

A Case Study For Drone Mapping - Humanitarian OpenStreetMap Team (HOT)



Image courtesy of HOT OSM

Drone Mapping is an essential tool in the work of the [Humanitarian OpenStreetMap Team \(HOT\)](#). The organisation uses open-sourced mapping tools to help communities, international organisations, NGOs and the government to have vital access to open-sourced maps for geospatial data collection and collaborative mapping.

One of the projects that HOT has collaborated with is [Dar Ramani Huria](#) - a community-based mapping project in Dar es Salaam, Tanzania. This project trains university students and local community members to create highly accurate maps of the most flood-prone areas of the city using OpenStreetMap and other local devices.

[Dar Ramani Huria](#) activities form part of the [Tanzania Urban Resilience Programme](#), a partnership between the United Kingdom's Department for International Development (DFID) and the World Bank established to support the Government of Tanzania in its endeavour to increase resilience to climate and disaster risk. The purpose of the project was to build up an understanding of the local infrastructure, drainage and water systems in Dar es Salaam's broader community.

The project mapped the riparian areas through drone imagery and drainage and local infrastructure through open-source tools. The five major rivers (Msimbazi, Mpiji, Tegeta, Kizinga and Mzinga flowing into Dar es Salaam) were mapped to get a clearer idea of how much trash was affecting the city's resources with a 5cm resolution aerial imagery. Implementation of the project is guided by the HOT OSM team and has resulted in [detailed urban resilience maps](#).

Hawa Adinani, the Communications Manager for [OpenMap Development Tanzania](#) OMDTZ, a locally partnered organisation with HOT, comments that "in the bigger picture, Ramani Huria has been relying on drone imagery to

map different features in Dar es Salaam, tracing buildings from the imagery and then conduct ground surveys to verify what is really captured by drone.” Satellite imagery, while cheap and ubiquitous, is often not detailed enough to create the accurate maps that HOT requires.

The image below can communicate just how efficient, clear and up-to-date drone imagery can be in comparison to commercial satellite imagery:

Bing imagery (JOSM default)

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eBee drones by Ramani Huria



Image provided by HOT OSM

The [eBee drones](#) used by Ramani Huria clearly show the immense difference that drone imagery can make in collecting reliable data. This data is vital in improving urban planning, and in turn reacting to natural disasters like floods.

We spoke to one of the key figures in the Open Source mapping community, Mikel Maron. As one of the founders of [Map Kibera](#) and [MapBox](#), Maron has extensive knowledge of the ins and outs of drone mapping on the continent.

“From both MapKibera and MapBox’s perspective, we are very interested in the visualisation and analysis that come from the drone imagery. Being able to collect and share images is very useful, then enabling people to build interesting products and share stories with it is what MapKibera and MapBox want to do.”

Maron noted that he is excited about the possibilities that could come from the [African Drone Forum](#). Drone imagery is phenomenal in capturing individualised detail and collecting correct and reliable data. In the open mapping world, it is really important to clearly see individual structures in the work that Map Kibera and OpenStreetMap do.

"In mapping for crisis angle, drones are essential in providing real-time situation analysis of the situation that humanitarian responders may use in disasters events such as earthquakes or flooding. The best thing about drone imagery is they can be captured regularly in a short period of time to get cheap updated data for humanitarian responses and even for economic development purposes" - Innocent Maholi, Executive Director, OpenMap Development Tanzania

Red Cross and other humanitarian organizations using drones in Africa will be invited to present their work at the ADF Symposium on Feb 5-7. [Sign up here](#) for early bird registration until December 15.