



Food and Agriculture Organization
of the United Nations

Piloting New Approaches for Long-term Sustainability of ASTI

Country Pilot Workshop, FAO HQ, Rome

15-16 April 2024

>> Agriculture Science and Technology Indicators (ASTI)

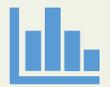
Workshop Objectives



Introduce the ASTI program and its new operational mechanisms



Discuss strategies to enhance the long-term institutionalization of ASTI and to maximize policy uptake of ASTI outputs at the national level



Initiate dialogs between NARIs and NSOs to build a common understanding of their roles and responsibilities in the new approach



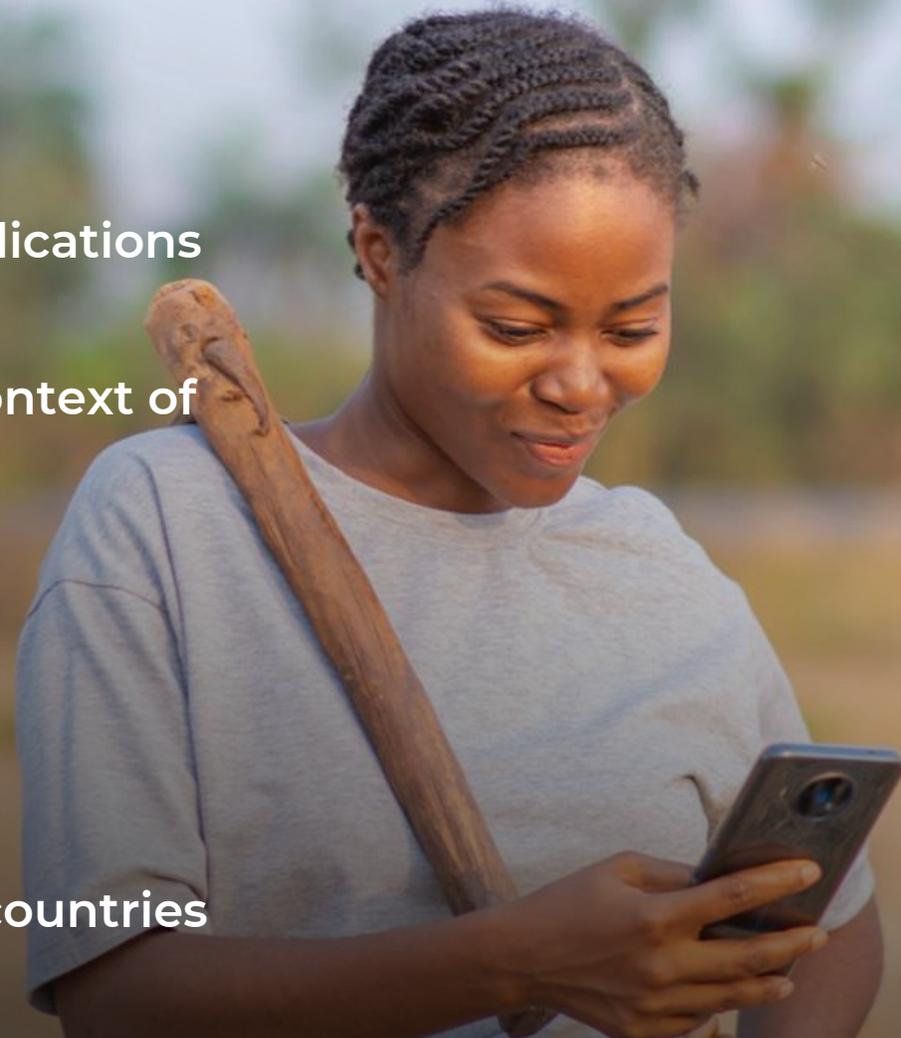
Train participants on the ASTI methodology, data management portal, data collection and survey processing monitoring



Discuss and collectively formulate an agreed methodology and way forward for implementation of the ASTI pilot in each country

Over all agenda

1. Introduction to the ASTI program
2. The institutionalization of ASTI and its implications on models of collaboration
3. Introduction to the country pilots in the context of moving towards institutionalization
4. Overview of ASTI survey methodology
5. ASTI survey and data collection process
6. Data Management Portal and in-country implementation
7. Presentation and review of workplans by countries and MEL process



Self Introduction

(1 minute)

Meaning of
my name ...

Or

A fun fact
about me ...





Session 1: Introduction to ASTI Program

1. What and why is ASTI?
2. Uses of ASTI data
3. Data collection
4. Transition into FAO
5. Sustainability and expansion
6. Discussion



What is ASTI?

A global reference on agriculture R&D investments and capacity of NARS

The Agricultural Science and Technology Indicators (ASTI) collects institutional investment, human resource, and research output data from agricultural R&D agencies in developing countries worldwide

Why ASTI: quantitative data are essential for stakeholders to:

- analyze trends in agricultural R&D capacity, investments, and outputs
- better coordinate agricultural R&D across institutes, regions, and commodities
- identify gaps
- set future investment priorities



Strategic Areas of ASTI Program



DATA



Building comprehensive, high-quality, and internationally comparable data products that are made easily accessible to stakeholders

ANALYSIS



Developing and implementing a demand-driven analytical research agenda through a network of national/regional experts

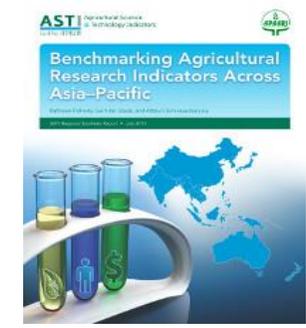
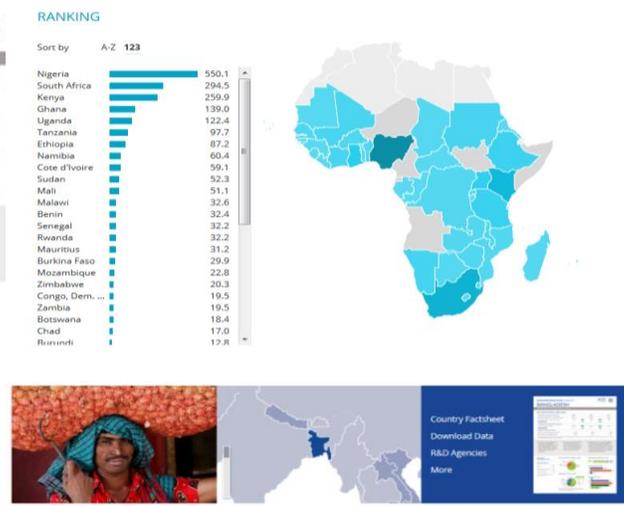
OUTREACH



Developing communication strategies for regional and national network partners



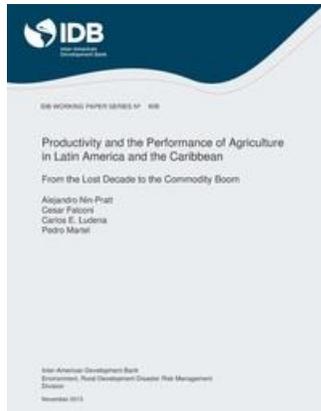
1.1 Data



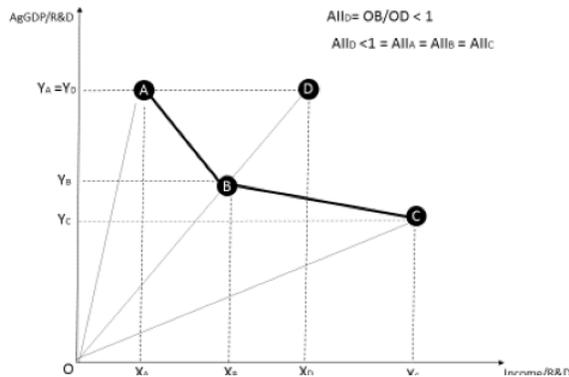
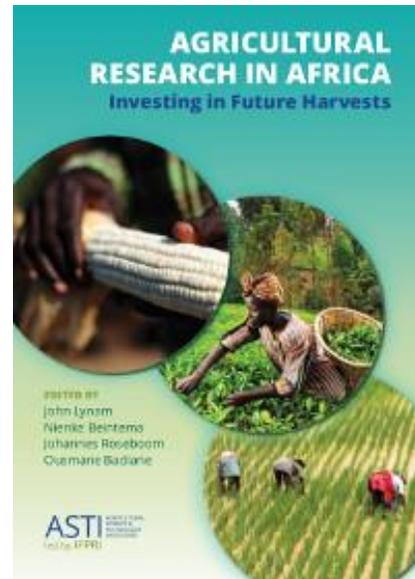
- ## ASTI indicators
- Institutional arrangements
 - R&D spending by cost category
 - Funding sources
 - R&D staff by degree, gender, and age
 - R&D focus by commodity and theme
 - Output indicators

- ## Outputs
- Country factsheets
 - Regional and global synthesis reports
 - Online datasets and tools (www.asti.cgiar.org)

1.2 Analysis



$$CII = \frac{CPA}{TPA} \times \left[\frac{A_r}{CPA} \times \frac{A_h}{A_r} \times \frac{Y_c}{A_h} \right]$$



$$\omega_{ij} = (\omega_{ij}^q \times \omega_{ij}^f)^{1/2} = \left(\frac{\sum_{m=1}^M q_{mi} q_{mj}}{(\sum_{m=1}^M q_{mi}^2)^{1/2} (\sum_{m=1}^M q_{mj}^2)^{1/2}} \times \frac{\sum_{n=1}^N f_{ni} f_{nj}}{(\sum_{n=1}^N f_{ni}^2)^{1/2} (\sum_{n=1}^N f_{nj}^2)^{1/2}} \right)^{1/2}$$

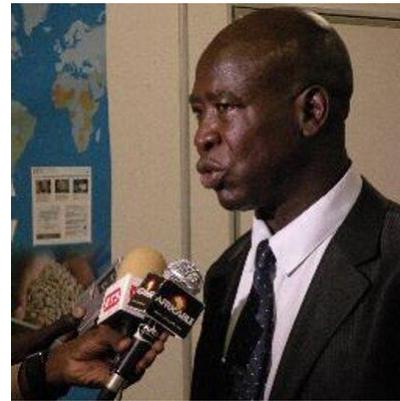
ASTI analysis

- Examine the performance, strengths, weaknesses, and challenges of ag R&D
- Evaluate the impact of past and future research investment on the performance of research systems and the agricultural sector
- Forward looking analysis on the future performance of research systems under different investment scenarios
- Strengthen in-country analytical capacity through joint research projects and the development of training manuals

Outputs

- Analytical reports and articles
- Training manuals and toolkits

1.3 Outreach



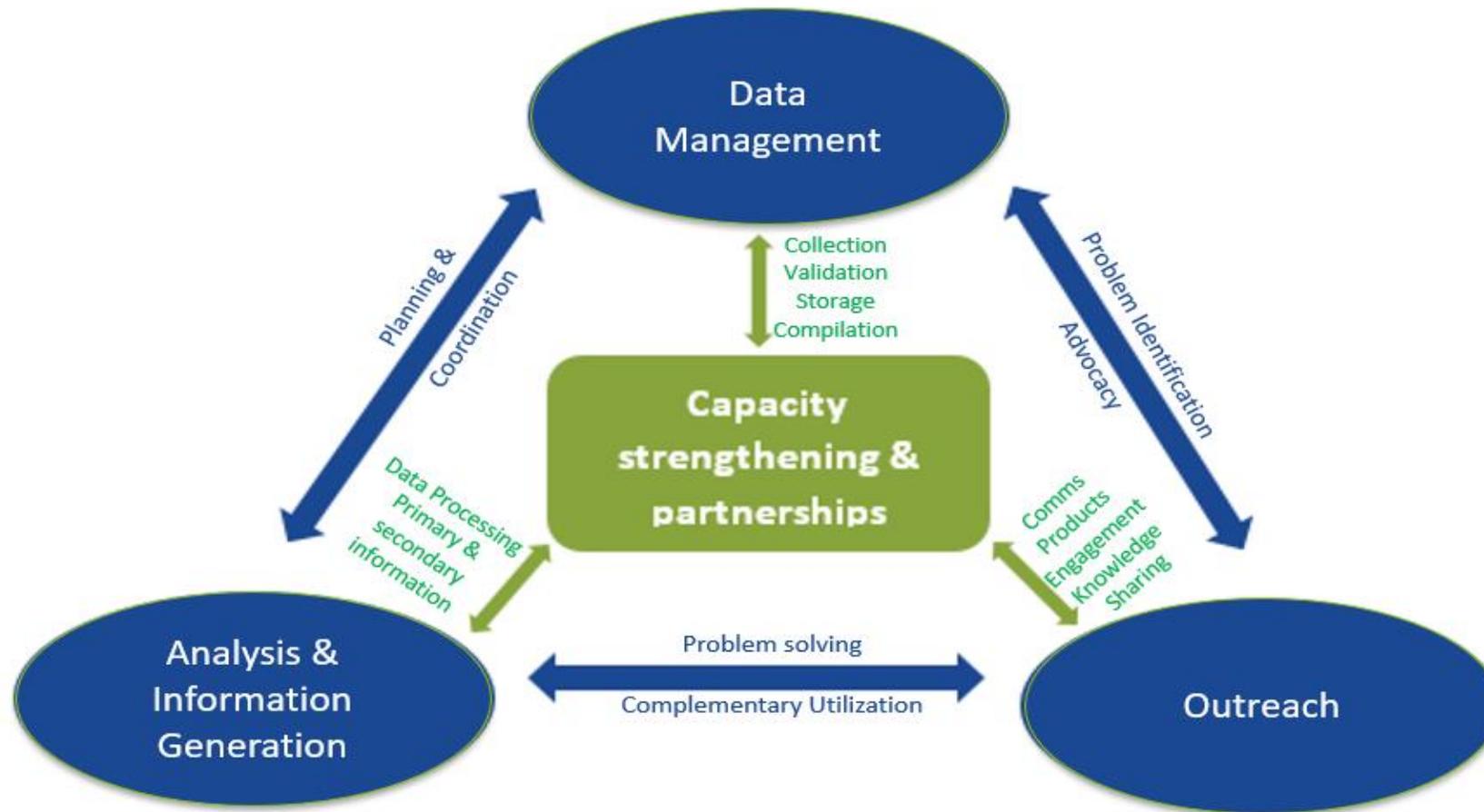
ASTI outreach

- Large-scale national- and regional-level outreach of project outputs and key findings
- Identify national-level policy influence pathways and work with NARS leaders on national-level outreach plans to ensure uptake of the findings
- Explore ways to embed ASTI evidence in broader agricultural policy or M&E frameworks

Outputs

- Seminars, presentations, conferences
- One-on-one meetings with decisionmakers
- Press, media, web
- Outreach toolkit

1. Strategic Areas of ASTI Program



1.4 ASTI Country Coverage

Running from 1981 to 2018, ASTI recorded a relatively broad country coverage, conducting data collection in more than 80 developing countries.

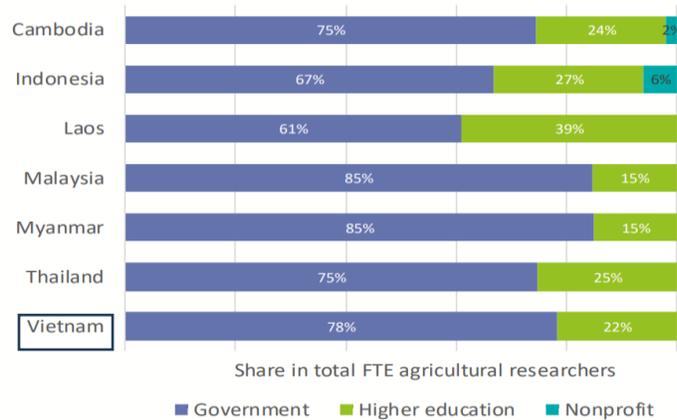
2. Users of ASTI



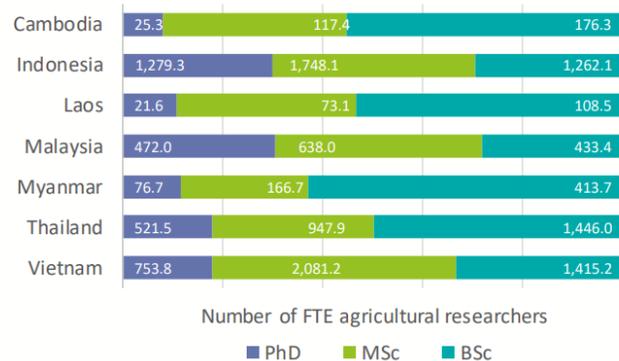
2.1 Uses of ASTI - Global/Regional perspectives

I. Characterization of Agricultural Research Human Capital

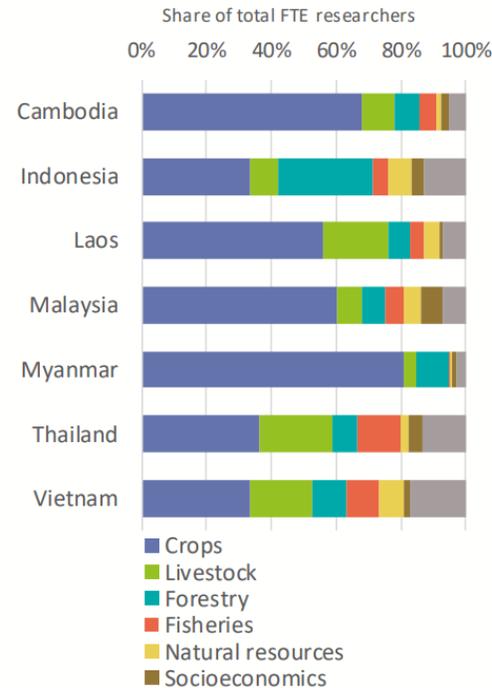
Institutional composition of agricultural R&D, 2017



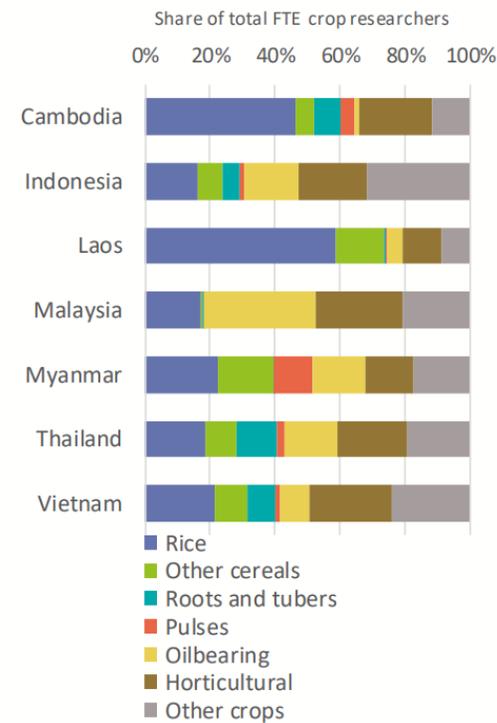
Distribution of agricultural researchers by degree, 2017



Research focus by commodity group, 2017



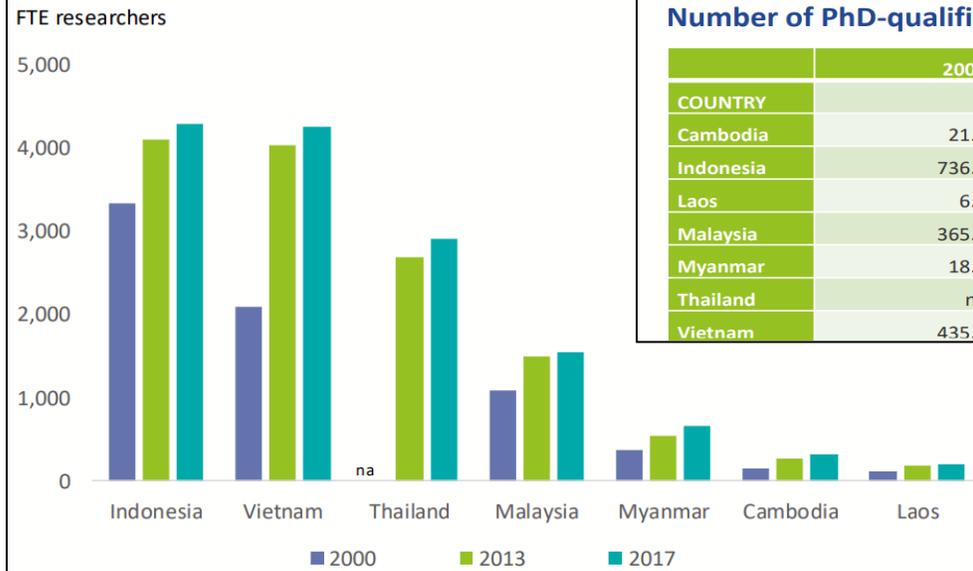
Research focus by crop category, 2017



2.1 Uses of ASTI - Global/Regional perspectives

II. Trends in Agricultural Research Human Capital

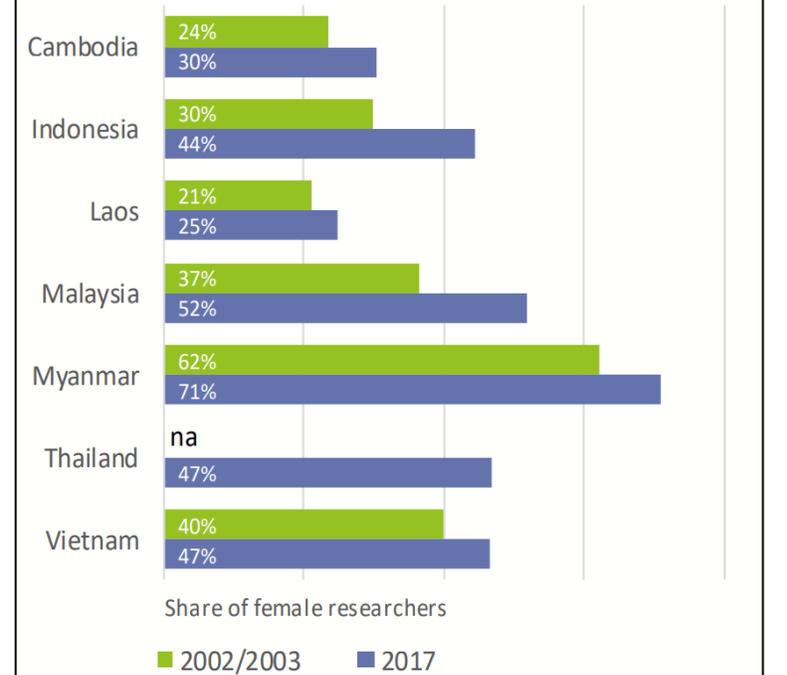
FTE agricultural researchers by country, 2000, 2013, and 2017



Number of PhD-qualified agricultural researchers, 2003, 2010, and 2017

COUNTRY	2003	2013	2017
(full-time equivalent researchers)			
Cambodia	21.1	18.0	25.3
Indonesia	736.0	1,091.1	1,279.3
Laos	6.4	25.4	21.6
Malaysia	365.9	435.8	472.0
Myanmar	18.8	59.2	76.7
Thailand	na	467.9	521.5
Vietnam	435.9	654.3	753.8

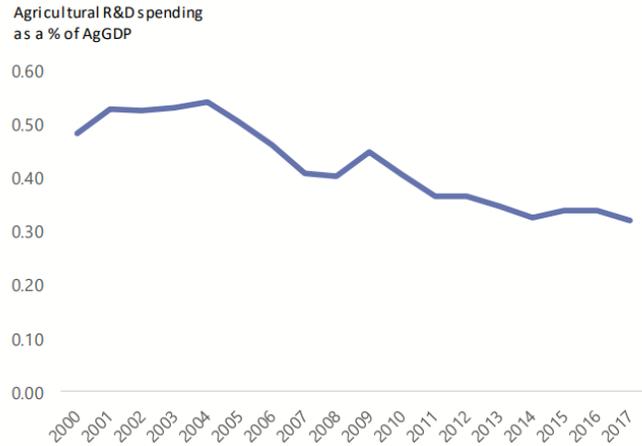
Share of female agricultural researchers, 2002/03 and 2017



2.1 Uses of ASTI - Global/Regional perspectives

III. Trends in Investment in Agricultural Research

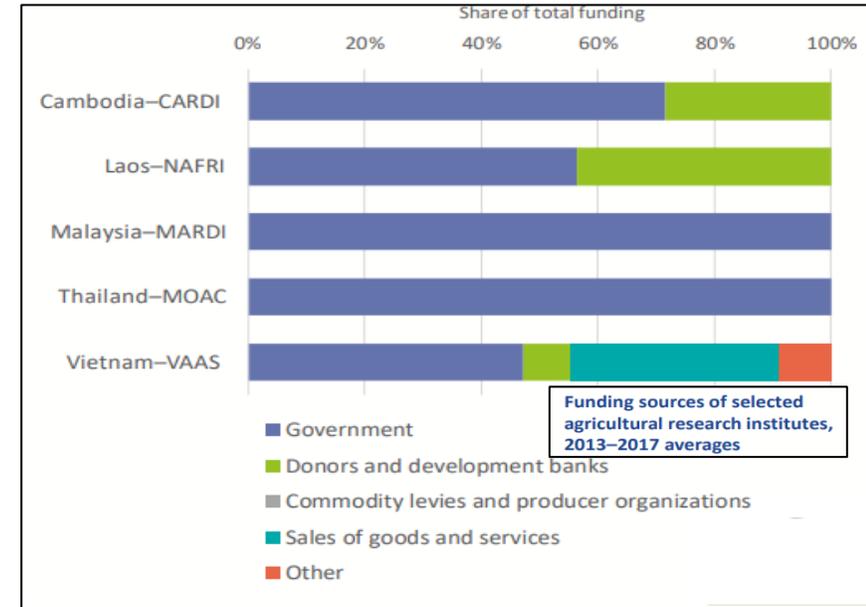
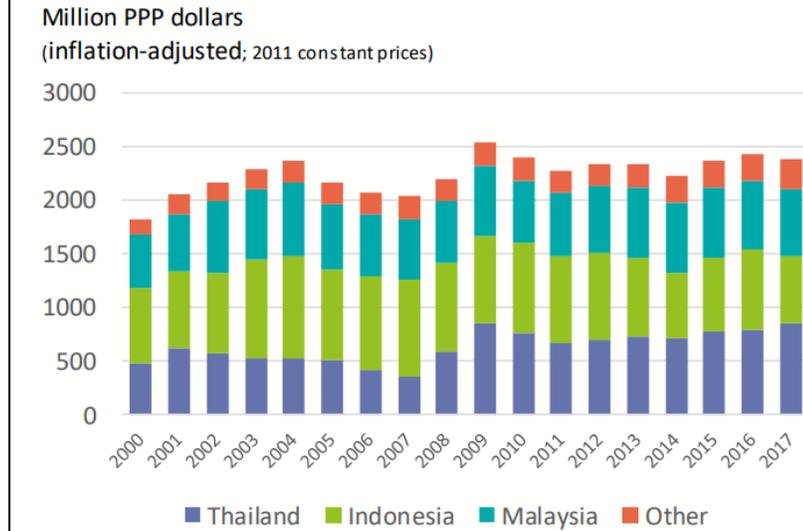
Agricultural research spending as a share of agricultural GDP, 2000–2017



Country-level spending, 2017

COUNTRY	Million PPP dollars (2011 constant prices)
Cambodia	30.2
Indonesia	629.7
Laos	19.3
Malaysia	627.0
Myanmar	46.6
Thailand	847.2
Vietnam	177.6

Agricultural research spending, 2000–2017



2.1 Uses of ASTI - Global/Regional perspectives

V. Scenario assessments & policy advice

- (a) Business as usual across the region
- (b) All countries closing the gap on Agricultural Research investment
- (c) Different priority investment scenarios
- (d) Long-term impact investment scenarios

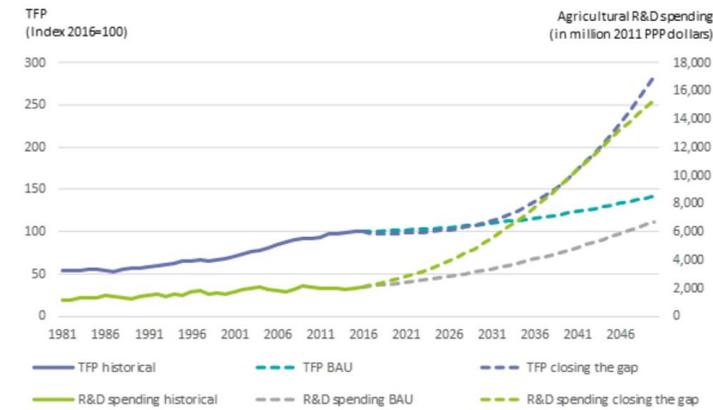


FUTURE PRODUCTIVITY RESPONSE TO HIGHER RESEARCH INVESTMENT TODAY

If all countries close their R&D investment gap by 2030, regional agricultural productivity levels in 2050 are projected to be nearly 3 times higher than 2017 levels.

In contrast, if R&D investments continue to increase at long-term historical rates into the future, regional productivity would grow at just 42 percent during 2017–2050.

Regional productivity projections under two investment scenarios: 1) business-as-usual; and 2) closing the R&D investment gap by 2030



TFP = Total factor productivity
BAU = business-as-usual

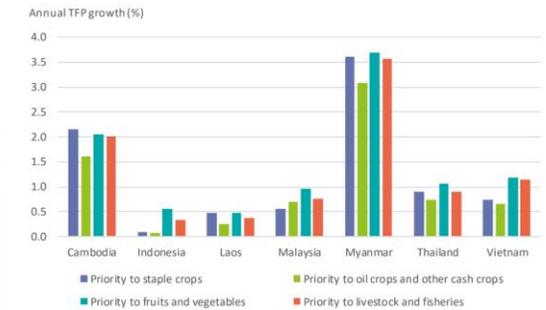
Note: In the business-as-usual scenario (BAU), R&D investment increases at a yearly rate of 1.4 percent between 2017 and 2030. To close the investment gap by 2030, regional agricultural R&D spending needs to increase by 5.5 percent per year. It is assumed that after 2030, R&D investment growth rates decrease gradually to 3.5 percent in 2050.



PRODUCTIVITY GROWTH UNDER ALTERNATIVE INVESTMENT PRIORITIZATION SCENARIOS

- In Indonesia, Malaysia, and Vietnam, fastest future productivity growth will be achieved by prioritizing R&D investment in high-value commodities.
- Prioritizing R&D investment in staple crops will still generate high future productivity growth in Cambodia, Laos, Myanmar, and Thailand.

Projected annual agricultural productivity growth during 2017–2050 under four different scenarios of R&D investment prioritization



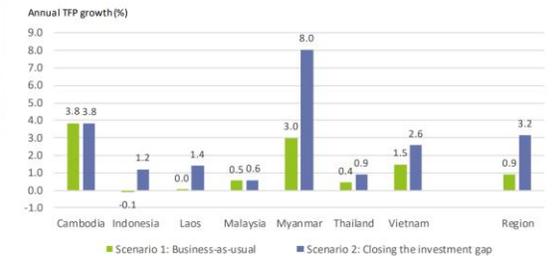
Note: In these 4 scenarios, investment in priority commodities increases at an annual growth rate of 6 percent during 2017–2050, while investment in all other activities increases at an annual growth rate of 3 percent during 2017–2050.



FUTURE PRODUCTIVITY RESPONSE TO HIGHER RESEARCH INVESTMENT TODAY

- Raising agricultural research spending to levels that will close the investment gap will trigger considerable agricultural productivity growth across Southeast Asia.
- Projected productivity gains will be highest in Myanmar and Cambodia.

Projected annual productivity growth during 2017–2050 under two investment scenarios: 1) business-as-usual; and 2) closing the R&D investment gap by 2030

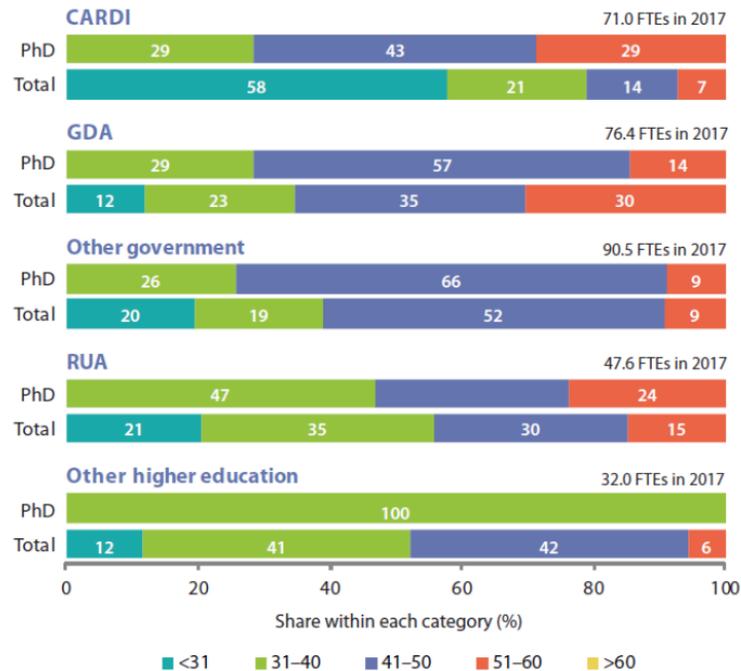


Note: The business-as-usual scenario uses average historical growth rates to project future investment, while growth of investment in the "closing the investment gap" scenario is calculated as the annual rate that allows the country to go from the actual to the attainable level of investment between 2016 and 2030

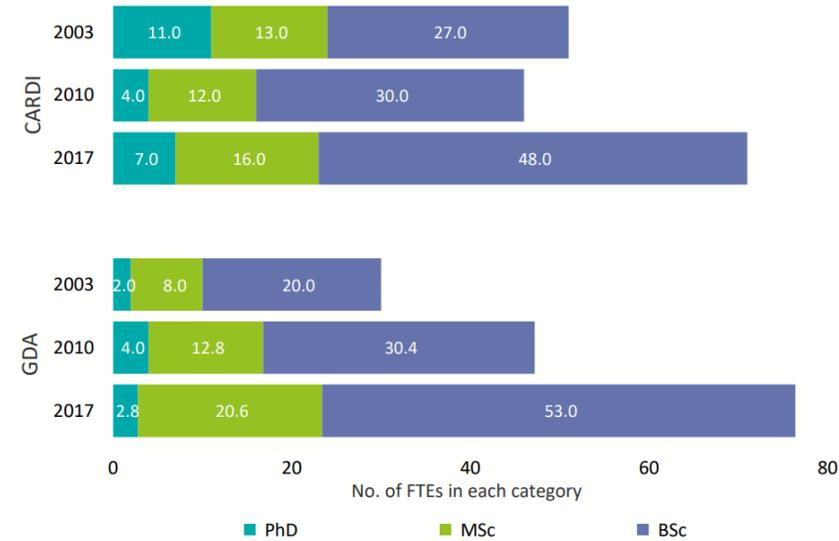
2.2 Uses of ASTI – National/Sectoral/Institutional perspectives

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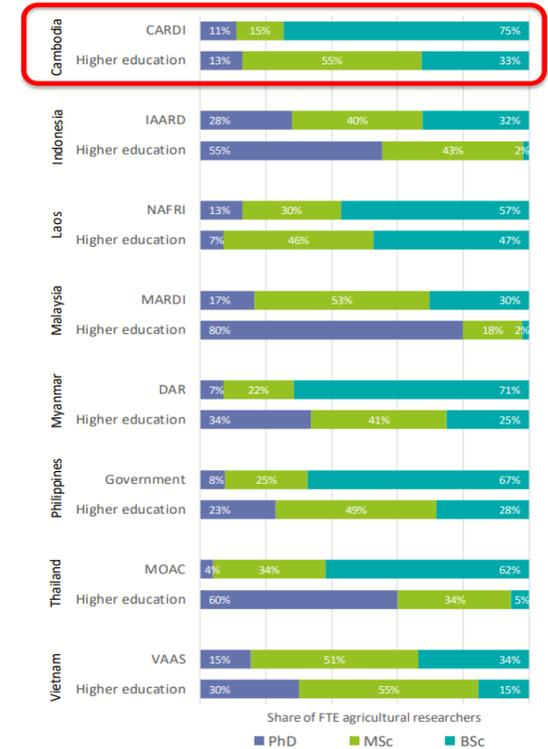
Agricultural researchers by age bracket, 2017



Agricultural researchers by degree, 2000 and 2013–2017



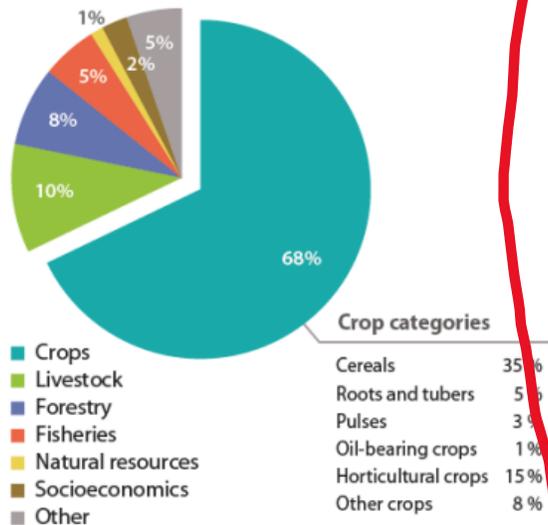
Distribution of agricultural researchers by degree, 2017



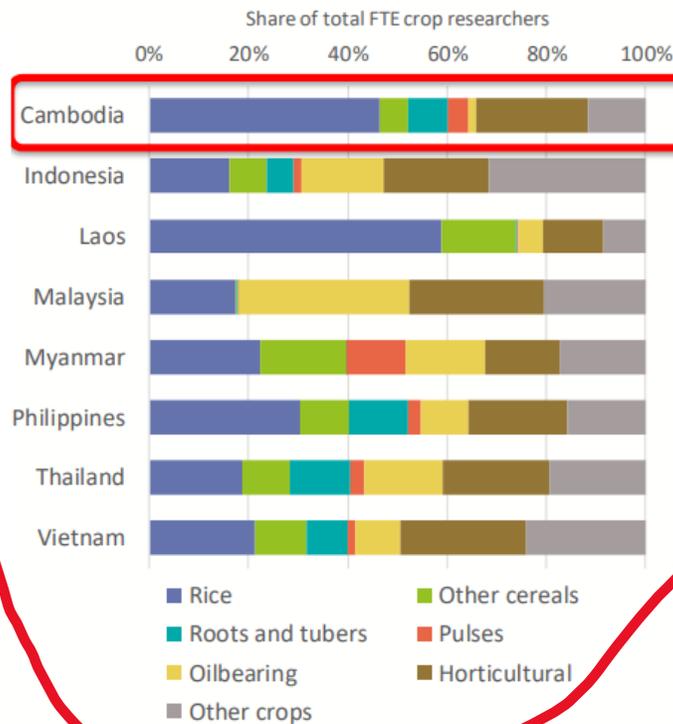
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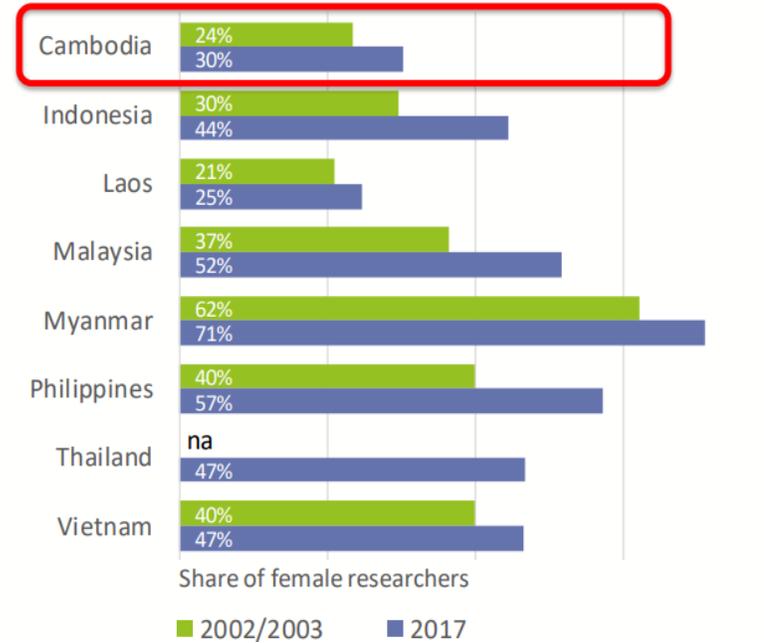
Cambodia: Research focus by commodity group, 2017



ASEAN: Research focus by crop category, 2017



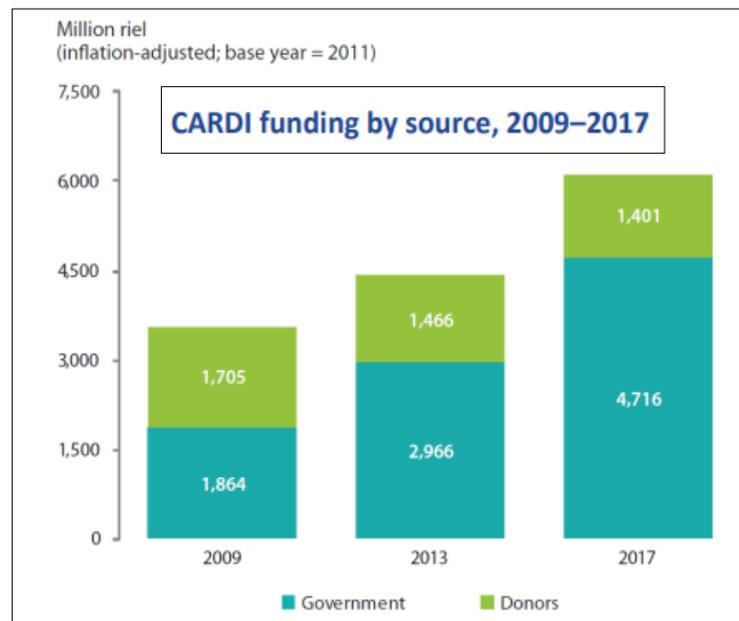
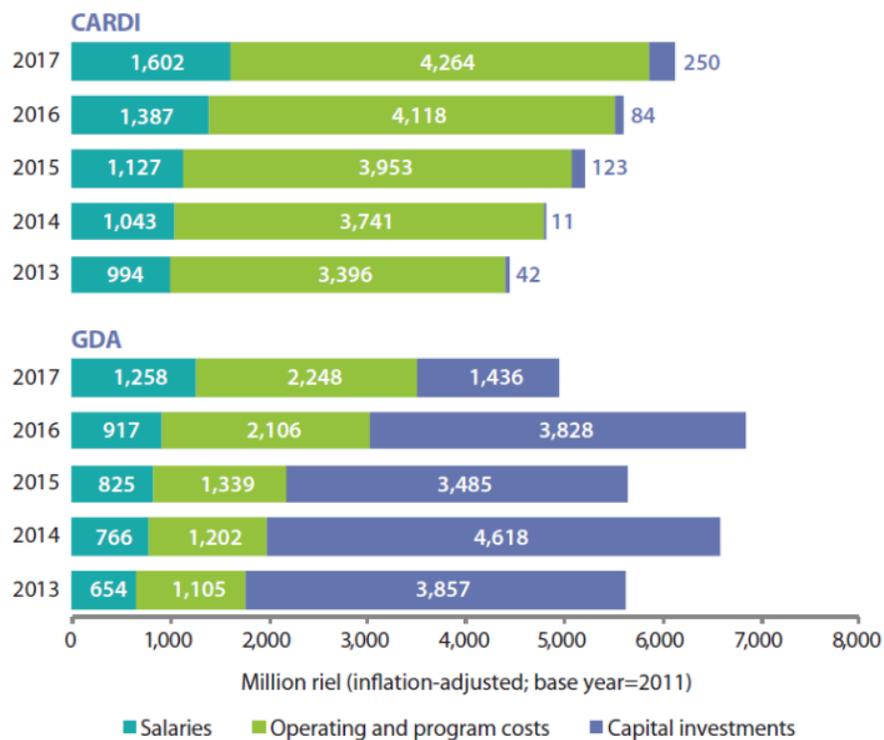
Share of female agricultural researchers, 2003 and 2017



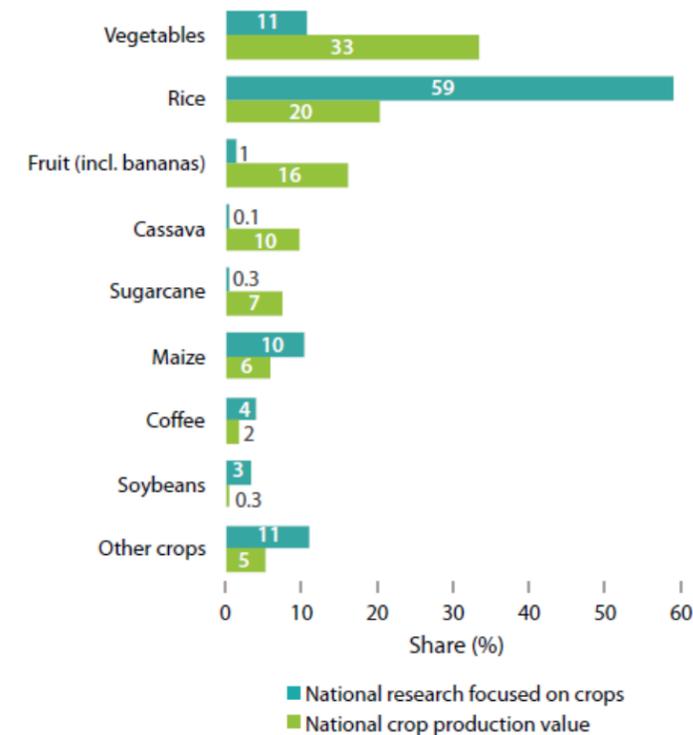
2.2 Uses of ASTI – National/Sectoral/Institutional perspectives

III. Trends in Investment in Agricultural Research

CARDI's and GDA's research spending by cost category, 2013–2017



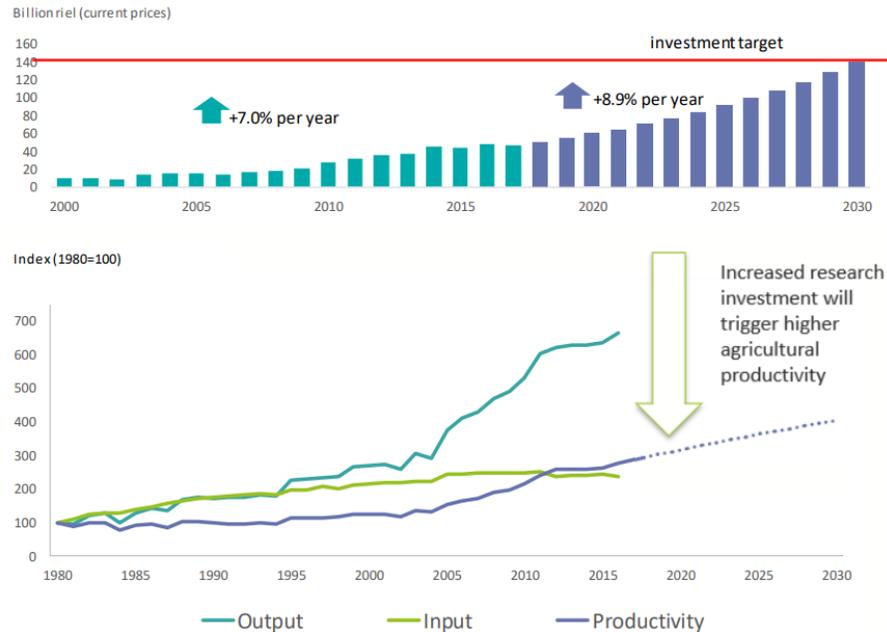
Congruence between agricultural research and production value in Laos for selected crops, 2016/2017



2.2 Uses of ASTI – National/Sectoral/Institutional perspectives

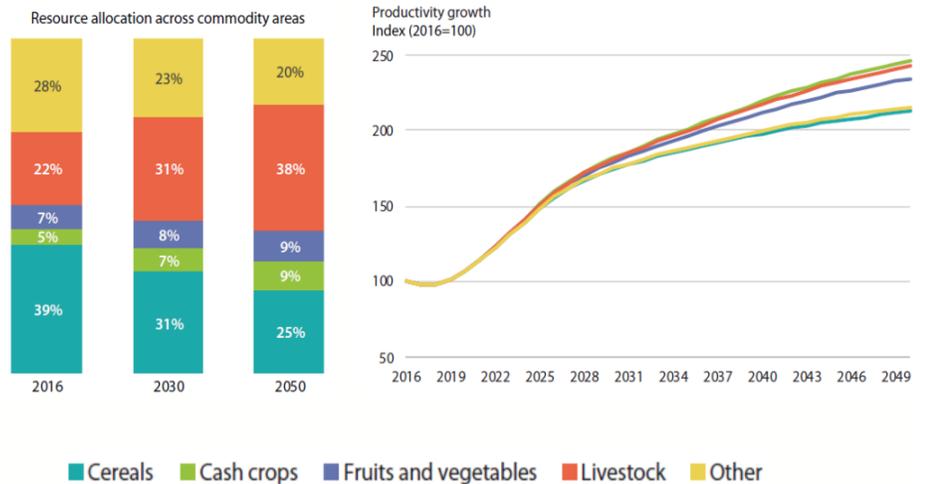
IV. Advanced analysis & informing policy options

Projected annual R&D spending and productivity growth, 2017–2030



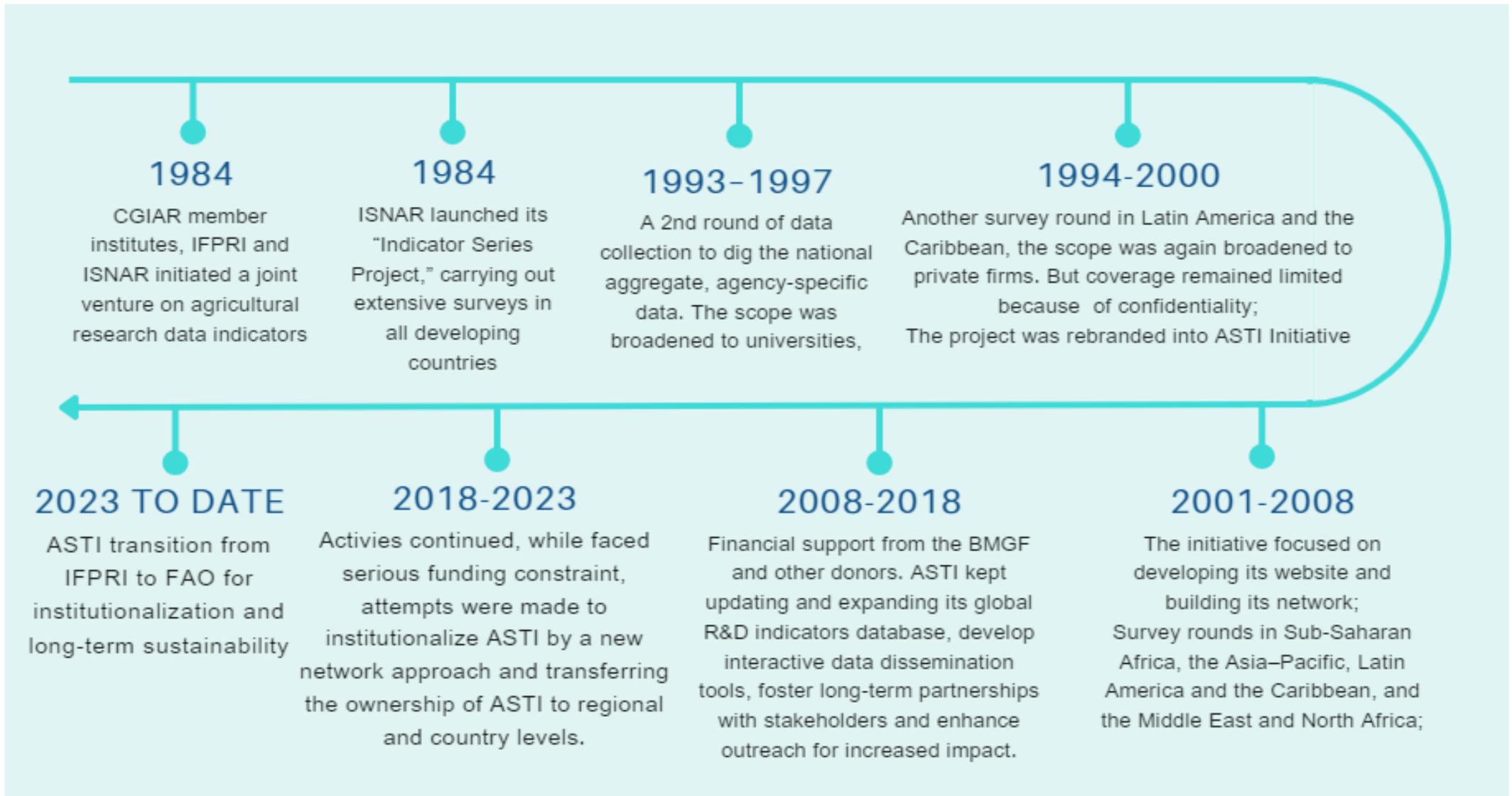
Closing the gap in investment in Agricultural Research will drive future productivity growth

Agricultural productivity projections for selected commodity groups based on attainable rates of research investment, 2016-2050



Productivity growth under alternative investment scenarios

3. ASTI Initiative: Past & Present





The ASTI Network bridges the data-to-impact gap by providing data, analyses, and outreach to inform policy and investment decisions in agricultural research.

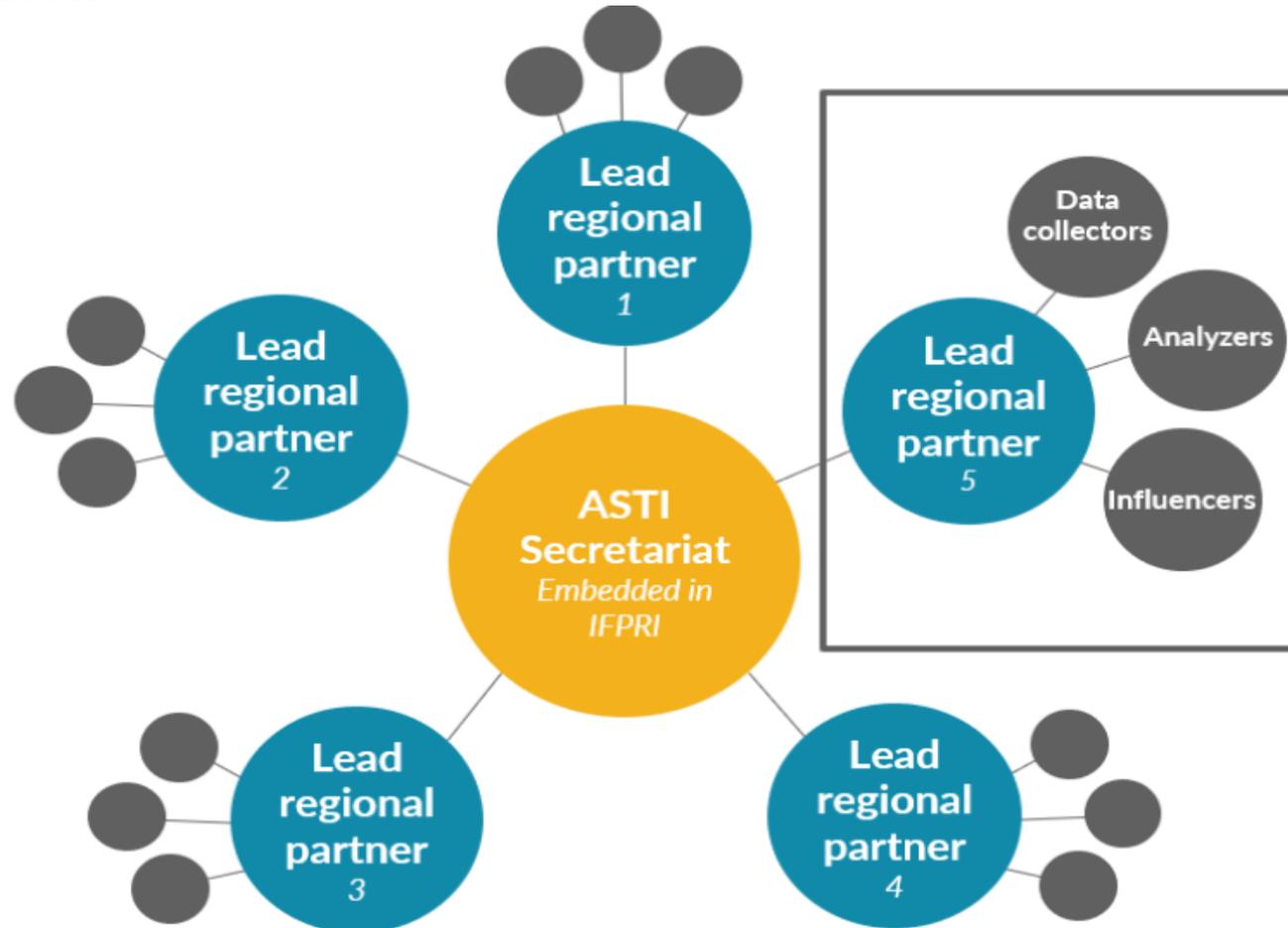
ASTI is moving from IFPRI to FAO



ASTI is pleased to announce that its program will be transitioning to FAO. This move marks a significant milestone in ensuring the long-term continuity of ASTI's valuable agricultural research data. As part of FAO's broader Agrifood Systems Technologies and Innovations Outlook, ASTI will continue to provide its data and analysis while also expanding its focus to include a broader set of data on R&D for agrifood systems. During the transition process, the existing ASTI website will remain fully functional, ensuring uninterrupted access to data and publications. We are grateful for your sustained support of ASTI over the years and excited to embark on this new journey with FAO. Stay tuned for updates on our progress!

3. ASTI data collection

Former data workflow



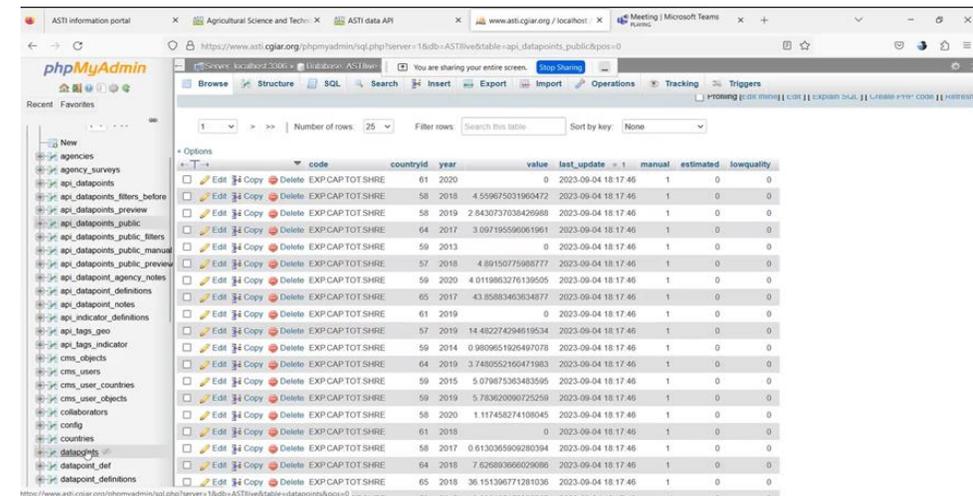
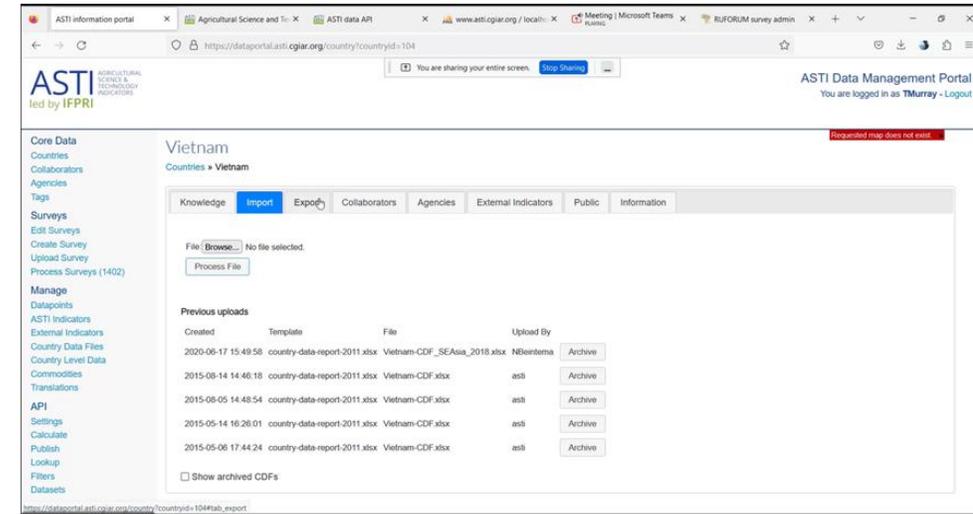
3. ASTI data collection

Data Management Portal

- Data collection, storage, aggregation, and publishing
- User-friendly and based on excel-file questionnaires
- Data processing in charge of ASTI regional partners
- Requires modernization to meet future demands

The current project will:

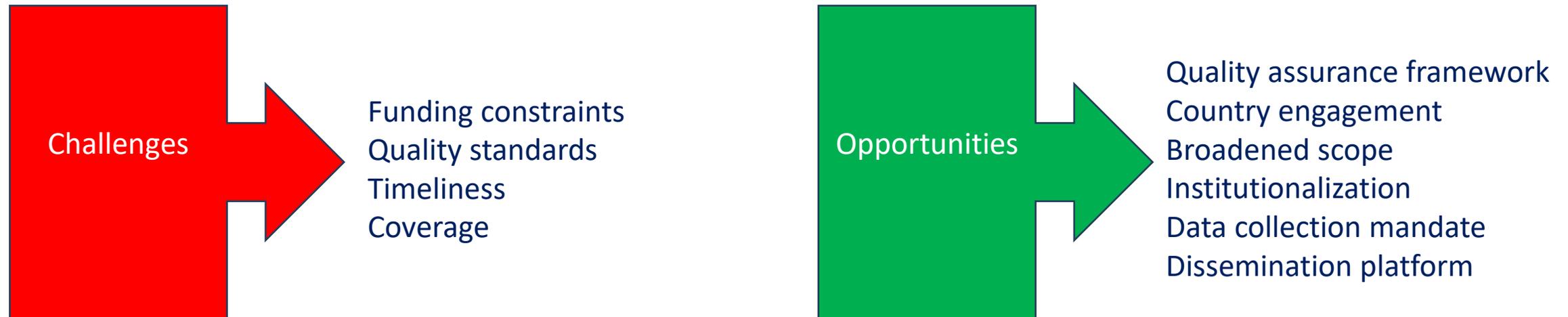
- Propose fit-for-purpose collection tools
- Capacity building on data processing to enhance data ownership
- Gradually phase out the DMP, maintaining API and visualization tools



3. ASTI data collection

Challenges and opportunities

ASTI data collection has encountered various challenges in the past. Its integration into FAO presents an opportunity to revitalize and propel it to unprecedented levels of success.



Structural challenges:

- Large number of diverse institutions (government, education, non-profit, and private)
- Funding from multiple sources (gov. budgets, donors, private sector, product sales, etc)

4. Transition of ASTI from IFPRI to FAO & its institutionalization

- Despite the ASTI program being project funded with irregular funding, it has been successful in demonstrating the value of the datasets on investment in research and capacity over the past 20 years...
- The next phases of the evolution of the ASTI program have to be discussed with the stakeholders.
- A 3-year project grant aiming the institutionalization and sustainability of the programme is currently supporting the transition of ASTI from IFPRI to FAO.
- This process of transition, and an expanded partnership around ASTI, provides an opportunity to build on the capacities of our partners, review the potential for integrating ASTI in the formal reporting system of the UN, and further the agenda of institutionalization through stronger partnerships with the regional and national institutions.

5. Pathway towards sustainability of ASTI

Timeline of the ASTI transition process & milestones

- **2023:**
 - Framework for the development of ATIO by FAO in collaboration with partners to host the process of transition of ASTI from IFPRI to FAO.
 - Assessment of the ASTI survey for integration into ATIO, FAOSTAT and the potential to expand ASTI survey to cover additional issues of achieving sustainability.
 - Planning for the integration of ASTI into FAOSTAT and the STI dashboard
- **2024:**
 - Piloting the new ASTI survey methodology across 11 countries
 - Review of the outcomes of the survey methodology and questionnaires, in order to formulate recommendations in a lessons learned report
 - Institutionalization of ASTI at the national and global level

5. Pathway towards sustainability of ASTI

Timeline of the ASTI transition process & milestones

- **2025:**
 - Rollout of the ASTI survey, with some regular annual data collection rounds across all countries through the formal National Statistical System mechanism, facilitated by FAO and the National Statistical Agency (NSO)
 - Rollout of ASTI survey for datasets that require collection of data on an annual basis but which can be collected retrospectively;
 - Establishment of an ASTI Community of Practice to discuss and explore the expansion of ASTI data collection, further integration into the formal reporting mechanisms and to seek complementarity with AR&D assessments

5. Pathway towards sustainability of ASTI

ASTI comprehensive assessment

Work Stream 1

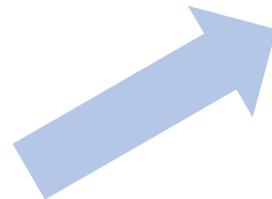
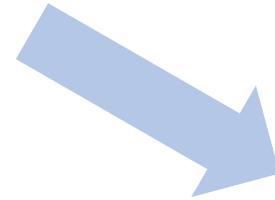
Evaluate ASTI's scope, coverage, methodology, outputs, and operational mechanisms

Work Stream 2

Assess the potential use cases and expansion themes of ASTI

Work Stream 3

Integration of ASTI into the FAO framework



Outputs

- Comprehensive assessment of ASTI
- Identify and implement areas for improvement
- Establish a clear roadmap for integration into FAO

Session 2: Need for institutionalization of ASTI

1. Implementation and use of ASTI data with global datasets
2. The process of institutionalization, starting from the global level to country level
3. A multi-stakeholder approach to institutionalization as the innovation
4. Shared roles of partners in the new model of ASTI data collection
5. Discussions on the process of institutionalization



1. Current implementation and use of ASTI data

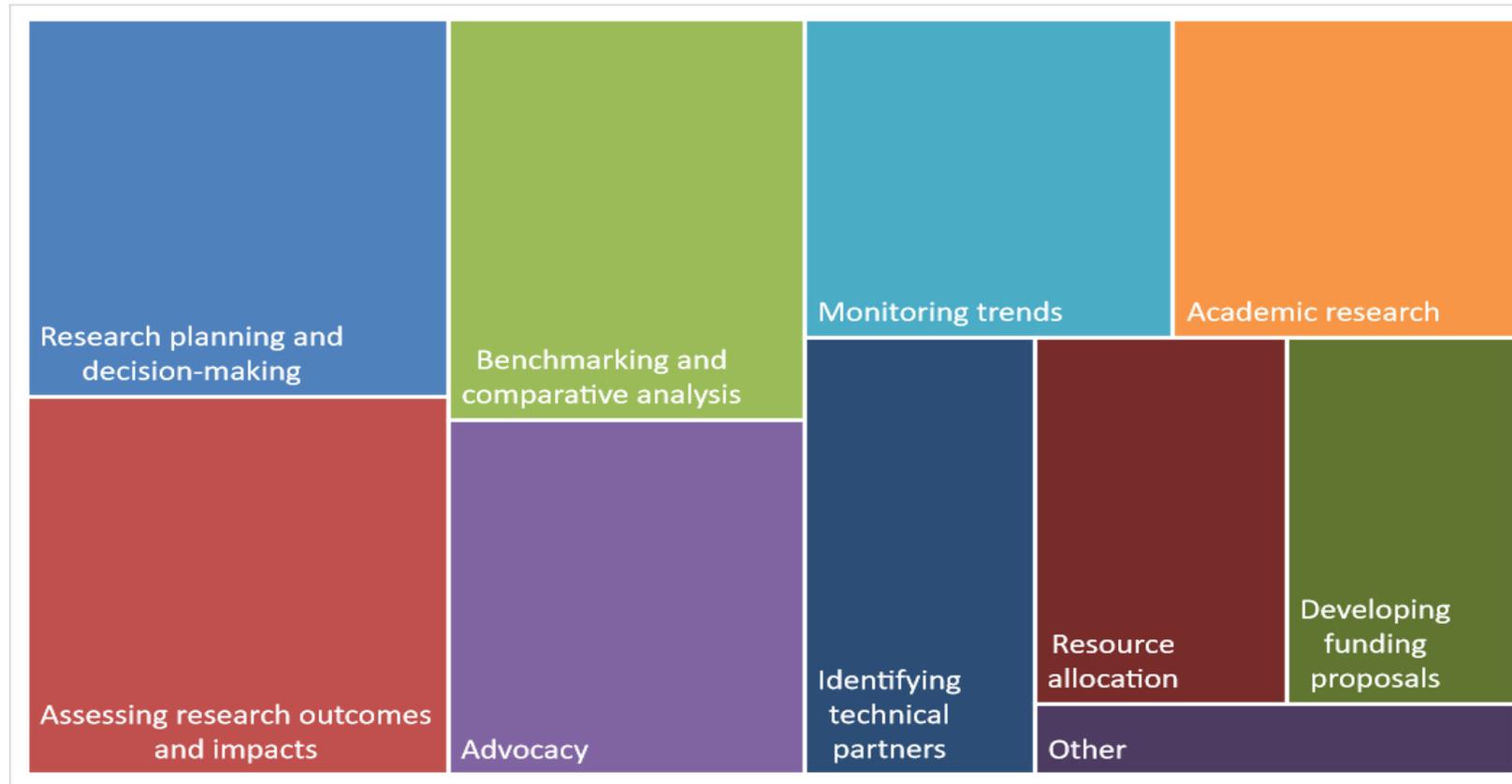
ASTI data as part of global datasets on investments and capacity of Agricultural Research

- The ASTI program was initiated as a way of filling a gap in the reporting from countries on investment in Agricultural Research around the world. While many of the OECD countries were already formally reporting data through the national statistical systems, there was a lack of such data coming from the Lower and Middle Income Countries (LMICs).
- The ASTI program was designed to align with the measurement of indices by the OECD and UNESCO, and over the years ASTI data have been used for global assessments of investments and capacity of agricultural research. Recently the World Bank has incorporated ASTI data in its dashboard on Global Food and Nutrition Security. Therefore, there is increased dependence and expectations on the continuation of ASTI.
- From the beginning, the ASTI program has stated its objective to be striving for the institutionalization of the ASTI measurements by the organizations at country level. Many national institutions have already been involved and are familiar with the process, and the process of institutionalization continues...

1. Current implementation and use of ASTI data

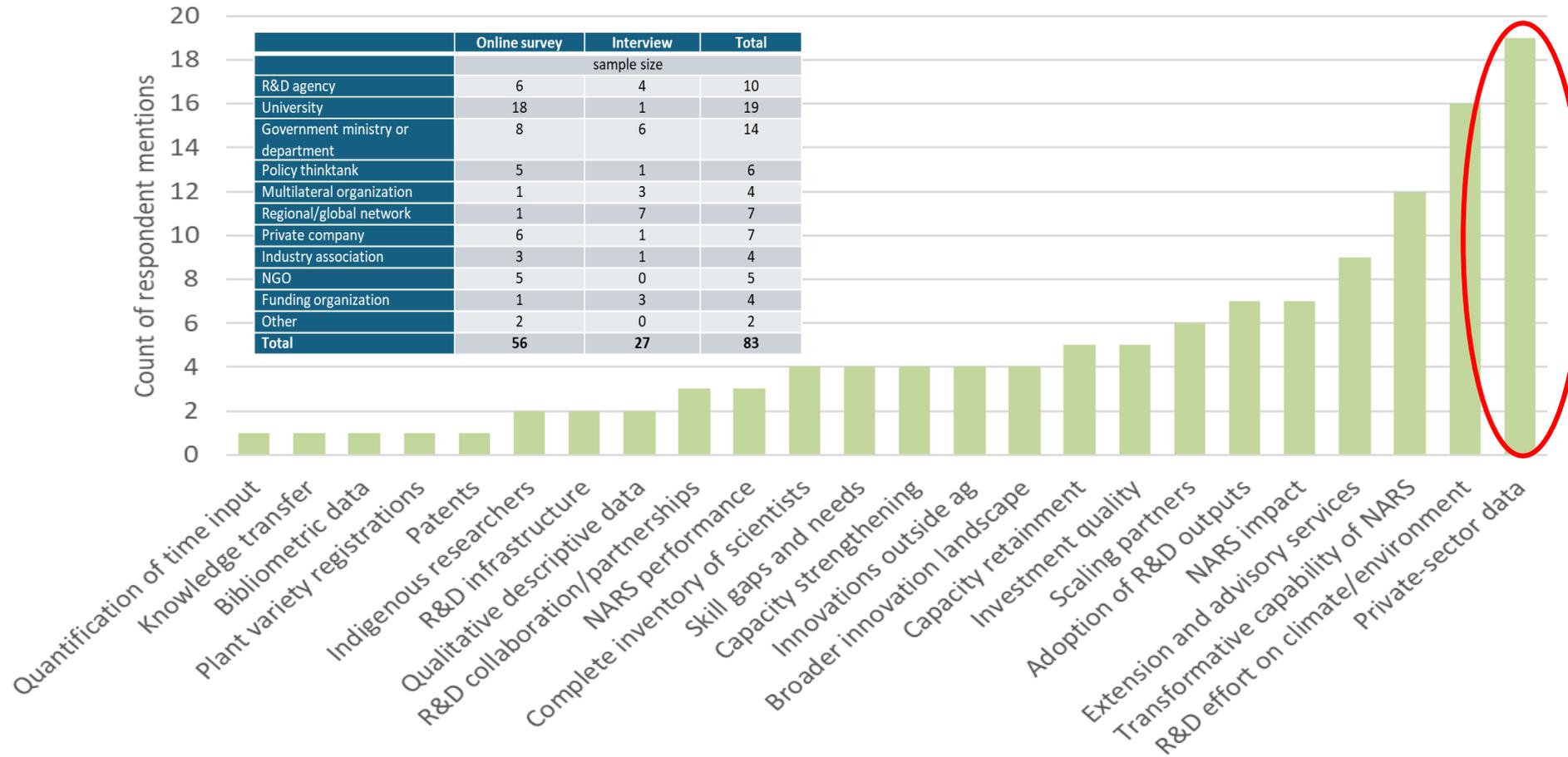
2023 Stakeholder consultations on ASTI use cases

Use cases of agricultural research data



1. Current implementation and use of ASTI data

2023 Stakeholder consultations on ASTI expansion



1. Current implementation and use of ASTI data

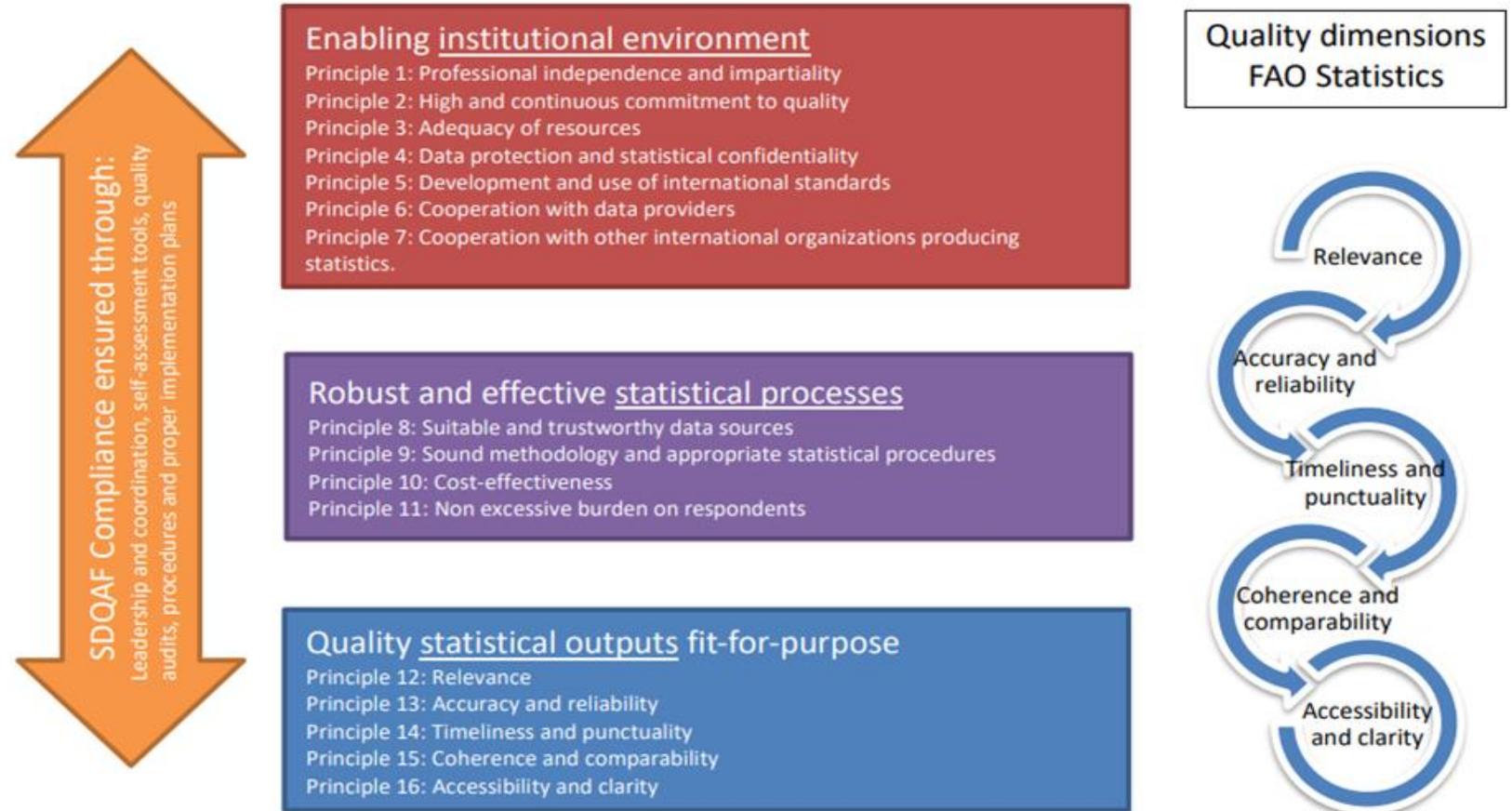
Assessment of ASTI data products and operational mechanisms

- Statistical assessment for compliance with FAO standards, corporate processes, and sustainability/expansion
- Evaluation of ASTI's Data Collection Methodology and Procedures
- Review comparability, consistency, and compliance of ASTI data products with FAO Data Quality Assurance Framework
- Evaluation of ASTI's Network of Partners
- Proposed new data collection approach for national validation and integration into National Statistical Systems.
- Foster country ownership and awareness through UN mechanisms
- Proposed changes for a more sustainable data collection process

1. Current implementation and use of ASTI data

Ensuring the availability of high-quality international statistics on food and agriculture for decision-making

FAO Statistics Quality Assurance Framework

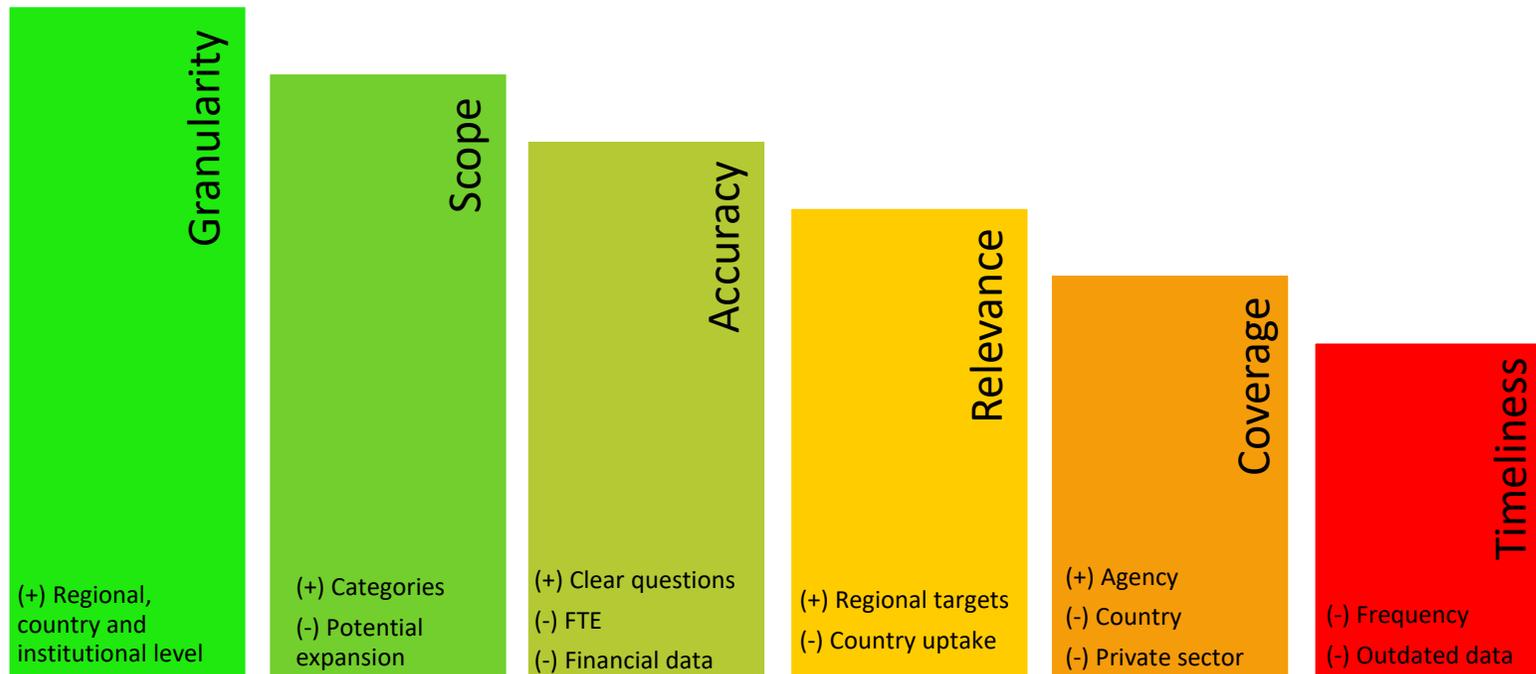


1. Current implementation and use of ASTI data

Evaluation of ASTI data



Key factors influencing the usefulness of R&D and innovation data



1. Current implementation and use of ASTI data

ASTI data collection challenges...

- Reliance on project-based funding
- Lack of a clear mandate for data-collecting agencies
- Non-official status of data for UN organizations
- Slow data collection processes
- Limited scope vs extra burden on data providers
- Limited access to comprehensive investment data
- Low private sector coverage

1. Current implementation and use of ASTI data

FAOSTAT: ASTI data series are discontinued

Data

DOMAINS DOMAINS TABLE

- ▶ Production
- ▶ Food Security and Nutrition
- ▶ Food Balances
- ▶ Trade
- ▶ Prices
- ▶ Cost and Affordability of a Healthy Diet
- ▶ Land, Inputs and Sustainability
- ▶ Population and Employment
- ▶ Investment
- ▶ Macro-Economic Indicators
- ▶ Food Value Chain
- ▶ Climate Change: Agrifood systems emissions
- ▶ Forestry
- ▶ SDG Indicators
- ▶ World Census of Agriculture
- ▶ Discontinued archives and data series
 - Indicators from Household Surveys (gender, area, socioeconomic)
 - ASTI-Researchers
 - ASTI-Expenditures
 - Food Aid Shipments (WFP)
 - Machinery
 - Machinery Archive
 - Fertilizers archive
 - Producer Prices (old series)

ASTI-Researchers

DOWNLOAD DATA VISUALIZE DATA METADATA

COUNTRIES REGIONS SPECIAL GROUPS M49

Filter results e.g. algeria

- Algeria
- Antigua and Barbuda
- Argentina
- Bangladesh
- Barbados

Select All Clear All

ELEMENTS

Filter results e.g. researchers, total

- Researchers, total
- Per 100,000 farmers

Select All Clear All

ITEMS

Filter results e.g. agricultural researchers (fte)

- Agricultural researchers (FTE)

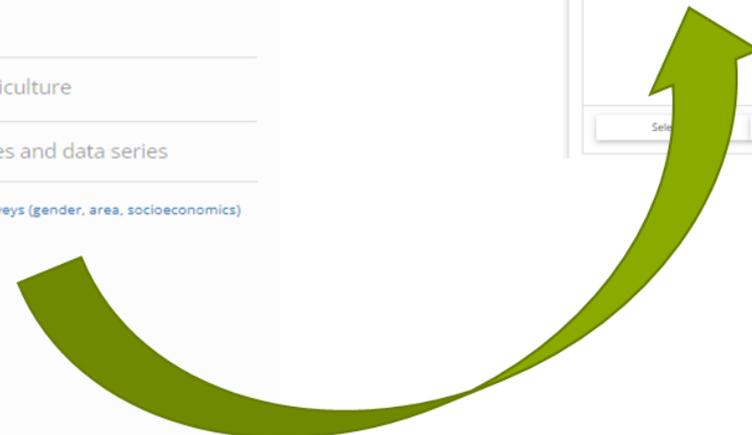
Select Clear All

YEARS

Filter results e.g. 2016

- 2016
- 2015
- 2014
- 2013
- 2012

Select All Clear All



1. Current implementation and use of ASTI data

Operational Mechanisms: Actions, Tasks and Outcomes

Data Products

- 1.1 Revisit scope
- 1.2 Increase country coverage
- 1.3 Improve private sector data collection
- 1.4 Regular frequency of data
- 1.5 Increased relevance

Data Management Portal

- 2.1 Migration of the existing DMP
- 2.2 Integration into FAO SWS and SDW

New Data Collection Approach

- 3.1 Integrate ASTI data collection into NSS mechanisms
- 3.2 Pilots in 11 countries
- 3.3 Capacity building
- 3.4 First data collection round
- 3.5 Global institutionalization

Network of Regional Partners

- 4.1 Building on the existing network of regional partners
- 4.2 Explore opportunities for new collaborations

1. Current implementation and use of ASTI data

Operational Mechanisms: Actions, Tasks and Outcomes

Data Products	Data Management Portal	New Data Collection Approach	Network of Regional Partners
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2. Institutionalization of ASTI

At global level:

- Institutionalization through UN system mechanisms
- Integration in ATIO and STI platform
- Integration in FAOSTAT

At national level:

- Regular data collection through official mechanisms
- Building capacities and promote country uptake

2. Institutionalization of ASTI

Global Level

- The UN Committee of Experts on Agricultural Statistics (UN-CEAG) included a new workstream in the 2023-25 working program to review ASTI methodology and prepare guidelines to be endorsed by the UN Statistical Commission.
- The precursors to ASTI's institutionalization process at global level are its alignment with global dashboards (e.g. OECD, UNESCO, World Bank, Global Food & Nutrition Security Dashboard), contributions to global commitments and strategies by Member States, and its importance in the ATIO STI dashboard.
- The transition of ASTI to FAO is part of this process, especially as FAO is part of the UN system for Statistical Reporting by Member states.
- Engagement with the Regional Agricultural Statistical Commissions (e.g. the RCAS in the Africa region in Dec 2023 where decisions on ASTI were adopted).

2. Institutionalization of ASTI

Global Level

AFRICAN COMMISSION ON AGRICULTURAL STATISTICS - 28th Session / 4-8 Dec

Decisions adopted by member countries:

The Commission,

- *Recognizes the importance of data on science, technology and innovation for guiding policies that aim to enhance agricultural productivity and, therefore, poverty reduction and hunger eradication. However, it also recognizes the scarcity of these data and the need to improve its collection and to systematize the dissemination of quality, official and country owned indicators.*
 - *Acknowledges the ongoing transition towards a more institutionalized and sustainable Agricultural Science and Technology Indicators (ASTI) program in FAO and takes note that FAO will be seeking opportunities to pilot new data collection approaches in selected countries in the region.*
 - *Commends member countries to support ASTI activities in the region and encourages FAO to conduct specialized capacity building activities with the national institutions that produce agricultural statistics.*
 - *Recommends the integration of the National Agricultural Research Institutes (NARIs) into the National Statistical Systems and to undertake data quality assessments, or where applicable statistical quality certifications for ASTI data.*
 - *Encourages member countries to initiate national dialogues to establish fit-for-purpose data collection models for ASTI data.*
-

2. Institutionalization of ASTI

National level

- The NSS is led by the National Statistical Office (NSO). Different national agencies which form part of the NSS are mandated and responsible for collection of data.
- The formalization of reporting of ASTI data facilitates the inclusion of ASTI datasets in FAOSTAT, as FAO prioritizes the use of official data.
- FAO has already initiated the process of engaging with regional and national organizations to sensitize them on the upcoming process of incorporating parts of the ASTI data collection process under the NSS.
- The next phase in this process is to engage with the partners of the NSS to consider the inclusion of the National Agricultural Research Institutions so that they can facilitate the collection of data from the NARS institutions.
- The involvement of the NSO may also facilitate the collection of data from private sector organizations.

3. A multistakeholder approach to institutionalization of ASTI

ASTI: Same vision, new approach:

“Vibrant and effective national-level agricultural research and development systems that are supported and enabled by data-driven policy and investment decisions”

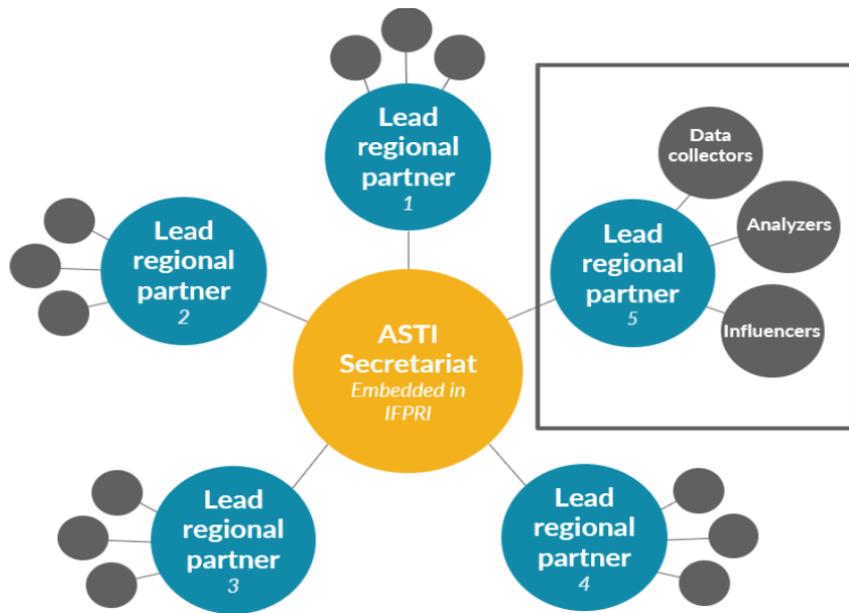
The new data collection approach aims to integrate ASTI into NSS mechanisms for:

- ✓ National validation of the data
- ✓ Enhance country ownership
- ✓ Clear data collection mandate

The role of NSOs are crucial as they:

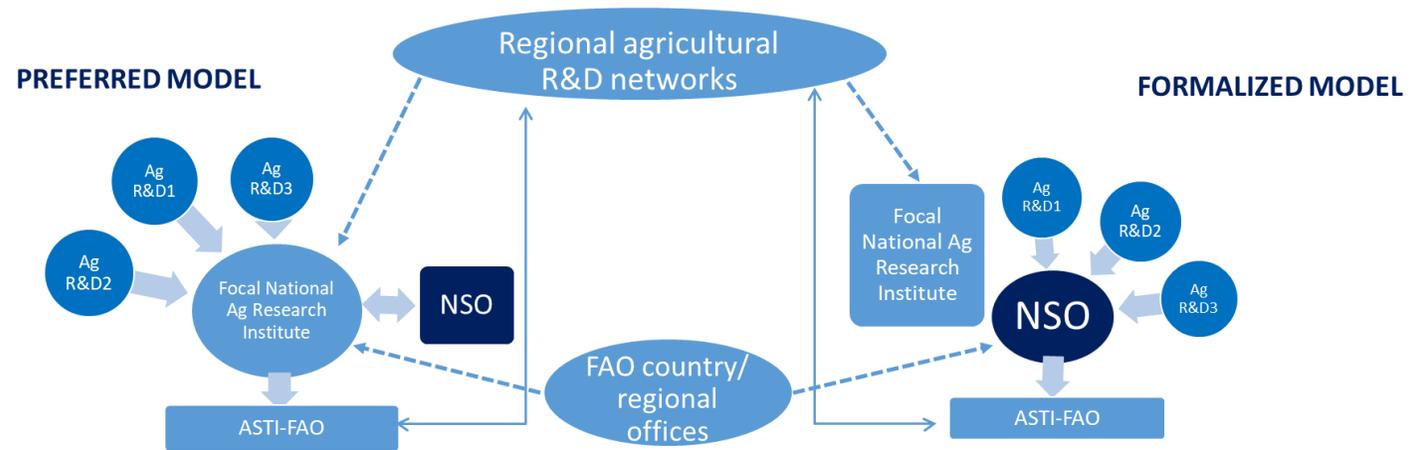
- Play a leading role in the NSS
- Enforce statistical standards and hold expertise
- Potential ASTI users for building related statistics (SNA, capital stock, productivity)
- Normally ensure higher response rates to FAO questionnaires
- Capacity building partner

4. Shared roles of partners in ASTI data collection



Previous model

New operational model: tailored to country-specific context



FAO ASTI TEAM COORDINATES MULTI-STAKEHOLDER INVOLVEMENT

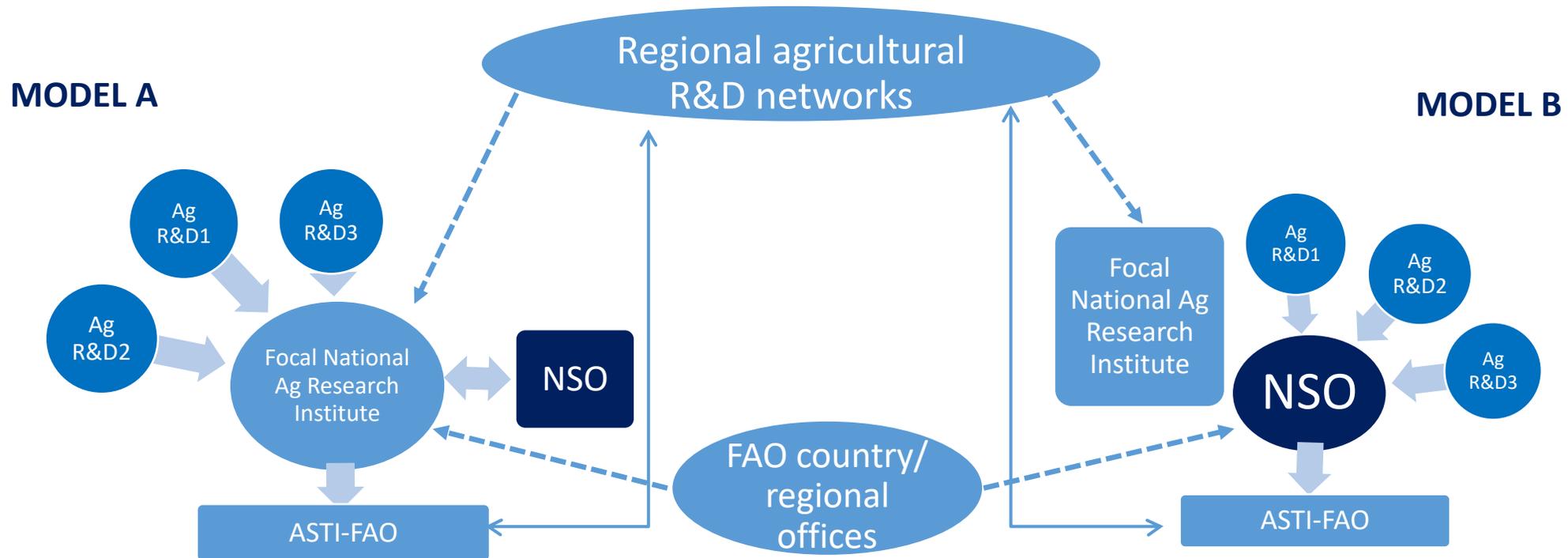
Revised model(s) 2024

4. Shared roles of partners in ASTI data collection

- The new model of collaboration around ASTI data collection is a move away from the unsustainable model of project-funded data collection
- The innovation to a more inclusive and participatory process with shared responsibilities and recognition of contributions is also expected to strengthen country ownership of the ASTI data.
- A program of capacity development of the organizations involved in the ASTI survey to facilitate the data collection and reporting process, the establishment of an ASTI community of practice to jointly explore the potential for expansion of the ASTI data contribution to formal datasets such as FAOSTAT or the ATIO STI platform.
- The integration of the NARI, as representatives of the NARS institutions, to facilitate data collection, validation and analysis at national level.
- Given the involvement of the NARI within the NSS, to also escalate a role of the SRO at sub regional level and engagement with regional organizations on the ASTI process and its utilization at sub-regional and regional levels (as indicated in the multi-stakeholder partnership model)

4. Shared roles of partners in ASTI data collection

New operational model: tailored to country-specific context



FAO ASTI TEAM COORDINATES MULTI-STAKEHOLDER INVOLVEMENT

5. Discussions on the process of institutionalization

Short group discussions on the process of institutionalization:

- Initial discussions on the following topics
(mixed amongst participants or in 2 groups with 2 topics each)
 1. Proposed process of institutionalization,
 2. The new model of partnership around ASTI surveys
 3. The potential roles of partners at different levels in the process of implementing the new approach
 4. Complementary roles of other organizations not directly involved in ASTI surveys
- Plenary restitution of the group discussions

Session 3: Introduction to the country pilots - towards institutionalization

1. Proposed approach to the implementation of ASTI, facilitated by FAO and its partners
2. Institutional approach to data collection process at country level
Discussions on the proposed national approach
3. The pilot countries and proposed pilot data collection approaches being tested
Discussions on the proposed approach for each pilot country context
4. Using existing statistical operations



1. Proposed approach to the implementation of ASTI

Operational Mechanisms: Actions, Tasks and Outcomes

Data Products	Data Management Portal	New Data Collection Approach	Network of Regional Partners
<ul style="list-style-type: none">• 1.1 Revisit scope• 1.2 Increase country coverage• 1.3 Improve private sector data collection• 1.4 Regular frequency of data• 1.5 Increased relevance	<ul style="list-style-type: none">• 2.1 Migration of the existing DMP• 2.2 Integration into FAO SWS and SDW	<ul style="list-style-type: none">• 3.1 Integrate ASTI data collection into NSS mechanisms• 3.2 Pilots in 11 countries• 3.3 Capacity building• 3.4 First data collection round• 3.5 Global institutionalization	<ul style="list-style-type: none">• 4.1 Building on the existing network of regional partners• 4.2 Explore opportunities for new collaborations

1. Proposed approach to the implementation of ASTI

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1. Proposed approach to the implementation of ASTI

Ensuring data quality assurance during the process

- While there is a need to maintain backward compatibility of the datasets, the TAG has identified priority data to be collected annually, less frequently than annually as well as data that can be collected at regular intervals a few years apart.
- Furthermore, the TAG has defined sets of quantitative and qualitative data that are useful for compilation, analysis, reporting and synthesis of ASTI data (similar to the reports currently available on the ASTI portal, with enhancements)
- Therefore, some of the datasets have been defined as follows:-
 - Tier 1: indicators to be measured on an annual basis
 - Tier 2: indicators to be measured on the less regular basis but still reported on an annual basis; other indicators collected and reported only for benchmark years

1. Proposed approach to the implementation of ASTI

Rationalizing a differentiated data collection frequency

Tier 1: Core aggregates

Investments and human resource capacity variables will be collected through FAO questionnaires administered on an annual basis (i.e. total spending, total researchers)

These data will be disseminated through FAOSTAT

Tier 2: Detailed and granular variables

A comprehensive questionnaire will be distributed every 3-5 years to collect a more in-depth detailed indicators (e.g. gender, commodity focus, research outputs, qualitative data, etc.)

These data will be disseminated through FAO STI platform

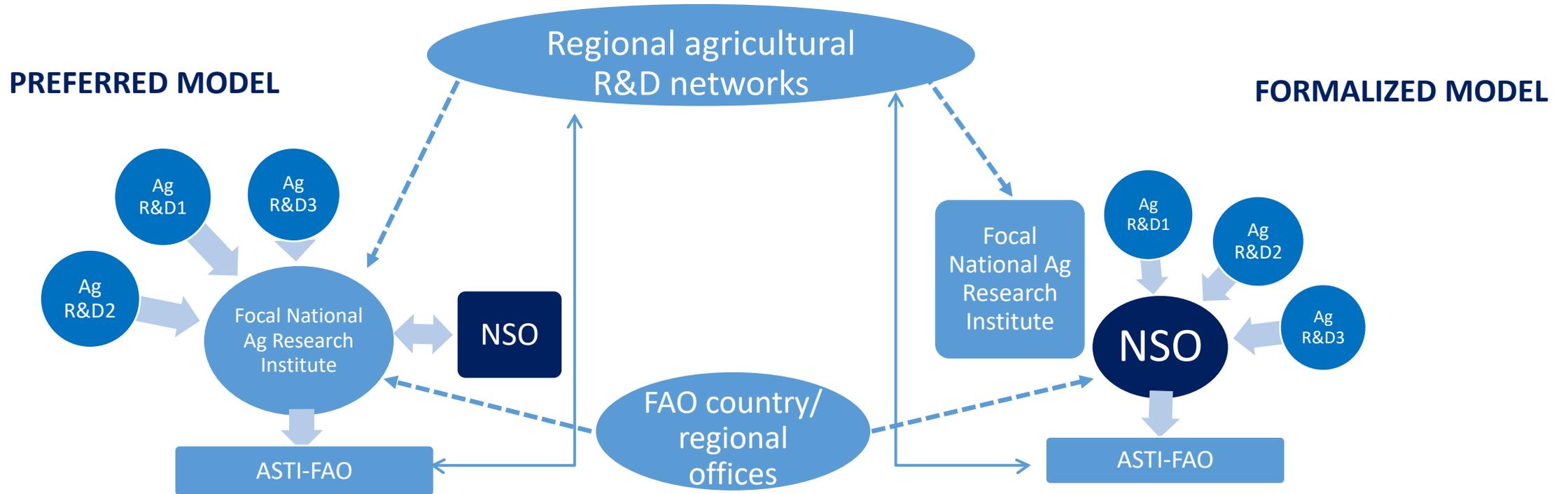
2. Institutional approach to data collection at country level

Operational Mechanisms: Actions, Tasks and Outcomes

Data Products	Data Management Portal	New Data Collection Approach	Network of Regional Partners
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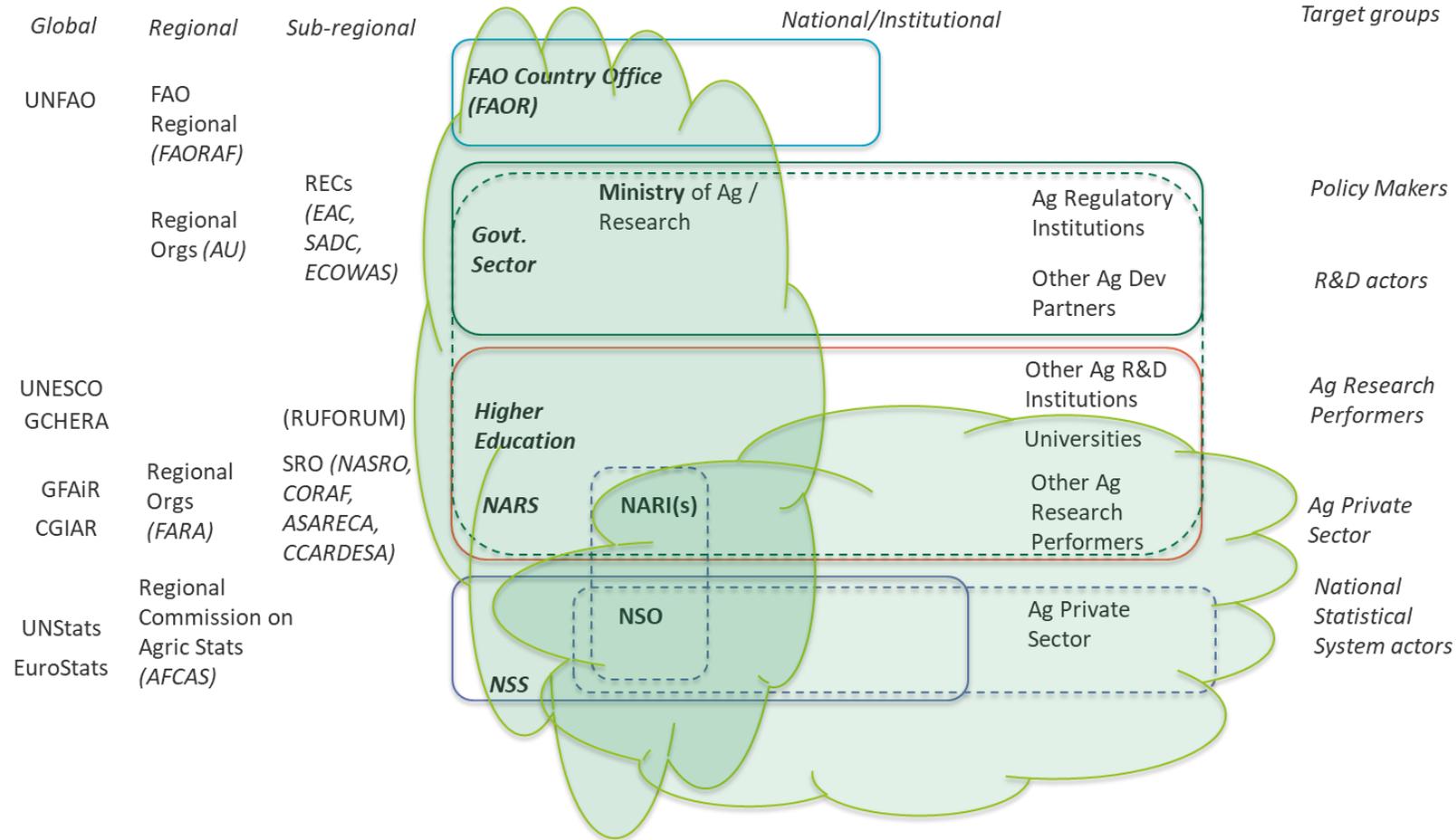
2. Institutional approach to data collection at country level

New operational model: tailored to country-specific context



FAO ASTI TEAM COORDINATES MULTI-STAKEHOLDER INVOLVEMENT

2. Institutional approach to data collection at country level



How does the model work in your country context?

2. Institutional approach to data collection at country level

Country presentation:

- Georgia National Statistical System (NSS)
- Georgia National Agricultural Research System (NARS)

2. Institutional approach to data collection at country level

Practical exercise 1: How does the model work in your country context?

- Based on the diagram of the Multi-stakeholder partnership around the implementation of ASTI, there are important roles of three categories of actors in the ASTI survey process at country level:
 - Institutions of the NSS (facilitated by the NSO)
 - Institutions of the NARS (supported and facilitated by the NARI)
 - Policy-making institutions concerned by Research in Agriculture (facilitated by the most suitable policy making institution)

2. Institutional approach to data collection at country level

Practical exercise 2: How does the model work in your country context?

- Using a blank diagram of partners involved in the Multi-stakeholder partnership around the implementation of ASTI (handout), individually list the institutions that would play a leading role in the implementation of ASTI
- Interactive sessions:
- Roles of the Lead institutions (based also on their national mandates)
 - Suggestions from the participants for each lead role; synthesis into agreed roles across countries...
- Discussions within country groups on the roles and institutional arrangements of the lead institutions vis a vis their peer institutions in their category of stakeholders
- Discussions on the inter-institutional arrangements (produce outlines only)

3. The pilot countries and proposed data collection approach

Operational Mechanisms: Actions, Tasks and Outcomes

Data Products	Data Management Portal	New Data Collection Approach	Network of Regional Partners
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3. The pilot countries and proposed data collection approach

- To test the new data collection mechanism and redesigned questionnaires, FAO and its partners will implement a survey pilot in 11 countries

Criteria for country selection:

- Geographic diversity
- Institutional variation
- Engagement history

Objectives and outcomes:

- Institutional agreements
- Missions and workshops
- High-quality data collected
- Lessons learned document
- Global rollout guidelines

3. The pilot countries and proposed data collection approach

The country pilots aim to:

- Set up institutional arrangements among in-country data collection agencies.
- Capacity-strengthening workshops to familiarize countries with the new data collection models and questionnaires and discuss approaches to survey implementation.
- Collect data in the selected countries using the new data collection model.
- Test the collection of private sector data using existing statistical operations.
- Test the new questionnaires.
- Analyze the results and feedback from the piloting phase.

3. The pilot countries and proposed data collection approach

Lessons Learned report

Outline

1. Introduction
2. Methodology
3. Country R&D context
4. NARS and NSS features
5. Data collection model and implementation
6. Main findings & lessons
7. Conclusions and recommendations

3. The pilot countries and proposed data collection approach

Timeline	2024										2025											
	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	
Country pilots																						
Inception workshops																						
Institutional arrangements (i.e. NSS integration)																						
Data collection in all pilot countries																						
Country advocacy missions																						
Elaboration of the lessons learned report (report)																						
Regional Workshops																						
West and Central Africa workshop																						
LAC workshop																						
Europe and Central Asia workshop																						
East and North Africa workshop																						
Asia and the Pacific Workshop																						
Global roll-out																						
Institutional arrangements (i.e. NSS integration)																						
FAO questionnaire dispatch																						
Data collection in all countries																						
Recovery and consistency checks																						
Data processing																						
Data release																						

3. The pilot countries and proposed data collection approach

- *Discussion session*
 - *Five countries are present here: can discuss the commonalities and differences in the approach across all the countries?*
- Interactions: Country-based group reflections/ discussions on roles
 - *(Draft of list of institutions obtained from ASTI website or desk research as handout?)*

4. Using existing statistical operations

Operational Mechanisms: Actions, Tasks and Outcomes

Data Products

- 1.1 Revisit scope
- 1.2 Increase country coverage
- 1.3 Improve private sector data collection
- 1.4 Regular frequency of data
- 1.5 Increased relevance

Data Management Portal

- 2.1 Migration of the existing DMP
- 2.2 Integration into FAO SWS and SDW

New Data Collection Approach

- 3.1 Integrate ASTI data collection into NSS mechanisms
- 3.2 Pilots in 11 countries
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- 3.4 First data collection round
- 3.5 Global institutionalization

Network of Regional Partners

- 4.1 Building on the existing network of regional partners
- 4.2 Explore opportunities for new collaborations

4. Using existing statistical operations

Country presentation:

- Albania R&D survey

Session 4: Overview of ASTI survey methodology

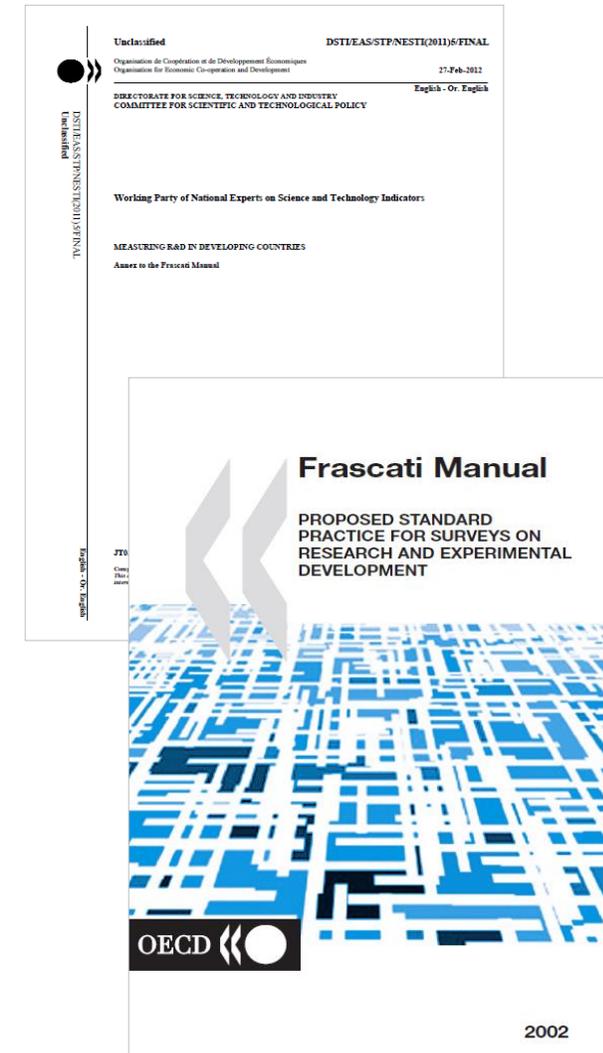
1. Introduction to the ASTI survey history and implementation methodology
2. Overview of definitions used to clarify the scope
3. Overview of general indicators and associated data collected
4. Overview of the survey framework
 - Clustering of agencies by country
5. Definitions and guidelines for survey completion
6. Discussions on the overall methodology



1. Introduction to ASTI survey history and implementation methodology

Historical origins of the ASTI survey

- The ASTI surveys were initiated by IFPRI in response to the gap between research data availability in the Organization for Economic Co-operation and Development (OECD) countries and most of the developing economies in the Global South
- The methodology of the ASTI survey aligns with the Frascati Manual developed by the OECD and its partners, which has remained a reference methodology
- While the methodology is applicable for research indicators in developed countries, ASTI adjusted some criteria to better align with agricultural research indicators in developing countries
- Standardization with the Frascati manual method ensures compatibility of the data over time. The OECD now also consults the ASTI program during its discussions on data format changes.



2. Overview of definitions used to clarify the scope

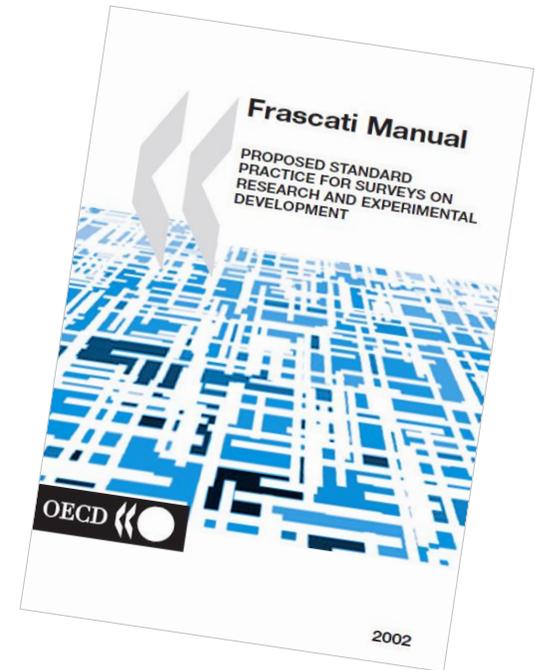
General definitions used in the Frascati Manual

The scope of ASTI is Agricultural Research and Development (R&D).

ASTI adopts the definition provided in the Frascati manual, which speaks more precisely of “research and experimental development”: the “D” in R&D refers to experimental development.

Research and Experimental Development:

- **“Creative and systematic work undertaken in order to increase the stock of knowledge [...] and to devise new applications of available knowledge.”**
- Three categories: basic research, applied research, and experimental development (ASTI doesn't ask to categorize)
- Excluded: education/training; pure extension; financing (funder); indirect administrative and other support activities.



"Research" activities:

novel
creative
uncertain
systematic
transferable/reproducible

2. Overview of definitions used to clarify the scope

Some examples of what to include and exclude in R&D

- Routine changes to products or processes are excluded, but new methods developed to perform common tasks are included. As an example, data processing is not an R&D activity unless it is part of a project to develop new methods for data processing.
- Keeping daily records of temperatures or of atmospheric pressure is not R&D, but a standard procedure. The investigation of new methods of measuring temperature is R&D, as is the study and development of new models for weather prediction.
- The concept of experimental development should not be confused with “product development”. Experimental development is just one possible stage in the product development process: during the experimental development stage new knowledge is generated, and that stage comes to an end when the R&D criteria (novel, uncertain, creative, systematic, and transferable and/or reproducible) no longer apply.

Boundaries of what activities to include or exclude under R&D are not universally agreed



Table 2.3. Borderline between R&D, innovation and other business activities

Item	Treatment	Remarks
Prototypes	Include in R&D	As long as the primary objective is to make further improvements.
Pilot plant	Include in R&D	As long as the primary purpose is R&D.
Industrial design	Split	Include design required during R&D. Exclude design for production process.
Industrial engineering and tooling up	Split	Include “feedback” R&D and tooling up industrial engineering in innovation processes. Exclude for production processes.
Trial production	Split	Include if production implies full-scale testing and subsequent further design and engineering. Exclude all other associated activities.
Pre-production development	Exclude	
After-sales service and trouble-shooting	Exclude	Except “feedback” R&D (to be included).
Patent and licence work	Exclude	All administrative and legal work needed to apply for patents and licences (delivering documentation as an outcome of R&D projects is R&D). However, patent work connected directly with R&D projects is R&D.
Routine tests	Exclude	Even if undertaken by R&D personnel.
Data collection	Exclude	Except when an integral part of R&D.
Routine compliance with public inspection control, enforcement of standards, regulations	Exclude	

2. Overview of definitions used to clarify the scope

General definitions for national agricultural R&D

- **Agricultural R&D (adopted by ASTI):**
 - Crops, livestock, forestry, fisheries, natural resources, and the socioeconomic aspects of primary agricultural production.
 - On-farm storage and processing of agricultural products.
 - *Excludes: off-farm postharvest and food processing research.*
- **National Research:**
 - Domestically targeted research activities funded or executed by (local) research agencies within a particular country.
 - *Research activities of international or bilateral research agencies that are not executed through national institutes are excluded, as well as research activities that are undertaken by short-term development projects.*

The scope is primary production:

everything under the secondary (manufacturing) and tertiary (services) sectors is excluded.

R&D in the agrochemical industry, agricultural machinery, and the food processing industry off farm is not included in the current ASTI data (these belong to the secondary sector and are better reported under those industries).

Also not included are the more discipline-oriented basic research activities undertaken by departments such as microbiology and zoology, except when this work has a clear focus on agriculture.

2. Overview of definitions to clarify the scope

General definitions used in the Frascati Manual

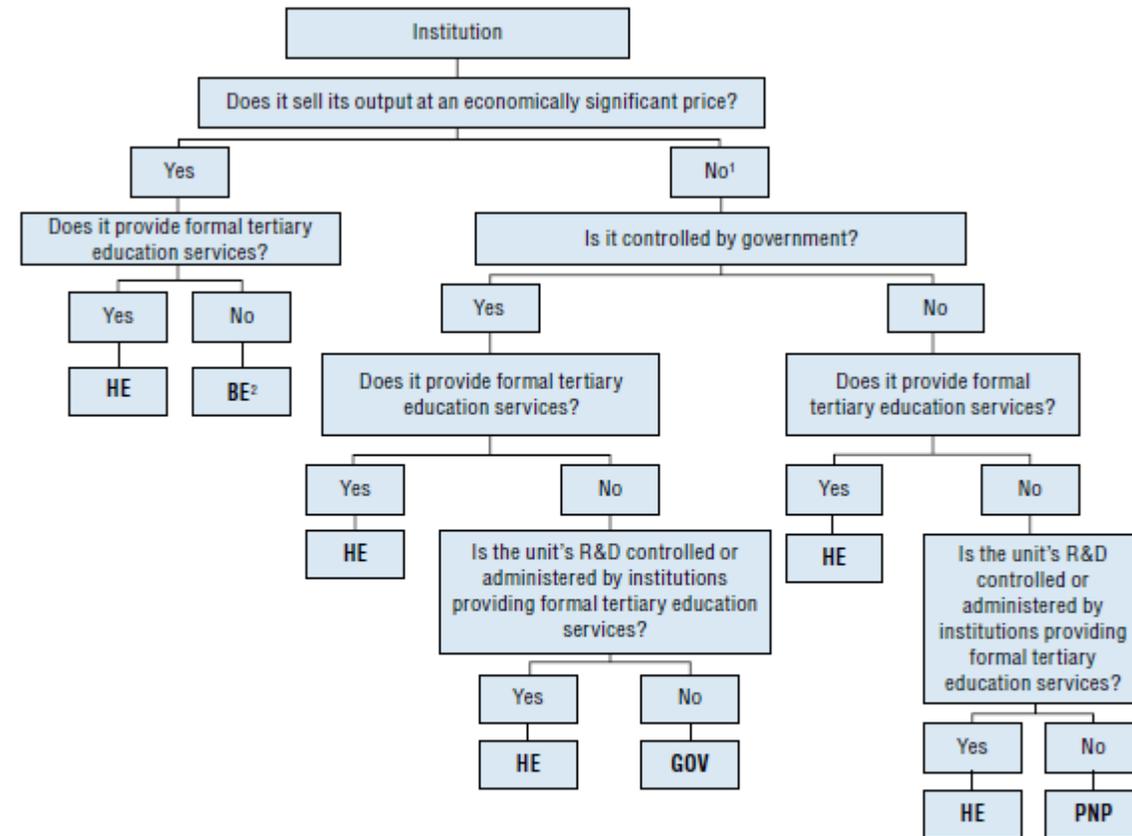
- Research Performer:**

The entity that is carrying out the research, not funding the research.

- Institutional Categories:**

- Government agencies
- Higher education agencies
- Nonprofit agencies
- Private for-profit agencies
 - Business enterprises
 - Public enterprises

Frascati Manual 2015, page 91



Key:
 BE Business enterprise sector
 HE Higher education sector
 GOV Government sector
 PNP Private non-profit sector

2. Overview of definitions to clarify the scope

Q&A – 10 min

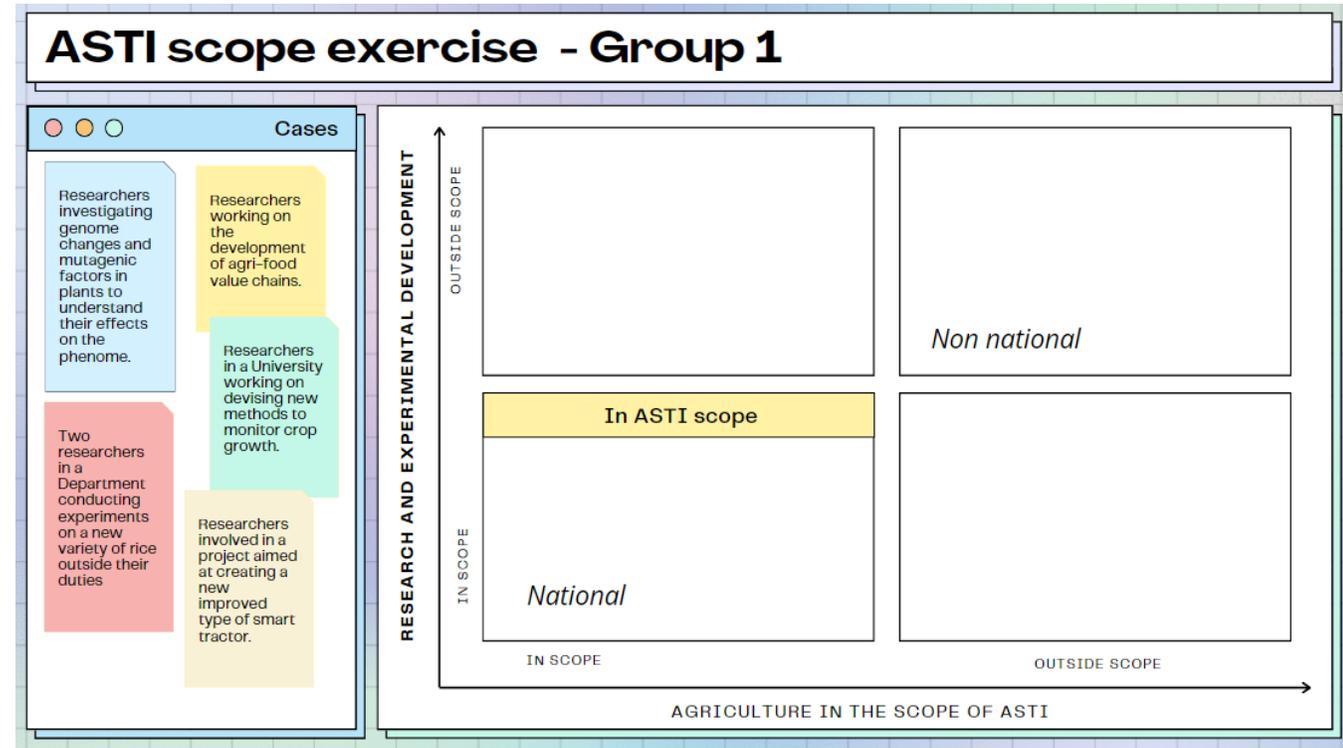
Activity 1 – 20 min

Blurred boundaries / borderline cases

4 or 5 teams

Stickers with sample cases: team has to agree on where the stickers go on the board.

Interesting cases / disagreements to be discussed all together.



ASTI scope exercise:

- Group 1: <https://www.canva.com/design/DAGCNHrGEE4/fA5hnXDcq0E64uOy8ncwrg/edit>
- Group 2: https://www.canva.com/design/DAGCOvKqTXY/kn_9h29HR9TCvY_BMD-YEA/edit
- Group 3: <https://www.canva.com/design/DAGCOvVqaU/IQYthy5POa6W1FAusRI9TA/edit>
- Group 4: <https://www.canva.com/design/DAGCOqR4Ku4/-UEOr0C9v9ZneKbdo9Eing/edit>
- Group 5: <https://www.canva.com/design/DAGCOuQF0Ks/gfKz8XV7SmH52gt3JxN0xA/edit>

3. Overview of indicators and associated data collected

Types of data collected are based on the indicators being measured

- **ASTI has a set of core indicators:**
 - Institutional details (foundational data)
 - Human resources, including research focus
 - Financial resources
 - Research outputs (*not collected through the agency surveys anymore*)
- **ASTI also collects Qualitative Information** through interviews
 - Qualitative data gathered on broad issues
 - To complement the core data during analysis

3. Overview of indicators and associated data collected

Time intervals and tiers

- **Time series:** data gathered on an annual basis (HR totals, financial resources)
- **Benchmark years data:** data collected less frequently but regularly during the year of assessment (research focus and age brackets of researchers; student numbers in Higher Education Institutions...)

- **Tier 1 variables:** core data on agricultural R&D investments and human resource capacity.
Collected through FAO questionnaires, administered on an annual basis.
Structured in accordance with FAOSTAT standards; stored in the FAOSTAT archives.
- **Tier 2 variables:** more nuanced variables related to the institutional setup of agricultural R&D, research capacity, investment, funding sources, commodity and thematic focus, and other specific demands emerging from stakeholders. Administered every 3-5 years (benchmark years).

While:

- *tier-1 data is always time-series data (has an annual reporting interval), and*
- *tier-2 data has always a benchmark-year reporting interval,*
- *there can be time-series data that is not tier 1 and is collected only at benchmark year but reported retrospectively for each previous year.*

3. Overview of indicators and associated data collected

ASTI core data indicators

1. Human Resources

- Researchers' time spent on research
- Researchers by degree, gender, and age bracket
- Researchers by commodity focus
- Researchers by thematic focus & addressing crucial cross-cutting themes
- Support staff (technicians, admin, other)

3. Research outputs (not in the survey)

- Peer-reviewed publications
 - Journal articles (international, regional, national)
 - Books
 - Book chapters
- New registrations of crop varieties and non-crop technologies

2. Financial Resources

Spending by cost category

- Salaries
- Operating and programs costs
- Capital investments

Funding sources

- Government funding (core and other)
- Donor contributions
- Development bank loans
- Commodity levies
- Sales of goods and services
- Other

4. Overview of the survey framework

Survey questionnaire adapted to the category of respondent

- ASTI uses an online platform to manage the design and generation of the questionnaire for each category of target institution for data collection, targeting all relevant stakeholder institutions engaged in agricultural R&D.
- The questionnaires can be adapted specifically to each institution.
- In general, between 3-4 templates of the questionnaire are available per country:
 - Large government *(the one with most questions)*
 - Small government / nonprofit *(a shorter version)*
 - Higher education *(with additional questions on degree programs and students)*
 - Private for-profit *(a subset of the questions for small government / nonprofit)*

Challenge: Obtaining complete and accurate agricultural R&D investment data for private for-profit enterprises is very difficult (confidentiality, ad-hoc and small setup). Obtaining private-sector data requires an approach that is very different from ASTI's usual survey work.

4. Overview of the survey framework

Framework for the pilots: overview (1)

Survey question	Time-series (t), benchmark year (b), or one-time (o)	Large government agencies (GOVT)	Small government and nonprofit agencies (SMALL)	Higher education (HE)	Private (PS)	Tier
Contact details of the R&D agency	b	√	√	√	√	2
Supervising authority	b	√	√	√		2
Establishment year of agency	o	√	√	√		
Year in which agency became involved in R&D	o	√	√	√	√	
Quantification of time input	t	√	√	√	√	1
Researchers by gender and degree	t	√	√	√	√	1
Researchers by gender and position	b	√	√	√		2
Researchers by degree and age bracket	b	√				2
Researchers by gender and age bracket	b	√				2
Number of technical, administrative, and other support staff	b	√				2

4. Overview of the survey framework

Framework for the pilots: overview (2)

Survey question	Time-series (t), benchmark year (b), or one-time (o)	Large government agencies (GOVT)	Small government and nonprofit agencies (SMALL)	Higher education (HE)	Private (PS)	Tier
Expenditures by cost category	t	√	√	√	√	1
Funding by source	t	√				2
List of research programs and number of researchers assigned to them	b	√		√		2
Breakdown of research by commodity area	b	√	√	√	√	2
Breakdown of research by thematic area	b	√	√	√	√	2
Agency's focus on addressing: equality and diversity, climate change, environmental sustainability	b	√				2
PhD programs and number of students	b			√		2
MSc programs and number of students	b			√		2
BSc programs and number of students	b			√		2

4. Overview of the survey framework

Questionnaires for the pilots

- Time-series data are collected for three main indicators: research staff totals + proportion of time spent on research, research investments, and research funding.
- In the pilots, time-series data, which would be normally collected in the benchmark year retrospectively for each previous year, will only be collected for the benchmark year. Retrospective time-series data will be collected during the global rollout in 2025.
- In the Pilot phase of ASTI, for some countries it may be decided to test different designs or only one or two sectors. Tomorrow we will discuss the examples of the questionnaires for your country for each sector.
- Sections of the questionnaire: *(some only for some sectors)*
 - General Information about the responding institution, the person and their role in the organization
 - Human resources
 - Research focus
 - Financial resources
 - Degree programs and students (only for Higher Education agencies)

4. Overview of the survey framework

Q&A – 10 min

Activity 2 - 20min

List of agencies per country, clustered by type.

Breakout groups to fill the matrix, then sharing with all participants.

ASTI agency clustering exercise:

- Albania: https://www.canva.com/design/DAGCNncAGQo/K0XN_1THpPZeqaO75oKIFQ/edit
- Cote d'Ivoire: <https://www.canva.com/design/DAGCNoiyGE8/6w0s466HuWXmP1EJS5m-iw/edit>
- Georgia: <https://www.canva.com/design/DAGCNAE38AE/U8w3qJzQkqlvKo6oOT1FQ/edit>
- Ethiopia: <https://www.canva.com/design/DAGCNngs1zE/FJtiAtPOViE-AnBEh8XitQ/edit>
- Nigeria: <https://www.canva.com/design/DAGCNqq5A1M/mt3AH9b--2LwwcvyfCuBlw/edit>
- Pakistan: <https://www.canva.com/design/DAGCNpTVsNU/B0KbtX4A2EMEViihNrgw/edit>

		ASTI agency clustering exercise		Per country	
		Large govt	Small govt. & nonprofits	Higher Education	Private sector
KEY and EASY	KEY and EASY				
	KEY and DIFFICULT				
	LESS RELEVANT				
Note:		Note:	Note:	Note:	Note:

5. Definitions and guidelines for survey completion

Key concept related to HUMAN RESOURCES data

- Calculation of 'Full-Time Equivalent' (FTEs) for Human Resource data
 - ASTI collects human resource data in headcounts, and time-use/focus data in percentages.
However, the final data are presented in Full-time Equivalents (FTEs), which take into account the proportion of actual time spent on agricultural research activities.
 - For example, university staff spend a considerable proportion of their time on non-research activities, such as teaching, administration, or student guidance.
 - Thus, four faculty members estimated to spend 25 percent of their time on research would individually represent 0.25 FTE and collectively be counted as 1.0 FTE.

FTEs

The ratio of working hours actually spent on R&D during a specific reference period (usually a calendar year) divided by the total number of hours conventionally worked in the same period by an individual or by a group.

The ASTI survey does not ask for FTEs:
FTEs are calculated combining the data collected as "headcount" and the data collected as percentage of time spent on activities.

5. Definitions and guidelines for survey completion

Data on HUMAN RESOURCES

Key concept: Proportion of time spent on agricultural R&D

Question 1 in the “Human resources” section.

The key question that asks for the overall percentage of researchers' time devoted to agricultural research.

It is used to calculate the FTE in combination with the researchers' headcount question.

Tomorrow we will discuss recommendations on how to collect / estimate this data (see the “how to collect / estimate HC and % data” chapter in the Guidelines).

In all other questions asking for percentages of time, the percentage is assumed to be relative to the overall time spent on agricultural research as set in the answer to this question.

5. Definitions and guidelines for survey completion

Data on HUMAN RESOURCES: definition of categories

- **Professional Research Staff:**
 - Those holding a research position, at least a BSc degree
 - Include long-term consultants and long-term contractual staff
 - Include management positions such as (deputy) director and heads of research programs
 - Only staff on post (exclude staff on long-term unpaid leave and positions approved but not filled)
 - *Expats paid by their mother institutes are not on the payroll of national agricultural research institutes*
- **Research Support Staff**
 - Technical support staff: those who directly support the design and conduct of agricultural research activities but who do not hold a formal researcher position
 - Administrative support staff: those providing administrative support
 - Other support staff: All remaining staff not classified in the above categories

The data collected for human resources numbers, disaggregated by gender, age group, education level, position and category, is in **headcounts**.

5. Definitions and guidelines for survey completion

Data on HUMAN RESOURCES: research focus

- **Percentage of researchers' time to represent Research Focus**

The “Research focus” section collects data on the focus of the research conducted. It does so through four questions:

- one on number (headcount) of researchers working on specific research programs,
- three on **percentages of researchers' time** spent respectively on:
 - specific commodities,
 - specific thematic areas,
 - a few selected cross-cutting themes (equality, climate change, environmental sustainability).

An "other" category is always listed, so that the total of the focus percentages has to be 100%, and the 100% is relative to the overall proportion of time dedicated to agricultural research, as reported in question B1

*We want to test also another variable to understand research focus: **percentage of research budget**.
Discussion tomorrow.*

Tomorrow we will discuss recommendations on how to collect / estimate this data (see the “how to collect / estimate HC and time-use data” chapter in the Guidelines).

5. Definitions and guidelines for survey completion

Key concept related to FINANCIAL RESOURCES

- **Local currencies and comparability**
 - ASTI collects financial data in local currencies. Then it harmonizes this data for comparison purposes.
 - ASTI uses a procedure that first deflates research expenditures in current local currency units and then converts to a common currency unit using **Purchasing Power Parity (PPP) Dollars [2011]** .
 - PPPs measure the relative purchasing power of currencies across countries.
 - The ASTI website provides spending data both in PPP dollars and local currency units.

5. Definitions and guidelines for survey completion

Data on FINANCIAL RESOURCES

Research expenditures categories:

- **Salaries:** Include also staff remuneration packages of permanent staff as well as temporary staff salaries
- **Operating and program expenditures:** Include items as electricity, gasoline, agricultural inputs, staff training, travel, maintenance, etc.
- **Capital expenditures:** Include all expenditures related to the purchase or rental of items that last longer than a year (e.g., building, lab equipment, computers, furniture, vehicles)

Only actual expenditures to be used, not those budgeted/projected

Should include expenditures under all funding sources

Known challenges:

- *Often difficult for universities to separate research costs from other costs*
- *Salaries of temporary/contract staff are often reported under operating costs*

5. Definitions and guidelines for survey completion

Data on FINANCIAL RESOURCES

Funds actually received, not budgeted/projected

Types of funding sources:

- **Government core** allocations: include direct institutional funding from central budget
- **Other government:** Include government funding that complements annual appropriations from national budgets
- **Loans** from multilateral donors
- **Grants** from multilateral and bilateral donors: include grants from CGIAR centers, Donors, RO/SRO, private foundations
- **Commodity levies** / producer organizations: Include funding through commodity taxes levied on agricultural production or exports
- **Sale** of goods and services: Include contract-based research for public/private enterprises
- Other sources

Known challenges:

- *Financial reporting systems of agencies do not always reflect the same classifications used by ASTI*
- *It can sometimes be difficult for an agency to differentiate between government funding and funding from donors and development banks.*
- *Financial years do not necessarily match calendar years*

6. Discussions on the questionnaire structure and survey approach

Final discussion / reflection – 15-20 min

Q&A, reflection

Is this set of indicators relevant? Would it help YOUR institution and YOUR country to have this data?

Is the methodology and framework (tiers, recipient groups, sections) adequate and practical?

Today just an overview, tomorrow a deep dive.

Output of the session

- *Feedback collected on the clarity / understanding of the scope of ASTI*
 - *Improvement of scope description and examples*
- *Feedback collected on the methodology and indicators*
- *Initial clustered list of agencies per country*
- *Identified specific challenges for specific sectors (e.g. private sector)*

6. Discussions on the questionnaire structure and survey approach

TOMORROW:

- *Individual forms for each type of agency*
 - *Review of the lists of agencies for the countries*
- *Discussion on key / challenging questions:*
 - *best ways to collect / estimate the data*
 - *feedback on the guidelines > improvements*
 - *feasibility vs. relevance/use*
- *Prioritization exercise and refinement of the questionnaire*
- *Overview of survey management on the Data Management Portal*

Discuss

A large number of agricultural R&D agencies, especially those in the more advanced developing countries, conduct research related to food processing and agribusiness concerns. Strictly speaking, these R&D activities should be reported under the manufacturing sector instead of under agriculture.

6. Discussions on the questionnaire structure and survey approach

Output

- *Discussion on the clarity / understanding of the scope of ASTI*
 - *(distribution of material - "cards" - and quiz)*
 - *Improvement of scope description and examples*
- *Discuss some of the statements regarding the boundaries of ASTI:*
 - *ASTI limits itself to agricultural research per se rather than the multiple dimensions of the agricultural innovation process: should it be different? How? Would it be feasible?*
 - *Measuring inputs into agricultural research. ASTI has recently started to collect basic output indicators, but outcome, performance, and impact indicators are beyond the scope of ASTI.*
 - *Hence the link with ATIO being important to bring out the linkages with outputs that contribute to Agricultural development and innovation*
 - *(select the appropriate practical exercise from the facilitation guide parts 4, 5 and 6)*
- *Discuss specific challenges for specific sectors (e.g. private sector)*
- *Discuss the need for a community of practice on ASTI*

Session 5: Deep dive into the ASTI questionnaire

1. Deep dive into the ASTI questionnaire content
 - Prioritization / refinement exercise
2. Overview of the ASTI questionnaire categories for research focus
3. Survey management
 - Data Management Portal
4. Discussion on the survey questionnaire



1. Deep dive into the ASTI questionnaire sections & contents

Questionnaire sections and recipient groups

- A. Institutional information (GOVT, SMALL, HE, PS)
- B. Human resources (GOVT, SMALL, HE, PS)
- C. Research focus (GOVT, SMALL, HE, PS)
- D. Financial resources (GOVT, SMALL, HE)
- E. Student programs (HE)

Each section may have more or fewer questions depending on the recipient group.

Abbreviations for recipient groups:

- GOVT** • **GOVT**: Large government agencies
- SMALL** • **SMALL**: Small government and nonprofit agencies
- HE** • **HE**: Higher education
- PS** • **PS**: Private Sector

Next slide: structure of the questionnaire for each recipient group.

Institutional Details	Institutional Details	Institutional Details	Institutional Details
<p style="text-align: center;">GOVT</p> <p>Section A</p> <p>A1 Name of organization</p> <p>A2 Address</p> <p>A3 Telephone number</p> <p>A4 Email address</p> <p>A5 Organization website</p> <p>A6 <u>Supervising agency (e.g. ministry, department, university, parent organization)</u></p> <p>A7 Year in which the organization became involved in agricultural research</p> <p>A8 Year in which the organization was established (if different than A7)</p> <p>A9 Contact name</p> <p>A10 Contact email address</p> <p>A11 Contact telephone number</p>	<p style="text-align: center;">SMALL</p> <p>Section A</p> <p>A1 Name of organization</p> <p>A2 Address</p> <p>A3 Telephone number</p> <p>A4 Email address</p> <p>A5 Organization website</p> <p>A6 <u>Supervising agency (e.g. ministry, department, university, parent organization)</u></p> <p>A7 Year in which the organization became involved in agricultural research</p> <p>A8 Year in which the organization was established (if different than A7)</p> <p>A9 Contact name</p> <p>A10 Contact email address</p> <p>A11 Contact telephone number</p>	<p style="text-align: center;">PS</p> <p>Section A</p> <p>A1 Name of organization</p> <p>A2 Address</p> <p>A3 Telephone number</p> <p>A4 Email address</p> <p>A5 Organization website</p> <p>A6 Year in which the organization became involved in agricultural research</p> <p>A7 Year in which the organization was established (if different than A7)</p> <p>A8 Contact name</p> <p>A9 Contact email address</p> <p>A10 Contact telephone number</p>	<p style="text-align: center;">HE</p> <p>Section A</p> <p>A1 Name of higher education agency or faculty/department/unit</p> <p>A2 Address</p> <p>A3 Telephone number</p> <p>A4 Email address</p> <p>A5 Website of the higher education agency or faculty/department/unit</p> <p>A6 Year in which the higher education agency or faculty/department/unit became involved in agricultural research</p> <p>A7 Year in which the higher education agency or faculty/department/unit was established (if different than A6)</p> <p>A8 Contact name</p> <p>A9 Contact email address</p> <p>A10 Contact telephone number</p>
<p>Human Resources</p> <p>Section B</p> <p>B1 Overall proportion (as decimal number) of research staff time dedicated to ag research</p> <p>B1 B1b. Please describe the method used to calculate / estimate the percentages above</p> <p>B2 Researchers (including research managers) by highest education level and by gender, 2023</p> <p>B3 Female and male researchers (provided in question B2) by position level, 2023</p> <p>B4 <u>Age distribution of researchers by education level, 2023</u></p> <p>B5 Age distribution of researchers by gender, 2023</p> <p>B6 <u>Technical support staff (technicians, research assistants, and other technical support staff)</u></p>	<p>Human Resources</p> <p>Section B</p> <p>B1 Overall proportion (as decimal number) of research staff time dedicated to ag research</p> <p>B1 B1b. Please describe the method used to calculate / estimate the percentages above</p> <p>B2 Researchers (including research managers) by highest education level and by gender, 2023</p> <p>B3 Female and male researchers (provided in question B2) by position level, 2023</p>	<p>Human Resources</p> <p>Section B</p> <p>B1 Overall proportion (as decimal number) of research staff time dedicated to ag research</p> <p>B1 B1b. Please describe the method used to calculate / estimate the percentages above</p> <p>B2 Researchers (including research managers) by highest education level and by gender, 2023</p>	<p>Human Resources</p> <p>Section B</p> <p>B1 Overall proportion (as decimal number) of faculty staff time dedicated to ag research vs. non-research, 2023</p> <p>B1 B1b. Please describe the method used to calculate / estimate the percentages above in the box below.</p> <p>B2 Academic staff by highest education level and by gender, 2023</p> <p>B3 <u>Female and male academic staff (provided in question B2) by position level, 2016</u></p>
<p>Financial Resources</p> <p>Section C</p> <p>C1 Total expenditures by cost category, 2023 (in thousands of current, local currency units)</p> <p>C2 <u>C2a. Total funding by source, 2023 (in thousands of current, local currency units)</u></p> <p>C2 C2b. Please provide details on donor funding if possible, including names of large donors</p> <p>C2 C2c. If 'other' is indicated in C2a, please describe the type of funding:</p>	<p>Financial Resources</p> <p>Section C</p> <p>C1 Total expenditures by cost category, 2023 (in thousands of current, local currency units)</p>	<p>Financial Resources</p> <p>Section C</p> <p>C1 Total expenditures by cost category, 2023 (in thousands of current, local currency units)</p>	<p>Financial Resources</p> <p>Section C</p> <p>C1 Total expenditures by cost category, 2023 (in thousands of current, local currency units)</p>
<p>Research Focus</p> <p>Section D</p> <p>D1 Number of researchers assigned to formal research programs, 2023</p> <p>D2 Commodity focus in percentages, 2023</p> <p>D2 D2b. If any of the 'other' categories is chosen above, please list other commodities and percentages:</p> <p>D2 D2c. Please describe the method you used to calculate / estimate the percentages above</p> <p>D3 Breakdown of research focus by thematic area in percentage of the overall agricultural research staff time, 2023</p> <p>D3 D3b. If any of the 'other' categories is chosen above, please list the other thematic areas and percentages:</p> <p>D3 D3c. Please describe the method you used to calculate / estimate the percentages above</p> <p>D4 <u>Focus on advancing equality for women and minorities, addressing climate change, and promoting environmental sustainability, 2023</u></p> <p>D4 D4b. Please describe the method you used to calculate / estimate the percentages above</p>	<p>Research Focus</p> <p>Section D</p> <p>D1 Commodity focus in percentages, 2023</p> <p>D1 D1b. If any of the 'other' categories is chosen above, please list other commodities and percentages:</p> <p>D1 D1c. Please describe the method you used to calculate / estimate the percentages above</p> <p>D2 Breakdown of research focus by thematic area in percentage of the overall agricultural research staff time, 2023</p> <p>D2 D2b. If any of the 'other' categories is chosen above, please list the other thematic areas and percentages:</p> <p>D2 D2c. Please describe the method you used to calculate / estimate the percentages above</p>	<p>Research Focus</p> <p>Section D</p> <p>D1 Commodity focus in percentages, 2023</p> <p>D1 D1b. If any of the 'other' categories is chosen above, please list other commodities and percentages:</p> <p>D1 D1c. Please describe the method you used to calculate / estimate the percentages above</p> <p>D2 Breakdown of research focus by thematic area in percentage of the overall agricultural research staff time, 2023</p> <p>D2 D2b. If any of the 'other' categories is chosen above, please list the other thematic areas and percentages:</p> <p>D2 D2c. Please describe the method you used to calculate / estimate the percentages above</p>	<p>Research Focus</p> <p>Section D</p> <p>D1 Number of faculty staff assigned to formal research programs, 2023</p> <p>D2 Commodity focus in percentages, 2023</p> <p>D2 D2b. If any of the 'other' categories is chosen above, please list other commodities and percentages:</p> <p>D2 D2c. Please describe the method you used to calculate / estimate the percentages in question D2</p> <p>D3 Breakdown of research focus by thematic area in percentage of the overall agricultural faculty staff time, 2023</p> <p>D3 D3b. If any of the 'other' categories is chosen above, please list the other thematic areas and percentages:</p> <p>D3 D3c. Please describe the method you used to calculate / estimate the percentages in question D3</p>
			<p>Degree programs and students</p> <p>Section E</p> <p>D1 Current PhD programs (list all programs offered by your faculty/department/unit), 2022/23</p> <p>D2 Current MSc programs (list all programs offered by your faculty/department/unit), 2022/23</p> <p>D1 Current BSc programs (list all programs offered by your faculty/department/unit), 2022/23</p>

1. Deep dive into the ASTI questionnaire sections & contents

Custom introductions and guidelines – can be designed with focal points

Notes on country-specific laws and normative framework (mandate to collect, sensitive data, privacy...)

Activity 1
Customization for your country
>> homework

Agricultural Science and Technology Indicators (ASTI) Questionnaire

ASTI pilots 2024 - Questionnaire for Higher Education agencies

Thank you for helping ASTI and ... collect the most accurate and complete data possible on agricultural research systems in

(Notes on country-specific laws and normative framework, sensitive data etc.)

These data on human capacity and investments allow us to illustrate trends and gaps in your country's agricultural research system, inform decision making, and help set agricultural research priorities that ultimately lead to higher incomes, greater food security, and better nutrition.

Users of ASTI outputs include—among others—national agricultural and finance ministries, regional and sub-regional research organizations, as well as international and donor institutions.

Once collected, these data will be aggregated and merged with existing ASTI datasets to show long-term trends at the national, regional, and global levels. The data—as well as reports, interactive country pages, and graphing and benchmarking tools— will be made available on the ASTI website < <https://www.asti.cgiar.org> >

ASTI data has been used extensively at the national level to:

- identify key staffing gaps and help support training,
- encourage decisions to raise researcher salary levels,
- inform efforts to restructure and reform national agricultural systems,
- track progress toward agricultural development commitments and investment targets,
- and much more.

Your agency's participation in this survey is critical, as it:

- creates an accurate picture of your country's agricultural research system,
- highlights research and capacity gaps to potential funders,
- helps bring attention to overlooked research topics, and
- enhances the visibility of your agency's research.

Kindly complete and submit this survey form at your earliest convenience, but no later than

Should you need assistance completing this survey form, please do not hesitate to contact:

...

Having the most accurate and complete set of data from each country is crucial for it to be an effective diagnostic and advocacy tool.

Thank you for your participation.

KEY DEFINITIONS AND GUIDELINES

The following definitions are important to complete this survey form:

Agriculture

- **Includes** crops, livestock, forestry, fisheries, natural resources, and the socioeconomic aspects of primary agricultural production.
- Also includes **on farm** storage and processing of agricultural products.
- Excludes postharvest or food processing research **off farm**.

Research and Development (R&D)

- **Research** is the creative work and original investigation undertaken on a systematic basis to gain knowledge.
- **Development** is the application of research findings or other scientific knowledge for the creation of new or significantly improved products, applications, or processes.
- This survey requests information on R&D that is conducted **in house**.

A few guidelines to successfully complete this survey form:

- Please fill out all empty cells under each of the questions. Zero-values should be indicated by entering "0" in the appropriate cells. Cells left blank will be assumed to mean "no data available."
- Additional explanations and definitions are given in boxes above or in notes below some of the questions. Please read this information carefully prior to providing the requested data.
- Comment boxes are available at the bottom of each section. Please provide explanations for any data inconsistencies or unusual trends.

Various checks have been built into the survey form in order to reduce data errors and inconsistencies:

- A red explanatory note will appear automatically under some (but not all) of the questions if inconsistent data are provided.
- For certain questions, when all of the requested data are entered, the red checkbox to the right of the question will turn green; if it remains red, (some) data are still missing.
- The Index page lists the various sections and questions and indicates whether they have been completed.

1. Deep dive into the ASTI questionnaire sections & contents

HUMAN RESOURCES section:

The ASTI questions on human resources ask either for time use in percentage or for headcount. However, for better comparability, ASTI calculates human resources data in full-time equivalents (or “FTEs”).

The Full-time equivalent (FTE) of R&D personnel is defined as the ratio of working hours actually spent on R&D during a specific reference period (usually a calendar year) divided by the total number of hours conventionally worked in the same period by an individual or by a group.

Total R&D personnel in FTE terms includes the R&D performance, on an annual basis, by all individuals – internal R&D personnel and external R&D personnel, including volunteers – who contributed to the intramural R&D of a statistical unit, an institutional sector or a country.

N.B.: The ASTI survey does not ask for FTEs: FTEs are calculated combining the data collected as “headcount” and the data collected as percentage of time spent on activities. The ASTI questionnaire includes questions that ask either for percentage of time - then calculated as FTE – or for headcount.

1. Deep dive into the ASTI questionnaire sections & contents

HUMAN RESOURCES section: Time spent on research versus other activities

Question 1 in “Human resources”: Time spent on research versus other activities.

ASTI’s method of calculation of the FTEs takes into account the proportion of time that researchers spend on R&D versus other activities.

Question 1 in the “Human resources” section is the key question that asks for the overall percentage of time devoted to agricultural research. In all other questions asking for percentages of time, the percentage is assumed to be relative to the overall time spent on agricultural research as set in question B1.

By collecting information not only on research time but also on time spent on activities such as administration, training, extension, teaching, and others, ASTI aims to gain a more accurate understanding of the actual research focus of these agencies. For private companies, it is recommended to adhere to the original FTE percentage question for more straightforward reporting of time allocation.

Provide the proportion of research staff time dedicated to agricultural research, carefully considering time researchers spend on non-research activities as categorized below. Please provide the % in each row to help you come to a correct estimate of the overall proportion of researchers' time dedicated to agricultural research versus non-research activities (e.g., extension, education, admin) in 2023. THE TOTAL SHOULD ADD UP TO 100%.

B1. Overall proportion (%) of research staff time dedicated to ag research vs. non-research, 2023	
Proportion (decimal, e.g. 0.25 for 25%)	
	2023
Agricultural research	
Teaching	
Extension / informal education	
Partnerships	
Admin	
Other	
TOTAL	0

CHECK: ERROR! The total has to be 1 (100%).

Note The percentage given in row 1 "Research" should include only research in agricultural areas covered by ASTI (research on crops, livestock, forestry, fisheries, and natural resources, as well as on-farm postharvest research) and exclude non-research activities such as extension, education, receiving training, and services, but include management activities supporting agricultural research. Time spent on research that is not on the above agricultural areas should go under "Other". Refer to the Guidelines for some recommendations on how to estimate these

1. Deep dive into the ASTI questionnaire sections & contents

HOW TO COLLECT / ESTIMATE HEADCOUNT AND TIME-USE DATA

The previous question is a time-use percentage question, while the other questions in the Human Resources section ask for headcount numbers.

While headcount data are easier to collect in an institution with a robust administrative system, both types of data can be difficult to collect when it comes to characterize or classify human resources.

- Main recommendation from the Frascati manual:
This can be done using information available at the level of the institution (e.g. from administrative data) or sometimes at the level of individuals (e.g. time-use surveys). **Time-use surveys** can be a useful source of data in the absence of other robust data sources.
- The ASTI survey has four time-use questions: if time-use surveys are not feasible, administrative and budget data assigning percentages of researchers' time (e.g. person/month) to specific programs/projects can help to estimate the percentages. Respondents are asked to illustrate the method used to estimate this data.

1. Deep dive into the ASTI questionnaire sections & contents

Providing clarifications and comments and notes

Some questions are followed by open questions asking for additional clarifications or giving the opportunity to provide comments.

One example is the open question after question B1, asking to describe the method used to estimate the answer to question B1.

B1b. Please describe the method used to calculate / estimate the percentages above in the box below.

At the end of each section, there is an open question for comments.

If you have comments about this section, please provide them in the box below.

1. Deep dive into the ASTI questionnaire sections & contents

HUMAN RESOURCES section: headcount statistics

Questions 2-6 in “Human resources”: headcount statistics

These questions classify and characterize human resources against various categorizations: education level, gender, age group, position and staff category.

Research staff include individuals holding a research position (including long-term consultancies) with the restriction that the person should have at least a BSc degree or equivalent (i.e., at least three, but usually four, years of full-time university training). Management positions, such as (deputy) directors and heads of research programs, are also classified as research staff. Only staff on post should be reported (i.e. exclude staff on long-term unpaid leave, or positions approved but not filled).

GOVT
SMALL
HE
PS
T1
t

B2. Researchers (including research managers) by highest education level and by gender, 2023			
	Number (headcount)		
	Female	Male	SUM
PhD			0
MSc			0
BSc			0
TOTAL	0	0	0

GOVT
SMALL
HE
T2
b

B3. Female and male researchers (provided in question B2) by position level, 2023			
	Number (headcount)		
	Female	Male	Total
Management			0
Senior scientists			0
Scientists			0
Postdoctoral fellows			0
TOTAL	0	0	0

GOVT
T2
b

B4. Age distribution of researchers by education level, 2023						
	Number (headcount)					Total
	<31	31-40	41-50	51-60	>60	
Doctorates						0
Masters						0
Bachelors						0
TOTAL	0	0	0	0	0	0

B5. Age distribution of researchers by gender, 2023						
	Number (headcount)					Total
	<31	31-40	41-50	51-60	>60	
Female researchers						0
Male researchers						0
TOTAL	0	0	0	0	0	0

B6. Technical support staff (technicians, research assistants, and other technical support staff),			
	Number (headcount)		
	Female	Male	SUM
Technical support staff			0
Administrative support staff			0
Other support staff			0
TOTAL	0	0	0

1. Deep dive into the ASTI questionnaire sections & contents

Research focus section

The “Research focus” section collects data on the focus of the research conducted. It does so through four questions:

- one on number (headcount) of researchers working on specific research programs,
- three on percentages of researchers’ time spent respectively on:
 - specific commodities,
 - specific thematic areas,
 - a few selected cross-cutting themes (equality, climate change, environmental sustainability).

An "other" category is always listed, so that the total of the focus percentages has to be always 100%, and the 100% is relative to the overall proportion of time dedicated to agricultural research, as reported in question B1.

See the recommendations above on how to collect / estimate headcount and time-use data.

1. Deep dive into the ASTI questionnaire sections & contents

Research focus section: Commodity focus

- Not ALL commodities but the ones that over time have been selected for different regions as the most relevant.
- ONE list for all regions.
- More commodities were added and more can be added to decrease the % under the “other” categories.
- This is a **time-use** percentage to (see slide 8 on estimating time use).
- Relevant / feasible to collect also percentage of research budget?

Provide a percentage of researchers' time (as a group) allocated to the various commodities and other categories. In the online survey, click on the group names below.

D2. Commodity focus in percentages, 2023			
1. Cereals	0%	5. Horticulture	0%
Wheat		Vegetables	
Rice		Green/string beans and peas	
Barley		Bananas and plantains	
Maize		Flowers and ornamentals	
Sorghum		Grapes	
Millet		Citrus Fruits	
Quinoa		Apple	
Other cereals		Olive	
2. Roots and Tubers	0%	Pineapples	
Potatoes		Tomatoes	
Sweet potatoes		Mangoes	
Cassava		Lettuce	
Onions		Carrots	
Yautia (new cocoyam)		Chillies and Peppers	
Garlic		Avocados	
Yams		Melons	
Taro (old cocoyam)		Other fruits	
Other roots and tubers		6. Nuts	0%
3. Pulses	0%	Almond	
Beans		Pistachio	
Chick-peas		Other nuts	
Cowpeas		7. Other crops	0%
Lentils		Sugar	
Other pulses		Coffee	
4. Oil-bearing crops	0%	Cocoa	
Soybeans		Tea	
Oil palm		Tobacco	
Coconut palm		Rubber	
Sesame		Spices	
Groundnuts		Jute	
Other oil-bearing crops		Cotton	
		Medicinal Plants	
		Other crops	
		8. Animals	0%
		Cattle	
		Dairy	
		Sheep and goats	
		Swine	
		Poultry	
		Seri- and apiculture	
		Camels	
		Other animals	
		9. Pastures and forages	0%
		Pastures and forages	
		10. Forestry	0%
		Forestry	
		11. Fisheries	0%
		Marine	
		Inland (including aquaculture)	
		13. Non-commodity categories	0%
		Other categories	
		TOTAL	0%

1. Deep dive into the ASTI questionnaire sections & contents

Research focus section: Thematic focus

- More thematic areas were added to:
 - decrease the % under the “other” category;
 - respond to stakeholders' demand to reflect newer areas
- This is a **time-use** percentage to (see slide 8 on estimating time use).
- Relevant / feasible to collect also percentage of research budget?

D3b. If any of the 'other' categories is chosen above, please list the other thematic areas and percentages:

D3c. Please describe the method you used to calculate / estimate the percentages above

D3. Breakdown of research focus by thematic area in percentage of the overall agricultural research	
Research area	% of researchers' time
Plant breeding (including trees, excluding biotechnology)	
Agronomy (crop management, fertilizer research)	
Crop pest and disease control (including plant pathology and entomology)	
Other plant-related areas	
Animal breeding (including fisheries, excluding biotechnology)	
Animal management	
Pastures / animal nutrition	
Animal pest and disease control (including veterinary science)	
Other livestock-related areas	
Forestry and agroforestry	
Fisheries and aquatic resources	
Soil	
Water	
Other natural resources areas	
Agricultural biotechnology	
Livestock biotechnology	
Agricultural engineering (excluding machinery manufacturing)	
Digital agriculture (remote sensing, IoT...)	
Farm management / agribusiness development	
Food safety (excluding off-farm)	
On-farm storage and processing	
Farming systems	
Biodiversity conservation / regenerative agriculture	
Ecology / agroecology	
Socio-economic and policy aspects of primary agricultural production	
Other	
Total should be 100%	0%

Note The total 100% is relative to the overall proportion of time dedicated to agricultural research, as reported in question B1.

1. Deep dive into the ASTI questionnaire sections & contents

Research focus section: Addressing cross-cutting themes

- Three cross-cutting themes added in response to stakeholders' feedback:
 - equality
 - climate change
 - environmental sustainability

Not thematic areas: identify, across all areas and programs, research that purposefully addresses issues related to the three cross-cutting themes, and estimate percentage of related researchers' time.

- This is a **time-use** percentage to (see slide 8 on estimating time use).
- Relevant / feasible to collect also percentage of research budget?

Estimated proportion of research time spent on research that purposefully addresses issues related to the three cross-cutting themes.

D4. Focus on advancing equality for women and minorities, addressing climate change, and promoting environmental sustainability, 2023	
<i>Proportion (decimal, e.g. 0.25 for 25%)</i>	
	2023
Equality: gender, youth, vulnerable communities, inclusion, etc.	
Climate change adaptation and mitigation*	
Environmental sustainability**	
TOTAL	0

1. Deep dive into the ASTI questionnaire sections & contents

Financial resources section: total expenditures by category

Actual expenditure figures, not budgeted or projected expenditures.

Current **local currency**.

If the financial year does not match the calendar year, expenditures are reported in the calendar year that covers most of the financial year.

Known challenges:

- *Often difficult for universities to separate research costs from other costs*
- *Salaries of temporary/contract staff are often reported under operating costs*

C1. Total expenditures by cost category, 2023 (in thousands of current, local currency units)	
	2023
Salaries and benefits for all personnel*	
Operating and research program costs**	
Capital investments***	
TOTAL	0

Note:

Expenditures should include revenues from the government and other sources as listed in question C2. Report actual expenditure figures, not budgeted or projected expenditures for the following categories:

*Salaries include staff remuneration expenditures such as wages, pension plan contributions, insurance premiums, child education and housing allowances. Also include labor costs of temporary staff like day laborers and long-term consultants.

**Operating and research program expenditures include costs such as gasoline, electricity, stationery, books, agricultural inputs, staff training, travel, per diem expenses as well as running costs and maintenance of buildings, cars and equipment.

***Capital expenditures relate to the purchase or rental of items that last longer than a year. Examples are research equipment, furniture, computers, vehicles, land, buildings, depreciation costs, and interest charges for past capital investments.

1. Deep dive into the ASTI questionnaire sections & contents

Financial resources section: funding sources

(We saw the categories yesterday)

Known challenges:

- *Financial reporting systems of agencies do not always reflect the same classifications used by ASTI*
- *It can sometimes be difficult for an agency to differentiate between government funding and funding from donors and development banks.*
- *Financial years do not necessarily match calendar years*

For Higher Education, in the past it was deemed more feasible to ask for funding than for expenditures.

What do you think?

C2a. Total funding by source, 2023 (in thousands of current, local currency units)	
	2023
Government (core funding)	
Government (other)	
Loans from development banks	
Bilateral and multilateral donors	
Commodity levies/Producer organization	
Sale of goods and services	
Other	
TOTAL	0

1. Deep dive into the ASTI questionnaire sections & contents

Q&A and discussion – 10 min

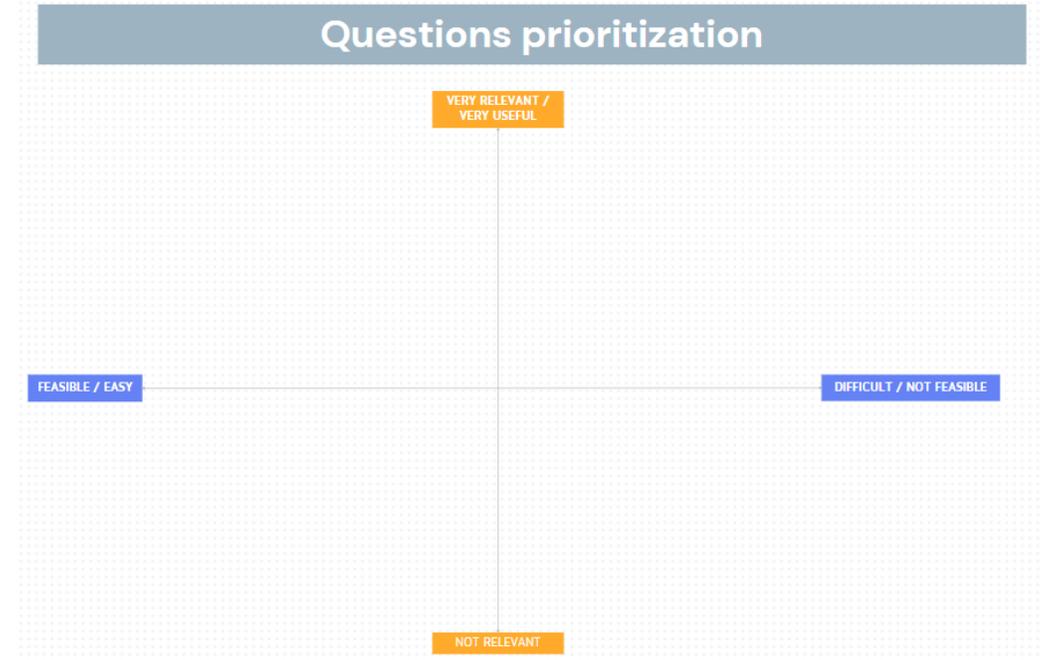
- *Key / challenging questions*
- (% of budget besides time use for research focus? expenditure vs funding for HE? partnerships question?)
- *best ways to collect / estimate the data*
- *feedback on the guidelines > improvements*
- *feasibility vs. relevance/use*

Activity 2 - 20min

Prioritization exercise and refinement of the questionnaire

ASTI questions prioritization exercise:

- Group 1: https://www.canva.com/design/DAGCNWhakLA/e-9efCo7Qlzfvetj_KXEDg/edit
- Group 2: https://www.canva.com/design/DAGCNpooq_0/5t8S6dOukAnHVFYp9ibqBQ/edit
- Group 3: https://www.canva.com/design/DAGCNIH6rac/NUjrWmCs_Gsfd5o8o2NYJg/edit
- Group 4: <https://www.canva.com/design/DAGCNv0US10/-SMRYm6VcDw2xFRYGB8zA/edit>
- Group 5: <https://www.canva.com/design/DAGCNtTtlkQ/aFg-EhYF9CvMbo4l4QWNNg/edit>



- Feasibility and relevance/use chart
- *For feasibility: role play*

2. Overview of the ASTI questionnaire categories for research focus

Range of options and alignment with established classifications

- Alignment with classifications

Commodities used to be grouped in a way that is not aligned with the UN reference classification (the **Central Product Classification**): the previous groupings have been left as they were, but behind the scenes the commodities have been also re-grouped in alignment with the CPC groups. In this way, comparisons with other systems that use the CPC will be possible.

The names of the commodities are not exactly those used in the CPC, but a 1-1 mapping has been implemented behind the scenes also for comparison purposes.

Thematic areas have been revised to include new areas that either were missing or are of special interest to the stakeholders who provided feedback; care was also taken that the area could be roughly aligned to the **OECD Fields of Research and Development (FORD)** classification referred to in the 2015 Frascati manual and in turn aligned with UNESCO's "Recommendation Concerning the International Standardisation of Statistics on Science and Technology". Both those classifications are however too broad, while the ASTI are much more granular.

2. Overview of the ASTI questionnaire categories for research focus

Activity 3 (if there is time) - 15 min

- Review of thematic areas and commodity list
- Thematic areas: exercise with real cases to identify missing areas or unclear boundaries

1. Cereals	0%	5. Horticulture	0%	8. Animals	0%
Wheat		Vegetables		Cattle	
Rice		Green/string beans and peas		Dairy	
Barley		Bananas and plantains		Sheep and goats	
Maize		Flowers and ornamentals		Swine	
Sorghum		Grapes		Poultry	
Millet		Citrus Fruits		Seri- and apiculture	
Quinoa		Apple		Camels	
Other cereals		Olive		Other animals	
2. Roots and Tubers	0%	Pineapples		9. Pastures and forages	0%
Potatoes		Tomatoes		Pastures and forages	
Sweet potatoes		Mangoes		10. Forestry	0%
Cassava		Lettuce		Forestry	
Onions		Carrots		11. Fisheries	0%
Yautia (new cocoyam)		Chillies and Peppers		Marine	
Garlic		Avocados		Inland (including aquaculture)	
Yams		Melons		13. Non-commodity categories	0%
Taro (old cocoyam)		Other fruits		Other categories	
Other roots and tubers		6. Nuts	0%		
3. Pulses	0%	Almond			
Beans		Pistachio			
Chick-peas		Other nuts			
Cowpeas		7. Other crops	0%		
Lentils		Sugar			
Other pulses		Coffee			
4. Oil-bearing crops	0%	Cocoa			
Soybeans		Tea			
Oil palm		Tobacco			
Coconut palm		Rubber			
Sesame		Spices			
Groundnuts		Jute			
Other oil-bearing crops		Cotton			
		Medicinal Plants			
		Other crops			
		TOTAL	0%		

CROP RESEARCH

Plant breeding (including trees, excluding biotechnology)
 Agronomy (crop management, fertilizer research)
 Crop pest and disease control (including plant pathology and entomology)
 Other plant-related areas

CROP RESEARCH

Animal breeding (including fisheries, excluding biotechnology)
 Animal management
 Pastures / animal nutrition
 Animal pest and disease control (including veterinary science)
 Other livestock-related areas

NATURAL RESOURCES

Forestry and agroforestry
 Fisheries and aquatic resources
 Soil
 Water
 Other natural resources areas

BIOTECHNOLOGY

Agricultural biotechnology
 Livestock biotechnology

OTHER

Agricultural engineering (excluding machinery manufacturing)
 Digital agriculture (remote sensing, IoT...)
 Farm management / agribusiness development
 Food safety (excluding off-farm)
 On-farm storage and processing
 Farming systems
 Biodiversity conservation / regenerative agriculture
 Ecology / agroecology
 Socio-economic and policy aspects of primary agricultural production
 Other

3. Survey management

Overview of survey management on the Data Management Portal

Use of the Data Management Portal for managing the survey workflow.

Responsibilities of the focal points in the survey workflow.

>> demo on the Data Management Portal <<

4. Discussions on the questionnaire

Final discussion / reflection

- *How feasible is it to collect this data regularly and publish it?*
- *How positive are you that agencies in your country can answer these questions?*
- *How likely is it that agencies will be willing to conduct time-use surveys?*

Output of the session

- *Drafted text on data collection normative framework in countries*
- *Feedback collected on feasibility and relevance/use of each question*
 - *questionnaire refined*
- *(Time permitting) Feedback collected on classifications of commodities and thematic areas*

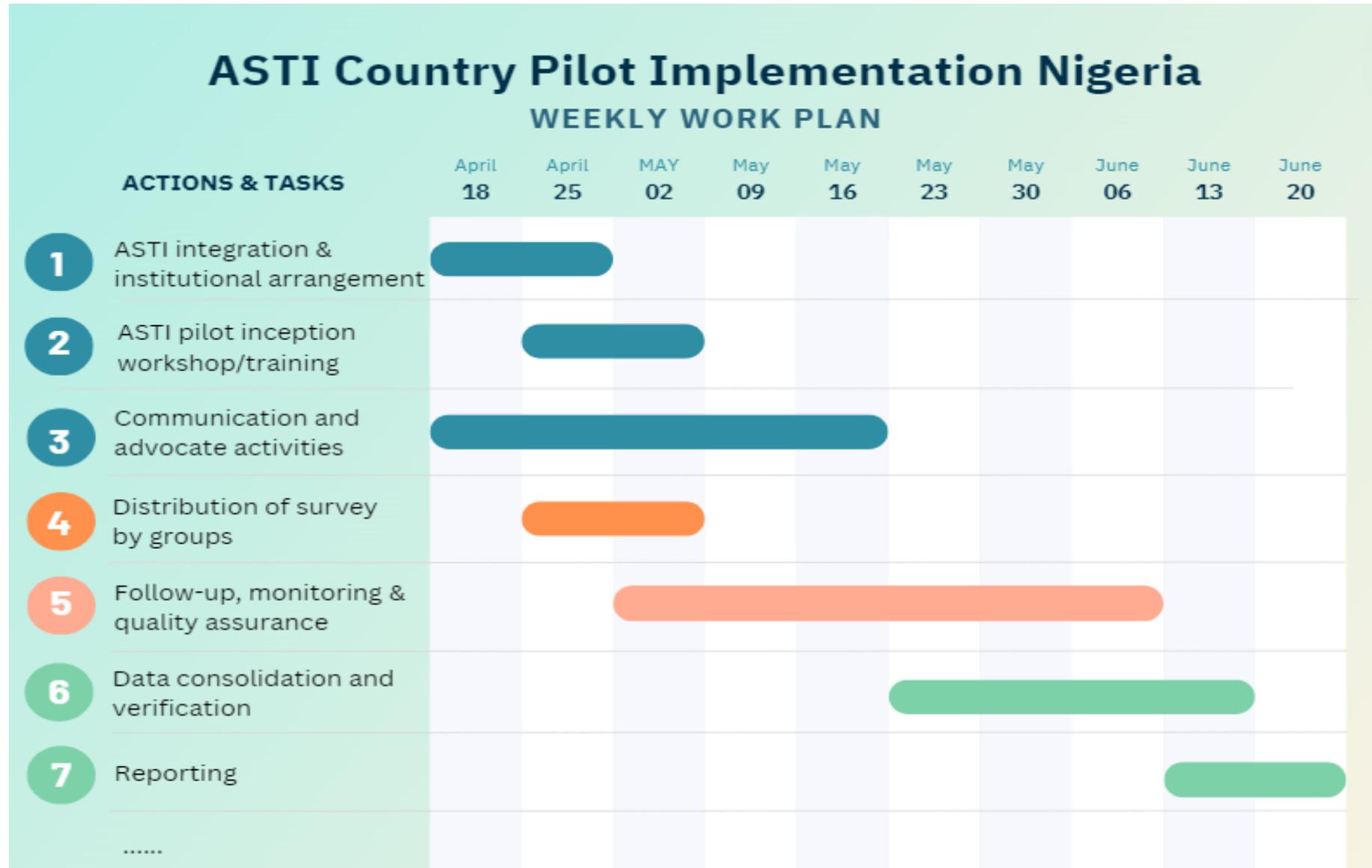
Session 6: Development of In-Country ASTI Implementation

1. ASTI Country Pilot Workplan
2. Development of In-Country
ASTI Country Implementation
Workplan (group discussion)



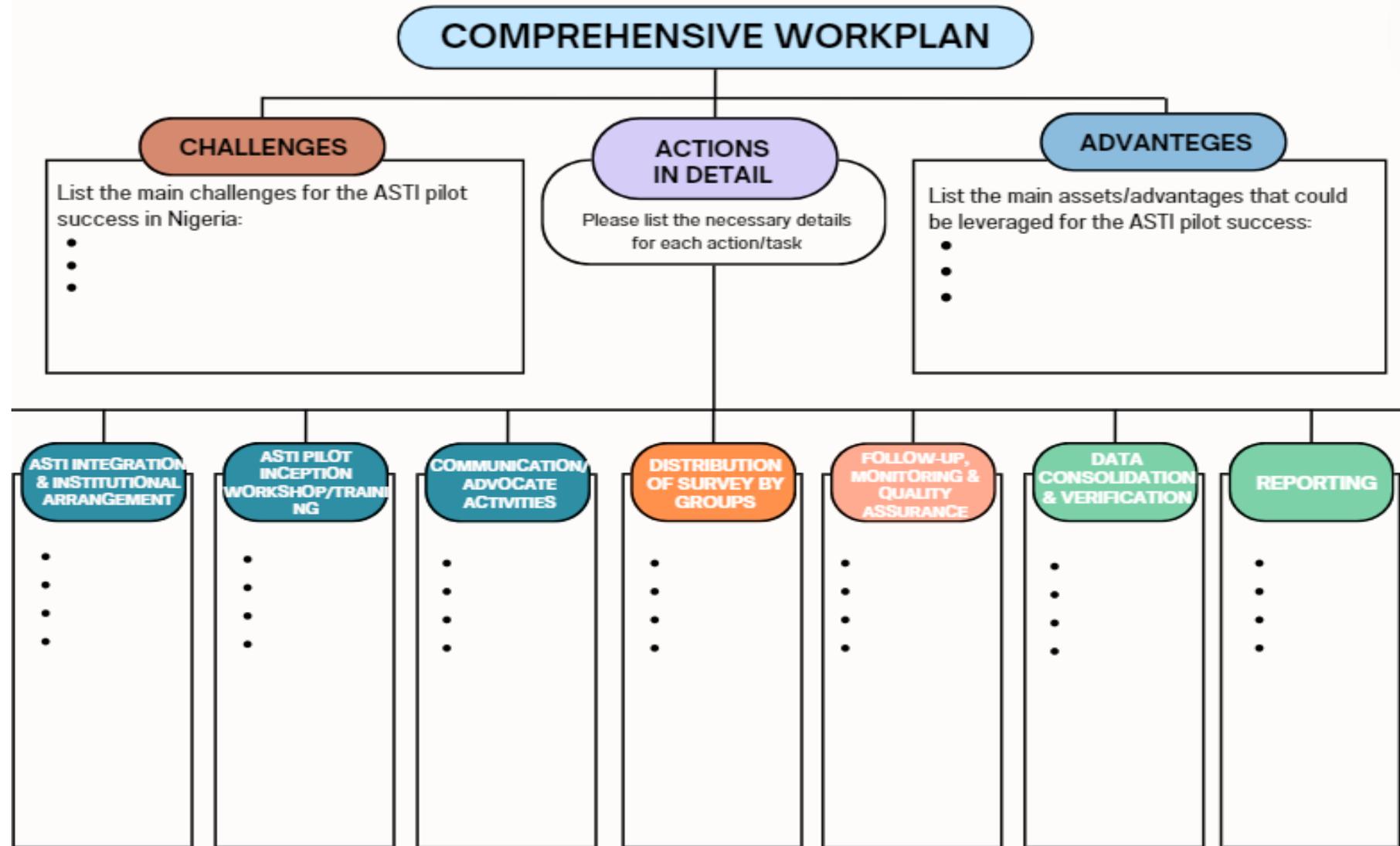
1. ASTI Country Pilot Workplan

What can it look like?



1. ASTI Country Pilot Workplan

Need more details?



2. Development of In-Country ASTI Country Implementation Workplan (Group Discussion)

- Click the country name below to enter the country workplan
 - [Albania](#)
 - [Côte d'Ivoire](#)
 - [Ethiopia](#)
 - [Georgia](#)
 - [Nigeria](#)
 - [Pakistan](#)

- Adjust and develop the workplan according to your country's reality

Session 7: Development of work plans and MEL of the pilot process

1. Overview Planning follow up activities to the ASTI survey implementation
2. Preparation for the rollout of the ASTI survey implementation data collected



1. Design and development of the country workplan for the ASTI pilot

Review of a checklist of actions to develop a workplan

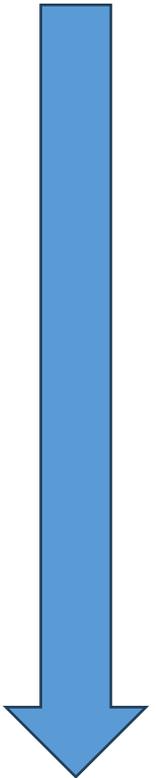
- Applying the principles described above into an initial design of the workplan
- Applying the processes and for the implementation of the pilot in the country
 - *Checklist (to be provided as a handout)*
- Proposed sequencing of processes upon return to the country
- Engagement with policy makers and organisation of pilot launching event (FAO mission and launch?)
- Highlighting indicators that the ASTI team are interested in: quantitative and qualitative

1. Design and development of the country workplan for the ASTI pilot

Country commitments

1. Institutional arrangements between NSO and NARI (FAO support?)
2. Update and validate in-country agricultural R&D agency list
3. Contact the agencies (national workshop?)
4. Collection of data (Tier I, Tier II and Private Sector)
5. Follow-up with FAO team
6. Upload questionnaires in the Data Management Portal
7. Review of the country file prepared by FAO & quality assurance
8. Dissemination of results (Press release?)
9. Prepare feedback inputs for the lessons learned document
10. Present country experiences at the regional workshops

May 2024



Sept/Oct
2024

2. Planning follow-up activities to the ASTI survey implementation

Mapping the stages from the pilot to the roll-out of ASTI survey in the country

- Inputs to be provided by focal points for ASTI community of practice
- Group follow-up virtual meeting May/June
- Advocacy missions May/June/July
- Online discussions with each country in July/ August
- Review of the lessons learned from the pilot – end of Aug 2024

3. Preparation for the global rollout 2025 of the ASTI survey implementation

Leadership roles of core group of local institutions

- a) General discussion on the preparation and leadership of the survey rollout in 2025
 - **Interactions:** Discussions on the desirable scope of the process and the vision of the outcome
 - Consider using some slides from the ASTI slides to reinforce the message on potential utilization of ASTI data at different levels (especially exploring in-country and institutional use for local advocacy)

THANK YOU!

For your feedback!