Use of administrative records for agricultural statistics in developing countries

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Introduction

- Use of administrative data for statistical purposes very advanced in developed countries: Preconditions that enable NSOs to use admin sources for statistics production thoroughly studied.

- Far less is known about developing countries, particularly in agricultural statistics, even if a large proportion of official statistics rely on some kind of admin source.

- New SDG data requirements will entail a more intensive use of admin data.

- Launched a research programme on the use of administrative data for agricultural statistics in developing countries (jointly conducted by the Global Strategy to Improve Agriculture Statistics (GS), Makerere University (MU) and Iowa State University (ISU)).

- Key components: country assessment; proposals for methodological improvements; field tests (Tanzania, Namibia, and Cote d’Ivoire); preparation of guidelines and training materials.
# Main sources of current food & agriculture data in Africa

## PRODUCTION

### Main Sources of Data (%)

<table>
<thead>
<tr>
<th>Source</th>
<th>Census</th>
<th>Sample Surveys</th>
<th>Admin Records</th>
<th>Estimates/Forecasts</th>
<th>Special Study</th>
<th>Expert Opinions</th>
<th>Number of Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CROP</strong></td>
<td></td>
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</tr>
<tr>
<td>Crop production: Qty</td>
<td>13.3</td>
<td>62.2</td>
<td>11.1</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>45</td>
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<tr>
<td>Crop production: Value</td>
<td>13.2</td>
<td>36.8</td>
<td>23.7</td>
<td>21.1</td>
<td>2.6</td>
<td>2.6</td>
<td>38</td>
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<tr>
<td>Crop yield per area</td>
<td>9.8</td>
<td>70.7</td>
<td>4.9</td>
<td>14.6</td>
<td>0</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>Area planted</td>
<td>10.5</td>
<td>68.4</td>
<td>10.5</td>
<td>7.9</td>
<td>2.6</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>Area harvested</td>
<td>6.2</td>
<td>68.8</td>
<td>9.4</td>
<td>9.4</td>
<td>3.1</td>
<td>3.1</td>
<td>32</td>
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<tr>
<td><strong>LIVESTOCK</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Livestock production: Qty</td>
<td>11.4</td>
<td>38.6</td>
<td>27.3</td>
<td>22.7</td>
<td>0</td>
<td>0</td>
<td>44</td>
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<tr>
<td>Livestock production: V.</td>
<td>13.5</td>
<td>35.1</td>
<td>29.7</td>
<td>21.6</td>
<td>0</td>
<td>0</td>
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<td><strong>FISHERY</strong></td>
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</tr>
<tr>
<td>Fishery production: Qty</td>
<td>10</td>
<td>30</td>
<td>47.5</td>
<td>10</td>
<td>2.5</td>
<td>0</td>
<td>40</td>
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<tr>
<td>Fishery production: Value</td>
<td>11.1</td>
<td>25</td>
<td>47.2</td>
<td>16.7</td>
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<td>0</td>
<td>36</td>
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<tr>
<td><strong>FORESTRY</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest prod. Wood: Qty</td>
<td>5.9</td>
<td>11.8</td>
<td>55.9</td>
<td>17.6</td>
<td>5.9</td>
<td>2.9</td>
<td>34</td>
</tr>
<tr>
<td>Forest prod. Wood: value</td>
<td>7.1</td>
<td>14.3</td>
<td>53.6</td>
<td>17.9</td>
<td>7.1</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>Forest prod. nonwood: Qty</td>
<td>10.5</td>
<td>5.3</td>
<td>63.2</td>
<td>10.5</td>
<td>10.5</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Forest prod. nonwood: Value</td>
<td>12.5</td>
<td>6.2</td>
<td>62.5</td>
<td>12.5</td>
<td>6.2</td>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>
Large proportion of agricultural statistics rely on some kind of administrative source (prevalent source for statistics on livestock, fishery, forestry, land and water)

Reporting systems based on extension workers from Ministry of Agriculture

Data quality

Data usually collected and compiled not using standard statistical procedures and trained personnel

Documentation of data collection and processing methods is poor

Quality assessment is largely subjective

As a result, admin data are usually of poor quality and often diverge from survey data (for a number of reasons).
Low institutional and organizational capacity

- Extension workers have difficulties reaching the whole area of jurisdiction to collect data as they have several other responsibilities
  - data is only collected on an intermittent basis and information flows are delayed
- No independence from political authorities and no supervision from the National Statistical Agencies
  - data are not validated
- Reports by agricultural extension staff are based on data collection forms that lack standardisation
  - reporting errors and inconsistencies

Data processing, access & use

- Most admin data are not turned into usable information
- A large portion of admin data are not disseminated
- In most developing countries, admin data are only used to produce final statistical estimates
Main reasons for the use of admin data:

- Traditional system for data collection, low cost
- Low budget for statistics & high survey cost
- Low response rate in surveys
- Need for statistics at the lowest geographical level
- Need for statistics on rare events
- Need for timely data (i.e. for early warning and pre-harvest crop forecasting)
The 2030 Agenda: implications for agricultural statistics

- 19 multidimensional agricultural-related SDG targets
  - 25 global indicators, many new indicators, not produced by NSOs
- & substantial data gaps for monitoring agricultural-related SDG targets
  - Administrative data can contribute to produce 12 ag-related SDG indicators
- Ambitious agenda: i.e. not only reducing, but eliminating hunger (accuracy of indicators for values close to 0)
  - Administrative data can be combined with survey data to improve survey estimates
- Emphasis on monitoring inequalities within countries (need for highly disaggregated data)
  - Administrative data can be used to disaggregate survey estimates
Goal 2:

- **2.4.1** - % of agricultural area under productive and sustainable agricultural practices
- **2.5.1** - Number of plant and animal genetic resources for food and agriculture secured in either medium or long term conservation facilities
- **2.5.2** - % of local breeds, classified as being at risk, not-at-risk or unknown level of risk of extinction

Goal 5

- **5.a.1** - % of people with ownership or secure rights over agricultural land by sex;
- **5.a.2** - % of countries where the legal framework guarantees women’s equal rights to land ownership and/or control
Agricultural–related SDG indicators from admin data

Goal 14:

- **14.4.1** - % of fish stocks within biologically sustainable levels
- **14.6.1** - Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
- **14.b.1** - Progress by countries in adopting and implementing a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries
- **14.c.1** - Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in UNCLOS, for the conservation and sustainable use of the oceans and their resources
Agricultural-related SDG indicators from admin data

Goal 15:

- **15.1.1** - Forest area as a percentage of total land area
- **15.2.1** - Progress towards **sustainable forest management**
- **15.3.1** - Percentage of land that is degraded over total land area
- **15.6.1** - Number of countries that have adopted **legislative**, administrative and policy frameworks to ensure fair and equitable sharing of benefits
Improving admin agricultural data

Statistical production and dissemination

- Admin data can contribute to produce direct estimates of the SDG indicators (or of their components)
- Admin data in conjunction with other sources can be used to develop Sampling frames
- Admin data can be combined with surveys to provide disaggregated - local level statistics (small area estimation)
  - Example of Tanzania Ag. Routine data to be combined with USDA supported ag production survey to provide district level estimates
- Admin data can be combined with surveys to improve reliability of survey results (auxiliary var. at design and/or estimations levels) or to validate and correct the data generated by administrative sources (i.e. sample audit system).
Improving admin agricultural data

Administrative and Statistical processes

- Establish a legal framework underpinning the administrative data collection activity and governance issues.
- Make the agricultural statistics production process more objective and transparent through automation and digitization of processes.
- Revise admin forms and prepare manuals for data collection
- Establish unique identifiers for the statistical unit
- Introduce overlapping variables to establish linkages and creating integrating factors with survey data
- Train admin workers collecting data and strengthen control and supervision under the responsibility of the NSO
Improving admin agricultural data

Statistical Capacity Development

- SUBSTANTIAL SUPPORT NEEDED for improving the quality and use of admin agricultural data in developing countries:
  - Support to the improvement of the legal and admin framework
  - Support to the improvement of the statistical processes within the line ministries, collaboration with the NSO
  - Training on improved statistical methods
  - Technical assistance for the effective adoption of the improved statistical methods