ITN campaign key geo-enabled resources for microplanning

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Introduction

Microplanning is one of the most important activities for the success of a mass ITN distribution campaign. The availability of geographically accurate information is a prerequisite for developing an effective ITN campaign microplan. Owing to the strong geographic dimension associated with ITN microplanning, maps are the starting point of any ITN mass distribution. Maps are extremely important to help in the process of selecting ITN distribution points and their "catchment area", identifying hard-to-reach areas, and illustrating any key features, such as markets, schools and religious institutions, as well as population groups that have known barriers to access health services, that must be taken into account in planning and implementing operational level activities. To improve the ITN microplanning process, national malaria programmes are increasingly looking to leverage the use of geospatial data and tools.

This document aims to provide actors involved in ITN mass campaigns with a non-exhaustive inventory of available geospatial tools that are useful for the microplanning process for ITN mass campaigns. It also provides an overview of available resources and capacity-building opportunities related to geo-enabled microplanning, along with potential partners and their areas of focus.

Geo-enabled microplanning workshop in Adawama State, Nigeria, 2023
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1. Geospatial tools for ITN campaign microplanning process

Geospatial tool or software solution and service provider	Description of the product/service	Licensing
Google Maps: **https://www.google.com/maps/** Google	**Core function**: Offers satellite imagery, aerial photography, street maps, 360° interactive panoramic views of streets. **Key features**: Supports with estimations of distances and travel time, identifying paths, facilities and other geographic points of interest.	Free access
Google Earth: **https://earth.google.com/web/** Google	**Core function**: Maps the earth by superimposing satellite images, aerial photography, and Geographic Information System (GIS) data onto a 3D globe. **Key features**: Supports with estimations of distances and travel time, identifying paths, facilities and other geographic points of interest.	Free access
Open Street Map: **https://www.openstreetmap.org /** OpenStreetMap Foundation	**Core function**: Displays physical features on the ground (e.g. roads or buildings). Geographical features can be exported into other GIS file formats. **Key features**: Supports with estimations of distances and travel time, identifying paths, facilities, and other geographic points of interest.	Free access
Crosscut https://crosscut.io/microplanning https://community.dhis2.org/t/crosscut-microplanning-app/48097 (Easy to use – designed for users with no GIS mapping expertise.)	**Core function**: Create catchment area boundaries for health facilities and publish them to DHIS2. **Key features**: Generates target population estimates for each catchment area, analyses accessibility as well as travel time to the health facilities within the catchment area.	Free access
Maxar https://www.maxar.com/ https://www.youtube.com/watch?v=X_t56Qqv-EU	**Core function**: Leverages very high-resolution satellites to capture imagery on a global scale between 30—50cm spatial resolution. Maps the location and density of populations along with the route to get there. Data available in a wide variety of	Any organization from any country which is a partner or grantee of the Bill and Melinda

|	formats including Cloud Optimized GeoTIFFs (COGs), GeoTIFF, PNG, JPG, JPG2000 etc. **Key features**: Estimates target population, analyses accessibility, estimates supply requirements.	Gate Foundation can access building and road data. Frequently updated (once per week in high demand areas).
Humanitarian OpenStreetMap https://www.hotosm.org/	**Core function**: Mapping of displaced populations (refugees, migrants). **Key features**: Estimates distance/travel time, road networks.	Free access
GRID3 (Geo-referenced infrastructure and demographic data for development) https://grid3.org/	**Core function**: Gridded population estimates, spatial distribution, infrastructure, boundaries (national and sub national), settlements. **Key features**: Estimates target population, administrative boundaries, routes and distances.	Free access
WorldPop Open Population Repository (WOPR) https://wopr.worldpop.org/ (Global population archive of spatial demographic datasets for Central and South America, Africa and Asia)	**Core function**: Gridded population estimates, average household size, sub-national population age-sex structures, spatial distribution and settlements. Estimates of people per building in every building and aggregated building totals to estimate population size for each ~100m grid cell using a high-resolution map of building footprints. **Key features**: Estimates target population and administrative boundaries.	Free access
The Humanitarian Data Exchange https://data.humdata.org/	**Core function**: Country boundaries, geo-registry, dataset and shape files. **Key features**: Estimates target population and administrative boundaries in humanitarian settings	Free access
Reveal https://revealprecision.com/ Akros https://akros.com/ (Akros has developed the Reveal app.)	**Core function**: Satellite imagery available to create maps, spatial models capturing seasonal migration or displacement. **Key features**: Estimates target population and administrative boundaries in humanitarian settings.	Free access

ArcGIS Esri https://www.esri.com/en-us/arcgis/products/arcgis-online/overview)	**Core function and features**: Cloud-based software to create and share interactive web maps.	Can be acquired via subscription or perpetual licence
QGIS https://qgis.org/en/site/	**Core function and features**: Creates, edits, visualizes, analyses and publishes geospatial information on Windows, MacOS, Linux, BSD and mobile devices.	Free access
Novel-T https://novel-t.ch/#/focusdetail	**Core function and features:** Plans geospatial databases, microplanning. Monitors geospatial tracking system and georeferenced data collection. Evaluates data integration, analytics and visualization	Need to pay for services and expertise

Map inspection before printing, Osun State, Nigeria, 2023
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2. Training and capacity development

Focus area	Description	Provider	Website resources
GIS training and information management resources and processes	GIS trainings modules are available and interested national malaria programmes and partners can access them as part of their capacity development for geo-enabled microplanning	GRID3	https://grid3.org/solution/capacity-strengthening To enrol in GRID3 training courses, you must have an account.
		MapAction	https://guides.mapaction.org/ This is more of an example product catalogue accessible to everyone.
		QGIS	https://qgis.org/en/site/forusers/trainingmaterial/index.html Training material and course modules on QGIS available to everyone. Free access.
		WHO-GIS	https://www.who.int/data/GIS https://www.digitalhealthcoe.org/knowledgebase/geo-enabled-microplanning-handbook Knowledge based microplanning handbook. Free download.
			https://docs.google.com/presentation/d/17b81T1Yvz51_Qm4VMGEtYVm69N_jSrTHtF2Nj1QDSOI/present?slide=id.p1 https://www.youtube.com/watch?v=VXgY0vyZJFw Knowledge based microplanning handbook. Free download and access on Google docs.
Population estimates, spatial distribution and settlements	Training modules specific to GIS topics and crosschecking with population estimates from a variety of sources for microplanning	GRID3	https://grid3.org/ GRID3_LMS: New GRID3 Training MOOC, now available! - GIS support for microplanning in the health sector To enrol in GRID3 training courses, you must have an account.
		World pop	https://wopr.worldpop.org/ Free access to country datasets, boundaries, population estimates and shape files.
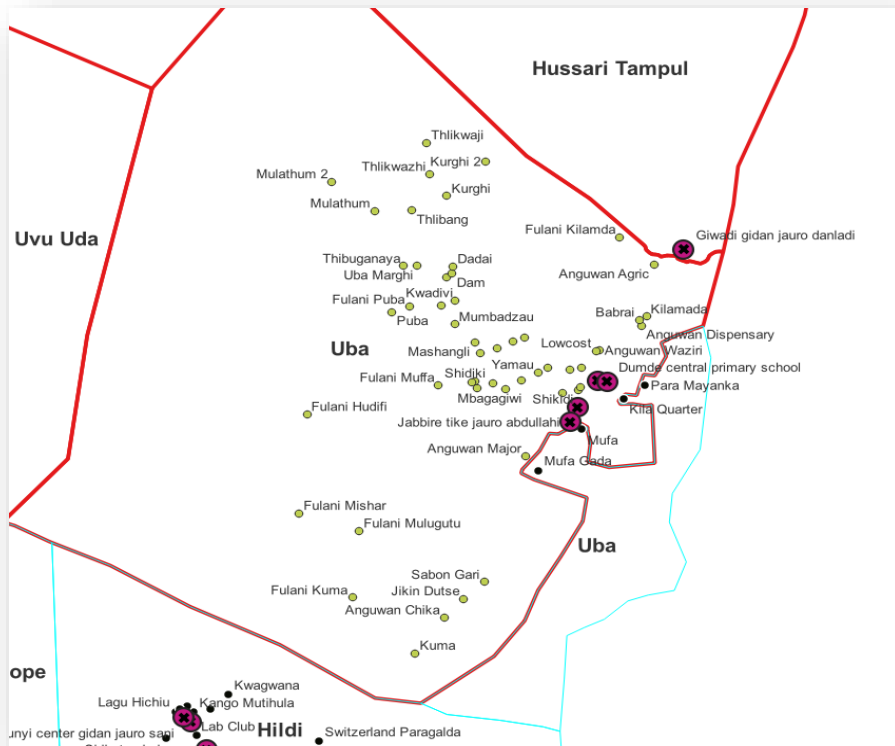
Geo-enabled Uba Ward map, Adawama State, Nigeria, 2023
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