Despite critical links between agriculture and economic development, agricultural statistics remain weak.

The World Bank and the Bill & Melinda Gates Foundation are collaborating to improve household surveys in Sub-Saharan Africa.

The project includes active dissemination of results and open access to data.

Agricultural development is an essential engine of growth and an effective mechanism for combating poverty and food insecurity for the rural poor in Africa.

The Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) project is an innovative household survey program established with funding from the Bill & Melinda Gates Foundation. It is implemented by the Living Standards Measurement Study (LSMS) program, housed within the Survey Unit of the World Bank’s Development Data Group. Recognizing that existing agricultural data in Sub-Saharan Africa suffer from inconsistent investment, institutional and sectoral isolation, and methodological weakness, the LSMS-ISA project collaborates with the national statistics offices of its partner countries in the region to design and implement systems of multi-topic, nationally representative panel household surveys with a strong focus on agriculture. The primary objectives of the project are to improve the availability and quality of smallholder agriculture data within a multi-topic framework and to foster innovation and efficiency in empirical research on the links between agriculture and welfare outcomes in the region.

The four basic tenets of the project are:

(i) integration of the surveys into existing national statistical systems to ensure project sustainability
(ii) a multi-topic framework featuring household, agriculture and community questionnaires that enable meaningful cross-sectoral policy analyses
(iii) analytical capacity building for local statistical office staff via hands-on training and technical workshops
(iv) active dissemination of new data, tools, and best practices to benefit researchers and survey practitioners.

The LSMS-ISA project also supports advancements in survey methods, including the use of new technologies and the development of analytical tools to improve data quality and data access. The results of the methodological validation exercises implemented by the project are disseminated in guidebooks and research papers that document best practices to guide future surveys and empirical efforts. The development of new tools increases the ease with which researchers can conduct complex analyses of household and agricultural data.

» Improving Household Survey Data on Agriculture in Sub-Saharan Africa

» Agricultural development is an essential engine of growth and an effective mechanism for combating poverty and food insecurity for the rural poor in Africa.
Improving Household Survey Data on Agriculture in Sub-Saharan Africa

A New Generation of Household Surveys on Agriculture

In each of its eight partner countries—Burkina Faso, Ethiopia, Malawi, Mali, Niger, Nigeria, Tanzania, and Uganda—the LSMS-ISA project supports multiple rounds of a nationally representative panel survey. The frequency of data collection is determined on a country-by-country basis, depending on data demand and the availability of complementary funding.

The overall sample design for each country emphasizes two aspects: the need for a nationally representative sample and the trade-offs between sample size and data quality. Depending on the country, samples may be representative of rural and urban areas, large administrative divisions, agro-ecological zones, and primary cropping systems. The ultimate sample size depends on the number of domains of inference in each country, relevant indicators, and related statistical calculations. Households and a sample of individuals that relocate after the baseline survey round are tracked to minimize sample attrition.

Multi-Topic Household Survey Design

While smallholder farming is the main income source for most rural households, agriculture comprises only one component of complex household income generating strategies. Diversification into non-farm activities among smallholders is the norm rather than the exception. Designing policies to improve agriculture and rural development therefore requires detailed analysis of the various livelihood activities of households.

The multi-topic approach of the LSMS-ISA surveys is designed to improve the understanding of the links between agriculture, household socioeconomic status, and non-farm income activities inter alia. As the surveys are integrated into existing statistical systems, the questionnaire design in each country strikes a balance between country specificity and cross-country comparability. Each survey includes a Household, an Agriculture, and a Community questionnaire.

- The Household questionnaire collects detailed socioeconomic information, including consumption expenditures, other dimensions of well-being such as education and health, as well as non-farm employment and income. Gender-specific information is also collected.
- The Agriculture questionnaire collects extensive information on smallholder farming, allowing for extensive agricultural productivity analysis through the diligent estimation of (i) land areas, (ii) labor and non-labor input use and expenditures, and (iii) production figures for main crops. The questionnaire also elicits detailed information about livestock and fishing activities.
- The Community questionnaire collects a wide range of information on community characteristics, such as physical infrastructure; access to public services, economic activities, organization and governance, and local retail price information for essential goods and services.

Methodological Validation and New Guidebooks

Survey data are subject to serious measurement problems; agricultural income and production data are no exception. Recognizing the critical need for methodological research in this area, the LSMS-ISA project provides a platform to validate several pressing measurement issues related to agricultural data, including:

- use of GPS for area measurement and its implications for productivity estimates
- measurement and valuation of crop production and income, including better quantification of continuous and extended-harvest crops
- direct measurement of soil fertility, including ground-truthing of satellite-based remote sensing data
- measurement of household labor inputs in agriculture and implications for agricultural productivity measures
- measurement of the availability and quality of water resources, including farmers' adaptations to climate and weather variability

The project actively disseminates the results of its research through methodological papers and guidebooks, in order to provide guidance to statistical agencies, researchers, and practitioners on questionnaire design and survey implementation.

Using Technology to Improve Survey Data Quality

The LSMS-ISA project integrates new technology into all aspects of data collection. GPS technology is used to map households and to measure agricultural plot areas, enabling the linking of household survey data to other geo-referenced data sources. The project also supports the development and use of Survey Solutions, a Computer Assisted Personal Interview (CAPI) platform to replace paper questionnaires with electronic interviewing, for the purpose of improving the quality and timeliness of the collected data. Visit the Survey Solutions website at www.worldbank.org/capi to learn more about this free CAPI software, which offers a cost-effective, sustainable solution for conducting complex, large-scale surveys.

Open Data

The LSMS-ISA project is committed to providing timely and open access to data. The microdata produced under the project is fully documented and publicly available within 12 months of the completion of each survey round. Data are disseminated via each country’s statistics office website, as well as on the LSMS website and the World Bank’s Microdata Library site. Additionally, to increase the accessibility of data to policymakers and stakeholders, LSMS-ISA supports the development of modules of the ADePT software (www.worldbank.org/adept) to produce standardized tables and graphs on agriculture and livestock.
Country Progress

As of January 2017, details of the national survey programs are as follows:

<table>
<thead>
<tr>
<th>Country</th>
<th>National Partner</th>
<th>Survey</th>
<th>Sample +</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALI*</td>
<td>Cellule de Planification et Statistique and National Institute of Statistics</td>
<td>Enquête Agricole de Conjoncture Intégrée aux conditions de vie des ménages</td>
<td>3,804 households</td>
<td>Round 1: 2014, Round 2: 2017 (Forthcoming)</td>
</tr>
<tr>
<td>BURKINA FASO</td>
<td>Institut national de la statistique et de la démographie</td>
<td>Enquête Multisectorielle Continue</td>
<td>3,968 households</td>
<td>Round 1: 2014, Round 2: 2017 (Forthcoming)</td>
</tr>
</tbody>
</table>

* indicates # of panel households at baseline; in Nigeria, Malawi and Ethiopia, the panel survey baseline is part of a cross-sectional effort of larger sample size.

** The sample was increased to 5,262 households in Round 2 to include urban areas.

The LSMS-ISA project recognizes the need to balance customization with cross-country comparability, maintaining international survey standards while addressing country-specific policy concerns.

Contact Information

For more information on the LSMS and LSMS-ISA programs, visit www.worldbank.org/lsms or contact us at lsms@worldbank.org.

Access the data and documentation at www.worldbank.org/lsms or microdata.worldbank.org (search for ‘LSMS’).

To learn more about the World Bank’s Development Data Group, and for free and open access to global development data, visit data.worldbank.org.