



Global Strategy
IMPROVING AG-STATISTICS
ASIA PACIFIC REGION



Integrated Framework for Surveys and Modular Approach

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Overview

- What do we mean by integration?
- Why do we need integration?
- Approaches to Integration
- National Statistical System
- Master Sample Frame
- Sampling Frames
- Integrated Survey Framework / Modular approach to survey planning
- Integrated dissemination system



What do we mean by Integration?

- Integration of Agriculture into the National Statistical System
 - Agriculture is part of the overall statistics collection process
 - Use of a master sample frame for agriculture
 - Use of standard concepts, definitions and classifications
 - Integration of the Population Census and Agriculture Census
- Integration of the survey process
 - Sample design questionnaires, methods of collection, analysis and estimation
- Integration at dissemination phase



Why do we need integration?

- Integration will enable
 - Production of coherent and comparable data
 - Through the use of standards
 - In-depth data analysis across sectors/collections
 - E.g. crop and livestock production are often drawn from separate collections. This provides no basis for analyzing characteristics of farms that produce both crops and livestock, or for comparing them to farms that specialize in one or the other
 - Social – economic – environment e.g. livelihood of farmers, are the small farms environmentally friendly, or the big farms?
- Integration will
 - Avoid duplication of effort
 - Prevent the release of conflicting statistics
 - Ensure the best use of resources
 - Reduce the burden of response



Approaches to integration

- *Ex Post* – try to link data from different surveys
 - E.g. link household data from Population Census to holding data from Agricultural Census
 - Very difficult if not planned in advance (one-to-many and many-to-One mapping)
- *Ex Ante* – plan relevant surveys so that linking variables are well defined
 - E.g. identify households/ag. holdings in Population Census to give a frame for household selection of Ag Census (list of agriculture households)
 - Update this frame periodically to serve as master sample frame
 - All agriculture surveys are based on this frame
 - Business Register to serve as institutional section of ag. census
 - Use of pre-defined multi-stage sampling reduces the need for fieldwork for updating the frame



National Statistical System

- Many government agencies produce agricultural data
 - NSO for agriculture census
 - Ministry of Agriculture for crop and livestock surveys
 - Ministry of fisheries for fishery and aquaculture surveys
 - Ministry of Forestry for forestry related surveys
- Sometimes there is cooperation and use of common standards, etc, but mostly not



National Statistical System, ctd

- Integration of agriculture into the National Statistical System will require a high level of cooperation and commitment by a range of agencies
 - Can be achieved through establishment of coordinating bodies and technical working groups to avoid overlapping efforts
 - The Global Strategy process will assist this



Master Sample Frame

- Master sample frame should be the source for all samples for surveys of agricultural holdings, farm households and rural non-farm households
 - Samples can be designed so that data can be analyzed across surveys
 - Different institutions should be able to access the master sample for survey purposes
- Scope of master sample frame depends on
 - Number of surveys for which it is to be used
 - Main stratification variables used for planning the surveys



Master Sample Frame - Issues

- Before establishing the master frame one needs to
 - Conduct an in-depth analysis of all the data items on which data is to be collected through the national programme of surveys
 - Define precisely, for each selected data item
 - The geographic level at which the estimates are required
 - The accepted level of accuracy/tolerance
 - Periodicity at which the data is needed
 - Avoid the temptation of getting everything at the most detailed level through sample surveys
 - Establish a survey calendar for thematic surveys based on clustering of data items



Master Sample Frame - Issues

- Overall parameters to consider
 - Physical land mass and natural environment, economic output of agriculture, and the well-being of the farm and rural populations
- Statistical units
 - Farm or agricultural holding, household and land parcels
- Georeferencing
 - Required to provide a link between the economic, environmental and social dimensions of statistical units



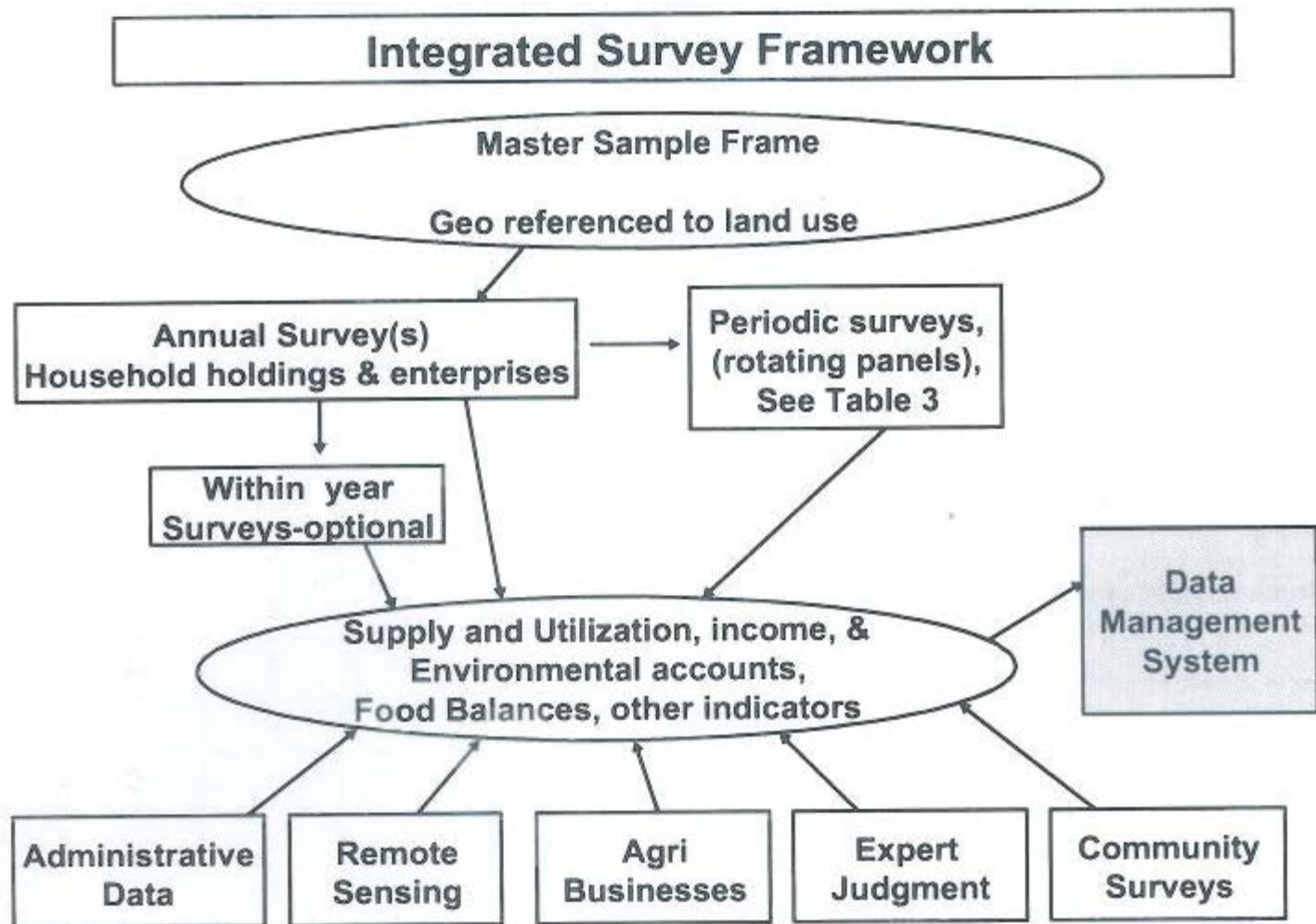
Sampling frames for agriculture statistics – possible approaches

- Based on enumeration or administrative areas established by the population census
- Registers of farms, but difficult to maintain
- Area sample frame
- Multiple frames
- This issue is discussed in detail in the Global Strategy paper

Integrated Survey Framework

- Should be designed to
 - Provide an annual work programme that is consistent from year to year
 - Minimize the required scope of censuses
 - Recognize that some data need to be collected more often than annually because of the seasonal nature of agriculture and the crop and livestock production cycles
 - Take into account the additional data sources that need to be included in the overall framework
 - Administrative data, remotely sensed data, community surveys





Steps to implement an Integrated Survey Framework

- Determine the set of core data items for which at least annual data are required
- Group other core items by category, such as economic variables, environmental measures, social variables and other. These constitute the modules. [data for these items will come from rotating panel surveys]
- Select a replicated sample for the annual core items using Multiple Probability Proportional to Size (MPPS)
 - ie divide the sample into subsample replicates
 - Provides for longitudinal data



Steps to implement an Integrated Survey Framework

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- Design a survey questionnaire to obtain the annual core data items
 - Each year the core questionnaire should contain supplementary questions regarding one of the subject areas (modules) described above
- Each year one of the modules will be linked to the annual core items
 - From year 4, at least one of the replicate samples will have been covered by all the modules/questionnaires
- Next slide illustrates the rotating (modular) approach
- Details are also given in the Global Strategy paper



TABLE 3: Example of a replicated survey design with the use of an annual core questionnaire and rotating sets of supplemental questionnaires

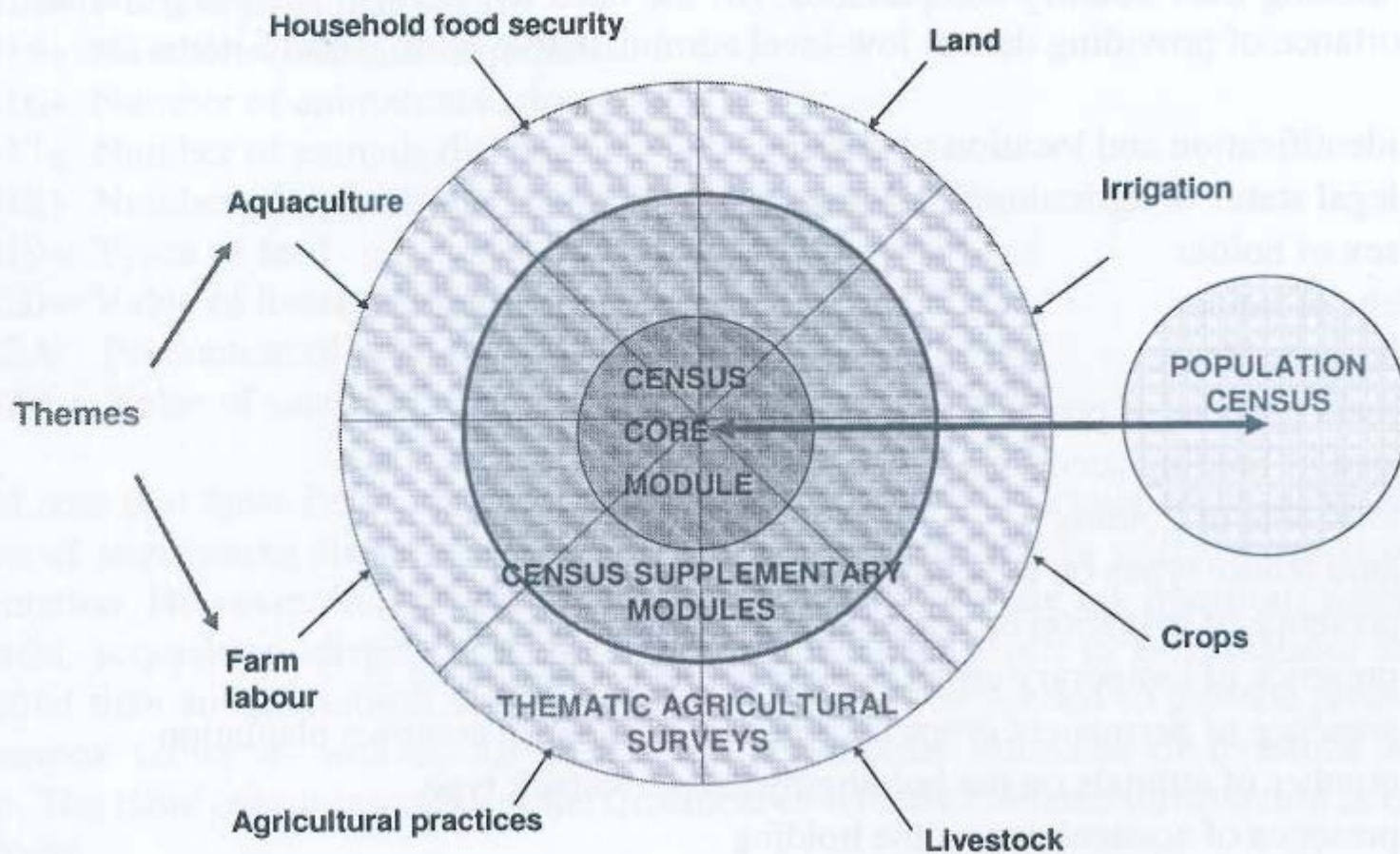
YEAR	REPLICATE	REP	REP	REP	REP	REP	REP	REP	REP	REP	REP	REP	REP	
		1	2	3	4	5	6	7	8	9	10	11	12	
1		A	A	A	A	A								
2			B	B	B	B	B							
3				C	C	C	C	C						
4	<p>Detailed Questionnaires for Rotating panel surveys Every replicate receives the same core questionnaire every year for annual core data items plus obtains data for one following rotating panels:</p> <p>A. Economic items including Farm structure, expenditures, income</p> <p>B. Environmental items including inputs, chemicals, tillage, water use, land use</p> <p>C. HH income, consumption, employment</p> <p>D. Items of national interest</p>					D	D	D	D					
5							A	A	A	A	A			
6								B	B	B	B	B		
7									C	C	C	C	C	
8										D	D	D	D	D
9											A	A	A	A
10												B	B	B
11													C	C
12														D

Agricultural Census

- A similar modular approach is suggested for the Agricultural Census
 - Core items collected on a complete enumeration basis
 - Supplementary modules on a range of themes collected from sub-samples of the total population
 - Illustrated in next slide



Figure 1: Agricultural censuses in the framework of an integrated agricultural census/survey programme



Integrated dissemination system

- A data management system that
 - Provides access to official statistics for dissemination purposes
 - Should also encompass a wide range of data sources
 - Enables the storage and retrieval of survey results
 - Provides access to farm, household and geo-referenced data for research
- CountrySTAT is an example
 - Web-based information system
 - Allows countries to better organize, harmonize and standardize statistical data from multiple sources
 - Easily accessible on-line



Summary

- Integration of agriculture into the National Statistical System will be achieved through
 - Implementation of a master sample frame
 - An integrated survey framework
 - An integrated database
- Countries will need to
 - Review their current governance arrangements
 - Make changes to meet the challenges of coordination
 - Ensure that the statistical system is sustainable