Master Sampling Frame for Agriculture and Rural Statistics

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What are the strategic directions of the Global Strategy?

- **Broadens Scope of Agricultural Statistics**
  - **Adds social and environmental dimensions**
  - **Includes aspects of rural households, forestry, fishery**
- **Translates policy into statistical language**
  - **Connects farm holding and rural households to the natural environment (land, other natural resources)**
- **Provides Conceptual Framework—three pillars**
  - **Minimum set of core**
  - **Integration of agriculture into national system**
  - **Sustainability through governance, capacity building**

Integration of Agriculture into National Statistical System

- Coordinate data collections within and across sectors
  - Eliminate duplication of work, conflicting estimates
- To achieve integration:
  - Develop Master Sample Frame for agriculture
    - To provide basis for selection of probability sample of farms and households with capability of linking units across and beyond (environment)
  - Design samples, with overlapping/linked samples
  - Synchronize questionnaire design (thematic linkages e.g. SAE)

How do sample frames become a master sample frame?

- A master sample frame is constructed in such a way that:
  - Becomes survey basis for data collections for agricultural statistics for all providers in the national statistical system
  - Provides ways to connect households, farms, and land
  - Is made available to all institutions in national statistical system for data collection
- A means to coordinate data collections across sectors producing agricultural statistics
- Different options of frames to construct a master sample frame

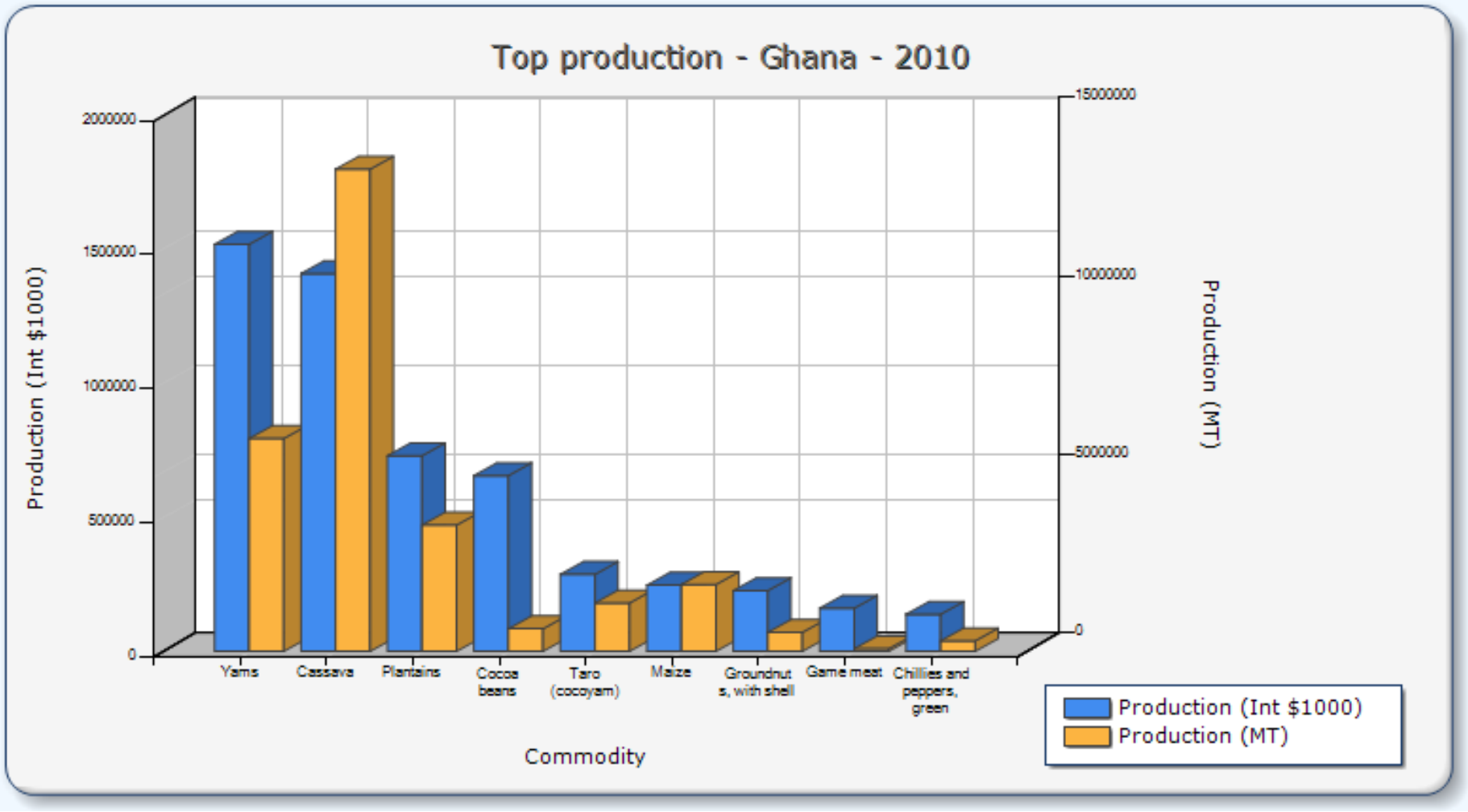
Steps

1. In-depth assessment
   - Accounting of all agricultural statistics produced
   - Methodologies already in use for each relevant series of each organization involved
   - Review of administrative reporting systems and administrative data
   - Quality of census materials
     - EA maps (digitized?), Pop and Ag
   - Data needs not currently being met

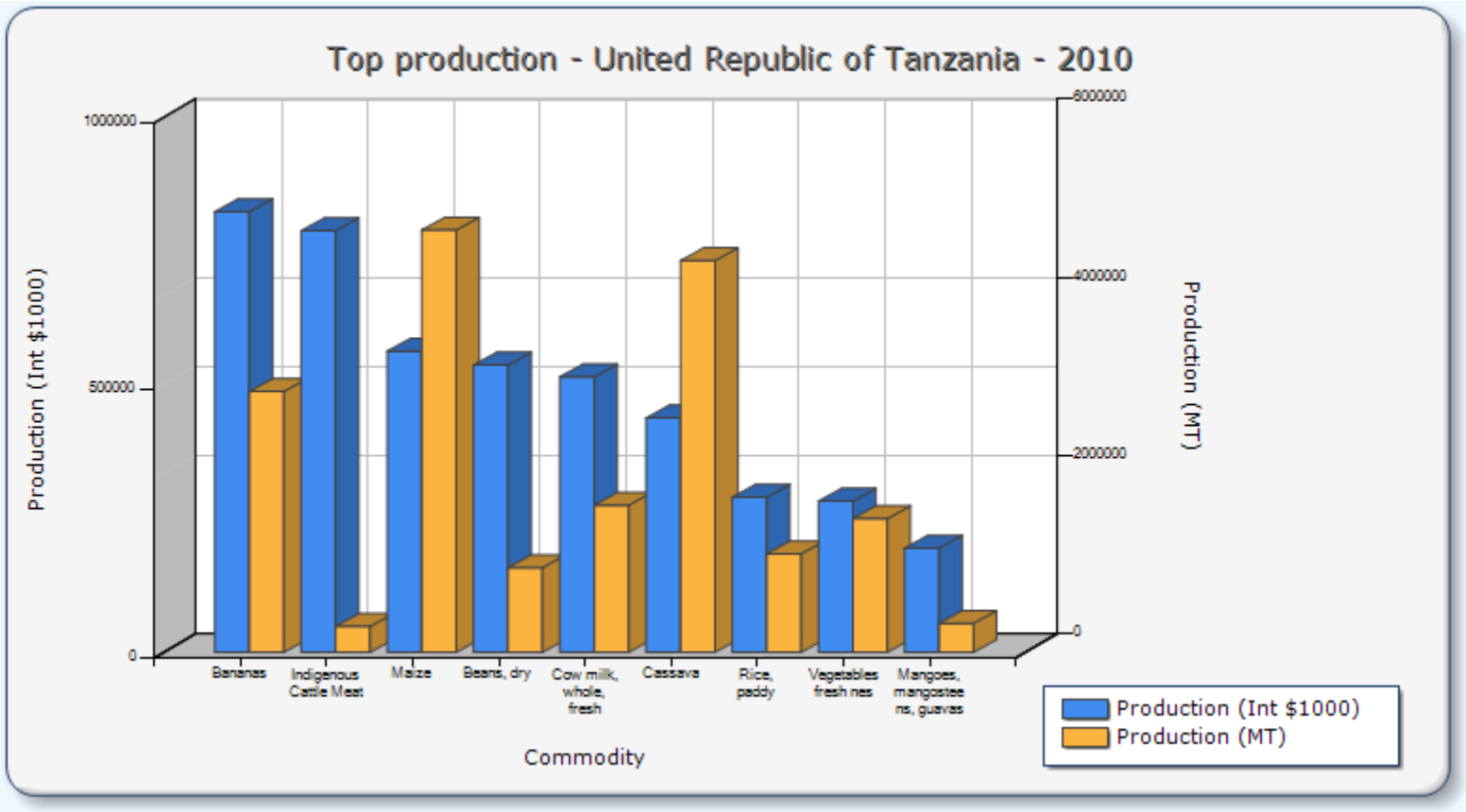
Steps (cont'd)

2. Determine country set of core items
   - Content
   - Scope—level of detail
   - Coverage—entire country or major areas
   - Frequency
   - Data requirements across economic, social, environmental domains

Country set of core items



Country set of core items



Steps (cont'd)

3. Review country profile for core items
   - Distribution by farm size and type
     - Subsistence farms
     - Small holder (< 5-10 ha)
     - Commercial

     } Crop only, livestock only, or combination
   - Distribution across country
4. Review country infrastructure and its potential effects on data collection
   - Roads—telephones—literacy of farmers

Steps (cont'd)

5. Using set of core items and country profiles, develop:
   - Guidelines to determine optimum type of frame(s) for different profiles—need for research
   - Guidelines to determine sampling methods
     - Use of multi-stage cluster sampling vs single stage
     - Guidelines on linking reporting unit (household or farm) to the sampling unit (cluster, point, etc)

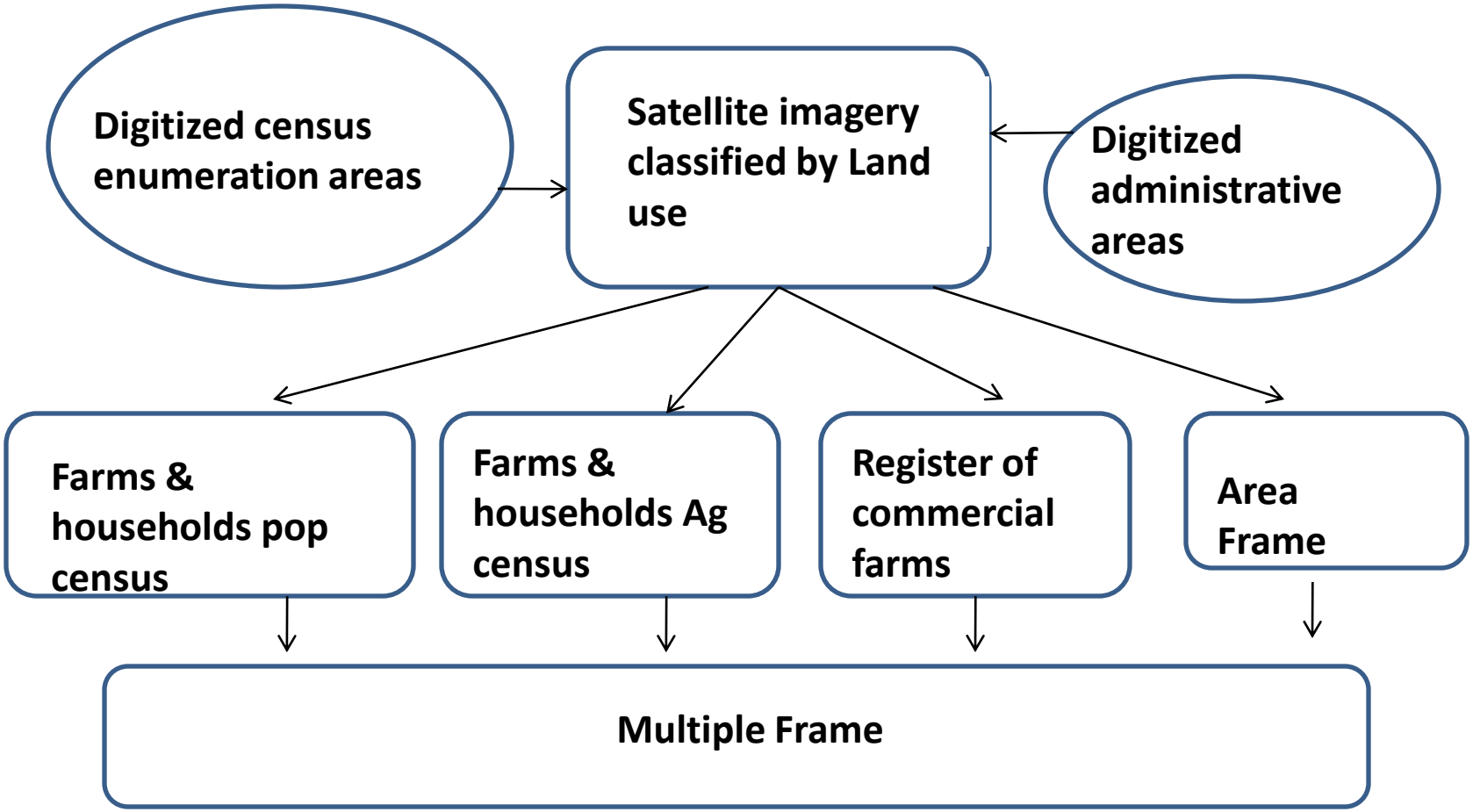
Examples of Sample Frames as Input to Master Frame

- Population Census enumeration areas
- Household registers from population census
- Agricultural census enumeration areas (same as pop census in many countries)
- Registers of farms from agricultural census
- Registers of farms based on administrative records
- Area Sample frames
- Multiple frames (combination of any of the above)

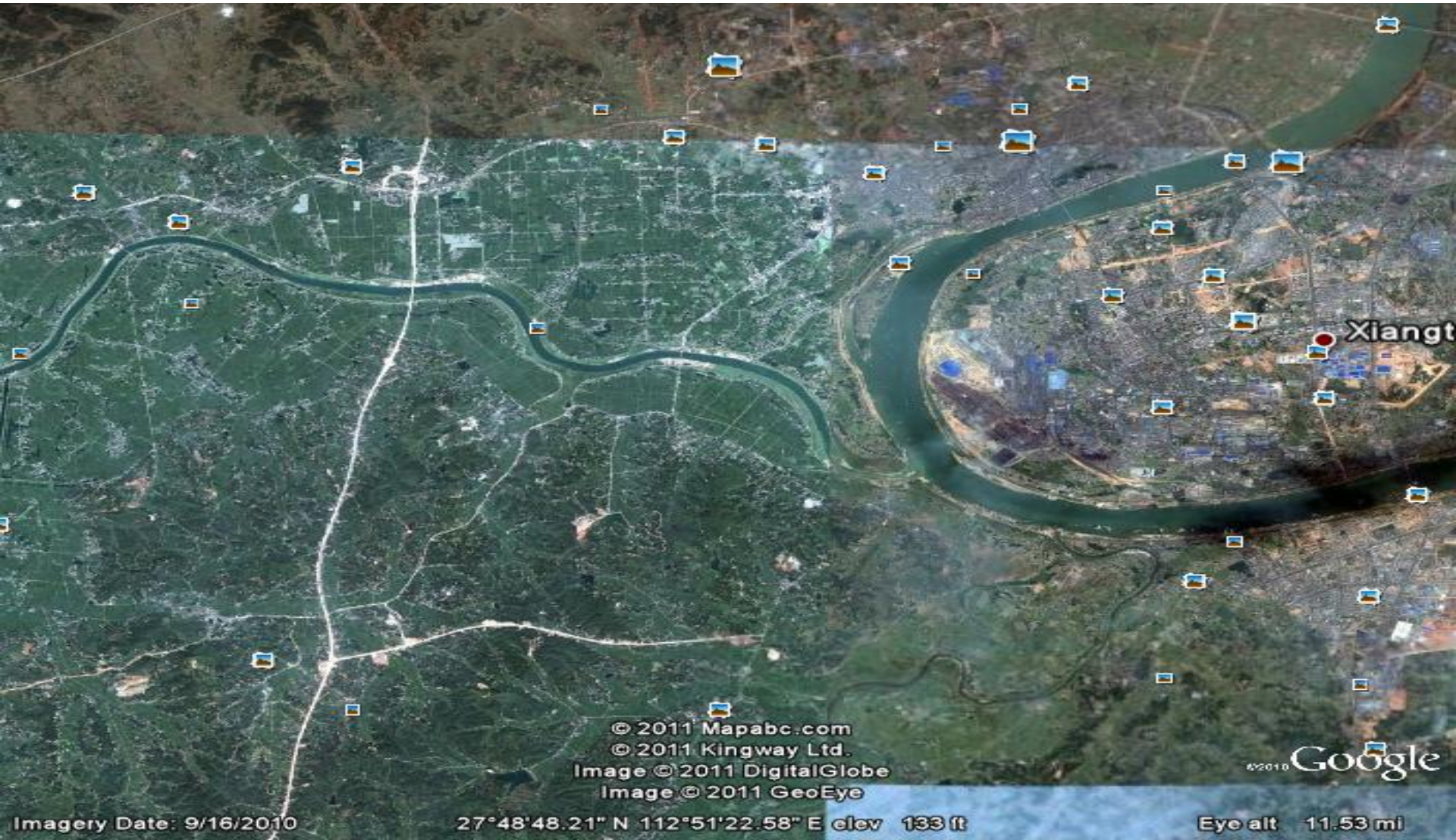
An example: how to begin

- Starting point is satellite imagery classified by land use
  - At country, regional level
- Geo-reference boundaries of Administrative areas—boundaries of cities, towns, villages, counties, townships, etc
- Geo-reference census enumeration areas
- Sample frames for farms, households, land
- Combine into multiple frames, if needed

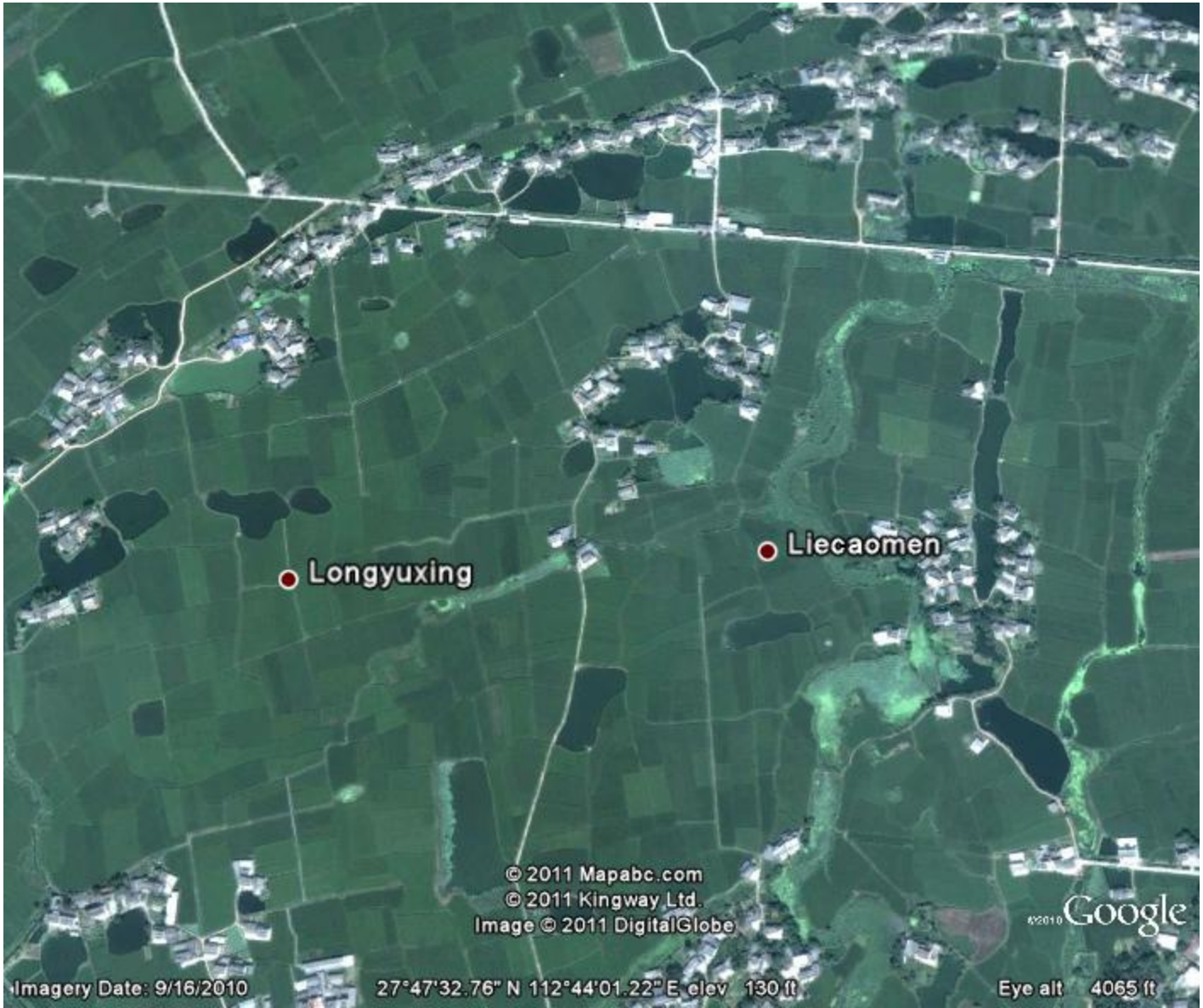
Master Sample Frame



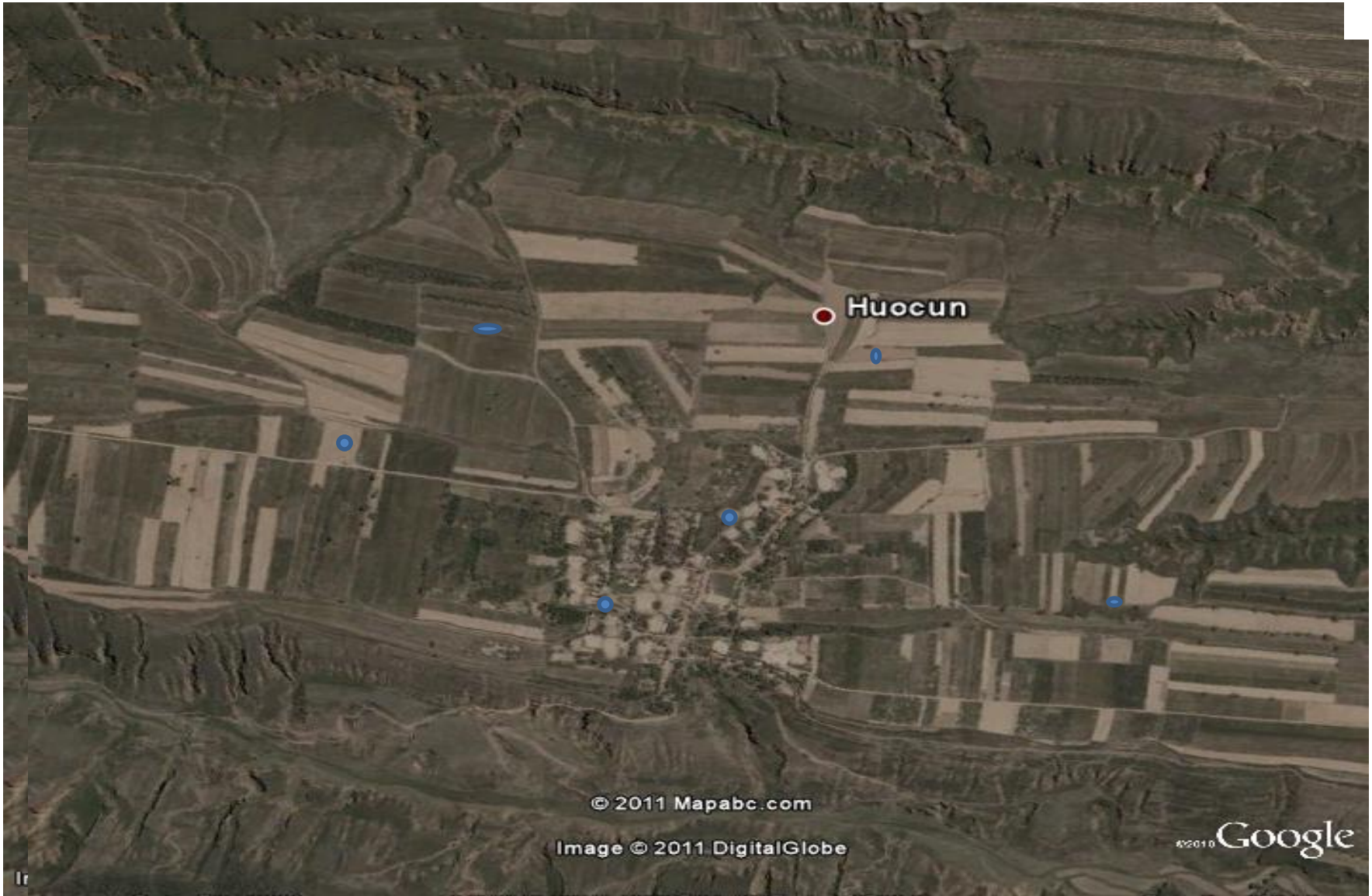
Land Use stratification-cropland, woodland, urban, etc



Area Frame—Geo-reference administrative areas—enum areas--etc

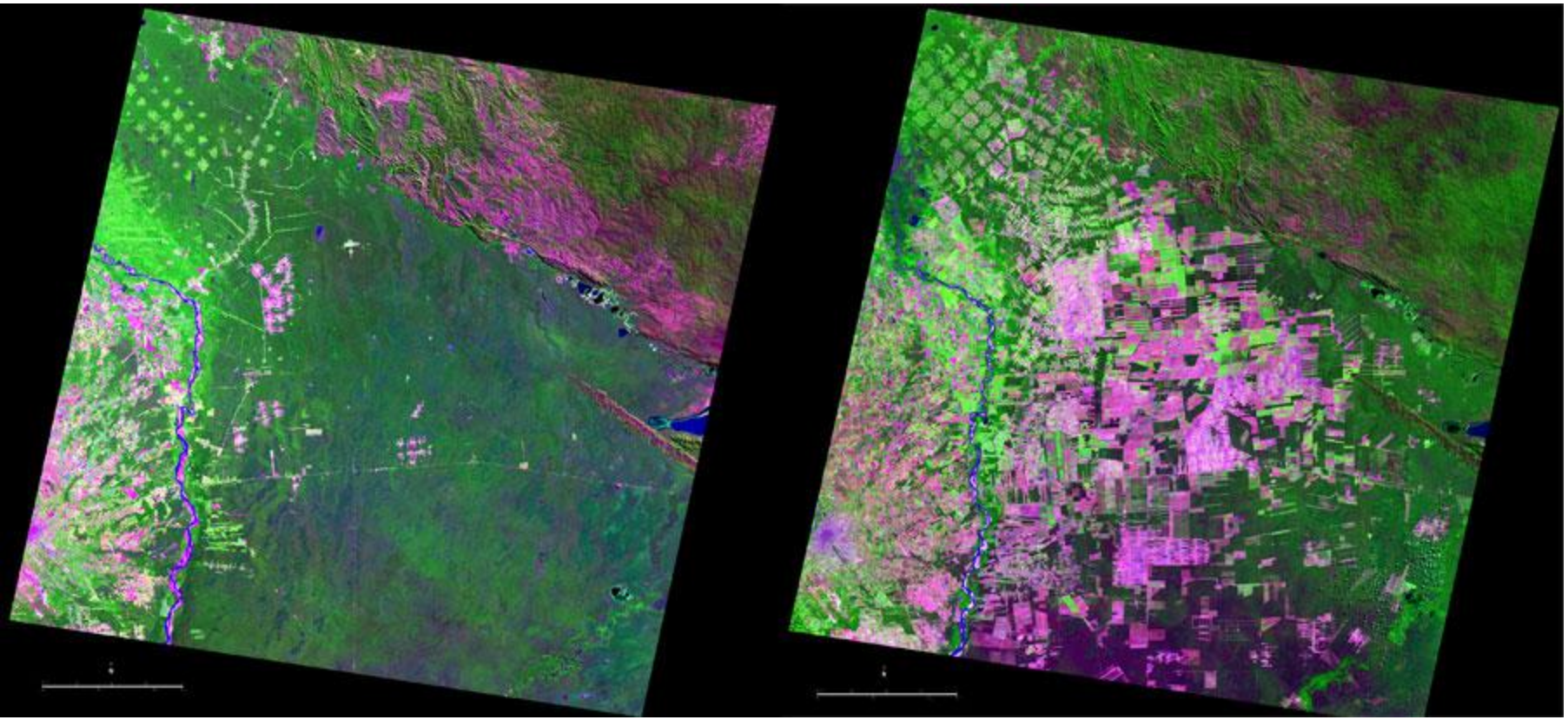


Area frame- Geo reference boundaries—land use—admin areas

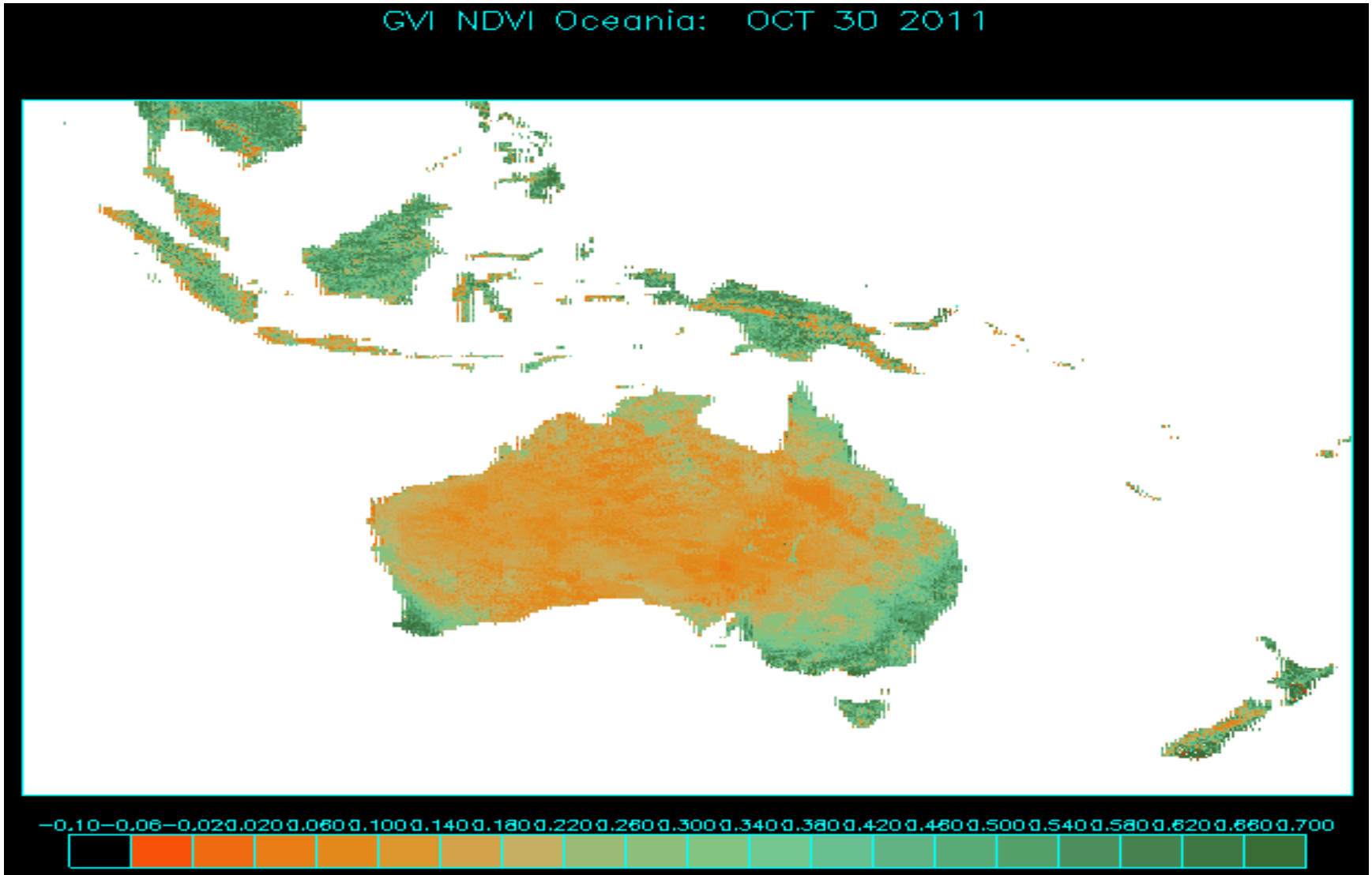


Use Master Frame to connect environmental measures with economic and social dimensions

Landsat imagery



Vegetative Indices to monitor food production

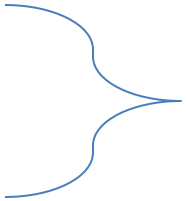


Concluding remarks

- **Construction of the master frame is a long-term initiative that has to built in stages**
- **Stages will be country specific, but supported by technical assistance, training and research at regional and global level**
- **Strong country buy-in needed to ensure sustainable process and desired outcomes**

Challenges—discussion points

- **Capacity building**
  - **Need for research, technical assistance, and training materials**
- **Who does what**
  - **Global**
  - **Regional**
  - **National**
- **Stages of development**
  - **Simple area frame**
  - **Census EAs added to area frame**
  - **Create list of commercial farms, etc**



What is done in-country vs. provided to country. Example: Use of satellite imagery

The way forward

- **Geo-reference everything-households, farms, enterprises during data collections**
- **Connect data sources**
  - **Survey-Administrative-remotely sensed**
- **Collect data continuously and connect**
  - **PDA's, Cell's, etc**
  - **Crowd sourcing**
  - **Vegetative Indexes**

… but should all be part of clear strategy, with well-defined responsibilities and an adequate infrastructure for creating and maintaining master frame!