Humanitarian OpenStreetMap Team

Field Mapping Workshop

SotM 2018, Milan

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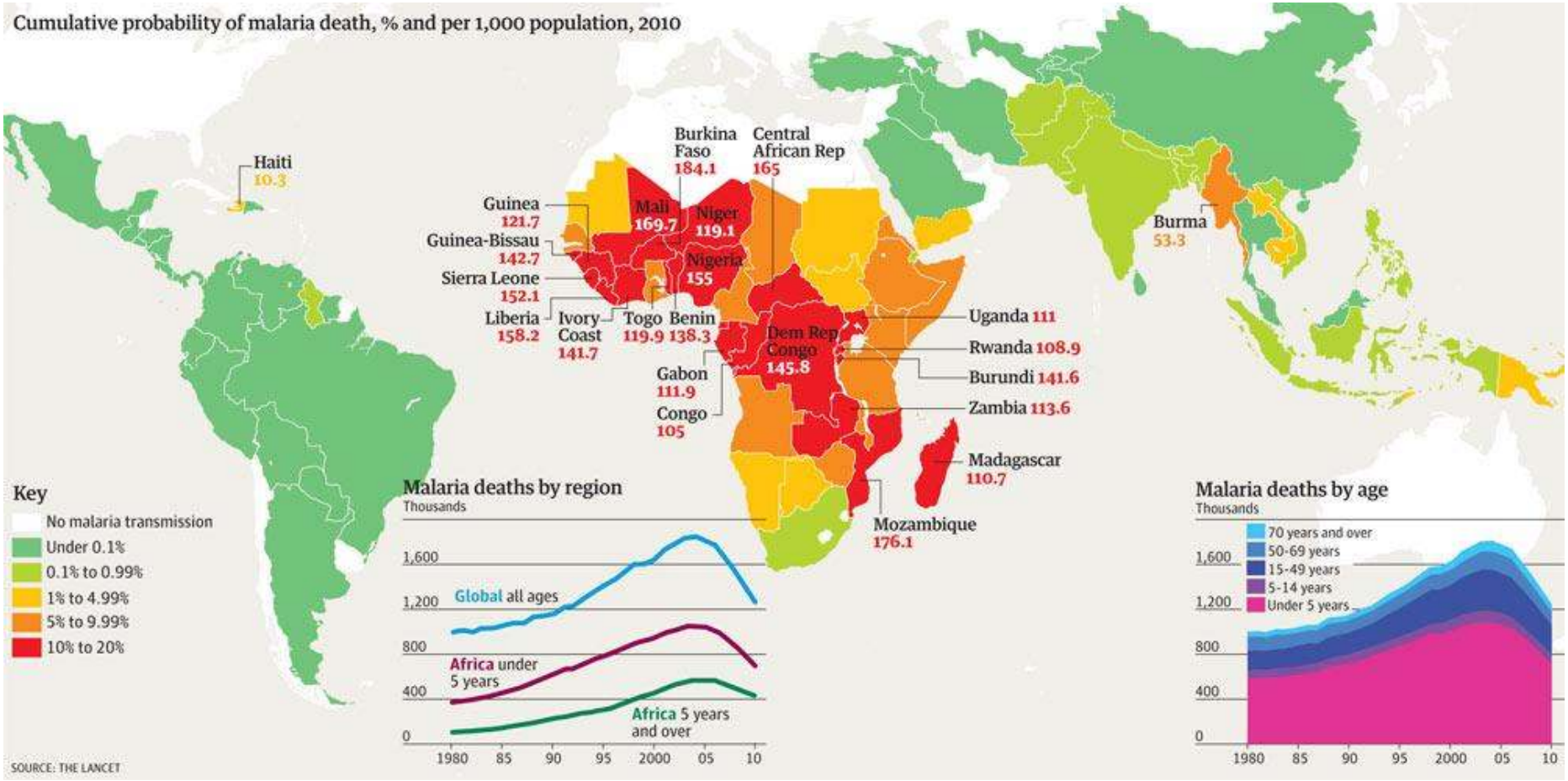
Our starting point for today: malaria != good



What are we going to do today?

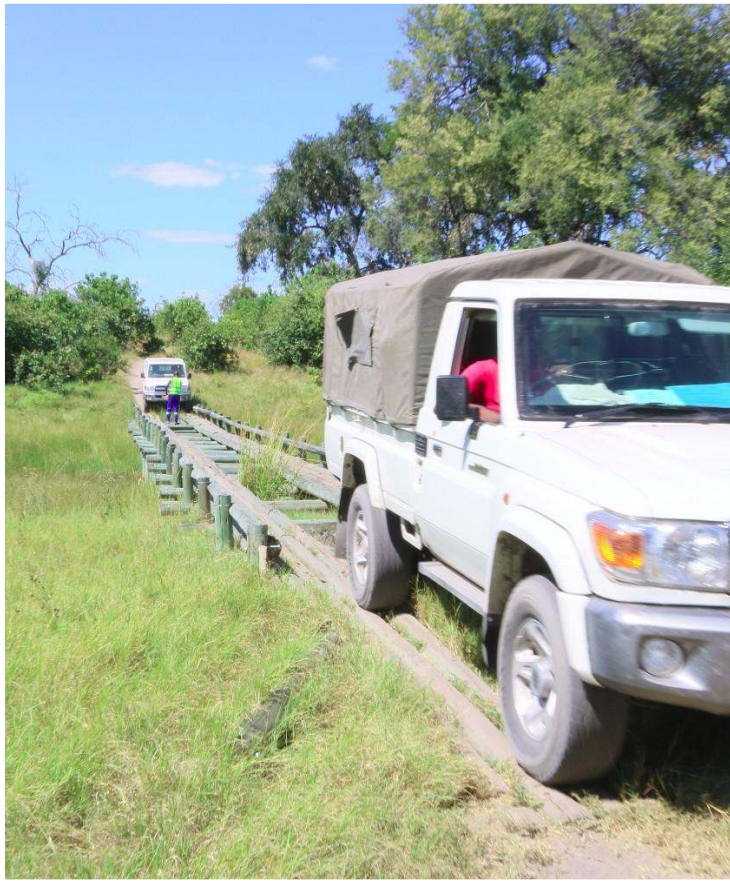
- Collect data on houses in Botswana (aka “Milan”) to eliminate Malaria by 2020

To reach this goal requires us to:

- Improved program efficiencies and larger intervention impact
- Indoor Residual Spraying (IRS) campaigns are resource intensive and require detailed understanding of target populations for:
  - Adequate planning
  - Facilitating implementation of operations
  - Evaluating intervention coverage

The scene: animals, big and small

...traffic...



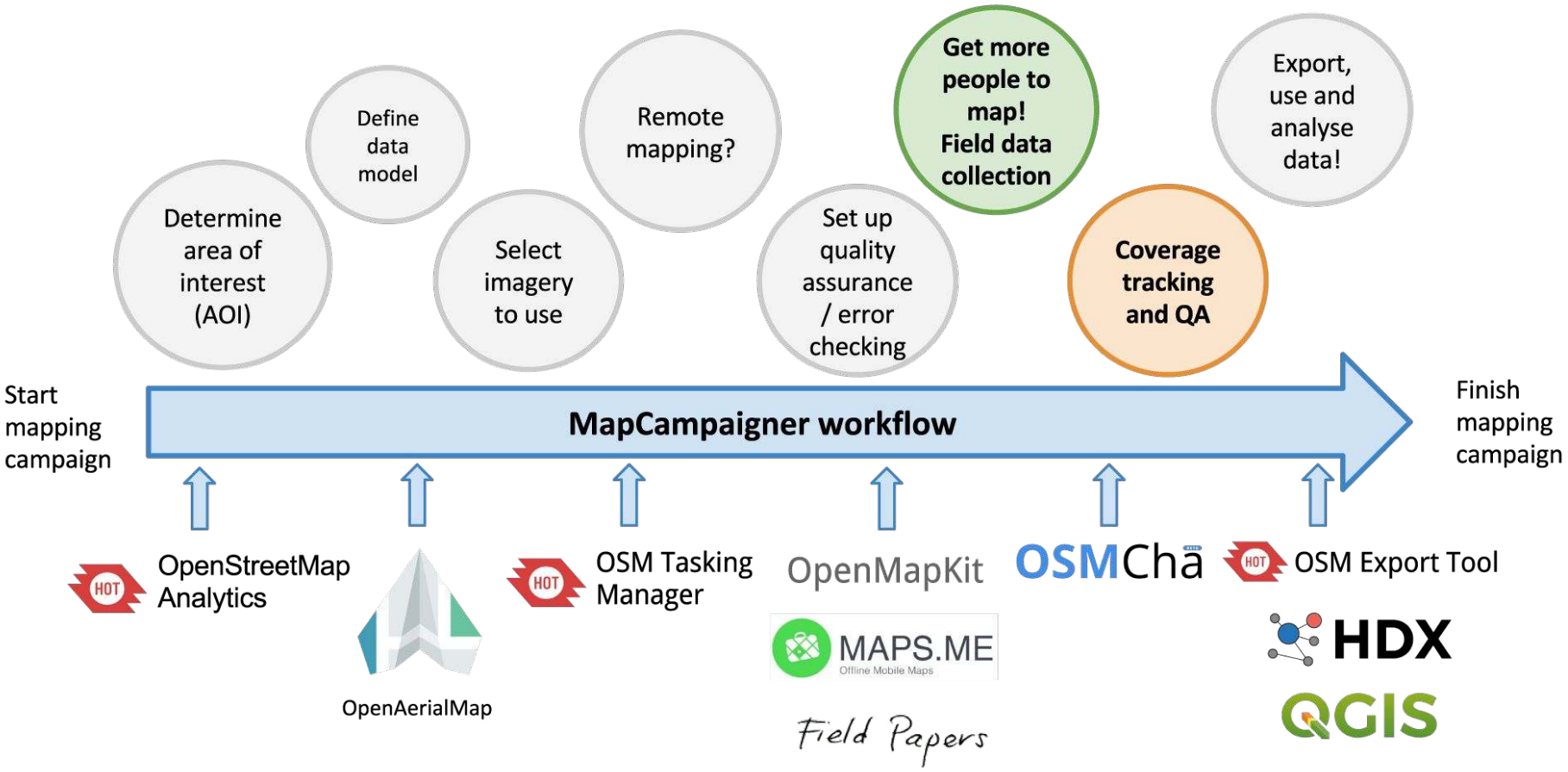
...camping!

Mapping workflow - common ingredients

(0. what do you want to map, and why? Who to work with?)

1. Determine area of interest
2. Select imagery - UAV, satellite, etc
3. Remote mapping
4. Define data model
5. Set up data collection software/forms and QA
6. Collect data! Team management: logistics, comms, security, task distribution
7. Data capture/collation (OMKServer, ONA, Kobo, etc)
8. Data review and QA (JOSM)
9. Export, use and analyse data

For “campaign managers”

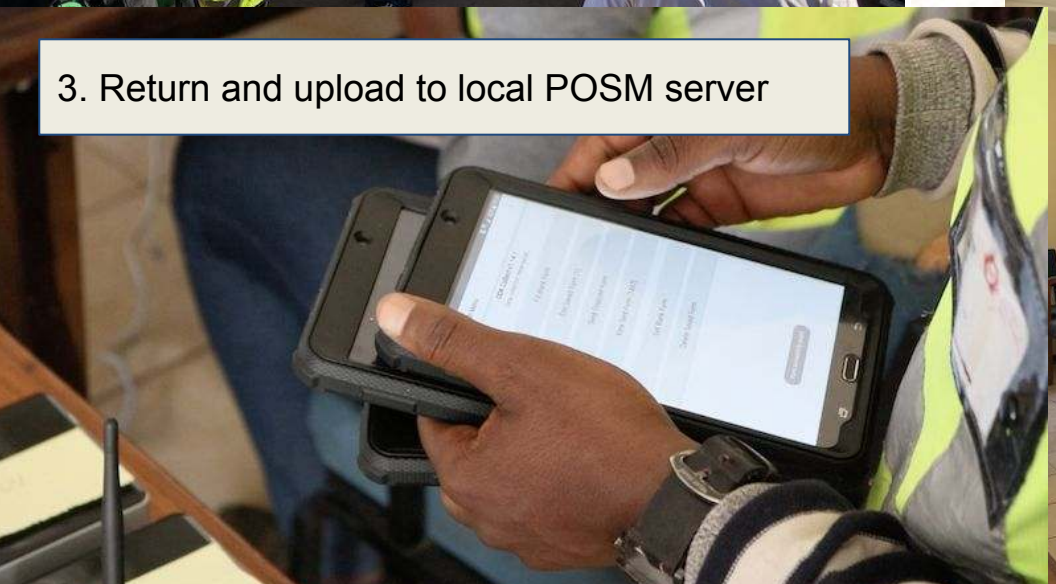


Methodology and workflow

1. Load data, review areas to map

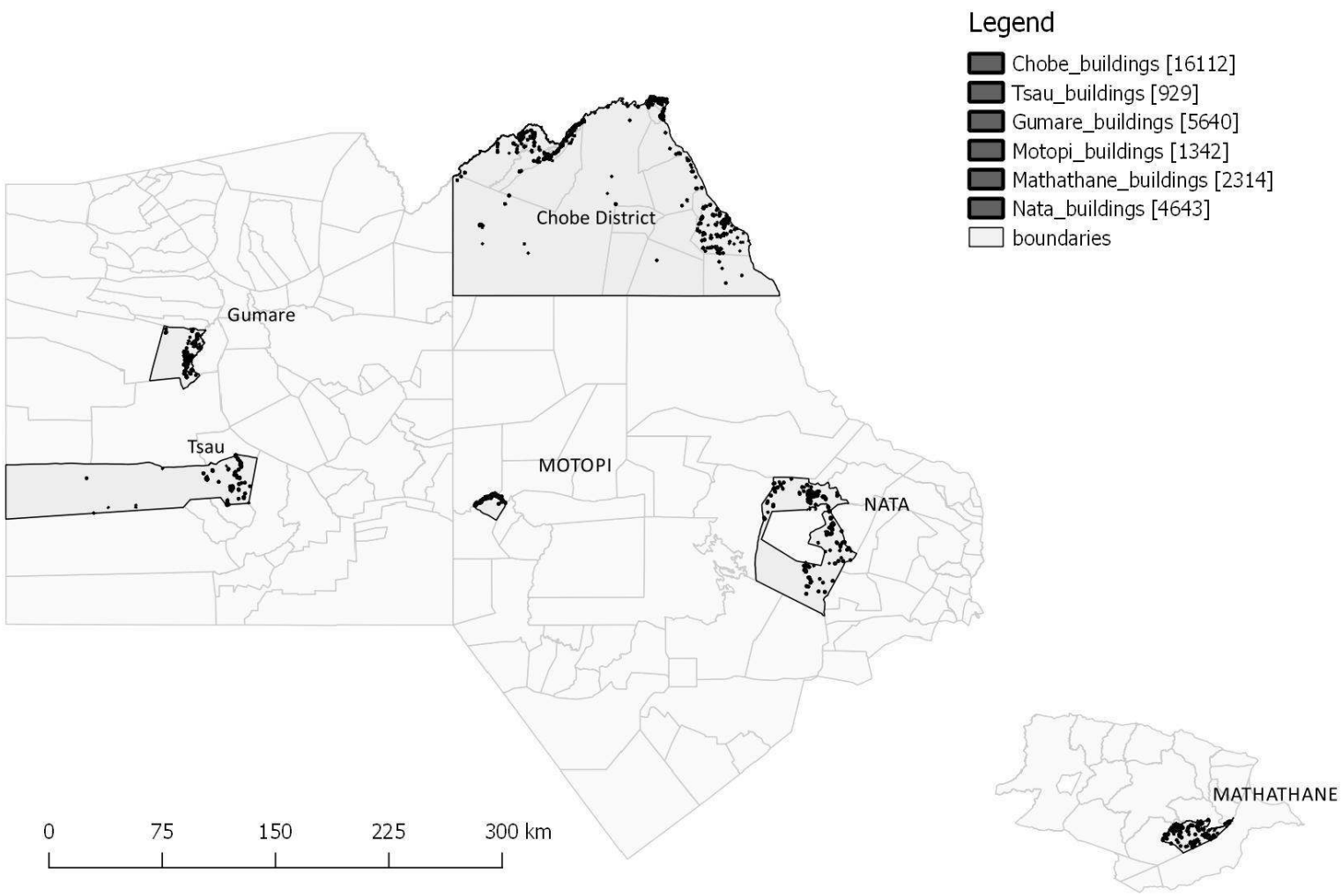
2. Data collectors map each structure with OpenMapKit

3. Return and upload to local POSM server



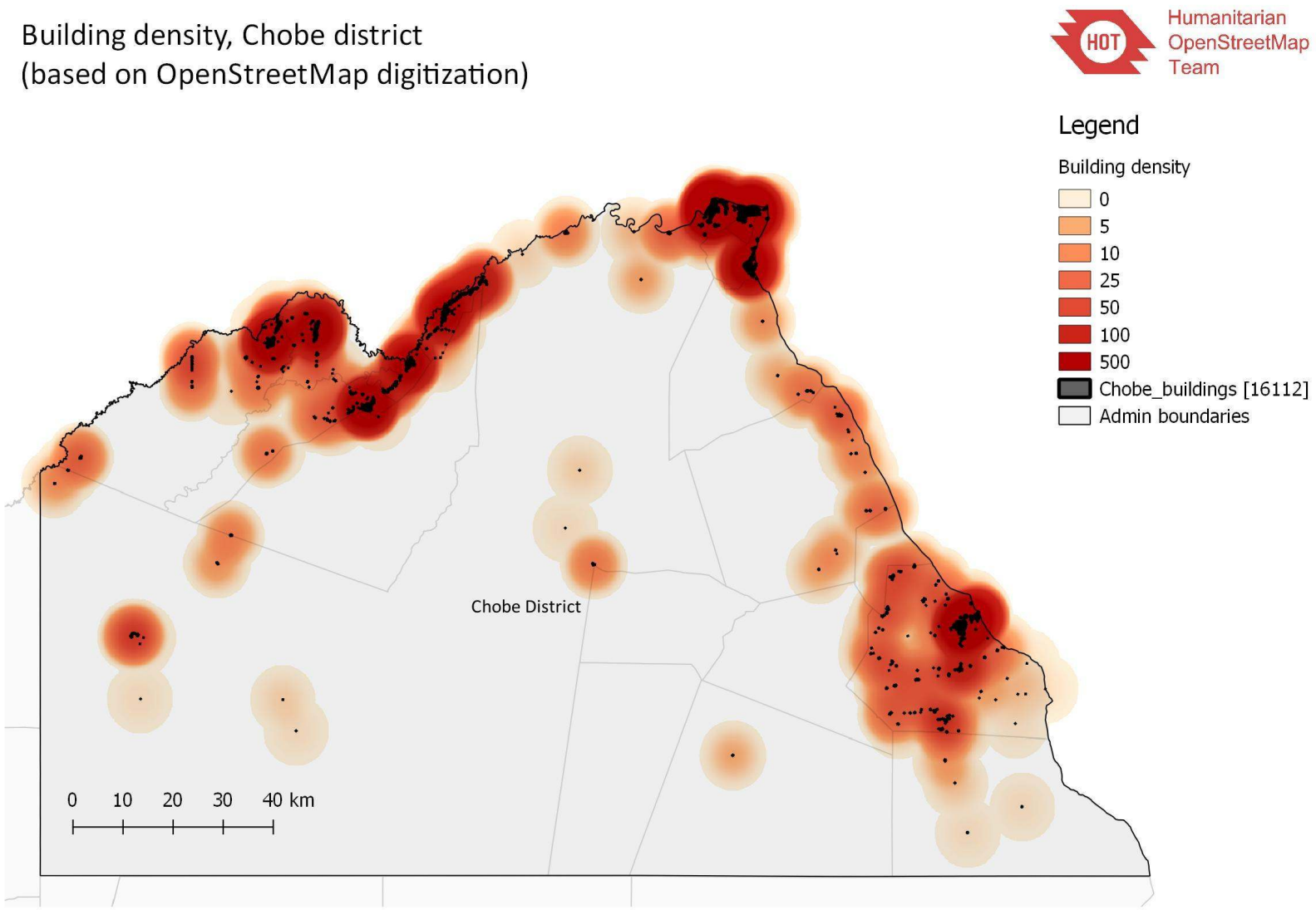
4. Data review and cleaning

1. Working area



Evaluation of current data, imagery

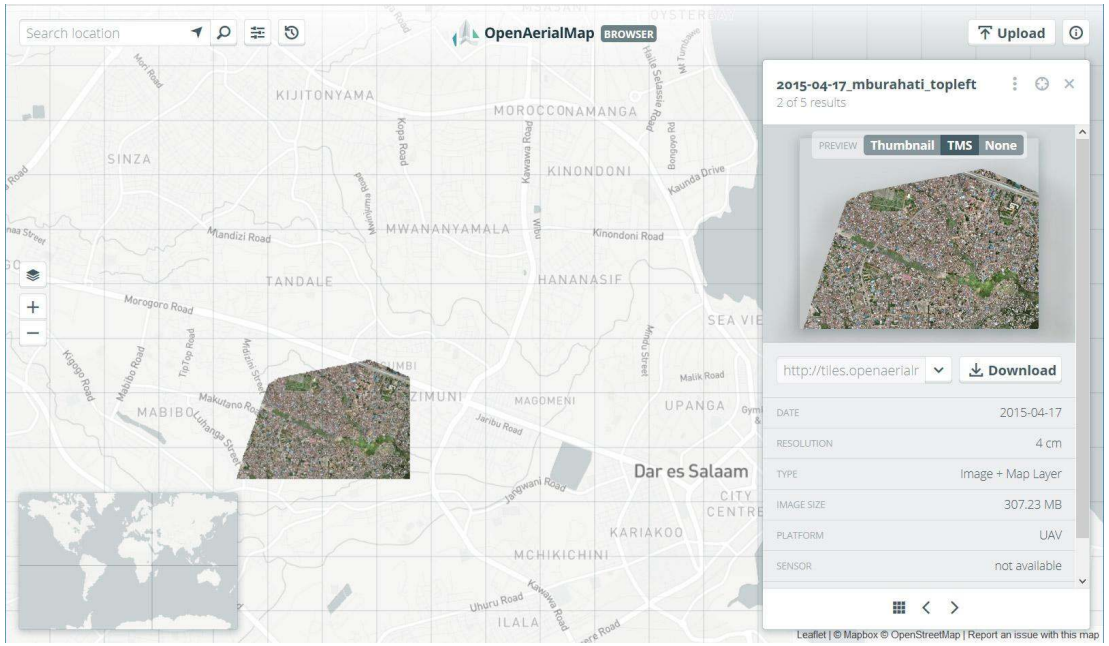
Building density, Chobe district
(based on OpenStreetMap digitization)



2. Imagery - OpenAerialMap

Evaluate your options:

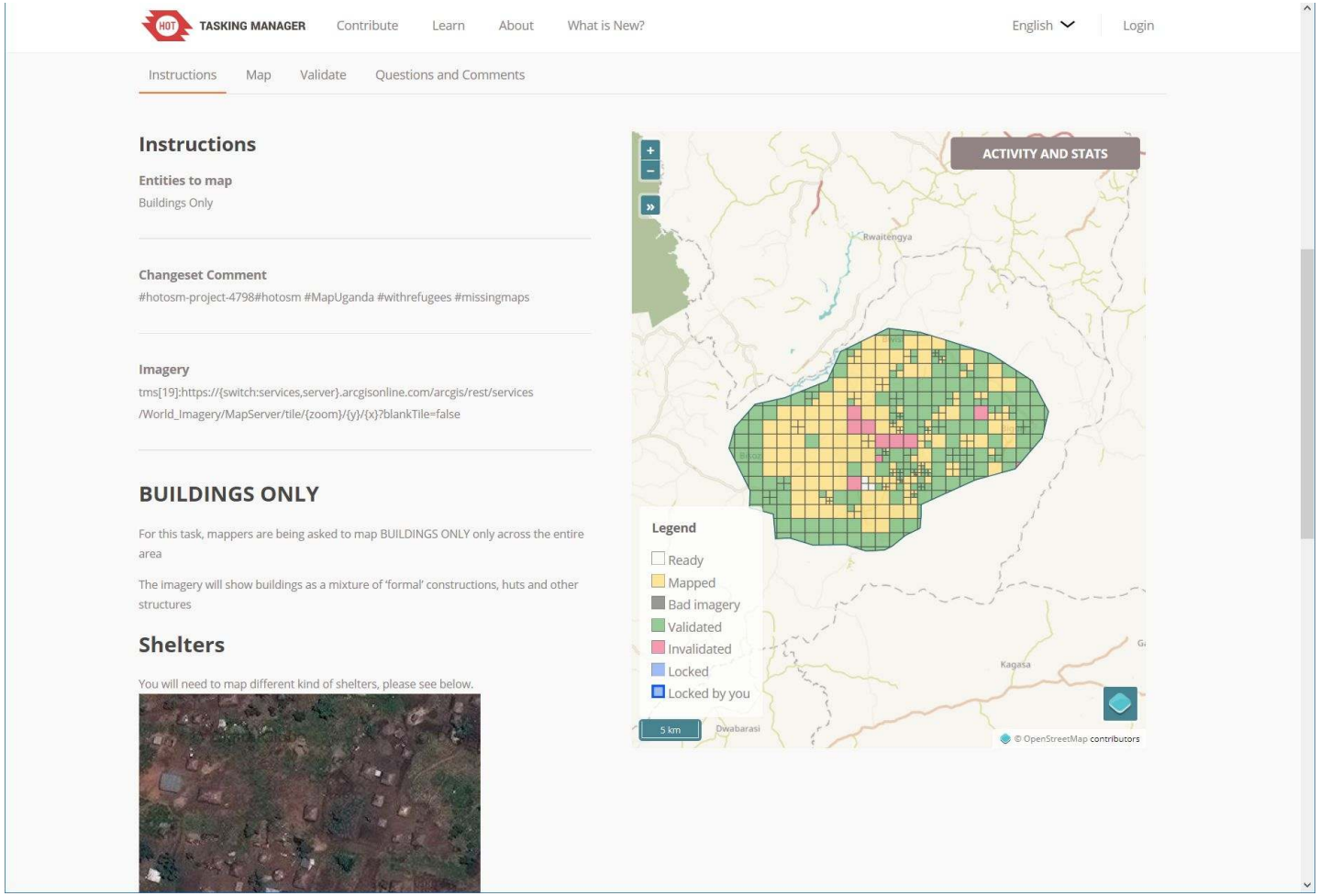
- Existing satellite
- Satellite, new collection (sometimes available for specific purposes)
- UAV



https://openaerialmap.org/

3. Remote mapping - Tasking Manager

http://tasks.hotosm.org/ - Rwamwanja Refugee Settlement, Kamwenge District, Uganda



4. Data model - What tags should you use?

Good question! First, some questions in return:

- What is the purpose of your project?
- How do maps/spatial data contribute to this?
- What data, and which attributes, do you need?
  - What data is currently available, and could be imported?
  - Are there any you can derive from aerial imagery?
  - Which ones require people to actually go there?

What tags should you use?

Two links to remember:

- http://wiki.openstreetmap.org/wiki/Map_Features
- http://taginfo.openstreetmap.org/

OpenStreetMap is built on community conventions

Examples of data models

Botswana/NMP

https://wiki.openstreetmap.org/wiki/Botswana_National_Malaria_Programme_(NMP)_Mapping,
https://docs.google.com/document/d/1LIX_ECsug1ug_I-RAdKV11Mnfsm4BVxhvyYr_WymLQg/

Ramani Huria:

https://wiki.openstreetmap.org/wiki/Dar_es_Salaam/Ramani_Huria

Uganda Refugee crisis

https://wiki.openstreetmap.org/wiki/WikiProject_Uganda/Uganda_Crowdsourcing_Non-Camp_Refugee_Data,
https://docs.google.com/document/d/1P3kd0qc0Lgo594QKxXWuu4NZLbrePlHzNGCMGtN_XbA/

For Malaria Elimination, that means:

Objective: **create high-quality operational maps for use by the MoH/NMP in upcoming malaria interventions**

What factors help determine what infra is suitable for which interventions, and help set up logistics, procurement, etc?

- Building use - residential, commercial, etc
- Building materials
- Number of rooms in a house, painted rooms, sleeping spaces

Example tagging for buildings

- Building

building = apartment, residential, dormitory, commercial, warehouse, retail, school, hospital, construction(for a building under construction)

addr:district = <name of district/county/province>
addr:city = <name of city>
addr:street = <street name>
name = <name if present>
building:levels = number of levels in the building ***(the ground floor is 1!)***
building:material = brick, cement_block, concrete, glass, loam, metal, plaster, wood
building:roof = tiles, concrete, metal, wood, plastic

Several survey questions to find:

Number of sleeping spaces per house
Number of painted rooms (this impacts the insecticide to use)

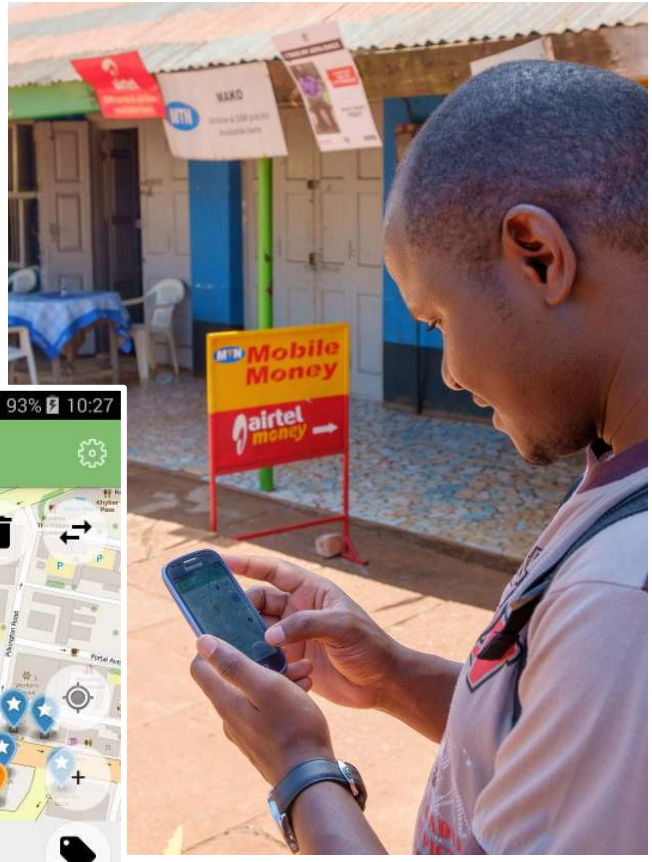
Know the terrain… you'll still run into surprised

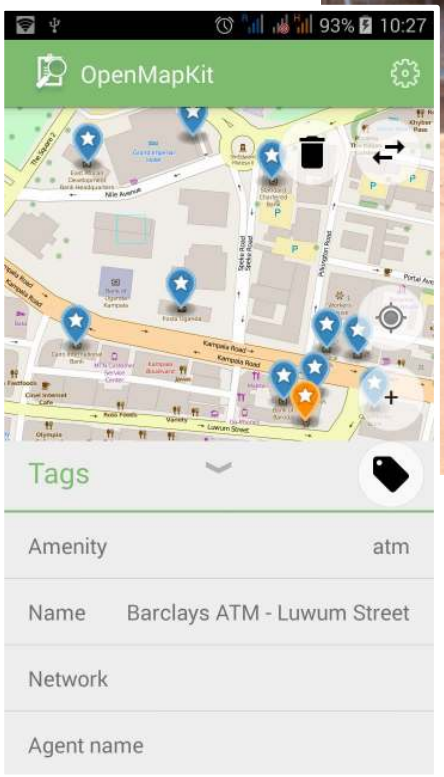
building:material=beer_cans (!??)

5. Set up data collection apps & forms

Plenty of options and trade-offs:

- OpenDataKit
  - OpenMapKit
- Maps.me
- OSMTracker
- ... go the ESRI route ;)





Maps.me

- When you don’t need close control over collected data, review, etc
- Both for iOS and Android
- Works well, as long as what you want to collect is part of the default forms

OpenDataKit/OpenMapKit

OpenDataKit:

- De facto standard for mobile data collection
- When you need fine-grained control over questions/tagging
- Works fine for collecting new features
- Android only (no iOS)

OpenMapKit

- Allows direct tagging (add/update) of OSM features
- Has a map view

6. Go out and map!

Arrange logistics: team and security planning

- Communications channels to use
- Distribution of tasks

OpenMapKit: setting up a deployment

We've set up an OMK deployment

Time for a bit of practice!

ODK and OMK installation

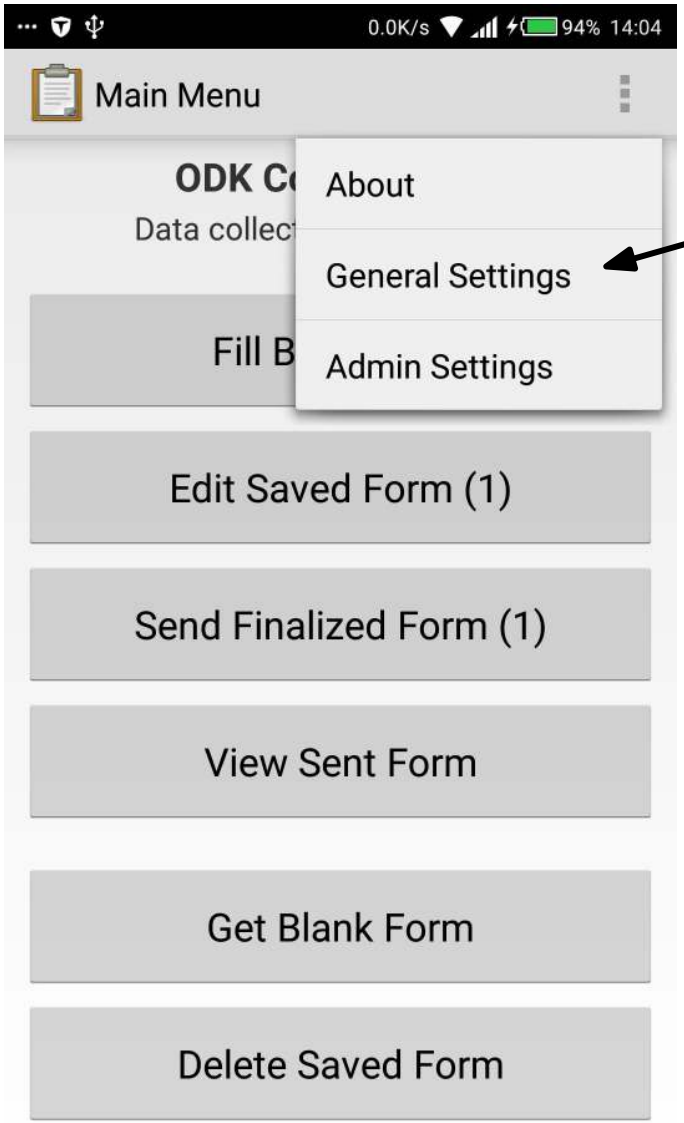
- **Install ODK Collect and OMK apps**

  Double click the ODK_Collect_v1.4.7.apk and OpenMapKit_v0.14.apk files in Download/Installation folder to install applications.

- **ODK Collect and OMK folders**

  The installation will automatically create the required odk and openmapkit directories on your mobile device.

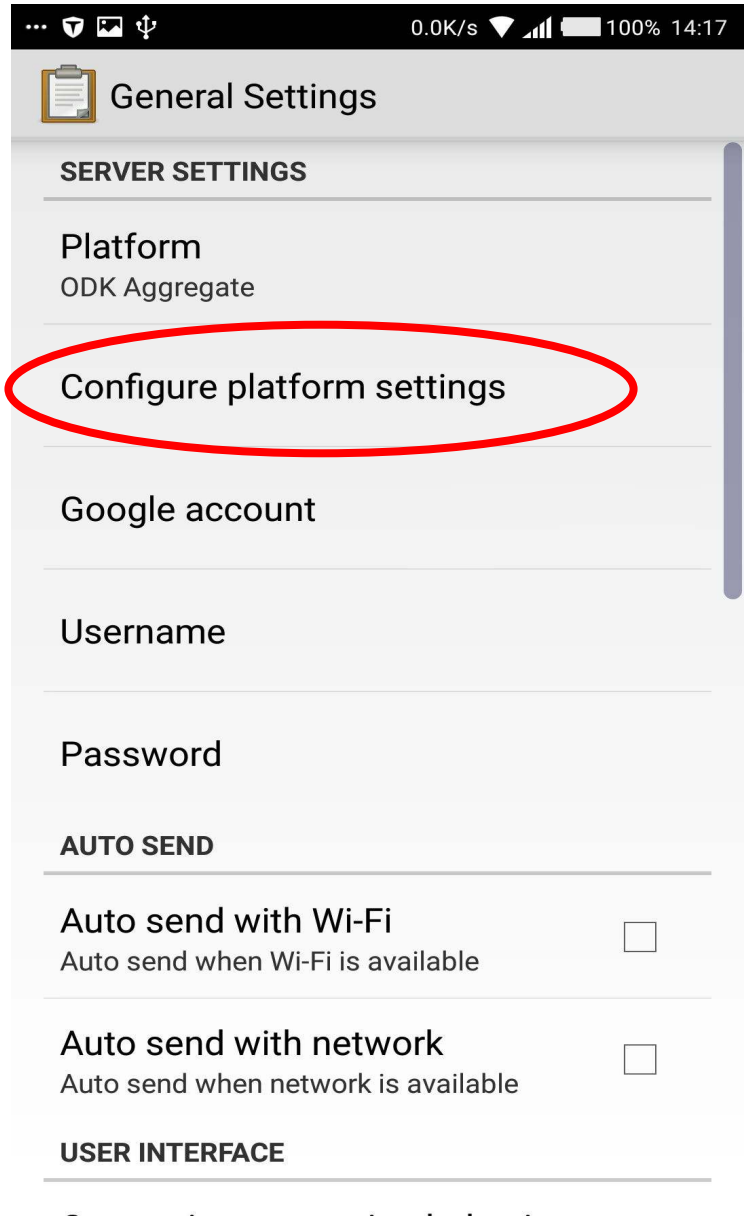
ODK Collect Setup

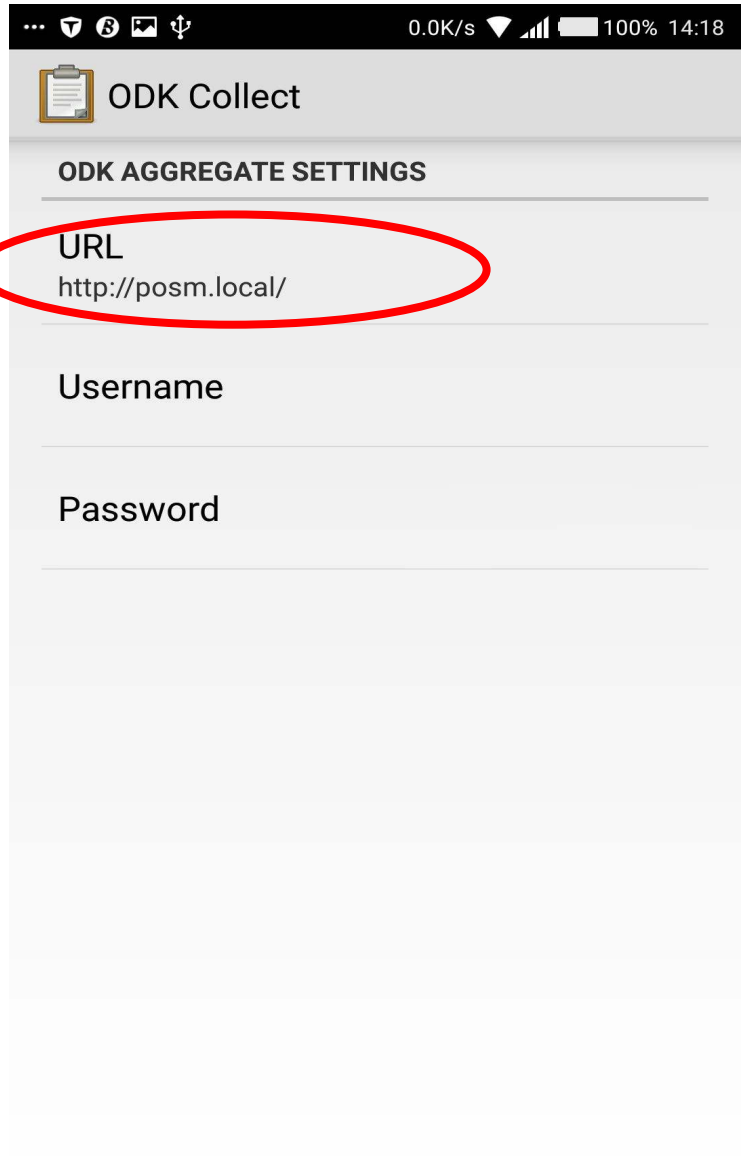


Configure Server

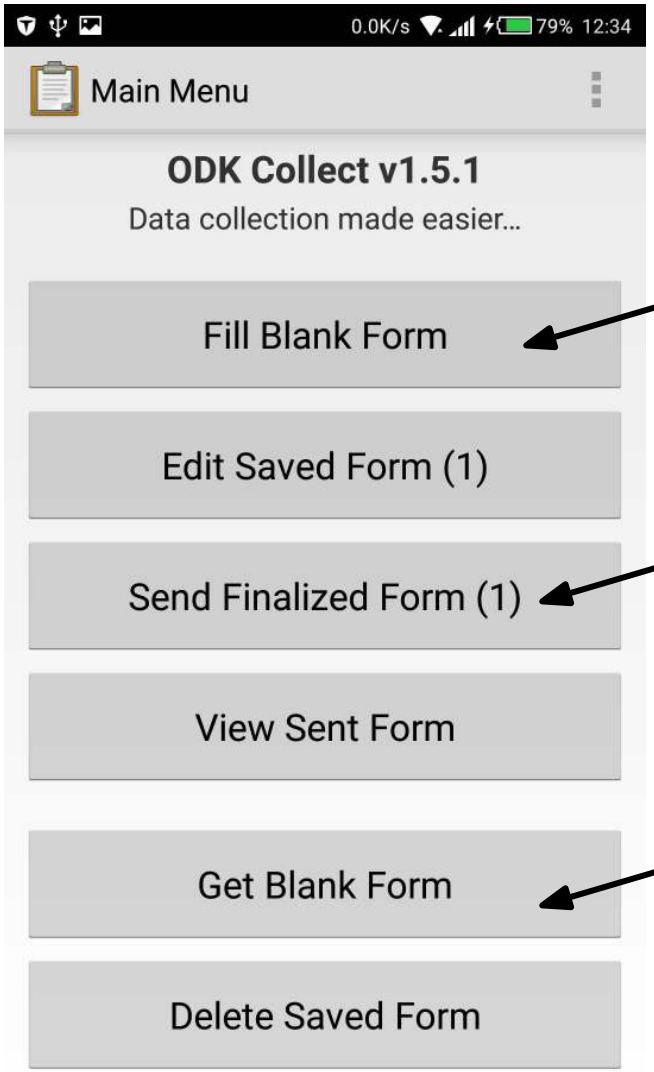
- Go to General Settings.
- Select Configure platform settings.
- Edit URL: http://posm.local

ODK Collect Setup





ODK Collect features

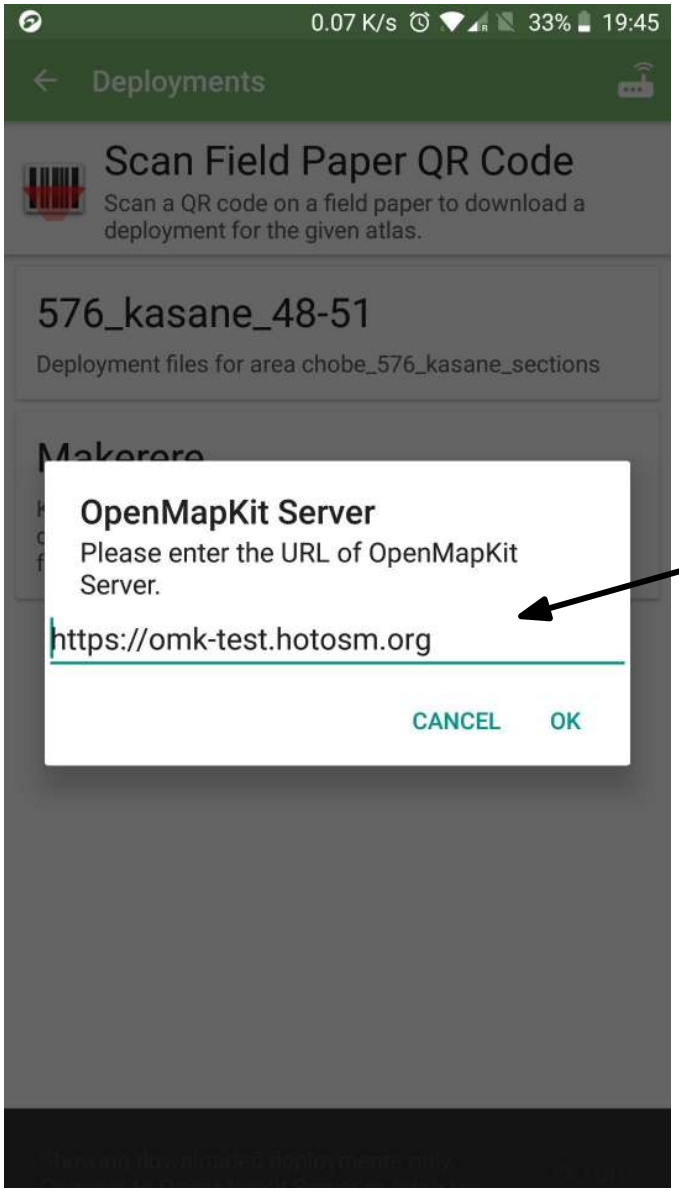


Use this button to select a form to use in field data collection

Saved and finalise forms will appear here

Forms can be downloaded from a server using this button

OMK deployment



Set to
http://posm.local

7. OMKServer (or POSM)

Two basic ways to use ODK and OMK:

- Use a data collection server (OMKServer/POSM or Kobo)
  - Deploy forms and files to devices used for data collection
  - Submit collect data to the server
  - Collect, aggregate, and download data from the server
  - Then review, clean and upload to OSM
- Copy files back and forth to the devices
  - Copy forms and files to devices from your computer
  - Copy collected data back to your computer
  - Merge data using JOSM or QGIS
  - Then review, clean and upload to OSM
- We'll use a test instance for now: http://posm.local or http://omk-test.hotosm.org

8. Data review and QA

Common tools to use:

- JOSM + filters, TodoList plugin, paint styles, validation
- OSMCha
- MapCampaigner (demo)

9. Data use - Export

http://export.hotosm.org/en/, https://data.humdata.org/organization/hot

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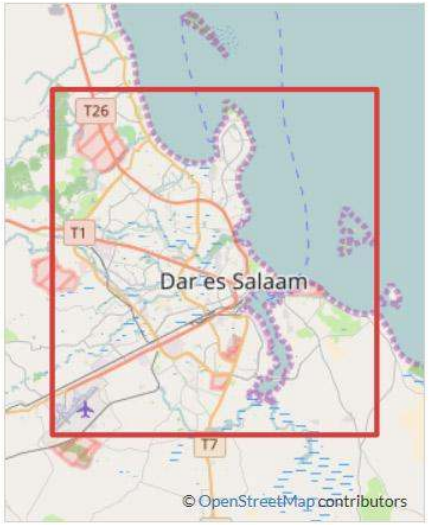
Export Details

Job Id:	b1ca4b81-0513-4ccc-9d5b-6c13626319cb
Name:	Dar
Description:	Dar
Project:	
Region:	Africa
Area:	294 sq km
Created:	11:24:33 am, November 1st 2015
Created By:	PaulUithol
Published:	Publicly
Export Formats:	ESRI Shapefile Format



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Export Runs

11:53:56 pm, June 21st 2017

Run Id:	59d54969-9b19-459b-9ded-cf69a6e4bfae
Status:	COMPLETED
Run by:	PaulUithol
Started :	11:50:50 pm, June 21st 2017
Finished:	11:53:56 pm, June 21st 2017
Duration:	3 minutes

Download:

File	Duration	Size
OpenStreetMap (PBF) File	0:00:02	12.612 MB
ESRI Shapefile (SHP)	0:00:16	38.460 MB

Preliminary data visualizations, Chobe District

Documentation

Collection questions & answers. Please ask questions and create tickets!

- https://github.com/hotosm/toolbox/wiki

Questions

Thanks!

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