

## **Part I - Introduction**

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#### **Who Is This Guide For?**

This guide is for national and sub-national governments, international organizations, and their partners who are setting policy and plans and/or designing implementation programs, for data needs in meeting and monitoring the SDGs. It gives policy-makers insight on the strategic benefit of open mapping, and program and technical implementers pointers to in-depth guidance and access to an expert community for realizing open mapping projects.

#### **What is Open Mapping? Why use OpenStreetMap and Open Source tools?**

Open mapping is a global movement to create free and open geographic data. Beyond open data, it is a broad community partnership to collaboratively create a critical data resource for monitoring and meeting the Sustainable Development Goals (SDGs) by making available fundamental, detailed, and timely information on where things are in our world.

Centered on the OpenStreetMap (OSM) project, open mapping is transforming how governments and citizens can work together by allowing them to co-create and support critical government functions with geographic maps and data. Anyone with geographic knowledge, whether an individual enthusiast or a professional from a public or private sector institution, is invited to contribute map data in an open community. The community openly designs schemas for mapping features as they are encountered in the world, develops new workflows and applications to contribute as technology advances, applies spatial data for an ever-growing array of uses, and supports and advocates for a growing, open collaboration across sectors.

The open mapping community is one that cares deeply about quality and use of geographic data and includes people from all parts of society and across the globe, from experts in geographic technologies to those in their own neighborhoods. It is hugely powerful for people from around the globe to work in the same database. To date, more than 5 million people have registered, and approximately 40,000–50,000 make contributions - in the form of edits - during a given month. This collaborative approach has been phenomenally successful at creating maps in under-mapped and under-served places, addressing critical needs, as seen in responses ranging from the Nepal earthquake and flooding in Bangladesh to mapping local schools and health care services in informal settlements. Through excellence in data, many OpenStreetMap participants have gone on to become more fully engaged citizens.

Countries around the world have joined the open mapping revolution - and possibilities have proven to be endless. Kenya's Map Kibera project collects citizen-generated data and other kinds of relevant open data in one of the region's biggest slums-turned-informal-city to enhance citizen accountability, development planning and government use. DATA Uruguay is a non-profit using its platform to increase citizen access to open government health data through interactive visualizations. In Russia, Green Patrol uses an open platform to advocate for environmental protection through regional investigations to ensure environmental violators are held accountable for their disobedience. In Indonesia, the National Disaster Management Agency (BNPB in Indonesian) has worked in cooperation with OSM Indonesia to crowdsource and utilize citizen-generated map data for contingency planning, risk reduction, and decision-making during flooding events in Jakarta. As seen in these examples, the adoption of free and open-source software and tools by institutions provide them with better control over information technology and enable greater usage, impact and accessibility of data by the general public, leading individuals to be better informed and empowered to take action on specific issues.

#### **How Government Agencies Work with the Open Mapping Ecosystem**

There are countless examples of government agencies who are choosing to work with the open mapping ecosystem for a range of purposes, including:

- The need for high quality, spatial data that is updated at a pace consistent with rapidly changing urban areas;
- Shortage of expertise and resources needed to maintain comprehensive maps in many government agencies;
- As part of wider commitments to local, national, and global open data efforts;
- Through initiatives aimed at supporting science and innovation across government and civil society; and
- To increase public engagement with local government.

While data quality is frequently raised as a concern in discussion of open mapping projects, research has repeatedly demonstrated that OSM data is as, and in some cases more, accurate than authoritative datasets produced by official entities. In fact, the dynamic nature of the OSM database can in some cases make it easier to keep map data up to date. This is particularly true in areas with active local mapping communities, pointing to the need for governments to support and engage with these communities. Some of the most commonly found challenges in open mapping projects stem from the failure to build strong relationships between government and local mapping communities, short-term program designs that don't consider project sustainability, and lack of clear goals from the outset of a project. There are, however, a handful of examples that highlight how government agencies have successfully implemented open mapping projects in collaboration with local communities already embedded in the open mapping ecosystem.

The Global Facility for Disaster Risk and Recovery (GFDRR)'s Open Cities Africa initiative was carried out in 11 cities in sub-saharan Africa to engage local government, civil society and the private sector to develop the information infrastructures necessary to meet 21st century urban resilience challenges. After assessing available data and its openness, relevance and value, local governments alongside technical specialists and mentors were tasked with initiating open mapping activities in collaboration with the local OpenStreetMap communities in each of these regions. Through trainings, mapping parties and community town halls, local government and civil society organizations worked in close collaboration with local NGOs, universities and open data enthusiasts to develop final tools and products that aimed to build more resilient and sustainable cities through the use of open data.

Similarly, the Humanitarian OpenStreetMap Team (HOT) in collaboration with Botswana's Ministry of Health and Wellness and the Clinton Health Access Initiative (CHAI) worked to enhance and expand the available data in the country to support more effective malaria eradication interventions. Prior to launching this initiative, interventions such as Indoor Residual Spraying (IRS) and bednet distribution were sporadic as accurate data for where people live and sleep was not available. Because spraying teams did not have a full overview of the buildings needed to be covered, these interventions were not guided or systematic in reaching places that had high concentrations of malaria infections. HOT's intervention focused on expanding available data in six malaria endemic areas in Botswana on the type/use of buildings as well as building and roofing materials. Surveyors from local communities were recruited to implement data collection processes across these districts. Ultimately, working directly with the Ministry of Health and Wellness staff, including National Malaria Programme and District Health Management Team staff, enabled this data to be used directly to inform a more effective response and interventions.

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OpenStreetMap: [openstreetmap.org](https://openstreetmap.org) Nepal Earthquake Response: [hotosm.org/projects/nepal\\_2015\\_earthquake\\_respon](https://hotosm.org/projects/nepal_2015_earthquake_respon)  
 Bangladesh & South Asia Floods: [hotosm.org/projects/disaster-response-south-asian-floods-2017](https://hotosm.org/projects/disaster-response-south-asian-floods-2017) Map  
 Kibera: [hotosm.org/projects/map-kibera-slum-mapping](https://hotosm.org/projects/map-kibera-slum-mapping) DATA Uruguay: [datauy.org](https://datauy.org) OSM Indonesia:  
[openstreetmap.id](https://openstreetmap.id) Open Cities Africa: [opencitiesproject.org](https://opencitiesproject.org) HOT Malaria Elimination in Botswana:  
[hotosm.org/projects/botswana\\_field\\_data\\_collection\\_to\\_support\\_the\\_national\\_malaria\\_programme](https://hotosm.org/projects/botswana_field_data_collection_to_support_the_national_malaria_programme)