



BECAUSE  
EVERYONE  
COUNTS

# Overview of Innovations in the 2020 Census Round

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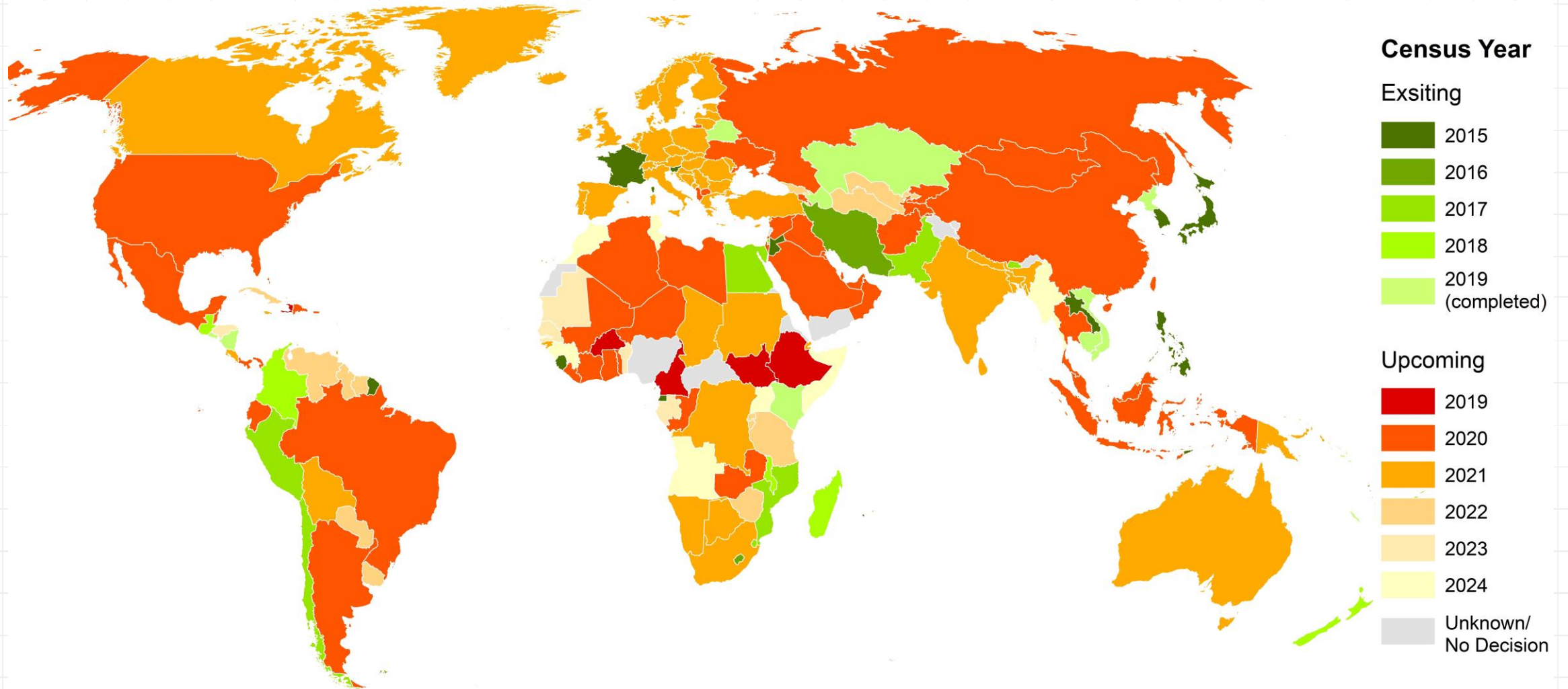
Expert Group Meeting  
Population Data for the 21st century: Advances in data collection  
methodologies

UNFPA Headquarters New York City

4-6 December 2019



# 2020 Census Round





# Changing census methodologies

## **Traditional Data Collection**

- PAPI
- CAPI

## **Mixed Data Collection**

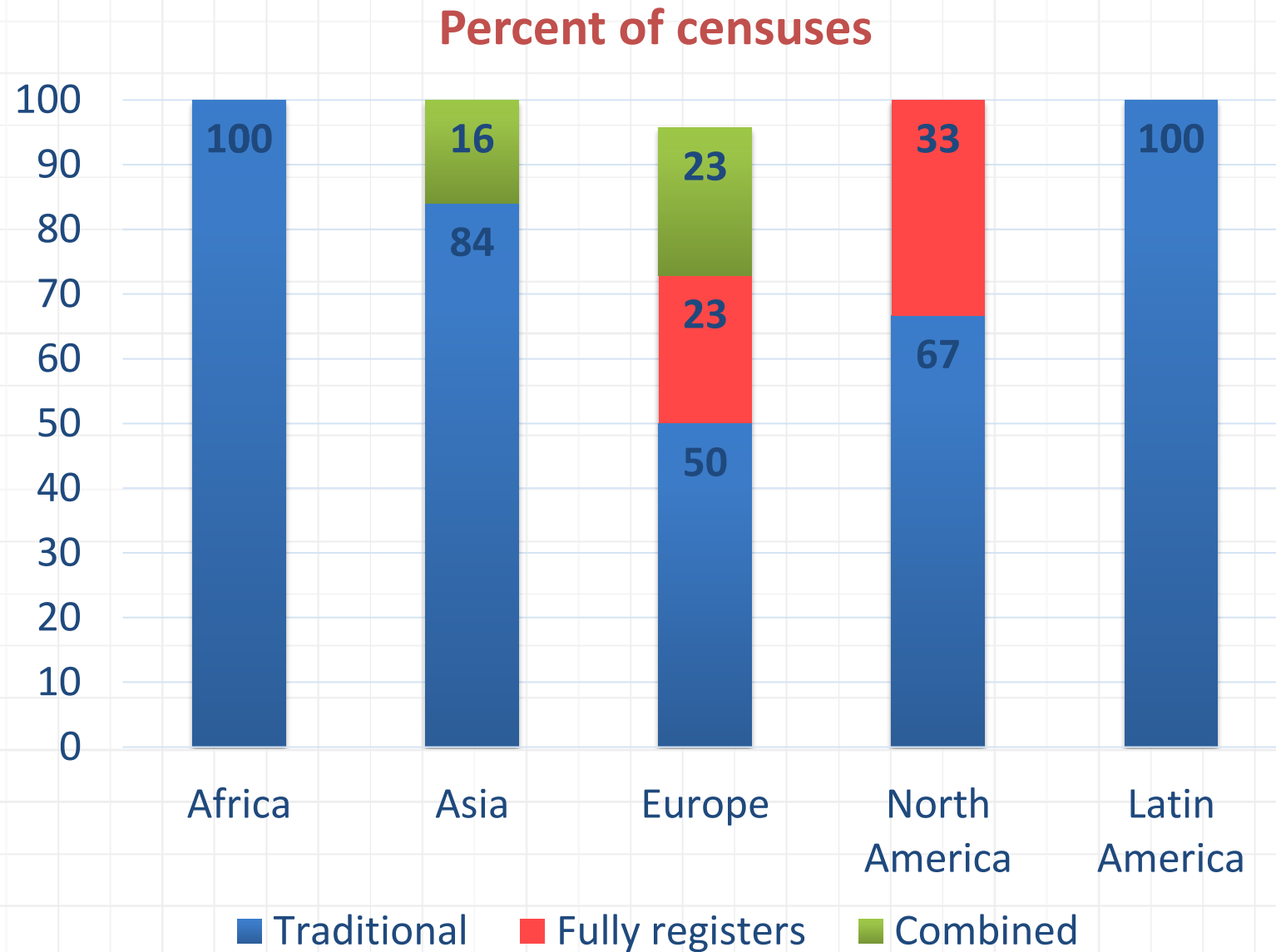
- PAPI and CAPI
- Field enumeration and self-response (Internet/ telephone and CAPI)

## **Combined census methodology**

- Field enumeration and registers
- Registers and sample surveys (short form register-based; long form sample survey)
- Field enumeration and rolling surveys
- Registers and existing sample surveys

## **Fully register-based**

# Census methodologies- 2010 round



# Technology innovations in census

## Mapping

Sketch

Digital

Geo-reference  
Satellite imagery

## Enumeration

Paper  
questionnaire

Electronic  
questionnaire- internet,  
telephone

Handheld  
devices

## Data processing

Manual data  
capture

Optical data  
capture

Automatic  
data capture

## Dissemination

Paper  
publication

Online/ digital

Interactive  
online  
databases

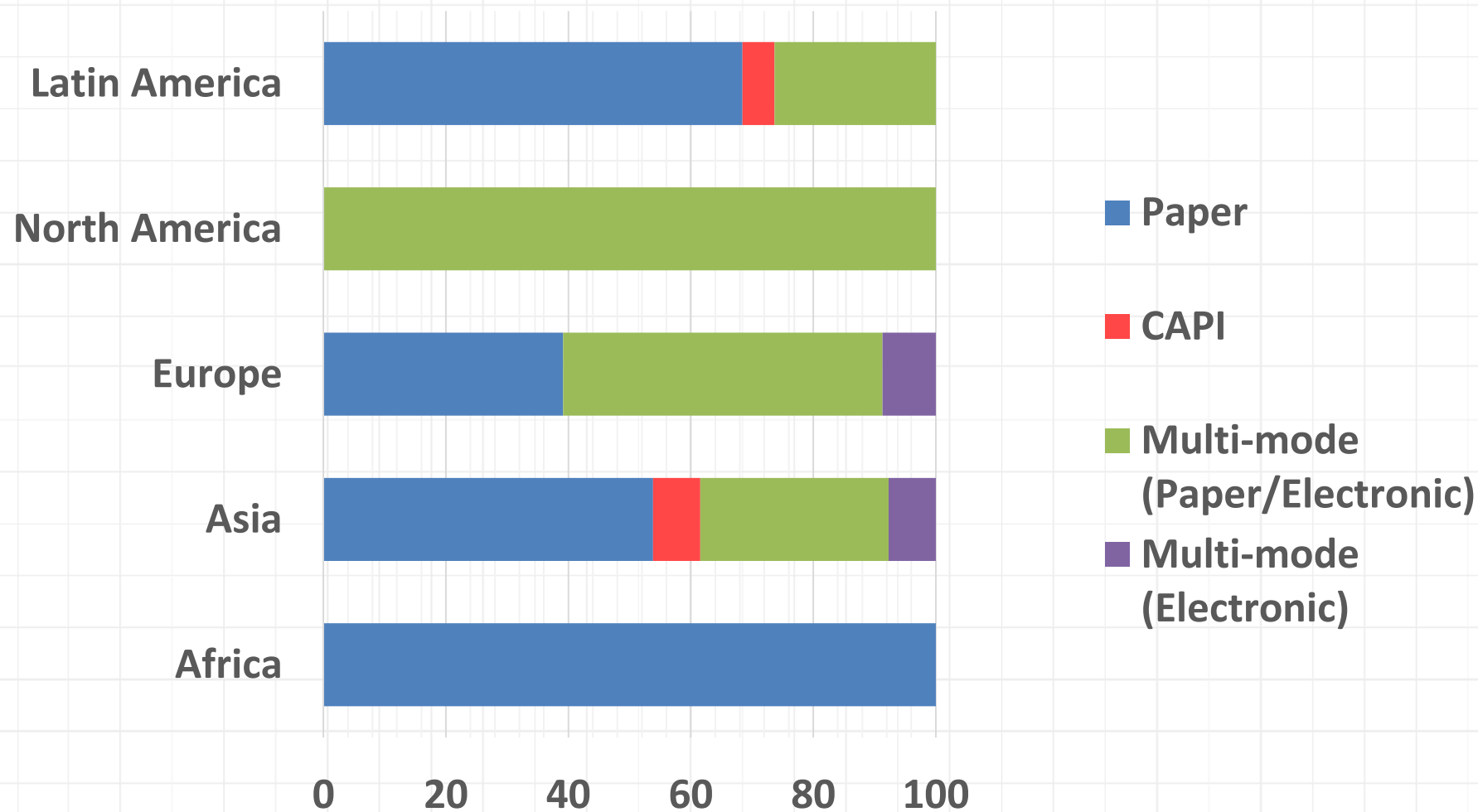
GIS-enabled  
platforms



# Benefit of new technologies

- Reduced time frames
- Real time quality checks
- Improved data quality
- Better coverage
- Quicker availability of information
- Value for money

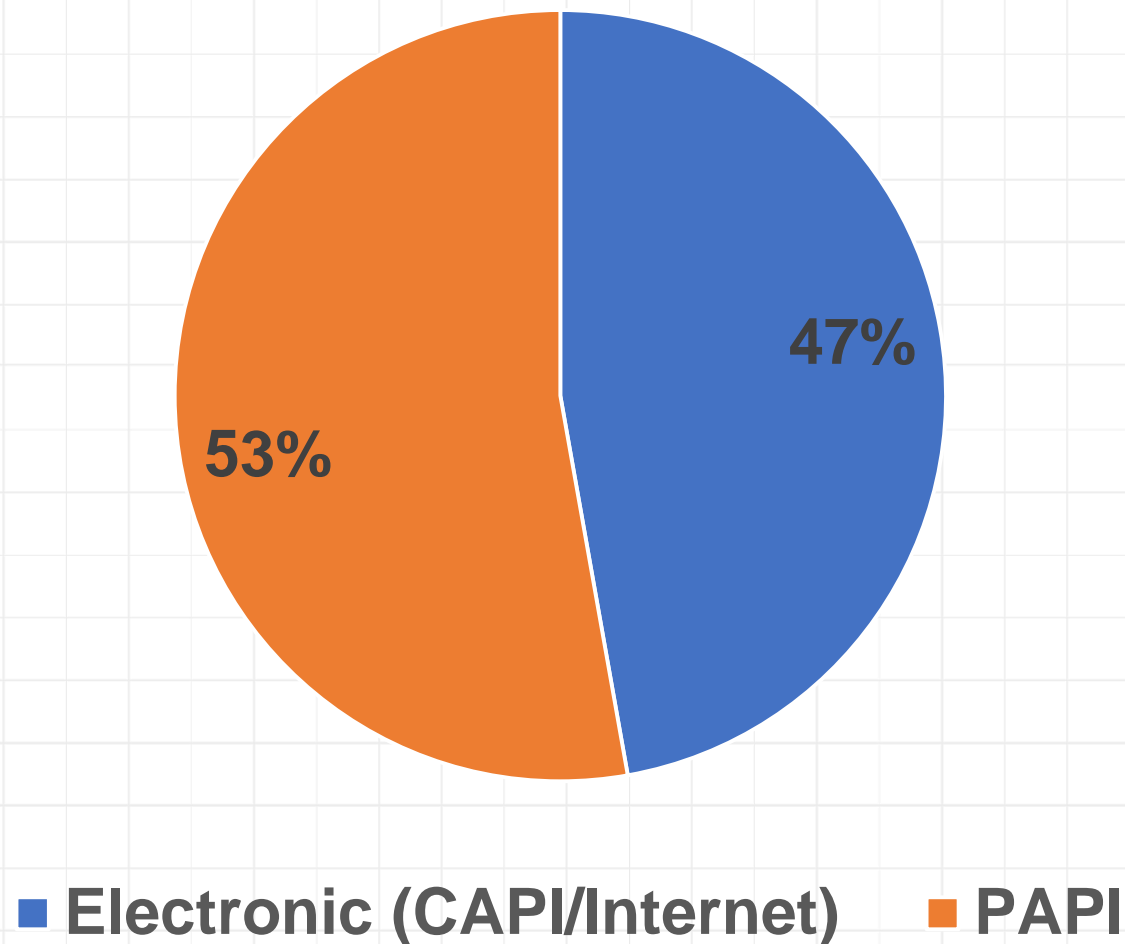
# Use of technology for data collection 2010 round (%)





## 2020 round -Use of modern technology for data collection (2015-2019)

**UNFPA  
Programme  
Countries-  
Censuses  
completed  
2015-2019  
(N=36)**





# Key innovations in the 2020 census round

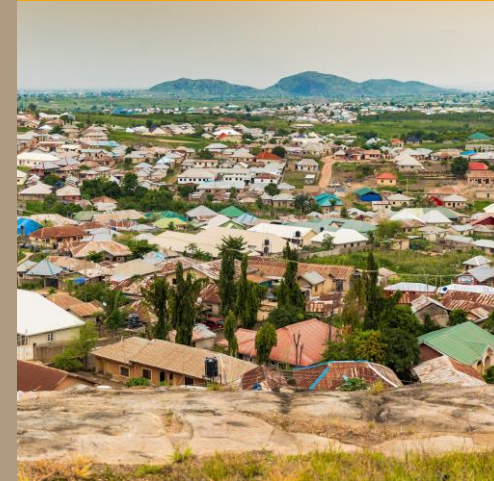
Increased use of  
handheld devices



High-resolution  
modelled  
population  
estimates, where  
enumeration is  
not possible



Mixed census  
methodologies



Digital  
cartography &  
use of satellite



Increased use of  
GIS in census

# Handheld devices- mapping and enumeration

## Key considerations

- People
- Hardware- specifications
- Software ( Ease of Use)
- Connectivity ( Access)
- Training
- Data security
- Time Management
- Project Management
- Change Management
- Device utility – post census





# Increased use of GIS in Census Operations

- **EA optimization**
- **Plan fieldwork logistics/ workload assignment**
- **Navigating to assignment location**
- **Data capture at location (online + offline)**
- **Supervise field operations**
- **Monitor progress of census operations**
- **Project management oversight and identification of trouble spots**
- **Quality control and quality improvement**





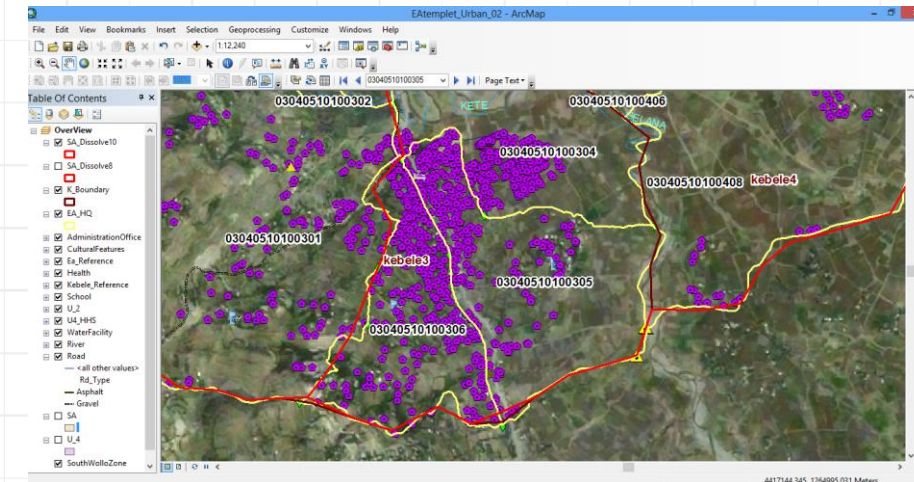
# GIS in Census mapping

- Satellite imagery
- Digital mapping- dwelling units, settlements, infrastructure
- EA delineation & automated tools
- Geo-database- processing & management



**Digitization of Dwelling Units- lab work**

## Satellite Derived Building Maps



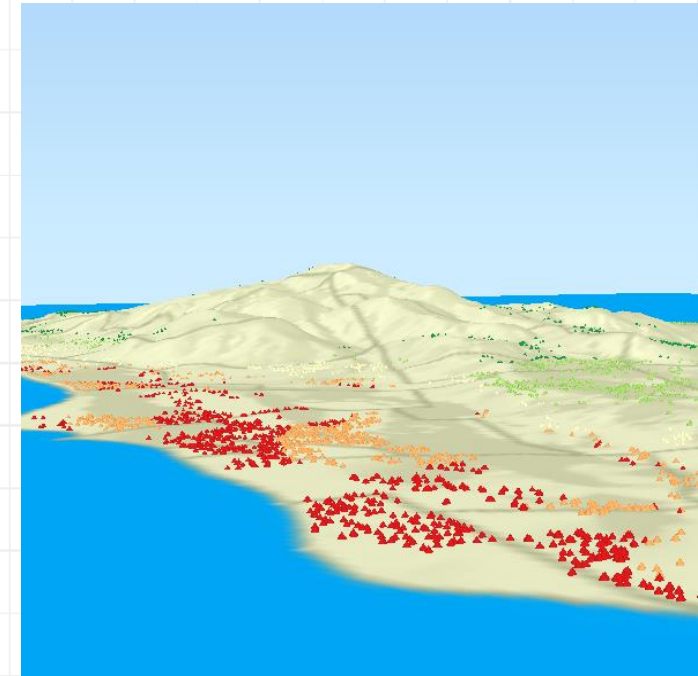
**EA Delineation**



## Enumeration

- EA boundary validation
- Census logistics/ project management
- Real-time field monitoring for QA
- Data capturing

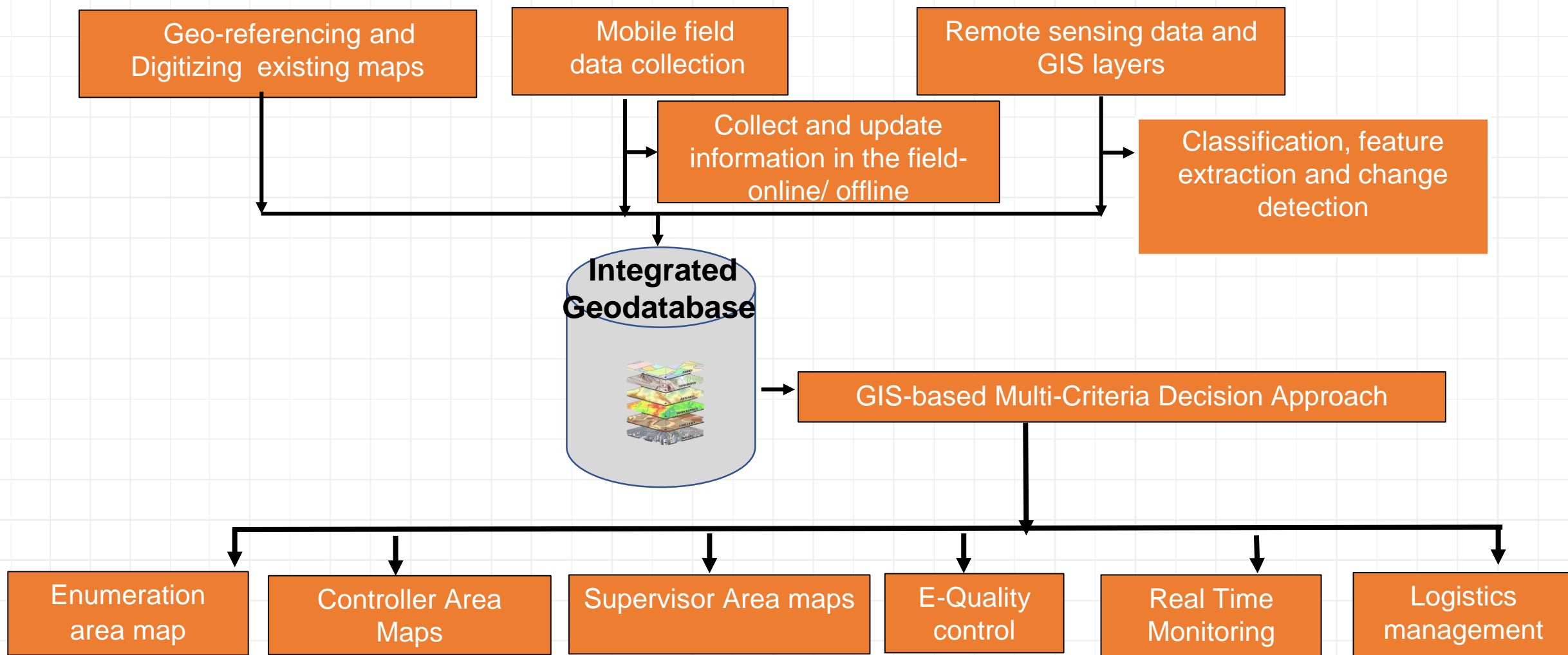
EA boundary validation







# Framework for GIS in mapping and enumeration

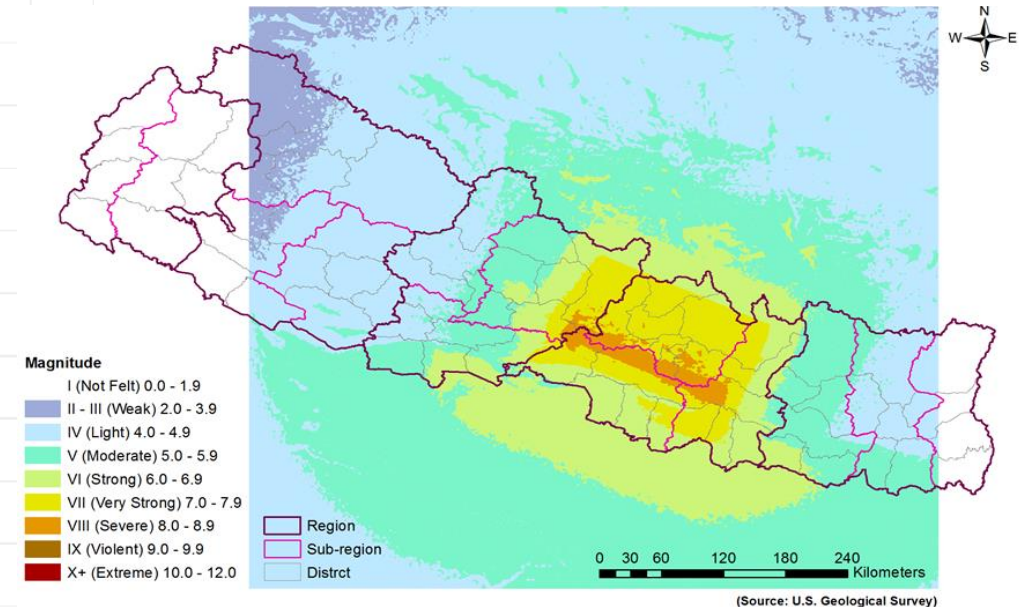
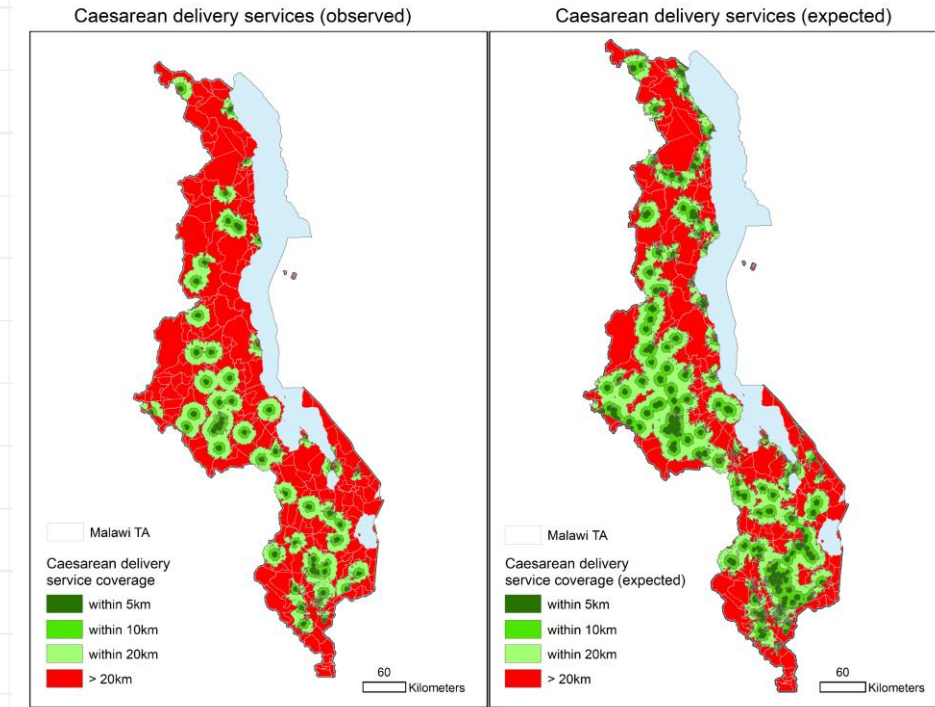




# Innovations in Census Analysis

## Geospatial analysis

- Geospatial analytic tools and applications
  - mapping indicators- locating those left behind
  - visualizations
  - infographics
  - Small Area Estimation of indicators
- Integrating georeferenced census and other geospatial data
  - Mapping population access to services
  - Generating population estimates in humanitarian crises



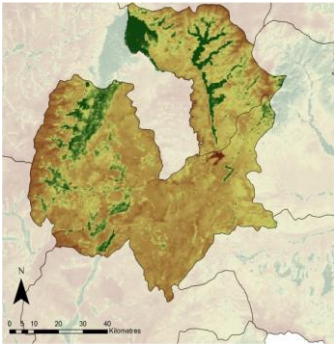
Nepal Earthquake Magnitude

-

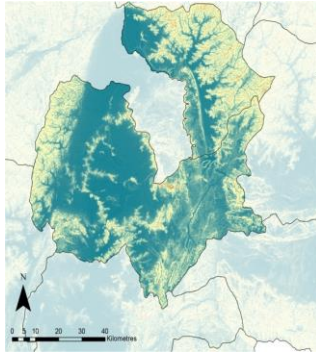


# Modeled Population Estimates- where full enumeration is not possible

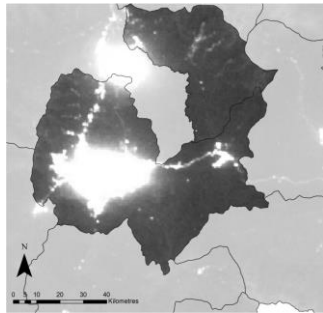
## Ancillary geospatial data



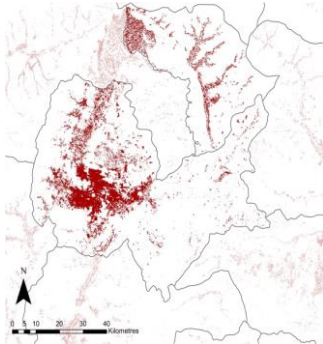
Vegetation index



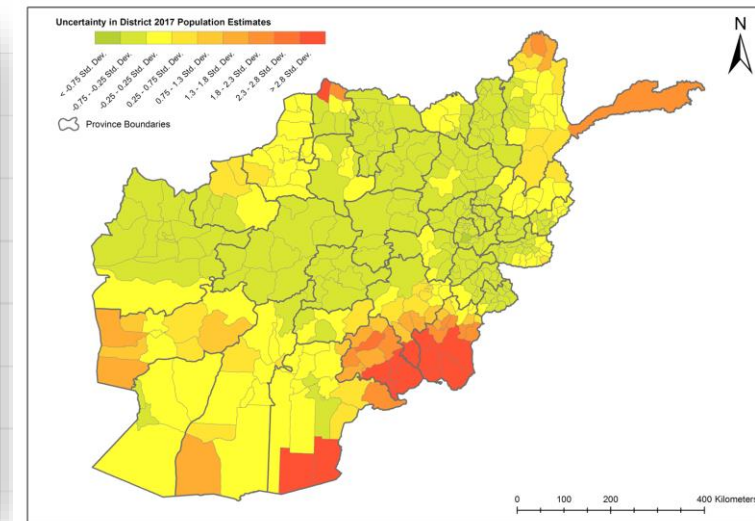
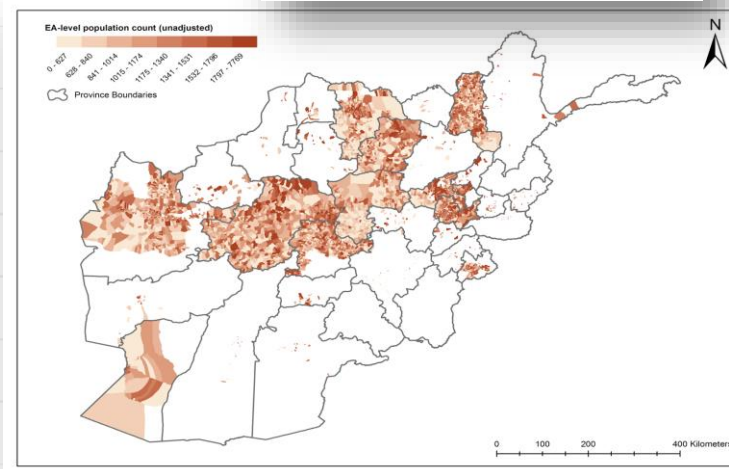
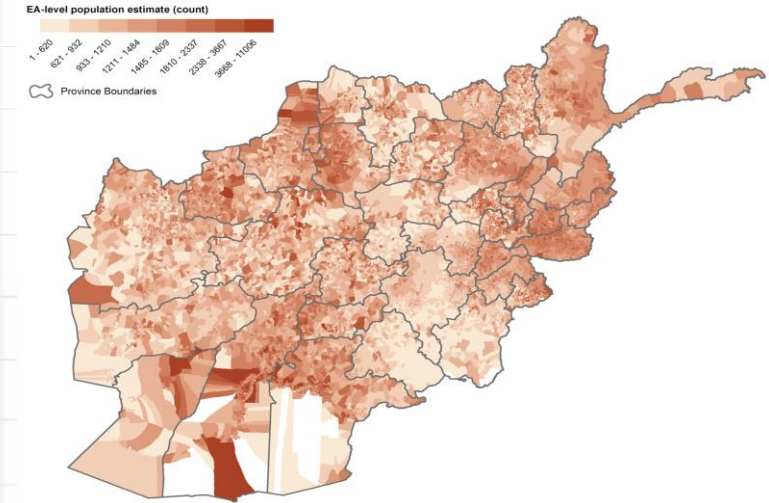
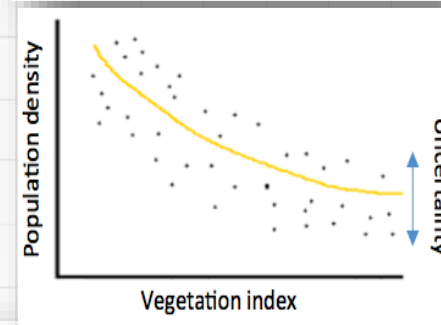
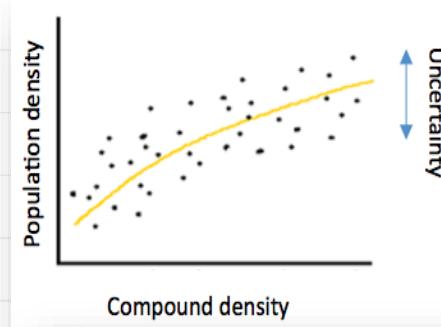
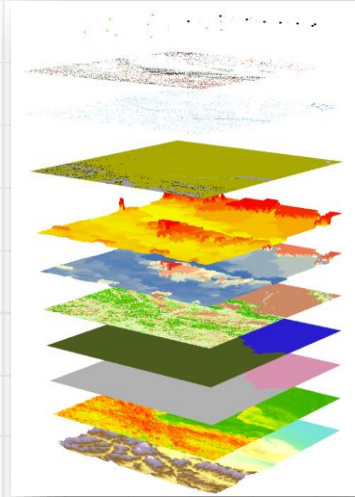
Slope



Night-time lights



Settlements



# Innovations in the 2020 round- Challenges

- Financial resources
- Continuous changes in technologies
- Procurement challenges (timeliness, up front cost)
- Logistics (security, storage, insurance etc.)
- Skills and capacity of staff
- Georeferenced data sharing- access vs confidentiality
- Data storage and security- cloud solutions





# UNFPA Census Strategy: Supporting use of new technologies & innovations

- **South to South exchanges**
  - Learning tours
  - observer missions
- **Technical support**
  - tools and guides,
  - CTAs & consultants
- **Operational and management support**
  - procurement of devices (specifications, LTAs)
  - tablet sharing
  - access to satellite imagery,
- **Capacity strengthening-**
  - methodology workshops
  - refresher modules for CTAs & roster training for consultants)
  - Wider use of census data/ geospatial analysis
  - New generation of population data experts

UNFPA Strategy for the 2020 Round of  
Population & Housing Censuses  
(2015-2024)

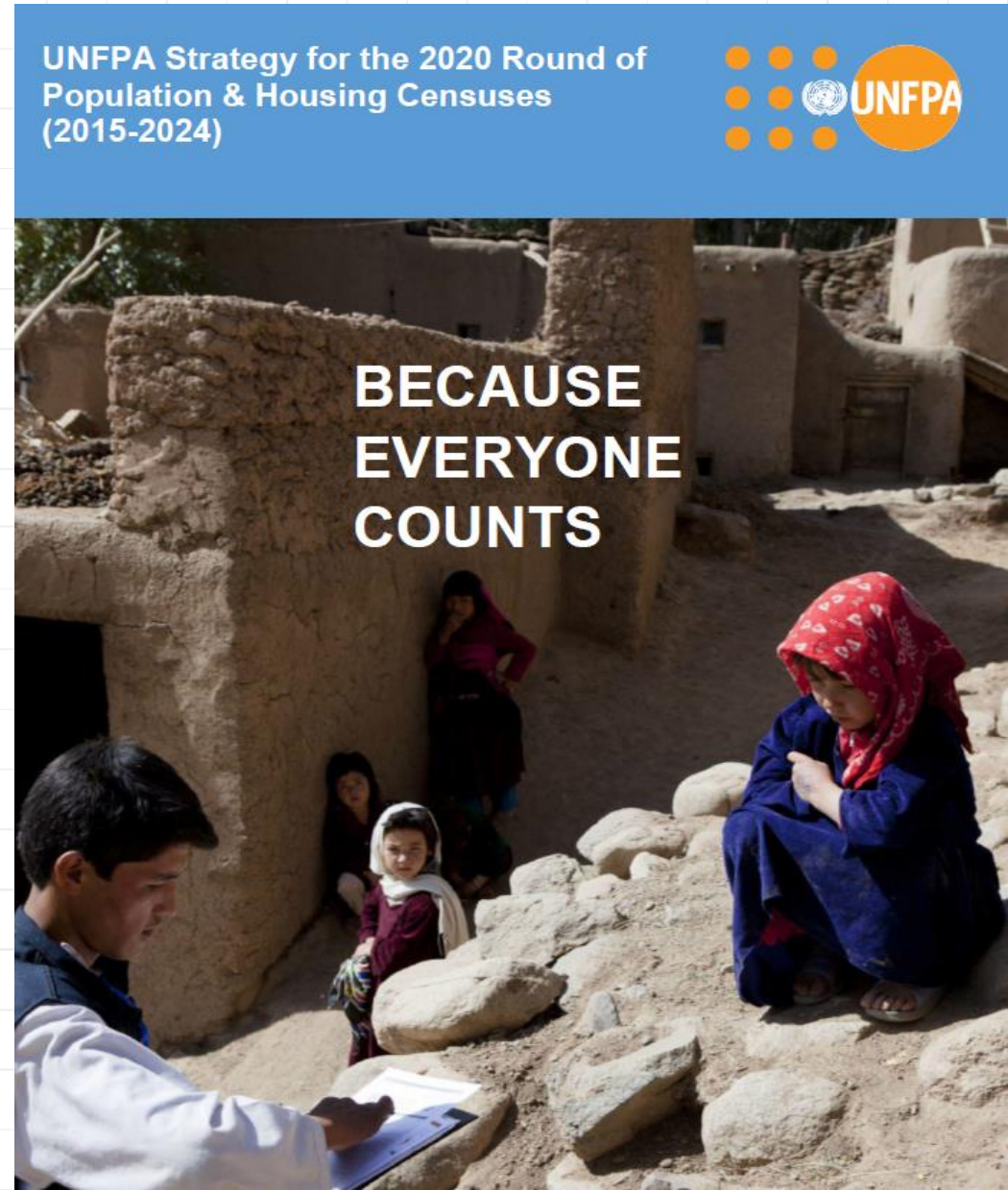


# UNFPA Census Strategy: Supporting use of new technologies & innovations

## •Strategic partnerships

- ESRI- modernization of statistics programme
- GRID3- GIS in census, modelled population estimates where needed
- USCB- CSPro training
- academic & research institutions

•UNFPA population data platform-  
geospatially enabled dissemination &  
analytics



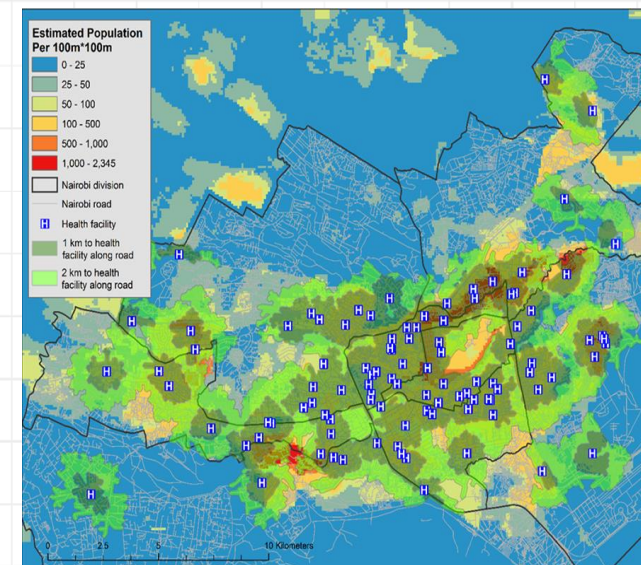


# Population Data Platform

Mapping indicators- child marriage






Assessing access to services



Inputs → Processing → Products


## Traditional Data

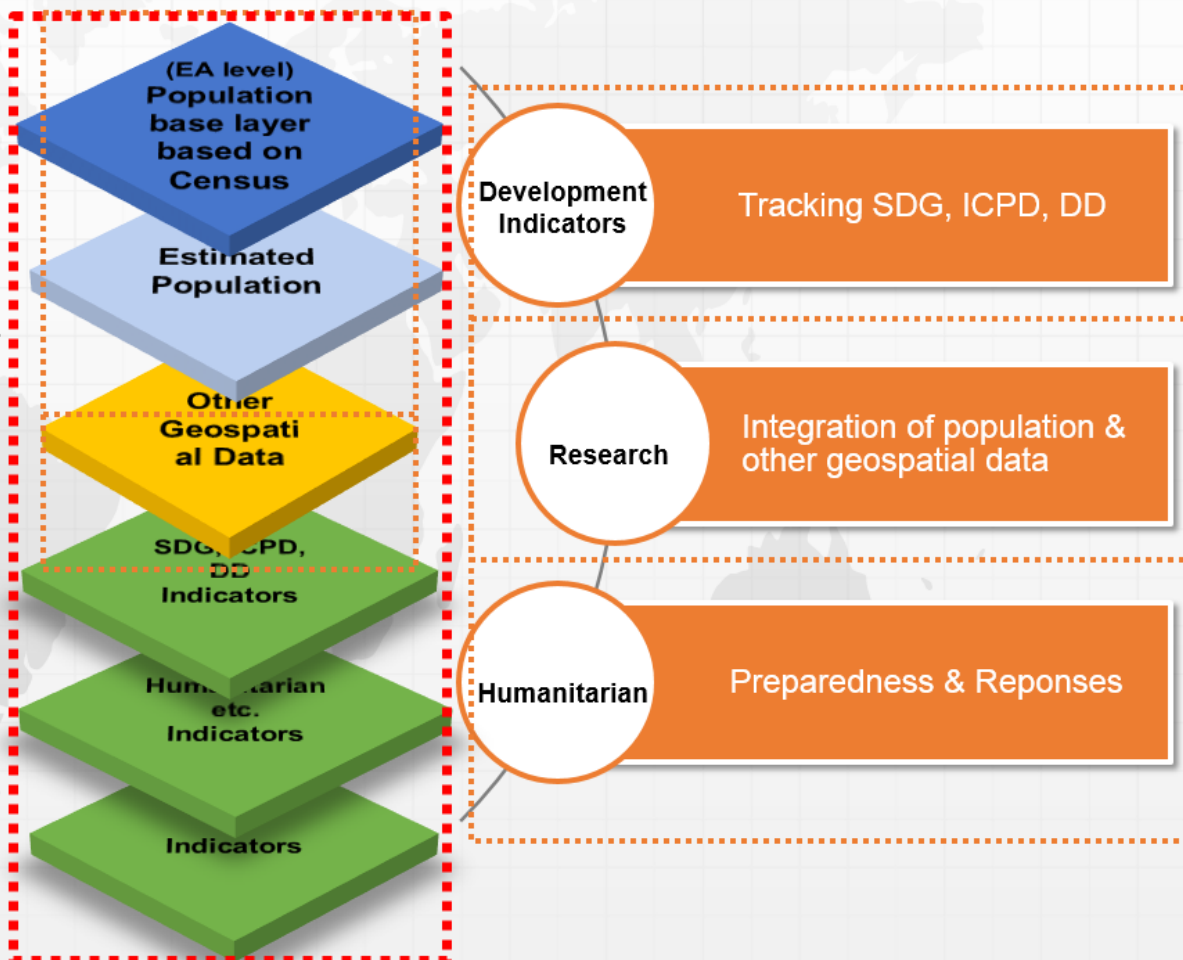
-  Census
-  Admin/EA boundaries
-  Sample surveys (e.g. DHS, MICS)

## Non-traditional data

-  Satellite imagery / pop estimates

## Other Geospatial Data

-  e.g. road system, settlement, locations of hospitals, schools, environmental, etc.



**Thank you**