Displacement and disaster statistics using mobile phone data

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On behalf of the subgroup

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Our subgroup

Flowminder
Indian School of Business
IOM
ITU
Positium
Pulse Lab Jakarta
Telenor Research
* University of Tokyo (lead)
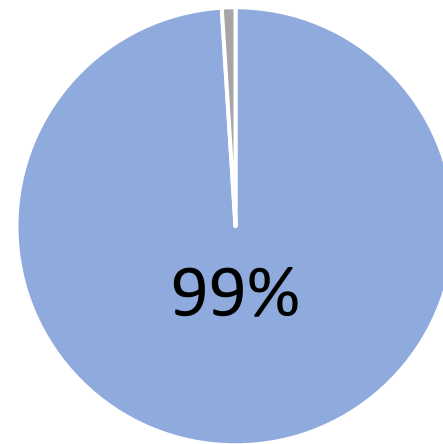UNSD
World Bank

Statistics in disaster contexts

- Timely quality information is crucial (UN Global Pulse 2014).

- National Statistical Offices play crucial roles in responding to the data demand (UN 2015).

- Survey data alone may not sufficiently inform response efforts.

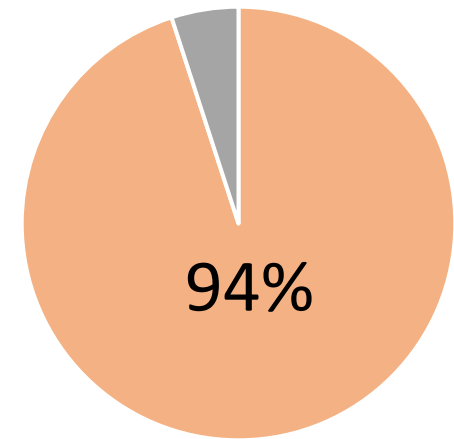Photo by Jamal Dawoodpoto on Unsplash

Why mobile phone data?

- High population coverage

- Updated near-real time

- Already being collected by mobile network operators

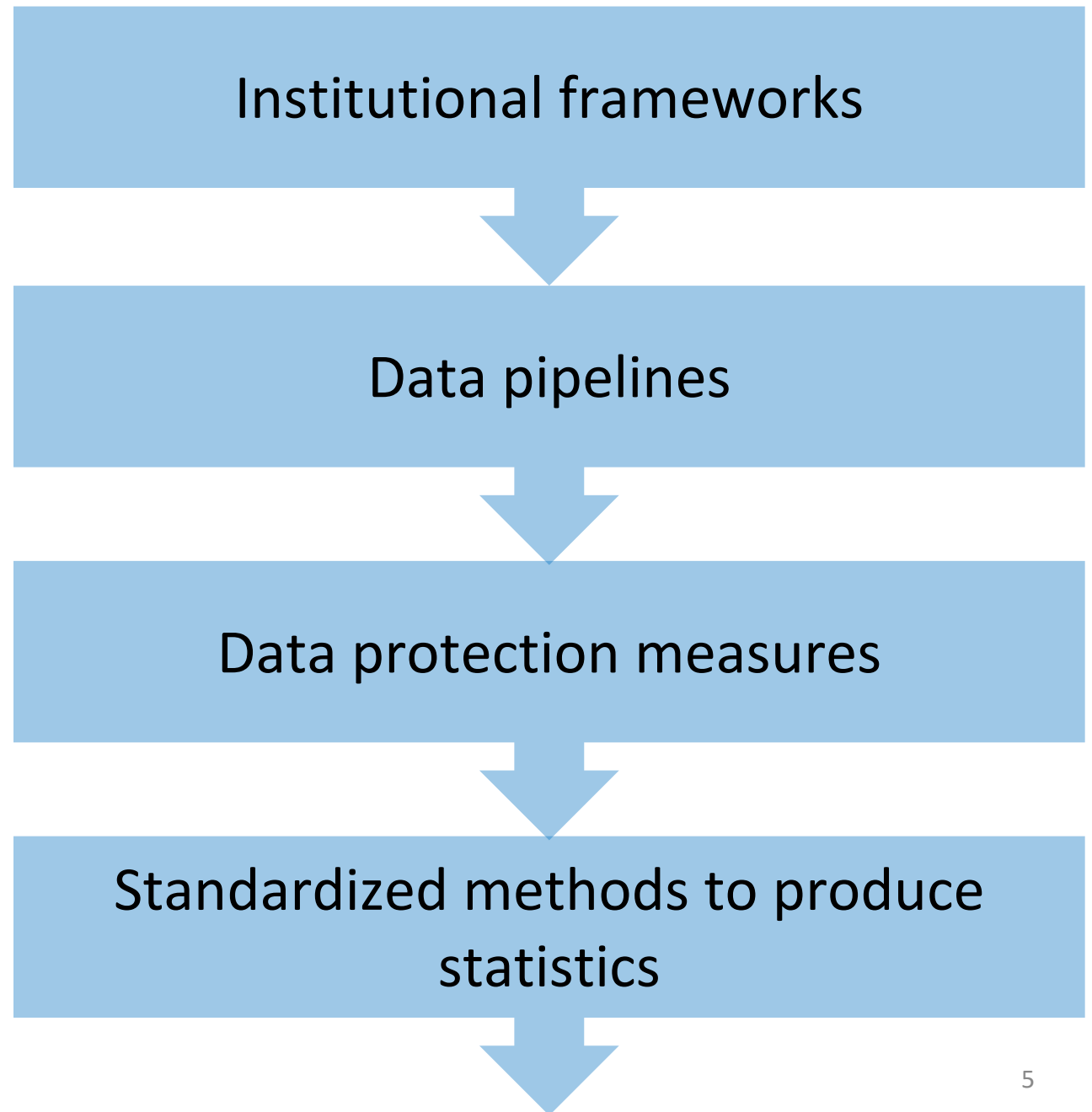Population coverage by 3G network, 2021

99%

Developed

94%

Developing   (ITU 2021)

Steps for responding the data demand

Institutional frameworks

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Data pipelines

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Data protection measures

↓

Standardized methods to produce statistics
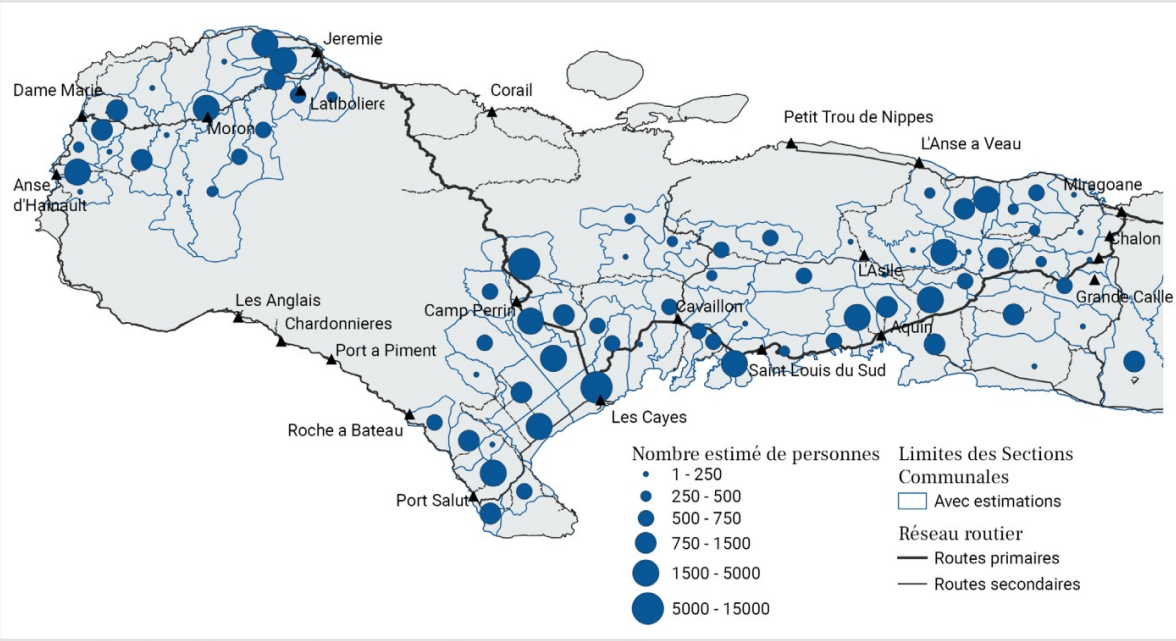
↓

Country case 1: Haiti earthquake in 2021

A long-standing relationship between Flowminder and Digicel Haiti for 2010 earthquake, Hurricane Matthew in 2016, cholera in 2010, and COVID-19 in 2020.
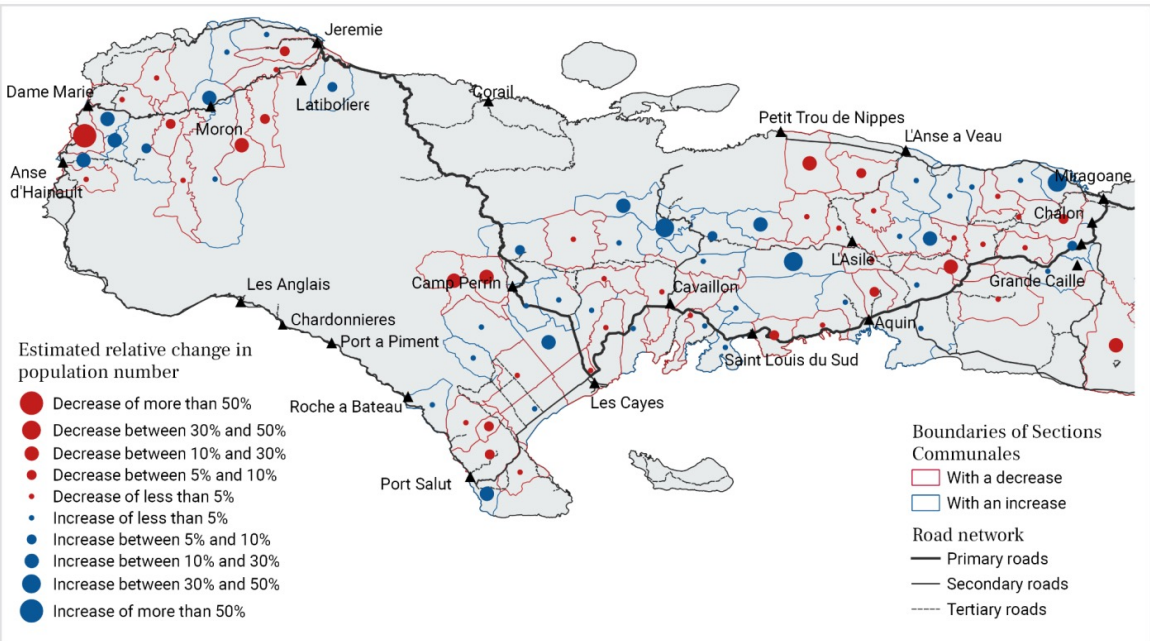
A pre-existing data pipeline, using Flow-kit, was employed to rapidly produce initial mobility aggregates.

Displacement of people per communal section

Number of people having moved into a new stay location

Change in population count as percentage of pre-earthquake period

Source: Flowminder 2021 Haiti Earthquake Reports 2
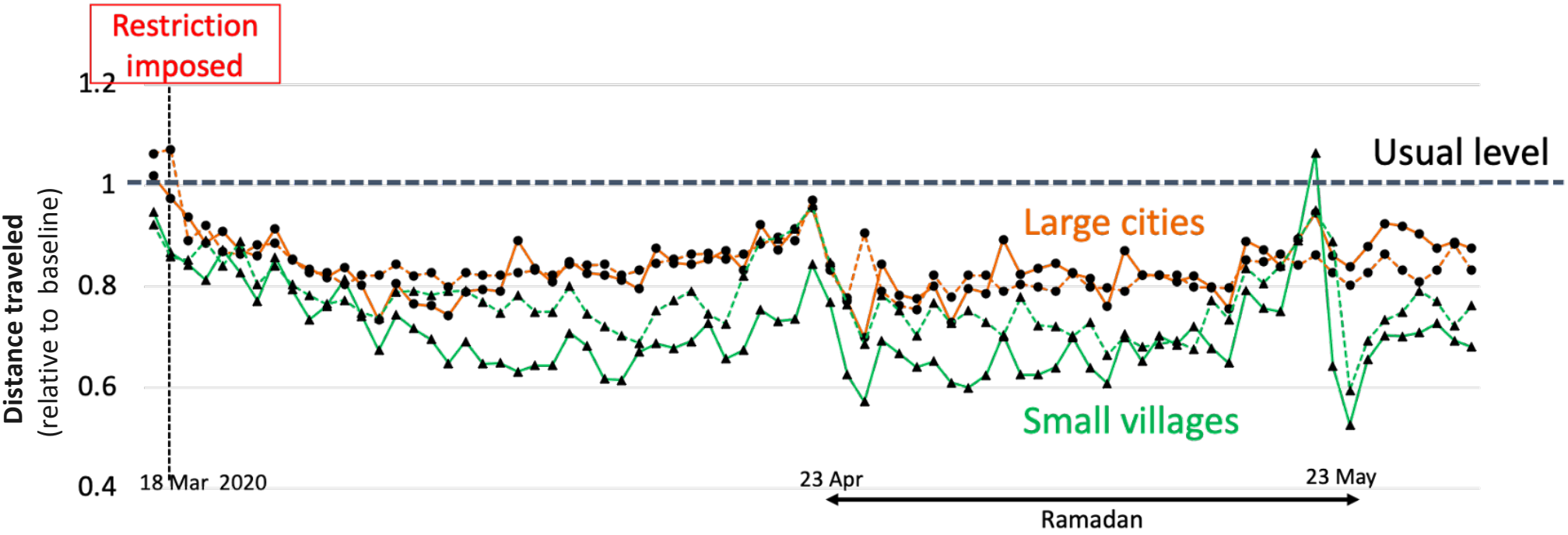
Country case 2: COVID-19 in The Gambia

A pre-existing partnership between GBoS, PURA, World Bank, and University of Tokyo for internal migration analysis.

Analytical pipeline was already in place; codes based on World Bank COVID-19 Mobility Indicator were available.

Changes in mobility while restrictions in place

Average distance traveled relative to the baseline (before COVID-19)

Institutional frameworks and analytical pipelines

- facilitate timely response

- enhance preparedness

- reduce response burdens.

CDR aggregates as actionable and timely insights

- aggregation might limit insight gained, but it helped build trust and confidence in using confidential data while protecting privacy.

Key messages

- Securing data access remains a challenge. Alternative data sources are made available to support humanitarian activities by the private sector.

- Innovation in analytical methods is still needed to improve the robustness of estimates from sparse CDRs in LMICs.

Discussion