Case Studies on the use of geospatial technology in the development sector

Part 4: Examples from population and census planning
Automatic creation of pre-enumeration areas
Challenges of enumeration area Delineation

- Traditional manual creation of EAs is resource intensive
- EAs can be outdated or incomplete, unavailable & require regular update
- Restrictions on survey access to high risk, conflict and violent areas

Automatic pre-EA creation tool
How the PreEA tool works

Input data

Georeferenced layers

High-resolution gridded population data

Splitting process

Building blocks

Hard Constraints:
- Population (Max & Min)
- Area (Max and Min)
- Uncrossable Border

Soft Constraints:
- Target (Pop & Area)
- Homogeneity (Socio-economic)
- Shape (Compactness)

Pre-Enumeration Area (EA) outline

Splitting units with total population

Pre-EAs with total population
Example outputs of the pre-EA tool

Paraguay

Burkina Faso

Togo

Niger

Zimbabwe
Summary of the tool

- Create comprehensive national sampling frame of pre-enumeration areas
- User-defined rules/constraints on pre-EA creation
- Pre-EAs are a starting point, they must be checked and validated
- Developed under GRID3 by WorldPop
GIS support for census modernisation in Ghana
Ghana Statistical Service (GSS) requested technical support and training in geospatial data processing and analysis for their census.

GSS is transitioning from manual procedures around data capture and processing, towards digital geospatial alternatives.
**Hard-to-count** enumeration area (EA) indicators - a means of estimating GSS enumeration effort in terms of resources and field staff

**GRID3 Flowminder-led engagement**

is strengthening the capacity of GSS to assess and validate enumeration areas in order to reduce the number of people 'missed' by enumerators

"Hard to count" indicators

Example of a district

Red indicates problems such as the area being too large or difficult to access due to forest cover or other factors; these problems may have an impact on coverage by census teams
Geometry indicators
- Area of EA
- Polsby-Popper score (boundary complexity)

Accessibility indicators
- Road density per EA
- % Tree cover per EA
- General accessibility per EA

Population and building indicators
- Number of buildings per EA
- Settlement cluster distance per EA
- Estimated population per EA

"Hard to count" indicators

Distance between groups of buildings per EA
The distance between defined "groups" of buildings. A higher distance is marked as high difficulty, as it means that there is more to travel between buildings.
Accessibility indicators

Percentage of tree cover per EA

"Hard to count" indicators
Questions?

Please post any questions or comments in the course forum below!