

Opportunities & Challenges using MPD for Official Statistics

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THE STATISTICAL ACT 2019 (Act 1003)



... also introduced the use of **Big Data for official Statistics** into the remit of the National Statistical System, thus expanding the legal mandate to use non-traditional data sources

DATA FOR GOOD PARTNERSHIP PROJECT

Data provider:



Implementation partner:

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Beneficiary:



Donors:



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How did we get there?

A long-term partner collaboration:

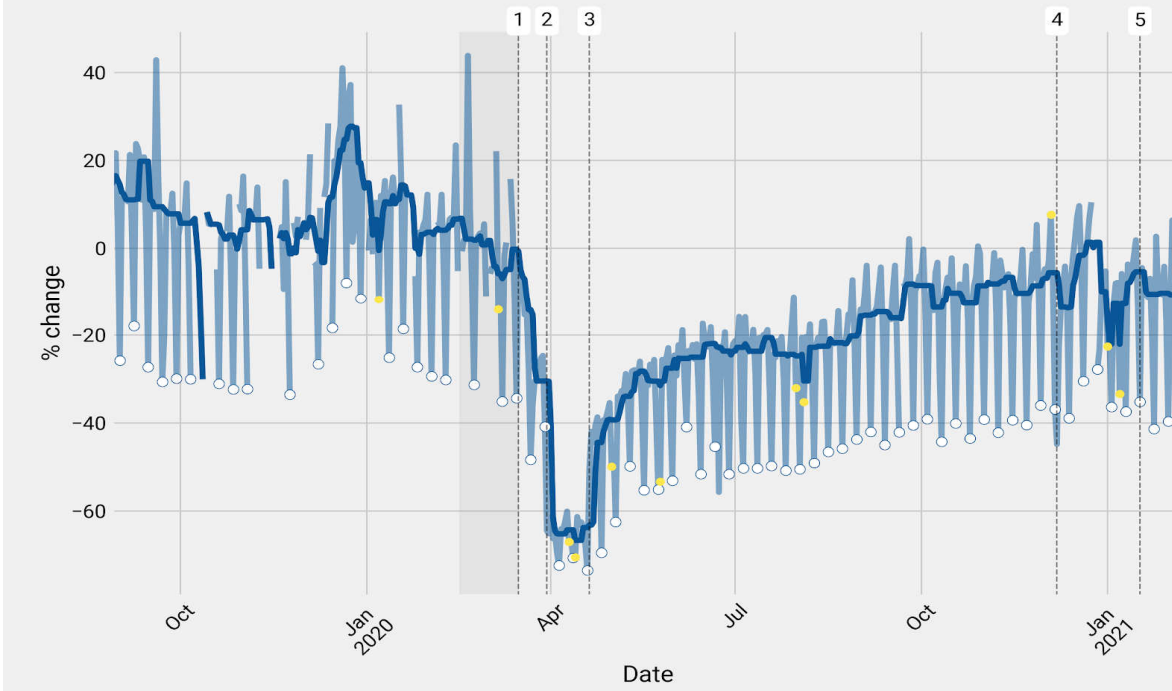
- Capacity strengthening with GSS
 - Trained 8 staff in the CDR analysis
 - CDR data, Python programming, data analysis, standard mobility report creation...
- Code to **automate** product creation
 - From CDR data to final metrics and visualisations, while preserving the privacy of subscribers and ensure the security of data processing.
- Discussions, feedback and collaboration
 - Improve the final report with Vodafone, and ensure the outputs are approved by the steering committee
- Access to CDR data from Vodafone for GSS
 - To ensure a continuous capacity for production and release of the mobility indicators in-country.



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1st USECASE: COVID-19 PANDEMIC

Key events: 1) Initial restrictions nationwide (school closures, bans on public gatherings), 2) Lockdowns imposed for parts of greater Accra metropolitan area, greater Kumasi metropolitan area, 3) Lockdown lifted, 4) Election, 5) Presidential address



NOTE: These trips will mainly comprise short-distance, routine daily trips that correspond to activities such as commuting to work, shopping, and entertainment

GHANA'S USE CASE

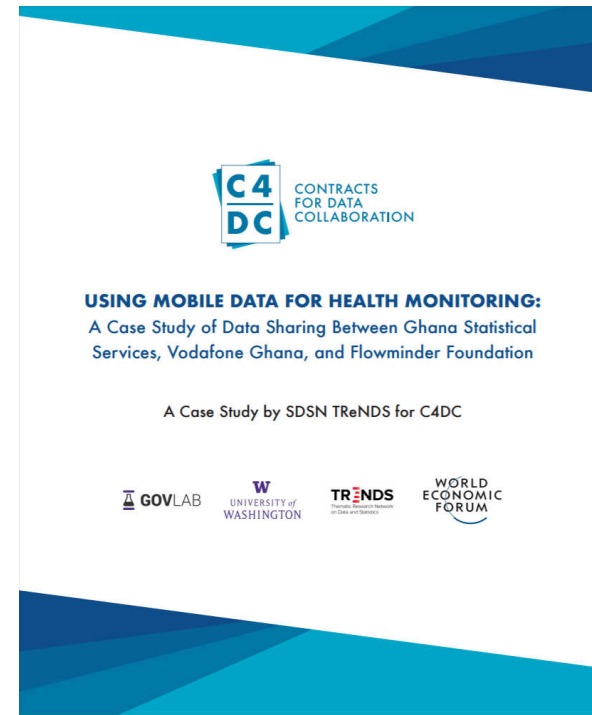
Prior to the pandemic, a 13-month contracting process overseen by **Ghana's Data Protection Commission** led to establishing a data sharing agreement between GSS, Flowminder and Vodafone Ghana lasting until January 2022. Case study.

A data pipeline for access was established in 2019. By leveraging on **existing legal and technical infrastructure**, data could be quickly mobilized for the COVID-19 analysis. This enabled the first report to be released four days after lockdown.

The COVID-19 Mobility analysis uses two indicators: subscriber presence and number of trips. With these we're able to **gain insights about travel behaviour across the whole country** and this the effect of policies like the travel restrictions or the lockdown.

Data Sharing Agreement

- Overseen by the Data Protection Commission
- Defines the legal scope of the project and established until January 2022
- Currently only using some of the CDR data fields available to us in the agreement to demonstrate the value that can be provided first with these simply CDRs



PROCESS FOR EXTERNAL DATA REQUESTS

1 **SUBMIT DATA REQUEST**

This involves completing a data request form, [study outline](#) and initial agreement to abide by conditions for data release

2 **STEERING COMMITTEE EVALUATE REQUEST**

A subcommittee evaluate the request against preset criteria ([available to applicant](#)) and make a recommendation to Steering Committee. They decide and applicant is informed

3 **DATA SHARING AGREEMENT**

Once a study is approved, the applicant will sign a NDA and Data Sharing agreement with Vodafone Ghana. The frequency and scope of what will be made available will be well defined.



Visibility



GSS Data Science Trainee at Data Fair for Parliamentarians, Ghana



GSS Data Science Trainee at Migration Conference, Berlin

Usability

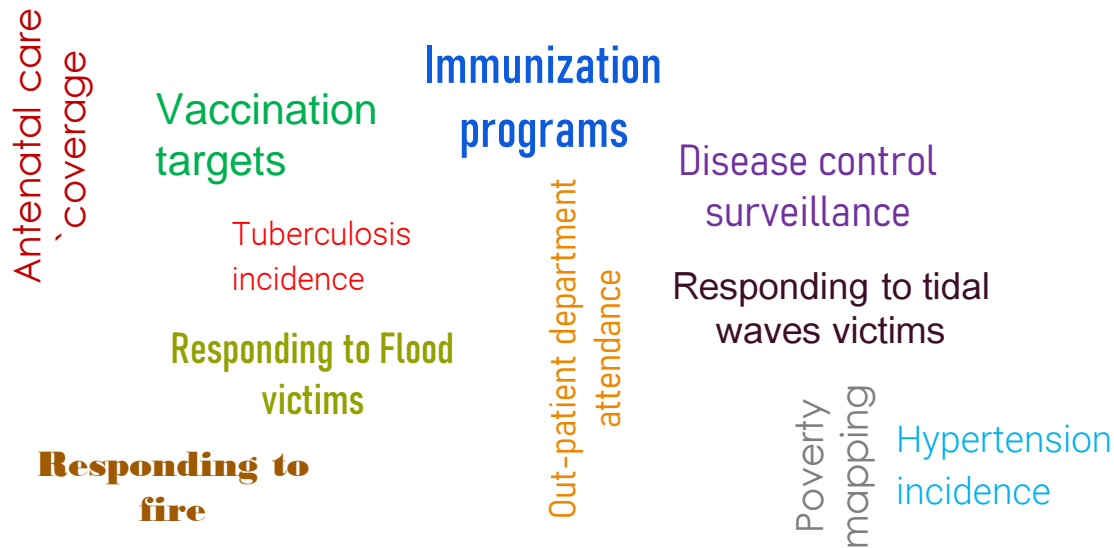
Approval of Data Request:
STEERING COMMITTEE

- **London School of Hygiene and Tropical Medicine (LSHTM),**
- **World Bank:** Create an interactive dashboard using **SEIR** and **ABM** epidemiological modelling to predict the spread of the virus and to inform response to COVID-19
- **Noguchi Memorial Institute for Medical Research** at the University of Ghana,
- **University of Sheffield**, and FLS in Spain



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Exploring Opportunities to Deepen our Relevance



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HEALTH SECTOR ENGAGEMENTS GHANA HEALTH SERVICE

Collaborating with the health sector in Ghana to identify the needs of decision-makers

- In June 2023, GSS and Flowminder held a two-day workshop on the use of mobility data for public health
 - Attendees from Ghana Health Service (GHS), Ministry of Health and University of Ghana
 - Group discussions on key public health metrics and the impact of mobility data
- Identified four priority health metrics, covering different public health issues:
 - Tuberculosis incidence
 - Out-patient department attendance
 - Antenatal care coverage
 - Hypertension incidence



Anticipated impact

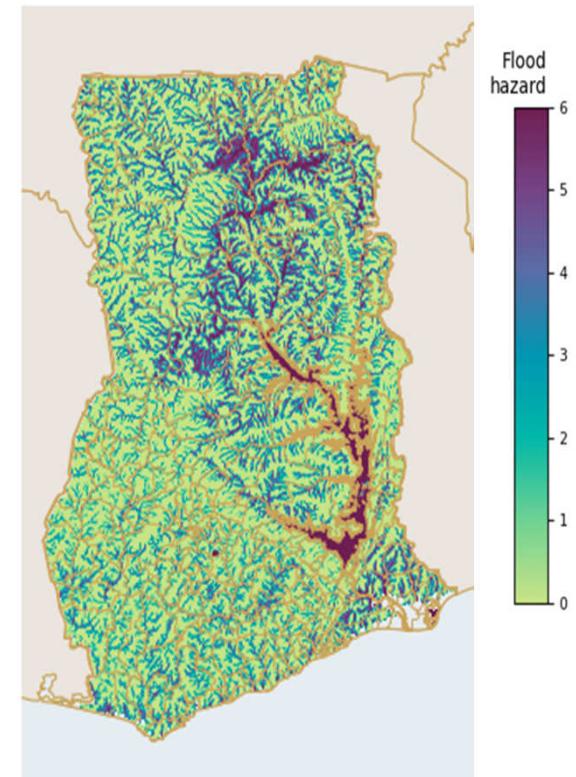
- The project will support policy-makers at GHS and the Ministry of Health in Ghana
 - Explain anomalies in health metrics
 - Identify new trends in health metrics
- More efficient use of resources by the health sector:
 - Improved monitoring of and response to infectious disease
 - More effective vaccination campaigns
 - Better optimised allocation of health resources and services
- Improved public health outcomes for people in Ghana



RESPONSE TO DISASTER INTERVENTIONS
NATIONAL DISASTER MANAGEMENT ORGANIZATION
(NADMO)

Calculating hourly risk hazard to support disaster preparedness

- The National Disaster Management Organisation (NADMO) is responsible for the management of disasters and other emergencies in Ghana, including:
 - **Flooding**
 - **Fires**
 - **Drought**
 - **Storm surges**
- **Hazard risk analysis** is an essential part of disaster preparedness:
 - Support the development of suitable response plans for at risk areas
 - Optimise the placement of resources to facilitate emergency responses
- This project will support NADMO to **assess how the daily movements of people in Ghana will affect disaster preparedness**:
 - Identify areas where the number of people is often greater than the number of residents
 - Assess the times when at risk areas experience increases in the number of people who might be exposed to a disaster



Disaster Management | Early Warning System

- NADMO's multi-hazard Early Warning System (EWS) overlays static census projections to risk layers to estimate the number of people present at incident sites. This doesn't account for seasonal or even daily travel patterns.
- GSS agreed to share average hourly population densities every 6 months to update the EWS. An MOU has been signed accordingly.
- This usecase will be embedded in government operations

Expected Benefits

- CDR data is able to give **hour-by-hour population density estimates** at sub-district level across the country, enabling **efficient** and **proportionate** resourcing decisions to be made in the ground response.
- Possible to **estimate number of people in affected areas and the volume of people due to be travelling into** that area in coming hours, thus able to anticipate if a situation will **escalate**



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Challenges

1. Coverage: CDR estimates is currently based on only one telco
2. Representativeness : Cell towers is limited in rural areas
3. Data sharing agreement puts restrictions on access to age, sex, and other personal details;
 - CDR estimates exhibit a limitation to inform interventions targeting vulnerable groups, though it's critical for responsive humanitarian intervention.
 - While data from complementary sources can provide some estimates, the tendency to deepen the biases is high, since surveys have their own associated errors.

Thanks for your attention!