



 **GRID³**

Impact Report

2017 - 2022



Note from GRID3

GRID3 was founded in 2017 to **help governments in sub-Saharan Africa make better** use of spatial data in healthcare, education, and other sectors. Our initial four partner organisations—the Center for International Earth Science Information Network at Columbia University¹, the Flowminder Foundation², the United Nations Population Fund³, and the WorldPop group at the University of Southampton⁴—helped develop **multi-agency work plans that mainstreamed new data and data methodologies that supported the objectives of our government partners.**

We support government efforts to blend conventionally collected official data with new data that are generated by novel approaches. To that end, we use advanced data science and technology, participatory mapping, satellite imagery, and other innovations. Our solutions have helped to improve interventions in **immunisation coverage, malaria control, electrical grid planning, community health worker catchment planning, locating new schools, and capturing population data in insecure regions.**

In our first 5 years, **we have worked with over 20 sub-Saharan African governments** and learned a great deal about what it takes to succeed. We discovered that we need to engage deeply with our partners, provide continuous support at the national level, provide training and capacity programs at a large scale, and respond flexibly to priority needs and opportunities.

After extensive consultations with governments, donors, and other stakeholders, in 2022 we began the transition to operating as an independent non-profit organisation. Our vision and mission have not changed, nor has our approach of collaborating with multiple technical partners. **The new organisational structure has been realigned so that our innovations can reach their full potential.**

Successful development interventions are never the work of a single organisation. **We thank all our partners for the critical roles they have played in making GRID3 a success.**



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Who we are

GRID3 works with countries in sub-Saharan Africa to generate, validate, and use core spatial datasets on population, settlements, subnational boundaries, and crucial infrastructure. In tandem, GRID3 trains and strengthens the capacity of stakeholders who use this information; supports related analytics and decision-making; and improves the mainstreaming and sustainability of key datasets.

GRID3 solutions address the needs of multiple development sectors and their diverse beneficiaries. GRID3 emphasises government ownership to ensure that solutions can be incorporated into ongoing operations at the national level.

GRID3's work facilitates improved, data-driven development interventions that deliver vital services to the communities that need them the most.



Our milestones

Geospatial data play a key role in the effort to eradicate wild poliovirus in Nigeria

March
GRID3 is officially launched at the 49th United Nations Statistical Commission

July
GRID3 trainings begin for countries in West and Central Africa

April
GRID3 pivots to support COVID-19 response

April
GRID3 online training and platform go live

August
First boundaries dataset are published in coordination with the government of Zambia

October
GRID3 launches the Coalition to Advance Progress on Administrative Boundaries in Africa

December
GRID3 joins forces with 10 countries in WHO's Geolocated Health Facilities Database initiative

July
GRID3 undergoes an independent organisational review to assess most efficient options for organising future work

July
GRID3 contributes to UNICEF's Population Data for Action project

2015

2017

2018

2019

2020

2021

2022

2023

February
First bespoke population estimates are published for Nigeria

March
Settlement names dataset is published in coordination with the Democratic Republic of the Congo

July
GRID3 Data Hub is launched

June
Population estimation survey is completed in South Sudan

June
Sierra Leone releases School Infrastructure and Catchment Area Planning policy that features GRID3 data insights

January
Burkina Faso publishes GRID3 population estimates for areas inaccessible to 2019 census enumerators

December
Settlement extents datasets are published for all of sub-Saharan Africa

November
GRID3 Mapping for Health begins to support immunisation campaigns in the Democratic Republic of the Congo

August
GRID3 begins transition to operating as an independent non-profit organisation to prepare for scaleup in 2023



400M+ people

in 11 countries made
visible on the map

15M settlements

mapped across 48 countries
in sub-Saharan Africa

116K schools

mapped in
Zambia and Nigeria

62K health facilities

mapped in DRC,
Nigeria, and Zambia

3700+ people trained

across 380+ institutions
and 45 countries

45K boundary delineations

improved across various
administrative levels in Africa



GRID3 approach



Over the last five years, we have acted on lessons learned from our experiences with governments, partners, and donors. Our approach has been **needs-based, collaborative, and consistent with national policies**. We have learned to **engage deeply with our partners, provide continuous support at the national level, provide training and capacity programs at a large scale**, and respond flexibly to priority needs and opportunities.

GRID3 approach

Production of core spatial datasets

Collaboratively produce a suite of core geospatial datasets on population, settlements, boundaries, and infrastructure

Analytics and decisions-support

Work with governments to use core geospatial datasets in ways that can improve development outcomes

Capacity strengthening and training

Strengthen individual and institutional capacities in the production, use, and maintenance of geospatial data and tools via technical assistance and trainings

Mainstreaming and sustainability

Ensure that the institutional systems used to produce and house geospatial datasets are built to last

What are core spatial datasets?



Population

We put people on the map



Settlements

We locate and map settlements where people live



Health facilities

We locate health facilities that provide services



Boundaries

We map administrative and catchment boundaries used in service delivery, surveillance, and reporting



Infrastructure

We map relevant points of interest and the roads and waterways that affect accessibility to services

GRID3 in action

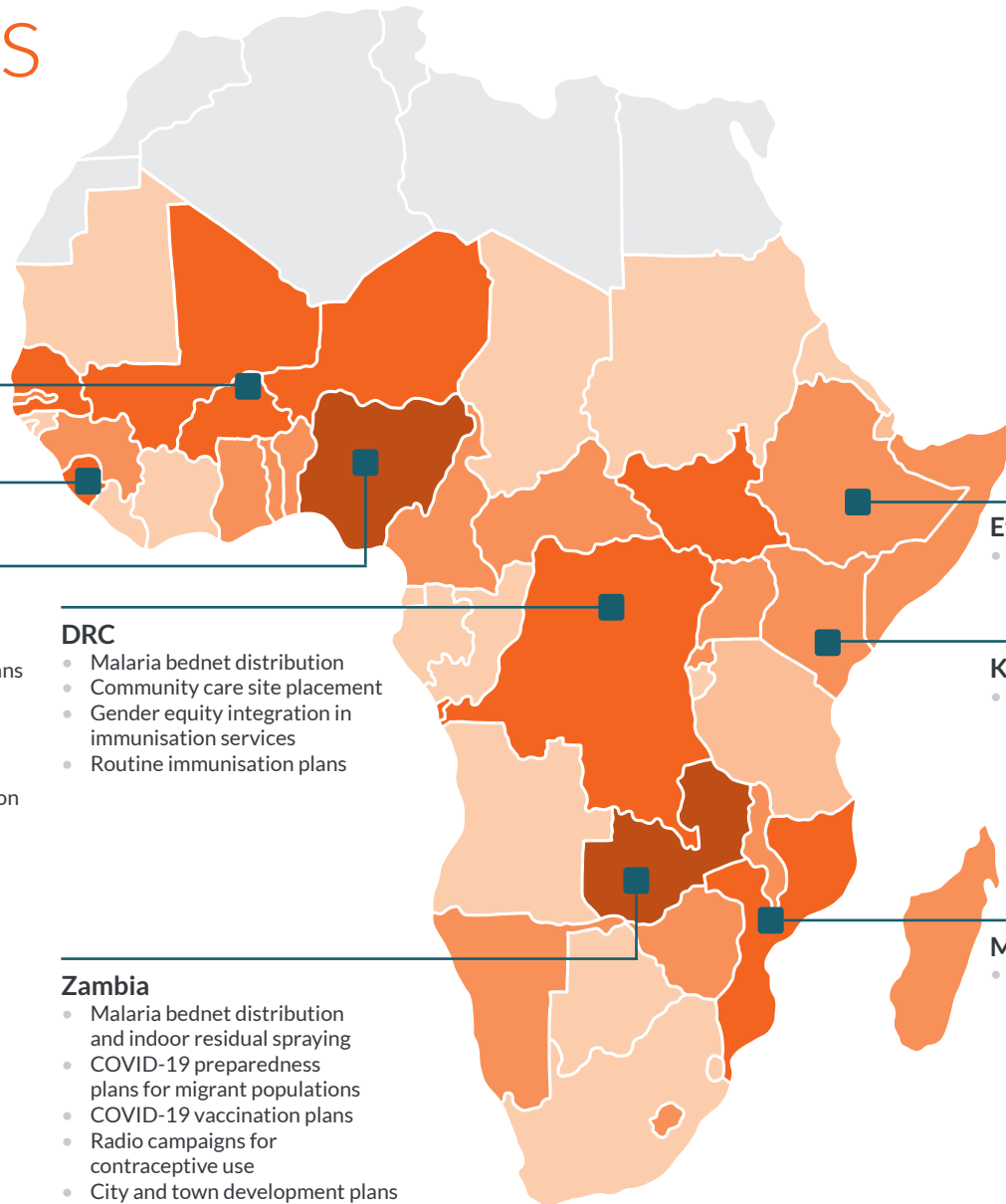
GRID3 is helping to make development projects smarter and more impactful. In countries throughout sub-Saharan Africa, we are partnering with governments and other stakeholders to plan and carry out a wide array of interventions that use geospatial data to ensure vital services reach the communities that need them the most.



The sustainability of these solutions are as central to GRID3's mission as the data and tools themselves, so we are also making sure that our partners have the capacity to use our solutions long after our involvement has ended. The result is a suite of public goods that have become integral to stakeholders in the health, education, and transportation sectors, among many others.

The following are examples of GRID3's solutions in action.

GRID3 solutions in action



Burkina Faso

- COVID-19 vaccination plans

Sierra Leone

- Integrated HPV and COVID-19 campaign plans
- Radio tower placement for broadcasting school lessons during lockdown
- Educational coverage analysis

Nigeria

- COVID-19 vaccination plans and response strategies
- Malaria bednet distribution plans
- Polio immunisation plans
- Non-polio supplementary immunisation plans
- School coverage analysis and new school location optimisation

DRC

- Malaria bednet distribution
- Community care site placement
- Gender equity integration in immunisation services
- Routine immunisation plans

Ethiopia

- Mobile health service delivery planning in Somali and Afar regions

Kenya

- Data use and visualisation for COVID-19 response monitoring

Zambia

- Malaria bednet distribution and indoor residual spraying
- COVID-19 preparedness plans for migrant populations
- COVID-19 vaccination plans
- Radio campaigns for contraceptive use
- City and town development plans

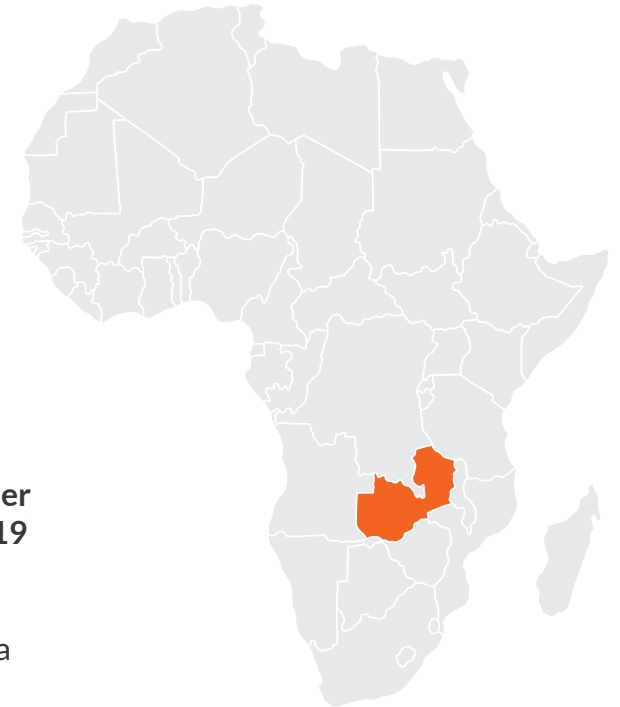
Mozambique

- COVID-19 vaccination plans

Level of GRID3 support

- All core data layers and technical support, training
- Partial core data layers and technical support, training
- Regional settlement, boundaries, COVID-19 risk data products and technical support and/or training
- Regional settlement, boundaries, COVID-19 risk data products

Capacity strengthening and training in Zambia for improved microplanning



In 2022, GRID3 supported the Expanded Programme on Immunization (EPI) under Zambia's Ministry of Health by organising and facilitating district-level COVID-19 vaccination microplanning workshops. GRID3 visited 71 districts and trained over 3,000 health officials on how to incorporate GRID3 GIS-based maps into their COVID-19 vaccination microplanning. These microplans have helped Zambia achieve its goal of vaccinating 70 percent of its eligible population.



Microplanning refers to the process in which health workers plan how to deploy resources—including vaccines and other health-related commodities—to ensure that vulnerable populations are reached during a health intervention.

Making maps to strengthen capacity

GRID3 produced maps featuring geospatial data on population, settlements, boundaries, and health facilities for all 116 districts. Trainings focused on using these maps to **locate vulnerable populations, understand access to healthcare, and plan for outreach services.**

GRID3 regularly engaged with EPI in order to understand microplanning needs and ensure the maps were as comprehensive as possible. Likewise, GRID3 coordinated with EPI to produce and print the maps so that health facility staff could be trained to use them during the three-day, district-level workshops that were held throughout the country. GRID3 travelled across Zambia to deliver the maps and lead the trainings in person; when this was not possible, resources and trainings were delivered by EPI officials.

Capacity strengthening through microplanning training

At each workshop, the training began with officials familiarising themselves with the maps, including important features such as the legend and the data frame. They then **used the maps to understand where access to COVID-19 vaccination services might be low** (which was determined by measuring the distance between populations and the nearest health facility). Officials used GRID3 population counts and settlement extent data to fill in microplanning templates for Zambia's COVID-19 vaccination campaign.

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The maps had a positive impact in our planning. They helped us determine which modes of transport we should use according to distances from health facilities. We were able to develop solutions so that we can access hard-to-reach areas. Above all, they helped us understand health service coverage.

Janet Sakala
Nurse at Sichitambule rural
health post in Mafinga District

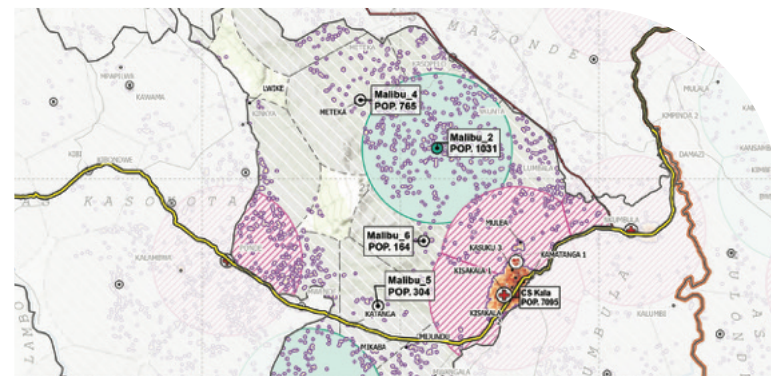
Empowering vaccination teams in the DRC



Given that the Democratic Republic of the Congo (DRC) last held a nationwide census in 1984, the country is in urgent need of accurate and reliable geospatial data that can be used to plan health campaigns and routine services among other interventions. **GRID3 Mapping for Health helped to fill DRC'S data gaps by producing new geospatial datasets.** Supported by Gavi through its INFUSE initiative, GRID3 Mapping for Health was a Ministry of Health project delivered by GRID3 partners CIESIN, Flowminder and WorldPop.



GRID3's geospatial data can help health officials determine how many health-related resources (such as vaccines, facilities, and staff) are needed in their respective health areas.



Creating basemaps

Twenty-seven (27) GIS coordinators and over 2,000 people across 5 provinces codified **health facilities, health catchment areas, settlements, schools, religious centres**, and other points of interest. Additionally, data and maps were generated for four more provinces via the cleaning and consolidation of existing data (collected from partners and previous GRID3 fieldwork). By October 2022, GRID3 produced and distributed nearly 4,000 health area- and health zone-level maps across nine provinces.

Adding people to the map

GRID3 team at WorldPop generated gridded population estimates for 12 provinces. A 2019 data release for five western provinces was produced jointly with the UCLA and the Kinshasa School of Public Health. In 2022, seven additional provinces were covered by GRID3 Mapping for Health.

Estimating mobility

GRID3 partner Flowminder produced nationwide population mobility estimates in December 2022; these estimates were based on anonymised and aggregated mobile operator data, as well as data from the project's phone survey of 7,500 people. These data improved our understanding of how demographics and mobility vary across the country.

Putting geospatial data to use

Geospatial data from GRID3 partners was combined to create **microplanning maps and supporting tables that inform vaccine strategies**. The microplanning maps help identify priority areas for resource allocation.

For example, in Haut-Lomami and Tanganyika provinces, head nurses adapted the microplanning maps to create vaccination schedules for their immunisation teams. **Eighty-five percent of 48 surveyed health area immunisation teams adjusted their vaccination strategies to meet the recommendations provided in the documents.**

GRID3 Mapping for Health's 2021 microcensus was one of the country's most comprehensive demographic surveys since the 1984 national census.



An institutional partner for improved geospatial capacity in Nigeria



GRID3 has formed strong ties with relevant government bodies in Nigeria. Thanks to this cooperation, **GRID3's geospatial data have been integrated into the Presidential and State task forces' COVID-19 response plans, and have consequently supported microplanning efforts and a targeted vaccination campaign.** GRID3's efforts involved coordination with a wide range of government institutions at the national and state level, including:

- National Primary Health Care Development Agency
- U.S. Center for Disease Control and Prevention, Nigeria
- National Bureau of Statistics
- National Space Research and Development Agency
- National Polio Emergency Operations Centre
- National Population Commission



Supporting the Presidential Task Force

In 2020, the Presidential Task Force's Socio-Economic Working Group requested that GRID3 analyse the socioeconomic impact of COVID-19. GRID3, in collaboration with Fraym, developed **datasets and maps of risks related to exposure, health facility access, communications access, socioeconomic vulnerability, and comorbidities**. These resources were made available to decision makers so that they could understand the likely spread and severity of the outbreak, and plan effective responses.

Developing a COVID data hub for cross-agency data use

To facilitate data access and enable the visualisation and analysis of various COVID-19 indicators, the National Bureau of Statistics (in partnership with GRID3, Esri, and Fraym) published a COVID-19 data hub in 2020. This platform served as a repository for all COVID-19-related data resources in Nigeria.

Data and tools for COVID-19 vaccination plans

In 2021, GRID3 and the National Space Research and Development Agency produced and printed COVID-19 microplanning maps for all 774 Local Government Areas in Nigeria.

GRID3 also created a dashboard displaying GRID3 core geospatial data and the results from Flowminder's site placement optimisation algorithm. Users can use the dashboard to visualise the most suitable locations for new vaccination sites (based on population coverage and distance to health facilities). It can also be used to see how population distributions vary across regions. The dashboard was delivered to the National Primary Health Care Development Agency in December 2021. **Thanks to this technical support, health officials have been able to prioritise areas and improve vaccination coverage throughout the country.**

In Adamawa State, the monthly COVID-19 vaccinations more than doubled between February and March 2022, from 55,992 to 120,476.

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The GRID3 data and dashboard made it easier to understand where access to health services may be low for a high percentage of eligible populations and [to] better supervise teams. We line-listed these areas and prioritised them... as a result, we have been conducting additional GIS trainings for other program managers.

Dr. Hadley Ikwe
Senior Immunisation Specialist
at U.S. Center for Disease Control
and Prevention, Nigeria

Future of GRID3:

Support governments and donors with data use

Invest in systemic solutions



Build regional geospatial capacity

Advance availability of core spatial data



...to further the sustainable use of geospatial data for improved health outcomes.



Mapping a path to sustainable
development for everyone

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