



USE OF GEOREFERENCED DATA TO ADDRESS DEMOGRAPHIC CHALLENGES IN MALAWI

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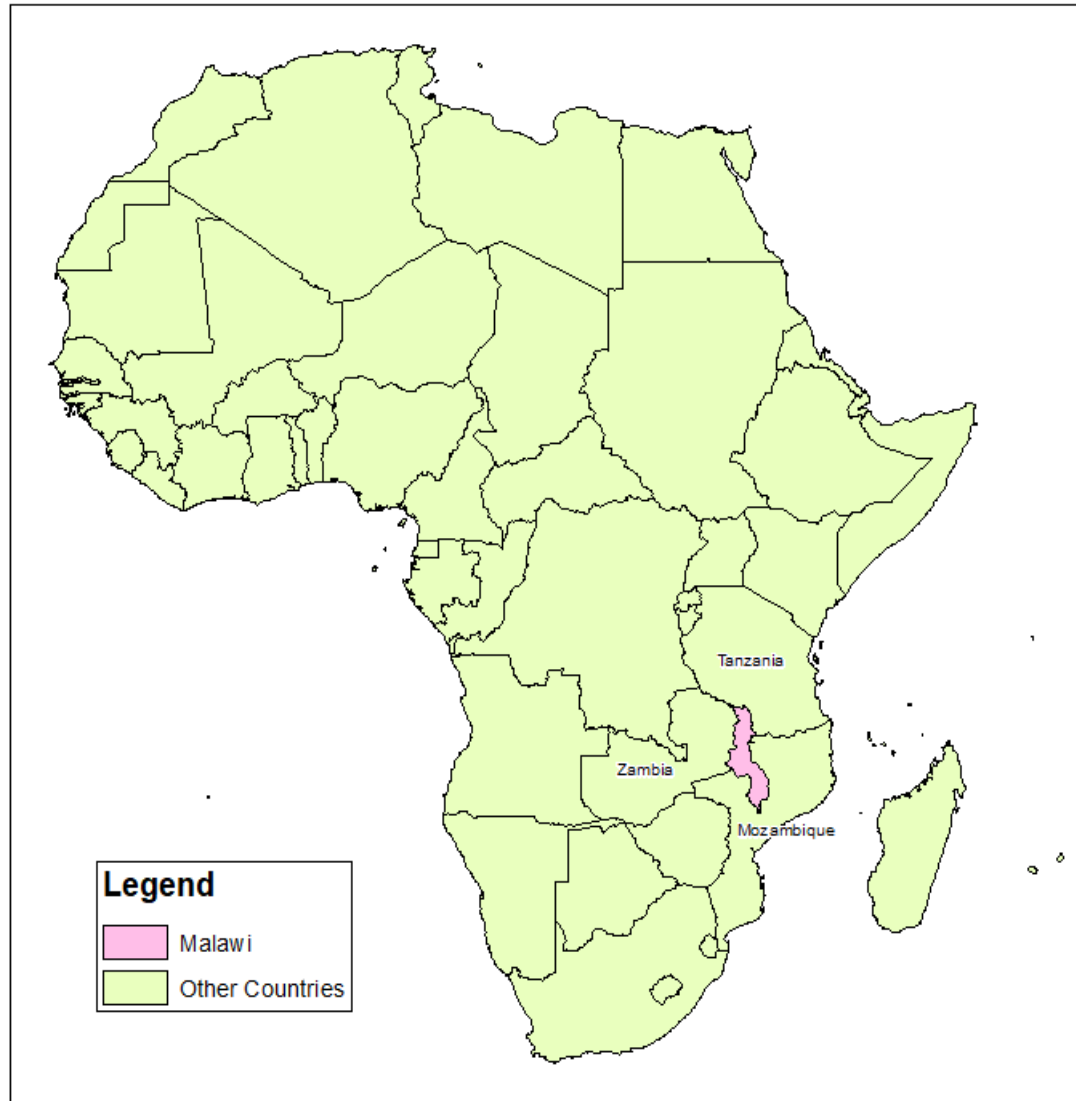
Commissioner of Statistics, Malawi

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Presentation Outline

- Background
- CAPI Census
- Satellite Imagery
- Geo Code Enumeration
- NSO Statistics Act
- Lessons learnt



Malawi, a landlocked country in south eastern Africa

Capital City : Lilongwe

Total Land Area: 94,552
Square Kilometers

Population: 17,563,749
(2018 PHC)

Background

- Malawi conducted its first ever CAPI census between 3rd - 23rd September 2018
- The census was conducted by NSO according to its mandate to conduct decennial censuses having conducted one in 2008

Background

- NSO started with a plan to conduct 2018 Census and decided to use digital technologies:
 - Use of Satellite imagery to demarcate the country into Enumeration Areas (EAs)
 - Use of Computer Assisted Personal Interviewing technology
 - Collecting geo-codes for households and structures during enumeration

CAPI CENSUS

- With the support of US Census Bureau, Malawi developed a CAPI tool to be used during data collection
- It was pretested three times and piloted in September 2017, one year before the main census
- About 20,000 Lenovo tablets were procured to be used by 18,800 enumerators and their supervisors

CAPI Census

- About the same number of power banks were procured to charge the tablets in the field
- Enumerators collected the data and entered directly on CAPI
- The enumerators were synching the data with their supervisors via Bluetooth
- The supervisors in turn transmitted the data to the main server at NSO on a VPN in real time

Satellite Imagery

- A decision was also made to use satellite imagery for census mapping exercise
- The satellite images were provided by Regional Centre for Mapping of Resources for Development (RCMRD) based in Nairobi, Kenya
- Image resolution was multispectral 50 cm for the whole country

Satellite Imagery

- This allowed seamless detailed data capture of Urban, Semi-urban and rural settlements including Protected Areas as ground features are clearly visible at this spatial resolution
- The Satellite Imagery also helped to identify features on the ground and facilitated more accurate and clear EA boundary delineation

Satellite Imagery

- Onscreen digitization created point data from the images
- Each point extracted represents a unique structure with a geographical location definition
- The captured structures may contain unlimited attributes

Satellite Imagery

- Unique structures that might require special attention during Dwelling Frame (DF) capture were identified
- DF only indicated a structure not a household because other structures can be vacant, offices or multiple dwellings







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Geo Code Enumeration

- During the actual census enumeration, geo-codes were taken for all structures and households
- The enumerators used the GPS inbuilt in the Lenovo tablets to capture geo-codes
- The geo-code information was transmitted to NSO server together with the rest of the data collected during the census

Importance of the geo-codes

- It helped in identifying enumerators who cheated and collected data from a different area
- It provides social economic information on where services are provided against population location e.g. schools, hospitals, roads etc
- If freely shared the data captured together with geo codes is very rich and useful information for policy formulation and program targeting

NSO Statistics Act

- However, the Statistical Act prohibits NSO to release individual data (including the geo codes)
- PDP and UBR have been requesting for this data for program targeting but it is not possible to provide such data at HH level without infringing on the Act
- The office is working with Ministry of Justice for an amendment to the law for release of some household data for Development purpose

Statistics Act.....Cont

- There is need to review the Statistical Act so that it allows revealing of certain individual information without necessarily revealing the identity of the person
 - NSO should expedite the engagement of Ministry of Justice and sensitise Parliament and other stakeholders
- Other non-household related geo-codes can still be accessed and stakeholders are encouraged to use them

Summary: Lessons learnt

- It is possible to conduct CAPI Census in countries without universal mobile network and low Electricity coverage
 - Data was transmitted from Enumerators to Supervisors (and from these) to NSO
- Use of CAPI enabled real time data capture, transmission (to NSO server), inspection, and validation.
 - Leading to quality data (skips, and checks, controlled by CAPI)
 - Timely release of results (P-3M, F-7M)

Lessons.....cont

- Early planning and preparations - critical
 - Development of CAPI
 - Early procurement of equipment: Tablets, Power banks, Computers, Plotters, Server etc
 - Need for adequate time to prepare, pretest and pilot CAPI questionnaire
 - Recruitment of IT personnel as Control Centre supervisors (2nd level)
- CAPI Census is cost efficient: No data entry, reduced errors and time, Tablet-Sharing (to Zambia)



Thank You!!