A GUIDE TO PROMOTING DATA USE UNDER THE 50x2030 INITIATIVE

DRAFT FOR INTERNAL DISCUSSION

This version: October 5, 2020

I.   Targeted Results and the Theory of Change

The main objective of the 50x2030 Initiative is increased and sustained evidence-based decision-making in agriculture, particularly to help achieve SDG2. To reach that objective, the Data Use Component will focus on promoting and encouraging key stakeholders to use survey data in more and better ways in low and lower-middle income countries (L/LMICs).

The Initiative can only help facilitate progress towards achieving SDG 2.3 and 2.4 if the data from the surveys it supports are used and applied to solutions across the agricultural and food security sectors. The Initiative focuses explicitly on data use to ensure that decision makers in countries have the needed motivation, access, and capacity to use the 50x2030 survey data produced and that the agricultural and rural data produced by national statistical offices and researchers aligns with the needs of decisionmakers. The 50x2030 Initiative defines the "decisionmaker" as the final consumer who applies the data to answer questions and problems relevant to his/her job. In practice, the decisionmakers would include government staff from the Ministry of Agriculture and other relevant ministries (i.e. policymakers), staff of development organizations, business owners and staff, and other national, regional, and international stakeholders. The inclusion of a Data Use component recognizes that supply-side efforts focused on data production alone are insufficient to increase evidence use in decision-making.

Within the data cycle, from the initial demand that prompts their prioritization and until their use, data are acted upon by three primary types of stakeholder: Data Producers, Data Intermediaries, and Decisionmakers. A **Data Producer** is an individual or entity that produces data through the steps of collection, curation/preparation, and dissemination. In 50x2030, the Data Producer collects survey data, generating the data sets and survey reports which can be utilized by Data Intermediaries for further analysis or Decisionmakers to answer questions and inform decisions. Examples include a National Statistical

Figure 1: Stakeholders and role in Basic Data Cycle

Office (NSO) collecting an integrated agricultural and rural survey, creating a summary report, and disseminating survey microdata sets or a Ministry of Agriculture (MOA) statistical unit collecting an agricultural production survey and producing a summary report and micro data set for users.

Data Intermediaries are individuals or entities that take existing summary reports, summary tables, and microdata sets and add value to them by conducting analyses and interpreting them to answer questions and possibly make recommendations for action. These intermediaries act like brokers, taking the existing data generated by producers and turning them into information and evidence through an analytical or research process. Examples include MOA analysts producing policy briefs using survey production data, an academic researcher conducting analyses for a paper on the
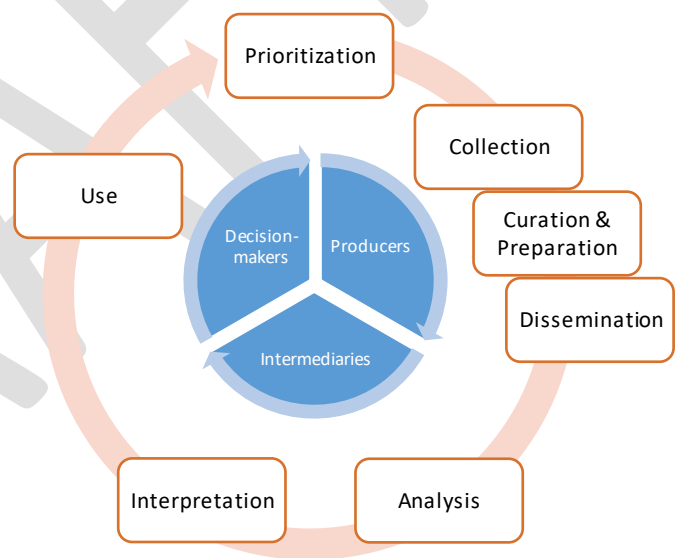
impacts of a specific policy, and an analyst at a development organization conducting analyses on survey data to understand the relationship between agricultural production and food security.

As described above, for 50x2030 implementation, a **Decisionmaker** is an individual or entity that applies the data to answer questions and inform decisions related to programs, policies, or investments. Examples include: Ministry of Agriculture officials researching and designing policy; Ministry of Finance staff drafting budget requests or allocations; a development organization deciding which districts might benefit the most from new farmers' organizations; local business co-owners determining which commodities they might want to expand into the following year.

These three types of stakeholders all carry out essential functions within the **data ecosystem**. The Initiative builds on the Open Data Institute's[1] definition of data ecosystem, identifying the data ecosystem as the community of actors, stakeholders, and entities who engage with data, the data assets (data sets, data products, platforms, tools, technologies) with which they interact, and the rules, norms, and structures that govern those interactions (policies, cultures, organizational structures, etc.).

Numerous factors must be present within the data ecosystem so that data will be used. Inversely, the absence of those factors results in the primary constraints prohibiting data use in any situation. The 50x2030 Initiative uses the Data Use Framework in Table 1 to understand, examine, prioritize and address the enabling factors, which, inversely, become the most binding constraints if absent in any specific context.

Table 1: The 50x2030 Data Use Framework

Factors that lead to Data Use	Definition	Sub-factors
Demand	Decisionmakers want to use data to make their decisions	Decisionmakers believe that data-based decisions are beneficial
		Political and cultural beliefs and norms enable data use
Expertise	Decisionmakers know what data they need and how to use it	
Availability	Data are produced and exist (may not be accessible/available to users)	
Access	Data Intermediaries and Decisionmakers have access to the data that are produced	
Awareness	Data Intermediaries and Decisionmakers know the data are available and accessible	
Utility	The data are relevant and useful to the Decisionmakers for the decisions they need to make	Data are the types (variables, disaggregation, periodicity, etc.) needed for targeted decisions

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[1] Open Data Institute (2018) *Mapping Data Ecosystems.*

		Data are in needed formats and products
		Information (analyzed data) is in needed formats and products
Trust	Data Intermediaries and Decisionmakers trust the data and believe they are useful and accurate	Data quality due to weak capacity
		Political interference in data
		Competition with other data sources

These factors are all embedded in the data ecosystem and communication exchanges or practices between data producers, intermediaries, and decisionmakers. All factors must be present to achieve optimal data use, yet, in reality, the presence of these factors varies greatly in any specific context. Upon identifying the degree to which these factors are present or absent in partner countries, the Data Use Component will address the most binding constraint by working to build a stronger data ecosystem and by improving data sharing and communication practices.

A strong data ecosystem means data needs are being met through data assets and collaborative interaction between decisionmakers, producers, and intermediaries, and that, ultimately, data are being applied appropriately to make decisions. Data Use activities will be designed to increase or enhance **demand** for the data, improve its **utility**, and build **trust** between users and producers, thereby strengthening the data ecosystem.

Good data sharing and communication practices by the partner governments are essential to enable ecosystem actors to use the survey data in more and better ways. That often implies changes in data policies, data management tools and platforms, and stronger capacities and skills to manage and share data. The Initiative will implement data use activities to promote extensive **access** to the survey data and ensure decisionmakers are **aware** of the survey data and its uses. Both the Data Production and Data Use components will implement coordinated activities to improve **access** and **awareness**, through work with Producers, Intermediaries, and Decisionmakers. Data **availability** will be addressed by the Initiative, but solely under the Data Production Component.

The work under the Data Production and Methods and Tool Development Component also directly and indirectly supports the work of the Data Use component, improving various aspects of the data systems related to the seven factors identified in the Data Use Framework.

II. **Activities to Promote Data Use**

Once a partner country is onboarded to the 50x2030 Initiative and a joint inception mission has taken place, the Initiative's Data Use Component will begin data use activities in the country. Those activities will occur in the following sequence:

A.   First, an **Agricultural Data Ecosystem Mapping and Report** will be created to inform the design of all future activities.

B. Based on the findings of the Data Ecosystem Mapping, country stakeholders will **jointly develop a multi-year approach** to promote data use, which will be included as a section of the broader 50x2030 Program Implementation Plan (PIP). The targeted approach will be developed through a participatory process between the Initiative, the NSO, the MoA, and any other relevant government organizations. The Data Use section of the PIP will delineate the specific activities, timeline, and budget for the full period of the project. The Data Use activities will take into account and harmonize with the data production schedule, in particular with regard to data dissemination activities.

C. The **Data Use Activities** under the 50x2030 PIP data use section will be designed to strengthen the data ecosystem, improve data sharing and communication practices, and monitor data use.

All of these activities will be designed and implemented using the Data Use Framework as the theoretical framework to achieve the desired outcome of the Initiative. The implementation method for those activities are below.

A. The Agricultural Data Ecosystem Mapping and Report

The Agricultural Data Ecosystem Mapping and Report is a type of assessment process that identifies the components of the ecosystem (actors or stakeholders, data assets, and the structures that govern them), how they interact, and where enablers and constraints to data use reside in that ecosystem. The Mapping employs a visual technique for understanding the actors, relationships and data flows in the particular country and will be accompanied by a written narrative that identifies key characteristics and findings related to the ecosystem. The process of drawing the main elements of the map enhances the understanding of where important value exchanges happen (e.g. supply of data from one actor to another, use of data, networks, etc.) and what kind of strategies or support might be needed to enhance effective collaboration between actors and more efficient and effective flow of data. Furthermore, the mapping will use a participatory approach that engages all relevant and key stakeholder groups for the 50x2030-supported survey program, specifically the National Statistical Office and the Ministries of Agriculture, Finance, Planning and any other relevant government agency. Information from surveys and interviews with key stakeholders is used to generate the map, followed by collaborative workshops to validate the draft. As such, the map emanates from the thoughts, concerns, and understandings of the stakeholders within it, using a process where those stakeholders exchange ideas and knowledge in a constructive way. The final product serves as a communication tool to support engagement and buy-in across the ecosystem.

In each country, the Agricultural Data Ecosystem Mappings and Reports will entail the following activities in the order below, although overlap is probable and desirable, conducted by Initiative staff or Initiative-employed consultants:

1. **Conduct a desk review.** Initiative or contractor staff will research and draft a brief summary of existing documentation to create an Agricultural Data Profile for the country that includes:
   a. National statistical capacity, technology, and digital infrastructure of the country
   b. Data policies and laws within the country

c. Other (Non-Governmental) Data Capacity in Agriculture, Research, or Statistics
d. The basic political situation and trends that might affect data production and use in the country
e. Agricultural (and rural) Data Needs in the country, particularly those related to relevant national agricultural policy frameworks and international/regional monitoring frameworks;
f. Existing and planned Data Sources related to those agricultural and rural data needs (i.e. administrative data, satellite-derived data, etc.), including for regional and international data monitoring and reporting requirements;
g. The agricultural and rural data needs which could be met by the agricultural survey if designed accordingly;
h. Data Producers of the identified data sources;
i. Potential or presumed Data Users in the country and for the country, including national statistical office staff, line ministry analysts, line ministry policymakers, academics, civil society organization staff, development organization staff, agri-business owners and staff, smallholders, and more

2. **Adapt draft questionnaires and interview protocol for stakeholder surveys and interviews.** The Initiative's Data Use Component will work from a standardized questionnaire (see Annex 1), aligned to the Data Use Framework and its seven factors, and will adapt it based on the country context, as needed. The interview protocol (see Annex 2) will be semi-structured and adapted to country context. The protocol is flexible and can be adapted for respondents who have not responded to the survey or respondents who have answered the survey questions, building on survey responses.

3. **Develop brief plans for country stakeholder engagement**. Plans will include a list of proposed stakeholders/respondents and a timeline for the interviews and workshops among any other considerations needed for the country.

4. **Conduct a written survey among stakeholders**. Surveys will be designed to yield both qualitative/open-ended and quantitative/categorical data, using the country-specific questionnaire. The quantitative data will inform indicators under factors and sub-factors of the Data Use Framework, and identify the most binding constraints to data use based on those factors. The qualitative data will support the development of the Agricultural Data Ecosystem Mapping and identifying all of the actors, entities, data assets, enablers and constraints to data use within the system. Through the written survey, the Data Use Component will seek to engage a broad and representative sample that collects data from the primary stakeholder groups: Government agencies, including the NSO, MOA, and other relevant ministries; Development Organizations; Research Institutes and Universities; and the Private Sector. Respondents will vary in rank, from mid-level to high-level, and technical capacity related to data. Respondents will represent decisionmakers, intermediaries, and producers to understand the perspectives of all groups. The sample will be purposive and include 40-60 respondents, depending on the size and complexity of the stakeholder groups.

5. **Conduct stakeholder key informant Interviews.** The interview process will build on the written surveys to elaborate more qualitative and detailed information about data exchanges that happen or constraints that hinder them. The interviews will take place in-person or via a videoconferencing platform, depending on the context and travel conditions. In all cases, Initiative or contractor staff will record the verbal interviews for transcription, if the respondent agrees, to ensure optimal qualitative analysis. The interviewing process will also seek to create a purposive sample that represents the various stakeholder groups under the categorization above: Government agencies, including the NSO, MOA, and other relevant ministries; Development Organizations; Research Institutes and Universities; and the Private Sector. Again, respondents will be both decisionmakers, intermediaries, and producers to understand the perspectives of all groups, although the majority will be primarily decisionmakers. Key informants will be identified through the desk review process and from the written survey responses. The sample size for interviews is expected to be between 12-20, although the final sample size will be determined when the data saturation point is reached, meaning no new information is yielded from the interviews. Note, the interview process could start while the survey responses are still being received from respondents.

6. **Create a preliminary Agricultural Data Ecosystem Map.** Using data from the desk review and interviews. Initiative staff or consultant staff will develop preliminary maps that identify the actors and entities in the system (producers, intermediaries, and users), the data assets (data sets, data products, platforms, tools, technologies) with which they interact, and the constraints to data use.

7. **Hold collaborative workshops (virtual or traditional) to validate the preliminary Data Ecosystem Map.** Initiative or consultant staff will bring together the consulted interviewees through a virtual or in-person format to examine the preliminary ecosystem mapping and findings. Jointly, the Initiative and the country staff will work through the mapping and findings and ensure that they reflect the main (majority) perspectives and that notable deviations in views, if any, will be noted in the final report. Beyond ensuring that the mapping and report are accurate, this workshop and collaborative discussion provide a means for decisionmakers, intermediaries, and producers to discuss the issues, build understanding and rapport, and thereby, begin to strengthen the ecosystem.

8. **Create the final Country Data Ecosystem Maps and Reports.** Initiative and consultant staff will draft a final Map and Report for each country that includes:
   a. the Country Profile for agricultural data, including all components listed under the Desk Review;
   b. the Current State Ecosystem Map, which visualizes the relevant actors/entities engaging with the survey data, the specific data assets related to the survey, data flows, and any constraints to interactions
   c. a Future State Ecosystem Map, which shows what an ideal data flow could look like, including barriers
   d. an Examination of the various constraints to data use assessed against the Data Use Framework

       e.   Recommendations for activities and actions to overcome the most serious constraints to data use (general and country-specific)

       f.   References of all documents, resources, and processes used to create the final report

In each country, the full Agricultural Data Ecosystem Mapping and Report process will take approximately two to three months to complete. The timeframe may fluctuate based on whether activities will take place virtually or in-person and other context-specific factors such as the availability of country stakeholders or holidays.

    B. **Jointly-designed Approach: Data Use Section of the Program Implementation Plan**

As stated above, country stakeholders will jointly develop a multi-year approach to promote data use that will be included as a section of the broader 50x2030 PIP. Initiative staff will work with the MoA, the NSO, and any other relevant government organizations through a participatory process to develop the Data Use section of the PIP will delineate the specific activities, timeline, and budget related to data use activities for the full period of the project.

Following the release of the Agricultural Data Ecosystem Mapping and Report, the Initiative will engage a number (10-20) of key expert stakeholders, identified through the interview process and representative of the relevant organizations, to formulate the Data Use section of the PIP based on the findings of the Report. The Initiative will facilitate the development of the Data Use section of the PIP using the Data Use Framework (as a conceptual guide) and the Delphi Method (as a negotiation approach) to consolidate ideas and build consensus among the expert stakeholders.

The Delphi Method is a consensus-building approach developed by the Rand Corporation[2] in the 1950s that engages a limited set of experts in a series of questionnaires, to which they anonymously respond and then receive feedback in the form of a statistical representation of the "group response." The questionnaire process repeats, each time reducing the range of responses based on the previous outcomes, until consensus is achieved. This approach will aid in narrowing down the priorities and possible solutions for data use constraints into a feasible Plan which has the buy-in of the consulted experts and their organizations.

The Delphi method will either be conducted remotely, using electronic questionnaires and videoconferencing, or in-person, using paper or electronic questionnaires and in-person discussion of the results. If done remotely, the method will take approximately two to three weeks. If done in-person, most of the method will take place during a one to two day workshop.

After the constraints and solutions are prioritized and determined through the Delphi method, Initiative staff or consultants will develop a draft section of the PIP that addresses the key constraints and incorporates the desired solutions. Those desired solutions will be the Data Use activities that the Initiative and the country will implement under the Data Use Component. The draft section of the PIP will be circulated, reviewed, and revised, as needed, until it is finalized and endorsed by the stakeholders.

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[2] https://www.rand.org/topics/delphi-method.html

The Data Use Component will engage the Initiative's Program Management Team (PMT) and Data Production Component staff to ensure the plan corresponds to other workplan development, particularly to activities related to the Data Production Component. PMT and Data Production staff will be encouraged to join all meetings or written processes to develop the Data Use section of the PIP.

C. **Data Use Activities**

The data use activities implemented in the country and delineated in the Data Use section of the PIP will be designed to 1) strengthen the data ecosystem; 2) improve data sharing and communication practices; and 3) monitor data use among stakeholders to provide a feedback loop for constant improvements.

The activities designed to **strengthen the data ecosystem** will aim to enhance the relationships and interactions between decisionmakers, intermediaries, and producers by increasing or enhancing **demand** for the data, improving its **utility**, and building **trust** between users, intermediaries, and producers. Specific activities will vary by country, based on identified constraints, and include a combination of actions such as:

- Training for data producers for basic statistical analyses and to develop easy-to-understand reports for needed audiences
- Training for data intermediaries to conduct detailed analysis and present to decisionmakers for specific policy or programmatic needs
- Training for decisionmakers to understand, interpret, and apply data to decisions
- Collaborative workshops to share information between data producers, intermediaries, and users.
- National-level sensitization workshops and seminars among decisionmakers

Activities intending to improve data sharing and communication practices will seek to enhance evidence-informed decision making by improving **access** to the survey data and ensuring decisionmakers are **aware** of the survey data and its uses. (Data **availability** will already be addressed under the Data Production Component.) Specific activities will include:

- Technical assistance to strengthen data sharing and communication technologies, platforms, and practices. (This will include recommendations and facilitation of key technologies, platforms, and processes that could address identified constraints to access).
- Technical assistance and guidance on needed policy reforms for data sharing.
- A global annual conference and regional conferences for dissemination and advocacy (not country-specific, but countries' contributions can be planned). These will be coordinated with similar initiatives or programs to the degree possible.

Activities for **data use monitoring** will include forms of technical assistance to design a monitoring framework and corresponding methods to track data use. Monitoring activities will form a feedback

loop to inform stakeholders on the current status of the data ecosystem, data sharing practices, whether actions to promote data use are generating desired results. In-country monitoring should align with the indicators in the 50x2030 Results Framework to the degree possible.

Data use activities will need to be developed and tailored according to the countries' needs. The groupings above demonstrate the types of activities that can be tailored and designed to address the targeted outcomes and constraints. As such, all possible activities will come in the form of: technical assistance (expert consultants and guidance); trainings; workshops; and conferences.

While the specific activities can only be defined after the Agricultural Data Ecosystem Mapping is done and constraints are well understood, the general parameters and general characteristics of those activity types are:

a. **Technical Assistance**

Technical assistance will be provided primarily in the form of expert guidance and identification of solutions for data sharing practices and data policies. The Initiative will identify experts to examine countries' data accessibility constraints, identify actions to strengthen data sharing and communication technologies, platforms, and practices. This will include recommendations and facilitation to access key technologies, platforms, and processes, such as linking country stakeholders to technology providers and organizing demonstrations or trainings on desired platforms and software. Technical assistance and guidance may also be provided to recommend and help draft needed policy reforms for data sharing. The aim will be that the identified experts will deliver all technical assistance in-person, or at least following on an in-person mission to the country, if travel situations allow.

b. **Training**

Training will be designed, organized, and implemented for data producers, intermediaries, and users. To the degree possible, training will bring together producers, intermediaries, and users to coordinate their needs and promote cross-fertilization of skills development among them. Again, the particular topics, skill focus, duration, and size of training will vary by country, but the Initiative will seek to standardize certain training modules and approaches as they are tested and the most effective practices can be gleaned.

Training for Data Producers will aim to build capacity among statisticians working directly on the surveys to generate relevant and useful information and products necessary to meet specific policy or programmatic needs. Many trainings for Data Producers would be conducted under the Initiative's Data Production Component in coordination with the Data Use Component. Training for Data Producers that specifically aim to promote Data Use will focus on improving skills and knowledge relevant to communication and presentation of data products as well as approaches to user engagement. Possible concentration areas might be visualization techniques or statistical software functions. An example of this type of training would be a two-part training on Communicating Survey Results. The first part would include a three-day training with NSO staff on developing brochures, presentations, and flyers to share survey data with a variety of audiences, including instruction on using STATA or another software to visualize data findings into infographics. This first training would be followed by a three-month period for trainees to put their skills in practice. At the end of the three

month practice period, a second, one-day training would be conducted with the same trainees to present their products and discuss its possible uptake and application.

Training for Data Intermediaries would focus on building the capacities of analysts, researchers, economists, and other data scientists to analyse the survey microdata and prepare analytical products and reports for Decision-makers related to specific policies or program needs. An example of training for Intermediaries would be a five -day training that brings together staff from the Ministry of Agriculture (MOA), Ministry of Planning (MOP), and a local university to analyze livestock data from a recent survey to prepare analytical reports to develop or evaluate a livestock policy. A policy of increasing meat or milk production requires analysis of many factors such as: breed of animals; animal feed; structures for animals; practices by farmers; availability of veterinary services availability of vaccines; quality of livestock inputs such as medicines. Training would include guidance on the production of a system of reports necessary for the development and evaluation of policies. Training would also cover techniques to examine other specific issues such as the use/effects of livestock insurance among smallholders or in which regions certain livestock diseases are most impacting farmers. The training would teach analytical techniques to examine and interpret the data and present it as information in the context of policy questions that MOA and MOP decisionmakers can use in livestock policy and program development.

Training for Decisionmakers would be designed for different categories of users, including Government Agencies, Development Organizations, and the Private Sector, to understand, interpret, and apply data to decisions. The priority category of users would be from the first category, particularly governmental staff from Ministries of Agriculture, Economy, Finance or Planning. Training sessions would focus on priority areas identified in the Ecosystem Mapping and Implementation Plan. An example would be a two-part training in Statistical Literacy and Applying Data in Decision-making for mid- and senior-level management staff in the MOA and other line Ministries. The training would build participant's skills and knowledge in basic survey concepts, types of statistical analyses, and understanding of/how to apply descriptive and parametric statistics. The structure would include a one-week course, a three-month practical application period, and a one-week follow-up course. A similar type of course could be developed and offered with private sector or development partner decision-makers to ensure they are aware of and know how to use the survey data.

c. **Workshops**

Workshops will be organized and implemented to bring together stakeholders to strengthen collaboration, build connections, develop joint plans or actions, and encourage data use through advocacy. Workshops will typically be one to two-day events with 20 – 80 participants that engage Decisionmakers, Intermediaries, and Producers from the following institution types: staff from governmental ministries; universities, institutes and research councils; and NGOS. They can be used in cases when formal, longer-term training or technical capacity building is not needed and when larger, more formal conferences are not necessary.

In early stages of the Initiative, when there are fewer country partners, most activities will be developed at the country-level. As the Initiative grows and more countries join, some trainings and workshops may be developed jointly within a region, with other regional partners specializing in data and statistics, to strengthen local/relationships and institutions, leverage synergies between countries, and find cost-efficiencies in implementation.

d. Conferences.

The Data Use Component will carry out larger, more formal conferences at the global and regional levels to promote learning across country-level experiences and provide global and regional insights into the measurement and achievement of SDG 2.3 and 2.4, primarily among policy-makers.

The **Global Annual Conference** will aim to 1) demonstrate how the survey data have and can be used to answer development questions and develop policy, programmatic, and investment solutions and to 2) showcase key examples of the application of the survey data in partner countries. A secondary aim of the Conference is to create networks of decision-makers among regions of the world who face similar challenges in achieving food security and sustainable agricultural growth. Conference participants will primarily be Decisionmakers from partner country government agencies and ministries, civil society organizations, donor/development organizations, academic institutions, and private sector organizations. The Initiative will ensure that all partner countries and all sectors described above are represented at the Conference. The number of participants will range between 100 – 250, including Initiative staff, with the numbers likely increasing as the Initiative grows and more countries are included.

Additionally, a series of **Regional Conferences** will be conducted to promote the dissemination of useful practices and advocacy among policy-makers within the six World Bank sub-regions the Initiative covers: Latin America and the Caribbean (LAC); East Asia and the Pacific (EAP); Central Asia, South Asia; Middle East and North Africa (MENA); and Sub-Saharan Africa (SSA). Regional Conferences take place on a multi-annual basis, not annually, across regions and be organized strategically based on the regional distribution of onboarded Initiative countries. The Data Use Component staff will engage partner countries to leverage their experiences and plan their contributions to the Regional Conferences.

D. **Tools to Promote Data Use**

Many tools that can support the promotion of data use already exist, including computer software and online platforms. The 50x2030 Initiative will assist the partner country to identify the best tools to address the priority constraints identified in the Data Ecosystem Mapping. While not at all exhaustive, the table below provides an illustrative list of tools that can be employed for promoting data use in 50x2030 countries.

Table 2: Illustrative List of Tools that Can Promote Data Use

| Tool	Possible Usage and/or Description
Advanced Data Planning Tool (ADAPT) by PARIS21	ADAPT is a free, cloud-hosted, multilingual and consultative data planning tool that helps data producers adapt their data production to the priority data needs. Functions include promoting the reuse of data and the quality assessment of data sources; reinforcing a co-ordinated data infrastructure in a national or regional context; enabling detailed data demand and supply analysis; monitoring of data plan activities, including costing and budgeting; producing a wide range of reports to inform decision-making.

Food and Agriculture Microdata Catalogue (FAM) by FAO	The FAM Catalogue provides and promotes public access to datasets collected through farm and household surveys which contain information related to agriculture, food security, and nutrition. FAM's aim is to be a one-stop-shop containing metadata on all agricultural censuses and surveys which are publically available as well as provide direct access and/or links to the microdata. Organizations which collect relevant data are also highly encouraged to submit datasets for dissemination through FAM.
QGIS	QGIS (until 2013 known as Quantum GIS) is a free and open-source platform desktop geographic information system (GIS) application that supports viewing, editing, and analysis of geospatial data. The application could be used to visualize survey data by geographic disaggregation.
ReSAKSS Country eAtlas	The RCeA is a GIS-based data exploration platform designed to help policy analysts and policymakers access and use high quality and highly disaggregated data on agricultural, socio-economic and bio-physical indicators to guide agricultural policy and investment decisions.
Statistical Software Packages, including R, SPSS, Stata	These multi-purpose data analysis and statistical software packages can be used for an array of needs such as data visualization and advanced analytical functions. The software offer a wide array of estimation and statistical features that apply both standard and advanced statistical methods and techniques. These statistical software packages enable data visualization techniques which can be printed, published, and reproduced. R is a free software; SPSS and Stata have associated costs.
Tableau Tableau Public	Tableau is an online data visualization software that has both free (Tableau Public) and paid versions. It is described as a business intelligence system that helps companies visualize and understand their data.

III.   Interaction and Synergies with 50x2030 Data Production Activities

Promoting the use of data requires addressing all of the factors identified in the Data Use Framework, which are linked to the various stages of the Data Cycle. While Data Use is the end objective, the Data Use activities will need to be designed to improve the demand, availability, access, awareness, utility and trust for data so that data will be used. As such, the activities and actions under the Data Use Component will interact with, parallel, and build from activities implemented under the Data Production Component.

The following diagram lays out where the Data Production Component activities and Data Use Component activities fall along the Data Cycle. Diagram 1 shows the links in the Data Cycle (rust color), while the green arrow shows which Data Production activities relate to each link and the blue arrow shows which Data Use activities relate to each link in the Data Cycle.

Figure 1. Diagram of the interaction of Data Use and Production Activities along the Data Cycle.
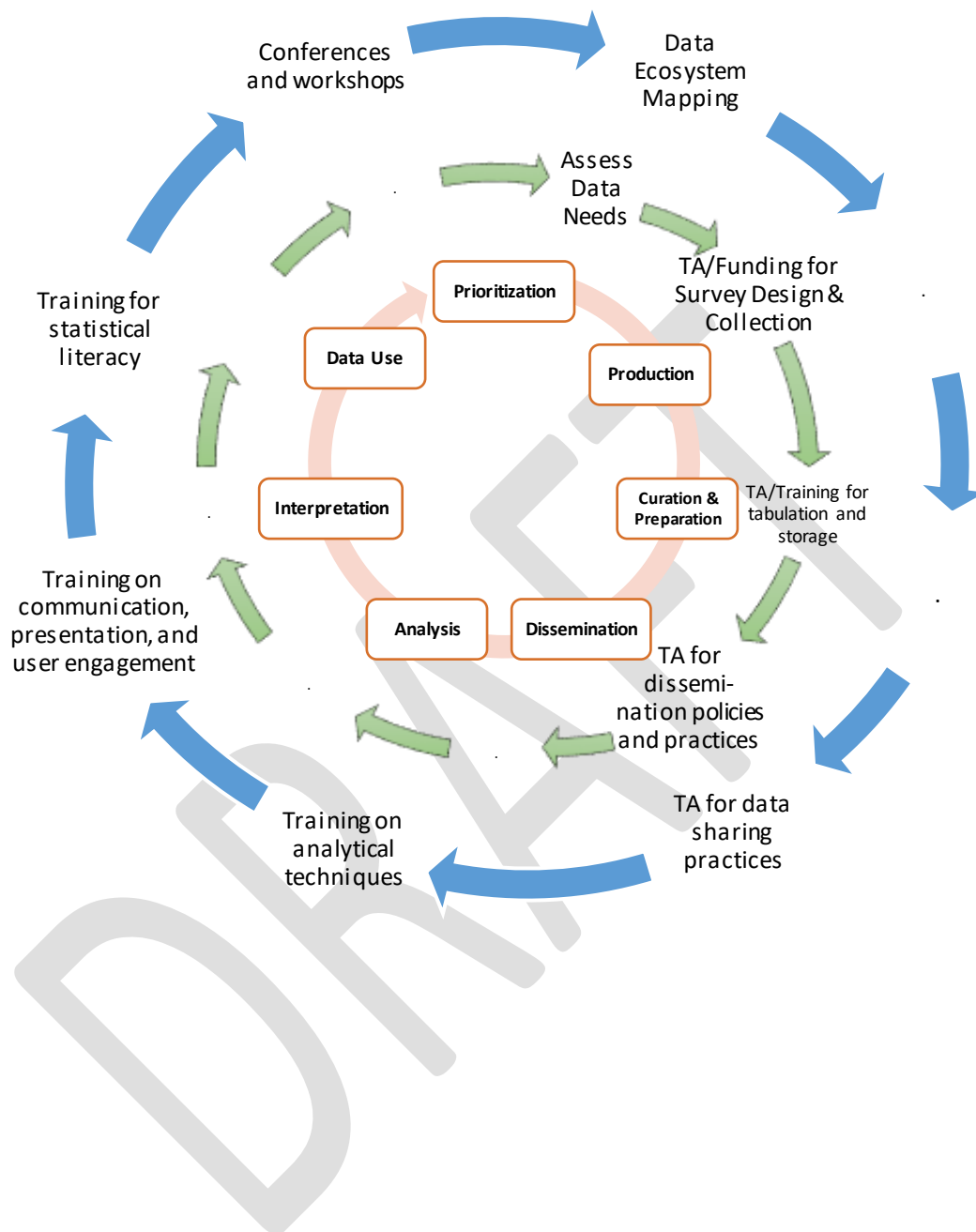
Data Ecosystem Survey Questionnaire

This survey will collect information related to the use of agricultural data in your country. Your responses will be kept confidential and will be reviewed along with reports from multiple respondents.

There are five sections of the questionnaire addressing the following topics:

1. Current use of data
2. Data demand and expertise
3. Data availability, awareness, and access
4. Data utility
5. Trust in data

Please provide some general information about yourself and your organization below to assist in summarizing the survey results.

If you wish to participate beyond the survey for potential clarifications and potential follow-up activities and projects, please provide your name and email for us to be able to contact you. *
Required

1. Respondent Name: *

   _____

2. Respondent Organization: *

   _____

3. Respondent Email Address (Optional):

   _____

4. Which of the following best describes your role? *

   Mark only one oval.

   ( ) Data Producer: An individual who produces data through the steps of collection, curation/preparation, and dissemination. Data Producers work with the raw survey data, generating the data sets and survey reports which can be utilized by Data Intermediaries for further analysis or Decision Makers to answer questions and inform decisions.

◯ Data Intermediary (Researchers and Analysts): An individual who takes existing summary tables or microdata sets and adds value to them by conducting analyses and interpreting them to answer questions and possibly make recommendations for action. These intermediaries or analysts take the existing data generated by producers and turn them into information and evidence through an analytical process.

◯ Decision Maker: An individual who applies the data to answer questions and inform decisions related to programs, policies, or investments.

Current use of Data

The following questions address the topic of if and how data are currently used.

5. To what extent are government staff, academics, the private sector, and others using the agricultural and rural data produced in your country for making decisions and informing policies and programs?

    Mark only one oval.

    ◯ Fully used

    ◯ Widely used

    ◯ Somewhat used

    ◯ Used a little, but not much

    ◯ Not used at all

    ◯ Do not know

6. Please describe ways in which you use agricultural and rural data produced in your country.

    _____

    _____

7. If you are not able to use data but want to, what support or interventions would help you be able to use it?

    _____

Data Demand and Expertise

The following questions will address the topic of demand for data, the extent to which decision makers and data users want data to use to make their decisions, and whether they know how to use it.

8.   What agricultural or rural data do you need most for your work?

_____

_____

9.   How much do you depend on accurate agricultural and rural data to do your job well?

Mark only one oval.

◯ My work must be informed by accurate data to be good

◯ Accurate data are useful for my work, combined with other factors like experience and political priorities

◯ Experience, intuition, and political priorities are as important in my work as accurate data

◯ Experience, intuition, and political priorities are usually more helpful in my work than accurate data

◯ I don't need data to do my job well

10.   How strongly do you agree or disagree with the following statement: Government agencies within the country support evidence-informed approaches when developing policies, national plans, and strategies.

Mark only one oval.

◯ Strongly Disagree

◯ Disagree

◯ Neither Agree nor Disagree

◯ Agree

◯ Strongly Agree

◯ Do not know

11.   How well can you understand the agricultural and rural data produced in your country?

Mark only one oval.

◯ I understand it perfectly and can apply it in all situations

◯ I can understand and use most of the data I receive

◯ I understand and can use some of the data I receive, but there are some formats or statistics I don't understand or know how to apply

◯ I really do not understand and cannot use much of the data I have, but I would like to

◯ I do not understand and cannot use much of the data I have, but it does not matter

Data Availability, Access, and Awareness

The following questions will address the issue of data availability, awareness and access. Availability relates to data that are produced and exist but it does not necessarily mean they are available to decision makers and data users. The issue of data awareness evaluates to what extent decision makers or data users know the data are available and that they have access to the data that are produced.

12.   Are the agricultural or rural data needed by you produced in your country?

Mark only one oval.

○ All of the data needed are produced

○ Most of the data are produced

○ Some of the data are produced

○ Almost none of the data are produced

○ None of the data are produced

13. What agricultural or rural data should be produced in your country that are not being produced?

_____

_____

14. Which agricultural and rural data sources are available to you to use in your work? (If "Other" is selected, please enter a description in the space provided)
Check all that apply.

☐ Agricultural surveys

☐ Rural household surveys

☐ Agricultural census

☐ Population/household census

☐ Administrative data

☐ Sector Reports

Other: ☐ _____

15. Where or how are those data sources currently published? (National Government websites, other organizational websites, online data repositories, journals, etc)

_____

_____

16. How strongly do you agree or disagree with the following statement: Data users and decision makers are aware of all of the existing agricultural and rural data that the country has.

Mark only one oval.

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither Agree nor Disagree
- ◯ Agree
- ◯ Strongly Agree

17. Do potential data users and decision makers have access to the existing agricultural or rural data produced in your country?

Mark only one oval.

- ◯ Users can get all of the data that is produced
- ◯ Users can get most of the data produced
- ◯ Users can get some of the data produced
- ◯ Users do not get most of the data produced
- ◯ Users get none of the data produced

18. How strongly do you agree or disagree with the following statement: In my country, there are adequate procedures that govern access to agricultural and rural data with adequate dissemination channels for accessing the data.

Mark only one oval.

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither Agree nor Disagree
- ◯ Agree
- ◯ Strongly Agree
- ◯ Do not know

19. How easy is the process to get the data you want to access?

Mark only one oval.

○ Very Easy

○ Easy

○ Difficult

○ Very Difficult

20. What are the barriers that complicate access to agricultural and rural data produced in your country? (If "Other" is selected, please enter a description in the space provided)

Check all that apply.

☐ No barriers exist

☐ Financial

☐ Technical

☐ Administrative

☐ Legal

Other: ☐ _____

21. If any of the barriers were selected above, please provide details below on how access to agricultural and rural data produced in your country is restricted.

_____

Data Utility

The following questions will address the topic of data utility. Utility involves data being relevant and useful to the decision makers or data users for the decisions they need to make.

22. Are the agricultural and rural data available to data users currently insufficient or inadequate in any of the following ways? (Please check all that apply)

Check all that apply.

☐ No, data are sufficient in all ways

☐ Variables or indicators provided are insufficient

☐ Level of disaggregation is insufficient

☐ Categories of disaggregation (geographic, sex, etc) are insufficient

☐ Timeliness is insufficient

☐ Frequency is insufficient

23. If you answered that data are not sufficient in any of the ways described above, please provide useful details on what specifically needs to be improved.

_____

_____

24. Are agricultural and rural data produced in your country (data sets and summary tables) offered in the most useful formats to support decision making?

Mark only one oval.

⬭ The data sets are in the best formats possible

⬭ The data sets are in useful formats

⬭ The formats are useful, but could be improved

⬭ For the most part, the formats are not useful

⬭ The data sets are not in useful formats at all

25. What formats of agricultural and rural data produced in your country are the best and most useful to support targeted decision making? (for example, data sets in excel tables, data sets in csv files, other statistical software formats, online data portal, etc)

_____

_____

26.   Is the analyzed information produced from data provided in the most useful products (summary reports, policy briefs, infographics, push SMS) to help decision makers with their work?

Mark only one oval.

◯   The information is in the best product possible

◯   The information is in useful products

◯   The products are useful, but could be improved

◯   For the most part, the products are not useful

◯   The information is not provided in useful products at all

27.   What information products (reports, policy briefs, infographics) are the most useful ways to provide data that support targeted decision making?

_____

_____

Trust in the Data

The following questions will address the topic of trust in the data and to what extent decision makers and data users believe the data are useful and accurate.

28.   Do you believe the agricultural or rural data made available, which you've described in the previous section, are accurate and trustworthy?

Mark only one oval.

◯   Completely

◯   The majority are accurate and trustworthy

◯   Some are accurate and trustworthy, but some are not

◯   For the most part, the data are not accurate and can't be trusted

◯   The data are not accurate or trustworthy at all

◯   Do not know

29.   Why do you think some are not accurate or trustworthy? (Answer if applicable. If

"Other" is selected, please enter a description in the space provided)

Check all that apply.

☐ The organization producing the information has insufficient capacity to produce accurate data

☐ The organization producing the information has insufficient capacity to protect and manage data

☐ Data are altered due to political interference

Other: ☐ _____

30. What about the agricultural or rural data and information could be improved to increase accuracy and trustworthiness?

_____

_____

31. With the support of the 50 x 2030 Initiative, the National Statistical Office will be conducting an agricultural or rural survey that can hopefully produce much of the data decision makers need. What other agricultural or rural data sources will provide data similar to or in complement to the survey?

_____

_____

32. Are there other agricultural or rural data sources available that you think will be more useful or important than the agricultural or rural survey the National Statistical Office will produce?

Mark only one oval.

◯ The survey will be the official source, but there are other data sources that will complement it

◯ The survey is important, but other sources are just as important

◯ There are other data sources that will be more accurate and trusted

◯ The survey data are not/will not be accurate or trustworthy at all

33. How strongly do you agree or disagree with the following statement: Agricultural and rural data produced by the National Statistical Office are well documented and of good quality.

Mark only one oval.

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither Agree nor Disagree
- ◯ Agree
- ◯ Strongly Agree

Respondent Information

Please provide the information below for summary purposes.

34. What is your age (in years)?

_____

35. What is your sex?

Mark only one oval.

- ◯ Male
- ◯ Female

36. What is the highest degree or level of school you have completed? (If "Other" is selected, please enter a description in the space provided) *Mark only one oval.*

- ( ) Primary school
- ( ) Lower-secondary school
- ( ) Post-secondary vocational or technical training
- ( ) Bachelor or Equivalent Degree/University first-degree
- ( ) Master or Equivalent Degree
- ( ) Doctor or Equivalent Degree
- ( ) Other

_____

37. What field(s) best describe your educational background? (If "Other" is selected, please enter a description in the space provided)

Check all that apply.

- [ ] Agronomy
- [ ] Agricultural Economics
- [ ] Agricultural Sciences
- [ ] Economics
- [ ] Finance
- [ ] Public Administration
- [ ] Public Policy
- [ ] Statistics
- [ ] Social Science
- [ ] Veterinary Medicine

Other: [ ] _____

38. Which descriptor(s) best describe your current position? (If "Other" is selected, please enter a description in the space provided)

Check all that apply.

☐ Agronomist

☐ Academic Researcher

☐ Development Worker

☐ Economist

☐ Public Planning

☐ Budget Analyst

☐ Program Analyst

☐ Professor/Instructor

☐ Statistician

☐ Veterinarian or Veterinary Specialist

Other: ☐ _____

39.   How long have you been with your current organization (in number of years)?

_____

40.   In which of the following languages can you read and write?

Check all that apply.

☐ LANGUAGE 1

☐ LANGUAGE 2

☐ LANGUAGE 3

☐ LANGUAGE 4

☐ LANGUAGE 5

Annex 2

DATA ECOSYSTEM MAPPING

STANDARD INTERVIEW PROTOCOL

Overview

This Protocol provides instructions on the script and procedures to be used for the interviews under the 50x2030 Data Ecosystem Mapping. These interviews are intended to be semi-structured, providing a framework of intended objectives of the interview while allowing flexibility for the interviewer to use her/his judgment to determine the most productive course of questioning. Interviews conducted under the Data Ecosystem Mapping exercise may address 1) respondents who have first responded to the written Data Ecosystem Survey Questionnaire, building off of their responses, or 2) respondents who have not first responded to the written Survey (e.g. high-level officials).

The interviews are intended to collect information on the current status of data use and the seven factors (and their sub-factors) which enable data use. To ensure the Interview covers all needed topics, while flowing naturally, the Protocol is organized in five sections:

1. Current use of data
2. Data demand and expertise
3. Data availability, awareness, and access
4. Data utility
5. Trust in data

Instructions to the Interviewer

Your goal is to elicit information to meet the objectives stated under each section. You should prepare before the interview by reviewing the protocol and any background information on the respondent before the interview. The interview will be impacted by whether the respondent has previously done the written Survey, and the interviewer should have read beforehand the survey responses of the respondent if conducted. Questions should also be strategically selected or worded based on whether the respondent is a Data Producer, Data Intermediary, or Decision-maker. The interview should take 45 minutes to one hour, and questioning should be developed accordingly.

Suggested Interview Script

Good morning (afternoon). My name is _____. I work for _____ and am helping conduct interviews that are part of the assessment of the Data Ecosystem for the 50x2030 Initiative. Thank you for your time today. Your input is really important to helping us understand how agricultural and rural data are being used to inform decisions in ___COUNTRY___ and any reasons why data and information aren't being used in the decision-making process.

The purpose of this interview is to get information on your experiences and thoughts on the use of agricultural and rural data in ___COUNTRY___. We asked you to participate in an interview

because of __(provide appropriate reason such as...your role in your organization, your involvement with XXX survey, etc.)__. There are no right or wrong or desirable or undesirable answers. I would like you to feel comfortable with saying what you really think and feel. Your responses will be kept confidential and will be reviewed along with reports from multiple respondents.

Your privacy is important to us. Private information, like your name or title, will not be shared with anyone outside the researchers working on the Ecosystem assessment. Some parts of your responses may be shared with the public, but no information will be shared that can link you to the response.

If it is okay with you, I will be recording our conversation. The purpose of recording is so that I can get all the details but still have an attentive conversation with you and so that we can transcribe the conversation into written form for more objective analysis along with other interviews. I assure you that all your comments will remain confidential. We will be using your responses to inform the design of the Ecosystem Map for Cambodia.

There are five sections of the questionnaire addressing the following topics:
1. *Current use of data*
2. *Data demand and expertise*
3. *Data availability, awareness, and access*
4. *Data utility*
5. *Trust in data*

Do you have any questions about the interview before we begin? (wait for comments/questions and then resume) *If in the future you have any questions or comments, you can contact Emily Hogue from the International Fund for Agricultural Development in Rome, which is overseeing this study. Her email is* e.hogue@ifad.org *and her phone number is +1-305-519-4848.*

Let's get started. Our first questions are around the use of agricultural and rural data in your country.

Section 1: Current use of data

Objective: To elicit information on if and how agricultural data are currently used by the respondent and/or in the country.	
Proposed Questions	
For all respondents:	1. *Do you think people are using the agricultural and rural data produced in your country for making decisions?* a. *Can you give a specific example?* b. *Which stakeholder groups are using it the most? By that I mean government, private sector, academia, development partners, and civil society.* c. *Which group is not using it?* d. *Why do you think that is?*
For survey respondents only:	2. *On the survey, you responded that _____ would help you use data better. Can you tell me more about that?* (Interviewer should ask specific, relevant follow up questions).

Section 2: Data demand and expertise

Objective: To elicit information on the extent to which decisionmakers and data users want data to use to make their decisions and whether they know how to use it.	
Proposed Questions	
For all respondents:	3. *What are the goals of your organization in terms of using data in decisions?*
	4. *How do you think people in your organization feel about using data?*
	5. *How does data help you make decisions in your organization?* a. *Can you give a specific example of that?*
	6. *Can you describe an instance when you were able to use data and apply it in a way that made a difference in your work?* (Interviewer should ask follow up questions to clarify the type of data and data source for the example.)
	7. *Can you describe an instance when data were available but you found it difficult to use the data for some reason?* a. *What do you think would have helped you use the data?* Alternate wording for high-level officials: *Can you describe an instance when data were available but staff at your ministry found it difficult to use the data?*

	8. *In terms of understanding the data and being able to use it, what capacities do you think are missing within the statistical system, or particularly within your organization?*
	    a. *Who lacks those capacities?*
	    b. *How could they be improved?*

For survey respondents only:	9. *On the previous survey, we asked you how data helps you make decisions in your organization. Could you talk through a specific example of that?* Alternate wording: *I'd like to follow up on the example you gave. Could you tell me more about _____?*

Section 3: Data availability, awareness, and access

Objective: To elicit information on to what extent data that the stakeholders need is available, whether they have access to needed data, and whether they are aware of existing data sources in the country. (Note that awareness will be assessed by comparing objective information gleaned through the desk review and other interviews versus what the respondent believes to be true.)	
Proposed Questions	
For all respondents:	10. *Are the data you/a data user needs available to use?* a. *If any you need aren't available, why do you think that is?*
	11. *In the last 12 months, was there a particular type of data or piece of information you needed that was not available?* a. *Can you tell me more about that?*
	12. *What do you think needs to happen to make needed data available?*

	13. What agricultural and rural data collected by your country can you and your staff access? a. What isn't available to you? 14. What agricultural and rural data can the public access? What isn't available to the public?
For survey respondents only:	15. In your survey response, you listed X as a barrier to accessing data. a. Can you explain that a bit more? b. How do you think that barrier could be removed?

Section 4: Data utility

Objective: To elicit information on whether generated data and data products are relevant and useful to decisionmakers and how data could be made more useful to decisionmakers.	
Proposed Questions	
For all respondents:	16. Of the agricultural and rural data produced in your country that you have used, were any not useful to you for some reason? a. Why do you think that was? 17. How could the data available be more useful? 18. Could the formats in which the data are provided be made more useful? a. How? b. (Interviewer can prompt about data platforms, report types, microdata sets, and other data products.) 19. What would be the best way for you to receive the information you need? a. (Interviewer can give examples of reports, presentations, text messaging, infographics/flyers, etc.) 20. Is there any way to make the information products you receive now more useful?
For survey respondents only:	21. On the survey, you said_____ were the most useful ways to receive data that was useful for targeted decisionmaking, do you have any good examples of that from your experiences?

Section 5: Trust in data

Objective: To elicit information on whether data are trusted and believed to be accurate and if not, why not.	
Proposed Questions	
For all respondents:	22. How much do you trust the quality of the data you receive now? a. Why is that? 23. Do you think ORGANIZATION has the right capacities and staff to produce the needed data? a. What could be improved? 24. Beside capacity constraints, are there any other reasons the data released are not accurate?

	25. *Are there other data sources that are as important or more important than the [INSERT NAME OF ANNUAL AGRICULTURAL AND RURAL SURVEY]?* a. *How do they address data needs better than the [SURVEY]?*
For survey respondents only:	26. *On the survey, you said_____ could help increase the accuracy and trustworthiness of the data. Can you provide more details on that?*