



GRID3 Technical Support for Subnational Boundary Harmonization in Zambia

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Agenda



GRID3 Overview



GRID3 Approach to Boundary Harmonization



Boundary Harmonization Workshop in Zambia



Workshop Outcomes



Lessons Learned



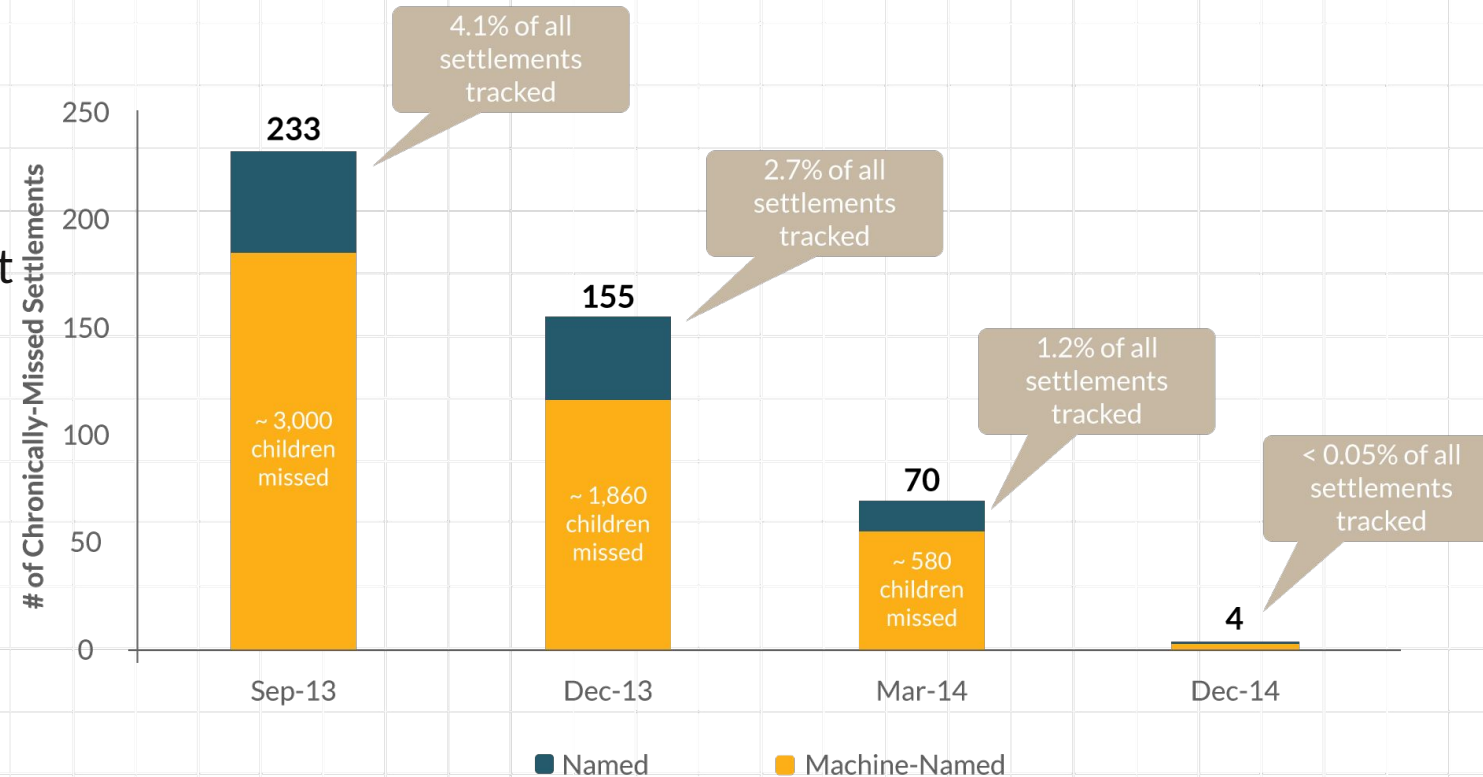
GRID3 Program Overview



Precursor to GRID3

The idea behind GRID3 started with an effort to eradicate Polio in Nigeria.

Updated settlement maps, population data, and health ward boundaries were integrated into a Vaccine Tracking System.



All settlements were reached and **polio cases fell to zero.**



Our Vision:

Mapping a path to sustainable development for everyone.

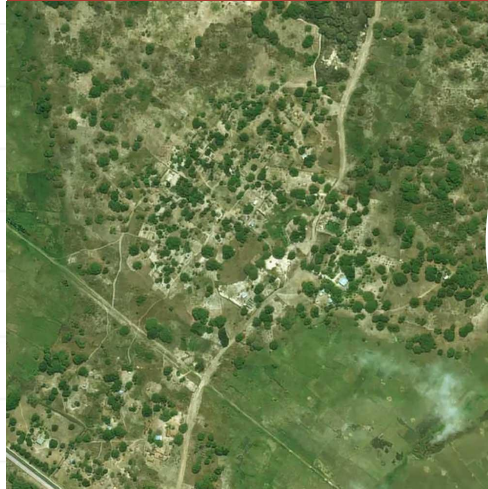
Our Mission:

To build spatial data solutions that make development goals achievable.

Housing census & hybrid method support



High-resolution population estimates



Subnational boundaries



Comprehensive settlement locations



Locating critical infrastructure

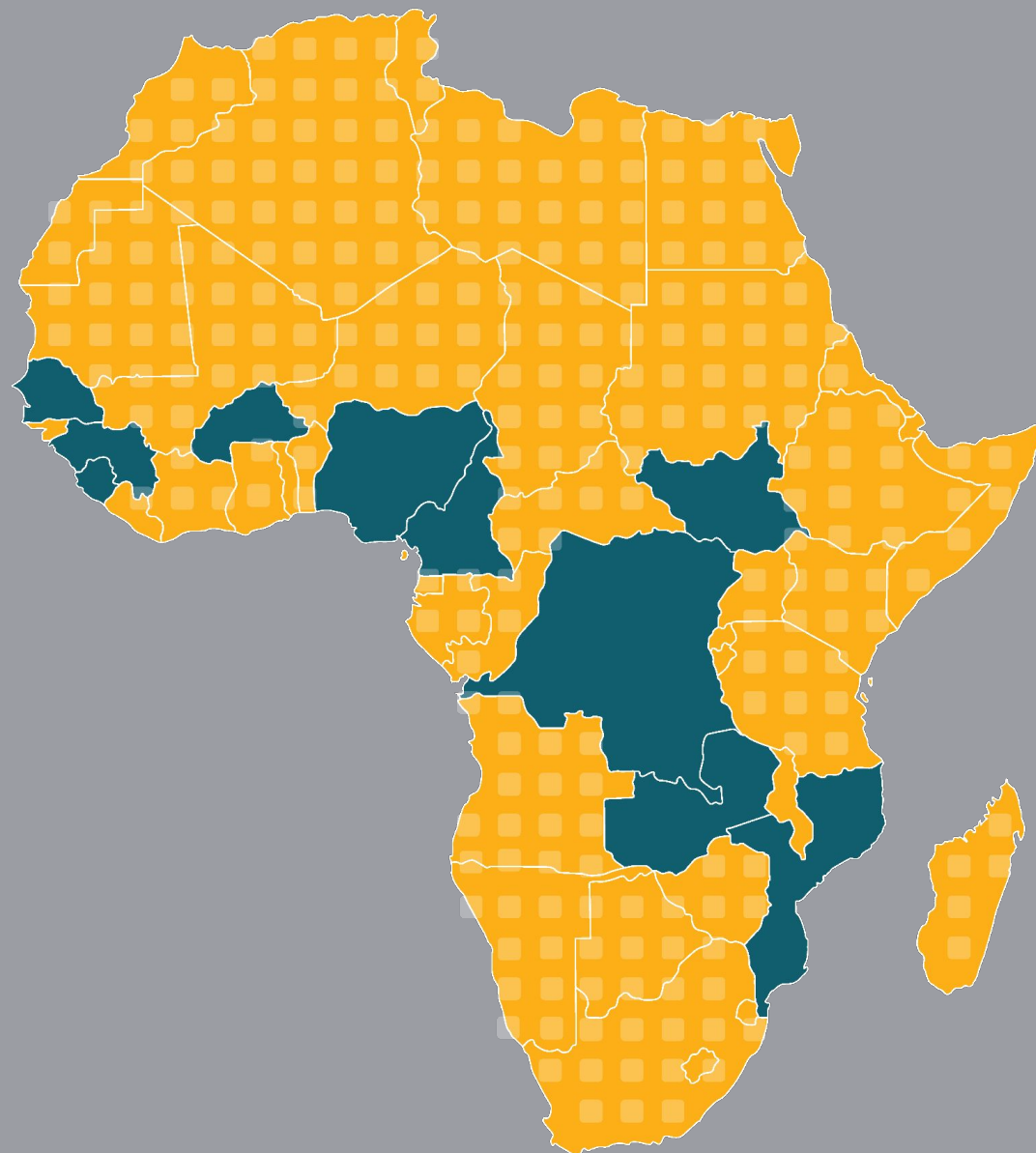


Capacity strengthening



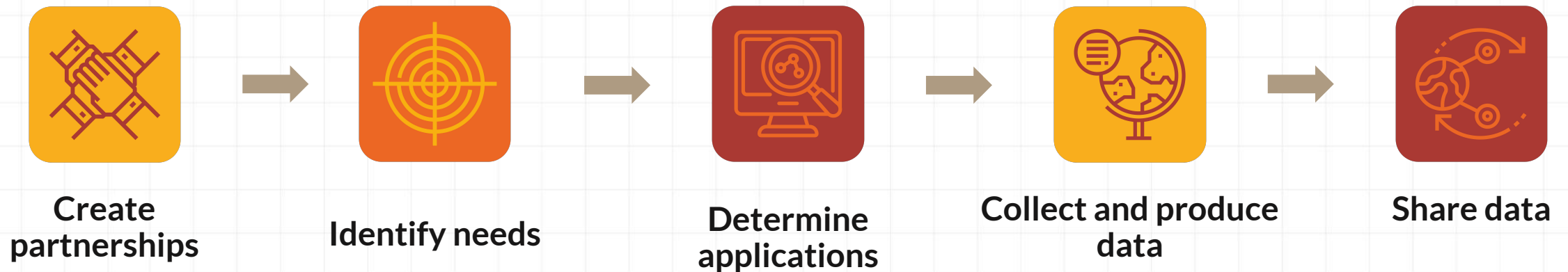
GRID3 is actively supporting the following African countries:

- Burkina Faso
- Cameroon
- Democratic Republic of the Congo
- Guinea
- Mozambique
- Nigeria
- Senegal
- Sierra Leone
- South Sudan
- Zambia

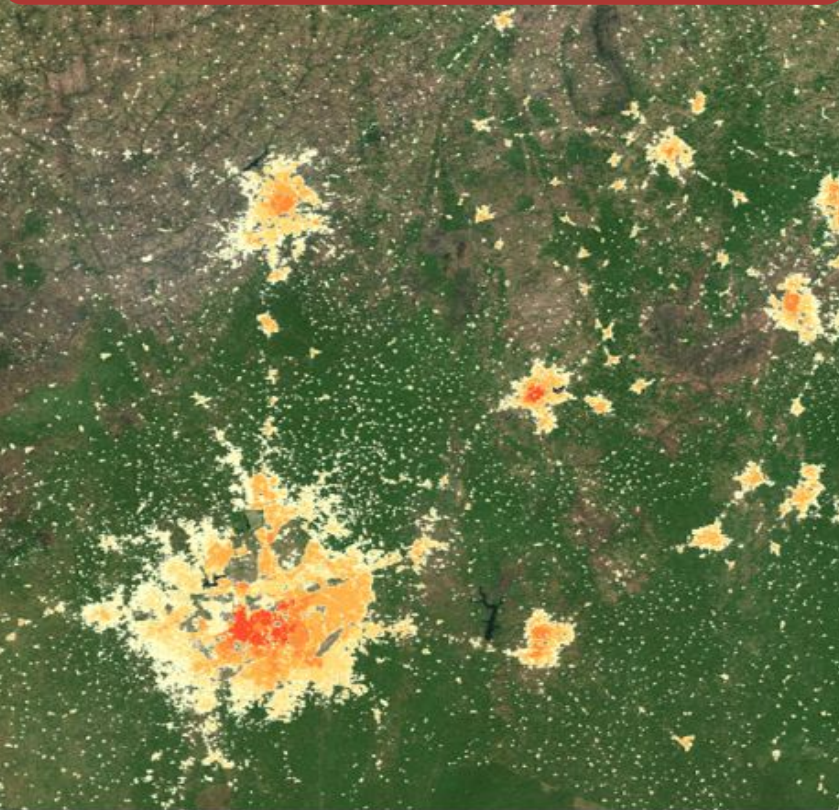


Country Engagement

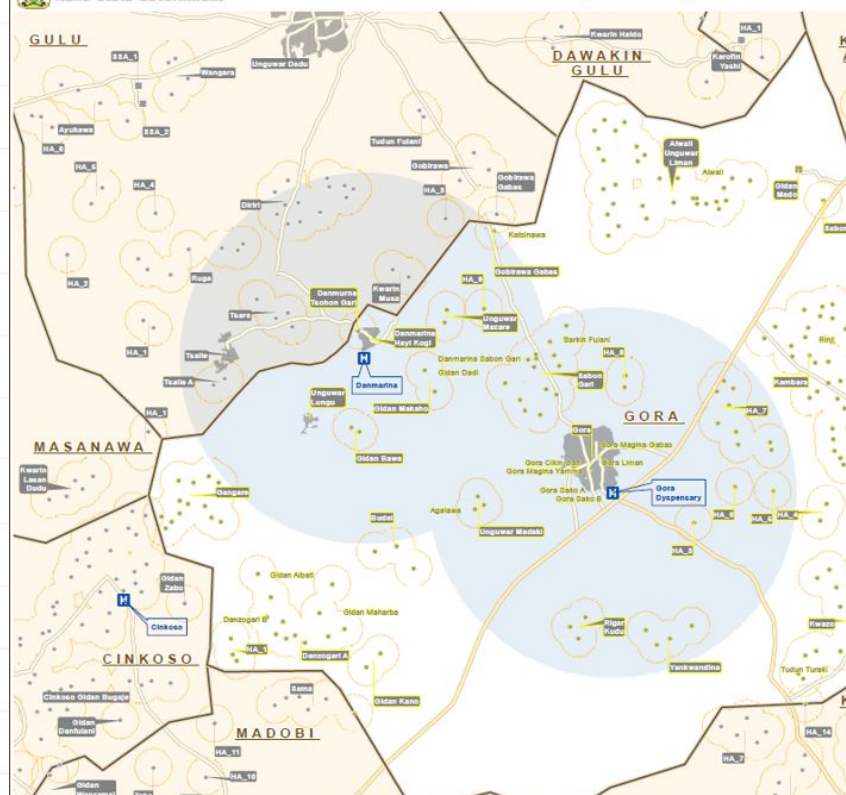
GRID3 works with national level partners to develop tailor-made strategies



Population



Administrative maps



Infrastructure



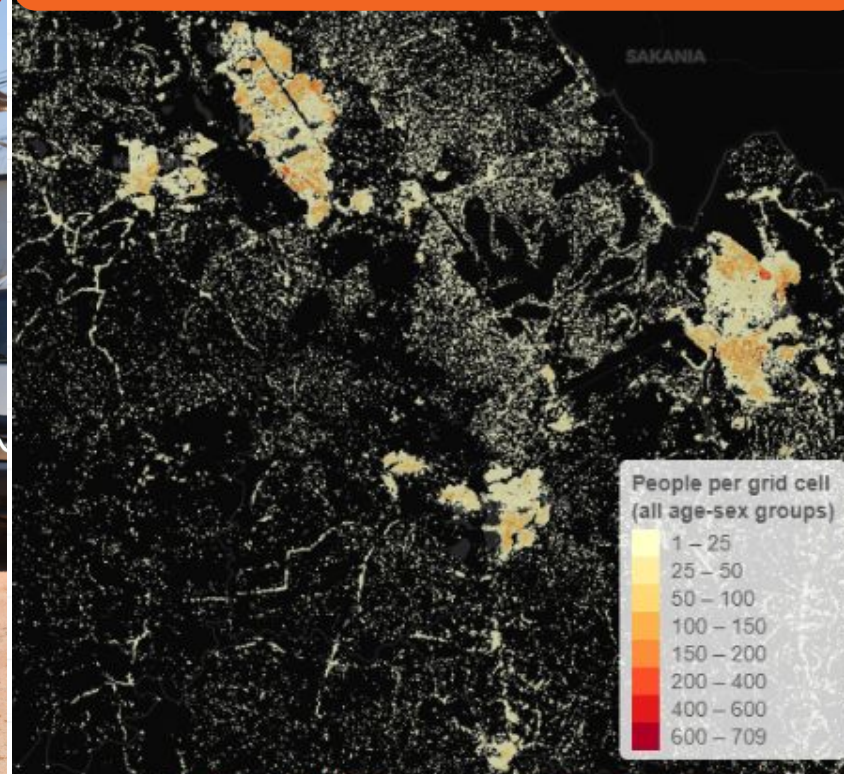
Core geospatial layers



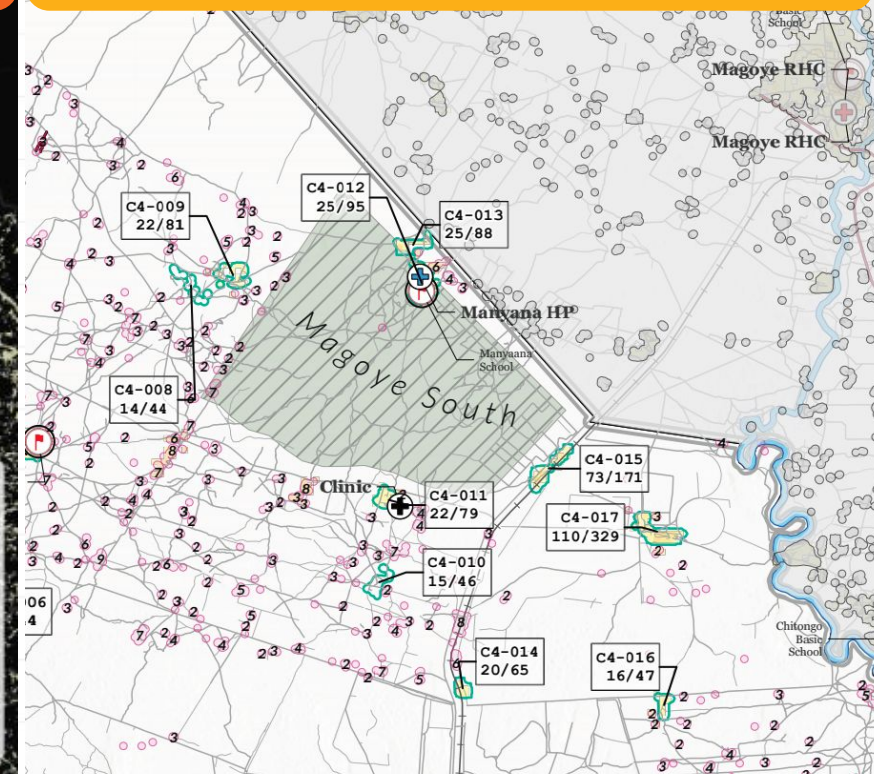
Data collection



Data modelling



Data use



Capacity strengthening



Types of technical assistance

GIS and Spatial Data

Introductory / advanced geospatial data analysis and visualisation for demography & development using GIS

Field-based community mapping and mobile data capture for households and neighbourhoods

Spatial Statistics

Tools and methods for spatial statistics and map production using GIS and R

Spatial Data Infrastructure

Open source web mapping and web app development

Spatial database development

Census

Census and SDGs
Digital cartography with QGIS

Small area estimation
Population projections
Kostat summer trainings



Training courses examples

Examples of Capacity Strengthening Workshops

- Integrated Development Planning for Local Government Planning Authorities
- Expanded Programme on Immunization (EPI units) on the use of micro planning maps for routine immunization and COVID-19 vaccination campaigns
- Supporting National Malaria Programmes
- Training of National Statistical Offices on the use of high resolution gridded population data (raster) in preparation for census cartography
- Automated Enumeration Area Delineation Tools





GRID3 Approach to Boundary Harmonization



GRID3 approach to improving subnational boundaries:

- Facilitating inter-institutional dialogue among government agencies
- Working with local stakeholders to develop a joint methodology for harmonization of operational boundaries



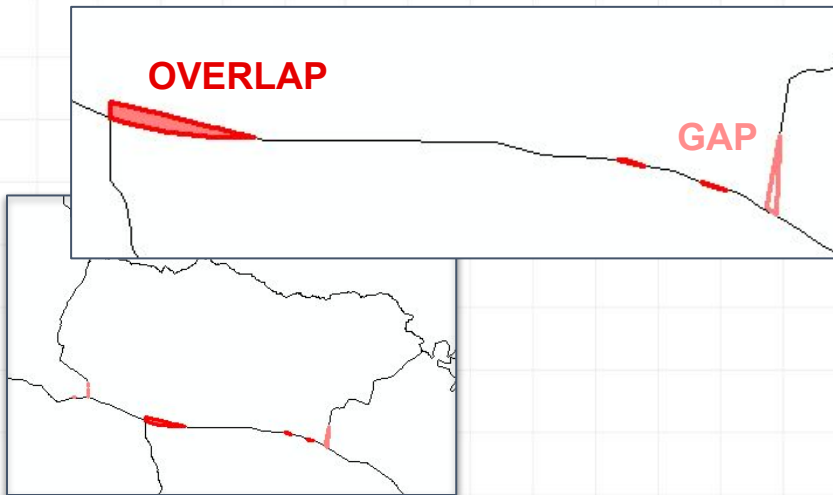
Subnational Boundaries Harmonization



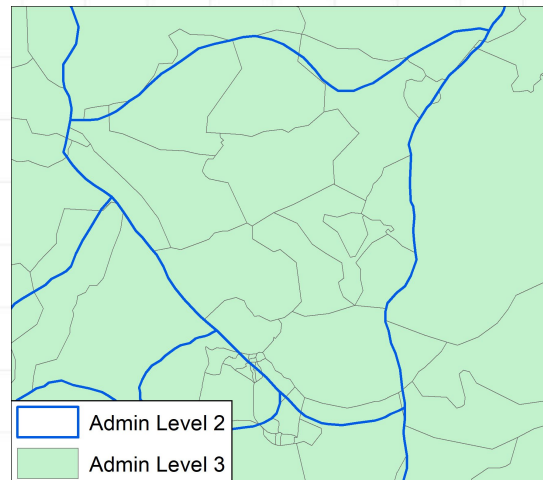
Methodology

- Support government authorities and other stakeholders in implementing best practices for harmonizing subnational administrative boundaries.

Fix topology errors between boundaries:

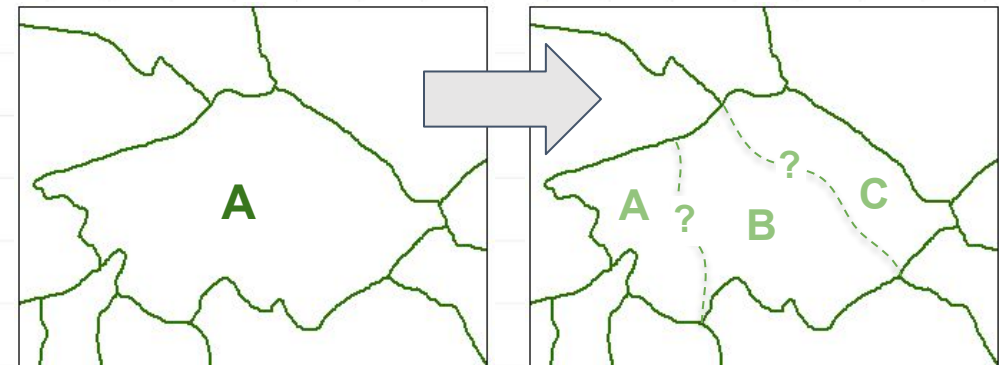


Ensure nesting of subnational levels



Update boundaries when units split or merge.

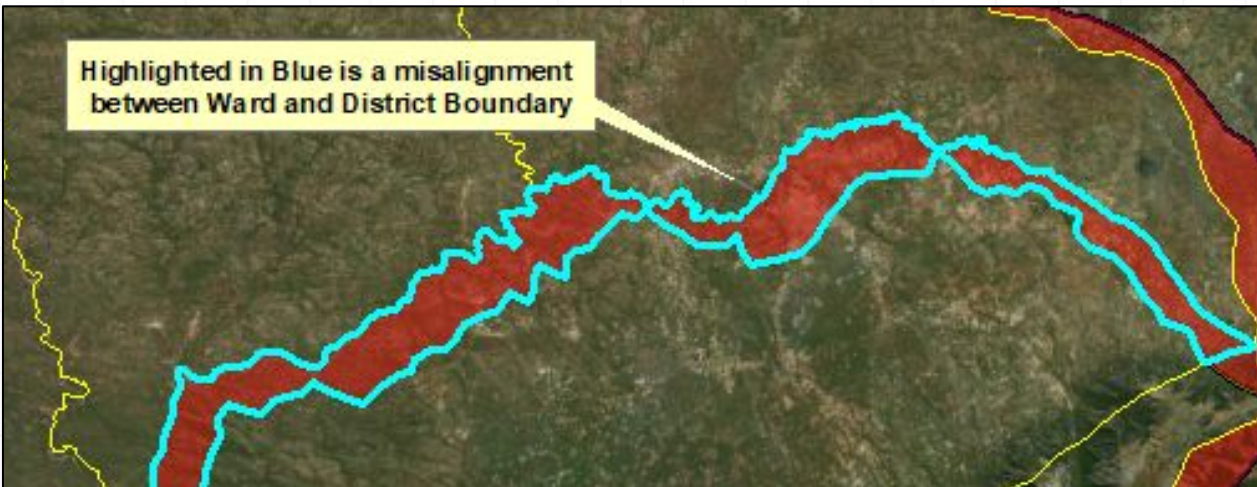
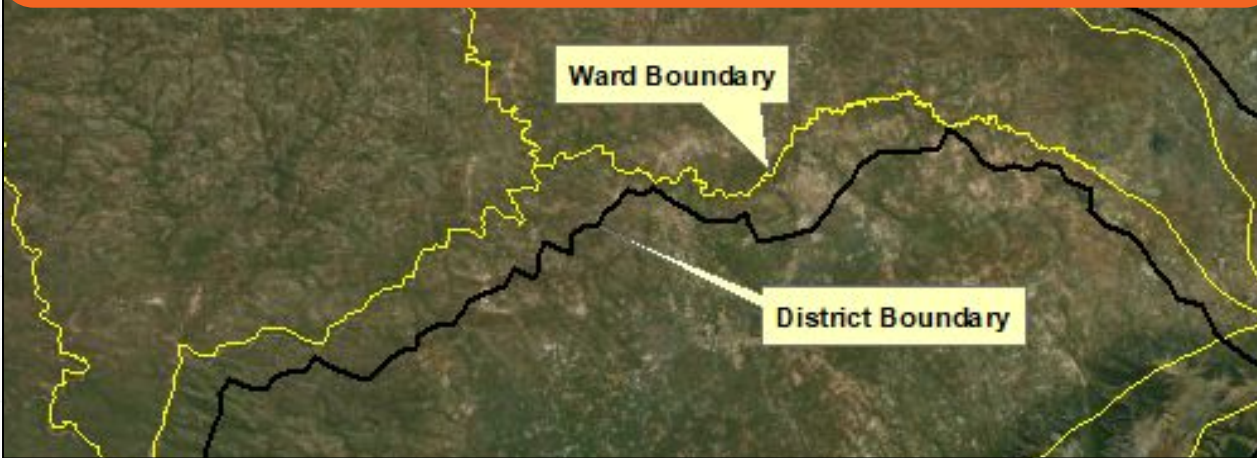
A splits into A, B, & C



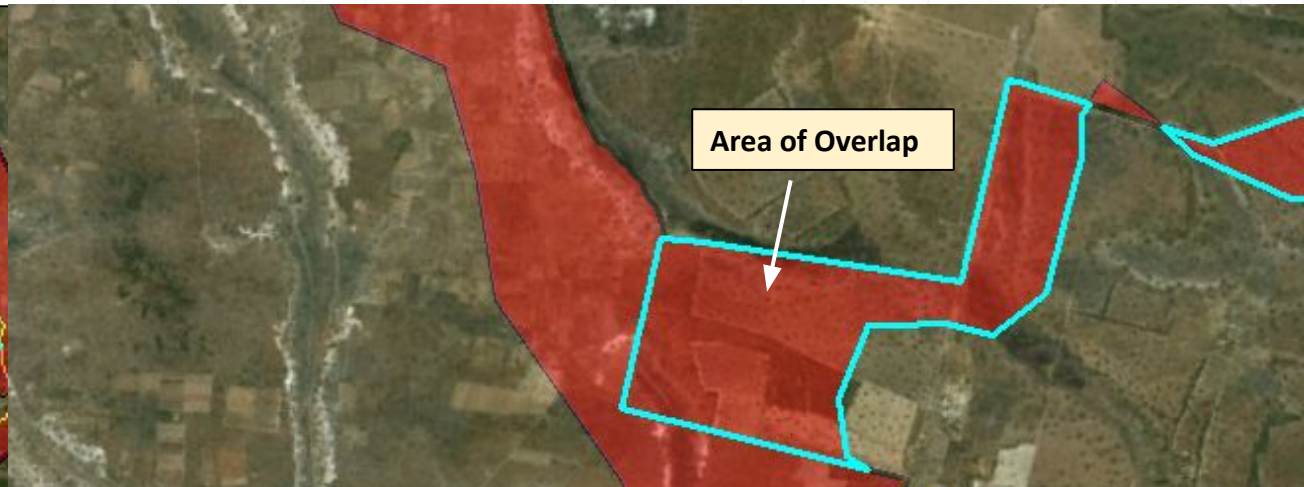
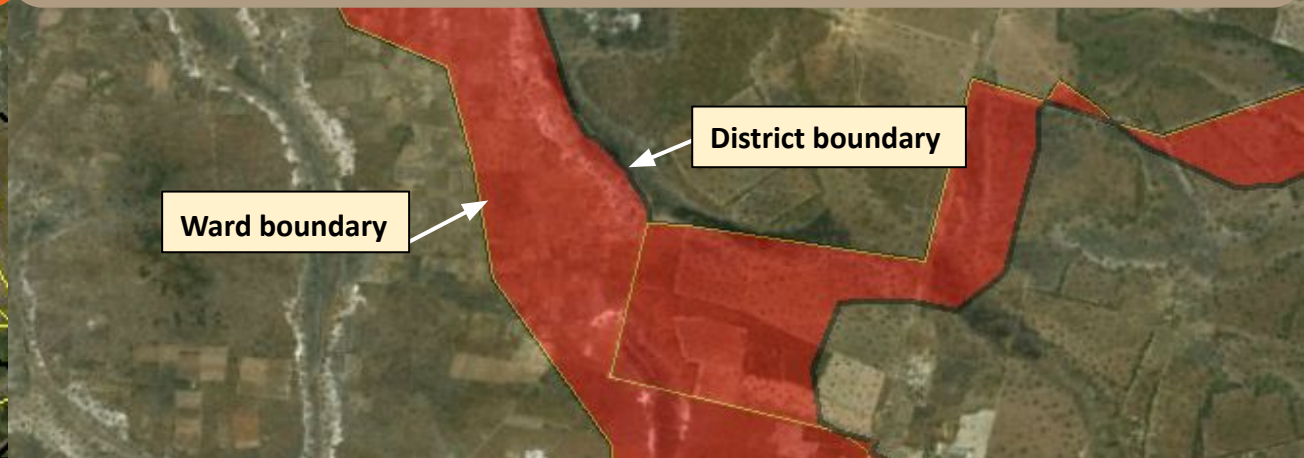


Boundary Harmonization Workshop in Zambia

Gaps



Overlaps



Administrative boundary misalignments



Coordination & Work Plan Development

Work with in-country stakeholders such as Office of the Surveyor General (OSG), Ministry of Local Government (MLG), Electoral Commission of Zambia (ECZ), and Zambia Statistics Agency (ZamStats), to jointly develop a methodology for boundary harmonisation workflow



Workshop Goals

Bring together responsible agencies to validate districts against official narratives, align to topographic features, reconcile district and ward boundaries



Boundary Harmonization Workflow



Referring to district narratives and topographic maps to compare official boundary delineation to the district shapefiles

Editing Session

Read aloud the narrative for a district and its neighbouring districts while a GIS specialist panned around the map to follow the district narrative description

Using ESRI imagery retrace boundary at a scale of 1:10,000

Adjust gaps and overlaps by joining to the correct admin unit

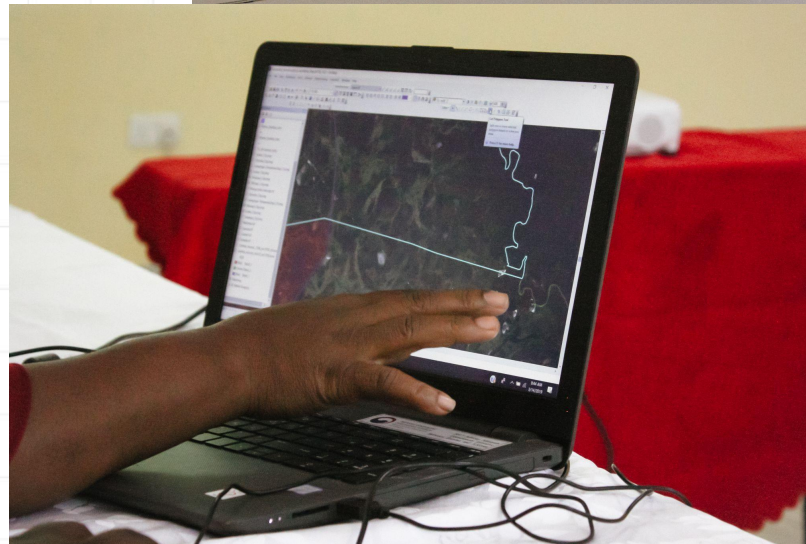
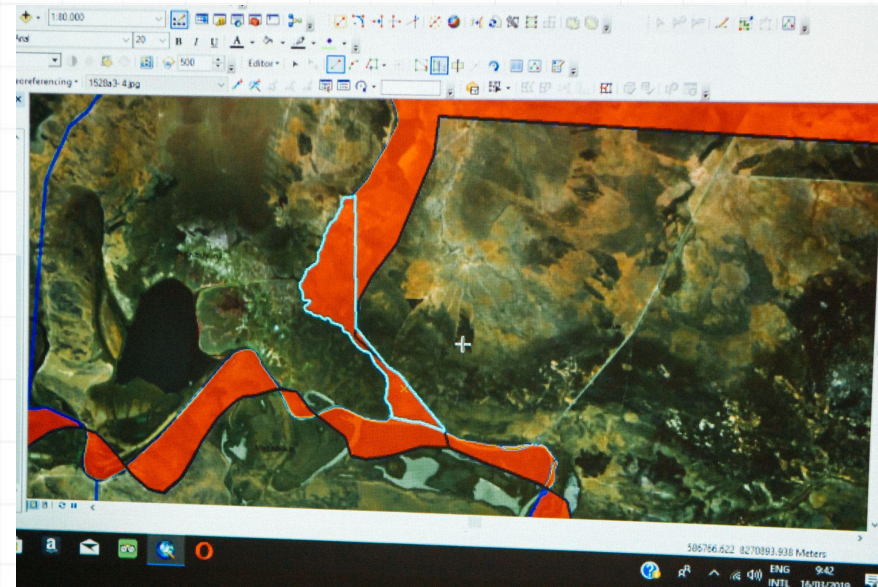
Map Document

Georeferenced topographic maps

Esri Imagery Basemap to check if the boundaries follow natural features referred to in the topographic maps

Boundary shapefiles (pre-workshop)

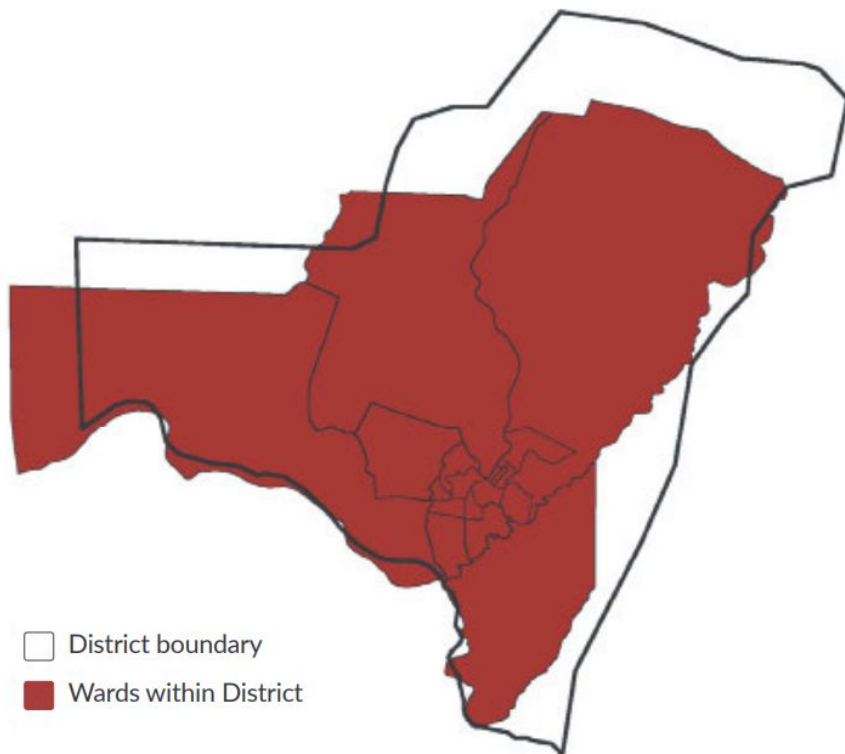
Shapefile showing misalignments (gaps and overlaps)





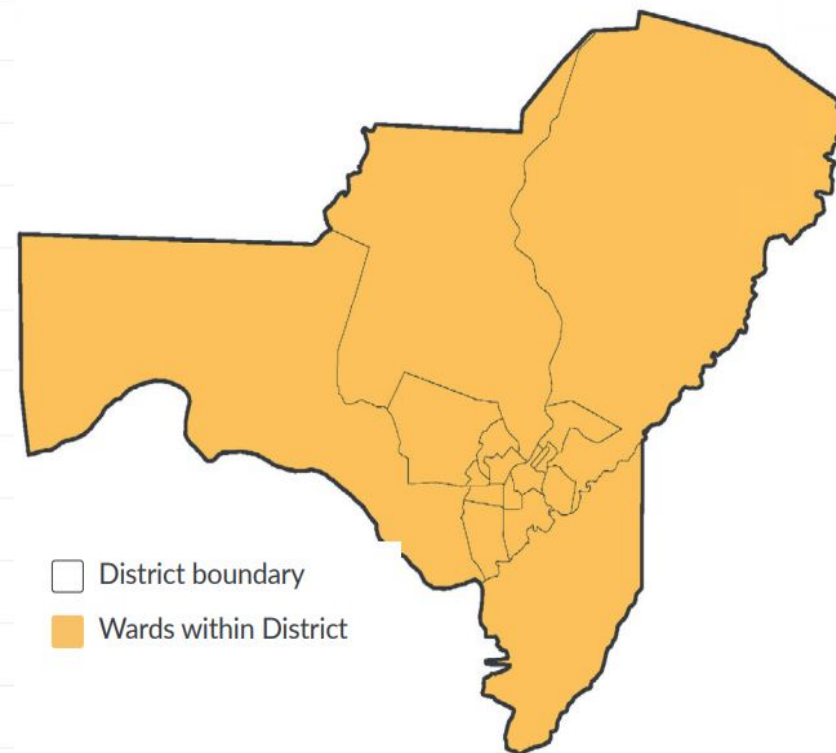
Zambia Boundary Harmonisation Workshop

Before



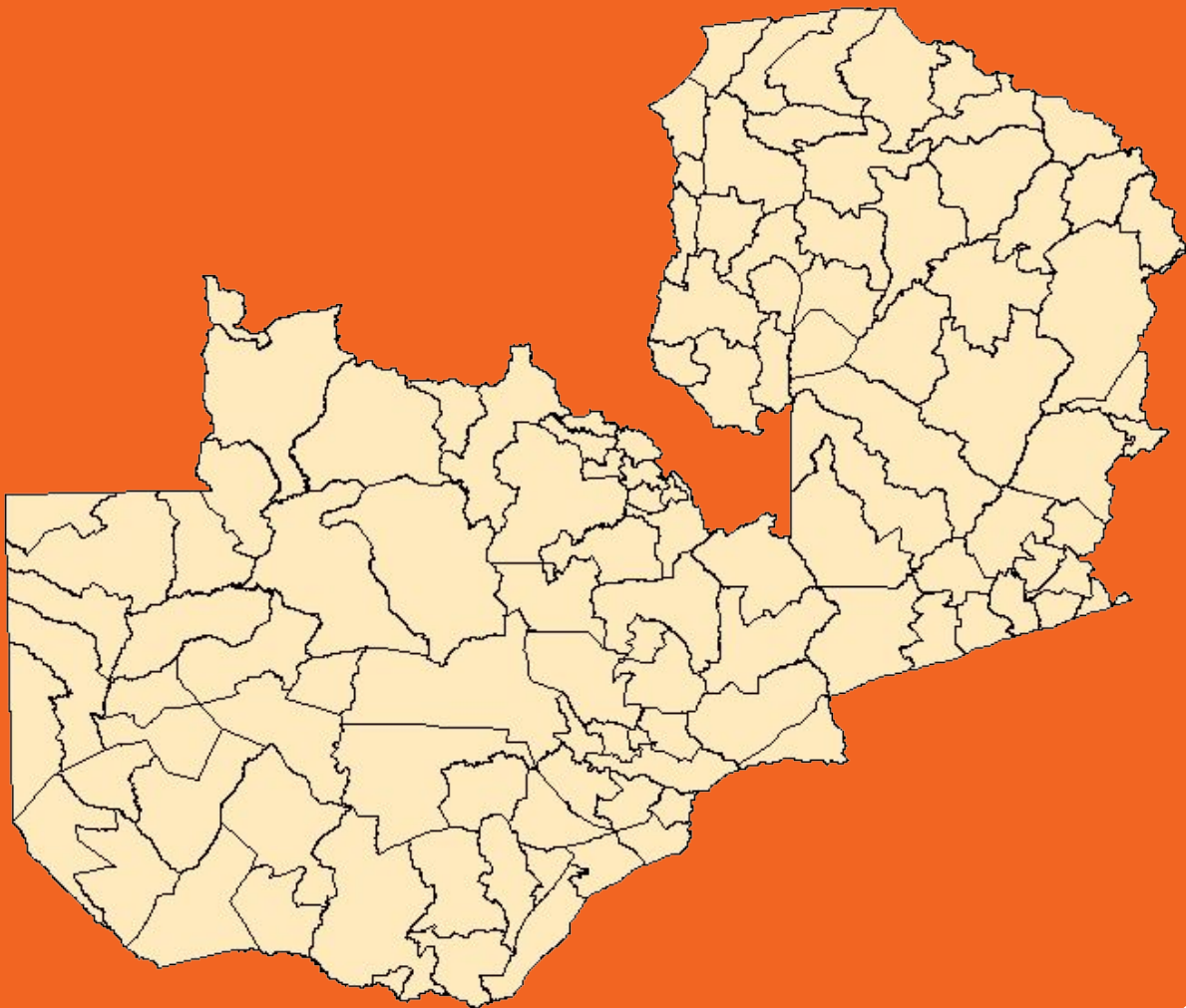
Livingston District, Zambia

After



Administrative Boundaries





- All 116 district boundaries were validated against district narratives and retraced at 1:10,000
- Wards sharing a boundary with a district were aligned
- Consensus reached on code assignments to the provinces and districts (OSG with input from ECZ and ZamStats)
- Errors in the narratives were identified for correction
- Established coordination among all government agencies to agree on the workflow for updating administrative boundaries



Workshop Outcomes

- Adapting participatory mapping methodologies to a given country's context
- Ensure capacity and skills
- Government owned database where data is readily available
- Continued coordination between government stakeholders



Lessons Learned



GRID³

GEO-REFERENCED INFRASTRUCTURE AND
DEMOGRAPHIC DATA FOR DEVELOPMENT

Questions?

Reach out to us at: info@grid3.org

For project updates and announcements, visit us online at:



@GRID3Global



www.grid3.org



GRID3

Or follow our partners on Twitter at @Flowminder, @WorldPopProject, @UNFPA, @PopDevUNFPA, and @CIESIN