

# Census Geography: Organizational and Institutional Issues

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# Overview

- ❑ From Census mapping to Census Geography:
  - Census Cartography Process
  - Why using Geospatial technologies
  
- ❑ Building a geospatial Infrastructure:
  - In-house Cartography/GIS unit
  - Technical and human capacities
  - NSDI
  
- ❑ Success Factors



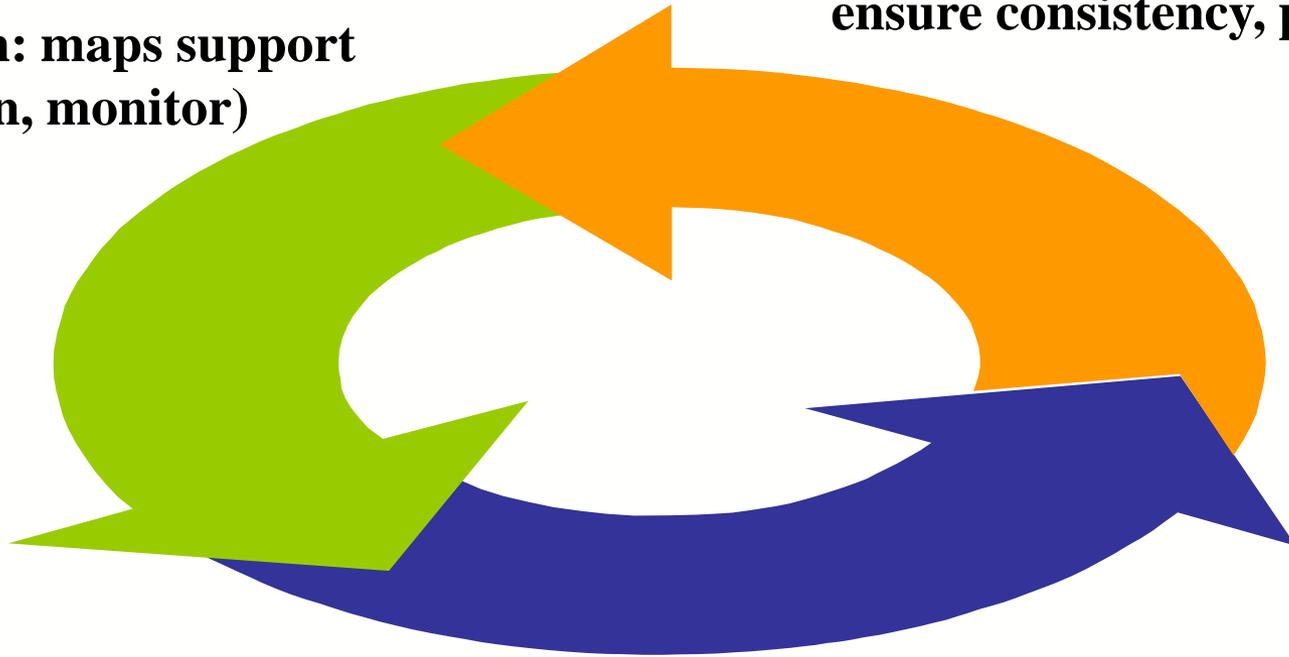
# Census Process

## Census

(Enumeration: maps support data collection, monitor)

## Pre-Census

(Pre-enumeration: maps ensure consistency, prepare)



## Post-Census

(Post-enumeration: analyze, display and disseminate)



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# Pre-enumeration stage

Large-scale maps  
EA units  
Geocoding System  
**Census Database**  
**Digital Mapping**  
**GIS**  
**Satellite Imagery**  
**Aerial Photo.**  
**GPS**

**Pre-enumeration  
(EA Map Production)**



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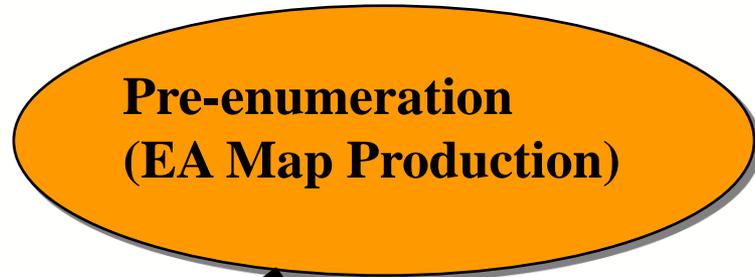
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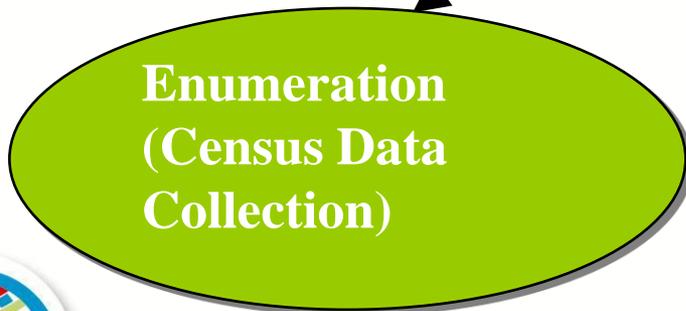
# Census Enumeration Stage

Large-scale maps  
EA units  
Geocoding System  
**Census Database**  
**Digital Mapping**  
**GIS**  
**Satellite Imagery**  
**Aerial Photo.**  
**GPS**

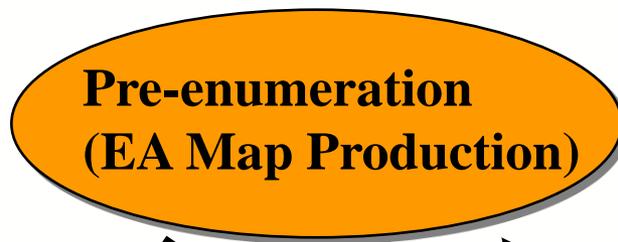


Large-scale maps  
Large & mid-scale for sup.  
Mid- & small-scale for management  
Admin./Statistical Units

**GIS/GPS/PDAs**  
**Digital Mapping**



# Post-enumeration Stage

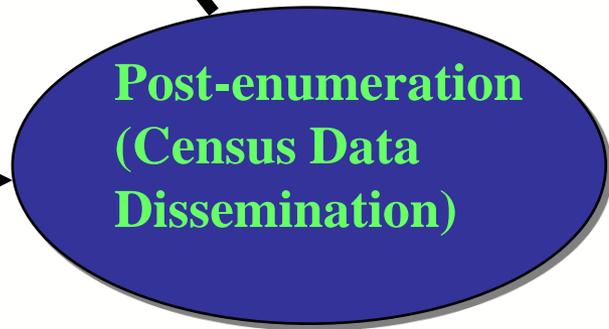
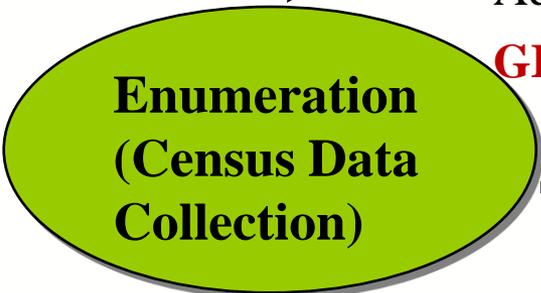


Large-scale maps  
EA units  
Geocoding System  
**Census Database**  
**Digital Mapping**  
**GIS**  
**Satellite Imagery**  
**Aerial Photo.**  
**GPS**

Mid- & small-scale maps  
EA update  
**Statistical Database**  
**Databases (Maintenance)**  
**GIS**  
**Internet Mapping**  
**Digital Mapping**

Large-scale maps  
Large & mid-scale for sup.  
Mid- & small-scale for manag.  
Admin./Statistical Units

**GIS/GPS/PDAs/Digital Mapping**



# Geospatial Technologies at all stages

**(Pre-enumeration)**

**(Enumeration)**

**(Post-enumeration)**

Digital Mapping	Digital Mapping	Statistical Database
Census Database	GIS	Databases Maintenance
GIS	GPS	GIS
Aerial Photo.	PDA's	Internet Mapping
Satellite Imagery		
GPS		



EAs Units



Administrative and Reporting Units



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# Census Geography Programme: a continuous process

- ❑ The UN recommendations emphasized the need for countries to consider the census geography programme as a continuous process, rather than the sequential mapping and dissemination operations.
- ❑ It was also emphasized that the use of and application of contemporary geospatial technologies and geographical databases is beneficial at all stages of population and housing census process.
- ❑ Geospatial improve the efficiency in the preparatory, enumeration, processing and dissemination phases of the census



# Institutional/Organizational Issues

- ❑ National Statistical Organizations should:
  - Develop GIS as a long term project:
    - To prepare the census enough in advance
    - Too expensive for the census only
    - To be used beyond the census as infrastructure for other statistical purposes (other sources, sample frame...)
  - Ensure the availability of adequate resources to that end
  
- ❑ A specialized in-house Cartography/GIS unit
  - The decision to invest in geospatial technology is need-based and problem-driven
    - Cannot be technology-driven or as an independent add-on
  - Building technical and human capacities



# National Scope - Institutional Coordination

## □ Statistical-Geospatial Infrastructure

- Census Database – National
- Population Datasets and Geocoding System: basic components of the NSDI
- Data Sharing: Facilitation of data sharing through detailed documentation and metadata across user networks

□ National Statistical Organizations should actively participate, in partnership with other national authorities, in the development of a national geographical information capacity, including the **National Spatial Data Infrastructure (SDI)**.



# Spatial Data Infrastructure (SDI)

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## □ Geographic Information:

- **Infrastructure Concept** - Important as physical infrastructure assets such as roads, communications networks, and other public utilities

## □ SDI Definition:

- The technology, policies, standards, human resources, and related activities necessary to acquire, process, distribute, use, maintain, and preserve spatial data

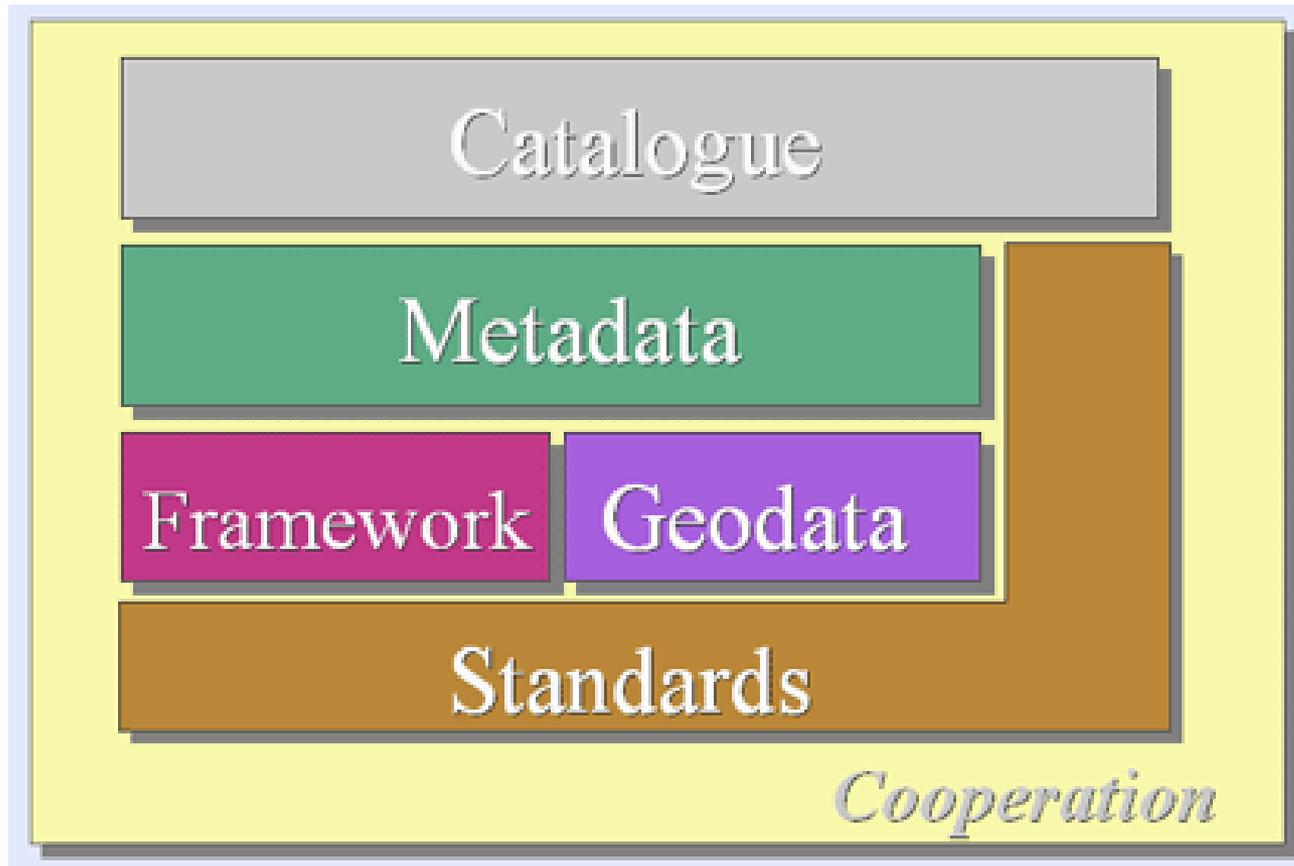


# Core Spatial Data: common layers

- Geodetic network
- Administrative Boundaries
- Hydrography
- Elevation
- Roads and Railroads
- Cadastral
- Geographical Names



## Main NSDI Components



Source: GSDI Cookbook



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## Success Factors

- Ensuring Commitment for a long-term digital census mapping program
- Conducting a comprehensive needs assessment
- Tailor-made methodology of integration
- A Permanent unit for Cartography/GIS within the NSO
- Partnership and cooperation
- Capacity Building for sustaining the census mapping program



**Thank You**



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