

**50x2030**

DATA-SMART AGRICULTURE

# **PRODUCING, USING, INNOVATING: HOW 50x2030 IS CLOSING THE AGRICULTURAL DATA GAP**

DRAFT FOR INTERNAL DISCUSSION

This version: April 20, 2020

## Table of Contents

I. Introduction	3
II. Data Production Under the 50x2030 Initiative	8
III. Data Use	13
IV. Methods & Tools Development	16
V. References	18
VI. Annexes	19
Annex I. Production of SDG Indicators under the 50x2030 Initiative	19
Annex II. Production of CAADP Indicators under the 50x2030 Initiative	20
Annex III. Additional Data Topics and Indicators	21

DRAFT

# I. Introduction

The 50x2030 Initiative to Close the Agricultural Data Gap aims to empower and support fifty low and lower-middle-income countries (L/LMICs) to build strong national data systems that produce and use high-quality, timely agricultural survey data. Effective investment and policy-making directed at agriculture and poverty require an evidence-based foundation. In many L/LMICs, limitations in the scope, quality, and frequency of agricultural data severely constrain the effective planning, financing, and implementation of agricultural development policies. The gap in agricultural data in these contexts may lead to sub-optimal policy design which may result in failure to adequately address hunger and poverty. The 50x2030 Initiative addresses these problems with the goal of promoting evidence-informed decision-making, especially to achieve Sustainable Development Goal 2 – Zero Hunger – among partner countries. Embedded in the Initiative, through its emphasis on capacity building and country partner ownership, is a significant contribution to SDG Indicator 17.18, which aims to “enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data.” The value of the Initiative extends well beyond these two indicators, enabling the monitoring of additional indicators and in-depth analysis.

To close the agricultural data gap, the 50x2030 Initiative supports a flexible survey system which facilitates (i) computing Sustainable Development Goals and regional indicators (e.g., Comprehensive Africa Agriculture Development Programme (CAADP) indicators; see Annex I for details), (ii) timely reporting of national statistics and production monitoring, (iii) provision of high quality, integrated data for analysis and informed policymaking. The system builds on the experience of the FAO’s Agricultural Integrated Surveys Programme (AGRISurvey) and the World Bank’s Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA) programs and, just like those programs, is designed to be an integral part of national statistical systems.

At the core of the Initiative is a Data Production component, which will support the design and implementation of national data collection activities. This component is supported by a Methods and Tools Development and a Data Use component. The Methods and Tools Development component is directed at ensuring that the Initiative promotes and incorporates innovation in data collection and utilizes and develops cost effective data collection methods. The Data Use component aims to ensure that the data collection efforts supported by the Initiative are informed by policy needs, and that -once available- the data are effectively used for decision making.

This document provides an overview of the 50x2030. Part I provides a description of the Initiative’s objectives and structure while Part II describes the main thrust of the activities under the three components of the Initiative: Data Production; Methods and Tools Development; and Data Use. Comparatively more attention is devoted to the Data Production as this will comprise the bulk of the Initiative’s activities and budget.

## A. Objectives of the 50x2030 Initiative

The primary objectives of the 50x2030 Initiative are to **increase evidence-based decision making** in agriculture by empowering 50 L/LMICs to **build sustainable and strong national data systems** that produce and use **timely, high quality agricultural and rural data** through survey programs using **sound and cost-effective survey-related methods and tools**.

The vision of the 50x2030 Initiative includes, but extends beyond, the regular production of official agricultural statistics, such as aggregate crop and livestock production estimates. The Initiative produces data necessary to monitor the indicators of the Sustainable Development Goal 2 (Zero Hunger) that can be derived from survey data (2.3.1, 2.3.2, and 2.4.1), as well as other international, regional (i.e., CAADP), and national indicators. The system can also cater to the collection of seasonal or intra-annual agricultural data, for monitoring and forecasting for example, when that is a priority.

To meet data needs for policymaking, the 50x2030 system goes beyond the traditional agricultural statistics by integrating economic, social, technical and environmental themes and rural development indicators to allow for analysis of the drivers of productivity and linkages between socio-demographic characteristics, management

practices, and productivity, among other policy-relevant relationships. Among the economic aspects covered are costs of production, marketing and finance practices, and productivity and farm income. In the socioeconomic domain, the system collects data on education, living conditions of people engaged in farm activities, intensity of agricultural activities, off-farm activities, and household income. Technical aspects are captured in data on farming practices which is collected jointly with data about technical assistance and sources of information. Data on environmental issues related to agriculture are covered, such as conservation measures, waste management, the use of communal resources, and adaptation to climate change and mitigation strategies, among other aspects.

Special attention is given to gender issues in the 50x2030 framework. Sex-disaggregated data are produced for relevant aspects, from ownership of assets to the decision-making process related to agricultural production and disposition, and SDG Indicator 5.a.1.

The minimum set of data to be produced from the 50x2030-supported survey programs will include the following Indicators of the Sustainable Development Goal agenda (refer to Annex I for more detail):<sup>1</sup>

2.3.1	Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size
2.3.2	Average income of small-scale food producers, by sex and indigenous status
2.4.1	Proportion of agricultural area under productive and sustainable agriculture
5.a.1 (a)	Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex <sup>2</sup>
5.a.1 (b)	Share of women among owners or rights-bearers of agricultural land, by type of tenure

Eight key principles guide the activities of the 50x2030 Initiative, with the aim of efficiently and effectively achieving the Initiative's above mentioned objectives. The following interrelated principles are pervasive throughout the 50x2030 system, from survey design to data collection to data use.

**Data Quality** – The basic underlying principle of the 50x2030 initiative is data quality. Data of low quality may result in insufficient or incorrect policy guidance, and therefore, quality is of utmost importance. The quality of survey data depends on questionnaire design, sample selection, implementation methods, and other facets of the survey process. The 50x2030 questionnaire instruments have been designed based on existing methodological evidence and previously tested instruments to minimize bias from questionnaire design. Guidance on sample design and selection is provided to address potential quality limitations resulting from sampling. Most importantly, capacity building for staff in national statistical systems is prioritized in the 50x2030 Initiative in order to enhance quality across all phases of the survey process.

**Cost-Effectiveness** – The Initiative is designed with consideration for the heavy burden faced by national statistical systems. The need for comprehensive, high quality data to inform national policies is balanced with the practical need for cost-effective implementation. To maximize cost-effectiveness, the 50x2030 questionnaire instruments have been designed to collect data at the

<sup>1</sup> Data for each of the mentioned indicators must be collected at least once during the period of 50x2030-supported implementation.

<sup>2</sup> If the sampling universe is appropriate, the survey can produce the related SDG 1.4.2 Indicator - Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure.

necessary level for quality data, and not overly disaggregated, while also emphasizing the rotation of questionnaire topics over time so as to not collect data more frequently than necessary. Optional extensions are made available for countries that are able to invest more in high quality data for certain topics (for example, objective yield measurement).

**Data Disaggregation** – The Initiative is committed to supporting the collection of adequately disaggregated and high-quality micro-data. A special focus is disaggregation by gender, including of the Initiative’s priority SGD indicators, to inform policy to foster gender equality. The 50x2030 survey tools are designed to enable reporting and analysis of rights to and ownership of land, financial and physical assets, as well as intra-household decision making and control over production and use of income.

**Comprehensive Coverage of Agricultural Producers** – The 50x2030 Initiative provides a comprehensive view of the country’s agricultural activities. It is designed to cover crop and livestock activities for both the household sector and the non-household sector, as well as fishery and forestry activities for those involved in crop or livestock production. The Initiative defines *agricultural holding* in line with the definition put forth by World Programme for the Census of Agriculture 2020 - WCA 2020 (FAO, 2015). Consistent with this, the target population comprises small, medium and large holdings of the household sector as well as all holdings of the non-household sector such as those managed by corporations, cooperatives, government institutions, etc. The sampling frame(s) and sample design ensure such coverage. In addition to capturing the full range of crop and livestock producers<sup>3</sup>, 50x2030 data collection efforts collect data for *all* relevant crops and livestock types for the given context, not only the primary products.

**Integration** – A guiding principle of the 50x2030 Initiative is integration: integration of agricultural data collection for both the household and non-household sectors, integration of socio-economic data with agricultural data, integration of agricultural and non-agricultural households, and integration of survey data with other data sources. The resulting data goes beyond the production of traditional agricultural statistics, allowing for the analysis of drivers of productivity and the interaction of socio-economic characteristics of the rural population, agricultural production methods, off-farm activities, and the environment with agricultural activities, amongst others. Ultimately, integration of survey samples and topics of data collection allows for agricultural and rural analyses, increasing the value of agricultural data exponentially beyond basic production indicators.

**Sustainability** – The Initiative is designed to support a long-term survey programme, with data collection year after year and continuous capacity building. The survey is envisioned to be integrated into the national statistical program, rather than being a standalone effort. This includes progressive financial take-over by partner countries as well as development and maintenance of an infrastructure of staff capacity in national statistical systems.

**Innovation** – Related to the principles of cost-effectiveness and data quality, the 50x2030 Initiative strives to make use of technological and methodological innovations that improve the quality of agricultural survey data while maintaining implementation feasibility. The Methods & Tools Development component of the 50x2030 Initiative is tasked with validating improved methods of data collection. Validated methods that have been shown to be scalable to national level

---

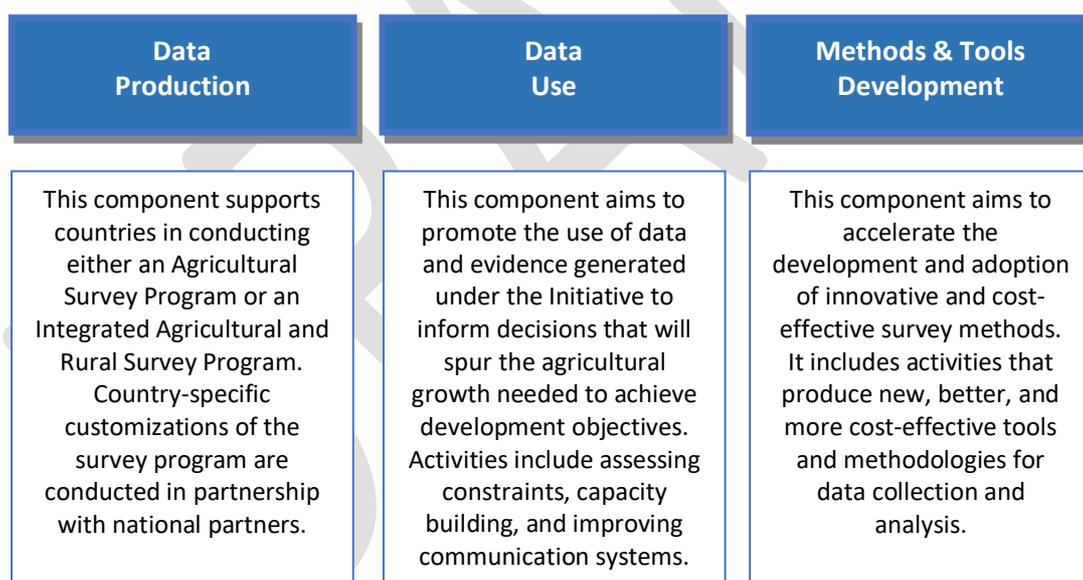
<sup>3</sup> The 50x2030 system is not designed to capture nomadic farming. Nomadic farming is a specific case which requires an appropriate stand-alone survey, such as that described in GSARS (2016a).

surveys have been integrated into the design of the 50x2030 questionnaire instruments, which will continue to evolve as new technologies are developed and validated.

**Open Data & Dissemination** – Special attention is given to access and use of the data collected under the 50x2030 Initiative. Open access to the anonymized microdata and related documentation, a key principle of the Initiative, maximizes the use and value of the data. Additionally, preparation of tabulation plans and construction of a calendar of dissemination and analytical products (bulletins, reports, etc.) as part of the survey preparation phase, coupled with technical capacity building, supports national statistical systems in delivering agricultural indicators and other products in a timely manner, to best inform national policy. Given the importance of open data, dissemination, and data usage, a component of the 50x2030 Initiative is dedicated to Data Use.

## B. Structure of the 50x2030 Initiative

The 50x2030 Initiative, a holistic program covering the full scope of the data cycle, is made up of the following three components. The **Data Production** component, coordinated by FAO, the **Data Use** component, coordinated by IFAD, and the **Methods & Tools Development** component, coordinated by the World Bank. Together, and with oversight from a Partnership Council, and direct coordination from a Program Management Team, these components support country partners in meeting the objectives described above. More detail on each of the 50x2030 components is included in Parts II, III, and IV of this document, respectively.



## C. Partner Country Engagement

National partners will be the owners of the implementation process from the beginning. The support of 50x2030 Implementing Partners is, therefore, tailored to meet the needs of each individual country's data and capacity development needs, data user demands, and existing survey programs. Technical support is provided for all phases of the survey cycle, including but not limited to identification of data needs, questionnaire customization, sample design, enumerator training, final data curation for dissemination, and data analysis. For each country, this tailored support is expected to result in the following minimum deliverables:

- an **assessment of agricultural data needs** which takes into account national and regional data needs, the minimum set of core agricultural data<sup>4</sup> and SDG monitoring requirements;
- a **strategic plan** for the implementation of the country's agricultural survey program addressing the country's specificities and capacity development needs, in line with existing national statistical strategic plans;
- **implementation of several annual survey rounds** (at least two will be supported by the Initiative);
- the **dissemination of fully-documented, anonymized micro-data** for each conducted survey round.

In line with the Initiative's principle of sustainability, critical additional deliverables of the Initiative are a **progressive technical takeover** of the data production activities by the national statistical system, and a **progressive financial takeover** of the resources necessary to sustain the survey system.

### i. Engagement Process

The process for providing assistance to countries will be organized across the data production cycle. Activities will be initially planned in each participating country for a period of 5 to 8 years, depending on the statistical capacity in the country. Because of the differences in technical and resource capacities of the partner countries, there will likely be large differences between the amount of resources needed across countries. Countries with an existing regularly administered agricultural survey program will likely receive 5 to 6 years of support, while countries that have a more irregular agricultural survey program will likely receive 7 years of support. Countries that do not conduct any agricultural surveys will likely have greater resources needs and will benefit from 8 years of support. The support starts with 1-2 years of preparation (governance, planning, administrative and technical preparation, trainings, piloting, and planning for financial and technical takeover), followed by 3-4 years of intensive support for annual data collection, processing and dissemination, plus 1-2 years of phase-out, which will include further support to data collection, processing and dissemination, capacity development as required, and administrative and financial preparation for the years following the end of the technical assistance. Potential areas of support are identified in Box 1.<sup>5</sup>

Before initiating any data collection activities, an assessment will be carried out to better understand the existing governance structures in statistics, the status of the official agricultural statistics in the country as well as the availability of statistics generated by multi-topic household surveys, the data dissemination policy, strategies and development plans

## TECHNICAL ASSISTANCE

### Survey Design

Assessing country needs, priorities and capacity

Developing a national customized program

Developing customized questionnaires

Conducting a pilot test survey

### Sampling

Developing Master Sampling Frames (MSF)

Developing sample design and estimation procedures

### Data collection

Preparing data collection instruments

Training supervisors and enumerators

Managing and controlling the field work

### Data Processing and Dissemination Support

Processing and cleaning data, including imputation procedures

Preparing tabulation plans

Producing and disseminating aggregate data and reports

Producing and disseminating anonymized microdata and metadata.

### Technology

Using GIS information for survey purpose

Using computer-assisted interviewing

Employing GPS and geo-referencing in surveys

BOX 1. POTENTIAL AREAS OF 50x2030 TECHNICAL ASSISTANCE

<sup>4</sup> 2012 Action Plan of the Global Strategy to Improve Agriculture and Rural statistics  
<http://www.fao.org/docrep/016/i3082e/i3082e.pdf>

<sup>5</sup> Technical assistance is tailored to the country needs. Areas of technical assistance are defined for each country at the beginning of the collaboration and periodically reassessed with the implementing partners.

available. The assessment phase builds on capacity assessments already available and starts with a desk review of the documentation, methodologies, questionnaires (if relevant) conducted remotely and continues at country level, with one or more inception missions. In countries where the Strategic Plan for Agricultural and Rural Statistics (SPARS)<sup>6</sup> was not conducted, the preparation work may start based on prioritisation exercises, that is, with data users – producers’ workshops. The organisation of workshops between the data users and producers is developed jointly with the Data Use Component to identify the priority data needs in the country. The Initiative leverages existing good practice from PARIS21 to build policy responsive data systems, which is articulated around the Advanced Data Planning Tool (ADAPT)<sup>7</sup> and engagement strategy.

Throughout the engagement, and in working towards the above mentioned deliverables, countries participating in the Initiative are expected to embrace the principles of the Initiative (outlined above). This requires that partner countries dedicate the staff required for management of the survey.

## II. Data Production Under the 50x2030 Initiative

### A. 50x2030 Integrated Survey Programs

The 50x30 Initiative promotes an integrated approach to the agricultural survey system. At the level of data collection, the system is integrated along two dimensions: first, integration of the household sector and the non-household sector, and second, integration of socio-economic and environmental data with agricultural data.

Integration of data collection for the household sector and the non-household sector ensures that a country’s entire agricultural sector is covered in a consistent fashion. Integration of socio-economic and environmental data with agricultural data ensures the program goes beyond the production of traditional agricultural statistics. It allows for the analysis of drivers of productivity and the interaction of households’ socio-economic characteristics, agricultural production methods, off-farm activities, and the environment with agricultural activities, amongst others, speaking to the needs of different data users. Altogether, the integrated approach greatly increases the value of agricultural data beyond basic production of macro-indicators.

Beyond comprehensive coverage of agricultural producers and added analytical value, integration also increases the efficiency and cost-effectiveness of the agricultural survey system, ensuring concept standardization, coherence of results, resource sharing, and optimization of field as well as desk work. Collecting data from the same sample and in the same operation means getting more information at a lower cost.

The 50x2030 survey program achieves integration through a comprehensive sampling frame, representative both of the household and the non-household sectors, and through a set of best-practice survey tools which are administered as part of a modular survey system and cover the relevant topics in an efficient manner. The program is built around an annual core module which covers agricultural production, and rotating modules covering specialized topics. The two variations of the survey program supported by the 50x2030 Initiative, the Agricultural Survey Program and the Integrated Agricultural and Rural Survey Program, are described in what follows. The 50x2030 technical paper “A Guide to the 50x2030 Data Collection Approach: Questionnaire Design” (2020) presents the survey programs and tools developed by the Initiative in detail.

---

<sup>6</sup> SPARS is a long term strategy to improve agricultural and rural statistics at the national level. It is a building block of the National Strategy for the Development of Statistics (NSDS) with the aim of understanding the impact of agricultural policy on statistical priorities, identifying data needs gaps, deficiencies, duplications and inconsistencies, and defining future short and long-term statistical programs and interventions.

<sup>7</sup> For information on the ADAPT tool, visit: <https://paris21.org/advanced-data-planning-tool-adapt>

### i. Agricultural Survey Program

The 50x2030 Agricultural Survey Program covers a country’s full agricultural sector, whether in rural or urban areas, sampling both household and non-household farms. It has a modular approach built around an annual core module (CORE), collecting data on production (crop, livestock, aquaculture, fishery, and forestry production) and on other key agricultural variables needed on an annual basis. A set of rotating modules covers vital socio-economic and environmental variables. These contain topics such as production costs; agricultural income; labour and productivity; gender decision-making in agriculture; production practices and environmental aspects of farming. These specialised tools are administered at lower frequencies. Its flexible modular approach creates a survey system that can respond to emerging demands at regional, national, or international levels. The Agricultural Survey Program is presented in Figure 1, though the implementation sequence may be altered according to country needs.

FIGURE 1. EXAMPLE OF THE 50x2030 AGRICULTURAL SURVEY PROGRAM

Years	1	2	3	4	5	6	7	8	9	10
Core Agricultural Module	■	■	■	■	■	■	■	■	■	■
Farm Income, Labor, and Productivity	■			■			■			
Production Methods and Environment		■			■			■		
Machinery, Equipment, and Assets			■			■			■	

### ii. Integrated Agricultural and Rural Survey Program

The 50x2030 Integrated Agricultural and Rural Survey Program expands the scope of the Agricultural Survey Program, integrating a household-based survey with the farm-based agricultural survey. The Integrated Agricultural and Rural Survey Program follows the same logic as the Agricultural program but incorporates a household survey tool and broadens the target population with a sample of rural non-agricultural households (as illustrated in Figure 2. Within a country’s statistical system, this integrated program, by combining agricultural and household surveys, produces richer data, increases data interoperability, and generates additional cost-efficiencies. The household survey tool (ILS-HH) covers socio-economic topics like off-farm income, employment, education, and welfare, offering a full picture of rural livelihoods. It allows understanding, on the one hand, the drivers and dynamics of rural development, structural transformation, and its linkages with agriculture; and on the other hand, the linkages between agricultural productivity and income with aspects of welfare and livelihoods, such as educational outcomes, non-agricultural income, and shocks and coping.

FIGURE 2. EXAMPLE OF THE 50x2030 INTEGRATED AGRICULTURAL AND RURAL SURVEY PROGRAM

Years	1	2	3	4	5	6	7	8	9	10
Core Agricultural Module	■	■	■	■	■	■	■	■	■	■
Farm Income, Labor, and Productivity	■			■			■			
Production Methods and Environment		■			■			■		
Machinery, Equipment, and Assets			■			■			■	
Non-Farm Income and Living Standards	■			■			■			

Both programs supported by the 50x2030 Initiative are designed such that they enable the production of the required SDG indicators according to their recommended time frame. The programs are tailored to countries’ contexts and existing statistical infrastructure. Countries shape their specific work plans for their survey system, including frequencies of modules, depending on their priorities, data needs, existing statistical infrastructure, and available resources.

### iii. Survey modules and data output

**CORE-AG:** The core agricultural module is the basic component of the survey programs, which is administered annually. It covers holding and holder characteristics, crop planting, production, and destination; agricultural parcel and plot area and use; input use (seeds and fertilizers, chemicals etc.); livestock numbers and production; aquaculture, fishery, and forestry production; land use and labour use of the holding.

**ILP-AG:** the Farm Income, Labor, and Productivity module focuses on income, labour and productivity data collection. It includes questions related to costs for agricultural production, farm expenses, agricultural income, labour inputs, land tenure, gender dynamics in agriculture and drivers of agricultural productivity.

**ILS-HH:** the Non-Farm Income and Living Standards module captures socio-economic information about agricultural and non-agricultural rural households and their members. The ILS-HH is a lean multi-topic household survey questionnaire covering education, labour and time use, food security and nutrition, housing conditions, shocks and coping, household enterprises, and other household income.

**PME-AG:** The Production Methods and the Environment module focuses on farming practices and environment, covering energy use, land use, soil conservation methods, irrigation methods, animal reproduction methods, veterinary products used, organic farming, agroforestry, adaptation to climate change, and hazards.

**MEA-AG:** The MEA instrument captures information about the use of assets, machinery, and equipment in the agricultural sector.

The 50x2030 Initiative survey tools allow the production of a wide range of data. They provide inputs into the calculation of many relevant statistics and indicators about the agricultural and rural sectors while seeking to meet the needs of a variety of users. The tools presented in this section allow for the computation of the 50x2030 priority SDG indicators: 2.3.1, 2.3.2, 2.4.1, and 5.a.1. The survey instruments also address several CAADP indicators, including 2.4, 3.1i, 3.1ii, 3.1vi, 3.2iii, and 4.3, and can be adapted and expanded to include national priority indicators as well as additional SDG indicators. Refer to Annex I and Annex II for more detailed coverage of SDG and CAADP indicators, respectively.

In addition, the system allows and encourages the inclusion of specialized instruments and extensions, like crop-cutting, the inclusion of a consumption section to measure poverty at the household level or any other set of question for specific purposes. For example, a set of additional questions to compute the agricultural component of the indicator SDG 1.5.2 – *Direct economic loss attributed to disasters in relation to global GDP* and 12.3.1 - *Global Food Loss and Waste* are under development.

A more detailed list of the main data topics produced by the 50x2030 survey programs is found in Annex III. For a more detailed discussion of the questionnaire instruments and their implementation, refer to the technical paper “A Guide to the 50x2030 Data Collection Approach: Questionnaire Design” (2020).

### iv. Data collection

The Initiative’s Data Production component will assist countries in customizing the data collection tools, sampling approach and sampling frames, and survey program timeline. This includes development of customized questionnaires and manuals, based on the 50x2030 reference survey instruments, cognitive and pilot tests, sampling design and training of field staff. The Initiative promotes the use of Computer Assisted Personal Interviewing (CAPI) technologies for data collection and provides support to shift from paper questionnaires to this mode of data collection. To this end, the 50x2030 reference questionnaires will be available in the World Bank’s Survey Solutions CAPI platform which is being further developed under the Methods and Tools Component.

The Initiative prioritizes coverage of indicators and data needs from partner countries, and also from the international and regional monitoring frameworks (e.g. SDG or CAADP indicators). Additionally, the Initiative promotes the production of updated agricultural emerging data requirements on economic, social and environmental aspects, including gender-relevant data.

Staff from participating countries will be responsible for data collection in face-to-face interviews, but the Initiative's Data Production staff will support data collection with a careful revision of the paper and/or CAPI questionnaires and manuals and by participating in the enumerator training and supervision. During the process and analysis steps, a significant effort is made in building capacity to clean and validate the data and prepare them for tabulation and dissemination. The Data Production team collaborates closely with national partners during the data processing and production of the statistical report, starting with the development of an agreed tabulation plan, which is executed by the national counterpart with the input of the team. The Initiative promotes the adoption of a participatory approach during the report-writing phase to ensure the involvement of the data user community and guarantee that the generated statistics are useful and used at a later stage.

#### **v. Data curation and dissemination**

The 50x2030 Initiative aims to make statistics accessible to the public in formats that ensure greater readability, usability, interoperability, and findability of the data. In line with the overall country data dissemination strategies in statistics (if available), the Data Production team provides support to improve the existing dissemination policies and programs, helping to ensure dissemination programs become part of national institutional processes.

The Data Production team supports countries in the setting-up of tabulation plans and dissemination programs for both macro- and microdata. The 50x2030 Initiative promotes the adoption of standardised digital dissemination formats (e.g., SDMX and DDI) and tools (e.g. open data technically compliant platforms and NADA). Technical support on issues such as data curation, data documentation, data preservation, data anonymization, and data dissemination will be provided through around technical workshops and retreats led by experts from the implementing partners, FAO, IFAD, and the World Bank.

The release calendar for agricultural statistics will be country-specific. To the extent possible, the Initiative promotes the dissemination of timely seasonal agricultural statistics (if relevant and available) and statistics for the entire agricultural year. The data should be disseminated within 6-12 months after data collection is completed. The dissemination of key findings will take place in one or more workshops and target the broad data user/producer and donor communities.

Micro-data will be made available through FAO's recently launched Food and Agriculture Microdata (FAM) catalogue as well as the World Bank's Microdata Library.<sup>8</sup> Links to national catalogues are also provided so users can reach the contact of the data producing agency.

### **B. Sampling Considerations**

A cost effective sampling strategy is proposed for the survey program to fulfill requirements for the production of reliable and integrated data in a sustainable way. The strategy takes into account the main features of the sampling methods adopted by the FAO's AGRISurvey Programme and the World Bank's LSMS-ISA survey program. Countries should consider carefully the design of their samples as the scope of the survey program goes beyond the one of the traditional agricultural or household surveys.

#### **i. Target populations & frames**

The target populations of the survey program are (i) all households in rural areas and (ii) all agricultural holdings in the country. The Integrated Agricultural and Rural Survey Program covers all households in rural areas and all

---

<sup>8</sup> FAO's Food and Agriculture Microdata Catalogue: <https://microdata.fao.org/>; World Bank's Microdata Library: <https://microdata.worldbank.org/>

agricultural holdings (whether urban or rural, household or non-household sector), while the Agricultural Survey Program considers only agricultural holdings.

Following the recommendations of the FAO World Census on Agriculture 2020, two types of agricultural holdings are considered: (i) holdings in the household sector and (ii) holdings in the non-household sector. In the household sector, agricultural holdings are holdings operated by members of agricultural households. Agricultural households are households operating agricultural holdings for their own account (either for sale or for own consumption). Agricultural holdings in the non-household sector are operated by non-household entities including corporations, government institutions like research institutes, farmers cooperatives, institutional households (hospitals, schools, prisons, religious institutions etc.) and non-profit institutions. Holdings operated by households with large/modern farms or specific agricultural activities, for which income and expenditure flow from agricultural activities can be separated from the other household activities, can be also considered part of the non-household sector when registered (considered as *registered quasi-corporations*).

A suitable master sampling frame for the 50x2030 survey program is a multiple frame composed of (i) the list of all agricultural and non-agricultural households in rural areas, (ii) the list of urban agricultural households and (iii) the list of agricultural holdings in the non-household sector. A complete list of agricultural and non-agricultural households in rural areas and urban agricultural households can be established from the population and housing census, provided it includes items on labour that identify own-account agricultural production. In case the most recent census data are considered obsolete (outdated because of various changes in the population since the census implementation time), a new household listing will be necessary. The consideration of the population of urban agricultural households is optional depending on the importance of urban agriculture in the household sector in the country.

To build the frame for agricultural holdings in the non-household sector, the starting point is using business registers of farms including the national business register and informal business registers of farmers' organisations and making efforts to handle the probable large overlap between them. In addition, all other relevant registers should be considered including the list of government institutions (agricultural research centres, schools, hospitals, prisons etc.) and non-government organisations operating farms. For the specific case of the Agricultural Survey Program, a multiple frame consisting in an area frame and two list frames (landless holdings raising livestock and large commercial agricultural holdings) is an alternative to the recommended sampling frame.

## **ii. Sampling designs**

Stratified two-stage sampling design is recommended for the household sector. The Primary Sampling Units (PSU) are enumeration areas (EAs) from the population and housing census. The PSUs should be stratified and in each stratum, a sample of PSUs is drawn with probability-proportional-to-size (PPS) (without replacement). The measure of the size of the PSUs (EAs) is usually the number of households (agricultural households for the Agricultural Survey Program) within that enumeration area. The Secondary Sampling Units (SSU) are households. Within each sampled PSU, a sample of SSUs is to be selected by means of stratified simple random sampling (or systematic sampling) without replacement.

A stratified one-stage design is usually suitable for the holdings in the non-household sector. The stratification criteria may be the agricultural production systems (crop/livestock/mixed) or another ad-hoc typology. This design is also suitable in most cases for urban agricultural households and landless holdings raising livestock.

The calculation of the sample size based on the precision of key variables of interest is necessary in each estimation domain. In the specific case of the Integrated Agricultural and Rural Survey Program, the households' sample size must ensure a reliable estimation of the key household-related variable – income – in the population of rural households and reliable estimation of the agricultural area from the subpopulation of agricultural households. In the framework of two-stage sampling design, to maintain control on the final sample size by household type

(agricultural and non-agricultural) it is recommended to make a first level stratification and allocation of the EAs in terms of the proportion of agricultural households in each of them.

### **iii. Sub-sampling for objective measures**

Sub-sampling can be used as a cost-effective strategy for various purposes. Sub-sampling can be useful, for instance, for information for which reliable estimations are needed only at the national instead of subnational level and whose collection is costly and/or associated with high respondent burden. In the 50x2030 Initiative, sub-sampling is considered a viable option for implementing crop cutting and collecting farm level post-harvest loss data, for example, when full-scale implementation is not possible. Sub-sampling can also be a practical strategy for the inclusion of other objective measures on key variables such as soil health or crop variety.

### **iv. Longitudinal data collection option**

While the standard 50x2030 survey programs are designed as repeated cross-sectional surveys, partner countries may elect to modify the program to collect longitudinal data. Longitudinal data offers several analytical advantages stemming from the observation of the same holdings, households, and individuals over time. There are three alternatives regarding the samples for repeated surveys such as those supported by the 50x2030 Initiative: (i) selecting a new sample every year (repeated cross-section), (ii) using the same sample for a number of years (panel), or (iii) maintaining a portion of the sample from one year to another and drawing a partial new sample (partial rotation). There are advantages and tradeoffs to each approach. Use of the repeated cross-section approach, for example, generally requires the need for a new listing operation to update the sample frame each year. The panel approach, on the other hand, requires tracking operations to locate survey respondents from year to year, and may eventually suffer from limited representativeness due to attrition and/or structural changes in the population. A partial rotation approach may be used to mitigate the issues of representativeness in panel surveys while also reducing the extent and cost of listing. The Data Production team will collaborate with partner countries who wish to explore the possibility of implementing the 50x2030 program in a longitudinal fashion, by relying on the decade-long experience of the LSMS-ISA panel data collection as the basis for considering and implementing such feature.

## **C. Capacity Development**

The expected result of capacity development activities undertaken by the Initiative is the achievement by partner countries of the full suite of technical expertise necessary to operate agricultural and rural survey operations independently and sustainably. This encompasses all stages of the survey process, including survey preparation, data collection, data processing, and data dissemination. The capacity development activities will involve both formal and on-the-job training of human resources as well as strengthening of other national resources (e.g. software and data collection and analysis tools). Capacity building activities will be heavily emphasized during the 1-2 years of Initiative engagement, i.e. the survey system preparation phase. Potential areas of technical support and capacity building are summarized in Box 1.

## **III. Data Use**

### **A. Objectives and Targeted Outcomes**

The Data Use component of the Initiative aims to ensure increased and improved use of survey data to inform decision making by key actors, particularly in partner countries but also at the global level. Focusing explicitly on data use is an attempt to ensure that decision makers in countries have the capacity and motivation to access data to make informed decisions that facilitate progress towards achieving the SDG Indicators under the purview of the Initiative and that the data produced and analysed by statistical units and researchers is aligned with the needs of decision makers. The inclusion of a Data Use component recognizes that supply-side efforts focused on data production alone are unlikely to increase evidence use in decision making.

To achieve the desired outcomes of this component, three interrelated outputs are anticipated from this component:

- i. **Stronger capacity to analyse, interpret, and present relevant agricultural data for decision making, particularly by NSOs and national research partners.** There is often a gap between the suppliers and demanders of data—those that supply data and analyses do not meet the needs of those that demand data. Further, the incentives of statistical units and researchers in producing data and analyses are often not aligned with national decision making but in providing or using data for publication. For example, evidence from a survey of NSOs suggests that they see international development partners as their primary users followed by domestic researchers. Government officials do not appear high on the list of target audiences suggesting the need to broaden the domestic user base. Addressing this challenge requires altering the incentives of those that produce and analyse data so data collection and outreach are aligned with domestic interests. This output seeks to create data output that is relevant for decision making.
- ii. **Stronger capacity of decision makers to interpret and apply data to decisions in the agricultural sector.** Promoting data use requires understanding how decision makers operate in the data ecosystem, their specific limitations in data use, and what they want. Studies show a number of common issues by decision makers in using evidence including limited skills and knowledge gaps required for data use as well as limitations in how to access research and to search databases effectively, and to assess quality and credibility of research and other types of evidence. This output is designed to put decision makers in a position to use data.
- iii. **Improved data sharing and communication practices in partner countries.** Roles and relationships between actors in the data ecosystem can be complicated and can constrain the ability for fruitful interaction around data. Bringing data and research into decision making requires a long-term approach to ensure that data producers and researchers better understand what decision makers need and want. The data production process requires establishing the ownership and buy in of decision makers, not just NSOs, at the earliest stages of data production in order to build consensus on the questions to be answered as part of the design of the survey experience. The Data Use component will integrate its work with the Data Production and Methods & Tools Development components of the Initiative to achieve the ultimate objective of increased and sustained evidence-informed decision-making in agriculture.

## **B. Data Use Activities**

Implementation of the Data Use component includes five sets of activities. While there is and will be overlap between the country and regional/global-level activities, the first four sets of activities focus primarily on the country level: (i) assessment of the data ecosystem, (ii) strengthening of the data ecosystem, (iii) promotion of evidence-informed decision-making, and (iv) data use monitoring.

### **i. Assessment of the Data Ecosystem**

Data interactions are complex. Decisions about what data to collect, who gets access to it, who benefits from its reuse, what standards and policies to follow, and who participates in this, are often highly political and cultural. Countries and communities have different attitudes to these decisions, depending on their system of government, the culture of institutions, levels of trust between actors, and, often, their customs around sharing and trade.

IFAD will collaborate with all 50x2030 partner countries to conduct a data ecosystem assessment and mapping. In early stages of the Initiative, IFAD is working with the Centre for Agriculture and Bioscience International (CABI) and the Open Data Institute (ODI) to pilot, develop, and train on the data ecosystem assessment and mapping process. The data ecosystem map builds on the ODI Guide to Mapping Data Ecosystems and a tool CABI and ODI have been working on with the Gates Foundation to use and test the approach in agricultural systems. In each country, the data ecosystem mapping will include the following activities:

1. Network identification and building (telephone/in person interviews).
2. Creation of preliminary data ecosystem maps.
3. In-country workshops, focus groups and meetings to validate data ecosystem maps, and collate lists of data use and needs and known barriers to access.
4. Creation of final maps, process documentation, final report and recommendations (general and country-specific).
5. Write-up of the Data Use Report: The Data Use Assessment Framework should be a tool and a document to help countries to make good decisions with the support of good agriculture data. Data should come from the 50x2030 Data Production and from the output of the CABI/ODI Data Ecosystem Map.

The primary deliverables of the data ecosystem assessments and mapping will include:

- Current state data ecosystem maps that show where data is currently shared and how, value exchanges, bottlenecks to data use, and demand for data for decision-making.
- Future state data ecosystem map that shows what an ideal data flow could look like (including or not including barriers).
- An accompanying report to the data ecosystem maps that will include:
  - Description of the stakeholders, including how they use data to make decisions
  - Description of relevant data flow relationships (who stakeholders get data from and share with)
  - Their relationship to the survey data collected by the 50x2030 initiative
  - Various bottlenecks stakeholders face with data sharing
  - Description of ways in which stakeholders may identify the value of data
  - Description of ways stakeholders need data presented to them in order to make defined decisions in response to need.
- Report of recommendations for next steps which will include any interventions that may be needed to overcome challenges to data sharing, identification of additional training or support needed in countries, and recommendations for scale up of interventions.

## **ii. Strengthening of the data ecosystem**

This set of activities aims to strengthen the data ecosystem, reducing the gap between what data and products statisticians, analysts, and researchers provide and what is desired by decision makers. Activities will help improve the utility and relevance of the data available. Although activities may be similar across countries, they will be designed based on the data ecosystem assessment to ensure country specific constraints are addressed. Specific activities will include trainings and technical assistance for data producers, including statisticians and analysts, to analyze, interpret, and present data to decision-makers.

## **iii. Promotion of evidence-informed decision making**

Activities under this category seek to eliminate and mitigate the constraints that are hindering the use of available (produced) data in decision-making. Activities will focus on two key pathways: 1) enhancing data sharing practices and policies to increase access to produced data and 2) improving motivations toward and knowledge of the

strategic benefit of evidence informed decision-making among decision-makers. Recognizing the importance of learning across country-level experiences and how global and regional insights can reshape national-level thinking and practices among policy-makers, a set of regional and global activities will complement the country-level focus. Global and regional-level activities will include a global annual conference for sharing experiences and a series of regional interactions including an annual regional level meeting. Particularly, the 50x2030 Initiative will leverage opportunities to work with and through the Comprehensive African Agricultural Development Programme and its Biennial Review process, which shares objectives with 50x2030 in this space in Africa.

#### iv. Data use monitoring

The Data Use component will undertake activities to monitor how and to what extent data produced by the 50x2030 surveys are used. These activities allow national and Initiative staff to understand the success of current activities and make course corrections, as needed.

## IV. Methods & Tools Development

The aim of the *Methods and Tools Development* work program is to generate knowledge that enhances the quality, relevance and cost-effectiveness of the outputs and activities of the *Data Production* and *Data Use* components. The primary output of this component is better and more efficient agricultural survey-related tools adopted in national data systems. Under this component, the Implementing Partners will engage with Partner Countries to work jointly on the various topics of the Methods and Tools work program. Through engagement with Partner Countries on the implementation of activities, the Initiative strives to build capacity around and increase uptake of improved methods and tools for agricultural and rural data collection in national statistical systems.

The work program of the Methods & Tools Development component is driven by: (i) the improvement of the *measurement* and *understanding* of agricultural productivity and rural livelihoods; (ii) *SDG monitoring*, with a specific focus on agricultural and rural statistics; and (iii) a desire to go *beyond indicators*, to produce actionable, analytical research that can inform policy and programming. Related to the latter, the scope of work under the Initiative should support the production of data to inform analyses that result in a better understanding of socio-economic phenomena and their relationship to agriculture, hence, producing actionable recommendations for policies and programs to advance progress towards development goals.

This component strives to 'add value' within the overall scope of the Initiative. As priorities and needs for methods research and tool development will change as the Initiative progresses, the focus and activities under this section will change periodically. Priorities will be assessed on a series of three-year cycles in consideration of the evolving country and international needs, the advances in methodological research, and the changes in technologies. Throughout the process, the operational relevance of the methodological work of the component will be ensured via the direct involvement of participating countries through their NSOs and MOAs, and of the operational staff of the main Implementing Partners.

The initial work program of the Methods & Tools Development component, which was built on the previous areas of research identified by the Global Strategy to Improve Agricultural and Rural Statistics and the methodological research conducted by the World Bank's LSMS team, revolves around the following three pillars:

- i. **Integration of survey approaches.** The activities under this pillar, in coordination with the *Data Production* component, include the convergence of the AGRISurvey and LSMS-ISA surveys into one modular, integrated survey system. This entails developing and testing an integrated sampling approach and a harmonized set of questionnaires, modules and data collection instruments. In the first three-year

cycle, this pillar includes the areas of integrated sampling, integrated data analysis, and integration of survey instruments.

- ii. ***Integration of technology, updating of methodologies.*** The activities under this pillar will define, update and document the core set of survey methods in priority topics, for adoption by Initiative-supported surveys. The work will focus on strengthening the use and further updating of the World Bank's Survey Solutions CAPI software, developing and testing new data collection approaches in thematic domains of relevance to the Initiative, and emphasizing the integration of sensors and modern technologies for objective and cost-effective microdata collection. In the first three-year cycle, this pillar includes research on the measurement of labor inputs, land area, land tenure, soil fertility, crop variety, post-harvest losses, and women's empowerment in agriculture. Additionally, the Component will support further development of the World Bank's Survey Solutions CAPI program to improve existing tools and develop additional tools for use in agricultural and rural data collection operations.
- iii. ***Integration with other data sources.*** Activities under this pillar will develop methods for the integration of survey data with different data sources, including but not limited to, census, geospatial and possibly administrative data, with an eye on enhancing the value of survey data in policy-relevant analysis and research. A strong emphasis will be placed on enabling surveys to feed into and validate remote sensing applications that aim to produce actionable, high-resolution key indicators at-scale. In the first three-year cycle, this pillar includes integration of surveys with satellites and Earth observation data and the integration of survey data with other data sources, such as administrative and/or census data.

These pillars will enhance not only the sustainability of the data production systems supported by the Initiative but also the accuracy, relevance and timeliness of survey data underlying evidence-based decision-making. All pillars will emphasize translating rigorous methodological research into practical guidance for survey practitioners in the form of guidelines and capacity development activities, which will feed directly into the activities of the Data Production Component of the Initiative.

## V. References

50x30 Initiative. (2020). A Guide to the 50x2030 Data Collection Approach: Questionnaire Design. Technical Paper Series #2. Rome.

FAO. (2012). Action Plan of the Global Strategy to Improve Agricultural and Rural Statistics: For Food Security, Sustainable Agriculture and Rural Development. Rome: FAO. Available in: <http://www.fao.org/docrep/016/i3082e/i3082e.pdf>. Accessed: August 2019.

FAO (2015). World Programme for the Census of Agriculture 2020, Vol. 1: Programme, concepts and definitions. FAO Statistical Development Series 15. FAO Publication: Rome. Available at: <http://www.fao.org/world-census-agriculture/wcarounds/wca2020/en/>

Global Strategy to Improve Agricultural and Rural Statistics (GSARS). (2016a). Guidelines for the Enumeration of Nomadic and Semi-Nomadic (Transhumant) Livestock Rome: GSARS. Available in: <http://gsars.org/wp-content/uploads/2016/08/Guidelines-for-the-Enumeration-of-Nomadic-and-Semi-Nomadic-Livestock-06.pdf>. Access in: July 2019.

Partnership in Statistics for Development in the 21st Century (PARIS21). Advanced Data Planning Tool (ADAPT). Available in: <https://paris21.org/advanced-data-planning-tool-adapt>. Accessed: August 2019.

DRAFT

## VI. Annexes

### Annex I. Production of SDG Indicators under the 50x2030 Initiative

While the 50x2030 Initiative was designed with an eye for collecting data on SDG Indicators 2.3.1 and 2.3.2, the scope of the program extends beyond these two indicators. The table below provides an overview of the high priority SDG indicators promoted by the 50x2030 Initiative. It indicates the standard questionnaires where the required information is collected and their recommended frequency.

TABLE A.1 – SDG INDICATORS THE INITIATIVE AIMS TO PRODUCE <sup>9</sup>

SDG #	INDICATOR TITLE	RECOMMENDED FREQUENCY	QUESTIONNAIRE(S)
2.3.1	Volume of production per labour unit by classes of farming / pastoral / forestry enterprise size	3 years	ILP-AG
2.3.2	Average income of small-scale food producers, by sex and indigenous status	3 years	ILP-AG
2.4.1	Proportion of agricultural area under productive and sustainable agriculture.	3 years	PME
5.a.1.a	Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex	3 years	ILS-HH (in the Integrated and Rural Model) ILP-AG (in the Agricultural Model)
5.a.1.b	Share of women among owners or rights-bearers of agricultural land, by type of tenure	3 years	ILS-HH (in the Integrated and Rural Model) ILP-AG (in the Agricultural Model)

The table below lists **additional SDG indicators** that can be collected with the 50x2030 standard survey instruments. It indicates the questionnaires where the required information is collected and their frequency.

TABLE A.2 – ADDITIONAL SDG INDICATORS PROMOTED BY THE INITIATIVE

SDG #	INDICATOR TITLE	RECOMMENDED FREQUENCY	QUESTIONNAIRE(S)
1.4.2	Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure *	3 years	ILS-HH (in the Integrated Ag and Rural Survey program)
1.5.2 <sup>‡</sup>	Direct disaster economic loss in relation to global GDP **	To be determined	CORE; ILP; MEA through set of optional questions
12.3.1	Global food losses ***	3 years	Harvest and Post-Harvest Losses (HPL) (under review).

\* Indicator can be computed only if the survey covers non-agricultural households (i.e., in the Integrated Agricultural and Rural Model) and urban areas

\*\* Partial: The optional set of questions allows only the computation of losses in the agricultural sector. Methodology under development.

\*\*\* Coverage under 50x2030 will be limited to 12.3.1a (Food Loss Index) and to losses at farm level (the main critical loss point in low-income countries). It will not cover losses during transport, wholesale, off-farm storage and processing.

‡ Questions for measuring Indicator 1.5.2 are currently under review. They will be added and/or amended in the 50x2030 questionnaires upon finalization.

<sup>9</sup> Indicators may not be available for all subgroups as identified in the SDG Indicator methodological notes.

## Annex II. Production of CAADP Indicators under the 50x2030 Initiative

The Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods is a set of goals showing a more targeted approach to achieve the agricultural vision for the continent on shared prosperity and improved livelihoods. The Comprehensive African Agricultural Development Programme (CAADP) establishes indicators that should be used to track progress toward the Malabo Declaration goals in agriculture and food security. To date, many countries lack adequate data sources to quantify key indicators for CAADP achievement.

The survey instruments promoted through the 50x2030 Initiative allow the monitoring of nine CAADP indicators. The table below provides an overview of such indicators indicating the questionnaires where the required information is collected and their frequency.

TABLE B.1 – CAADP INDICATORS THE INITIATIVE AIMS TO PRODUCE

CAADP #	INDICATOR TITLE	RECOMMENDED FREQUENCY	QUESTIONNAIRE(S)
2.4	Proportion of men and women engaged in agriculture with access to financial services <sup>10</sup>	3 years	ILS-HH (in the Integrated Ag and Rural Survey Programme)
3.1i	Fertilizer consumption (kg of nutrients / ha of arable land) <sup>11</sup>	annually	CORE
3.1ii	Growth rate of the size of irrigated areas from its value in the year 2000 *	annually	CORE
3.1iv	Proportion of farmers with access to agricultural advisory services	3 years	Rotating questionnaire. Placement to be determined
3.1vi	Proportion of farm households with ownership or secure land rights <sup>12</sup> **	3 years	ILP (in the Agricultural Survey Programme)  ILS-HH (in the Integrated Ag and Rural Survey Programme)
3.2i	Growth rate of agriculture value added (in constant US dollars) per agricultural worker ***	annually	CORE
3.2ii	Growth rate of agriculture value added (in constant US dollars) per hectare of agricultural arable land ***	Annually	CORE
3.2iii	Growth rate of yields for the five national priority commodities, and possibly for the 11 African Union (AU) agriculture priority commodities <sup>13</sup> ****	Annually	CORE
4.1i	Growth rate of agriculture value added (in constant US dollars) ***	annually	CORE

<sup>10</sup> This indicator aims to measure the number of men and women engaged in agriculture who are 'financially included'. Financial inclusion comprises ownership of at least one financial service, including bank and non-bank financial institutions (bank and savings accounts), mobile money, etc.

<sup>11</sup> This indicator aims to monitor the utilization of cost-effective and quality agricultural inputs to boost agricultural productivity. The quantity of fertilizer consumed in agriculture by a country is expressed in metric tons of plant nutrient.

<sup>12</sup> This indicator measures the number of farm households where at least one member is able to demonstrate property rights through documentation. Like SDG indicators 1.4.2 and 5.a.1, land ownership is defined according to local context, and the definition of ownership varies across countries

<sup>13</sup> The 11 AU priority commodities are rice, maize, legumes, cotton, oil palm, beef, dairy, poultry and fisheries, cassava, sorghum and millet.

### Annex III. Additional Data Topics and Indicators

The tables below provide an overview of data topics and indicators, in addition to those noted in Annex I and II, generated through the 50x2030 questionnaires. Table C.1 focuses on the annual data whereby the subsequent tables refer to data and indicators generated on a rotational basis.

TABLE C.1 – ADDITIONAL DATA ITEMS / INDICATORS COVERED IN CORE-AG QUESTIONNAIRE

Data items / indicators	Unit of observation
Land productivity	Holding
Intra-HH decision making	Holding
Damage and losses due to disasters ( <i>under review</i> )	Holding
Farm typology	Holding
Value of production	Holding
Region, province	Holding
Coordinates (Lat-Long)	Holding
Farm activity	Holding
Legal status	Holding
Distance from dwelling to parcel	Holding
Location of agricultural activities	Holding
Age, education, sex	Holding
Type of holder	Holding
Received training on agriculture	Holding
Agricultural household members and relationship to the head	Holding
Number of parcels	Holding
Land acquisition	Parcel
Land tenure	Parcel
Parcel area	Parcel
Existence of system of irrigation	Parcel
Irrigated area	Parcel
Existence of erosion and erosion control	Parcel
Existence and method of irrigation	Parcel
Average number of crop plots per parcel	Parcel
Crop activities decision making	Parcel-Plot
Agricultural land use	Parcel-Plot
Plot area	Parcel-Plot
Crop area	Parcel-Plot
Mix-cropping	Parcel-Plot
Crops per plot	Parcel-Plot
Crop type	Parcel-Plot
Area planted	Parcel-Plot
Shelter type	Parcel-Plot
Plantation period	Parcel-Plot
Seed type used	Crop
Quantity of seeds planted	Crop
Land use	Holding
Fertilizer and pesticides use	Parcel-Plot-Crop
Input use	Parcel-Plot-Crop
Harvest-period	Parcel-Plot-Crop

Post-harvest losses (reasons)	Parcel-Plot-Crop
Crop production	Parcel-Plot-Crop
Harvested area	Parcel-Plot-Crop
Crop Yield	Parcel-Plot-Crop
Crop destination (condition and quantity)	Crop
Sales earnings decision making	Crop
Storage crops (quantity, condition and destination)	Crop
Total value of sales	Crop
Cultivation method	Parcel-Plot-Crop
Number of trees/plants used	Parcel-Plot-Crop
Plantation period	Parcel-Plot-Crop
Harvest period	Parcel-Plot-Crop
Post-harvest losses (reasons)	Parcel-Plot-Crop
Crop production	Parcel-Plot-Crop
Crop yield	Parcel-Plot-Crop
Production use decision maker	Parcel-Plot-Crop
Crop destination (condition and quantity)	Crop
Sales earnings decision making	Crop
Storage crops (quantity, condition and destination)	Crop
Total value of sales	Crop
Input use	Input type
Quantity of input used	Input type
Livestock numbers	Livestock Type
Herd size and livestock concentration	Livestock Type
Livestock managers	Livestock Type
Sales earnings decision making	Livestock Type
Control over and responsibility for raising livestock	Individual
Change in stock for ruminants in the last 12 months	Livestock Type
Total value of purchased animals	Livestock Type
Total revenues from live animals sales	Livestock Type
Total revenues from slaughtered animals sales	Livestock Type
Change in stock for poultry in the last 3 months	Livestock Type
Total value of purchased animals	Livestock Type
Total revenues from live animals sales	Livestock Type
Total revenues from slaughtered animals sales	Livestock Type
Milk production (quantity)	Livestock Type
Total revenues from sales	Livestock Type
Eggs production (quantity)	Livestock Type
Total revenues from sales	Livestock Type
Quantity produced in the last 12 months	Product Type
Total revenues from sales	Product Type
Quantity produced in the last 12 months	Product Type
Total revenues from sales	Product Type
Quantity produced in the last 12 months	Product Type
Total revenues from sales	Product Type
Quantity produced in the last 12 months	Product
Total revenues from sales	Product
Agricultural family labour input	Individual
Hired agricultural labour input	Gender and age of workers
Free/exchange agricultural labour input	Gender and age of workers

**TABLE C.2 – ADDITIONAL DATA ITEMS / INDICATORS COVERED IN ILP-AG QUESTIONNAIRE  
(ALL TOPICS FROM CORE-AG PLUS THE FOLLOWING)**

<b>Data items / indicators</b>	<b>Unit of observation</b>
Agricultural income	Holding
Soil type	Parcel
Existence of erosion and erosion control	Parcel
Existence and method of irrigation	Parcel
Land preparation	Parcel-Plot
Plot fallowing	Parcel-Plot
Quantity of seeds acquired	Crop
Cost of seeds acquired	Crop
Agricultural family labor input	Individual
Hired agricultural labor input	Gender and age of workers
Free/exchange agricultural labor input	Gender and age of workers
Quantity of seed acquired	Input type
Cost of seed acquired	Input type
Quantity of plants/seeds acquired	Crop
Cost of plants/seeds acquired	Crop
Quantity of processed goods produced	Processed product
Value of sales of processed goods	Processed product
Control over income from processed goods sales	Processed product
Control over and responsibility for raising livestock	Individual
Costs related to raising livestock	Livestock Category
Labour input for livestock production	Livestock category, worker type, gender
Labour cost for livestock production	Livestock Category, worker type
Livestock vaccination	Livestock Category
Livestock parasite treatment	Livestock Category
Livestock curative treatment	Livestock Category
Costs related to livestock health	Livestock Category
Labour input for aquaculture	Worker Category
Labour cost for aquaculture	Worker Category
Labour input for fishery	Worker Category
Labour cost for fishery	Worker Category
Labour input for forestry	Worker Category
Labour cost for forestry	Worker Category
Costs for other items related to agricultural production	Cost Type

**TABLE C.3 – ADDITIONAL DATA ITEMS / INDICATORS COVERED IN ILS-HH QUESTIONNAIRE**

<b>Data items / indicators</b>	<b>Unit of observation</b>
Household non-agricultural income	Household
Household size	Household
Population demographics: gender, age, marital status	Individual <sup>1</sup>
Training in agriculture	Individual <sup>1</sup>
Literacy (rate)	Individual <sup>1</sup>
Net enrolment rate, gross enrolment rate	Household; gender, age
Highest level of education achieved	Individual <sup>1</sup>
Labour force participation, Employment, Unemployment <sup>2</sup>	Individual <sup>1</sup>
Barriers to employment, steps taken to obtain employment	Individual <sup>1</sup>
Reasons for inactivity	Individual <sup>1</sup>
Industry of main job	Individual <sup>1</sup>
Type of occupation	Individual <sup>1</sup>

Time spent on first and second job	Individual <sup>1</sup>
Total income from and wage rate in first and second job	Individual <sup>1</sup>
Time used for non-employment activities: household goods, water collection, fuel and firewood collection, childcare, cooking and meal preparation.	Individual <sup>1</sup>
Existence of personal savings	Individual <sup>1</sup>
Access to mobile money	Individual <sup>1</sup>
Turned down from obtaining credit	Individual <sup>1</sup>
Dwelling/property tenure	Individual <sup>1</sup>
Tenure rights, security of tenure	Household
Characteristics of the dwelling: walls, roof, floor materials; number of rooms	Household
Sources of energy / electricity	Household
Main drinking water source (improved/unimproved; quality) <sup>3</sup>	Household
Time to collect drinking water <sup>3</sup>	Household
Sanitation facility (improved/unimproved) <sup>3</sup>	Household
Access to internet	Household
Access to mobile phone	Household
Non-agricultural enterprises by sector of enterprise	Household
Enterprise ownership	Individual <sup>1</sup>
Record-keeping of enterprise	Enterprise
Age of enterprise	Enterprise
Seasonality of enterprise activity, revenue	Enterprise
Household and non-household workers employed in enterprise	Enterprise, Individual <sup>1</sup>
Sales and revenue	Enterprise
Size of enterprise (by revenue, number of workers)	Enterprise
Enterprise expenditures	Enterprise
Enterprise profits / household income from enterprise	Enterprise
Control and use of enterprise profits	Individual <sup>1</sup>
Household income from remittances and other transfers	Income source
Household income from pension and investments	Income source
Household rental income	Income source
Household revenue from sales of assets	Income source
Control over and use of income	Individual <sup>1</sup>
Household assets	Asset type
Individual ownership of assets	Asset type, individual
Household experience of shocks	Type of shock
Effect of shocks on income, assets, food production, stocks, and purchases	Type of shock
Responses to shocks / coping strategies	Type of shock
Food groups consumed by the household in the past 7 days.	Food group
WFP Food Consumption Score	Household
Food Insecurity Experience Scale (FIES)	Household
Land tenure questions corresponding to SDG indicators 5.a.1 and 1.4.2	Parcel
Farmer-reported parcel area	Parcel
Main uses of parcel	Parcel
Parcel rental payments	Parcel

<sup>1</sup> Individual-level data also allows for gender and age disaggregation.

<sup>2</sup> In line with ILO definitions.

<sup>3</sup> In line with UNICEF *Core questions on water, sanitation and hygiene for household surveys*.

**TABLE C.4 – ADDITIONAL DATA ITEMS / INDICATORS COVERED IN PME-AG QUESTIONNAIRE**  
**(ALL TOPICS FROM CORE-AG PLUS THE FOLLOWING)**

<b>Data items / indicators</b>	<b>Unit of observation</b>
Profitability	Holding
Land tenure	Parcel
Tillage	Parcel-Plot
Intercropping cover	Parcel-Plot
Irrigation type and area	Parcel-Plot
Pure stand or mixed cropping	Parcel-Plot
Crop residues treatment	Parcel-Plot-Crop
Seed type and source	Crop
Area with use of plant protection, irrigation	Crop
Number of trees and density	Parcel-Plot-Crop
Use of fertilizer	Parcel-Plot-Crop
Use of plant protection and area of use	Parcel-Plot-Crop
Quantity, value of sales	Products
Responsible for decisions	Products
Quantity and price	Product
Toxicity level of pesticides	Input type
Reproduction technic	Holding
Veterinarian services	Holding
Use of hormones, antimicrobials, antibiotics and traditional medicine	Holding
Animal housing system and characteristics	Holding
Animal transportation methods, frequency and finality	Holding
Animal feeding and watering	Holding
Daily worker rate	
Energy sources	Holding
Soil management: natural vegetation, land coverage, crop rotation, practices, soil analysis, soils changes, soil analysis	Holding
Irrigation: equipment, system and methods, irrigated area, water sources and payment	Holding
Animal breeding and reproduction services	Holding
Animal housing	Holding
Equipment and transportation of animals	Holding
Feed and use of pastures	Holding
Watering of animals	Holding
Manure production, sales, use and quantity	Holding
Conversion and certification (crops and livestock)	Holding
Type and area	Holding
Information type, sources, and media	Holding
Extension services	Holding
Access and use of communal grazing land, forest and wooded land, water for aquaculture, and irrigation	Holding
Protect areas	Holding
Sustainable forest management	Holding
Contaminated sites	Holding
Environment protection programs and organizations involvement	Holding
Environment concerns	Holding
Fines for environment pollution payment	Holding
Natural extreme events and disasters	Holding
Human, economic, physical	Holding
Practices to adapt to climate change	Holding
Waste water production and management	Holding

Other waste production and management	Holding
Occurrence and severity	Shock type
Mechanisms for protection against external shocks	Holding
Food Insecurity Experience Scale	Household

DRAFT