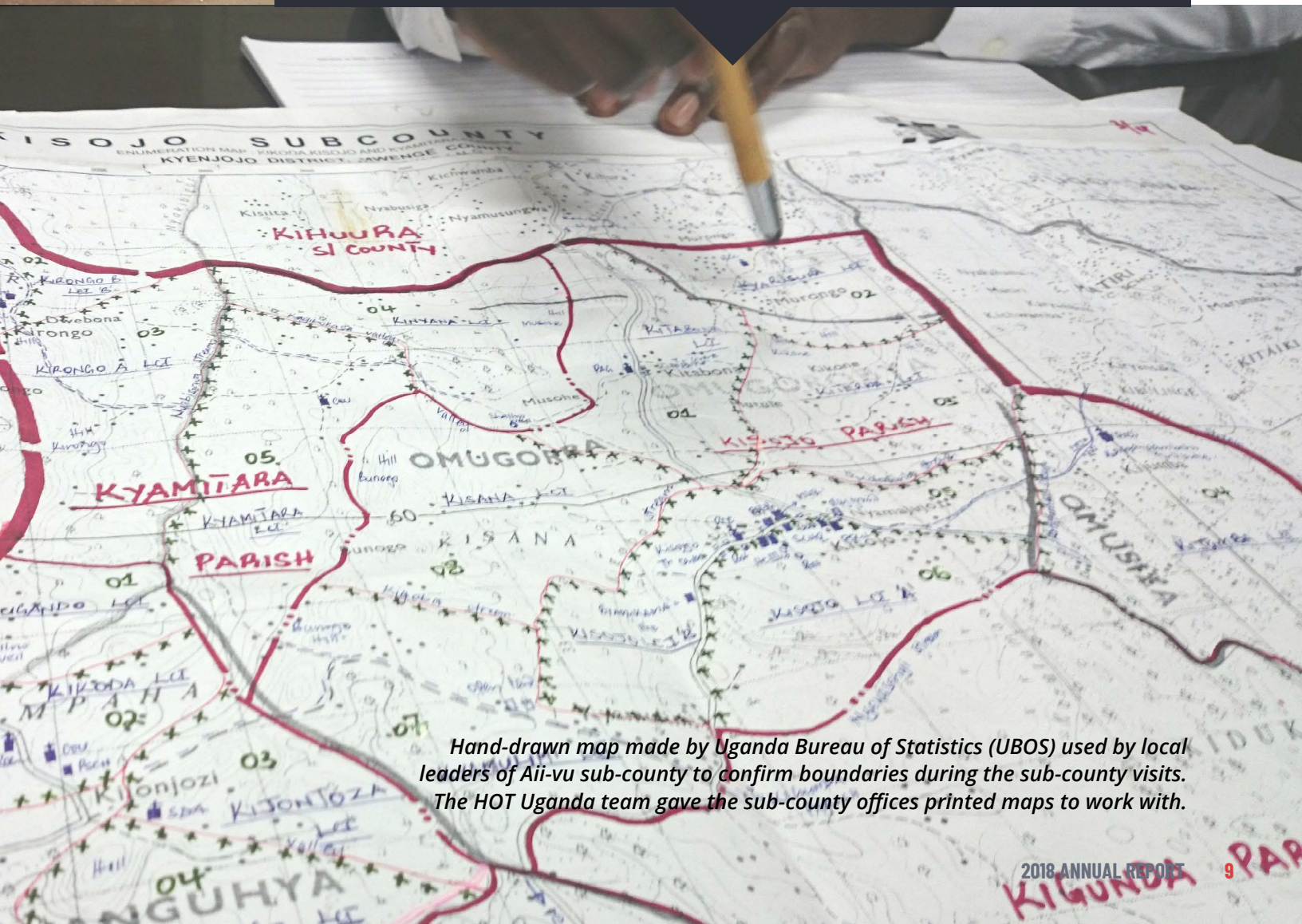
HOT not only [maps refugee resettlements](#) but also gives refugees the training and tools contribute to the map themselves. In 2018 our project in Uganda mapped 16 refugee settlements, including the infrastructure, settlement patterns, schools, WASH facilities, and cash distribution points. Our experts trained staff at UNHCR, UNPD, Red Cross, World Vision and the Office of the Prime Minister of Uganda to use the data in their response, spot gaps, monitor and map the environmental impact on the growing settlement areas. One of the unique successes of this project has been bringing together host communities with refugees to work together to build the maps.

### HOT has trained to map:

**137** Refugees  
**381** Government and host community members

### HOT contributed to over:

**1.5** million map edits



*Hand-drawn map made by Uganda Bureau of Statistics (UBOS) used by local leaders of Aii-vu sub-county to confirm boundaries during the sub-county visits. The HOT Uganda team gave the sub-county offices printed maps to work with.*



# Sustainable Cities

[Ramani Huria](#) is a community-based mapping project in Dar es Salaam, Tanzania, that trains university students and local community members to create accurate maps of the most flood-prone areas of the city. In 2018 Ramani Huria teams conducted community asset and threat mapping, where more than 450 students from two universities helped identify flood risks in 228 sub-wards of Dar es Salaam by conducting community meetings and training community members to read maps and identify at-risk assets (e.g. buildings of importance). Another highlight of the year was the Solid Waste Mapping to Support World Cleanup Day where 447 students mapped trash sites across the city, to identify the location of the areas with poorly managed waste materials, as well as the type and size of waste and clean-up methods. The data from the project is available on a portal which enables agencies and government to better manage solid waste.

For Open Cities Africa, HOT supported the World Bank's [Greater Accra Resilience and Integrated Development \(GARID\) to map areas of Accra, Ghana](#), that are at risk of chronic flooding. The map data has been shared with local governments to inform participatory solid waste management and informal settlement upgrading in flood-prone areas. We trained local volunteers to map the flood risks, as well as training local government and World Bank staff to use the data.

HOT also worked in [Monrovia, Liberia](#), to generate data to help unplanned settlements and slum communities be more resilient to flooding and other natural disasters. The project will assist key stakeholders like the Liberia National Red Cross Society, City Corporation, and the National Disaster Management Agency to utilize risk data towards addressing natural disaster risk in Monrovia through evidence-driven urban resilience interventions.

We conducted drone flights in Monrovia and Accra to collect high-resolution imagery for Open Cities Africa, which improved the quality as well as building capacity for drone use within the two cities.



> Supported by  **THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP



> In collaboration with USAID and DAI.  
Tanzania: See [www.ramanihuria.org](http://www.ramanihuria.org) for collaborating partners.





COUNTRY FOCUS



**ACCRA**  
GHANA

Buildings edited 7,260

Highways edited 246km

Waterways edited 323km

COUNTRY FOCUS



**MONROVIA**  
LIBERIA

Buildings edited 4,500

Highways edited 12km

Waterways edited 94km

“

*We believe [Open Cities Africa] is taking an innovative approach to ensure whatever information gathered will not only be in the hands of the development partners, but we will have access to our own information to help us drive and dictate our development that will benefit every resident.*

”

**Mr. Bestman Toe,**  
President of Liberia's  
Slum Dwellers  
Association



3

# Disaster Risk Reduction

HOT works with communities and disaster management agencies to map and understand the risk of disasters, such as hurricanes, earthquakes, floods, cyclones, and volcanic eruptions. We develop comprehensive data sets on buildings, roads, and infrastructure, which is openly available for use in InaSAFE – originally developed in Indonesia – for disaster preparedness and response activities.

In 2018 one of HOT's biggest successes for Disaster Risk Reduction was [the mapping of Semarang City](#), the third city HOT has mapped in Indonesia (after Jakarta and Surabaya). HOT partnered with Semarang City Disaster Management Agency (BPBD Kota Semarang), who we trained to use the data directly and also through [InAWARE](#) – a disaster management tool aimed at improving risk assessment, early warning, and disaster-management – to better plan their responses to local disasters, such as floods and landslides.

“

**With OpenStreetMap, our office from Regional Disaster Management Agency of City of Semarang can resolve problems related to the unavailability of hazard maps.**

**[These maps] help us better anticipate when a disaster occurs. The maps will also enable interagency cooperation.**

”

**Agoes Harmunanto,**  
**Badan Penanggulangan Bencana Daerah (BPBD)**

> Supported by



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



**HOT Indonesia handing over the printed maps of Semarang City to the Disaster Management Agency (BPBD).**







PROJECT FOCUS

## InAWARE Indonesia



**482,740** buildings



**4,400km** roads



**11,048** infrastructure projects



**16** sub-districts



**177** villages

> Find out more about [inAWARE](#).



## 4

# Public Health

In our goal to support the third Sustainable Development Goal (SDG), 'Good Health and Well-Being', HOT's public health data collection projects provide local governments and organizations with information to improve their response to health-related issues, such as malaria prevention, cholera and Ebola outbreaks.

For [Data Zetu](#) in Tanzania, HOT supported Amana Hospital to build a database with information to better pinpoint patients' geographic origin. The mapping data on wards, sub-wards and districts in Dar es Salaam was collected and corroborated by local communities on the ground. With this information, the hospital can identify locations that are at risk of diseases, enabling them to prevent infection and even fight infant malnutrition. After updating the hospital's electronic systems, HOT also trained 40 staff at the hospital on how to use the data.

HOT also supported malaria prevention projects in [Guatemala](#) and Botswana by providing geographical data and training to national governments to help inform and monitor their malaria control efforts. In Botswana, the data will be used for the planning and implementation of the upcoming 2019 indoor residual spraying and malaria control campaign implemented by the Botswana Ministry of Health and Wellness with the support of the Clinton Health Access Initiative.



“

*The end goal for this project is disease prevention, once we have enough data, we can get to work on identifying problem diseases in their problem (geographic) areas.*

”

**Dr. Omar Mahiza,  
Amana Hospital**

- 
- > Supported by Malaria projects (Botswana, Guatemala): Supported by Clinton Health Access Initiative (CHAI)
  - > In collaboration with Digital Globe, Clinton Health Access Initiative, PATH, Mapbox, Government of Botswana and IREX.

Data collectors in Kasane, Botswana capturing building structure information to improve malaria interventions.



#### PROJECT

## MALARIA PREVENTION BOTSWANA



**53,080** buildings



**33,000km<sup>2</sup>** area mapped



All structures in **6** districts

> [Read more about this project](#)

#### DATA ZETU

## SNAPSHOT: AMANA HOSPITAL



**300,000** patients served at Amana hospital per year



HOT helped the hospital map **148 sub-wards** to identify areas with higher health risks



**20 hospital staff** were trained to build a database of patient origin information



Staff at Amana Hospital, Dar es Salaam, Tanzania



## 5 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.

- > [List of HOT activations for 2018](#)
- > Find out more about our [disaster response activations](#)

“

***By asking HOT to add to OpenStreetMap, we can use the data to identify and map severely affected communities. It's hard to overstate how useful HOT is for providing the starting point for us. We're all big fans!***

”

**Laura Bateman,  
Information Coordinator,  
American Red Cross**



### **Friaje, Peru**

HOT was asked to respond to a unique request in July 2018. Unidad 4x4 de Ayuda-Perú were preparing to deliver supplies to villages high in the Andes Mountains cut-off by snow storms, known locally as a Friaje. Although the area requested was not very big or populated, HOT had to work quickly to map the area to enable aid access. Just in time, 38 mappers were able to come together and digitize the roughly 650 kilometers of road network and several thousand buildings trapped by the storm.

**In 2018 HOT led or supported the response to 23 major disaster incidents, many of which happened in a short period of time around the beginning of October:**

● Disaster response activations



#### **Ebola, Democratic Republic of Congo**

Ebola in Democratic Republic of Congo continued to be a significant crisis in 2018, with a risk of moving into Uganda in September 2018. HOT continued to map the crisis throughout the year and by December, we had collectively mapped almost 400,000 features - including over 8000 kilometers of road network and 300,000 buildings. 1700 individuals have contributed to the Ebola response alone.

#### **Typhoon Ompong, Philippines**

In September 2018, powerful tropical cyclone Typhoon Mangkhut passed over Guam, south China, and the Philippines – including the Mariana Islands, soon after HOT had mapped the area – before becoming Super Typhoon Ompong. The local Philippine community requested HOT to map Ompong's impact in their country. 500 contributors mapped 4417 kilometers of roads and over 515,000 structures for the Philippines.



6

## Clean energy

Everyone should have access to affordable, reliable, sustainable and modern energy (SDG7), a goal that HOT has been working towards with our mini-grid projects in [Tanzania](#) and Zambia.

In Tanzania, 80% of the population live in rural areas and only 16% of people have access to electricity. Due to the remote nature of these unelectrified villages, the Government of Tanzania aims to target the best areas to build off-grid electrification. To support this goal, HOT [conducted a large-scale digitization](#) of rural Tanzania, covering over four million buildings and 1,300 villages, followed by household surveys and mapping. By collecting this highly detailed data of the settlements, HOT enabled the government, private electricity and renewable energy providers to predict demand and determine where grid and off-grid connections can be made.

*HOT Tanzania carrying out detailed mapping of buildings in Titye village, Tanzania, using OpenMapKit.*



### MINI-GRIDS PROJECT, TANZANIA



**4.1 million** buildings



**1,928** settlements



**7,722** individual building structures

> To find out more about [the mini-grids Tanzania project](#)

> Supported By: International Finance Corporation (IFC)

*Members of HOT Tanzania on mapping training.*



“

*We have developed HOT's first Rural Data Collection operations model which will provide the basis for much of our future work outside of Tanzania's major cities.*

”

**HOT Tanzania team**



## 7

# Building a Global Community

Every year, HOT awards mapping communities microgrants of up to \$5,000 to enable them to expand activities, grow the local OpenStreetMap data usage in their area or diversify mapping communities. The microgrants are enabled by the generosity of the individuals and organisations who donated to the annual fundraising campaign.

In 2018 we supported six microgrants in Mexico, Colombia, Nigeria, Sri Lanka, Benin, and Mozambique, amounting to 2,691 people who made 330,000 local map edits in OpenStreetMap. In total, these communities trained 1,748 new mappers.

This year the micrograntees strived towards a diverse set of goals – all for the advancement towards the Sustainable Development Goals – such as OpenStreetMap Benin who [mapped at-risk Lassa Fever areas](#) to provide health data for responders and researchers at the Benin Red Cross and Institut de Recherche en Développement (IRD). We also supported Geochicas in Mexico, who brought their mission of increasing female participation across OpenStreetMap to mapping informal shelters and women's security after the Mexico earthquakes.

> Find out more about [HOT's microgrants](#)

“

*HOT's microgrant was a key driver of impact because it enabled us to grow our network and sustain the YouthMappers community in Nigeria. It also increased our community inclusiveness, as both the male and female mappers are tasked equally to deliver. It helped us to establish 10 more universities to start mapping!*

”

**Victor Sunday, Coordinator,  
UniqueMappersTeam Nigeria**



**HOT Micrograntee Fundación OpenStreetMap Colombia flying drones for mapping.**



## FUNDACIÓN OPENSTREETMAP COLOMBIA

## GEOCHICAS

Active since:

June 2017

Est. Nov 2016

Size of grant:

\$5,000 USD

\$3,600 USD

Achievements:

- Made a total of 48,109 total edits
- Added 41,140 buildings and 1,463 roads
- Trained 30 people
- Responded to the Hidroituango dam emergency
- Recieved another microgrant from HOT for 2019
- Completed fieldwork in Oaxaca on a pilot project looking at informal shelters and women's security after a disaster.
- Photomapped the towns affected by the earthquakes using Mapillary and OpenStreetCam.

> [Find out more](#)

> [Find out more](#)



# Tech Update

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## Tasking Manager > [Find out more](#)

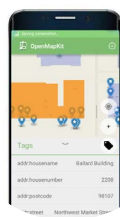


After a successful launch of a new version in the fall of 2017, HOT continued to develop and refine the Tasking Manager. In 2018, HOT completed updates to optimize performance and began coordinating a multi-stakeholder working group to coordinate software development.

## Map Campaigner > [Find out more](#)



HOT released a new version of Map Campaigner in 2018 with easier OpenStreetMap tag processing, improved speed and performance, and opened access to any OpenStreetMap user to create and track a field mapping campaign.



## OpenMapKit Server > [Find out more](#)

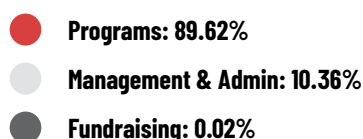
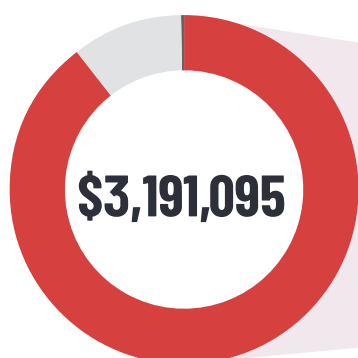
HOT made significant improvements to OpenMapKit Server in 2018 to support the community with improved field mapping tools. OpenMapKit Server was refactored to include user accounts for data security, additional methods to download and access data, and map-based visualizations of collected data.



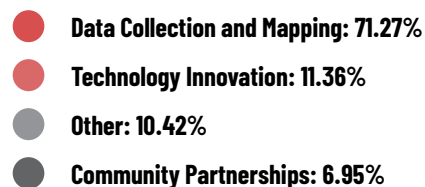
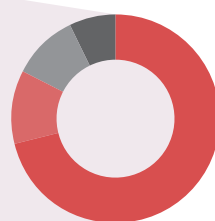
# 2018 Financials

> FINANCIAL ACCOUNTABILITY & TRANSPARENCY

## YOUR CONTRIBUTIONS AT WORK



**PROGRAMS: \$2,855,294 (89.62%)**



The Highest Level of Recognition  
Offered by GuideStar



*Please contact us for full audited financial statements Year Ended Dec 31, 2018.*

## 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](http://www.hotosm.org/donate)

email



[donations@hotosm.org](mailto:donations@hotosm.org)





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