Global Strategy
IMPROVING AGRICULTURAL AND RURAL STATISTICS
IN ASIA PACIFIC

Improving Administrative Reporting Systems
in Asia Pacific Region

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Presentation Outline

• Administrative data- definition, types of sources
• Administrative Sources for Agriculture statistics
• Comparing administrative source with Survey System
• Main issues and best practices with use of Administrative source in
  – Lao PDR,
  – Sri Lanka,
  – Myanmar and
  – India
• Approaches to improve ARS
• Key Conclusions
Administrative Data

- Definition
  - Traditional
  - Gordon Brackstone (1987)
  - UN Handbook (2011)
Administrative Data

- Definition UN Handbook (2011)
  - Administrative sources are data holdings containing information which is not primarily collected for statistical purposes.

- Narrow
  - Primary (Statistical)
  - Secondary (non-Stat)
  - Public Sector
  - Private Sector

- Wider
  - Primary (Statistical)
  - Secondary (non-Stat)
  - Public Sector
  - Private Sector
Types of Administrative Sources

• Tax data
  – Personal Income tax
  – Value Added Tax
• Social Security (contributions, benefits, pensions)
• Health/Education Records
• Registration Systems for Persons/Property/Vehicles
• Register of Farms
• Private businesses
  – Credit agencies, Telephone directories, retailers with store cards
Use of Administrative Sources

• In developed countries,
  – ARS data quality is good and many countries moving from SS approach to use of ARS (Denmark, Finland – Register based censuses)
  – Still, benefits from ARS are not automatic and strategies may be needed to handle challenges of definition of units, classification and coding systems etc

• In developing Countries
  – Quality of administrative data is variable. For agriculture sector, not many users are happy with the quality.
  – NSOs have a preference to conduct surveys as an alternative.
  – Doing away with administrative source data may not be an option. Surveys may not meet the monitoring requirements on a frequent basis.

For both developed and developing countries, given the limited budget for sample surveys, pressure on NSOs/MOAs to use non-statistical sources of data (ARS, satellite data)
### Comparison of ARS and Survey System (SS)

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<th><strong>ARS</strong></th>
<th><strong>Survey System</strong></th>
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| **Cost** | - **ARS** is relatively inexpensive  
- is expensive |
| **Timeliness** | - **ARS** is quick to produce results; Ex ante  
- Slow to produce results: Ex post |
| **Frequency** | - Allow statistics to be collected more frequently  
- Takes relatively longer time for collection and processing |
| **Coverage** | - Almost complete coverage, reduces non response and no survey errors, provides for estimates for sub-populations  
- Subject to sampling errors which many a times not calculated, usually provide estimates at higher administrative levels |
| **Quality** | - **ARS** integrated with political system  
- *loss of independence/objectivity*,  
- Less room for “subjective intervention”. |
| **Comparability and Consistency** | - **May tend to stray from uniform standards**  
- Standards, concepts and definitions set by NSS; |
Administrative Reporting System for Agricultural Statistics

- A large number of countries depend on ARS for monitoring crop condition and livestock health
  - MOA are themselves main users and producers of data.
  - Data is immediately available for decision making
  - Simple to understand and compile with least cost.
  - The extension worker has the field knowledge to collect and report data
  - Information can be collected and/or is available for all units at the lowest administrative unit level

SDG monitoring will require disaggregated data at lower levels. ARS is ideally suited to provide details at that level subject to quality fit for purpose
Some examples of Administrative Sources for Agricultural monitoring

- Cadastral Maps and crop registers (India, Myanmar)
- Government lists farmers for specific crops (rice farmers in Vietnam and Sri Lanka)
- Booklet for other crops to be maintained by village level worker (Sri Lanka)
- Village diary/logbook maintained by village headman (Lao PDR)
Issues with use of ARS for agricultural statistics

• Issues impacting Quality of data
  – In developing countries, subjective data reporting against the program targets
  – Reporting agent (extension worker) and the unit for which data is collected (land holding/farmer) is not the same
  – Purpose underlying administrative source (monitoring) may differ from the purpose of statistical agency (estimation)
  – Inconsistency between different sources
    • MOA and NSO both collect data on same theme in some countries
    • Multiplicity of Agencies (NSO/MOA/Survey Department) and lack of coordination among them
  – Increasing mechanization leads to shorter time window for harvest and less time for organizing CCEs
    • Increasing non-response impacting quality of data
Case studies in selected countries
Lao PDR

System
• Village headman responsible for reporting data. No documentation exists on operational
data collection procedures. No standard format for data reporting across provinces
• Some times data is reported informally at weekly commune meetings
• Potential biases in the data reported because of administrative factors;
• No supervision of data collection activities

Issues
• No Instructions Manual for the village head on how to collect/report data and coordination
with other data collection/reporting activities (logbook system prescribed by NSO)
• No standardized system for data collection across provinces. Clarity lacking on
  – how the system operates, and what data are to be collected/reported,
  – the use of standard questionnaires and statistical reporting forms;
  – a timetable for data collection and reporting, and
  – the responsibilities of the various agencies involved in the reporting operation;
  – statistical concepts to be applied in the data reporting operation;
Sri Lanka

- **System**
  - Agricultural Research and Production Assistants (ARPAs) under M/o Agrarian Development report crop and livestock statistics.
  - Separate data collection system for rice and for other crops
  - For other crops, a booklet is maintained which is updated by ARPA based on his own subjective assessment on crop area coverage (about 60 crops) and livestock numbers.
  - Data is based on their own observation and discussion with farmers but no measurements are taken.

- **Issues**
  - Often land records on the area cultivated are not available with farmers.
  - For rice crop, separate listing of rice growing farmers. Chances of over reporting due to subsidy element
  - No methodology prescribed for data collection. Quality of data is unknown
  - There are 3 agencies involved with crop statistics (MOA, NSO and M/o Agrarian Development). There are issues of coordination between agencies at sub-national and national level
  - For livestock, two agencies responsible (NSO and Department of Animal Production and Health) and there are issues of conflicting livestock statistics
  - Crop cuts for yield estimation done only for rice crop.
Myanmar

• **System**
  - DALMS (earlier Settlement and Land Records Department) in the Ministry of Agriculture is responsible for agricultural statistics
  - Acreage Data collection through use of cadastral maps (Kwin maps)
  - Each field/parcel of land is identified by assigning survey numbers in the Cadastral maps
  - Area of the each survey number is known based on actual measurement
  - Revenue Surveyor (Field worker) provide with copy of the map for data reporting
  - Paddy, cotton and sugarcane data reporting every two weeks, 28 crops every month, 61 minor crops every 3 months. Besides, 7 annual yearbooks/statements covering rainfall, land use statistics, crops irrigated by source etc
  - Crop cutting Experiments for yield estimation

• **Issues**
  - No supervision of Quality of data
  - Digitization of land records only partial
India

• System
  • Pre-season forecasts based on econometric modelling
  • Weekly data reports by Extension worker
  • Seasonal data reports by provinces.
    – Data collection based on Cadastral maps.
    – A complete enumeration of all fields in every village in each season to compile land use, irrigation and crop statistics
  • In-season Remote sensing forecasts for major crops 2/3 times in a season
  • Four advance estimates based upon above reports
  • MOA coordinates collection, processing and dissemination of agricultural statistics at central level

• Issues
  • Time Lag
  • Quality of data
  • Conflicting data from various sources
  – Primary worker, Extension worker, Remote sensing for some crops
Best Practices for Improving ARS
Lao PDR

• Improving Operation procedures (Global Strategy)
  – Evaluate and document existing procedures.
  – Develop standard forms and procedures and pilot them in a district
  – Operationalize across all provinces

• Use audit Sampling to generate national and provincial estimates (ADB)
  – Conduct an audit survey (in about 10% sample villages) which is similar to post enumeration surveys for evaluating measurements surveys in complete enumeration process
  – Apply uniform concepts and definitions
  – Design and implement a questionnaire
  – Training of respondents and key informants in sampled villages
  – Comparative analysis of ARS and Audit survey results
Best Practices: Lao PDR Audit Sampling

- Select a probability sample of villages and use survey weights to derive provincial estimates
- Comparative analysis of ARS and Audit survey estimates at Province and National Level
- Work with Provincial offices to reduce measurement errors

Village summary statistics

District Summary

Province Summary

National Level Statistics
Best practices: India

• Improvements to the System
  • Timely Reporting Scheme for 20% of the villages to collect data on priority basis to enable advanced estimates
  • Basis for advanced estimates

• Scheme for Improvement of crop statistics (ICS)
  • Physical verification of Primary Worker data by an independent agency in a sub-sample of villages

• Remote Sensing to validate the field data for major crops
Forecasting Agricultural Output using Space, Agro-meteorology and Land based observations

Aims at providing multiple pre-harvest production forecasts of crops at National/State/District level

National/State forecasts:
- Kharif Rice
- Rabi Rice
- Wheat
- Winter potato,
- Rapeseed & Mustard
- Jute
Approaches to improve ARS

- **Structural Statistics on agriculture**
  - Ag census generally is main source

- **Current statistics**

- **Countries with Land Records/Cadastral maps**
  - Digitization of land records/cadastral maps
  - Use Statistical Quality Control to check/improve the quality of data
  - Validate data with other sources
  - Use sample surveys instead of complete enumeration for more precise estimates at national/provincial level

- **Countries with no Land Records/Cadastral maps**
  - Progressive adoption of Survey System to produce better quality data
  - Improve operational efficiency of Administrative Reporting Systems till such time surveys are not used
  - Use Statistical Quality Control to check/improve the quality of data
  - Use latest technological tools for data collection
Approaches to improve ARS

• Other aspects
  – Establish coordination mechanisms at sub-national levels to report harmonized data
  – Use small area techniques to build/improve precision of sub national statistics (crop insurance)
  – Use alternative sources of information to validate ARS data (Remote sensing, other surveys)
Key Conclusions

• Administrative sources will continue to be used for agricultural monitoring (cheap and quick to collect information).

• Need to introduce objectivity through adoption of statistical concepts for collecting information

• Global Strategy identifies improving ARS as an important area for research and is working to produce technical reports on the subject

• Countries also recognize the problem and are willing to invest in improving this data source
  – Increasing use of alternative independent sources for validating ARS data such as satellite imagery, crop forecasting, agro-met modelling in some countries
  – Digitization of Land records is a priority and could substantially enhance the quality of data
  – Use of Surveys in conjunction with administrative source
  – Use of small area methods to improve the precision of lower level estimates from ARS