

Implementation of the Science Agenda:

Continental Theory of Change and Measurement Framework

August 2017

Table of Contents

1	Executive Summary	3
2	Introduction and background	4
3	About Theories of Change.....	6
3.1	About the National Consultations and the Continental Synthesis meeting	6
4	Continent-level – Science Agenda Theory of Change	7
4.1	The Theory of Change	10
5	Continent-level – Science Agenda Measurement Framework	10
5.1	Strengthened human and institutional systems	11
5.2	Sustainable financing of science, technology, and innovation in agriculture promoted	12
5.3	Favorable policy environment created	13
5.4	Collaboration at the local, international, and regional levels built	14
6	Reflections	14
6.1	Implementation of Science Agenda	15
6.2	Avoiding duplication	15
6.3	Funding and sustainability	15
7	Conclusions and next steps	16
8	Annex.....	18
8.1	Participant list	19

1 Executive Summary

This report describes the Continent-level Theory of Change and Measurement Framework for implementation of the Science Agenda. It details the participatory processes that were undertaken in arriving at the Continent-level Theory of Change as well as the challenges, priorities, and areas of value add for the Science Agenda identified by participants in the National Consultations. A Measurement Framework, with initial indicators that can be used to identify whether or not the above priorities have been achieved, accompanies the Theory of Change.

The initial draft of the Theory of Change was synthesized from the national-level Theories of Change developed during the National Consultations in the Tier 1 countries – Egypt, Ghana, Malawi, Rwanda, and Senegal. The indicators in the Measurement Framework are largely drawn from the drawn from the CAADP 2015 – 2025 Results Framework. Further work is necessary to ensure that regional aggregation of metrics is possible with respect to specific regional cropping systems, and policy approaches to finance and strengthening capacity.

The Theory of Change was reflected upon during the Continental Synthesis and Validation of the Science Agenda for Agriculture in Africa Implementation meeting in Ghana during 26th – 28th July 2017 hosted by FARA. This brought together 86 stakeholders from Research, Education (including Universities), Extension, the Private Sector, Farmer Organizations, Ministries of Agriculture, Policy-based institutions, CAADP Country Representatives, as well as representatives from key development partners such as the Africa Development Bank, the European Commission and IFAD. The Synthesis meeting drew together the discussions from the above National Consultations, provided an overview of the value-add of the Science Agenda – drawn from the national Theories of Change - a review of the investment proposal and financing plan, and identified the roles of stakeholders, appropriate financing modalities, and set out next steps in the implementation of the Science Agenda.

Discussions from the National Consultations and the zero-draft national Theories of Change were synthesized to identify common challenges, priorities, and areas of value add of the Science Agenda across the continent. These were grouped into six main areas: Shocks, stresses, and ensuring sustainability; developments in science, technology, and innovation; building an enabling environment; shifting population demographics and dynamics; economic changes and challenges; and skills and abilities.

The Theory of Change for the implementation of the Science Agenda at the continent level is split into four main stages: challenges and megatrends; the value add of the Science Agenda; a set of priority outcomes synthesized from the National Consultations; and an impact goal of meeting the CAADP targets through the realized benefit of the Science Agenda (as well as achieving the priority outcomes identified).

In responding to these megatrends and challenges, the value add of the Science Agenda across the continent is predominantly in mobilizing or providing funding for national and continental priorities; enabling national, regional, and international collaboration; as a platform to build and bring together skills, evidence, and expertise; and in shaping and supporting better interventions.

The outcomes aspired to through applying the Science Agenda, were grouped into four categories on the Theory of Change: Building collaboration at the local, national and regional levels; creating a favorable policy environment; promoting the sustainable financing of

science, technology, and innovation in agriculture; and strengthening human and institutional systems. Within each of these categories is a set of priorities - synthesized from those agreed at the national levels - which aim to be achieved through the application of science, technology, and/or innovation via technology products, services or knowledge applications.

Beyond this, leveraging the value add of the Science Agenda to deliver these priorities will contribute to achieving the CAADP priorities in each of the countries. However, as Egypt – one of the Tier 1 countries – is not yet a signatory of CAADP, the implementation of the Science Agenda can also be considered as an initiative to achieve wider agricultural and development priorities beyond those currently reflected in CAADP Compacts.

In addition, the continental priorities and value add areas of the Science Agenda must be aligned with national policies, processes, frameworks and activities – thereby reducing duplication and parallel working, and providing a holistic approach to tackling national and continental challenges. There is also value in regional perspectives offered by aggregating appropriate metrics for reflection around specific cropping systems for Northern Africa, Eastern and Central Africa, and Southern and Western Africa.

Linked to this, and as identified throughout all National Consultations and reaffirmed at the Continental Synthesis meeting, ownership of the Theory of Change (and Measurement Framework) by stakeholders on the continent is critical. The Consultant highlights the importance of ensuring that there is sufficient time to enable validation of these tools in order to ensure effective implementation of the Science Agenda. Furthermore the accountability for reporting on the Science Agenda performance should be agreed and the framework for reporting needs to be articulated so that NEPAD, CAADP, the African Union Heads of State, and national and regional governments are all aware and familiar with its inclusion.

In addition, the Continent-level Theory of Change is founded on the priorities and requirements of the five Tier 1 countries that have been investigated in further detail. Therefore, it cannot be seen as completely representative of the entire continent and remains a dynamic document that may change and be refined as more countries begin to adopt and populate the Measurement Frameworks consistent with implementing the Science Agenda at a country level. Similarly, any changes to the Tier 1 group of countries will require the Theory of Change to be re-validated to ensure it continues to highlight the key priorities on which the efforts of the Science Agenda should focus.

2 Introduction and background

Agricultural development provides one of the greatest opportunities for large-scale economic development in many African countries. However, its potential remains largely unrealized across the continent and this has resulted in persistent issues of poverty, as well as food and nutrition security.

However, many of these challenges can be solved, mitigated, reduced or diverted through the effective application of science, technology and innovation in the agricultural sector. Moreover, many countries across the African continent are already investing in and championing the role of science, technology and innovation in agriculture - efforts that will be further supported through the implementation of the Science Agenda.

In this context, the Science Agenda has evolved into the framework for enhancing the application of science, technology and innovation to achieve agricultural development

priorities (notably the CAADP goals), with a particular focus on improving agricultural productivity.

The Science Agenda sets out a vision for Africa – that by 2030, Africa ensures its food and nutrition security; becomes a recognized global scientific player in agriculture and food systems and the world's bread basket – and beyond setting out this 'enduring vision', has six further 'strategic thrusts':

- CAADP as a short term priority;
- Research themes that connect institutions and policies with producers, consumers, and entrepreneurs;
- Strengthening solidarity and partnerships at national, regional, and international levels;
- Sustainable financing of science and technology;
- Creating a favorable policy environment for science;
- Establishing a special fund for the Science Agenda.

With regard to taking the Science Agenda forward, and exploring the practicalities and requirements of implementation, a series of 'Tier 1' countries were identified by FARA due to their strengths in applying science, technology and innovation in agricultural development; their strategic role in the region; and/or their particular agricultural context. The countries are Egypt, Ghana, Malawi, Rwanda, and Senegal.

These countries each hosted a National Consultation, bringing together stakeholders from the national and sub-regional levels, to identify how the Science Agenda could be implemented in the country. Successful implementation of the Science Agenda requires a coordinated effort among a range of stakeholders at the local, regional and continental level.

In this context, the Consultant¹ was commissioned by FARA to attend the National Consultations in all countries, the Regional Consultations and the Continental Synthesis meeting as an independent facilitator to support the above stakeholders in thinking through the process of implementing the Science Agenda at country and continent level. In particular, this focused on facilitating the process of developing national-level Theory of Changes and Measurement Frameworks linked to the implementation of the Science Agenda. The Continent-level Theory of Change was assembled from the bottom-up - looking at common areas for attainment across different countries and creating a master Theory of Change encompassing these areas of similarity.

However, it is important to note that the consultation was just the start of the process for determining how the Science Agenda can be implemented across the continent. The process, including the Theory of Change and Measurement Framework – must be owned by all the stakeholders at national, regional and continent levels as a common framework for implementation and reflection.

While implementation of the Science Agenda will be through work at the country level, the driving impetus for the Science Agenda is to improve the comparative advantage, coordination, and coherence of science, technology, and innovation initiatives in the agriculture sector across Africa. To this end, the Consultant synthesized the discussions in the National Consultations - and the priorities, challenges, and areas of value add for the Science Agenda identified in each of the national Theories of Change. This was undertaken

¹ The Agricultural Learning and Impacts Network (ALINE)

in order to develop a Theory of Change (and associated Measurement Framework) to guide the implementation of the Science Agenda at the continent level.

The output of a continent-level Theory of Change was also aligned to CAADP as the mechanism for agricultural development tracking and monitoring, in order to ensure alignment and no duplication or parallel processes. It remains to be reflected upon where the accountability for the Science Agenda implementation rests at the continent level, as agreed by multiple stakeholders who operate at that level, and as it is endorsed by the Tier 1 countries presently and by additional countries as they begin to join the initiative.

3 About Theories of Change

At its simplest, a Theory of Change is, an often, visual representation of how we think change will happen. It illustrates how an intervention can transform a situation from the current state, to a desired end-state. They can illustrate one or many pathways through which this change can be delivered, and can work at multiple levels – from high-level strategic overviews of change, through to very detailed roadmaps that can be used to track implementation.

The Theory of Change approach was used in this process in order to identify priority areas in each country along the science, technology, and innovation value chain: from research and development, through roll-out, to adoption and sustainable usage. The approach was used to facilitate dialogue among stakeholders on possible intervention points or areas where the Science Agenda could add value at the national and continent levels – whether through supporting, enabling, or catalyzing activities and interventions. Initial ‘zero-draft’ Theories of Change were then discussed during the National Consultations, and at the Continental Synthesis meeting.

The five Theories of Change – one for each of the Tier 1 countries – were then synthesized, in order to identify shared priorities and outcomes across the countries, which could provide an initial set of areas to be tackled through Science Agenda efforts and funding. This Continent-level Theory of Change was then discussed during the Synthesis meeting, to ensure that the priorities reflected those identified by the national and regional stakeholders in the room.

As discussed at the outset of this report, Theories of Change are living instruments that require continual validation and refinement. With regard to the Continent-level Science Agenda Theory of Change, this can be split into two stages. First, there is immediate validation to ensure that all stakeholders agree on the identified priority areas – and areas where the Science Agenda can add value (as well as agreement on the broad megatrends and challenges to which the Science Agenda is responding). Second, is ensuring further validation and refinement as the group of countries adopting the Science Agenda grows beyond the Tier 1 countries. This may result in the identification of additional or different challenges, priorities, or focus areas for the Science Agenda.

3.1 About the National Consultations and the Continental Synthesis meeting

The National Consultations provided participants with an introduction to the basic principles of monitoring, evaluation, and learning – with a particular focus on the Theory of Change methodology and its application for understanding how the Science Agenda could be implemented in each country.

This work centered around understanding the context in each country, particularly the megatrends and challenges relevant to the country – drawing on one of the key themes in the Science Agenda. This was used as the foundation to identify a series of priorities in each country that participants in the National Consultation considered important, and which could be tackled, mitigated, or managed through the usage of science, technology, and innovation. Finally, these areas were drawn together to identify where and how the Science Agenda could add value in the country – including through alignment with existing national programmes and policies, but also the role it could play in positively impacting on national agricultural development.

More widely, each National Consultation built on the Theory of Change introduction provided at the Regional Consultation – which introduced how the Theory of Change process could be used to understand the impact that the Science Agenda could deliver. In addition, the Regional Consultations helped to ensure that issues beyond the Tier 1 countries were also included in discussions.

The Continental Synthesis meeting built on these initial stages of consultation. The meeting drew together the key challenges, priorities, and areas for the Science Agenda in each country and provided an opportunity for representatives of the five Tier 1 countries – alongside the crucial input of the sub-regional organizations – to reflect upon these in order to identify an initial continent-level direction for the Science Agenda.

4 Continent-level – Science Agenda Theory of Change

Discussions from the National Consultations and the zero-draft national Theories of Change were synthesised to identify common challenges, priorities, and areas of value add of the Science Agenda across the continent. These were grouped into six main areas: shocks, stresses, and ensuring sustainability; developments in science, technology, and innovation; building an enabling environment; shifting population demographics and dynamics; economic changes and challenges; and skills and abilities. Table 1, below, sets out these priorities in further detail.

Table 1: Continent-wide megatrends and challenges

Area	Key megatrends and challenges
Shocks, stresses, and ensuring sustainability	<ul style="list-style-type: none"> Environmental changes and degradation - including deforestation, soil erosion, pollution, and shifts in disease vectors and pest issues Land, water, and energy shortages Wider environmental constraints - including hilly terrain and soil acidity Ensuring provision of data and skills to analyse it, to understand what's working, what isn't and what priorities are important
Developments in science, technology, and innovation	<ul style="list-style-type: none"> Role of ICT in agriculture - including eAgriculture, and the usage of data, Internet of Things, and mobile phones Using science, technology, and innovation to do things better and faster - including BioTech, micro-organisms, and new breeding methods Tackling the multipliers of technology, both good and bad – as well as ensuring suitable skills to leverage agriculture, and engaging with ethical issues around science, technology, and innovation Wider constraints, particularly around resistance to change, ensuring that

	technologies are adapted to local contexts, and suitable time horizons for research
Building an enabling environment	<ul style="list-style-type: none"> • Joined-up policies and government working to get the most out of agriculture, and promotion of science, technology, and innovation • Ensuring evidence-based policymaking and research/policy interfaces • A proactive regulatory environment that enables innovation and equity between all actors, with a commitment to quality in agriculture • Providing the infrastructure, support, and requirements for strong markets • Ensuring equitable access to key agricultural resources - including strong land tenure and other land policies, seed policies where needed, and actionable agricultural strategies
Shifting population demographic and dynamics	<ul style="list-style-type: none"> • Increased urbanisation and shifts in diet • Population growth and demographic shifts • Migration from rural areas, including impact on workforce availability • Importance of focusing on young people and women • Associated physical constraints, including high population density, ensuring right infrastructure, and supply of food and inputs
Economic changes and challenges	<ul style="list-style-type: none"> • Emergence of more commercial farmers • Changes in consumer behaviour and consumption • Tackling fake inputs, and ensuring quality of produce • Industrialisation • Ensuring access to affordable finance and financial support (including insurance) for farmers • Shifts in donors and donor priorities, and changes in foreign investment • Creating a stable investment and economic environment - including managing inflation to keep prices fair and stable • Sustainable domestic and international funding sources for research • Responding to challenges of global trade, markets, and prices
Skills and abilities	<ul style="list-style-type: none"> • Provision of useful extension system across countries, with manpower and resources to support farmers and standardisation of staff training • Reducing information asymmetry for all in the value chain • Providing financial literacy, business and marketing skills to farmers • Developing skills and knowledge to respond to national challenges • Shortage of agricultural inputs

However, it must be stressed that the above megatrends and challenges have been drawn directly from the National Consultations, so are therefore based on those identified by the Tier 1 countries and as such may not reflect the priorities of all countries on the continent.

In responding to these megatrends and challenges, the value add of the Science Agenda across the continent was seen to be its role in mobilising or providing funding for national and continental priorities; enabling national, regional, and international collaboration; as a platform to build and bring together skills, evidence, and expertise; and in shaping and supporting better interventions.

With regard to mobilising or providing funding for national and continental priorities, the value add of the Science Agenda was seen to be in accessing new external funding sources, developing a roadmap to drive country funding priorities, developing an evidence-base to encourage donor investment, the wider provision of funding, and developing joint funding bids between countries.

The Science Agenda's role in enabling national, regional, and international collaboration extended to developing research collaboration between countries; developing multi-stakeholder innovation platforms and market linkages; identifying and supporting opportunities for countries to use their respective comparative advantages for the wider benefit of the continent, and using strategic technology transfer to improve national and international contexts.

As a platform to build and bring together skills, evidence, and expertise, the value add of the Science Agenda was seen to be around bringing together all users and beneficiaries of research to identify and use best practice; to enabling learning and development - including delivering useful extension skills and systems across the continent; providing opportunities for experts (current and retired); and in facilitating research interaction and collaboration.

Finally, the Science Agenda was seen to be a mechanism to shape and support better interventions. This comprises of a role in identifying and providing suitable technologies; coordinating and scaling-up promising technologies and ensuring the adoption of these solutions; mapping and addressing skills gaps; developing and using monitoring, learning, and evaluation skills; and developing feedback mechanisms to find out what works, what doesn't, and to focus continent efforts on the right interventions.

The third stage of the Theory of Change focuses on the outcomes achieved through applying the Science Agenda. These were also grouped into four categories on the Theory of Change:

- **Strengthened human and institutional systems:** ensuring the provision of skills and opportunities to leverage scientific, technological, and innovative solutions (including effective extension systems)
- **Sustainable financing of science, technology, and innovation promoted:** focusing on providing finance at all levels – from research and development funding to foster innovation, through to ensuring farmer access to financing mechanisms so they can afford to adopt promising and useful technologies
- **Favourable policy environment created:** providing an enabling environment, an equitable regulatory system that balances ethical considerations without limiting innovation, and generating research to inform evidence-based policymaking
- **Collaboration at the local, national, and regional levels built:** enabling collaboration and participation at all three levels in order to develop and implement technologies to enable and catalyse agricultural development across the continent

Within each of these categories is a set of priorities - synthesised from those agreed at the national level - which can be achieved through the application of science, technology, and/or innovation.

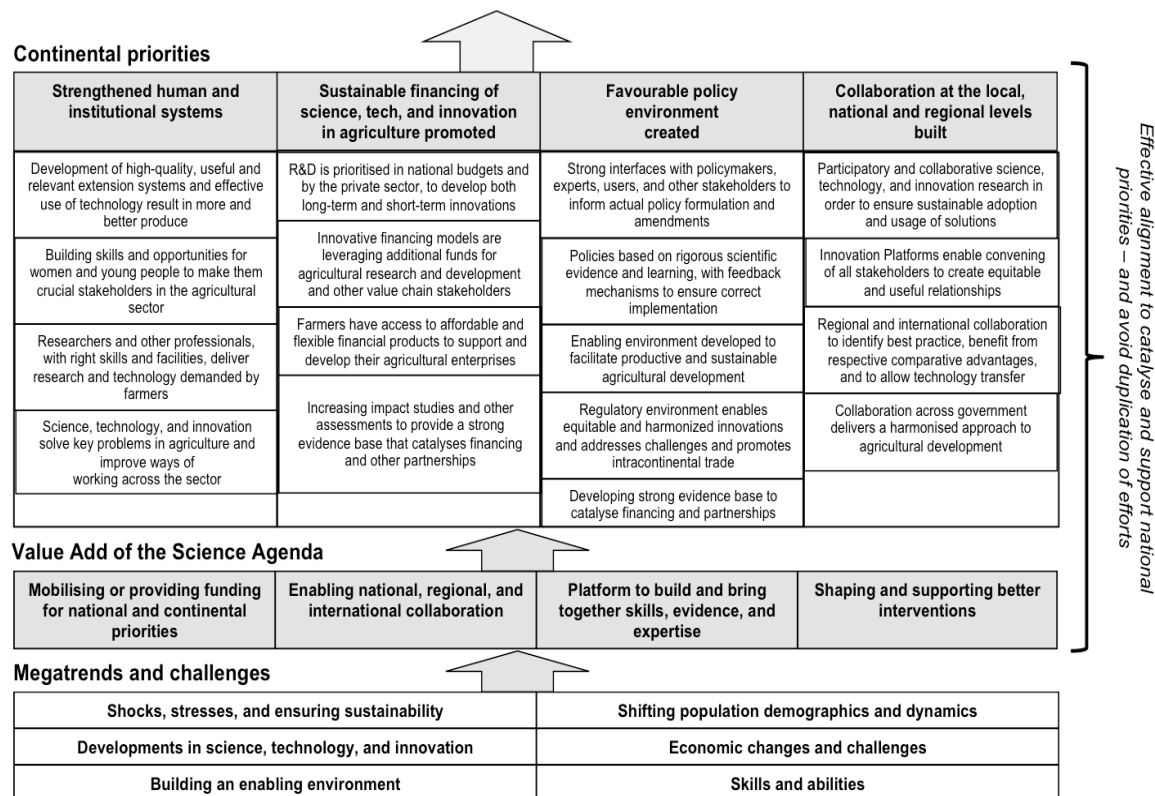
Beyond this, leveraging the value add of the Science Agenda to deliver these priorities will contribute to achieving the CAADP priorities in each of the countries. However, as Egypt – one of the Tier 1 countries – is not yet a signatory of CAADP, the implementation of the Science Agenda can also be considered as an initiative to achieve wider agricultural and development priorities beyond those in CAADP Compacts.

In addition, the continental priorities and value add areas of the Science Agenda must be aligned with national policies, processes, frameworks and activities – thereby reducing

duplication and parallel working, and providing a holistic approach to tackling national and continental challenges.

4.1 The Theory of Change

By 2030, Africa ensures its food and nutritional security; becomes a recognised global scientific player in agriculture and food systems and the world's bread-basket



5 Continent-level – Science Agenda Measurement Framework

The Measurement Framework sets out the data that a project seeks to collect and defines how, when and by whom this data will be collected, managed and stored. It is structured around the results expected if the identified priorities, the outcomes, across the 'Continent' (the Tier 1 countries) are achieved.

Many countries are not starting from scratch in this area. There are a range of existing monitoring, evaluation, and learning systems and processes that are tracking progress towards key agricultural priorities. It is important that the Measurement Framework aligns with these, minimizing any excess efforts in order to make it as simple as possible to monitor the implementation of the Science Agenda. Therefore, the implementation of the Science Agenda should be seen in the context of these existing programs, policies, and interventions.

Too often, we find that not enough data or information is translated into learning. This can be due to collecting data that isn't useful (or even isn't the right data at all), collecting it at times that do not align with decision-making processes, when Measurement Frameworks and data collection are not properly implemented or embedded, or because of weak knowledge

management and not having the internal organizational skills to leverage data effectively. Ensuring that monitoring, learning, and evaluation are at the heart of this work is central to ensuring correct implementation – and to ensure that Africa can leverage the value-add of the Science Agenda.

With regard to the Science Agenda Measurement Framework for the continent-level, each of the broad areas in the Theory of Change – strengthened human and institutional systems; sustainable financing of science, technology, and innovation in agriculture promoted; favorable policy environment created; collaboration at the local, national, and regional levels built - feature a set of priority outcomes identified by participants during the National Consultation. For example, *‘developing strong evidence base to catalyze financing and partnerships’* within the *‘favorable policy environment created’* domain. Indicators have then been identified that align with these outcomes, measurement of which will confirm whether or not the respective outcome has been achieved.

The Measurement Framework is founded on indicators drawn from the CAADP 2015 – 2025 Results Framework – this is to reduce duplication, and to minimize the data collection efforts required by stakeholders. The below Framework is split into four areas:

1. **Outcome:** the priorities that have been identified in the Theory of Change
2. **Indicator:** what data will be used to assess whether the outcome has been achieved
3. **Source:** the reference to the CAADP Results Framework
4. **Who collects:** the institution that will be directly responsible for reporting against this indicator

Later drafts of the Measurement Framework should also consider including additional information for each indicator:

- **Tool:** what kind of tool or instrument will be used to gather the data (e.g. household survey, in-depth interview, verification of records, observation, mobile survey, etc.)
- **Frequency:** how often will this data be collected and at what time in the year? As discussed above, it is key that data collection happens in line with appropriate timing and reporting

This is an initial draft of the Measurement Framework, and it requires further discussion and validation amongst stakeholders to ensure that indicators are SMART (Specific, Measurable, Attainable, Relevant, and Time-bound), that data collection is done correctly – particularly to minimize any logistical, contextual, ethical or technical issues – and to understand how data will be collected (including the role of technology in collecting more real-time data).

In addition, several outcomes do not have associated CAADP Indicators. This is due to the outcome not aligning exactly with a suitable indicator from the CAADP 2015 – 2025 Results Framework. In these cases, indicators may be found in other documents or sources, or constructed. However, in any such case, agreement with a wide range of continent-level stakeholders is crucial to ensure that the indicators can identify whether or not the outcome has been achieved. It has not been possible to begin the process of identifying indicators outside of the CAADP Results Framework due to the limited time available to complete this work.

5.1 Strengthened human and institutional systems

Outcome	CAADP Indicator	Source	Who collects
---------	-----------------	--------	--------------

Development of high-quality, useful and relevant extension systems and effective use of technology result in more and better produce	2.1.1 - Agriculture value added (absolute values)	CAADP 2015 – 2025	WDI
	2.1.2 - Agriculture production index (2004-2006=100)	CAADP 2015 – 2025	WDI, FAOStat
	2.1.3 - Agriculture value added per agricultural worker (constant 2005 USD)	CAADP 2015 – 2025	WDI, FAOStat
	2.1.4 - Agriculture value added per hectare of arable land (constant 2005 USD)	CAADP 2015 – 2025	WDI, FAOStat
	2.1.5 - Yields for the five AU priority commodities	CAADP 2015 – 2025	FAOStat, National Sources
Building skills and opportunities for women and young people to make them crucial stakeholders in the agricultural sector	1.3.2 - Number of jobs created per annum by age category and sex	CAADP 2015 – 2025	ILO/WDI, National Sources
	2.3.1 - Activity and inclusive employment in industries related to agriculture value chains	CAADP 2015 – 2025	UNIDO, ILO, National Sources
Researchers and other professionals, with right skills and facilities, deliver research and technology demanded by farmers	TBC	TBC	TBC
	TBC	TBC	TBC
Science, technology, and innovation solve key problems in agriculture and improve ways of working across the sector	1.4.1 - Percent of households that are resilient to climate and weather related shocks	CAADP 2015 – 2025	RIMA (Resilience Index Measurement and Analysis)
	2.3.1 - Percent of agricultural five priority products that is lost post-harvest	CAADP 2015 – 2025	FAO, APHLIS, National Sources

5.2 Sustainable financing of science, technology, and innovation in agriculture promoted

Outcome	CAADP Indicator	Source	Who collects
R&D is prioritized in national budgets and by the private sector, to develop both long-term and short-term innovations	3.5.1 - Government agriculture expenditure growth rate (%)	CAADP 2015 – 2025	ReSAKSS, National Sources
	3.5.2 – Share government agriculture expenditure (% of total government expenditure)	CAADP 2015 – 2025	ReSAKSS, National Sources
	3.5.3 – Government agriculture expenditure as % of agriculture value added	CAADP 2015 – 2025	ReSAKSS, World Bank, National Sources
	3.5.4 – Growth in private sector investment in agriculture and agribusiness	CAADP 2015 – 2025	IFPRI, FAO
Innovative financing models are leveraging additional funds for agricultural research and development and	3.4.1 – Existence of a functional multi-sectorial and multi-stakeholder coordination body	CAADP 2015 – 2025	National Sources
	3.4.2 – Cumulative	CAADP 2015 – 2025	National Sources

other value chain stakeholders	number of agriculture-related Public Private Partnerships that are successfully undertaken	Results Framework			
	3.4.3 – Cumulative value of investments in the Public Private Partnerships	CAADP Results Framework	2015 – 2025	National Sources	
Farmers have access to affordable and flexible financial products to support and develop their agricultural enterprises	2.4.1 – Coverage of social assistance, social protection, social insurance and labor programs	CAADP Results Framework	2015 – 2025	World Bank ASPIRE Database	
	2.4.2 – Existence of food reserves, local purchases for relief programmes, early warning systems and food feeding programmes	CAADP Results Framework	2015 – 2025	National Sources	
Increasing impact studies and other assessments to provide a strong evidence base that catalyzes financing and other partnerships	3.6.1 – Index of capacity to generate and use statistical data and information (ASDI)	CAADP Results Framework	2015 – 2025	AfDB, UNECA	
	3.6.2 – Existence of an operational country SAKSS	CAADP Results Framework	2015 – 2025	IFPRI	

5.3 Favorable policy environment created

Outcome	CAADP Indicator	Source	Who collects
Strong interfaces with policymakers, experts, users, and other stakeholders to inform actual policy formulation and amendments	3.1.1 – Existence of a new NAIP/NAFSIP developed through an inclusive and participatory process	CAADP Results Framework	2015 – 2025 National Sources
	3.3.1 – Existence of and quality in the implementation of evidence-informed policies and corresponding human resources	CAADP Results Framework	2015 – 2025 National Sources
Policies based on rigorous scientific evidence and learning, with feedback mechanisms to ensure correct implementation	3.2.1 – Existence of inclusive institutionalized mechanisms for mutual accountability and peer review	CAADP Results Framework	2015 – 2025 National Sources
Enabling environment developed to facilitate productive and sustainable agricultural development	1.3.1 – Employment rate (% of population)	CAADP Results Framework	2015 – 2025 ILO/WDI, National Sources
	1.3.3 – Poverty gap at national line	CAADP Results Framework	2015 – 2025 WDI, HIES
	1.3.4 – Extreme poverty headcount ratio at \$1.25/day	CAADP Results Framework	2015 – 2025 WDI, HIES
Regulatory environment enables equitable and harmonized innovations and addresses challenges and promotes intracontinental trade	TBC	TBC	TBC

Developing strong evidence base to catalyze financing and partnerships	TBC	TBC	TBC
--	-----	-----	-----

5.4 Collaboration at the local, international, and regional levels built

Outcome	CAADP Indicator	Source	Who collects
Participatory and collaborative science, technology, and innovation research in order to ensure sustainable adoption and usage of solutions	TBC	TBC	TBC
Innovation Platforms enable convening of all stakeholders to create equitable and useful relationships	1.3.5 – Gini coefficient	CAADP 2015 – 2025 Results Framework	HIES
Regional and international collaboration to identify best practice, benefit from respective comparative advantages, and to allow technology transfer	2.2.1 - Value of intra-African trade (constant 2005 US\$)	CAADP 2015 – 2025 Results Framework	UNCTAD, FAOStat, RECs
	1.4.2 – Human Sustainable Development Index	CAADP 2015 – 2025 Results Framework	HSDI UNDP
Collaboration across government delivers a harmonized approach to agricultural development	1.1.1 – GDP per capita (constant 2005 US\$)	CAADP 2015 – 2025 Results Framework	WDI, National Sources
	1.1.2 – Household final consumption expenditure (constant 2005 US\$)	CAADP 2015 – 2025 Results Framework	HIES

6 Reflections

Feedback from participants was gathered directly during the Theory of Change workshops and through feedback surveys. Although varied, participant expectations, questions, and concerns can be broadly split into three main areas: implementation of the Science Agenda; the importance of avoiding duplication; and ensuring funding and sustainability of the Science Agenda.

In addition, individual participants raised several wider questions: How will the short and long-term goals of the Science Agenda be fulfilled; what kind of innovations will be scaled-up and, beyond biofortification, is FARA ready to support other research for utilisation; how will public management structures be strengthened to ensure that the policy can be implemented effectively not just at national level but district and village levels in each of the countries involved; and how will research funding be prioritised in an era of ‘quick gains’ in political and policy environments?

6.1 Implementation of Science Agenda

With regard to implementation of the Science Agenda, participants of the National Consultations sought more information on the logistics of the implementation process – including who the partners are, what structures will be put in place (such as Focal Points), and what the roadmap will look like. Participants also wanted to know how the implementation process would ensure that all stakeholders, particularly farmers and the private sector, are involved in the implementation of the Science Agenda. This includes non-agricultural areas of the economy, such as trade and investment, health (through the lens of nutrition), and the wider private sector.

The importance of setting clear roles and responsibilities during, and beyond, implementation was also noted.

Participants also supported the linkages between the national and regional aspects, but some were unclear how these levels connected (including to *'accelerate inter-country technology promotion'*). One participant expressed concerns regarding coordination amongst African countries, and another about countries' current CAADP structures for monitoring and data collection and their accountabilities at national, regional and continental levels.

6.2 Avoiding duplication

Participants repeatedly stressed the importance of building on existing activities, and avoiding duplication. In particular, participants across all workshops highlighted that the Science Agenda needs to be founded on the country context - adding to and harmonising with existing efforts, and not duplicating them. This was seen to be important for sustainability.

Linked to this, several participants noted the importance of conducting a 'Needs Assessment' to understand what the Science Agenda brings to each country, how it will be mainstreamed within existing policies, and how to ensure political buy-in is achieved.

Individual concerns were raised regarding resistance to change by actors in several countries, with one noting the importance of not relying solely on government. One Egyptian stakeholder questioned how implementation would happen *'given [Egypt's] current legal context'*.

6.3 Funding and sustainability

Funding and sustainability were repeatedly raised by participants, and seen as particular concerns. In particular, many participants wanted to know how the Science Agenda will be funded, and how its sustainability will be ensured. In addition, one participant questioned what would happen if the Science Agenda did not achieve its goals.

Several participants noted the wider funding challenge, but also highlighted the funding and resource challenges faced in each country – with many organisations experiencing issues with the availability of national financial and human resources, which may pose a threat to implementation. There was seen to be clear capacity and capability gaps in the countries.

However, and as discussed previously, several saw the value of the Science Agenda as a tool to build capacity – with one participant noting the value of the Science Agenda in *'revitalizing the administrative body of the country'*.

From the outset of the consultation process, FARA's aim was to develop a proposal in order to secure the necessary funding to enable Tier 1 countries to undertake the implementation activities discussed during the National Consultations. This would also build on the need that many articulated in these consultation for a 'Needs Assessment' and mapping exercise – identifying where national priorities relate to the country Science Agenda Measurement Framework, and how this process will be undertaken in the context of reporting against national agricultural strategies (as well as against CAADP targets).

7 Conclusions and next steps

The Continental Synthesis meeting drew together the discussions from the National Consultations, provided an overview of the value-add of the Science Agenda – drawn from the national Theories of Change, a review of the investment proposal and financing plan, and identified the roles of stakeholders, appropriate financing modalities, and set out next steps in the implementation of the Science Agenda. Discussions from the National Consultations and the zero-draft national Theories of Change were synthesised to identify common challenges, priorities, and areas of value add of the Science Agenda across the continent.

The Science Agenda is not a project. It aims to build coordination and synergies across the public, private, and third sectors to leverage science, technology, and innovation for agricultural development. Ensuring the right stakeholders are actually inputting into the process, and engaged in its design and delivery is critical. This is particularly important at the continental level to ensure that the Science Agenda can expand beyond the Tier 1 countries and be seen as a vehicle for change for other countries, and across the continent. Input from those responsible for CAADP at a continent level could also prove valuable.

More widely, across the Tier 1 countries the extent to which processes have been put into place that clarify how the Science Agenda will be rolled out has been varied. Beyond this, the implementation and rollout activities at the continent level are not clear. For FARA, this also demands proper alignment of the tools, activities, and approaches linked to the Science Agenda - including data management, foresight work, situational assessments, and the wider investment strategy – at both country and continent levels.

It was clearly communicated in all National Consultations – and reaffirmed at the Continental Synthesis meeting - that the Science Agenda must be aligned with national policies, processes, frameworks and activities. Many countries on the continent (including the Tier 1 countries) are undertaking important and extensive work across the agricultural sector - including leveraging science, technology, and innovation - and the Science Agenda should support, enable, and catalyse this work. It should not distract from existing efforts or provide a parallel agenda, and should also seek to avoid duplication. Instead, the Science Agenda should ensure a holistic approach to tackling national and continental challenges. The process of developing a Theory of Change for each of the countries, and for the wider continent, is the first step in enabling this.

The Theory of Change process has provided significant opportunities to explore the relevance, value add, and direction of the Science Agenda across the continent. Moving forward, ownership of this process within each country and at the continent level is critical to the success of the Science Agenda. The Theory of Change and Measurement Framework set out in this report need to therefore be validated by stakeholders across Africa - and

regularly reviewed - to ensure that the Science Agenda plays a valuable role for the continent.

The Consultant also reaffirms that only the priorities of the five Tier 1 countries - Egypt, Ghana, Malawi, Rwanda, and Senegal - have been reflected in the continental Theory of Change. FARA needs to be conscious of the national priorities of other countries across the continent, and be alert to changing priorities within the above countries (as well as building-in a longer-term focus beyond 2030).

8 Annex

8.1 Participant list

#	Full Name	Institution	Type	Country
1	Dr. Albert Changaya	Ministry of Agriculture and Food Security	Policy	Malawi
2	Dr. Wilkson Makumba	Department of Agricultural Research Services	Research	Malawi
3	Mr. Kondwani Makoko,	Department of Agricultural Research Services	Research	Malawi
4	Mr. Paul Fatch	AFAAS	Extension	Malawi
5	Dr. Patsani Gregory Kumambala	Lilongwe University of Agriculture and Natural Resources (LUANAR)	Education	Malawi
6	Enock Palapandu	National Association of Business Women (NABW)	Private Sector	Malawi
7	Mr. Prince Kapondamgaga	Farmers Union of Malawi	Farmers Org.	Malawi
8	Mr Readwell Musopole	Malawi Ministry of Agriculture and Food Security, Department of Agricultural Planning	CCAADP Focal Person	Malawi
9	Patrick Karangwa	Rwanda Agricultural Board	Research	Rwanda
10	Martin Patrick Ongol	University of Rwanda, College of Agriculture	Education	Rwanda
11	Joseph Gafaranga	National Farmer Organizations Federation (IMBARAGA)	Farmers Org.	Rwanda
12	Bernard S. Musan	Rwanda Agricultural Board	Extension	Rwanda
13	Representative	Ministry for Environment, Science and Technology	Policy	Ghana
14	Honourable Georg Oduro (Deputy Director)	Ministry of Agriculture	Policy	Ghana
15	Dr. Victor Agyeman	Council for Scientific and Industrial Research (CSIR)	Research	Ghana
16	Dr. George Owusu Essegbey	Science and Technology Policy Research Institute – Council for Scientific and Industrial Research (STEPRI-CSIR)	Research	Ghana
17	Dr Wilhemina Quaye	Science and Technology Policy Research Institute – Council for Scientific and Industrial Research (STEPRI-CSIR)	Research	Ghana
18	Mr. Augustine Oppong Danquah	WAAP Ghana	Research	Ghana
19	Mr. Edward Decker	CSIR	Research	Ghana
20	Hon. Dr. Ahmed Yakubu Alhassan	Council for Scientific and Industrial Research (CSIR)	Research	Ghana
21	Prof. Elvis Asare-Bediako	University of Cape Coast	Education	Ghana
22	Dr. Ayesha Hakeem	African Connections	Private Sector	Ghana
23	Mr King-David Amoah	Farmers Organisation	Farmers Org.	Ghana
24	Dr. El Hadji Traore	Institut Senegalais de recherch agricoles	Research	Senegal
25	Mr. Modou Thiam	UNIS	Private Sector	Senegal
26	Mr. Ousman Ndiaye	Farmers Organisation	Farmers Org.	Senegal
27	Mr. Ousman Sylla	CAADP Focal Person	CAADP	Senegal
28	Prof. Dr. Hashem Mohamed Ibrahim	Ministry of Agriculture Land Reclamation	Policy/public	Egypt
29	Rehab El Sayed Abd El Hady	Egypt, 9 Ga,aa Street Giza, Egypt	Research	Egypt
30	Prof. Dr. Adel El Ghandour	Desert Grower for high-cash crops & fresh agricultural products exporter	Private Sector	Egypt

#	Full Name	Institution	Type	Country
31	Prof. Dr. Mohamed Ali	Ministry of Agriculture and Land Reclamation	Research	Egypt
32	Dr. Hala Adel	Coordinator of the Universities-ARC platform	Research	Egypt
33	Dr. Simon Mwale	CCARDESA	Research	Botswana
34	Dr Baitsi Podisi	CCARDESA	Research	Botswana
35	Dr. Abdou Tenkouano	CORAF/WECARD	Research	Senegal
36	Dr Kodjo Kondo	CORAF/WECARD	Research	CCARDESA
37	Dr. Cyprian Ebong	ASARECA	Research	Uganda
38	Mr. Mahama Ouedraogo	African Union Commission (AUC)	Policy	Ethiopia
39	Dr. Augustine Wambo	NEPAD, Planning and Coordinating Agency (NPCA)	Policy	South Africa
40	Dr. Tobias Takavarasha	Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN)	Policy	South Africa
41	Dr. Jawoo Koo	International Food Policy Research Institute (IFPRI)	Research	USA
42	Sandra Perez	International Food Policy Research Institute (IFPRI)	Research	USA
43	Dr. Asamoah Larbi	International Institute of Tropical Agriculture (IITA)	Research	Nigeria
44	Dr. Nasser Yao	Biosciences Eastern and Central Africa (BecA-ILRI) Hub	Research	Kenya
45	Dorothy Mukhebi	African Women in Agricultural Research and Development (AWARD)	Research	Kenya
46	Dr. David Bergvinson	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	CG/Research	India
47	Peter Ninnes	The Integrated Breeding Platform	CG/Research	Mexico
48	Dr. Emmanuel Okogbenin	African Agricultural Technology Foundation (AATF)	Research	Kenya
49	Dr. Silim M. Nahdy	African Forum for Agricultural Advisory Services (AFAAS)	Extension	Uganda
50	Dr Max Olupot	AFAAS	Extension	Uganda
51	Sylvia Mkandawire	Regional Universities Forum for Capacity Building in Agriculture (RUFORUM)	Higher Ed.	Uganda
52	Dr Malu Ndavi	International Fund for Agricultural Development (IFAD)	Donor	Italy
53	H.E. William Hanna	European Commission	Donor	Ghana
54	Dr. Adoulaye Toure	The World Bank	Donor	Cote d'Ivoire
55	Mr. Tabi Karikari	AfDB	Donor	Ghana
56	Dr. Yvonne Maria Pinto	Firetail Limited	Private Sector	United Kingdom
57	Prof. Mandivamba Rukuni	Barefoot Education for Afrika Trust	Private Sector	Zimbabwe
58	Genevesi Ogiogio	Center for Institutional Development	Private Sector	South Africa
59	Dr Yona Baguma	National Agricultural Research Organization	Research	Uganda
60	Johanna Franziska N Andowa	Agricultural Research & Development	Research	Namibia
61	Dr. Hamidou Traore	Institut de L'environnement et des Recherches Agricoles (INERA)	Research	Burkina Faso