The *Accra Consensus*

The Process for the Development of a Science Agenda for Agriculture in Africa

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The Process for the Development of a Science Agenda for Agriculture in Africa

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Contents

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Executive summary

The Science Agenda for Agriculture in Africa (S3A) is one of four strategic thrusts of the 'Knowledge and Knowledge Support' area under the 'CAADP Sustaining TheMomentum. The developmentof the S3A was initiatedas a work streamof the *Dublin Process,* a process aimed at facilitating the alignment of the CGIAR to the CAADP agenda. Under the championship of IFAD's President, Dr.KanayoNwanze, and an Oversight Group of African AR4D stakeholders, the S3A has emerged as an African-led and African-owned framework to reaffirm the role of Science in the transformation of African agriculture for growth and prosperity. Of particular importance in this respect are two seminal meetings that were held in Accra, Ghana during the first quarter of 2013, which helped to define work plan and frame the scope and methodology for the formulation of the Science Agenda. The process, methodology and consultations that have driven the development of the S3A therefore came to be known as the '***Accra Consensus***' *on the Science Agenda (S3A)*. The outcomes of the Accra meetingswere also endorsed by subsequent meetings in Rome (March 2013) and in Dublin (April 2013).

The whole process for the formulation of the Agenda is Africa-owned and Africa-led. The S3A is endorsed by the AUC, the NEPAD Agency and the Heads of States and Governments (HoS&G) Summit. It is led by an Oversight Group (OG) and ratified by the FARA Board and FARA General Assembly. Furthermore, an Expert Panel (EP) composed predominantly of African professionals was entrusted with writing and peer-reviewing of the S3A. The FARA Secretariat and its constituent SROspartners and national stakeholders spearheaded the implementation process of broad stakeholder consultation for articulating the final Science Agenda document. The consultation process was initiated by the development of a *Discussion Paper*developed by the EPthat laid out the issues that a S3A needs to explore.This was circulated to all relevant stakeholders for further inputs. FARA presented a progress report to the Sixth African Agricultural Science Week held in July 2013 in Accra. The Discussion Paper served as a background reference document for a global e-consultation process undertaken by FARA in August 2013. The outcomes of these processes served as source materials for developing the present document: *Science Agenda for Agriculture in Africa-"Connecting Science"to transform agriculture in Africa*

FARA Secretariat submitted the draft S3A document to the FARA Board for endorsement. This document was also presented at pertinent CAADP, SRO and other agricultural science fora to solicit additional inputs and enhance buy-in.

In March 2013 the FARA Secretariat presented the S3A to the 10TH CAADP Partnership Platform and galvanized a formidable AR4D coalition of actors in support of this agenda. The AR4D coalition included research, education, extension, policy, and private sector entities at continental, regional and national levels in Africa. In April, 2014, the FARA Secretariat formally submitted the edited version of the S3A document to the AU Commission on behalf of the African community of stakeholders. The key recommendations of this strategic framework document were deliberated upon by AU high-level organs, including the Conference of African Ministers of Agriculture in April 2014. This conference was preceded by a technical meeting of senior agricultural experts from all AU Member States. This set the stage for the adoption of the Science Agenda through Summit-level Decisions by African Heads of States and Governmentsat Malabo, in July 2014 as part of the celebration of the AU's Year of Agriculture and Food Security.

The "Accra Consensus" process and methodologyto develop the Science Agenda and its ratification recognises the necessity of linking the technical strategy with effective political buy-in and accelerated implementation. The goal is effective institutionalization of the Agenda within the AU and theregional and sub-regional bodies and at national level institutions**.**

Introduction

This document dubbed '*Accra Consensus'*articulates the process and methodology and key decisions for developing the Science Agenda for Agriculture in Africa (S3A). The report puts together proceedings from a number of seminal meetings including: -

- Technical Advisory Group (TAG) Meeting held from the 21-22 January, 2013 at the FARA Secretariat;
- Science Agenda Expert Panel orientation and Planning Meeting held at the FARA Secretariat from the8-12thMarch 2013;
- The Reflection and Planning meeting on the Science Agenda held in Rome from the 18th- 20th March, 2013;
- The Science Agenda Planning and Preparatory meeting of the STEP held in Dublin, 17th April, 2013, Synthesis Team of the Expert Panel (STEP)- Meeting, Accra on the 7th June, 2013;
- The Science Agenda Expert Panel in Accra at the FARA Secretariat on the 10th of June, 2013;
- The e-consultations and face-to-face consultations held between July – November 2013.

As a document that describes the process and methodology*, the Accra Consensus* is a livingdocument that will be updatedwith reports of other meetings and engagements that lead to and facilitate the operationalization of the Science Agenda for Agriculture in Africa.

1.1 Antecedents of the Science Agenda for Agriculture in Africa

The development of theScience Agenda for Agriculture in Africa (S3A) is one of four strategic thrust of the Knowledge and Knowledge Support under the Sustaining The CAADP Momentum. The development of the S3A was initiated as one of the five work streams of the *Dublin Process*—an initiative of African stakeholders in agricultural research and development, the CGIAR Consortium and development partners aimed at facilitating the improvement of the alignment of the CGIAR to the CAADP agenda. The *Dublin process*was prompted by the realisation that the recently formulated CGIAR research programmes (CRP) were not adequately positioned to respond to the agricultural research for development needs articulated in country and regional agriculture and food security investment plans that are key milestones of the CAADP process. It was further observed that the CAADP process was not sufficiently utilizing the CGIAR capacity. The Dublin Process set out to remedy these deficiencies.

Four additional work streams of the Dublin process are: -

a. Stocktaking and Mapping of planned and on-going agricultural research and development activities.
b. Organisation of regional agricultural productivity workshops on how the CGIAR capacity can be better harnessed to advance the development of CAADP (country level) National Investment Programmes (NAIPs).
c. Establishing a Memorandum of Understanding between the AUC and the CGIAR Consortium.
d. Development of agricultural technology innovation platforms proposed by the G8 New Alliance for Food Security and Nutrition.

The *Dublin Process* was launched during the first Dublin meeting (Dublin I) in June/July 2011. Its steering committee[1] mandated FARA to lead two of the work-streams namely the development of the Science Agenda and the organisation of regional productivity workshops.

The second meeting (Dublin II) was held in September 2012 to deepen buy-in and ownership of the Dublin Process, to review progress with regard to implementation of the work streams and to define the actions needed to take the Dublin Processforward.One of the recommendations of the Dublin II meeting is the organisation by FARA of a technical workshop to further develop and validate the methodology for developing the Science Agenda.In implementing this recommendation, FARA constituted a Science Agenda Technical Advisory Group (TAG) and charged the TAG with refining and validating the process and methodology and developing the Science Agenda. The TAG comprised representatives from FARA, SROs, CGIAR consortium, AUC, NEPAD Planning and Coordination Agency, the World Bank and experts with experience in formulating science agendas including expertise in foresight.

[1] Institutions constituting the steering committee include; the AUC, NPCA, FARA, CG Consortium Board, CG Consortium Office, CRP on Policies, Institutions and Markets (representing all the CRPs, IFPRI, The World Bank, USAID and European Commission)

2. Methodology for the development of the Science Agenda

The methodology for the development of the Science Agenda was initiated by a presentation of a draft methodology defined by the FARA Secretariat to the second Dublin Process meeting in 2013. The meeting, whilst taking on board the FARA methodology and process, recommended that a Technical Advisory Group be formed to support the finalisation of the methodology. On the whole, the methodology included the following steps: -

- **Scoping:** This was essentially undertaken by a Technical Advisory Group (TAG).
- **Framing and further scoping:**The Expert Panel (EP), after their constitution held a number of meetings and brainstorming sessions to further define and refine the methodology. This yielded a comprehensive methodology that finalised the key thematic areas for the Science Agenda.
- **Developing of a *Discussion Paper (DP):*** The Synthesis Team of the Expert Panel (STEP) developed a'Discussion Paper' to initiate consultations and discussions for the development of the Science Agenda.The Discussion Paperidentifies the emerging mega-trends and thematic areas. It also raises substantive questions as these relate to essential ingredients of the Science Agenda, and then invites a discourse around these issues and questions. The paper will be tailored in such a way as to allow absorption by a wide array of stakeholders and provoke responses and comments. The Discussion Paper was widely distributed (globally)to invite contributions as well as fresh insights from all stakeholders. It was presented at the 6th Africa Agricultural Science Week (6th AASW) in July 2013 and inputs elicited from this platform were factored into the Discussion paper to present a final draft. The final draft of the DP was then used as the base document for anchoring the global e-consultations on the Science Agenda.
- **Science Agenda consultative processes.** The issue of 'African ownership' was identified as critical for the development of the Science Agenda right from the outset. Two key processes were used; a global e-consultation facilitated by FARA and the continental face-to-face consultations at national, sub-regional and continental levels facilitated by the SROs and FARA. The syntheses of these consultative processes are presented in Sections 2 and 3 of this document. The STEP also undertook key informant interviews and focus group discussions with selected professionals. Discussions with senior technical officers at the AUC and NPCA also constituted an important part of the Science Agenda development process. Likewise, members of the Expert Panel and the Task Team members of FARA Secretariat used relevant platforms involving CAADP-focused fora, regional and pan-African farmers organisations, agri-business stakeholders as well as the agricultural research and development community to present the Science Agenda to deepen and broaden the engagement and ownership of the S3A. The outcomes emerging from these consultations constituted the bulk of the information that was used to derive the Science Agenda document in line with the key issues presented in the Discussion Paper.
- **The Science Agenda for Agriculture in Africa:** The dialogues, consultations and discussionsbased on the Discussion Paper were consolidated to write the content of the ***Science Agenda for Agriculture in Africa.***The actual crafting was done by the STEP and peer-reviewed by the Pre-TEP (see section 6). The draft Science Agenda document was thenpresented at and considered by the appropriate structures of FARA (FARA Board, FARA General Assembly) and presented to the CAADP and AU processes (CAADP Partnership Platform, AU Technical Committee meeting, AU Ministerial meeting and the Africa Heads of States and Government Summit). This process providedthe opportunity for further promoting the Science Agenda among key policy makers all the way up to Heads of States and Governments.

- **Commissioning focused studies:** As part of crafting the Science Agenda document, it was understood that as a long term strategic document, the Science Agenda will always be a living document and therefore will have the scope to take on board new and emerging priorities in science relevant to defining future agricultural transformation directions in Africa. The STEP thenidentified, a process of commissioningspecific studies on areas requiring inputs from other experts beyond the EP, as an important instrument for the translation of the Science Agenda into implementable action plan as well as refreshing the agenda with emerging insights, trends and priorities. Seven initial studies were defined by the STEP to serve as fundamentalstudies to help define the operational strategy for the Science Agenda (Table I). The Synthesis of these studies is captured in a separate publication (Annor-Frempong and Rukuni, 2014) as a key companion document to the Science Agenda. The Synthesis Paper also articulates the initial thoughts of the emerging implementation strategy.

Table 1: Initial commissioned studies to support the operationalisation of the S3A

1	Lesson from previous national and continental Science Agendas
2	Situational analysis and evolution of agricultural extension systems in Africa with a critical review of extension as part of a science and innovation system.
3	Situation analysis of the capacities of science institutions and agriculture partnerships, collaborative efforts and institutional arrangements at national, regional and continental levels.
4	Analysis of tertiary agricultural educational institutions as part of Africa's agricultural science and innovation system.
5	Lessons from CAADP country process on ARD and entry points for application of S&T in the implementation of country agricultural and food security investment plans.
6	Strategic options for financing the implementation of the S3A.
7	Analysis of basic science capacities in African research and training institutions.

There are three key deliverables of the Science Agenda that are tied to process milestones.

These include the following:

1. Main Document "Science Agenda for Agriculture in Africa" Document;
2. Companion Documents including: A substantive Discussion Paper;
   a. Accra Consensus on the process and methodology for developing the Agenda;
   b. Synthesis report Commissioned of studies and emerging
   c. Individual commissioned studies reports.
3. Implementation strategy and plan

3. Framing and scoping of the Science Agenda

A number of meetings were held to support the framing and scoping of the science agenda. These included the following;

- Technical Advisory Group (TAG) Meeting held from the 21-22 January, 2013 at the FARA Secretariat
- Science Agenda Expert Panel Orientation and Planning Meeting held at the FARA Secretariat in March 2013
- The Reflection and Planning meeting on the Science Agenda held in Rome from the 18th- 20th March, 2013
- The Science Agenda Planning and Preparatory meeting of the STEP held in Dublin, 17th April, 2013, Synthesis Team of the Expert Panel (STEP)- Meeting, Accra-7th June, 2013
- The Science Agenda Expert Panel in Accra at the FARA Secretariat on the 10th of June 2013.

3.1 Objectives of the framing and scoping meetings

The Science Agenda is intended to articulate the requirements from science and technology that African agriculture needs to prioritize in order to achieve its agricultural development targets; the complementary actions needed for the science and technology to be sufficiently harnessed; and the type and scale of investments required.

The Technical Advisory Group (TAG) workshop to refine the process and methodology for the development of an Agricultural Science Agenda for Africa was held at the FARA Secretariat, Accra, Ghana from 21st to 22nd January 2013(see list of participants in Annex 1).

The TAG meeting dealt with the two key objectives that were set for the workshop: -

i. Refinement and validation of a process and methodology for developing an agricultural science agenda for Africa. This includes the required organisational arrangements.

ii. Preparation of an action plan for delivering a draft of the Science agenda at the African Agricultural Science Week in July 2013 and launching it at the African Union Heads of State summit in July, 2014.

The Science Agenda Expert Panel Orientation and Planning Workshop: March, 2013, Accra.

The main objectives were: -

i. To brief expert panel members on the S3A, its envisaged structure and proposed process for its development.

ii. Obtain a common understanding of the S3A.

iii. Provide an opportunity for members to bond as a team, internalize their assignment, develop outline of the S3A and the time-table for delivering milestones.

The Science Agenda Reflection and Planning Meeting: 18–20th March, 2013, Rome.

The objectives of this meeting were to:

i. Brief the Rome-based members and Chair of the *Science Agenda* Expert Panel on the outcomes of the Expert Panel Orientation and Planning Workshop that took place in Accra, Ghana from 08 – 12 March, 2013.

ii. Further refine the scope (content, process, institutional arrangements), methodology and action plan for developing theScience Agenda.

The STEP Science Agenda Planning and Preparatory meeting: 17th April 2013,Dublin.

The objective of this meeting was primarily to refine and update the methodology for delivering the Science Agenda document.

The STEP Meeting: 7th June, 2013, Accra

The objectives of this meeting were to: -

i. Finalise the Science Agenda Discussion Paper.

ii. Review the methodology and process action plan.

iii. Discuss operational issues in particular research support to STEP.

iv. Resolve any outstanding contractual issues between FARA and the EP.

The Science Agenda Expert Panel Meeting-10th June, 2013,

The objectives of this meeting were same as the STEP meeting on the 7thJune 2013.The concept notes for the meeting are presented as Annex 10,

3.2 The procedure for the workshops

The workshops usually adopted a plenary discussion mode to arrive at key conclusions and decisions for adoption. Background presentations were presented to provide the basis for the discussions around the two key objectives and to achieve the key outputs of the workshop. (SeeAnnex 2an example of a Workshop Programme). The key presentations included the FARA presentation on the rationale for developing a science agenda, what a science agenda might look like and proposed a process for developing it (see presentations in Annex 3, 4and 5respectively).

The principaldiscussionscentred on the framework for defining the contents of the Science Agenda, the institutional arrangements for developing the *Science Agenda* and Terms of Reference for the groups charged with developing the*Science Agenda*,(i.e. the Expert Panel and the Oversight Group).

3.3 Outcomes and recommendations of the framing and scoping meetings

3.3.1 The Purpose of the Science Agenda

Whilst the development of Science Agenda was initiated via the *Dublin process*, its contents and imperatives are expected to go beyond the alignment of the CGIAR to CAADP to serve the wider AR&D community in Africa. It is aimed at aligning all the agricultural research for development actors to a common framework / reference.

3.3.2 Ownership Of And Audience For The Science Agenda

Securing buy-in and ownership of the Science Agenda by its end users is extremely critical to its acceptance andadoption. This ownership can be established through effective communication to all concerned about the

Science Agenda and by making the process of its development inclusive, sufficiently involving the relevant stakeholders at all stages and assuring that the document captures their interests, i.e. they should see themselves reflected in the document. Insufficient buy-in and ownership is believed to be one of the main factors that explain why similar initiatives such as the Inter-Academy Council Report of 2004 have not had the expected impact on African agricultural science and technology.

It was recommended, that an appropriate communication strategy should be developed to allay concerns raised by NARS and civil society actors about the improving collaboration between African institutions notably the AUC, NPCA, FARA and SROs, with the CGIAR. This strategy should also address concerns raised by the CGIAR about the heightened expectations of its support to NARS.

It is essential to clearly **identify the primary audience** to which the Science Agenda will be targeted. To accommodate a broader audience, a summary of the Science Agenda may be published separately and targeted to policy makers.

3.3.3. Content of the Science Agenda

The Science Agenda document should cover short term, medium term and long-term science needs under the banner ofan *Agricultural Science Agenda for Africa for the 21st Century*. It should show 'WHAT SCIENCE'options should be prioritized to contribute totheattainment of higher-level development outcomes and impacts such as increasing GDP, reducing poverty reduction, improving food security andimproving nutritional status. The main pathway should be through overcoming the 'productivity trap'. The Science Agenda should address the question of sustainability in the implementation of proposed actions - specifically how African Institutions will support those actions and should be structured around the major functional areas (see Annex 6)

A broad outline of the**Science Agenda** was suggested as follows:

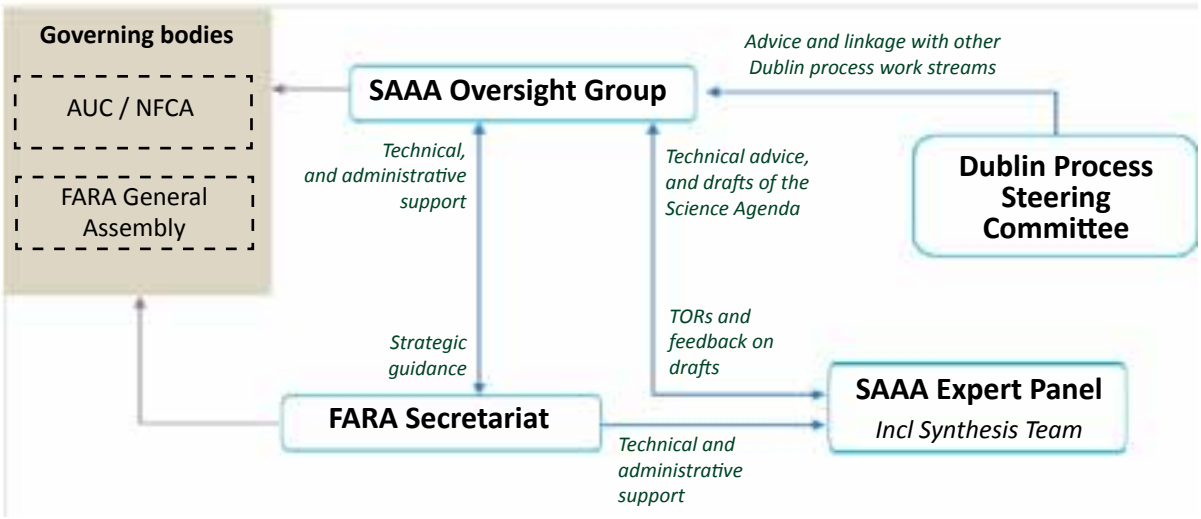
1. Context Of African Agriculture And Role Of Science And Technology
    i. Achieving Impact Sustainability
2. Science Agenda for enhancing
    i. Productivity and Incomes;
    ii. Food, Post-Harvest and Nutrition;
    iii. Natural Resource Management;
    iv. Resilience;
    v. Markets and Competitiveness;
3. Conditions For Successful Operationalization Of The Science Agenda
    i. Research Management, Governance And Institutional Reforms;
    ii. Human And Institutional Capacities;
    iii. Policy Environment and Complimentary Services (Infrastructure, Financial Services, etc.)
4. CAADP Results Framework
5. Action Plan For Implementing The Science Agenda
6. Investments Required
7. Recommendations.

This outline has since been updated following subsequent meetings by the EP and the STEP as an outline for developing the Science Agenda Discussion Paper.

3.3.4 Institutional arrangements for delivering the Science Agenda

The process for developing the Science Agenda is drivenby two bodies, namely an 'Oversight Group' and an 'Expert Panel' (see section 6). The work of these groups will be supported technically and operationally by the FARA Secretariat.

Fig.1: Institutional arrangements between Oversight Group, FARA Secretariat, Expert Panel, Dublin Process Steering Committee, FARA General Assembly and AUC/NPCA)-



3.3.5 Terms of reference for developing the Science Agenda

The Science Agenda will complement two other fundamental CAADP Pillar IV documents: 1) the Framework for African Agricultural Productivity (FAAP), which articulates principles and approaches advocated by CAADP for institutional and program design in agricultural research, agricultural advisory services, and agricultural training and education; and 2) the CAADP's Pillar IV Strategy, which articulates a plan for engagement at all levels to influence the design of agricultural research, advisory services, training and education programs and institutions – along the lines advocated by the FAAP.A technical advisory group workshop held in Accra, Ghana, January 21-22, 2013 recommended the establishment of two bodies; 1. An Oversight Group (OG) that shepherded the process, methodology and consultations for the development of the Science Agenda and 2. An Expert Panel (EP) that wrote and peer-reviewed the document.See section 6 on members and bio-data of the OG and EP.

Terms of Reference for the 'Oversight Group' (OG)

Functions and Duties

The Oversight Groupwill provide oversight and coordination for the efficient delivery and implementation of the Science Agenda.

Specifically, the group will perform the following functions: -

i. Prepare ToRs and constitute the Expert Panel and the Synthesis Group;
ii. On the advice of the Expert Panel, commission relevant studies to support the developmentand implementation of the Science Agenda;
iii. Ensure follow up of the Expert Panel advice;

iv. Facilitate the establishment of synergies with complementary CAADP, CGIAR and other related programmes and institutions;

v. Help to mainstream the Science Agenda into country and regional CAADP processes;

vi. Ensure relevance, value addition and applicability of content and recommendations of the Science Agenda; and

vii. Build stakeholder buy-in and ownership of the Science Agenda.

Members of the Oversight Group

Members of the Oversight Group will include AUC, NPCA, FARA Secretariat, SROs (ASARECA, CCARDESA, CORAF/WECARD and NASRO), Education representation(ANAFE, RUFORUM, TEAM-Africa,) AFAAS, PAFO, PanAAC, RECs (COMESA, SADC, ECOWAS, ECCAS), the CGIAR Consortium, the World Bank and IFAD (See Annex 1)

The FARA Secretariat

The FARA Secretariat will, on behalf of the Forum, serve as the convener of the Oversight Group and provide operational support in line with its policies and procedures. The specific functions of the FARA Secretariat are outlined below.

Specific Terms of Reference for the FARA Secretariat (FARASec)

i. Serving as the focal point and convenor for the Science Agenda;

ii. Providing complementary technical support to the Synthesis Group, Expert Panel and theoversight group, including: -

   a. Providing guidance and technical support to facilitate compliance with technical aspects of their Terms of Reference;

   b. Identification and compilation of supporting documents;

   c. Providing support in conceptualisation of content, methodology and process for the development of the Science Agenda;

   d. Leveraging resources and complementarities with other Forum activities;

   e. Mobilisation of stakeholders to ensure buy-in and ownership;

   f. Facilitating knowledge sharing and management to support the development and implementation of the S3A using existing FARA platforms (D-group, e-consultations, and communities of practice);

   g. Hosting of the official website for the Science Agenda;

   h. Development of communication and public awareness materials supporting the Science Agenda; and

iii. Providing administrative and operational support for effective functioning of the Synthesis Group, Expert Panel and the Oversight Group including: -

   a. Providing logistical support;

   b. Facilitating the constitution of the Synthesis Group and Expert Panel;

   c. Facilitating the dissemination of public awareness materials and capturing feedback during the development of the Science Agenda;

   d. Recruiting consultants and facilitating compliance with administrative and legal aspects of their Terms of Reference;

   e. Putting in place a functional Research Support Desk to provide research and administrative support towards the delivery of the Science Agenda.

Terms of Reference for the 'Expert Panel'

Duties and functions

The functions of the Expert Panel (See Annex 1) are to provide technical advice to the Oversight Group in the design and implementation of the process for the development of the Science Agenda and to champion its cause.

Specifically, the Expert Panel will: -

i. Advise on the following for the development of the Science Agenda: -
   a. Content and structure,
   b. Target audience,
   c. Methodology and timeline,
   d. Peer review of the report,
   e. Building buy-in and ownership by stakeholders,
   f. Complementary studies and consultations (e.g. D-groups, e-consultation) to be commissioned.
ii. Review relevant literature and collect the necessary data/information;
iii. Prepare the Science agenda document;
iv. Provide high-level political advocacy and champion the cause of the Science Agenda;

Functioning of the 'Expert Panel'

1. The Panel will be led by two eminent personalities in agricultural science and development; a Chair who will provide overall leadership and champion the Science Agenda and a co-Chair who will provide technical leadership of the development of the Science Agenda including leadership of the Synthesis Team.
2. In performing its functions the Panel will interact with the Oversight Group.
3. The Panel will function through use of email and teleconferences and face-to-face meetings as necessary.
4. The quorum for panel meetings is 7 members.
5. The term of the Panel will commence in March 2013 and end in January 2014 when the Science Agenda will be launched by the AU Heads of State and Government.
6. The Panel will convene at least 4 face-to-face meetings during its term.
7. The FARA Secretariat will provide technical and administrative support to the Panel (see TORs for the Oversight Group).

Membership and Composition of the 'Expert Panel'

1. The Panel will consist of twelve members who are internationally recognized experts in Africa's agricultural development.
2. The Panel will include four commissioned members who will serve as the Synthesis Team that will write the Science Agenda document.
3. The Synthesis Team will be contracted by the FARA Secretariat to perform its functions through consultancy agreements.
4. Panel membership is solely on individual merit drawn from a wide range of disciplines, expertise and experience in agricultural research and development. This will include individuals with expertise and

experience in plant and animal sciences, economics and policy, engineering, extension, investments, agribusiness, strategic planning and advocacy.

5. The membership of the Panel will ensure adequate balance in terms of gender and age.
6. The Oversight Group will appoint members of the Panel.

Nominations for the Expert Panel

Nominations to the Expert Panel considered the profile of the nominees in their respective disciplines and areas of influence. The selection was made out of a pool of 30 nominees aimed at achieving the desired mix of disciplinary backgrounds and gender balance.

The final list of Expert Panel (EP) Members constituted by FARA is presented as Annex 1. The Expert Panel is made of: The Peer Review Team of the Expert Panel (PReTEP) and Synthesis Team of the Expert Panel (STEP).

3.3.6 Recommendations from the Rome meeting

The Rome meeting was organized jointly by the FARA Secretariat and the International Fund for Agricultural Development (IFAD) at the IFAD Headquarters in Rome, Italy from 18 – 20 March, 2013. The meeting was structured to deepen understanding of the Science Agenda among partners and come up with recommendations on technical, institutional aspects and the process for delivering the Science Agenda. The key areas of reflection in which the meeting dealt on were: -What message is the Science Agenda going to convey to political leaders and development partners? What is the content of the Science Agenda that will make a convincing case, and how can this be delivered?

Reflecting on these, the Chair of the Expert Panel, Dr.NwanzeKanayo shared his views on the type of Science Agenda 9 *(*Annex 8*)* that Africa wants to have, cautioning that it should not be just another 'agenda', but a *Science Agenda* that translates into positive impact on the ground. In this regard, it is to be seen as: -

- Opportunity for collective action to enhance contribution of science to agriculture;
- Instrument to translate science into positive impact on quality of life;
- A means of leveraging political buy-in and policy support;
- A way to translate Africa's challenges into enormous opportunities;
- The vehicle for addressing Africa's paradoxes (e.g. Smallholders produce most of the food and yet are the poorest; NERICA scientific breakthrough didtranslated into food security);
- A pathway for transforming smallholder agriculture into value-added agribusiness;
- Opportunity to change image of agriculture and enhance youth employment;
- An instrument to sustain current global interest in Africa and catalyze support for future investments in agriculture including the G8, G20, IFAD, commitments.

The Rome meeting on the Science Agenda made recommendations on technical, institutional aspects and on the process for delivering the Science Agenda.The following were the recommendations: -

1. Need to clearly articulate what it offers that is something new forconvincing political leaders and development partners to buy in;
2. Agenda has to articulate something new without negating existing work;
3. Need to make the case in support of what is being sold (Build on existing studies e.g. on-going AUC-IFPRI series of studies to determine the impact of CAADP and budgetary allocation targets for the Science Agenda);

4. Tailor document to appropriate audience (short, concrete and convincing document);
5. Review of FAAP to identify gaps;
6. Many things have been tried and proven to work. Science Agenda provides opportunity to address issues holistically;
7. Farming systems approach provides complementary data to support the mapping exercise;
8. Address aspects of its operationalization.

The discussions on what the S3A will and will not address highlighted the fact that the TAG and EP meetings in Accra focused on the "What" of the Science Agenda but also recognized that the Science Agenda should be more about the "How" to create the enabling environment and articulate the best levers to do so through partnerships, coordination and relationships and bringing on board new players. In this regard, members felt that the S3A should focus on the following: -

1. Strengthening of National Systems along the lines of FAAP.
2. Finding alternative ways of regionalizing agricultural research to achieve economies of scale and avoid duplication. Regional and continental approaches and centers of excellence.
3. Creating partnerships with CGIAR, non-CGIAR Centers, ARIs, South-South entities.
4. Building alternative models of using public sector window to leverage private sector investments.
5. Articulating requirements for a conducive science environment.
6. Including human resource and institutional capacity building.
7. Establishing alternative financing models for attracting resources, remittances.
8. Investing in infrastructure needed for a science-driven agenda.
9. Ensuring a balance between basic science and innovation.
10. Initiating Translation Mechanisms such as Incubatorsfor linking research to development.
11. Advocating policy changes to strengthen an enabling environment for science and technology and easy flow of innovations.
12. Addressing issues of gender and youth with respect to access to inputs and resources, for example through the AWARD program, and the training of young scientists.
13. Developing and disseminating technologies to enhance value addition, post production systems, market access, and related activities.
14. Developing sustainable financing mechanisms.
15. Integrating research, extension and education to avoid fragmentation and ascertaining roles and governance structures/systems.

The presentation by the Carlos Sere' on shaping the Future of African Agriculture together; the case for enhanced support to ARD is presented as Annex 9 in this document.

3.4 Process Action Plan for Developing the Science Agenda

The Key Milestones around which the Process Action Plan (see Annex 2 for the detailed process action plan) was prepared included in Table 2.

Table 2: Process Action Plan for Developing the Science Agenda

Activity	Task	Timeline
1. Preparation of the S3A	• Setting up Working Group for the S3A	2012/13
	• Finalise Discussion Paper (DP), "Accra Consensus" report and Policy Briefs	2014
	• Editing, translation, printing the S3A documents	2014
2. Mainstreaming S3A	• Engaging AUC, NPCA and other preparatory meetings	2013–14
	• Present S3A at CAADP Partnership Platform meeting	19–22 March 2014
	• Presentations of S3A at the Joint Ministers Conference	28 Apr to 2 May 2014
	• AU Summit Heads of State Summit	June to 2 July 2014
	• Preparation of S3A Companion Studies	Apr to Sep 2014
3. Developing operational strategy and plan for S3A	• Revised roadmap for the S3A	Sep 2014
	• Final Roadmap for the S3A	Feb 2015

4. The E-consultations on the Science Agenda

The e-consultations were based on the Discussion Paper (DP)). *"A Discussion Paper on the Development of a Science Agenda for Agriculture in Africa: (S3A): A Long Term Strategic Framework"* developed by an Expert Panel (EP) (FARA, 2014).The DP can be accessed via the following links can be used to access draft versions: -

English: http://www.fara-africa.org/media/uploads/scienceagenda/documents/draft_science_agenda_discussion_paper%28english%29.pdf

French: http://www.fara-africa.org/media/uploads/scienceagenda/documents/draft_science_agenda_discussion_paper_%28french%29.pdf

The DP captures broad areas requiring stakeholder engagement and debate in order to identify issues a strategic framework document for science in Africa, the S3A, should address. The primary purpose of the DP is to provoke responses and comments as well as invite contributions and fresh insights.

The Expert Panel required more information and data pertaining to specific sub-regions, national situations and priorities, key research institutions, as well as individual views that define the location and/or context. The e-consultation was therefore a major step in the process of identifying issues to inform the development of the Science Agenda. It follows the widely distributed paper entitled

4.1 E-consultation Process

Participants, discussants, and respondents in the e-consultation engaged at 2 levels; in targeted smaller Discussion groups on specific issues and on a wider platform- FARA-net. There were four main discussion rounds of 2 days each for the wider FARA-net. Respondents were advised to comment on the issues so that they are better informed and could contribute effectively.

"This e-consultation is not a sample survey so you are not obliged responding to all the issues and questions. Rather we need your inputs in arrears where you either have an opinion to make and/or you feel confident in your knowledge of the area. In order to make the results of the e-consultation more usable, it is also important for respondents to reference a specific location, institution, and/or sub-region, or any other relevant context. The only guideline to length of contributions is to be as concise as possible in giving the point you are trying to make"(FARA).

4.2 Issues for discussion

4.2.1 Current situation of agricultural science in Africa

The CAADP process set out about 10 years ago to restructure the research and science system for Africa's agricultural transformation encouraged the re-ordering of institutions to promote inter-institutional linkages and with adequate and sustainable funding to undertake research and transfer technologies that will lead to a minimum of 6% growth in agricultural productivity contributing to alleviate food insecurity and poverty. Despite the momentum of the CAADP process, Africa still faces food insecurity and growing rural poverty. The critical question becomes what in the current institutional set up, policy framework for agricultural research including the downstream policy environment accounts for the slow growth in agriculture?

Other issues to be considered in the context of the current lapses in African agricultural research or the need to enhance research set out in the framework document for science in Africa's agriculture are: -

- What are the important aspects of current institutional set-up and capacities?
  - Current institutional landscape at national levelviz diversity; integration; partnerships; capacity; reforms and developments; private sector participation; impacts.
  - Current institutional landscape with African regional and continental bodies (SROs etc.);
  - Current institutional arrangements and partnerships with international entities (including CGIAR etc.). Are the current institutional arrangements for research, technology generation and transfer in agriculture adequate? Comment on the adequacy or otherwise of these arrangements?
- Policy environment: how is this supportive and what is detracting from the current scientific efforts?
  - Is there any policy direction governing the conduct of agricultural research in Africa?
  - What are the current research areas / priorities and level of human resource, infrastructure and general funding support for agriculture in the countries or regions you are familiar with?
  - What is the most significant impact or success of science to date?
- Financing arrangements:
  - What are top items being financed currently?

4.2.2 Research priorities and directions to define the short-medium term agenda

The setting of research priorities is crucial for the adoption of the technologies that will emanate. The low uptake of technologies from research evident at the smallholder level could be that inadequate consultation takes place before research is prioritised for execution. The CAADP principles underlying the conduct of research (FAAP) consider institutional and across research disciplines. Does the funding of projects that have been prioritised consider these professional and end-user requirements along the value chain?

The Science Agenda should benefit from the criteria for determining the selection of research topics over a 5-10 year time frame and your consideration of the adequacy or otherwise of these criteria.

The following specific issues should be considered in determining research criteria over the short-medium term that could guide the formulation of the Science Agenda.

- How will the CAADP processes be used in shaping priorities in Africa in the short to medium term?
  - What institutional reforms and partnerships can you suggest in the short to medium term at the national, regional and the international levels?
- How is policy on research and science for agriculture evolving?
  - What policy reforms in research and science in general will you propose for Africa's agricultural transformation?
- Looking at medium term expenditure frameworks and plans, what are the research items that will receive most funding?
  - What in your reckoning are the research items that have received the most funding support in the short-medium term in the expenditure frameworks of countries and specific sub-regions in Africa?

4.2.3 Research priorities and directions to define the long- term agenda

Often the long-term perspective identifies problems of the future, which must be tackled from the re-ordering of present research endeavours. What major research problems of the future should be considered now to

position nations to be able to cope with the mega challenges of the future that are increasing in importance? The answers to these will be a critical component to the Science Agenda. Issues of climate change and increasing population should receive attention in the Science Agenda for Agriculture in Africa. Funding will determine the long term sustainability of the Science Agenda. The criteria for sustainable funding of the Science Agenda should receive attention in the e-consultation.Discussion points for the long-term perspective for the Science Agenda should include: -

- What foresight and mega (population growth, climate change) issues influence long-term research in African Agriculture?
- What long-term institutional arrangements, capacities, partnerships, policy environments and sustainable financing for the Science Agenda are desired?

4.2.4 General or overarching issues for advancing the Science Agenda for Agriculture in Africa

Despite the growth trends in African economies with Sub-Sahara Africa (SSA) expected to average 5.4% this year by IMF prediction, poverty rates are still high. A 2010 IFPRI report (ww.africapartnershipforum.org) showed Ghana as the only country achieving the MDG1. The IFPRI report also revealed that as at 2007, only 9 African countries were allocating 10% or more to agriculture to meet the 10% CAADP goal set in 2003. The commitment of resources to agriculture including research is an overarching challenge the e-consultation should discuss. The outcome of this will inform the Science Agenda's recommendation on sustainable financial support to research.

Prioritizing research over the short medium to long term apart, moving the focus of research through the value chain will determine the uptake of new knowledge to enhance productivity in agriculture. What are the components of the value chain from farm to fork that is to be addressed to feed into the Science Agenda. Other overarching issues and a succinct restatement of others that affect Africa's agricultural transformation to be addressed in the Science Agenda and which the e-consultations should address are: -

- Why has science had limited impact on African farmers, consumers and entrepreneurs?
- What are the pathways of change can be mapped out from scientific endeavour to broad-based social and economic transformation through agriculture in Africa?
- In what ways can science be practiced in more innovative, flexible and relevant ways to meet needs on the ground?
- Sustainable intensification has been defined as producing more from the same area of land while reducing negative environmental impacts and increasing contributions to natural capital and the flow of environmental services.
    - How is your scientific community addressing the competing paradigms between "sustainable intensification" on one hand and "intensive use of external inputs" on the other as primary strategies for transforming agriculture in Africa?
- In what ways should African countries integrate research, education and extension institutions for greater effectiveness?

Participation in the E-Consultations

Contributions were received from 98 persons and an overwhelming majority (over 90% were from Africa). A cross-section of institutions, namely, research institutions, universities and colleges, NGOs and government agencies/ministries participated.

Discussions were held in English and in French concurrently and facilitated English and French moderators.

5. Face–to-face consultation: national, regional and continental

The Face-to-face consultations all start with a presentation of the draft S3A document by a member of the FARA staff task team or member of the Expert panel.In the presentations of the document the following points were underscored: -

- The Vision of the Science Agenda is focussed on enabling Africa to become competitive producers and processors of food and various other agricultural products;
- The S3A will be informed and build on experiences gained in implementing programmes and interventions that led to success stories;
- The S3A envisages that a rainbow agricultural revolution - instead of a single green revolution - would be needed in Africa.
    - The advancement of the S3A would require the following 5 'I's' to be addressed: (i) Institutions, (ii) Investment in research, training and extension, (iii) Input availability, (iv) rural Infrastructure, and (v) Incentives to adopt new innovations.
    - National commitment and visionary leaders would be essential to Africa's advancement;
    - In the short-medium term the Science Agenda would use the 10 year CAADP Strategy as entry point to the agricultural transformation process;
    - While the S3A addresses productivity, wealth creation and sustainability under key thematic areas, it recognises that science alone cannot solve all problems confronting agriculture and that science transcending agriculture would need to be embraced;
    - To realise the vision of a science-led agricultural transformation, the S3A will have to: (i) ensure capacity at country level, (ii) enhance collaboration, (iii) ensure sustainable financing, (iv) enhance African solidarity in key areas, (v) create favourable policy environment for advancing science

The presentation was followed by a systematic, chapter-by-chapter discussion of the document in plenary. Group discussion around the chapters guided by the following generic questions: -

- Do Chapters 1 and 2 adequately explain the need for a Science Agenda for Agriculture in Africa?
- Is the vision in Chapter 3 bold enough for a Science Agenda that seeks the realization of the goals and objectives as stated in the document; and
- Does Chapter 4 cover the critical science aspects of thematic components and are the thematic areas the key ones for the Science Agenda to address in the near and long term?
- Does Chapter 5 provide a clear framework, and are the issues articulated adequate for implementing the Science Agenda
- What are the roles of the AUC, Sub-Regional Organizations', FARA and continental agricultural organizations in the implementation of the Science Agenda?
- How should the Science Agenda be appropriately communicated and advanced?
- Are proposed investments options adequate to ensure full implementation of the science agenda?

- What should be done to ensure further buy-in and ownership processes for full implementation of S3A by countries?
- Does the 10-point key messages framework drive the critical issues of the Science Agenda?

1. Plenary presentations and discussion of the group work outputs;
2. Generation of recommendations for refining the document;
3. Presentation and general discussion on the next steps in the process of developing the S3A.

General feedback

All the consultations acknowledged the tremendous work that had gone into producing the Draft S3A Document. The feedback from the different consultations was therefore variously prefaced by the sentiment that the feedback focussed on areas where improvements needed to be made without referring to the many aspects in the document that did not need refinements. The detailed feedback is reported as consultation reports and can be accessed on the FARA and Science Agenda websites.

The general feedback expressed by the Continental consultation was that the document fails to identify a system for success and how to get there. The document should characterise what the current systems dealing with science for agriculture are, identify what systems are required, and then develop a road map on how to get there. It should also propose the costs for transforming the systems to what is required to implement the Agenda.

6. Personalities behind the Science Agenda for agriculture in Africa

The Science Agenda has been made possible by many dedicated individuals whose commitment to the advancement and transformation of African agriculture and the livelihoods of its peopleis reflected in this report. These individuals constituted members of the Oversight Group (OG) that guided the development of the document or members of the Expert Panel (EP) that crafted and peer-reviewed the Science Agenda document.

The Expert Panel

Dr. Kanayo Nwanze, DSc President of IFAD: Chair and Champion of the Expert Panel

Dr.Kanayo Nwanze is the President of International Fund for Agricultural Development (IFAD). A Nigerian National, he is one of Africa's foremost entomologists who served in many countries while working with the CGIAR in Africa for over three decades to develop solutions aimed at improving food security, reducing poverty and improving the welfare of men and women. Dr.Nwanze rose through the ranks to become the Director General of WARDA (now AfricaRice). In partnership with Dr.MoctarTouré, Prof. Geoffrey Mrema and other African Agricultural Experts, he was instrumental in the establishment of FARA and helped shape the transformation of SPAAR into FARA. Under Dr.Nwanze's guidance, IFAD has stepped up its advocacy efforts to ensure that agriculture is a central part of the international development agenda. As an intellectual leader on issues of food security, Dr.Nwanze has been a member and former Chair of the World Economic Forum's Global Agenda Council on Food Security since 2010. Dr Nwanze contributed personally to the S3A as Chair of the Expert Panel that was charged with the responsibility of articulating the Agenda and as Champion of the initiative. Dr.Nwanze is a recipient of several awards and honours, including: Doctor of Science, honoriscausa, McGill University, Canada; Ordre National du MériteAgricole, France; Officer of the National Order of Valour of Cameroon; Commander of the National Order of Burkina Faso; Officer of the National Order of Benin and Commander of the National Order of Merit, Côte d'Ivoire.

Professor Geoffrey C. Mrema Co-Chair of the Expert Panel

Professor Geoffrey C. Mrema, a Tanzanian, holds a B.Sc. degree in Mechanical Engineering (Hons)from the University of Nairobi; M.Sc. and PhD in Agricultural Engineering from the University of Newcastle-upon-Tyne, UK, and University College, Dublin, Ireland respectively. He also in 1984 attended the second "International Course On Development Oriented Research In Agriculture [ICRA2]" in Wageningen, the Netherlands. From 1973 to 1987, he was lecturing at the Department of Agricultural Engineering and Land Planning of the Faculty of Agriculture of the University of Dar-es-Salaam, Morogoro, Tanzania. In July 1984, he Faculty of Agriculture then became, the Sokoine University of Agriculture [SUA]. In addition to rising from Lecturer in 1979 to Professor by 1987, he also served as head of the Department of Agricultural Engineering and Land Planning (1979-87) as well as Associate Dean of the Faculty of Agriculture (1985-87). In 1987 he was appointed the inaugural Dean of the Faculty of Agriculture of the University of Botswana and Professor of Agricultural Engineering where he served

during the period 1987-95. From 1995 to 2001, he served as the First Executive Secretary of the *Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)* in Entebbe, Uganda. Throughout the period 1980-2001, Dr. Mrema also worked as a short-term consultant and as a Member of the Boards of Trustees for various international agencies.

In 2001, he joined FAO as the Director of the Agricultural Support Systems Division at its headquarters in Rome, Italy. In February 2005, Dr. Mrema was appointed FAO's Sub-Regional Representative for Southern and Eastern Africa based in Harare, Zimbabwe. In 2006 he returned to the FAO headquarters as Director of the Rural Infrastructure and Agro-Industries Division (AGS), and he served in this position until March 31st 2011 when he retired from FAO service on reaching the UN mandatory retirement age. He is now based at the Department of Agricultural Engineering and Land Planning of SUA as a Professor of Agricultural Engineering where in addition to lecturing and research, he undertakes consultancy missions for international and national agencies. In 2013, he served as a Co- chairperson of the FARA's Expert Panel which was responsible for developing the Science Agenda.

Prof.Mandivamba (Mandi) Rukuni: Leader, Synthesis Team of the Expert Panel

Born and bred in Zimbabwe, Mandi is currently Director of the BEAT Doctoral Academy through which he is Professor Extraordinaire, University of Africa, Zambia, and adjunct Professor at the National University of Science and Technology (NUST) in Bulawayo, Zimbabwe. His career started 35 years ago as an academic for 20 years with the University of Zimbabwe during which tenure he also served as Professor and Dean of Agriculture. He subsequently worked with the W.K. Kellogg Foundation for 11 years as Director for Africa Programs. He is an experienced development analyst and strategist in a variety of sectors including agriculture, land and natural resources management, business, finance, government, as well as education and culture. He has served as a consultant and advisor to many organizations which include the World Bank, EU, USAID, DFID, CIDA, FAO, AfDB, IFAD, UNDP, ACBF, foundations (Rockefeller, Winrock, McKnight), and others. Furthermore, Mandi served on several international boards: CIAT, IFPRI, Institute of Development Studies (Sussex), as well as several corporate, bank and parastatal boards in Zimbabwe. In terms of continental involvement in Africa, he has over the last 4 years devoted a significant amount of effort into the strategic review of the Comprehensive Agriculture Development Programme (CAADP) resulting in the focus on Results, and Sustaining The Momentum. Mandi is also supporting FARA with finalization and operationalisation of the Science Agenda for Agriculture in Africa. He provides support to mainstreaming the AU/AfDB/UNECA Land Policy Initiative (LPI). He has received several honours and awards and has published 15 books and more than 100 articles. In his latest book "Being Afrikan", Mandi lays out his vision towards an advanced African society built on the Hunhu/Ubuntu values**.**

Dr. Yihenew Zewdie: Member, Synthesis team of the Expert Panel

Dr. Yihenew Zewdie is an Ethiopian national, with over 20 years of work experience both within and outside Ethiopia: Since May 2014, Yihenew has been working with the Technical Centre for Agricultural and Rural Cooperation (CTA) as a Senior Technical Adviser on Policies and Markets based in Wageningen, The Netherlands. Between February 2013 and April 2014, Yihenew worked as an independent consultant on agricultural policy issues in Africa. In this regard, the most significant engagement he had was with FARA where he served as a member of the International Expert Panel and its Synthesis Team for the development the Science Agenda for Agriculture in Africa (S3A). As an independent consultant, Yihenew also participated in an African Union-led initiative called "Drivers of Success in the context of the Comprehensive Africa Agriculture Development Programme (CAADP)" co-authoring the Ethiopian case study report and undertaking an in-depth study of Ethiopia's Agricultural Transformation Agency (ATA).

From October 2010 to January 2013, Yihenew served as a Policy Adviser at the AU Commission's Department of Rural Economy and Agriculture on secondment from FAO. From September 2007 to July 2010, Yihenew was the CAADP Task Leader at the Germany-based Secretariat of the Global Donor Platform for Rural Development. Before becoming an international staff, Yihenew had significant work experience in Ethiopia, including about four years with the UN, and nine years in an international NGO called FARM Africa. Yihenew holds a PhD degree in Natural Resource Management, an MSc degree in Development Planning, and a BA degree in Economics.

Dr Gabrielle Persley AM: Member, Synthesis Team of the Expert Panel

Gabrielle Persley's distinguished career in international agricultural research and food security includes involvement both as a researcher, and as a senior strategic science leader, at some of the world's leading agricultural and biotechnical agencies. Currently she is the Research Project Director with the Crawford Fund Australia, working with the University of Queensland's Global Change Institute and with international private and public sector partners. She is a senior advisor to the International Livestock Research Institute in Nairobi (ILRI), Kenya.

Having worked with the World Bank in Washington, the Australian Government's Overseas Aid Agencies, the International Service for National Agricultural Research based in The Hague, and the International Council for Science in Paris, Persley has forged strong links between the Australian and international biotechnology, science and development communities.

A passionate advocate of the importance of science and technology in developing countries, Persley was a key player in a team of African and international scientists and investors who established *Biosciences Eastern And Central Africa(BecA),* at ILRI in Nairobi, as a centre for excellence that is open to African and international scientists, who are working together to improve crop and livestock productivity and sustainability in African agriculture and food security.

Persley also established the Doyle Fund, a Glasgow-based charity that advocates the role of science in international development by supporting young African scientists through the early stages of their careers and other initiatives concerned primarily with animal health and genetics in Africa.

Dr. Howard Elliott: Member, Synthesis Team of the Expert Panel

Howard Elliott is a Canadian citizen, PhD Princeton in Economics, whose engagement in Africa began in 1969 in Cote d'Ivoire with research on tree crop policy. This engagement has continued to the present day. He served with the Rockefeller Foundation in University Development Programs in Uganda (Makerere University), DR Congo (Director General of the Faculty of Agriculture, IFA, Yangambi), and Brazil (Universidade Federal da Bahia). As agricultural program officer and manager of the Ford Foundation office for francophone Africa in Abidjan (1972-75), he helped establish a program of collaborative higher agricultural education between several francophone countries and the University of Ibadan, Nigeria. Subsequently, as Deputy Director General of ISNAR from 1986-1999 he oversaw the development of the Research and Training Programs and participated in the development of Sub-Saharan African regional programs: SPAAR, FARA, ASARECA and FANRPAN. He has led or participated in reviews of a several NARS in Africa. More recently, he served on the Expert Panel and Synthesis Team of the S3A and is currently a consultant to RUFORUM (the Regional Forum for Capacity Building in Agriculture).

PROF. B.Y. ABUBAKAR : Member, Peer Review Team of the Expert Panel

Baba Yusuf Abubakar graduated in 1977 with a B.Sc [Agriculture] from Ahmadu Bello University, Zaria, Nigeria. His working career commenced in 1978 with the National Animal Production Research Institute (NAPRI), Shika, Zaria as a Graduate Assistant where he rose to the rank of Professor of Animal Science in 1995. He holds an M.Sc [1983] and PhD [1985] in Animal Breeding and Quantitative Genetics from Cornell University, Ithaca, New York, U.S.A. Prof. B.Y. Abubakar has published widely with over 160 publications to his credit.

He served in various capacities, up to the Programme Leader(Poultry) in NAPRI (1978-2003). He has also served as a Director in the Federal Civil Service (2003-2006) after which he was appointed the pioneer Executive Secretary of the Agricultural Research Council of Nigeria in November, 2006, a post he still holds till date(2014).

More recently, Prof. B.Y. Abubakar has serves internationally in various capacities as follows: -Member, Consultative Group on International Agricultural Research [CGIAR] Fund Council representing Sub-Saharan Africa, 2010-2015; Chairman - Governing Board of the West and Central African Council for Agricultural Research and Development (CORAF /WECARD), 2010-2012; Liaison Officer, Centre for Agricultural Biosciences International (CABI), 2008- date; MemberGoverning Board of the Forum for Agricultural Research in Africa (FARA), 2010- 2012; Member, Expert Panel on the development of Science Agenda for Agriculture in Africa, 2013; and Member, Executive Board, Technical Center for Agricultural and Rural Cooperation (CTA), 2013-2018.

He received the Presidential National Honours Award of Officer of the Order of the Federal Republic (OFR) in 2011, and CORAF/WECARD Award of Honour for invaluable contribution to Agricultural Research and Development in West and Central Africa in 2012. He was also conferred with Fellow, Agricultural Society of Nigeria (FASN) in 2011; Fellow, Nigerian Institute of Animal Science (FNIAS) in 2012: Fellow, Horticultural Society of Nigeria (FHSN) in 2012: and Fellow, Institute of Public Administration (FPA) in 2014.

Dr. Siwa Msangi: Member, Peer Review Team of the Expert Panel

Siwa Msangi is a Senior Research Fellow within the Environment and Production Technology Division and leads IFPRI's research theme on Global Food and Natural Resources. His work focuses on the major socio-economic and biophysical drivers affecting agricultural production and trade, and their impacts on nutrition, poverty and the environment.Siwa manages a research portfolio that includes the economic and environmental dimensions of sustainable intensification of agriculture, aquaculture and livestock, biofuels and the bio-economy, climate change impacts on agriculture and climate adaptation, as well as resource management of surface and groundwater.

Siwa is a citizen of Tanzania and did his doctoral studies in the Agricultural & Resource Economics program at the University of California at Davis, before joining IFPRI in 2004. Prior to UC Davis, he studied International Development Policy at the Food Policy Research Institute at Stanford University, where he also received an undergraduate degree in Chemical Engineering.

Mrs. NdèyeCoumba FALL: Member, Peer Review Team of the Expert Panel

Mrs. NdèyeCoumba Fall is a sociologist with more than 15 years of experience in rural and agricultural development. Since 2006, she has served as the Executive Director of the West Africa Rural Foundation (FRAO-WARF) based Dakar, Senegal. WARF is a key partner of producers and organizations engaged in research for innovative and inclusive solutions to the crises in the production systems. WARF recognizes the centrality of rural producer organizations and policy development actors for sustainable development in Sub Saharan Africa.

Her areas of expertise include: participatory research and development; knowledge management; support for linking Farmers' Organisations to Agricultural Research Systems; institutional analysis and organizational management; capacity building-adult training;facilitation; and programme formulation.

She has been engaged in the design and implementation of capacity building programmes onKnowledge Management and M&E at national and sub regional levels. She has been specifically involved in management and training support to IFAD Projects in Western and Central Africa, the EU-Food facility programme in West Africa, the West Africa Agricultural Productivity Programme in Senegal and the IDRC supported Africa Climate Change Adaptation Programme. Mrs. Fall has led the development of methodological tools capitalization for Knowledge Management.

Notably, Mrs. Fall is co-editor of the Practical Guide for Management and Facilitation of Innovative Platforms based on the IAR4D in partnership with the West and Central African Council for Agricultural Research and Development (WECARD/CORAF).She is also voluntary member of the Board of the 'Initiative et Prospective Agricole et Rurale' (IPAR), where she serves as Secretary General of the Board.

Dr.Pierre Fabre: Member, Peer Review Team of the Expert Panel

Pierre FABRE est docteur en économie. Il a particulièrement travaillé sur les analyses de marché et de filières, l'évaluation et l'analyse de l'impact économique des projets et l'analyse des politiques. Il a publié plusieurs manuels et guides dans ce domaine pour le compte du Ministère français des Affaires Etrangères, de la Commission Européenne et de la FAO. Il a représenté la France dans différentes instances européennes et dans la réforme de la recherche agronomique internationale (GCRAI, GFAR) pour le compte du Ministère français de la recherche scientifique. Au CIRAD, il a dirigé le programme des cultures alimentaires du CIRAD, puis en a été directeur scientifique et directeur du département « Environnements et Sociétés ». Il est aujourd'hui détaché auprès de la Commission Européenne (DG DEVCO).

Pierre FABRE has a PhD in economics. He worked particularly on market and value chain analysis, project economics, impact evaluation, and policy analysis. He published various manuals and guidelines for the French Ministry of Foreign Affairs, the FAO and the European Commission. He represented France in various European bodies and for the reform of the CGIAR on behalf of the French Ministry for Scientific Research. At CIRAD, he headed the Food Crops Programme, and was later appointed Scientific Director and Director of the Environments and Societies Department. He is now seconded at the European Commission (DG DEVCO).

Dr. Lance O'Brien: Member, Peer Review Team of the Expert Panel

Lance O'Brien, BA, MA, PhD, MBA, Head of Foresight and International Relations TEAGASC, joined Teagasc (The Irish Agriculture and Food Development Authority) from the Irish Ministry of Finance in 1980, having previously worked as a researcher in the Irish Economic and Social Research Institute (ESRI). Since joining Teagasc, he has worked in the areas of corporate and strategic planning, programme and project planning, foresight development and research management. Some of his documented achievements include:- He contributed to the work of the Panel on Natural Resources as part of Ireland's first national Foresight exercise in 1999- **Technology Foresight Ireland –** . He was Project Manager for the major Teagasc foresight exercise – **Teagasc 2030: Teagasc's Role in Transforming Ireland's Agri-Food Sector and the Wider Bioeconomy.**. He has contributed to national research policy initiatives in Ireland and to a number of Irish agricultural and food policy developments, including the current major strategy– **Food Harvest 2020** (2010)He was also a member of the Third EU SCAR Foresight Expert Group, whose report-***Sustainable Food Consumption and Production in a Resource-Constrained World***

He has a particular interest in and commitment to agricultural research for development and the use of foresight in this context. In this regard, he is an active participant in the Global Foresight Hub and has worked for the establishment of a Foresight Academy and the development of foresight expertise in Africa. He was a member of an International Expert Panel, providing foresight and other expertise, which developed a long-term science agenda for agriculture in Africa-**Connecting Science-A Science Agenda for Transforming Agriculture in Africa** (2013)

The Oversight Group

Mr. Maurice Lorka: representing The Africa Union Commission (AUC)

Maurice Lorka is an agricultural Scientist specialized in development policy. Since 2012, he is Senior CAADP Advisor for Agricultural Research, Technology Dissemination and Adoption at the Department of Rural Economy and Agriculture of the African Union Commission.At this position his overall portfolio covers the Africa agriculture transformation agenda through CAADP and more specifically the Science Technology and Innovation related issues within the CAADP Results Framework and the CAADP Planning Monitoring and Evaluation. He represented the African Union Commission in the Oversight Group for the development of the Science Agenda.

He started is career in the palm oil industry through a consultancy firm in the agro-processing and agro-industry in Ivory Coast as where he operated as quality process specialist.

He graduated in 2004 as an Agro-Processing Engineer in Yamoussoukro. In 2009 he graduated with a Masters Degree in Agricultural Science And Natural Resource Management where he specialized in agricultural economics at the University of Bonn in Germany.From 2007 to 2009 he worked as a research assistant at the Institute For Food And Resource Economics of the University Of Bonn in Germany.

From 2010 to 2012, he worked in FARA successively as Advocacy and Resource Mobilization Officer forCAADP PILLAR IV and after as the technical Assistant of the Deputy Executive director. Through these positions he contributed in providing technical support on CAADP Country processes in several Africa countries and planning, monitoring and evaluation within FARA.

Dr Marcel Chijioke Nwalozie : Representing NEPAD Planning and Coordinating Agency (NPCA)

Marcel Nwalozie is currently the Director of NEPAD West Africa Regional Bureau based in Dakar, Senegal. He was the Director of Programs at CORAF/WECARD for 12 years then served two years a senior scientist at the Regional Center for Adaptation of Crops to Drought (CERAAS), Thies, Senegal. He started his career at the University of Port Harcourt, and then moved to Imo State University. He earned a PhD from Port Harcourt in Plant Sciences and Biotechnology, and an MBA in Marketing from Liverpool. He has devoted his career to contributing to knowledge in improving yield performance of field crops during drought, and in international research management.

Dr Harold Roy-Macauley: Representing the West and Central African Council for Agricultural Research and Development (CORAF/WECARD)

Dr Harold Roy-Macauley is the Executive Director of the West and Central African Council for Agricultural Research and Development (CORAF/WECARD), based in Dakar, Senegal, since July 2012. He led the Programmes Directorate of this Institution from June 2009 to June 2012.

Before coming to CORAF/WECARD, Dr Roy-Macauley worked for the World Agroforestry Centre (ICRAF) as Regional Director for West and Central Africa, from April 2006 to December 2009. He relocated to Guinea in January 2009 to take up the position of ICRAF Representative in the Upper Guinea Node for West Africa, overseeing research and development activities, notably in Guinea, Sierra Leone, Liberia and Côte d'Ivoire.

Dr Roy-Macauley, at the start of his career in 1982, taught natural sciences in high schools and teachers training colleges, and lectured botany and plant physiology at the University of Sierra Leone. He was seconded in 1995 to the 'Centre d'EtudeRégional pour l'Amélioration de l'Adaptation à la Sécheresse (CERAAS)', in Senegal, a Research and Training Base-Centre of CORAF/WECARD, where he was responsible for developing and coordinating scientific activities in biochemical and molecular plant physiology. He was appointed Scientific Director and Assistant Managing Director of CERAAS in 1996, and Managing Director, in 1997. He occupied this position till 2004.

Between 2004 and 2006, he served as consultant for various agencies, regional and international fora on biosafety and biotechnology. He was a member of the Steering Committee of the NEPAD/African Biosciences Initiative - Biosciences Eastern and Central Africa (BeCA); the Interim Implementing Committee of the FARA-led Initiative on Building African Scientific and Institutional Capacity (BASIC) in Agriculture; the International Foundation for Science (IFS) Crop Science Advisory Committee (Project Evaluation And Resource Provision).

Presently he is a member of the Executive Board of the CGIAR Generation Challenge Programme on 'Unlocking the Potentials of Biodiversity for the Poor', and the Forum for Agricultural Research in Africa (FARA). He is also a member of the Scientific Committee of CIRAD. Dr Roy-Macauley's area of expertise is on plant biodiversity improvement and agricultural development, especially in West Africa, and has contributed to the publication of several articles and books in these areas.

Dr. Fina Opio representing the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)

Dr. FinaOpio is a Ugandan. She is married with two children. She holds a Ph.D in Plant Pathology from Sokoine University of Agriculture, Morogoro, Tanzania; a Masters of Science in Crop Science from Nairobi University - Kenya; and Bachelor of Science in Agriculture from Makerere University - Uganda. Her area of expertise includes plant pathology, bacteriology, participatory agricultural research, technology development and dissemination, rural development and gender issues.She has a wide experience in Agricultural development issues, strategic planning, leadership and management, science and technology policy, agricultural development policy and innovations, all built over thirty years of career development path. She has published over 30 papers in international scientific journals and over 60 papers in conference/workshop proceedings.

Currently, Dr.FinaOpio is Executive Director of ASARECA. She assumed this position on March 1, 2013. Before this appointment, she was the Manager: Staple Crops Program of ASARECA. She joined ASARECA in June 2007. Prior to joining ASARECA she was the Director of the National Crops Research Institute (NACRRI) based at Namulonge. NACCRI is one of the Institutes of the National Agricultural Council of Uganda. She has been a member of many governing boards and councils including the Uganda National Council of Science and Technology where she was a member of the Executive Committee of the Council.

Fina has previously served as a consultant to both national and international organizations. She was a member of the Advisory Panel that reviews proposals for African fellowships from Rothamsted International in U.K (2005- 2010). She was a member of the Steering committee for Gender and Diversity Programme of the CGIAR for the pilot Women fellowship Programme in Eastern Africa. She was a member of a working group that drafted the Biotechnology briefs for CTA in 2005. She has been a member of the team formed by COMESA to design the Alliance for Commodity Trade Eastern and Southern Africa (ACTESA). She is a fellow of Uganda Academy of Science and the African Academy of Science. She served as Vice–President of Uganda Academy of Science from 2002 to 2004.She was a Member of the Board of Trustees for CIAT (2008 – 2011), where she served on the Audit Committee of the Board; and she is a Council member for Busitema - University of Science and Technology, where she chairs the Planning And Development Committee. She is a member of the RUFORUM International Advisory Panel (IAP). She is also a member on the Advisory Council Of The CenterFor Environmental Risk Assessment (CERA), Washington.

Prof. Timothy E. Simalenga: Representing the Centre for Coordination of Agriculture Research and Development for Southern Africa(CCARDESA).

Prof. Timothy Simalenga is the Executive Director of the Centre for Coordination of Agriculture Research and Development for Southern Africa (CCARDESA).Before joining CCARDESA in 2012, Simalenga was Research Director of the Institute for Agricultural Engineering, Agricultural Research Council (ARC)South Africa. He was Professor and Founding Head of Department of the Agricultural Engineering, University of Venda (2000-2004) and served as Associate Professor University of Fort Hare, South Africa (1997-1999). Simalenga was the Regional Training Officer, FAO, AGROTEC regional programme, Harare, Zimbabwe from 1994-1996 and was Lecturer at Sokoine University of Agriculture in Morogoro Tanzania from 1983 -1993.

Prof Simalenga has wide experience working in 18 Eastern and Southern Africa as a trainer, researcher, promoter of mechanization, renewable energy, agri-business solutions and technologies and consultant. He has published

over 20 books/chapters in books; over 60 refereed Journals and Conference Articles; some 80 conference papers in Conference/ Workshop proceedings and had edited over 16 workshop proceedings.

Prof Simalenga received his BSc (Hon) training in Mechanical Engineering from the University of Dar EsSalaam Tanzania, his MSc Agricultural Engineering from the University of Newcastle Upon Tyne; and his PhD Agricultural Engineering from the Royal Veterinary and Agricultural University, Copenhagen, Denmark.

Prof Adipala Ekwamu: Representing the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM)

Prof. Adipala Ekwamu is the Executive Secretary of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), a consortium of 45 African Universities that provides research and postgraduate training opportunities for students and faculties in Africa. He has also teamed with several higher education networks both within and outside Africa to advocate for higher education in Africa, and has helped to establish and strengthen postgraduate training programs and academic mobility programs for students and faculty across Africa. Professor Adipala Ekwamu is the former editor of the *African Crop Science Journal*, and author to nearly 200 peer reviewed journal publications. He received his doctoral degree in plant pathology from Ohio State University in 1992, and taught in the Department of Crop Science at Uganda's Makerere University from 1980 to 2003. In 2010, Prof. Adipala Ekwamu earned the Ohio State University College of Food, Agricultural, and Environmental Sciences International Alumni Award. Prof. Adipala Ekwamu is a Fellow of Uganda National Academy of Sciences.

Dr (Mrs) Aissetou Drame Yayerepresenting the African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE)

Dr (Mrs) Aissetou Drame Yaye is a Forest Engineer, specialized in Entomology. She is Senegalese by birth, and a citizen of Niger through marriage. Dr Yaye holds a BSc from the Faculty of Forestry of AkademiaRolnicza, Krakow, Poland, MSc: Faculty of Science, University Check Anta Diop, Dakar, Senegal;Distance MSc on the use of ICT in education, University Louis Pasteur, Strasbourg, France and aPhD: Faculty of Zoology, University of Ghana.

Since November 2007 she has served as Executive Secretary of the African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE). From 2007 Aissetou worked for the Forum for Agricultural Research in Africa (FARA), Accra (Ghana) as the Programme Officer of the Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA) programme In 2000:Prior to this she has been appointed as a Lecturer on Forest Management and Entomology at the Faculty of Agriculture of the AbdouMoumouni University of Niamey (Niger)Between 1994 – 1998 she was a PhD grantee of the African Women Leaders in Agriculture and Environment (AWLAE) Programme of Winrock International.From 1993 – 1994 she served as Director of the National Forestry Training Centre of Torodi, Niger. In the earlier years of her career she was a ResearchAssistant at the University Check Anta Diop, Senegal between 1990 – 1992 and from 1987 – 1989:was a Training Expert in Entomology, AGRHYMET, Centre, Niger.

Aissetou is fluent in both French and English with a fair knowledge of Polish and Spanish. Has authored and co-authored books chapters, scientific peer reviewed papers on Forestry, Agroforestry and Entomology,

and presented papers in many international seminars and conferences. Has beena Member of the Board of International Centre for Oriented Research in Agriculture (ICRA), Netherlands; Member of the Advisory Committee on Science and Technology of the Technical Centre for Rural and Agricultural Cooperation (CTA), Netherlands; Member of the Steering Committee of the African Women In Agricultural Development (AWARD); Visiting Scholar at the Watson International Institute for Environmental Studies, Brown University, USA; Founder President of the Soroptimist International Club of Tenere in Niamey, Niger.

Prof. Hamidou Boly representing Tertiary Education for Agriculture in Africa (TEAM Africa)- NPCA

Prof Boly Hamidou is the leader of NPCA Agricultural Education and Training (NPCA/AET) and has been working since 28 years in tertiary agricultural education and research in Africa. He is a Full professor in Animal Sciences (Reproduction and Genetic Improvement) and in his native country, Burkina Faso, has occupied high level positions in academia and research including as President (Rector) of Polytechnic University of Bobo-Dioulasso (2007-2011) and Vice President of CRUFAOCI (Conférence des Recteurs des Université Francophone d'Afrique et de l'OcéanIndien) in charge of West Africa Universities (2010-2011): In these functions, Dr. Hamidou initiated in January 2008 the first 'Cotton University' in Africa in collaboration with APROCA (African Cotton Producers Association) and ACI (African Cotton Industries). His experience includes undertaking successful experimental tests on BT cotton in Burkina Faso with theagreement of Monsanto Company and built up all the strategies for the deployment of agricultural biotechnology as a tool to solve agriculture constraints in Burkina Faso. He formerly held the position of General Director of INERA (Institut pour l'Environnementet la RechercheAgricole) and President of Burkina Faso National System for Agricultural Research, SNRA - 2002-2006 and Director of the Institute of Rural Development of University of Ouagadougou in Burkina Faso 1989-92. In 2012, he started coordinating the Tertiary Education for Agriculture Mechanism (TEAM-Africa) and since 2014, is leading the NPCA Agricultural Education and Training dealing with Tertiary Agriculture Education (TAE) and Agricultural Technical and Vocational Education Training (ATVET).

He has received several awards including in2011: Special Award during the DoctoratHonorisCausa of University of Liege (October 15th2011); in2005: Monsanto award for the successful deployment of BT Cotton biotechnology in Burkina Faso;Decoration by Burkina Government: (Chevalier de l'ordre des palmes académiques du Burkina and Chevalier de l'ordre Nationale du Burkina Faso); 1998: Laureate of Danish government IFS / DANIDA prize and 1994: Laureate of Belgium IFS / King Baudouin prize.

Mrs. LUCY MUCHOKI representing Pan African Agribusiness and Agroindustry Consortium, PanAAC

Mrs Lucy Muchoki is a Kenyan and the current Chief Executive Officer of Pan African Agribusiness and Agroindustry Consortium, PanAAC, a Regional Agribusiness platform that is mobilizing and supporting the domestic private Sector in Africa at national, regional and Global level. Lucy is also the coordinator of the Kenyan Agribusiness and Agroindustry Alliance, KAAA, an organization created to support the Kenya Agribusiness through enhanced productivity and competitiveness in the market in line with vision 2030 framework.

In addition to this, she serves in various advisory councils and steering committee member for various Agribusiness leadership organizations both at regional and country levels. She is the current Vice-Chair of CAADP Non-State Actors Regional Taskforce and has been instrumental in developing the Agribusiness strategy for Africa through collaboration with African Union Commission (AUC) and NEPADPlanning and Coordinating Agency (NPCA). She has been the private sector representative to the Executive Board of FARA-

Forum for Agricultural Research in Africa and ASARECA-Association for strengthening Agricultural Research in East and Central Africa.

At the international level she serves as a member of the Advisory Council that was tasked with guiding the UNDP report on Inclusive Business Model.She is also serving as a member of the Advisory Council on 'To Scale Programme', funded by the Dutch Government.The 'To Scale' programme supports small-holder farmers, in up-scaling and out-scaling best practices in Agribusiness for improved livelihoods.Lucy is serving as a member of the Advisory council of Sustainable Agriculture initiative, (SAI) an International Food Industry Network that supports sustainable agriculture.

She is also serving as the Private Sector representative and Steering Committee Member of PAEPARD, African Europe partnership programme on research for development and GFAR-Global Form for Agricultural Research. She is an active member of private sector mechanism on UN-CFS-Committee for Food security and also the new Agricultural vision leadership championed by WEF-World Economic Forum; she sits in the steering committee of the African Union Commission led initiative on AflatoxinControl Programme for Africa, (PACA).The Aflatoxin Control programme is aimed at supporting small-holder farmers in post-harvest control management.She is a Steering Committee member of the Rural Infrastructure/ Market Access Programmeand Ecological Organic Initiative both led by African Union Commission.

Lucy is also an accomplished entrepreneur and chairs the Agricultural Committee of theKenya National Chambers Of Commerce AndIndustry.

Ms ConsolatherMuzaga representing the Pan African NGOs Consortium on Agricultural Research for Development (PANGOC)

Ms ConsolatherMuzaga, a Tanzania national, is Vice Chairperson of the Pan African NGOs Consortium on Agricultural Research for Development (PANGOC). She currently serves as a Business Management Consultant and facilitator for Women in International Trade Negotiations and Environment in Tanzania (WITNET), an NGO acting as a force of change for women and youth in developing and strengthening their capacity in trade, agriculture and environment. She also serves as a member of the Thematic Working Group on Agricultural Marketing Systems in Tanzania.

Until 2010, Ms Muzaga served as a Technical Assistant to the Chairman of Tanzania Private Sector Foundation where she was involved in developing the Agricultural Sector Development Strategy representing the informal sector.Previously, Ms Muzaga worked with the Ministry of Trade as a Marketing officer, before serving as a Country Medical Representative for a Swiss based research pharmaceutical giant – **ROCHE**, for the Sub-Saharan Market Pharma division from 1995 – 2002. In 2006 she briefly worked with Ministry of Health and WHO as a Data Collection Research Assistant.

Ms Muzaga actively participated in the preparation process of the Science Agenda for Agriculture in Africa as a member of the Oversight Group. She also sits on the FARA Board of Directors representing NGOs and the Civil Society.

Ms. Muzaga studied Pharmaceutical science at Muhimbili University School of Pharmacy Dar-Es-Salaam also holds a Masters degree in International Business with a bronze medal from the Indian Institute of Foreign Trade (IIFT) New Delhi.

Dr. Sam Kanyarukiga Representing the Common Market for Eastern and Southern Africa (COMESA)

Dr. Sam Kanyarukiga has been the Senior Agricultural Advisor and CAADP Programme Coordinator in COMESA since August 2009. He holds a PhD degree in Agriculture (Soil Science) from the Justus Liebig University in Giessen, Germany acquired in August 1988. He is a Rwandan national, born in 1952 in Ngoma, Rwanda. After completion of primary, secondary and high-school education in Tanzania, he trained from 1974 at the Institute of Tropical and Sub-tropical Agriculture of the Karl Marx University of Leipzig in Germany where he acquired an MSc degree in Agriculture (Soil Science and Plant Nutrition) in 1979. Thereafter he undertook a 12-month post-graduate training in International Development Cooperation at the "Seminar fuerLandwirtschaftlicheEntwicklung (SLE)" of the Technical University of Berlin in 1980.

Dr. Kanyarukiga has a vast experience of over 30 years in the broad areas of development policy planning, research and training in tertiary education across the agriculture and natural resources management sectors. He worked as researcher and tutorial assistant from 1982 t0 1988 at the University of Giessen and thereafter as researcher at the Institute for Ecological Studies in Cologne , Germany until his return to Rwanda in 1995.In Rwanda, Sam worked as Advisor to the President of the Republic in the area of Agriculture and Rural development from 1995 to 1998. He then joined, the Central Public Investment and External Finance Bureau (CEPEX) in the Ministry of Finance and Economic Planning as Head of the M&E Department, and was later appointed its first Director General in 2002 to 2004. The major objective of CEPEX was to assist the Ministry and Government of Rwanda in planning and coordinating implementation of the National Public Development Investment projects and programmes as well as coordination of external funding from bilateral and multilateral development partners. During this period, Rwanda became one of the pioneer countries to develop and implement effective donor coordination mechanisms, which later on evolved into the Paris Declaration on Donor Harmonisation and Alignment for Aid Effectiveness.

From 2004 to 2009, Dr Sam Kanyarukiga was Chairman and Managing Director of the "Management and Advisory Services for Development Consultants (MASDEC), a private sector consultancy firm, providing services to both the public institutions and private sector operators in the areas of development of policies, strategies and investment plans across a wide range of social and economic development sectors. During this period, as a Technical Advisor, he supported the Rwandan Ministry of Agriculture to develop the first "Strategic Plan for Agricultural Transformation (PSTA) in 2004. This document constituted the basis for the development of the Rwanda CAADP Compact, that was developed and completed and signed in March 2007, as the first ever CAADP Compact on the African Continent.

The company MASDEC was contracted by DFID (London) to manage an African regional programme entitled "Research Into Use (RIU)", and Sam was appointed as its country coordinator for Rwanda from 2007 to 2009. The programme supported various stakeholders in the wider agriculture sector to develop commodity and services based Innovation Platforms, applying the Innovation Systems Approach (ISA), which promotes development and reinforcement of networks amongst different stakeholders around a common innovative objective with mutual benefits and win-win arrangements which allow use of scientific and technological knowledge to do business differently (innovation).

As CAADP Coordinator at COMESA since August 2009, the Author and his CAADP team have facilitated all 19 COMESA member states in CAADP implementation in their respective countries. To-date 14 of them have signed the national CAADP compacts and 10 are already implementing their National Agricultural Investment Plans under the CAADP ResultsFramework. Dr.Kanyarukiga has actively participated and contributed to development of different policy and strategic frameworks under the coordination of the African Union and NEPAD Planning and Coordination Agency (NPCA) for effective and sustained CAADP implementation at national, regional and

continental levels. He has, in particular, actively participated in the development process for the "Science Agenda for African Agriculture (S3A)" and is member of the S3AA Oversight Committee, representing COMESA. He is also the Chairman of the Steering Committee of the Regional Strategic Analysis and Knowledge Support System (Re-SAKSS) for Eastern and Central Africa.

Dr. Alain Vidal: Representing the CGIAR Consortium

Dr. Alain Vidal is the Senior Partnerships Advisor, CGIAR Consortium**.** Alain's interest in global food, environment and poverty issues spans over the entirety of his career. In 2009, he was appointed the Director of the CGIAR Challenge Program on Water and Food- a ten year program which explored new types of partnerships and institutional capacities that could help transform research to impact. Since October 2012, he has also held an advisory role on the management committee of the CGIAR Research Program on Water, Land and Ecosystems. Alain began his professional tenure in Morocco in 1986which sparked a decade long research career with the French Environment Research Institute (Cemagref- now known as Irstea). He also worked with the Food and Agriculture Organization of the United Nations (FAO) on innovations in scientific research uptake and technology exchange, before returning to Cemagref from 2003 to 2009 as its Director of European and International Affairs. He has authored and co-authored more than forty refereed papers, and edited 5 books. Alain received his PhD in water science from the University of Montpellier in 1989. Alain recently joined the CGIAR Consortium as a Senior Partnerships Advisor.

Shantanu Mathur: representing the International Fund for Agricultural Development (IFAD)

Shantanu Mathur is currently the Head of the Quality Assurance Groupat IFAD, Headquarters in Rome. He has worked in the area of pro-poor rural development for over 29 years - 3 years at FAO HQ and 26 years at IFAD HQ, in Rome. He holds Masters Degrees in Economics, from the University of Cambridge, UK, and in Business Economics, from the University of New Delhi. Has served on various CGIAR governing bodies, was Vice-Chair of the CGIAR Finance Committee (2001-2004) and is currently Chair of the CGIAR Evaluation and Impact Assessment Committee (EIAC).

As Head, IFAD Grant Secretariat he manages the IFAD Grant programme. He also leads the Secretariat for Quality Assurance of IFAD's lending programme. Shantanu has championed the cause of investment in Agricultural Research for Development including several outstanding grant-financed initiatives contributing to IFAD's leadership in the Global AR4D Community. Mr Mathur actively supported IFAD's co-chair role in the latest CGIAR reform process, as member of the Working Group on funding mechanisms. He has published several papers and contributed to and or edited 4 books in the fields of rural development, agricultural research and impact assessment.

Dr.David Nielson, The World Bank Group,representing the Dublin Process Steering Committee

Dr.David Nielson is an economist at the World Bank working on Agriculture and Rural Development in Africa. He led the development of the World Bank's support for the Comprehensive Africa Agricultural Development Program (CAADP) and led the establishment and implementation of the CAADP Multi-Donor Trust Fund as an instrument to support CAADP.

Dr. Nielson has for many years led the development and implementation of World Bank support for agricultural research in Africa. His work has focused on both national and

regional approaches to agricultural research. At the outset of CAADP, he worked very closely with FARA on the development of the Framework for African Agricultural Productivity(FAAP). He led development of strong partnerships in support of building the capacity of Africa's sub-regional agricultural research organizations (SROs) and for FARA. In this context the establishment of a portfolio of multi-donor trust funds that support regional agricultural research programs in East Africa (ASARECA MDTF), in West Africa (CORAF MDTF), Southern Africa (CCARDESA MDTF), and for FARA itself at the continental level (FARA MDTF). He also led the development of World Bank support for regional agricultural productivity programs across the continent (the WAAPP in West Africa, the EAAPP in East Africa, and the APPSA in Southern Africa). Together, these efforts have yielded investments of nearly US$1 Billion in regional agricultural research programs across the Continent.

Dr. Nielson has also worked extensively with agricultural extension and advisory service programs. He was one of the main developers of two of the most prominent and influential agricultural extension programs in recent years – Venezuela's Agricultural Extension Program and Uganda's National Agricultural Advisory Service (NAADS). Working together with many partners in the context of CAADP, he led the creation of a new continental institution for agricultural advisory services (AFAAS) and the establishment of a multi-donor trust fund to support AFAAS. He was also instrumental in the establishment of a global institution for agricultural advisory services (Global Forum for Rural and Agricultural Advisory Services – GFRAS) and served as its founding Chairman of the Board.

More recently, Dr. Nielson has turned his attention to the development of human capital for Africa's agricultural sector. He led a process to coordinate efforts to strengthen tertiary agricultural education in Africa – a process which led to the mainstreaming of the human capital topic within CAADP as well as the establishment of a global partnership to support this effort.

Dr. Nielson was co-chair of "the Dublin Process" an initiative to strengthen collaboration and partnership between CAADP and the CGIAR. In this context, he served on a steering committee for the development of the Science Agenda for African Agriculture.

Dr. Nielson has worked on rural development at the World Bank for over twenty years – mostly in Latin America in the 1990s and in Africa since then. Prior to joining the World Bank, he held appointments at the Giannini Foundation at the University of California at Berkeley and in the Department of Economics at California State University at Hayward. He also served as an agribusiness advisor to senior management at Kraft, Inc., and managed a family farm in South Dakota. He holds a Ph.D. in Economics from the University of Chicago and a M.Sc. in Agricultural Economics from the University of Minnesota.

The FARA Team

Dr. Yemi Akinbamijo; Executive Director of FARA

Dr. Yemi Akinbamijo, a Nigerian national,is theExecutive Director of FARA, a position he has held since July 2013. He has spent three decades working in Africa and Europe in the domains of international agriculture, food and nutrition security and rural development. Before moving to FARA, Dr. Akinbamijo held several senior positions at the African Union Commission, Department for Rural Economy and Agriculture where he served as the as Chief Animal Resource Officer based at the Inter-African Bureau for Animal Resources and then as the Director of the Inter-African Phytosanitary Council based in Yaoundé, Cameroon, before taking on the position of Head of the Agriculture and Food Security Division in 2009. As the Head of this Division, Dr. Akinbamijo was in the frontline of the implementation of the Comprehensive African Agricultural Development Programme (CAADP) now operating in about 40 African Union Member States.

Dr. Akinbamijo holds a PhD in Agriculture and Environmental Sciences with specialization in tropical animal production from Wageningen University Research Centre in the Netherlands. As the Executive Director of FARA, Dr. Akinbamijo is a thought leader on agricultural research for development in Africa. He sits on numerous technical committees and governance bodies concerned with advancing science and innovation in African agriculture.

Dr. Irene Annor-Frempong:Science Agenda Task Team Leader

Dr. Irene Annor-Frempong, a Ghanaian national, is the Divisional Manager and Priority Leader for Integrated Capacity Development (ICD) at FARA. She is an Animal Scientist with focus on Research Methodology and has over 20 years of rich and wide experience as a research scientist, research manager and educationist. She currently leads the development and implementation of FARA's ICD strategy and continent-wide programs including the 'Universities, Business Research in Agricultural Innovation' (UniBRAIN). She currently leads FARA's effort in developing; a continental framework on 'Africa Human Capital for Science, Technology and Agri-preheurship for Food security' (AHC-STAFF), the Regional Mobility for Capacity Strengthening (ReMoCaSt) and the 'eCapacities' Africa Program.

She earlier led the program on 'Strengthening the Capacity of Agricultural Research and Development for Africa' (SCARDA). Dr Annor-Frempong serves on a number of Boards and Steering Committees of continent-wide and global initiatives including the G20 Tropical Agriculture Platform (TAP), the World Bank 'Africa Centres of Excellence' (ACE) program, the IFAD-ICRAF program on Alternative Biofuels Crops and is a Technical Committee member of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) as well as a member of a number of professional bodies.

Prior to joining FARA in 2008, she worked at the F. A. P. Research institute in Switzerland, IVO, Zeist in the Netherlands and as a senior lecturer and coordinator of research in tertiary education institutions in Ghana, Nigeria and Lesotho. Dr Annor-Frempong holds a PhD from the Veterinary School, University of Bristol, United Kingdom, an MSc in Animal Production Science from Wageningen University and Research in the Netherlands**,** an Honours B. Sc. Degree in Agriculture and a Diploma in Education from the University of Cape Coast, Ghana. She is married with three children.

Dr. Emmanuel Tambi: Science Agenda Task team member

Dr. Emmanuel Tambi, a Cameroonian national, is an economist and serves as Divisional Manager, Policy and Advocacy at the Forum for Agricultural Research in Africa (FARA) based in Accra, Ghana. He is responsible for developing strategic decision-making options for policy, institutions and markets; promoting policy dialogue on regional agriculture and trade issues; linking policy research results with policy-makers; and disseminating evidence-based information for policy formulation. He coordinates the African Agricultural and Food Policy Platform (AFAPP) whose mission is to promote evidence-based policies in support of food and agricultural productivity and competitiveness. He coordinates the research, extension and education components of the Comprehensive Africa Agriculture Development Program (CAADP).

Prior to joining FARA in 2008, he was Acting Head of Rural Economy Division at the African Union Commission (AUC), Addis Ababa, Ethiopia. Before that, he served as Senior Economist at the African Union Inter-African Bureau for Animal Resources (IBAR) and International Livestock Research Institute (ILRI) Nairobi, Kenya.

Dr. Aggrey Agumya: Science Agenda Task team member

Dr. Aggrey Agumya, a national of Uganda,and currently serves as the Technical Advisor to the Executive Director of FARA, a position he has held since 2008. He works closely with the Executive Director in support of issues that require his specific follow-up and provides technical advice to further the strategic agenda of Secretariat. He serves as the primary point of contact on several initiatives in which FARA is an important partner. Dr. Agumya moved to the Executive Directorate from the Coordination Unit of the Sub-Saharan Africa Challenge Programme where he served as a Programme Officer and was responsible for technical coordination of the Programme during its inception phase.

Prior to joining FARA in 2006, Dr. Agumya worked as a Geographic Information Systems analyst at the World Agroforestry Centre within its regional programme for Southern Africa coordinated from Harare, Zimbabwe where he was responsible for identifying priority geographical domains for out-scaling agroforestry technologies. He holds a PhD in Geomatics from the University of Melbourne, an MSc from the International Centre for Aerospace Survey and Earth Sciences (ITC) in Enschede, the Netherlands and a BSc in Surveying and Photogrammetry from the University of Nairobi, Kenya.

Prof. Monty Patrick Jones: Former Executive Director of FARA

Prof. Monty Jones, a national of Sierra Leone, is currently serving his home country as a Special Adviser to the President and the country's Ambassador-at-Large. Until he took up this appointment in August 2013, he served as the Executive Director of FARA. He assumed the function of Executive Secretary of FARA when the Secretariat was established in 2002. The position was renamed to Executive Director in 2007. He oversaw the transformation ofthe FARA Secretariat from a small project hosted by the FAO regional office for Africa into an organization of international repute.

Prof. Jones was awarded the World Food Prize in 2004 in recognition of his ground-breaking work that led to the discovery of the genetic process to create the New Rice for Africa (NERICA) which gives higher yields, shorter growth cycles and more protein content than its Asian and African parents. He was the first African to be honoured with this highly regarded prize.

Under Prof. Jones' leadership the FARA Secretariat coordinated the formulation of CAADP's strategy on agricultural research and extension (Pillar IV); the Framework for African Agricultural Productivity (FAAP) and several pan-African programmes aimed at addressing key constraints to agricultural productivity notably limited impact of research which is traceable to fragmentation of the knowledge system (research, extension, agribusiness, policy makers and end-users); weaknesses in human and institutional capacities; and limited access to knowledge and information. Key outcomes of these programmes are the integrated agricultural research for development (IAR4D) approach based on innovation platforms and has been widely adopted; the SCARDA and UniBRAIN models and RAILS country teams.

Prior to joining FARA, Prof. Jones spent 15 years as a researcher in the CGIAR system. He has served on numerous oversight and advisory bodies. He was the Chairman of the Global Forum on Agricultural Research from 2010 to 2013. He is currently the President of EMRC—a not-for-profit international organization committed to encouraging and facilitating private sector investment in Africa and especially in agribusiness.

Prof. Jones' outstanding contribution towards improving food security in Africa has been recognized through several other awards besides the World Food Prize. These include: the Golden Jubilee Presidential award conferred on him by the President of Sierra Leone in 2011; the Niigata International Food Award (Japan) in 2010; the insignia of the Grand Officer of the order of the Rokel conferred on him by the President of Sierra Leone in 2004; the National Order of Merit of Côte d'Ivoire conferred on him by the President of that country in 2001; four honorary doctorate degrees.

Annex 1: Timelines for delivering the Science Agenda

Date	Activity			Responsibility	Deliverables
Feb 2013	Finalise report of the TAG meeting			FARASec and Oversight Group	Report (Expert panel and oversight group TORs and composition, science agenda development process and structure) end of Jan
	Invite proposed expert panel members to join the panel			FARASec	Expert panel constituted (Feb 15)
	Contact and contract prospective members of the synthesis group			FARASec	Contracts (by Feb 22)
	Compile and assemble required documents			FARASec	Documents loaded on intranet site for science agenda expert panel (Feb 22)
	Convene orientation meeting of the synthesis group (5 days)			FARASec	Detailed action plan developed by synthesis group indicating any studies to be commissioned & TORs of e-consultation moderator (date to TBC)
	Designate FARA staff and research assistants from the Forum to support the team			FARASec	Support team for the Expert panel identified (TORs defined) (End of Feb)
March, 2013	Meeting in Rome (IFAD) with Science Agenda Chair/ Champion			IFAD, FARASec, World Bank, Prof. Mrema	Feedback from the Chair/Patron on process and methodology (Mar 19)
	Convene expert panel meeting			FARASec	Expert panel inputs on methodology and process (TBC)
	Discuss science agenda at FARA meeting to validate its strategic and operational plans			FARASec	Increased awareness among stakeholders about the science agenda (Mar 13-15)
	Commission any additional studies	FARASec	Contracts with selected consultants (TBC)		

Date	Activity	Responsibility	Deliverables
April 2013	Presentation of S3A to AU/CGIAR Consortium consultations in Dublin, April 12-13, 2013	Presentations prepared by Co-Chair, STEP coordinator, STEP members. Status: Completed and presentations made at AU/ CGIAR consultations	STEP members
April 14.	S3AA Discussion paper: Annotated outline and chapter outlines	Discussion paper: Annotated outline Status: Annotated outline prepared and Chapters allocated to STEP members as individual and teams.	STEP members
April 15.	Finalization of Methodology	Revised Methodology and Timeline (Inception Report) prepared and shared with STEP members Status: This document	STEP
April 17.	Methodology sent to EP, FARA	Inception report submitted. Status: This document	STEP leader
April 17-May 10.	Preparation and circulation of chapter drafts among STEP members	Drafts circulated among STEP members for comment (internal); drafts of individual chapters submitted to STEP Coordinator by May 10;	STEP members
May 17	Compilation of chapters into a single Discussion paper	Discussion Paper prepared and circulated within STEP for comments	STEP leader
May 19	Comments submitted to STEP Coordinator	Coordinator receives all comments from colleagues for inclusion as needed	STEP leader
May 22.	Draft Discussion Paper Completed	Discussion Paper Draft forwarded to Expert Panel (EP), Chair, and FARA Secretariat.	STEP leader, STEP members
May 27	S3AS3A Chair returns comments to STEP	Chair of Expert Panel provides feedback to STEP	Chair
June, 6-10	Expert Panel Meeting	Provide advice and inputs to Discussion Draft, identify commissioned studies needed	EP, STEP
June 10-24	STEP / EP	Finalize Draft Discussion Paper	STEP
June 10	FARA, STEP	Initiate commissioning and contracting of studies needed.	FARA Secretariat

Date	Activity	Responsibility	Deliverables
June 24-30	FARA Secretariat	FARA translate and distribute Draft Discussion Paper to Oversight Committee, Development Partners and other Stakeholders	FARA Secretariat
July 4- 14	Consultations	Consultations with technical officers at AUC/DREA and NPCA	FARA Secretariat and STEP, EP members as appropriate
July 14	Feedback on Draft Discussion Paper	Comments and suggestions from Stakeholders received	Oversight Committee and Stakeholders
July 15	Preparation Presentations during Science Week, Accra	STEP members prepare presentation to Oversight Team, EP, FARA GA,	STEP
July 16	Science Agenda Side Events at AASW	Full EP provides feedback on Discussion Paper and comment on Issues to be included in Science Agenda	STEP, Full EP,
July 20	Presentation of Science Agenda for endorsement	Presentation of Issues Paper at the AASW Business meeting (FARA General Assembly) for endorsement	FARA
July 20-August 5	Consultations	E-Consultations	FARA Secretariat, with guidance from STEP
July 31	Commissioned Studies	STEP receives commissioned studies	Contributing Partners, Commissioned Authors
Aug 21	Synthesis	STEP synthesizes input from e-consultations and commissioned studies	STEP, FARA Science Agenda Task Team Leader
Aug 1-25	Consultations, Focus Groups	STEP members, EP, FARA Secretariat present S3A issues as opportunity permits at stakeholder venues	EP, FARA consultingopportunistically
26-30 August	Design Science Agenda Paper	STEP meets to design and begin drafting Science Agenda Paper	STEP
23 Sept	Draft S3A Paper shared with EP	STEP shares Draft Science Agenda Framework Document with Expert Panel	STEP
Sept 26-28	EP discussion Draft S3A (Full Meeting)	Full EP contributes to design and content of S3A Paper	Expert Panel

Date	Activity	Responsibility	Deliverables
Sept 28-Oct 20	Finalization of Draft S3A	STEP incorporates guidance and finalizes Science Agenda Paper	STEP
Oct 21	Expert Panel Review and Endorsement	Expert Panel reviews and endorses the final draft on a no-objection basis	STEP and full EP
Oct 28	Finalization of S3A Document	STEP incorporates final observations and prepares document for FARA	STEP
Oct 28	Submission of S3A Framework Document	Co-Chair of EP submits S3A Framework Document to FARA Secretariat for submission to FARA Board (date in November to be announced)	Co-Chair of EP
Nov 2013	Submission to AUC	FARA submits S3A Framework Document to AUC	FARA Secretariat
Jan-July 2014	AUC processes	AUC engages its processes of popularization and dissemination of Science Agenda for Agriculture in Africa. AUC processes S3A Document for submission to Heads of State at AU Summit	AUC, FARA Secretariat
Nov 2014	AUC Submission to Heads of State	Science Agenda for Agriculture in Africa submitted to Heads of State	AUC

Annex 2: Road map and next steps for operationalisation

Post-Malabo operationalisation of S3A

Task	Timeline
1. Arusha Strategy and Implementation Roadmap Session for the Malabo Declaration and SCM-RF	18–22 August 2014
2. Magaelisburg NEPAD-RECs FARA Orientation Meeting on the CAADP Results Framework — Malabo Declaration	27–29 August 2014
3. Selection of additional champions for the S3A	November 2014
4. S3A operational strategy workshop	26 November 2014
5.S3A institutional arrangement for operationalisation workshop	27 November 2014
6. FARA Board Meeting	24–25 November 2014
7. AU Summit endorsement of Africa Accelerated Agricultural Growth and Transformation (3AGT) Operational Strategy and Roadmap Encompassing S3A	January 2015
8. Initial design and plan of "African Science for Agricultural Transformation Initiative" (ASATI) Fund	January 2015
9. Support and strengthening science and technology interventions for CAADP NAIPs implementation • Development of S3A 'country implementation guidelines' aligned to and driven by the country CAADP NAIPs from 2015 • Support SROs to align better with RECs agenda on CAADP, from 2015	2015
10. Establish S3A Steering Group and Institutional structure	November 2014 to January 2015
11. Verify the identified entry points for operationalising S3A in implementing CAADP and share through technology exchange platforms	Jan–March 2015
13. Craft S3A Results Framework derived from the above and strengthen partnerships for operationalising S3A.	January 2015
14. Adopt and promote reforms in the tertiary and Agricultural Extension and Advisory Services (AEAS) in Africa within a science and innovation system context	February 2015
15. Mobilise investments in public agricultural R&D in SSA to start implementation of the S3A	February 2015
16. Update and participation at CAADP PP	March 2015

Annex 3. Developing an Agricultural Science Agenda for Africa (ASAA)

Annexes to Summary of the ASAA Technical Advisory Group Meeting held in Accra on 21-22 January 2013

List of Participants

No.	Title	Name	Address	Position	E-mail address
1	Dr.	Beye Amadou Moustapha	Africa Rice Center (AfricaRice) P.O. Box 4029, Abidjan 01, Cote d'Ivoire Tel: +225 2022 0110	Senior Seed Expert, AfricaRice Regional Representative for West Africa	Amadou_beye@yahoo.com; a.beye@cgiar.org
2	Mr.	Maurice Lorka	African Union Commission P. O. Box 3243, Addis Ababa, Ethiopia +251 912613694 +251 115182876	CAADP Advisor Agricultural Research and Technology Dissemination	N'Guessanp@africa- union.org
3	Dr.	Yemi Akinbamijo	African Union Commission / FARA P.O. Box 3432, Addis Ababa, Ethiopia Tel: +251 115582585; +251 910883055	Head of the Agriculture and Food Security Division; Incoming Executive Director of FARA	akinbamijo@yahoo.com
4	Dr.	Joseph Methu	Association for Strengthening Agricultural Research in Eastern & Central Africa (ASARECA) Plot 5 Mpigi Rd P. O. Box 765, Entebbe, Uganda	Head Partnership and Capacity Building	j.methu@asareca.org
5	Dr.	Gabrielle Persley	Crawford Fund Australia, Canberra, Australia Tel: +61 738705504 / +61 416 211401	Scientist, Policy Research Director	g.persley@doylefoundation.org gabrielle.persley@gmail.org
6	Dr.	Dolapo Enahoro	International Livestock Research Institute (ILRI); P. O. Box 30709, Nairobi 00100, Kenya Tel : +254 204223000/ 204423001/714135697	Agricultural Economist	d.enahoro@cgiar.org dke3@cornell.edu
7	Dr.	Marcel Nwalozie	NEPAD Planning and Coordination Agency (NPCA) BP 10707 Dakar-Liberté CP 13022, Senegal Tel: +221 338590526 Fax: +221 3388322928; +221 776391397	NPCA, West Africa Regional Representative /Crop Scientist	Marcel.nwalozie@nepadbiosafety.net Marcel.nwalozie@gmail.com

No.	Title	Name	Address	Position	E-mail address
8	Prof.	Geoffrey Mrema	Sokoine University of Agriculture (SUA) P.O. Box 3233, Morogoro, Tanzania Tel: +255 754322036 Fax: +255 714622916	Professor of Agriculture Engineering	geoffmrema@yahoo.co.uk ; geoffmrema@gmail.com
9	Dr.	Harold Roy- Macauley	West & Central African Council for Agricultural Research and Development (CORAF/WECARD) 7, Avenue Bourguiba, Dakar, Senegal Tel: +221 774260141	Executive Director	h.roy-macauley@coraf.org secoraf@coraf.org
10	Mrs.	Kerri Wright Platais	World Bank Agriculture and Rural Development Department, Africa Region Tel: (202) 473-1504; Fax: (202) 473-8178	Senior Agricultural Specialist	kplatais@worldbank.org
11	Prof.	Monty Jones	Forum for Agricultural Research in Africa PMB, CT 173 Accra, Ghana Tel: +233 302 772823	Executive Director (ED)	mjones@fara-africa.org
12	Dr.	Aggrey Agumya	Forum for Agricultural Research in Africa PMB CT 173 Accra, Ghana	Technical Advisor to the ED	aagumya@fara-africa.org
13	Dr.	Emmanuel Tambi	Forum for Agricultural Research in Africa PMB CT 173 Accra, Ghana	Director, Advocacy & Policy	etambi@fara-africa.org
14	Dr.	Irene Annor- Frempong	Forum for Agricultural Research in Africa PMB CT 173 Accra, Ghana	Director, Capacity Strengthening	ifrempong@fara-africa.org
15	Dr.	Mathew McMahon *(Joined part of meeting by Skpe)*	World Bank Tel: +1 301-738-1191 Cel: +1 240-401-7157	Consultant	matthewmcmahon36@gmail.com

Workshop Programme

African Agricultural science agenda Technical advisory group (TAG) meeting 21–22 January 2013

FARA Secretariat, Accra, Ghana Draft Programme

Chair: Prof. Geoffrey Mrema;

Co-Facilitators: Kerri Wright Platais and Irene Annor-Frempong;

Rapporteurs: Emmanuel Tambi and Aggrey Agumya

Monday, 21st January 2013

Time	Programme Item	Resource Person(s)
0830:	Welcome and opening remarks	Monty Jones Geoffrey Mrema
0850:	Introductions Meeting objectives and process	Co-Facilitators
0920:	Background to the African agricultural science agenda Presentation on the Dublin Process and its work streams Presentation on the Science agenda	Aggrey Agumya
1030:	Discussion	Co-Facilitators
1100:	Break	
1130:	Characterizing Africa's agricultural science agenda Time horizon Scope of its content Format	Irene Annor-Frempong
1300:	Lunch	
1400:	Process for developing the Science Agenda Broad Methodology (Activities, Resources, Time lines) Oversight; role (TORs) and composition of the expert advisory group Assuring African ownership and adoption of the science agenda	Geoffrey Mrema
1530:	Break	
1545:	Process for developing the Science Agenda continued	Geoffrey Mrema
1630:	End of day 1	

Tuesday, 22nd January 2013

Time	Programme item	Resource person(s)
0830		Participants
1030:	Break	
1045:	Detailed work planning continues	Participants
1145:	Consolidation of detailed work plan	Co-facilitators
1300:	Lunch	
1400	TORs and functioning of the TAG	Geoffrey Mrema
1445:	Wrap up	Geoffrey Mrema
1515:	Closing remarks	Monty Jones
1530:	End of meeting	

Forum for Agricultural Research in Africa



The Dublin Process

Aggrey Agumya

FARA

Outline

- Background
- Rationale/Objectives
- Workstreams
- Progress to date
- Conclusions

Background ...1/3

- CAADP: Africa's agricultural development strategy
- Picked unprecedented momentum in 2009
- Science & Technology kick-started the agric. development engine;

  while socioeconomic, institutional & political conditions kept the engine running.

Background ...2/3

- Essential that CAADP takes full advantage of the kick-starting power of S&T
- Especially now at the planning stage: National agricultural investment plans
- CGIAR reform initiated in 2009
- Dissatisfaction with CRP development; does not adequately respond to research needs as reflected in NAIPs

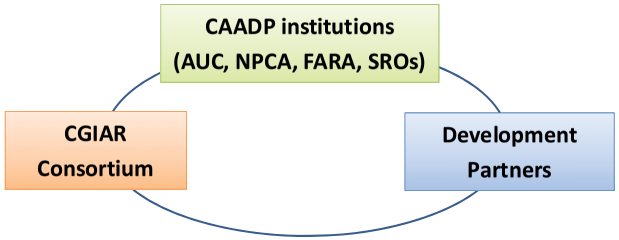
Background ...3/3

- CAADP planning did not take full advantage of the capacities in the CGIAR (skills and technologies)
- Outcome:
  - Relevance of CRPs undermined;
  - Efficiency compromised
  - Other benefits of coordination foregone
- Rationale for initiative to enhance CAADP – CGIAR alignment and partnership—Dublin Process

Dublin I (June/ July 2011)

- Launched the Dublin Process

Main actors



Dublin I

- Defined 4 work streams towards deepening CAADP – CGIAR alignment
- Governance arrangements (steering committee)

The initial workstreams ...1/2

1. Formulation of a Science Agenda for African Agriculture to identify:
   - Where advances in science are needed to achieve CAADP targets
   - What investments are required to make these advances possible
2. Supporting countries in development of programmes to implement their Agriculture Investment Plans developed through CAADP processes *[Productivity Workshops]*

The initial workstreams …2/2

- Development & use of mapping and analytical tools to facilitate programmatic alignment between CAADP and CGIAR research programmes at every level across the continent.
- MOU between AUC and CGIAR consortium

Dublin 2 (Sept 2012)

- Wider representation of the actors
- Took stock of progress on the 4 initial work streams and recommended next steps (e.g. TAGs)
- Additional workstreams:
  - Systematization of joint priority setting & programming between CAADP & CGIAR institutions
  - Designing & implementing actions to deliver on the G8 call for Technology Platforms to support scaling out of innovation

Achievements

- AUC – CGIAR MOU signed on 15 January 2013
- 2 productivity workshops organised (ASARECA & CORAF/WECARD)
  - enabled CAADP and CRP partners to increase awareness about each other's programmes
  - Highlighted opportunities for alignment of priorities
- Prototype for mapping planned R&D investments and innovation demands developed

Conclusions

- Essential for all R&D initiatives with regional reach to be aligned to CAADP
  - Need for reference to align to
- Need to manage perceptions that attention to CAADP – CGIAR alignment will be at expense of other actors
- African ownership and buy-in of the CAADP – CGIAR alignment is very crucial



Forum for Agricultural Research in Africa

An Agricultural Science Agenda for Africa

Irene Annor-Frempong

Outline

1. Context for Agricultural Science in Africa
2. Why Africa needs an Agricultural Science Agenda
   - Its purpose
3. Lessons from past attempts to develop a science agenda
4. Process for developing a science agenda
5. TOR of the TAG

Agricultural Science in Africa ...1/5

1. Role of science and technology in improving agricultural productivity is recognized
   - CAADP 2003; IAC report 2004; Commission for Africa 2005; WDR 2008, L'Aquila 2009
   - AU summit resolutions (July 2006 and July 2009), etc
2. Investment in agricultural S&T
   - increased by more than 20% during 2000–08
   - NEPAD target: Allocation of at least 1 % of GDP to R&D
   - In 2008, Africa spent $0.61 for every $100 of AgGDP on AR&D.

Agricultural Science in Africa ...2/5

3. Low adoption of technology

Region	Estimated number of varieties released, 1965-98	% area under modern varieties, 1998
Sub Saharan Africa	1,157	23%
Latin America	3,146	51%
Asia	2,229	83%
MENA	715	56%
All Regions	7,246	65%

- Has prompted Governments and Development Partners to lay emphasis on diffusion of technology

Agricultural Science in Africa ...3/5

4. Continental planning frameworks in place
   - Principles for guiding formulation of productivity programmes (FAAP)
   - Strategy for supporting countries & RECs to develop productivity investment plans & programmes
5. Comprehensive Priority setting at sub-regional level (ASARECA, CORAF/WECARD & CCARDESA)

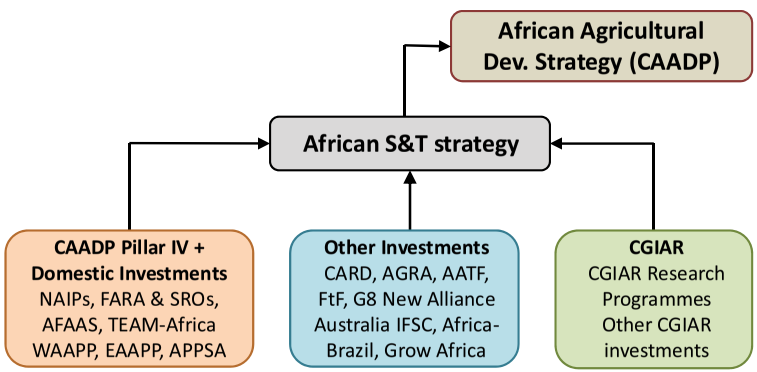
Agricultural Science in Africa ...4/5

6. An institutional architecture covering all levels *(regional, sub regional, national)* and integrated with complementary actors in the agricultural innovation system

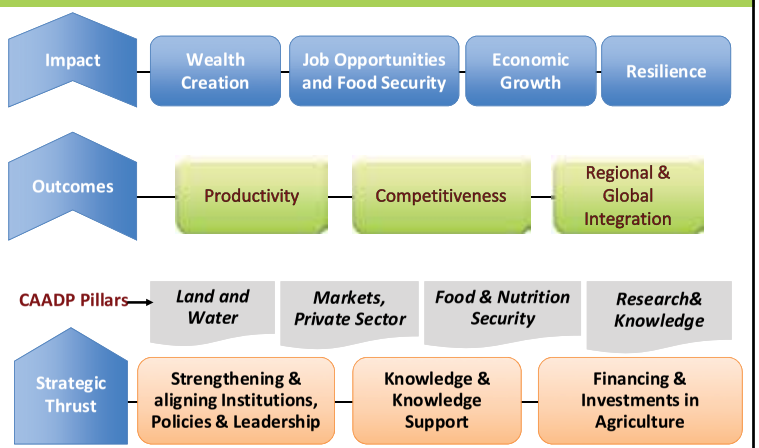
Regional	Sub regional	National
FARA, AFAAS, TEAM-Africa, ANAFE, PAFFO, PanAAC AUC, NPCA,	SROs, Ruforum, Subregional Fos, RECs,	NARIs, NFAAS, Higher Education, NFOs, etc MoA,
CGIAR		

Agricultural Science in Africa ...5/5

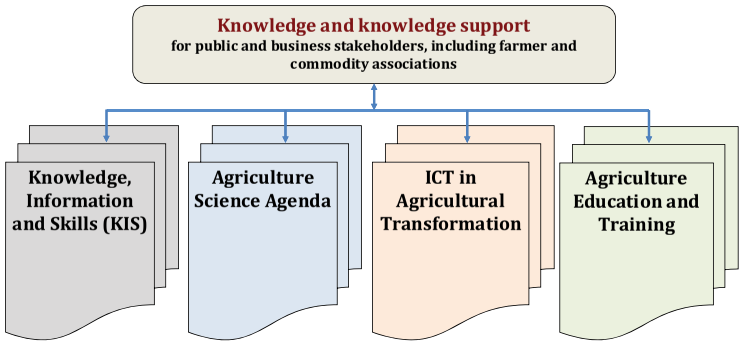
7. Several AR&D investment portfolios



Sustaining CAADP Momentum



CAADP's Strategic Thrust on Knowledge & Knowledge Support



What is an agricultural science agenda?

- A reference showing the science & technology Africa needs to apply in order to meet its development targets
  - Emphasis on what science
  - Some direction on what needs to be done to assure appropriate application of the science to achieve targets

Why does Africa need a Science Agenda for its Agriculture ?

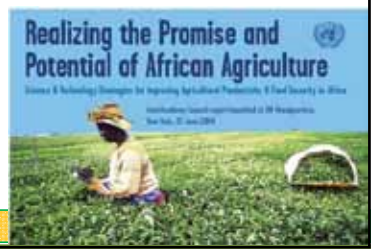
To enhance the efficiency + effectiveness in deploying S&T towards achieving development targets (impacts)

- Reduce duplication & strengthen synergies (e.g. CGIAR & NARIS)
- Assure that investments are directed at priorities & application of most relevant S&T → enhanced impacts
- Increase investments in S&T—to strengthen Africa's S&T base

Previous attempts to develop a science agenda …1/2

1. InterAcademy Council (IAC) Report (2004)
   - Initiated by UN Secretary-General in March 2002;
   - IAC requested to prepare a strategic plan for harnessing the best S&T to increase agriculture productivity in Africa.

- Report was launched in June 2004
- Limited impact. Why?



Previous attempts to develop a science agenda …2/2

2. International Assessment of Agricultural Knowledge, Science and Technology for Development

IAASTD

Initiated in 2002 by the World bank and FAO

Objective:

To assess agricultural knowledge, S&T in order to use it more effectively in achieving sustainable development

Report on SSA launched in 2008: also limited impact

Desired features of the science agenda

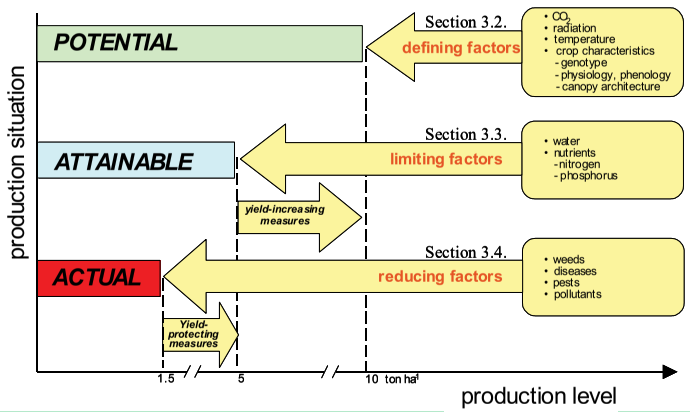
- Buy-in and ownership of its intended users
- Brief and concise
- Covers, short, medium and long terms
- A living agenda
  - (taking continuous and relevant inputs from foresight planning and mapping tools)

IAC report structure

1. Food Security in Africa
2. African Agricultural Production Systems and Productivity in Perspective
3. Science and Technology Options That Can Make a Difference
4. Building Impact-oriented Research, Knowledge and Development Institutions
5. Creating and Retaining a New Generation of Agricultural Scientists
6. Markets and Policies to Make the Poor Income and Food Secure
7. Strategic Recommendations

Annex B. Strategic Actions For Target Audiences

Production ecological framework



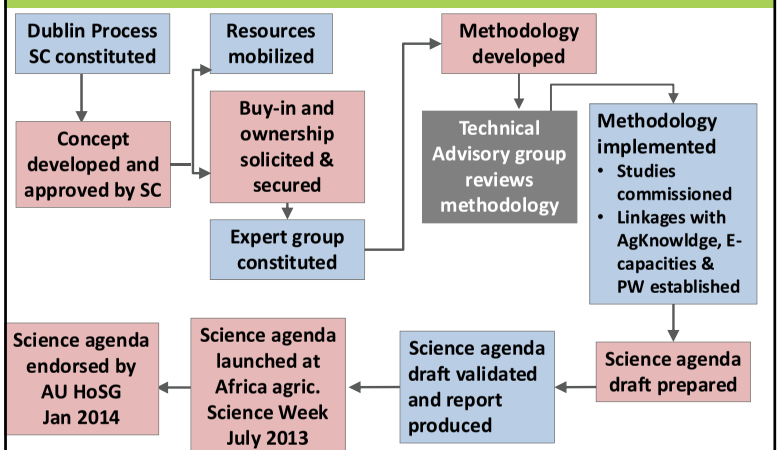
Framework for identifying science required

Outcome	S&T objective	Science (Short / medium/long term
Increase Productivity	↑Yield potential ↑Yield Gap ↑Labour productivity ↓Losses and waste	
Increase incomes	↑Profitability	
Improve nutrition and food safety	↑Nutrition ↑Food	
Improve the environment	↑Biodiversity ↓Land, water resources and marine degradation	
Enhance resilience	↑Resilience to shocks and stresses	

Framework for identifying science required

Functional level	Key areas	Science (Short / medium/long term
Production	• Systems (crops, livestock, food , breeding natural resources, • biotechnology, energy, mechanization, IPM	
Nutrition	• Quantity, Quality, security	
Post –production	• Logistics and supply, Markets, Processing, Food engineering, safety and standards • Bio-informatics, ICT,	
Knowledge generation and application	• Research. education, extension (practice & conduct)	
Policies, institutions and processes	• Research, Education, Extension • Public / Private	Capacities, institutional arrangement, enabling environment
Investments	• Domestic / External – Public / Private	

Process for developing the Science Agenda



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Defining methodology for developing a Science Agenda depends on:

- **Scope and content**
- **Available time**
  - Determines the kinds and level of analyses that can be accommodated e.g. foresight
- **Available resources**
  - Funding
  - Skills
  - References
  - Data and inputs e.g. from mapping tool, foresight studies

Forum for Agricultural Research in Africa 20

Terms of reference for TAG

1. Defining

- Scope and content of the science agenda
- Form and structure
- Methodology for developing the first version and subsequent versions

2. Reviewing drafts

Process for developing an Agricultural Science Agenda for Africa

Aggrey Agumya
FARA

Jan-13

Broad Methodology

How to assemble the Science Agenda's content

1. Procure and contract the writing team **mid February**
2. Agreement on content and structure **mid February**
3. Assembling of existing documents by the FARA Secretariat **mid February**
4. Desk Reviews completed **by 15 April**
5. Consultations / interviews completed by **31 May**
6. Any studies to be commissioned **31 May**
7. Prepare zero draft by **30 June** through
   - engagement with stakeholders (e-consultations and face-to-face meetings)
8. Prepare first draft and present it to the FARA Board **14 July**
9. Present first draft at AASW **20 July**
10. Submit report to DREA (in 4 languages) **15 October**
11. Launch science agenda at AUC in **Jan 2014**

Activities, Resources and Timelines

Activity	Resources	Date (2013)
1. Define content and structure	TAG	21 Jan
2. Review Existing Works		
• Details on content of this activity	TAG	22 Jan
• TOR of team of experts	TAG	22 Jan
• Nominate team	TAG	22 Jan
• Procure & contract team	FARA	18 Feb
3. Consultations / interviews	Team of experts	March/April
4. Any studies to be commissioned		
• Details on content of this activity	TAG	22 Jan
• TOR for consultants	TAG	22 Jan
• Nominate consultants	TAG	22 Jan
• Procure & contract consultants	FARA	18 Feb
5. Preparation of draft science agenda	Team of experts	30 May
6. Review and validation by key stakeholders	FARA/TAG	10 June
7. Finalise science agenda	Team of experts	30 June
8. Launch science agenda at AASW	FARA/Patron	15-19 July

Oversight and Assuring African Ownership

- **Oversight**
  - Dublin Process Steering Committee
  - Expert group (TORs and profile of members)
  - FARA governance
- **Assuring African Ownership of the Science Agenda**
  - Involvement of key African Institutions and constituencies at all critical stages
  - Definition of methodology; consultations; validation of draft; Launch

Writing panel

Nominations

1. Geoffrey Mrema (Chair)
2. Howard Elliot
3. Mandivamba Rukuni
4. John Lynam
5. Yihenew Zewdie
6. Janet Kalulu
7. Barbara Adolf

Target is to engage a team of 4 Experts

Nominations to the Expert Panel

1. Kanayo Nwanze
2. Geoffrey Mrema *(engineering)*
3. Lance O'Brien *(foresight)*
4. Yusuf Abubakar *(animal science, research management)*
5. Agnes Mwangombe *(soils, management)*
6. Stan Wood *(GIS, Water resources)*
7. Funke Cofie *(IWMI)*
8. Adrian Mukhebi *(Policy)*
9. Gabrielle *(Biotech, Strategic planning)*
10. Ndeye Coumba Fall *(Innovation systems)*
11. Siwa Msangi *(Policy/foresight)*
12. Mandi Rukuni *(Policy)*
13. Eleni Gebre Madhini *(Policy agribusiness)*
14. Jane Karuku *(agribusiness)*
15. Calestous Juma *(new harvest)*
16. Ravi Prabhu *(strategy, Forestry, Agroforestry)*
17. Mokhtar Toure
18. Adama Traore
19. Oumar Niangado *(Private Sector)*
20. Josue Dione *(Economist)*
21. Yihenew Zewdie
22. Jack Eckebil *(Farmers)*
23. Florence Wambugu *(Biotech)*
24. Ruth Oniang *(Nutrition)*
25. Margaret Kerembiu
26. Judith Francis *(S&T, Innovation systems)*
27. Ravi Prabhu *(strategy, Forestry, Agroforestry)*
28. Siwa Msangi *(Economics, policy, foresight)*
29. Carlos Sere *(Strategy, livestock, economics/policy)*
30. Gabrielle Parsley *(Policy, Biotechnology)*

Framework for defining 'what science' options are required for impact

Outcome level	Functional level	Key areas	What Science options (Short / medium/long term
Increasing GDP, ensuring sustainability			
- Increase Productivity - Increasing incomes - Improve the environment	Production	• Systems (crops, livestock, food , breeding natural resources, • biotechnology, energy, mechanization, IPM	
- Improve nutrition and food safety	Nutrition	• Quantity, Quality, security	
- Increase Competitiveness and Markets	Post –production	• Logistics and supply, Markets, Processing, Food engineering, safety and standards • Bio-informatics, ICT,	
Knowledge generation and application	Knowledge. Information and skills	• Research. education, extension (practice & conduct)	
Capacities, institutional arrangement, enabling environment			
Increase integration at national, sub-regional and regional levels	Policies, institutions & processes	• Research, Education, Extension • Public / Private	
	Investments	• Domestic / External – Public / Private	

Annex 4: Presentation by EP Chair – Dr Kanayo F Nwanze in Rome

TOWARDS AN AGRICULTURAL SCIENCE AGENDA FOR AFRICA (S3A)

Shaping the Future of African Agriculture Together:
"Building the case for enhanced support to ARD"

Opening Speech by IFAD President
Kanayo F. Nwanze

Rome
19 March 2013

Mr Co-Chair Geoffrey Mrema,
Distinguished members of the S3A Expert Panel,
Ladies and gentlemen

1. Let me start by thanking FARA and its associated constituencies for inviting me to chair and champion the development of a brand new Agricultural Science Agenda for Africa. This is a responsibility that I have accepted with pleasure and with much resolve as I believe it is an opportunity for us to collectively make the case for enhancing support for ARD on the Continent.

Welcome Remarks

2. I would like to warmly welcome all of you to IFAD Headquarters. It's good to be among many of my former colleagues and friends from the global and African agricultural research community. As you know, I spent a good part of my career in agricultural research, as a research scientist and manager with the CGIAR in various parts of the developing world, before I took over as Director General at AfricaRice.
3. Many of you would remember that it is during my tenure as DG at AfricaRice that I oversaw the development and promotion of the NERICAs – New Rices for Africa. I will come back to this topic later – but, meanwhile, I'd like to take this opportunity to acknowledge my good friend, Monty Jones, the outgoing Chair of FARA, for his work on the NERICAs, which earned him a place in the history books as the first African scientist to be awarded the World Food Prize. Unfortunately he cannot join us in this meeting as he is taking up an important new assignment in his country as we speak.
4. The role you have accorded me as the chair of your Group, is an acknowledgement of the efforts that are associated with the promotion of science and innovation for impact. I have spent a significant part of my career precisely walking this talk – as a scientist and now as a development practitioner. I am, therefore, delighted to open today's deliberations – as we launch the process of charting a new Agenda for African Science – one which should spawn innovations worthy of not just another, but several more World Food Prizes!

The Challenge We Should Set For Ourselves

5. At the outset, let me state that the challenge we are seeking to address through the new Science Agenda is not about enriching the technology shelf and it is not about prize-winning research - I firmly believe that, ultimately, it will be about the translation of the Science Agenda into results and impact.
6. The Science Agenda that we are about to develop should be the product of the finest minds (many in this room today) who can bring the best knowledge, vast experience in ARD relevant to the continent and its people. The Agenda would necessarily need to be suitably enriched and ground-truthed

through a series of extensive multi-stakeholder consultations. This iterative process is expected to culminate in my making the case with African Heads of State, on the basis of the promise of the Science Agenda we develop collectively, formobilising much greater resources for African Research for Development – than what is allocated today.

7. It is then that our real challenge will actually begin…..

Realizing the Challenge

8. The scale of the challenge before us is significant.
9. For a few years now – the statistic for poor and hungry people in the world today remains stubbornly stuck at around one billion. By many accounts, while MDG1 was delivered on throughout most of the developing world, in Africa, the progress has been mixed. Transforming the future of poor African women and men – and increasingly, its youth, is no mean feat.
10. Indeed, volatile food prices, population growth, low agricultural productivity and the potentially devastating effects of climate change, make it a particularly overwhelming challenge. In the context of climate change, we have the worrying expert predictions of rising temperatures (of an average of 4 degrees replacing the previously optimistic 2 degree-increase scenarios).
11. Now, severe water shortages are further projected to hit the African continent, where approximately 95 per cent of agriculture depends on rainfall. Erratic rains and prolonged dry spells throughout Southern Africa have resulted in declining maize production. The prolonged Sahelian food security crisis is more a reflection of the region's chronic, long-term vulnerability than the result of a sudden, short-term shock such as a single drought in 2011.
12. However, food insecurity in West, Central and Eastern Africa is also exacerbated by conflicts. It means more and more refugees migrating to areas with already stressed local food systems. Mali, the Democratic Republic of Congo and Somalia are a few cases in point, where conflicts have almost totally choked agricultural and livestock production activities, markets, and trade flows depriving millions of their livelihood, further limiting food access and availability.
13. So – as I said – the challenge of securing a more prosperous future for Africa's poor and hungry is daunting.
14. But it is not insurmountable.

The hope for Africa's agricultural development

15. Among the developing regions of the world, sub-Saharan Africa is perhaps the only region where the long-run total factor productivity growth in agriculture has remained below one percent a year over the past several decades. Pockets of rapid growth in Africa are now not just the result of farmers' expansion of area under cultivation but now, increasingly linked to yield increases and increased productivity from use of fertilizers. IFPRI and others have shown that this provides great potential for Africa to accelerate its growth and transform its agricultural sector.
16. I do not have to tell this audience that investments in agriculture—especially in agricultural research and innovation—have been shown to play an especially important role in raising agricultural productivity. Research-led solutions have helped overcome constraints posed by increasingly scarce resources such as land and water, and improving economic efficiency in the use of fertilizers and pesticides and better, integrated management of crop-livestock systems.

The Potential of agricultural research

17. Agriculture research is fundamental to meeting today's challenges. Agricultural research, which so successfully drove the first Green Revolution in Asia, is now driving a comparable technological

revolution in African rice. Many of us have high hopes from realising the potential of the investments in AGRA, the CAADP Pillar IV, the Dublin Process, the Multi-Donor Trust Fund supported agenda of FARA, and the Sub-regional Organizations.

18. AR4D can ensure that poor rural people, whose lives and livelihoods depend on the earth's productive capacity, have the means to produce more and to produce it better. How else will we be able to develop and diffuse innovative and climate-smart solutions, such as seeds that are more tolerant to drought or to floods or resilient to salty soils, in order to assist resource-poor farmers?
19. So, what kind of Good-Science based solutions can we suggest for a future agenda? Let me put on my hat of IFAD President and proudly mention two examples with which IFAD was associated: As I already mentioned, NERICAs were developed through pioneering research at AfricaRice.
20. With the support of IFAD and others there are now hundreds of new NERICA varieties, which combine the hardiness of local African rice species with the high productivity of Asian rice that have been tested and have shown good adoptability and high performance. Among NERICAS' features they mature up to 40 per cent more quickly than traditional varieties, taking only 90 to 100 days from planting to harvest.
21. Another outstanding success which IFAD was the first donor to support was the Africa-wide Biological Control Programme. It was a particularly ambitious and successful control programme – and one that I know very well, as many of you know.
22. Through IFAD-funded research into a natural predator of the cassava mealybug in South America, at least 20 million lives in the entire cassava belt of sub-Saharan Africa were saved, for a total project cost of only US$20 million. In other words, for every dollar invested one life was saved. This is what impact is all about, I'm sure you will agree. And, you will understand, therefore, why agricultural research for development is an issue that is particularly close to my heart.

What kind of a Science Agenda do we need?

23. Some 80 percent of food production in Africa comes from smallholder farms. With effective agricultural research, the smallholder farmers of Africa can increase their productivity and so reduce their vulnerability. With greater and higher quality yields, they can even start producing a surplus to sell at local markets, benefiting not only others in their communities but also their own financial security.
24. As we chart the upstream and downstream science agenda, one of our aims should be to transform smallholder agriculture into successful rural businesses that are profitable and in which agricultural surpluses can be marketed. These rural businesses can drive economic growth; they can provide a career opportunity for Africa's youth; and they can mean a pathway out of poverty.
25. Farming in Africa does not have to be the domain of the poor. Our image of farming doesn't have to be the farmer with a hoe, with a baby on her back. Farming, by definition, is a business. And every successful business requires investment – sustained investment.
26. Therefore, given that agricultural research is the foundation for agricultural development, our challenge is in generating pro-poor technologies for the largest investor in agriculture in Africa – smallholder farmers.

Investing in multi-stakeholder AR4D: Sustaining the momentum

27. As I have just said, our key partners are the poor rural people themselves and their communities and organizations. But we at IFAD also have a long and fruitful partnership with other important stakeholder constituencies – through the GFAR and platforms such as FARA – both of which were created with IFAD playing a key sponsoring and facilitating role.

28. I am pleased to see the sustained momentum of the Dublin Process of alignment of the CG research agenda to the CAADP investment Plans. This S3A definition exercise is an intrinsic mutually-supportive link to that exercise.

29. Currently, average global expenditure on agricultural research as a percentage of GDP is less than one percent. And, the most recent World Bank data shows that in most developing countries it's even lower than half a percent. This is simply not good enough. Investment in agricultural research needs to increase, especially in Africa.

30. Over the past three decades agricultural productivity in Africa has been stagnant or in decline. Why? Because of years of under-investment in the sector. Agricultural spending to total government spending by developing countries declined by a third in Africa. This is one issue which I have repeatedly raised, and will continue to raise, at every opportunity I get with African leaders. In terms of external support for Africa, last year in May the G8 made new commitments to support food and nutrition in Africa. They joined leaders of African countries and the private-sector to support the New Alliance for Food Security and Nutrition.

31. Over the course of three and a half decades, IFAD has invested over US$ 250 million in the CGIAR. We have partnered with the European Commission which has invested another US$ 300 million in the CGIAR through IFAD. In the past decade we have been active in the CG Executive Council and, through our co-leadership of the Change Steering Team we were strongly engaged in the CGIAR Reforms

32. Donors have shown a significant increase in funding in a Post-reforms CGIAR. The CGIAR Research Programmes (CRPs) are all about partnerships which go well beyond research at CG Centres.

33. In line with these developments, within IFAD, I have approved the establishment of a new Grant window dedicated to investment in the AR4D – involving all stakeholders in the global agricultural research system. A significant part of the resources under this IFAD window will be available for investment in research in sub-Saharan Africa – the region where greater investment is required the most.

Conclusion

34. In closing, if there is one message I want to get across today, it's what I have said on previous occasions at many global platforms: Declarations, Science Agendas, and pledges of higher commitments do not and will not, by themselves, feed hungry people.

35. Agricultural research investment and related institutional and human capacity development need to be planned in a way that is coherent with overall national strategies for economic development and poverty reduction. In the case of Africa, the CAADP Investment Plans are a starting point. The new Science Agenda will need to be related to and embedded in that development context – to have any chance of achieving impact.

36. As your Chair, it is my duty to remind all of us that what will count in our work over the next year is our ability to come up with a practical, broad partnership-driven agenda, - one which will allow agricultural science to transform the lives of poor rural people.

37. Thank you.

Annex 5: Presentation by Carlos Seré on the Science Agenda, at the Rome Meeting

Towards an Agricultural Science Agenda for Africa (S3A)

Shaping the Future of African Agriculture Together:
"The case for enhanced support to ARD"

Talking Points
By
Carlos Seré
Associate Vice President,
Strategy and Knowledge management
IFAD

Rome, 19 March 2013

Mr. President and Chair,
Dr. Geoffrey Mrema Co-Chair,
Distinguished members of the Expert Panel on the Agricultural Science Agenda for Africa
Colleagues and friends,

Introductory remarks

First, let me add my own words of welcome to you all, to IFAD HQ. Kanayo has set the scene and tone of the meeting charting the challenge before us. And, Irene has reiterated the objectives for this Reflection and Planning Meeting.

The good news is that we are not starting from ground-zero. We have already started in earnest to develop an outline for what the Science Agenda might look like. I believe that the FARA-hosted meetings in Accra in January and last week were highly productive and I look forward to the next agenda item on the main outcome from that meeting – The evolving Outline of the Science Agenda.

I have had a preview of that Outline. I see that it is comprehensive and indeed a very much expanded Outline, covering the full spectrum of Science topics. Without pre-empting what Geoffrey will present, I would like to just put on the table a few issues of my own. My comments and suggestions focus on Chapter 3 of the initial January meeting-outline: "The conditions for successful operationalization of the science agenda".

I will, thus, try to complement Kanayo's message and the content of the of the Accra outline, in an attempt to ensure that we cover all our bases and build something that's relevant, fundable, implementable and holds the promise of Pro-poor impact.

In this context, I have some points to offer for reflection during this meeting:

1. The "What" should be linked to the "how to": My first concern is that while we will definitely need to be exhaustive in the scope and coverage of the thematic areas and reflect the relevant agendas of all the key research constituencies and the type of research required, we also need to give space in the Agenda to the enabling conditions to increase the investment in science and the impact of science on development.
2. Mixed evidence: Despite the bad news we keep hearing about African agriculture, during the past 5 years the performance is optimistic: Kanayo mentioned that the African Rice revolution is happening. Last week's Economist carried a full feature on Emerging Africa. The continent is on a path of transformation. IFPRI has reported that from 2006 to 2011, annual agricultural growth was strong

in a number of African countries: approximately 12–13 percent in Angola and Liberia; 7 percent in Botswana, Ethiopia, and Malawi; 5 percent in Rwanda; and 4 percent in Ghana and Tanzania. This growth record was the result of higher investment in agriculture: increased use of fertilizer and technological innovation: the adoption of high-yielding crop varieties and improved crop management were key. AfricaRice states that 71% of the increase in paddy rice production (now comparable to cereal growth rates in Green Revolution a la Asia) can be explained by yield increase – a clear research-led outcome.

3. So, technology is key, but we must not underestimate the enabling power of macroeconomic policies – which the new Science Agenda must highlight. Enabling conditions have a great influence over final outcomes: While poverty rates have declined in the countries I mentioned just now, the yield gaps in SSA are enormous – an index of a weak enabling environment for technology transfer and efficient knowledge flows. It is often more about price policies; market-infrastructure for inputs and outputs or for rural finance.
3. In Africa, rates of hunger and malnutrition remain high – revealing very clearly that higher agricultural productivity and incomes does not always translate into positive nutritional and health outcomes, nor is higher agricultural intensification and productivity growth necessarily the preservation of the natural resource base. And the region is extremely vulnerable to other bio-physical and social conditions: weather shocks and conflict.

Let me now make some concrete suggestions on how we can organise the content of some chapters/sections of the Science Agenda:

1. Once the Agenda is set we need to be fully on top of how we organize its implementation architecture. Among the ingredients Science partnerships with across various stakeholder constituencies would be fundamental to delivering the transformational potential of science and technology in rural development. Kanayo has already mentioned partnerships with the rural communities; and partnerships with the private sector. Working with development partners we can optimize the R&D system; we can promote scaling-up innovations; and we can deepen our learning and share our growing knowledge.
2. This section could also discuss partnerships between NARS (as a system which goes beyond NARIs alone), the SROs, the CGIAR, ARIs, civil society, the commercial sector and agricultural universities. Mapping of activities, potentially annual stripe reviews on specific topics every year looking at activities of all partners (could be co-organized by a cross-cutting Pan-African platform FARA, CGIAR, or RUFORUM and so-forth).
3. The institutional capacity issues are absolutely key to improve the efficiency of the present resources and to attract additional human and financial resources to the African agricultural science enterprise. Here we would need to discuss the nitty-gritty issues such as: -
    i. How do we attract and retain good quality staff? This is much linked to supporting and equipping research institutions adequately, through good HR management - undertaking performance assessment, encouraging voluntary staff mobility, recognising and awarding good performance and achievement of research impact – through technology generation or diffusion as Global public goods, through publications.
    ii. Continuing on human resources, what is the role of the Diaspora in reversing the brain-drain that depleted Africa of many of its well-trained scientists? Is there a creative way of harnessing some of that human capital to bring back the potential benefits of its influence on African Science? Could we forge twinning arrangements between ARIs and Scientific institutions?
    iii. We may need a separate section on South-South and triangular cooperation in agricultural research. There are significant opportunities for strategic partnerships involving traditional ODA, philanthropy, regional university networks, etc. This can be useful in mobilizing and sustaining

support for agricultural science. Here, there are number of modalities and funding policies of various donors which can be deployed. For instance, we should be open to pluralistic approaches in funding of NARS (unrestricted core versus project-based), competitive calls for proposals.

iv. In terms of new approaches to resource mobilisation we should describe innovative instruments such as pull mechanisms – which can provide powerful incentives to draw in the private sector (currently virtually absent in AR4D except via lame CSR vehicles or philanthropic initiatives) to be sources of innovation, where traditionally only Public-spending-dependent NARS push often sub-optimal technologies that do not find adoption. One modality to explore is matching grants for the Private Sector. Other sources to explore could include sectoral levies or in IFIs such as IFAD the synergy between its grant and loan instruments – each providing a mutually-supportive environment for simultaneous or sequential technology development; application and scaling-up prospects.

v. These modalities are conducive for managing infrastructure requirements – as these become essential to a multiplicity of stakeholders and comes with its own incentive framework – through pooled arrangements and shared facilities (such as ex situ gene-banks) for example with Centres of excellence – eventually as a global public good.

vi. How do we draw the balance between science and innovation? What type of science should we prioritise if we have to? What is the balance we must adopt between pilots and incubators and translational science? We can draw on our experience and the lessons learnt as a part of the CG transformation, towards a more Partnerships driven architecture of the CRPs. Traditionally, agricultural R&D has over-emphasized the "R" at the expense of adequate attention to the "D" context. Strategic partnerships with the private sector and civil society can redress the balance. The private sector can help drive the skills and technologies needed for post-production activities, such as processing, value-addition, storage, and marketing.

vii. Kanayo mentioned the need to change the face of Agriculture in Africa. Agriculture is not a popular subject of choice in Universities – we need curricular change. How do we bring more visibility for agricultural science in Africa and political support? Awards like the World Food Prize, an Annual AU report on African Agricultural Science with statistics and metrics, a regular Peer review of national agricultural research systems along the lines that the erstwhile ISNAR used to do, might help with improving the way in which Agricultural Sciences are regarded in the continent. To support these efforts, we also need to link our existing political and monetary commitments to agricultural development and agricultural research, in order to capture the complementarities of the agricultural research for Development agendas.

Overall, I think these are the critical high-level issues which set the conditions and enabling environment for Agricultural Science to function effectively. These are closer to the issues of mobilising resources for Science and the management of it. These are, indeed, the main areas where the impediments lie - the type of issues heads of state might want to pronounce themselves. It's about an improved Science System and not about suggesting that crop A is more important than crop B or indeed livestock X! In fact, if the science is functioning well these decisions should largely be left to the scientists and their research managers and not be micromanaged by others!

Finally, let me turn to Kanayo's reminder: the challenge of realising the Science Agenda when we are finally done articulating it.

The questions that we should be thinking about even if we do not fully define our answers by the end of today:

How is this document going to influence things on the ground? We should think beyond the milestone when Kanayo presents it to the AU heads of state and will receive endorsement for it. What happens then? Should we develop an appropriate communications strategy which will attract development donors and investors to buy into this agenda? How do we then engage them to ensure that the product has any traction? How, then, will this drive any change of priorities at any agency, NEPAD/CAADP, national, FARA/SRO or via CGIAR and GFAR and, of course, the Dublin Process? What is the mechanism through which the new Science Agenda will bring about the Science-led change?

Kanayo's statement today was entitled: „Shaping the Future of African Agriculture Together: "The case for enhanced support to ARD". So, he was very clear about one important expected outcome of this initiative. This relates to the concrete policy settings needed and if the process is successful could lead to specific policy decisions which heads of state of the AU could endorse.

At the highest level one could aim to get heads of state to endorse a policy such as "3% share of agricultural GDP to be allocated to agricultural science" in a way similar to the target specified in the Maputo declaration. We could have FARA and others (e.g., the ASTI) monitor and report on an annual basis (IFPRI could help).

Why do I think this is feasible? By the most recent accounts a number of countries in Africa have made noteworthy progress transforming agriculture into a more productive sector and with prospects of sustainability. While agricultural spending, including investments in agricultural research in Africa has mostly not matched the ARD investment growth rates of emerging economies such as Brazil, China, and India, still a handful of African countries did meet the Maputo Declaration target of agricultural spending, 10 percent of the national budget.

And, the budgetary resources for this are within the reach of many emerging African countries. Unfortunately, they have tended to use increased agricultural spending to subsidize inputs and food, leading to trade distortions; overuse of fertilizer, water, and wasteful energy utilization. These resources were expended at the cost of more efficient and productive investments in areas such as agricultural research and development (R&D), irrigation, and rural infrastructure.

So, there is scope for harnessing the increased predisposition for agricultural spending, towards a sharper investment focus in ARD. Indeed, our Chair can make strong a case for this budgetary reallocation (with all its promise for efficiency and productivity gains) at the High-level AUC Summit-platforms where he will present the Science Agenda we are about to start developing.

Acronyms and abbreviations

ARD	Agricultural research and development
ASARECA	Association for Agricultural Research in East and Central Africa
AU	African Union
AUC	African Union Commission
BeCA	Biosciences eastern and central Africa
CAADP	Comprehensive Africa Agriculture Development Program
CCARDESA	Center for the Coordination of Agricultural Research and Development in Southern Africa
CGIAR	Consultative Group on International Agricultural Research
CORAF	Conference of African and French leaders of agricultural research institutes
CRP	CGIAR Research programmes
EAAS	Extension and Agricultural Advisory Services
ECOWAS	Economic Community Of West African States
FAAP	Framework for African Agricultural Productivity
FARA	Forum for Agricultural Research in Africa
FONTAGRO	Latin American Regional Fund for Agricultural Technology in Latin America
GM	Genetic modification/ modified
ICT	information and communication technology
ILRI	International Livestock Research Institute
NARS	National Agricultural Research Systems
NEPAD	New Partnerships for African Development
NGO	Non-Government Organisations
NPCA	NEPAD Planning and Coordinating Agency
NRM	Natural Resource management
OG	Oversight Group
RECs	Regional Economic Communities
S3A	Science Agenda for Agriculture in Africa
SRO	Sub-Regional Research organisations
TAG	Technical Advisory group
WAAPP	West Africa Agricultural Productivity Programme

About FARA

The Forum for Agricultural Research in Africa (FARA) is the apex continental organization responsible for coordinating and advocating for agricultural research-for-development. (AR4D). It serves as the entry point for agricultural research initiatives designed to have a continental reach or a sub-continental reach spanning more than one sub-region.

FARA serves as the technical arm of the African Union Commission (AUC) on matters concerning agricultural science, technology and innovation. FARA has provided a continental forum for stakeholders in AR4D to shape the vision and agenda for the sub-sector and to mobilise themselves to respond to key continent-wide development frameworks, notably the Comprehensive Africa Agriculture Development Programme (CAADP).

FARA's vision: Reduced poverty in Africa as a result of sustainable broad-based agricultural growth and improved livelihoods, particularly of smallholder and pastoral enterprises.

FARA's mission: Creation of broad-based improvements in agricultural productivity, competitiveness and markets by continental-level strengthening of capacity for agricultural innovation.

FARA's value proposition: Strengthening Africa's capacity for innovation and transformation by visioning its strategic direction, integrating its capacities for change and creating an enabling policy environment for implementation.

FARA's strategic direction is derived from and aligned to the Science Agenda for Agriculture in Africa (S3A), which is, in turn, designed to support the realisation of the CAADP vision. FARA's programme is organised around three **strategic priorities**, namely:

- **Visioning Africa's agricultural transformation** with foresight, strategic analysis and partnerships to enable Africa to determine the future of its agriculture, with proactive approaches to exploit opportunities in agribusiness, trade and markets, taking the best advantage of emerging sciences, technologies and risk mitigation and using the combined strengths of public and private stakeholders.
- **Integrating capacities for change** by making the different actors aware of each other's capacities and contributions, connecting institutions and matching capacity supply to demand to create consolidated, high-capacity and effective African agricultural innovation systems that can use relative institutional collaborative advantages to mutual benefit while also strengthening their own human and institutional capacities.
- **Enabling environment for implementation**, initially through evidence-based advocacy, communication and widespread stakeholder awareness and engagement and to generate enabling policies, and then ensure that they get the stakeholder support required for the sustainable implementation of programmes for African agricultural innovation

Key to this is the delivery of three important results, which respond to the strategic priorities expressed by FARA's clients. These are:

> **Key Result 1**: Stakeholders empowered to determine how the sector should be transformed and undertake collective actions in a gender-sensitive manner
>
> **Key Result 2**: Strengthened and integrated continental capacity that responds to stakeholder demands within the agricultural innovation system in a gender-sensitive manner
>
> **Key Result 3**: Enabling environment for increased AR4D investment and implementation of agricultural innovation systems in a gender-sensitive manner

FARA's development partners are the African Development Bank (AfDB), Bill and Melinda Gates Foundation, BMZ (The Federal Ministry for Economic Cooperation and Development), the Canadian International Development Agency (CIDA)/ Department of Foreign Affairs, Trade and Development (DFATD), the Danish International Development Agency (DANIDA), the Department for International Development (DFID), the European Commission (EC), The Consultative Group in International Agricultural Research (CGIAR), the Governments of the Netherlands, Nigeria and Italy, the Norwegian Agency for Development Cooperation (NORAD), Australian Centre for International Agricultural Research (ACIAR) and UT Bank (Ghana). The World Bank.

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