



Global Strategy
IMPROVING AG-STATISTICS



IMPROVING THE USE OF GPS, GIS AND RS FOR SETTING UP A MASTER SAMPLING FRAME



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BRIEF DESCRIPTION OF THE RESEARCH TOPIC

- Master Sampling Frame (**MSF**)
 - **Georeferencing** elements
- Geomatic tools:
 - **Remote Sensing (RS)** – Complete area
 - **Geographic Information Systems (GIS)** –
Geographic data management
 - **Global Navigation Satellite Systems (GNSS –
GPS)** - Precisely geolocation



LITERATURE REVIEW (1)

- Remote Sensing (RS)

1. Stratification

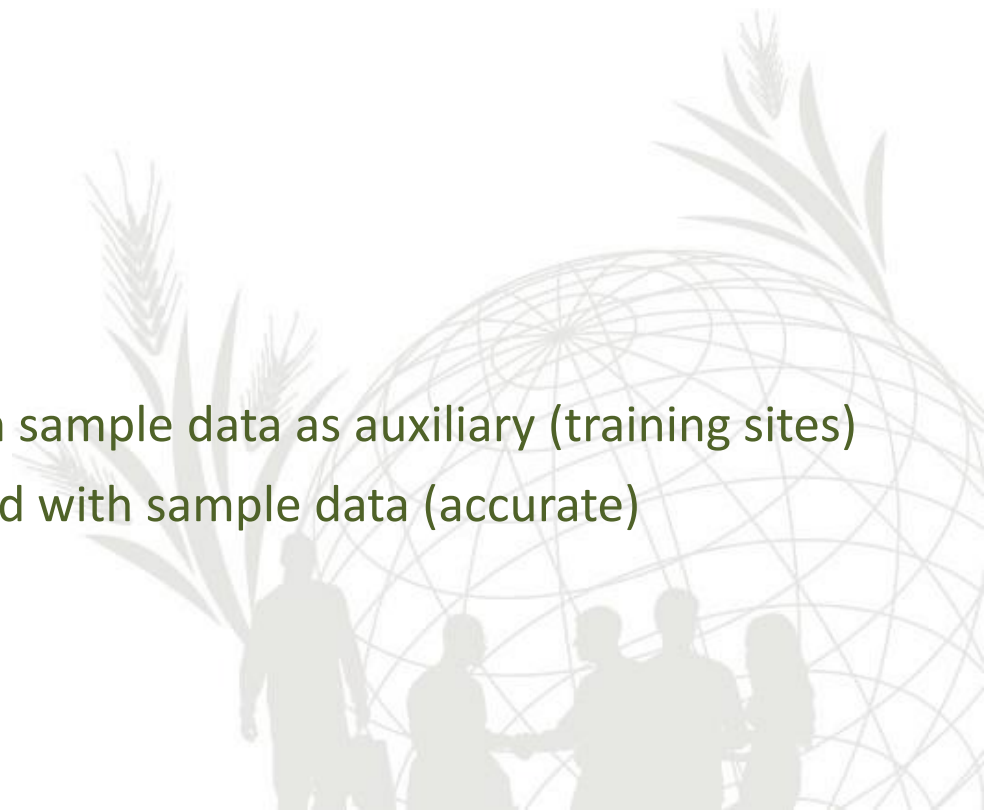
2. Design optimization

- a. Sampling units size
- b. Sample Design
- c. Number of stages

3. Improve estimates

1. RS (basic) classified with sample data as auxiliary (training sites)
2. RS(exhaustive) combined with sample data (accurate)

4. Preparing field material



LITERATURE REVIEW (2)

- Geographic Information Systems (GIS)

1. Collect
2. Store
3. Manipulate
/Transform
4. Analysis
5. Displaying



spatial data



LITERATURE REVIEW (3)

Geographic Information Systems (GIS) - Manipulate / Transform / Analysis

1. Satellite image classification
2. Spatial variability calculation
3. Spatial analysis
4. Projections and Transformations





LITERATURE REVIEW (4)

- Global Navigation Satellite Systems (GNSS – GPS)
 1. Location of / Navigation to points on the ground
 2. Area Measurement
 3. Geocoding of elements (eg mail address households)






SUB-TOPICS REQUIRING FURTHER RESEARCH (1)

- **RS requirements MSF construction**
 - Identification of suitable **sensors**
 - Data acquisition **calendar**
 - Appropriate **spectral** and **spatial resolutions**
 - Land use/ land covers information **analysis techniques** for MSF construction



SUB-TOPICS REQUIRING FURTHER RESEARCH (2)

- **GIS procedures to model MSF**
 1. Random or systematic points
 2. Optimal block and segment sizes:
 - / spatial variability (RS)
 - / geometric or permanent boundaries segments (RS)
 3. Automatic extraction of permanent boundaries (RS)
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SUB-TOPICS REQUIRING FURTHER RESEARCH (3)

- **Mobil GIS / GNSS -(GNSS/GPS-PDA-TABLET)**
 1. Data collection
 2. Geolocation
 3. Surfaces measurement
 4. Geocoding list frames elements





Thank you

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