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AFRICAN DEVELOPMENT BANK GROUP

Technologies for African
Agricultural Transformation

TAAT in 2018: Preparing For African Agricultural Transformation



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Executive Summary

This report provides information on the establishment of the Technologies for African Agricultural Transformation (TAAT) Program and its first several months of operation during 2018. TAAT is one of the flagship programs that arose from the High-Level Feed Africa Conference held in Dakar in October 2015 at the initiative of the African Development Bank (AfDB). The conference led to the formulation of the AfDB's Feed Africa Strategy, a bold initiative to transform African agriculture. The Feed Africa Strategy is made up of seven pillars within which specific programs are designed to address the various challenges of African agriculture and to meet the goals of ending hunger and malnutrition, eliminating extreme poverty and turning Africa into a net food exporter.

The TAAT Program is part of Feed Africa Strategy's Pillar I of increasing African agricultural productivity. Its developmental objective is to rapidly expand access to proven high yielding agricultural technologies to African smallholders by delivering these technologies as regional public goods, and rapidly scaling up access to them in a catalytic manner. TAAT assumes a commodity-based, value chain approach while also addressing key issues known to constrain African agriculture. The selection and validation of technologies to be included in the TAAT program and the management of partnerships required to scale up access to those technologies is done through a semi-autonomous "Clearinghouse". Overall, TAAT promotes agriculture as a business opportunity, welcomes all qualified technology providers, and ensures the inclusivity of women and young people in bringing about African agricultural transformation.

TAAT is a continental program whose approach to scaling technologies is based upon agro-ecological zones that spread across multiple African countries. Agricultural change is achieved through Commodity Technology Delivery Compacts composed of partnerships needed to deliver improved technologies at scale for a specific crop, livestock or aquaculture value chain. The implementation of TAAT

is led by the International Institute of Tropical Agriculture (IITA) in close collaboration with other centers of the Consultative Group for International Agricultural Research (CGIAR) such as AfricaRice, CIAT, CIP, ICARDA, ICRISAT, ILRI, IWMI and WorldFish, and some advanced technical institute such as AATF, FARA and IFDC. The implementation of TAAT is however built on widespread partnerships across Africa. In its first phase of operation, TAAT established fifteen Commodity Technology Delivery Compacts focusing on priority commodities of rice, maize, wheat, sorghum and millet, cassava, orange-fleshed sweet potato, high-iron beans, aquaculture, poultry, goats and sheep, and on key specialist services cutting across all or several commodities such as soil fertility management, water management, capacity building, policy support, youth in agribusiness and a response to the recent, ominous invasion of Fall Army Worm.

Management of TAAT is based upon the combined efforts of the Program Management Unit (PMU) and the Clearinghouse, and is supervised by a Program Steering Committee (PSC) providing guidance and oversight over TAAT program implementation. Actual technology delivery activities, including technology demonstrations and participation in technology dissemination campaigns, are carried out by the TAAT Commodity Technology Delivery Compacts. The PMU oversees day-to-day implementation of Program fiduciary and administrative activities and operates within IITA Headquarters in Ibadan, Nigeria. It ensures that Program operations comply with AfDB fiduciary and procurement rules and procedures. The Clearinghouse recommends which technologies should be disseminated and guides their deployment to scale in a developmentally and commercially sustainable fashion, facilitating partnerships and providing access to expertise required to design, implement, and monitor progress of program implementation. An eleven-member Program Steering Committee composed of distinguished agriculturalists and development specialists provides guidance and oversight over TAAT program implementation. The Commodity Compacts assemble needed technologies, provide information

and training in their application, and deploy them through country-level partnerships. This system serves to take modernizing agricultural technologies to scale in a unique and effective manner as evidenced by the rapid success of the Program in 27 countries at 565 sites within just a few months.

precautionary fiduciary procedures more understandable and less time consuming. The Clearinghouse has established an iterative review process of Compact applications and annual work plans, and organizes regular partnership events to ensure collaborative action.

The TAAT Program implementation procedures are necessarily flexible. The PMU serves as an intermediary with the AfDB on behalf of TAAT's implementation partners to make its complex,

This report describes the framework of TAAT implementation to meet its role within the Feed Africa Strategy, and some of its early successes, but its larger impacts will be described through future reporting.

TAAT Commodity Compacts

The overall goal of TAAT is to radically transform African agriculture into a competitive sector by deploying productivity enhancing technologies and focusing on nine commodity value chains.



This Compact is led by the International Potato Center (CIP) with partnerships in eight countries located in Central, East, Southern and West Africa.



This Compact is led by WorldFish and the through activities in five countries offering greatest opportunity and infrastructure to greatly expand and improve aquaculture.



This Compact is led by the International Center for Tropical Agriculture (CIAT) through partnerships in eight countries located in upland areas of Central, East and Southern Africa where bean production offers greatest opportunity.



The Wheat Compact is led by the International Center for Agricultural Research in the Dry Areas (ICARDA) with activities in seven countries including the East African Highlands, Southern Africa Plateau and Sahel.



The Rice Compact is led by AfricaRice and has established partnerships in 16 countries, mostly in West Africa where massive importation of rice occurs.



Poultry, Sheep and Goats are the three commodity value chains within the Livestock Compact led by the International Livestock Research Institute (ILRI) with strategic partnerships in seven countries.



This Maize Compact is led by the African Agricultural Technology Foundation (AATF) and IITA with partnerships in 12 countries located in Sub-humid climates of Central, East, Southern and West Africa.



The Sorghum-Millet Compact is led by the International Crops Research Institute for the Semi-Arid Tropics with national partnership in seven countries of the Sahel.



The Cassava Compact is led by IITA with partnerships in 15 countries of Central, East, Southern and West Africa.

Origin and Foundation of TAAT

When Dr. Akinwumi Adesina took office as the 8th President of the African Development Bank (AfDB) in September 2015, he opted to focus on five priorities known as the “High Fives”: 1) Power and light up Africa; 2) Feed Africa; 3) Industrialize Africa; 4) Integrate Africa; and 5) Improve the welfare of Africans. Moving quickly on the second priority, the AfDB organized in October 2015 the Dakar High Level Conference that was attended by 600 delegates including top Government officials (President Macky Sall of Senegal, Prime Minister Matata Ponyo Mapon of the Democratic Republic of Congo, Finance Ministers, Agriculture Ministers, and Central Bank Governors), representatives of development finance institutions, agencies and organization investing in African agricultural development, agricultural researchers, farmers organizations, private sector investors and entrepreneurs, and civil society. The conference produced an Action Plan for Agricultural Transformation in Africa stating the need *“to execute a bold plan to achieve rapid agricultural transformation across Africa through raising agricultural productivity.”* This Action Plan formed the basis for the formulation of the Feed Africa strategy that was approved by the AfDB's Board in May 2016.

The formulation of the Technologies for African Agricultural Transformation (TAAT) Program framework also started at the Dakar High Level Conference and followed a participatory and consultative processes. The other meetings that fed into the TAAT Program framework formulation include a workshop on the “Role of Agropoles and Agroprocessing Zones in Feeding and Industrializing Africa” at the AfDB's Headquarters in March 2016, country dialogue meetings on TAAT advocacy, and the TAAT Preparation workshop held at Ibadan (IITA), Nigeria in April 2016 with over 260 participants drawn from the private sector, farmer organizations, assorted value chain actors, NARES, government officials and parliamentarians, academia, FARA, FAO, Chambers of Commerce and Industry, AGRA, CG organizations (including the CG Executive Secretary and some DGs and DDGs), donor organizations and

women and youth groups. There was also a consultation with donors on 12 April 2016 at a side meeting during the TAAT Project Preparation Workshop. A consultation with stakeholders of youth engagement in agribusiness was held in Abuja also in April 2016 in the context of “ENABLE Youth”, another flagship program of the Feed Africa Strategy. At this venue, it became evident that there was great need to increase access to technologies increasing agricultural productivity to make youth-led agribusinesses competitive within African countries and internationally.

Finally, there were in-depth consultations with each of the CG centers leading research on each of the eight identified priority intervention areas. There was a preparation report-writing and fine-tuning meeting at Ibadan (IITA) in June 2016. Additionally, NARES and technology provider organizations were contacted in relation to the technologies they submitted for consideration and inclusion among technologies for deployment under TAAT. The AfDB's thorough project appraisal process took its course and culminated in the approval in November 2017 of the project titled: *Technologies for African Agricultural Transformation: Framework Program in Support of “Feed Africa”.* A month earlier, the Bill and Melinda Gates Foundation had agreed to award the International Institute of Tropical Agriculture (IITA) financial support towards the governance of the TAAT Clearinghouse on a proof of concept basis to determine whether it could serve as an honest broker in the identification and assessment of “proven” technologies and products that are ready for widespread dissemination through TAAT field campaigns and catalyze the scaling up of these technologies through country programs and private sector engagement.

Vision of success

TAAT is working to resolve the chronic food and nutritional insecurity across Sub-Saharan Africa, and to better position the continent within global agricultural trade. TAAT targets while ambitious (Table 1), are achievable through partnerships with country programs requiring access to high performance technologies, by leveraging increased

bio-fortification have become realized, and a new generation of improved varieties and breeds shall be made production mainstays through the TAAT program. The weak adoption of new agricultural technologies is not a result of their lack of efficacy, but is rather conditioned by the investment climate, the technology supply infrastructure, market access,

Table 1. Some of TAAT's outcome and impact targets by 2020 (extracted from AfDB's TAAT Framework Program Document).

Outcome/Impact	Target
Increase food production and reduced importation	17 million MT per year
Increased agricultural and export revenues	\$1.2 billion per year
Opportunities extended to small-scale farmers	10.4 million households
Reduced children's malnutrition and stunting	9.6 million healthier children
Increased rural employment from agribusiness	450,000 additional decent jobs
Economic empowerment of youth in agribusiness	5000 youth-led agribusinesses
Revitalized agricultural extension and national programs	3850 promotional campaigns

investment in agricultural development projects, and by engaging with the private sector to expand the reach of input and output markets. TAAT is a knowledge- and innovation-based response to scaling up proven farm technologies to African small-scale farmers by working to untangle and streamline the underlying complexities of technology supply and demand.

The TAAT Program aims to expand access to high yielding agricultural technologies by African smallholders that improve food production, assure food and nutritional security, and raise rural incomes. This will be achieved by delivering agricultural technologies as regional public goods and rapidly scaling up access to these technologies and to output markets with the surplus coming from technology adoption.

Sustainable technology interventions that overcome the chronic yield gaps are known and becoming increasingly available, especially for key staple crop and animal commodities. Many long-sought breeders' objectives in the areas of environmental stress tolerance, resistance to pests and diseases, and

policy support, and the effectiveness of national agricultural development agendas. TAAT will endeavor to obtain supportive policy decisions and a favorable regulatory climate that encourage crop and livestock technology campaigns directed toward resource-poor farmers.

Ultimately, sustainable technology adoption by small-scale farmers is demand-driven, and based upon confidence that modest farm investments will result in favorable returns and household well-being. Investment confidence is based upon market conditions and intelligence, access to reasonable credit and crop insurance, and accurate media and extension coverage of breakthrough management technologies.

TAAT will be considered successful if 40 million African smallholder farmers increase their agricultural productivity through the use of products, services and knowhow extended to them through platforms and pathways that TAAT will have helped to establish, strengthen or organize. At the end of the TAAT Program, these smallholder farmers should continue to be associated with sustainable input and output markets, have access to technology products

and know how required to substantially increase their productivity, generate increased income and benefit from better diets with improved nutrition. This will be achieved by incorporating TAAT promoted technologies into the national agricultural development agendas of African countries and into the marketing plans of public and private enterprises supplying products and services to the agricultural sector of African countries.

During its first year of operations, TAAT has positioned itself to make progress in all of these areas essential to Africa's agricultural transformation.



A farmer harvesting cassava in her farm

TAAT Program Implementation Structure

TAAT is a flagship program within the AfDB's Feed Africa Strategy aimed at doubling the productivity of African agriculture through the advancement of agricultural technology in a way that improves the competitiveness of agriculture to increase farmers' incomes, eliminate hunger, improve nutrition and make Africa a net food exporter. This goal is achieved by delivering regional public goods for rapidly scaling agricultural technologies across similar agro-ecological zones. This result is achieved through three principal mechanisms: 1) creating an enabling environment for technology deployment and adoption; 2) establishing an effective technology delivery infrastructure; and 3) raising agricultural production and productivity through strategic interventions that include improved crop varieties and animal breeds, accompanying good management practices and vigorous farmer outreach campaigns at the AfDB's Regional Member Country (RMC) level. The important roles of sound policies, empowering women and youth, strengthening extension systems and engaging with the private sector is implicit within this strategy.

The International Institute of Tropical Agriculture (IITA) has been selected as the Executing Agency of the TAAT program in close partnership with several other centers of the Consultative Group for

International Agricultural Research (CGIAR) and some specialized agencies acting as Implementing Agencies for specific components of the program. In the first phase of TAAT, Implementing Agencies include the African Agricultural Technology Foundation (AATF), AfricaRice, the Centro Internacional de Agricultura Tropical (CIAT), the Centro Internacional de la Papa (CIP), the Forum for Agricultural Research in Africa (FARA), the International Center for Agricultural Research in the Dry Areas (ICARDA), the International Center for Research in Semi-Arid Tropics (ICRISAT), the International Fertilizer Development Corporation (IFDC), the International Livestock Research Institute (ILRI), the International Water Management Institute (IWMI), and WorldFish.

With so many implementing agencies, a mandate over more than a dozen commodities and interventions in all member countries of the African Development Fund, a robust program management structure was a necessity. The implementation of TAAT is overseen by a Regional Technology Delivery Infrastructure made up of four entities: the Program Steering Committee (PSC), the Clearinghouse, the Program Management Unit (PMU) and the Commodity Technology Delivery Compacts. The role of these entities is described below.

The TAAT Program Steering Committee (PSC)

The PSC is the governing body of the program and the highest decision-making organ of TAAT. The PSC provides strategic leadership and governance and makes key policy decisions that guide the Clearinghouse in the technical coordination of the program and its key function areas. These include developing mechanisms for reaching millions of farmers and other value chain actors with proven and productivity-enhancing technologies and screening new technological additions to TAAT from any source. The PSC guides overall program development and partnership strategies to help optimize the impacts of TAAT technologies scaling up.

In March 2018, eminent agriculturists, policy makers and entrepreneurs matching profiles provided in the AfDB's TAAT Program Framework Document were invited to join the PSC. Six men and five women made up the first team in the PSC; their profiles and photographs are shown in Box 1. An inaugural meeting of the PSC was held in Cotonou on 27-28 March 2018. All implementing agencies were invited to this meeting to discuss the objectives and implementation arrangements for the TAAT Compact they were responsible for coordinating. A format for presenting the Compact's activities was agreed upon; it contained six basic sections: i) Program description,

including Compact's objectives, rationale for selection of countries of intervention, and mechanisms for spillover to other countries, activities and pathways to scaling up; ii) implementation arrangements; iii) monitoring and evaluation plan; iv) gender mainstreaming and youth inclusivity strategies; v) environmental and social safeguards; and the work plan and budget. The evaluation procedure and scoring key was also discussed and agreed upon with the implementing agencies.

The PSC held two subsequent meetings, on 20 April

and 16 May 2018, this time online to assess and approve the Compact work plans that were submitted by the Implementing Agencies. Approval of work plans was a prerequisite of the AfDB to initiate the disbursement of TAAT program's funds. All the accomplishments and activities reported by the compacts are the result of activities that could be started only after 16 May 2019. The fourth meeting of the PSC took place in Yaoundé, Cameroon on 13-14 September 2018 on the back of a TAAT workshop on Responding to the Fall Army Worm Invasion.



The Minister of Agriculture of Cameroon and the members of the TAAT PSC at the 4th PSC meeting in Yaoundé

Box 1. Profile of PSC Members

Mr. Gaston Cossi DOSSOHOU

PSC Chair and Minister of Agriculture, Livestock and Fisheries of the Republic of Bénin

- MSc, Agronomy, Krasnodar, Russia, 1984
- Member of Association des Ingénieurs Agronomes du Bénin
- 30-year career in Agriculture including work and/or training in extension, seed production, soil fertility management, food security, community nutrition programs, agricultural development policies, private agroenterprise management and agribusiness consulting



Dr. Mary A. MGONJA

PSC Vice-Chair and Director for Technology and Communication, Namburi Agricultural Company Ltd., Tanzania

- PhD, Plant Breeding/Genetics and Seed System, Ibadan/Birmingham, 1990
- Head of AGRA Country Programs in Tanzania, 2014-2016
- Principal scientist, program head, Deputy Director at ICRISAT, 2002 -2013
- Plant breeder, Ministry of Agriculture of Tanzania; bred and released varieties for rice (3), barley (2) and 4 for wheat, 1976-1998
- Member of the Tanzania Business Committee chaired by His Excellency the President of Tanzania



Dr. Dunstan S.C. SPENCER

PSC Vice-Chair and Senior Partner, Enterprise Development Services Ltd

- PhD, Agricultural Economics, Illinois, USA, 1973
- Has consulted for many African governments and development organizations including the World Bank, FAO, IFAD, Rockefeller, Gatsby, CG Science Council, CGIAR centers, UNDP, ODI, World Vision, etc.
- Director, Research and Crops Management Division, IITA, 1989-1993
- Principal Economist, ICRISAT, 1984 -1986
- Director, Research and Development, WAR DA, 1980-1984



Dr. James Ambrose AGONA

Director General, National Agricultural Research Organization (NARO), Uganda

- PhD Agriculture, Zimbabwe, 1999
- Core area of research is development of primary and secondary processing technologies: drying, threshing/shelling, cleaning, grading and pest management of stored produce
- Conducted consultancies in food security; pest management; linking farmers to markets; enhancing farmers' access to markets; institutional, policy and legal framework for pest and disease control around Lake Victoria Basin
- Participated in the revision of the Plant Protection Act of Uganda



Dr. Janet Mfon EDEME

Head of Division, Rural Economy, Department of Rural Economy and Agriculture, African Union Commission, Ethiopia

- PhD, Crop Protection and Environmental Biology, Ibadan, Nigeria, 1997
- Chair, AUC internal Procurement Committee.
- Chair, Advisory Panel of Agricultural Policy Research in Africa (APRA).
- Vice-Chair, Board of AfricaSeeds



Dr. Stella Ama ENNIN

Former Director, CSIR-Crops Research Institute, Ghana

- PhD Agronomy/Crop Physiology, Nebraska, 1997
- Chief Research Scientist, CSIR-Crops Research Institute, Kumasi, Ghana
- Additional training in Extension, M&E, and Mainstreaming Gender in Agricultural R&D
- Participant in Seed systems strengthening annual review and planning workshop of CORAF/WECARD



Dr. Sophia E.N. MLOTE

Registrar, Tanzania Dairy Board, Tanzania

- PhD, Agricultural Economics and Agribusiness, Sokoine, Tanzania, 2013
- Chairperson, Tanzania Women Leaders in Agriculture and Environment (TAWLAE) 2014-2017,
- Executive Secretary, Coalition to Advance Women in Agriculture in Tanzania (CAWAT), 2014-2017
- National coordinator of Platform for Agricultural Policy Analysis and Coordination (PAPAC)
- Planned and set up of the Tanzania Livestock Marketing Project (TLMP), 1992
- Established a vegetable Green House and Poultry farm for home use and community training

**Prof. Abdourahmane SANGARE**

Deputy Director General, National Center for Agronomic Research (CNRA), Cote d'Ivoire

- PhD, Plant Molecular Biology, Strasbourg, France, 1989
- Postdoctoral research in USA, Washington University, St. Louis, MI, USA, 1991-1992
- Research in genetic engineering, Scripps Institute, La Jolla, CA, 1993-1998
- Manager for West Africa, USAID's Feed the Future Program

**Dr. Abdou TENKOUANO**

Executive Director, CORAF/WECARD, Senegal

- PhD, Plant Genetics, Texas A&M, USA, 1993
- Regional Director, AVRDC World Vegetable Center, 2008 -2016
- Principal scientist, IITA, 1997-2008
- Coordinator, West and Central Africa Sorghum Network, IC RISAT, 1994 -1996
- Lecturer, Genetics and Plant Breeding, University of Ouagadougou, 1992-1993

**Dr. Noe WOIN**

Director General, Agricultural Research Institute for Development (IRAD), Cameroon

- PhD, Entomology, Halle/Saale, Germany, 1999
- National delegate to "Pole Regional de Recherche Appliquée au développement des systèmes agricoles d'Afrique Centrale (PRASAC)", a specialized institution of CEMAC, 2004-2012
- Program Coordinator of the "Lutte intégrée (IPM) contre les fléaux de l'agriculture de subsistance dans le bassin du Lac Tchad" project, 2000-2005
- Consultant for ExxonMobil Co. in charge of the environmental impact assessment of the Chad-Cameroun Pipeline project by the Cameroun Oil Transport Company, 2000 -2006

**Ms. Maria Frances Zileni ZALOUMIS**

CEO Tuzini Farms Limited, Zambia

- MSc, Cardiology, Queensland, Australia
- Registered Nurse (Cardiac Catheter Laboratory) St Andrews War Memorial Hospital, Brisbane Queensland, Australia, 2008 – 2010 and Clinical Nurse Manager Wesley Hospital Brisbane, Queensland, Australia, 2010 – 2015
- Board Director, Fruit and Vegetables, Zambia National Farmers Union, since 2017
- Memberships: Young Emerging Farmers Initiative Brand Ambassador and African Pride Brand Ambassador

**Non-Voting Members of TAAT PSC**

- Dr. Kenton DASHIELL
Deputy Director General, Partnerships for Delivery, International Institute of Tropical Agriculture (IITA), representing the Executing Agency
- Dr. Iain WRIGHT
Deputy Director General, Research and Development –Integrated Sciences, International Livestock Research Institute (ILRI), representing the Implementing Agencies
- Dr. Mpoko BOKANGA
Head, TAAT Clearinghouse, ex officio Secretary to the Program Steering Committee



The TAAT Clearinghouse

Combined support from the African Development Bank and the Bill and Melinda Gates Foundation led to the rapid establishment and the effective operations of the TAAT Clearinghouse Office in Cotonou, Benin and its Nairobi (Kenya) Liaison Office during 2018. The Clearinghouse is the body within TAAT that decides on which technologies should be disseminated. Moreover, it is tasked with guiding the deployment of proven agricultural technologies to scale in a developmentally and commercially sustainable fashion. The services offered by the Clearinghouse include Technology Outreach, Partnership Management, Value Chain Support, Monitoring, Evaluation and Learning, and Communications; each with its own in-charge officer. Clearinghouse governance included the establishment of an eleven-member Program Steering Committee (PSC) to provide guidance and oversight over TAAT program implementation.

The Clearinghouse developed a rapid and transparent review and recommendation process leading to the approval of the work plans of the nine Commodity Compacts and six Enabler Compacts and their recommendation by the PSC to AfDB for funding. In this way, support for the Clearinghouse enabled it to play its role as an independent and fair broker during the technology selection, work plan formulation and approval process.

The Program Management Unit

The TAAT Project Management Unit (PMU) oversees day-to-day implementation of Program fiduciary and administrative activities. Established within IITA Headquarters in Ibadan, Nigeria, the PMU hosts the TAAT Program Coordinator and seven financial, procurement and administrative staff. The main functions of the Unit include: 1) oversight of all technical, social, and environmental matters relating to Project implementation; 2) facilitating the replenishment of project resources to participating centers; 3) preparing and consolidating required reports; 4) financial management, procurement, and audits under the Project; and 5) reviewing and consolidating the Implementing Agencies' budgets prior to submission to the AfDB. The PMU strives to ensure that all activities are conducted in accordance with the AfDB's project management and fiduciary guidelines.

In 2018, the PMU facilitated the disbursement of over US \$14million to TAAT Compacts, handled over 54 procurement actions, and prepared and submitted six Technical and Financial Reports.



TAAT Compacts Administrative Officers being trained on African Development Bank's procedures by the PMU

Commodity Technology Delivery Compacts

The low productivity of African agriculture cannot be explained by a lack of high-performance technologies in Africa. In fact, there are more technologies in Africa today than were available to Asian countries when they initiated the Green Revolution. The objective of TAAT is to select technologies addressing the challenges and opportunities of African agriculture and identify the required pathways for getting such technologies into the hands of millions of African smallholder farmers in a sustainable manner.

Identified and approved technologies are to be rolled out by a compact of actors under the coordination of an institution with subject matter expertise from the CGIAR or specialized technical institutions. This compact of actors is referred to in the TAAT program as Commodity Technology Delivery Compacts (or “Compacts” in short); they are made up of partnerships needed to deliver technologies at scale for specific crops or livestock value chain, and each is led by a Compact Coordinator. The various roles of Compacts are described in Box 2.



A group photograph of TAAT PMU, Clearinghouse and Compact Leaders at the 2018 Partnership Engagement Meeting

Box 2. The purpose and operations of TAAT's Compacts

The element of Commodity Technology Delivery Compacts (full name of the “Compact”) is a unique feature of TAAT that operates at many levels. Each Compact represents ...

- A unit of implementation of the TAAT program based upon proven and related lead and accompanying technologies that are readily integrated into agricultural development efforts and agendas.
- The recognition among agriculturalists that potent agricultural technologies must not be allowed to stagnate or fall short of their realizable potential and a bridging mechanism for agents of development to better harness the process of technology refinement and dissemination.
- An open-ended opportunity for technology providers to buy into larger agricultural development agendas and to showcase technology products and know-how to potential investors and users through brokerage and commercial alliances.
- A coordination mechanism that offers a solution to the perennial problem of how to derive greater impacts among well-meaning parties by directing them toward a common purpose in a resource efficient manner.
- An opportunity for agricultural loan programs to be better strengthened by potent technologies and profitable rural enterprises in a way that guarantees and amplifies their expected success.
- A recognition of the unacceptability of the status quo, meaning different things to different interests as they push together in a loosely-understood but collectively-agreed positive direction towards win-win outcomes.

In these ways, a TAAT Compact is an entire ecosystem of actors engaged in a strategic partnership to deliver improved technologies and boost the productivity of an agricultural commodity value chain. Compacts may be added, merged and replaced as they progress. Every Compact is engaged and committed to putting in place activities, investments and processes that will result in a wide utilization of the promoted technology products and know-how.

The progress achieved by each of these Compacts in 2018 is described later in this report.

TAAT Commodity Compacts



TAAT Program startup and coordination of Program activities

Launching the TAAT Program: Following an Inception Meeting organized by the AfDB at its headquarters in Abidjan from 9 and 10 January 2018, the PMU was immediately charged with the formal launching of the TAAT program. A planning workshop was conducted at IITA HQ in Ibadan, Nigeria during 23 to 25 January 2018 and attended by 145 participants including representatives from AfDB, Compact Coordinators, national partners and the private sector. The workshop program included strategic discussion on implementation targets and timelines. The activities of the TAAT Program started in February 2018 with the recruitment of the Head of the Clearinghouse and the Head of the PMU.

Meeting conditions for initial fund disbursement:

The first critical task for the program was to meet the conditions for initial disbursement so that implementation activities could begin. These conditions included competitive recruitment of the Clearinghouse, PMU and Compact staff, the establishment of the Program Steering Committee, the assessment and approval of Compacts' work plans, the signing of Implementation Agreements between IITA and at least one implementation agency, and the submission of a legal opinion of such Agreements. In parallel, the Executing Agency and the Implementing Agencies undertook to open special bank accounts to enable fund disbursement by the AfDB.

Formalizing partnership agreements: Partnership agreements were established between the IITA and all other TAAT implementation agencies, which were in turn required to sign partnership agreements with other institutions that would become recipient of AfDB funds for TAAT program implementation. In total 140 partnership agreements were signed between Compacts and various public and private partners, and these agreements are kept on record by the PMU.

Providing needed fiduciary training: Early into implementation, the PMU was quick to identify bottlenecks that contributed to slow implementation of planned compact activities. It was soon discovered that most partner institutions were unfamiliar with AfDB's complex procurement and financial management procedures and thus could not access and deploy resources effectively. To overcome this challenge, the PMU conducted a capacity building exercise for Compact administrative personnel at a two-day Emergency Fiduciary Training workshop that took place at the IITA Headquarters in Ibadan on 30-31 July 2018.

Organizing a regional response to Fall Army Worm invasion:

The PMU acted in close partnership with the AfDB to organize three, two-day regional workshops on the management of the Fall Army Worm in Africa. The workshops were held in Lusaka



Participants at the TAAT Pre-Appraisal Mission workshop

(Zambia), Yaoundé (Cameroon) and Nairobi (Kenya) during July, September and October, respectively. These events assembled partners from private and public sectors, but moreover introduced TAAT as a key mechanism for agricultural technology deployment to a wide range of African stakeholders.

Ensuring Compact collaboration: The TAAT program model relies upon Commodity and Enabler Compacts working together in scaling proven agricultural technologies. As many of the program Enabler compacts initially sought to establish their own stand-alone activities, it became necessary to establish mechanisms to ensure collaboration. A shared online calendar was established to keep track of all activities scheduled by the TAAT Program.

First TAAT Program Steering Committee: meeting was held in Cotonou (27-28 March 2018) with the Implementing Agencies, particularly with the staff identified to coordinate the Compacts and some of their key implementation partners. The PSC members had received and read the documentation that was provided for each Compact. The meeting served to provide details on some issues that were not clear to the PSC members. A standardized format for presentation of the Compacts' activities and their assessment by the PSC was discussed and agreed upon by the implementing agencies. This inaugural meeting was attended by 61 persons, including representatives from the AfDB, from implementing agencies and their implementation partners, and staff of the Program Management Unit and the Clearinghouse.

TAAT Work Planning Workshop: Following the PSC meeting, the Implementing Agencies staff and their partners remained in Cotonou for two more days (29-30 March 2018) to revise their Compact narratives and work plans in line with what had been agreed with the PSC.

Fertilizer Roundtable Workshop: A workshop was conducted on 12 June 2018 at the Best Western Airport Hotel, Cotonou, Benin and attended by 41 persons to consider the requirements for delivery of fertilizers to the TAAT commodities and the opportunities for private sector engagement,

particularly with regard to the African Fertilizer and Agribusiness Partnership (AFAP) and the African Fertilizer Financing Mechanism (AFFM).

Business consultation with NIRSAL (Nigeria): Since 14 out of 15 Compacts had planned interventions in Nigeria, meeting was conducted by the Clearinghouse and the Nigeria Incentive-Based Risk Sharing System (NIRSAL) in Abuja from in July and August 2018 for the Compacts to develop greater understanding of affordable financing mechanisms. Discussions covered means to stimulate public-private partnerships and further attracting investment by the commercial banking sector.

Business breakfast meeting at AGRF 2018: A side event was organized at the 2018 African Green Revolution Forum held in Kigali, Rwanda on 7 September 2018 to explain TAAT as an “path-breaking” response to the larger African agricultural development community. About 126 delegates of the AGRF Conference attended this event.

Delivery and Partnership Workshop: A workshop was conducted in Nairobi, Kenya on 5-7 November 2018 to explore the concept of technology toolkits (see description of toolkit concept in the next section), discuss mechanisms for country-level coordination, and explain the role and plans for Program M&E. In total, 37 people drawn from all TAAT Compacts, the PMU and the Clearinghouse actively participated.



Participants at the TAAT breakfast session during the 2018 African Green Revolution Forum (AGRF) in Kigali

The Concept of Technology Toolkit and its role in Scaling Up

Recognizing that agricultural technologies cannot succeed if deployed as the proverbial “silver bullet”, the proven technologies selected by the TAAT program were deployed as “technology toolkits”. In this context, a technology toolkit is the combination of the main technology being promoted for increased productivity and the accompanying technologies required to enable the full expression of the main technology to attain targeted productivity level and competitiveness throughout the commodity compacts. For crops, toolkits may contain the following: improved varieties and their seed systems; land preparation techniques; management of soil nutrients, water, weeds, pests and diseases; labor-saving tools and machinery; harvest and post-harvest operations; and processing and marketing opportunities. For livestock and aquaculture, the toolkits may include stock improvement and rearing; containment and housing; feed and health systems; harvest, processing and marketing operations; and integration into larger farming systems and landscapes. Table 2 shows the list of lead technologies being promoted by the various TAAT compacts and around which technology toolkits are being developed.

Technology toolkits are technology dissemination packages of the TAAT Program being promoted through the Commodity Compacts; however, three of the six Enabler Compacts (Response to Fall Army Worm, Soil Fertility Management and Water Management) do contribute to the design and implementation of technology toolkits. The precise composition of the toolkits varies to suit the various agroecological zones and socio-economic conditions of targeted farmers. Therefore, the performance of the toolkits, their variations due to locational specificity, their commercial profitability and social acceptability will be evaluated as a prelude to determining toolkits' suitability in specific agro-ecological environments.

Adopting a toolkit is an investment in the various components and knowing how to properly use them.

It requires that such tools be offered in the vicinity of the farmer and that the farmer should have the financial means to acquire them and the know-how to use them, and have access to output markets to recoup the investment made. Toolkit performance at demonstration sites will be analysed with a view of obtaining profitability data that will be used to generate information for promotion of the toolkits to farmers and to potential suppliers of toolkits or toolkit components, especially those from the private sector.

This approach was discussed between each of the TAAT Compact with planning team of the Nigeria Incentive-based Risk-Sharing System for Agricultural Lending (NIRSAL) to learn from the experience of this institution in securing financing in the agricultural value chain in Nigeria. As the TAAT program unfolds, it will become necessary to combine information on the agronomic performance of technology toolkits with investment requirements and achievable returns to guide overall investments in TAAT-promoted technologies.

It is envisaged that toolkits will evolve from the basic formulation at the Compact level, to validation across site-specific conditions, then consolidation and grouping per agro-ecology to meet the needs of larger farming communities, and then included in national and regional programs to reach the large scale required for triggering the agricultural transformation.

Table 2. List of lead technologies being promoted by the various TAAT compacts in 2018

TAAT Compact	Lead technology around which toolkits are built
Rice	<ul style="list-style-type: none"> • Release of new improved inbred varieties and hybrids • Good agricultural practice (GAP) through <i>RiceAdvice</i> digital support • Efficient irrigation and water management
Maize	<ul style="list-style-type: none"> • Hybrids of water efficient maize as a climate-smart option and their licensing to seed producers.
Sorghum	<ul style="list-style-type: none"> • Dual-purpose varieties (feed and grain) • Mobile forage choppers • Utilization of crop residues • Fertilizer micro-dosing • Small-scale mechanization
Millet	<ul style="list-style-type: none"> • Improved Pearl Millet varieties • Release of parasitoid wasps • Land reclamation • Fertilizer micro-dosing.
Wheat	<ul style="list-style-type: none"> • Heat tolerant and climate smart wheat varieties • Mechanized support of raised planting beds • Conservation agriculture (e.g. no-till planters).
Cassava	<ul style="list-style-type: none"> • High starch and disease tolerant varieties • Vegetative propagation systems (e.g. SAH) • Mechanized tuber processing (e.g. peelers) • Mechanized and value-added processing.
Orange-Fleshed Sweet Potato	<ul style="list-style-type: none"> • Vegetative propagation of virus and drought-tolerant varieties • Puree production and utilization • Silage production of harvested stems and leaves.
High-Iron Beans	<ul style="list-style-type: none"> • Varieties of high iron and zinc beans and their seed systems.
Aquaculture	<ul style="list-style-type: none"> • Pond- and cage-based tilapia production • Pond- and tank-based catfish production • Feed production • Fish processing (e.g. kiln smoking).
Poultry	<ul style="list-style-type: none"> • improved breeds • Low input rearing • Improved health systems (e.g. vaccination).
Goats	<ul style="list-style-type: none"> • Improved feeding systems (e.g. short-term fattening and cassava peel-based feeds).
Sheep	<ul style="list-style-type: none"> • Improved feed systems (e.g. cassava peel utilization) • Improved health systems (e.g. deworming).
<i>The three Enabler Compacts below do contribute technologies to Commodity Compacts</i>	
FAW response	<ul style="list-style-type: none"> • Fortenza Duo seed treatment • Bio-rational pesticides (e.g. neem oil, Bt pesticides, others) • Strategic pesticide application (e.g. Emamectin benzoate, Lufenuron, Ecoterex) timed to maize growth stage.
Soil fertility management	<ul style="list-style-type: none"> • SMaRT (Soil Sampling, Mapping and Recommendations Transfer) • Integrated Soil Fertility Management (primarily combined mineral and organic fertilizers).
Water management	<ul style="list-style-type: none"> • Water harvesting and delivery • Pressurized and supplementary irrigation techniques

Partnerships for Technology Delivery

TAAT is led through widespread partnerships across Africa that work together through a well-coordinated regional technology delivery platform and combines the strengths of institutional partners in a manner that assists African nations develop more effective interventions employing these technologies within their agricultural development agendas. Compacts assemble needed technologies and technology services, provide information and training in their application, and deploy them through country-level partnerships for achieving impact at scale. This system serves as a mechanism for taking modern agricultural technologies to scale in a unique and effective manner as evidenced by the rapid success of the Program establishing technology demonstrations in 27 countries at 565 sites within just a few months of project implementation.

Partnerships are collaborative relationships working towards shared goals through a division of labor that all parties agree on. Their objectives are often to enhance offerings, lower costs and enhancing the opportunities for scale and impact. In structuring its key partnerships, it will be important for TAAT to communicate the vision of success and ensure that this vision is mutual and of equal benefit. The nature of the partnership should be based on clarity of how each partner will utilize the strengths of the other and what each organization brings to the partnership in terms of core competencies.

Another important characteristic to define at the onset is that there are aligned values. Indeed, shared core values, qualities, ways of engaging, level of transparency, openness and clarity are the glue that holds partnerships together for the long term. Generally, the ideal strategic partners will have a similar target audience. Partnerships are often complex mechanisms for delivering practical solutions to address societal issues; managing the complexity relies on adopting a long-term flexible approach. Through this effort often organizations evolve, learn about effective management, build mutually valuable capacities and gain valuable

experience that alone they would not have had the opportunity to have.

The elements of strength in lasting partnerships include:

Leadership - Partnerships imply a shared leadership among respected individuals, recognized and empowered by their own organizations to build consensus and resolve conflicts. Often one organization takes the lead on managing the process. There must be established trust in each other's ability to lead effectively and honestly.

Common Understanding - Partners need to understand respective organizational frameworks, culture, values, and approach. Partners also need a clear understanding of individual roles, responsibilities, and what the partnership's division of labor will be.

Purpose - Partnerships are guided by a shared vision that recognizes contribution and value of all members. Each partner should understand and accept the importance of the agreed-upon goals. Shared and transparent decision-making processes are also essential as partners work towards their common purpose.

Culture and Values - Shared values, mutual understanding, and an acceptance of differences are essential to successful partnerships. Partners need to discuss their organizational cultures to identify how to work with their strengths and weaknesses. With respect, partners can gain active involvement from organization representatives who will play a valued role in the partnership.

Communication - If a partnership is going to succeed, there must be effective communication at all levels within the partnership and inside each partner organization.

Performance Management and Learning - The appropriate partnership structure, management

practices, and resources must be in place to achieve the intended purpose of the partnership. Members must demonstrate both accountability for their

actions and ownership for delivering on the objectives and targets for which they are responsible.

Operational Partnerships to Strengthen deployment of technology toolkits at scale

There are two broad categories to the partnership strategy for TAAT. The first category relates to operational relationships helping and facilitating the implementation of the Toolkits. A proportion of the partnerships for this type of activity have already been encompassed within the toolkits or compacts and mapped to specific geographies. Such partnerships are ones that strengthen the innovation system and include private sector actors (fertilizer, seed, agro-dealers, marketers, distributors, retailers, wholesalers, financiers, insurers, technology providers etc.), public sector actors (national and regional government, NARES, regulators, food standards agencies, export and trade agents, certifiers, market facilitators, infrastructure providers and extension service providers) and farmers, NGOs, CBOs, universities and colleges and grassroots organizations amongst many others. Adopting an integrated way of using old and new innovations and technology in a way that promotes the growth of demand driving service delivery will be an essential requirement.

The depicted theory of change for TAAT, described in the next section, makes a clear distinction between operational partnerships that deliver TAAT and the types of partnerships that fall into the Sphere of Influence. The latter are often characterized as next users or third party actors, whom the TAAT program may be able to influence but fall outside of their immediate control. This distinction is important in understanding how to track, monitor and manage changes emanating from these third party actors. In the TAAT program third party actors will often be from the private sector and therefore motivated by market mechanisms rather than social change principles. Their behaviors will be easier to understand with an explicit acknowledgement of this division in culture, values and vision from the research community or those involved in public structures.

The nature of these specific types of Partnerships are best illustrated at a country level by creating a multi-stakeholder led Theory of Change for the Compact or set of Compacts being rolled out. The assumptions underpinning impact pathways should be drawn out and explicitly stated to see if they hold true. This enables each and every collaborating partner to be clear about their role and what they are expecting to both deliver and receive as part of that partnership, how they will be expected to deliver value and results. It also crystallizes key goals, KPIs and milestones for the consortium to aim for and to work together to achieve and learn from how change is happening.

The TAAT M&E system, described in the next section, will be instrumental in helping TAAT program actors to implement the performance monitoring system for technology toolkits to help TAAT understand both what types of relationships are working well to deploy technologies and commercialize them and the combinations of partnerships required to reach a tipping point to actually take the toolkits from a demonstration site to a scale where they are being reliably taken up by farmers in their millions.



Harnessing the contributions of African women towards agricultural transformation

Combining technologies across commodities to better meet farmers' needs

African smallholder farmers often plant multiple crops in mixed cropping systems and integrate them with animal enterprises. Agro dealers serving them must also stock several technologies. However, the work program of TAAT has been designed around Compacts focusing on single value chains or single cross-cutting themes. As the Coordinators of the Maize, Bean, Sweet Potato,

network of agro-dealers serving over 2,000 farmers in Western Kenya to package mixed technologies recommended by Compacts and have them deployed to their farmer clients, with the Compacts providing training and supervision. Six such opportunities were identified and code-named “Kenya Quick Wins”. They include a combined maize-bean-FAW technology toolkit that involved 12 products from seven input



A Quick Wins team promoting the maize-bean-FAW technology toolkit in west Kenya.

Small Livestock and Policy Support Compacts, and the Technical Adviser of the Youth in Agribusiness Compact are all located in Nairobi, Kenya, the Clearinghouse encouraged the design of combined toolkits to respond to the needs of small-scale farming customers, and for youth groups to capitalize upon agribusiness opportunities from these technologies.

To test our approach, negotiations were held with a

suppliers with these products placed on the shelves of an agro dealer network for test marketing (see photo). Other quick wins consisted of designing a new fertilizer blend for root crops and the development of a Fall Army Worm (FAW) Rapid Response that established youth as first responders to FAW invasion. In all, nine TAAT Compacts are involved in these Kenya Quick Wins and this methodology is now embedded in Compact

Monitoring, Evaluation and Learning Framework

TAAT is a complex program. It is implemented by a dozen different implementing agencies, covers 12 commodities and is deployed in 27 African countries. It involves other development partners investing in African agricultural transformation (e.g. The Bill and Melinda Gates Foundation, the Alliance for a Green Revolution in Africa), and counts on the participation of possibly hundreds of implementation partners. Ensuring that the program remains focused on its goals require a robust M&E framework with key performance indicators that will be tracked along the results chain on an agreed timeframe by all program

eliminating extreme poverty, ending hunger and malnutrition, turning Africa into a net food exporter and moving Africa to the top of global value chains where she holds a competitive advantage.

The complexity of TAAT developmental objectives necessitated the conceptualization of a Theory of Change (Fig. 1) to show the interrelationships between the multiple factors affecting the path from inputs to outputs, outcomes and impact. A theory of change is useful to create a shared understanding of what it takes from all actors to deliver on the expected

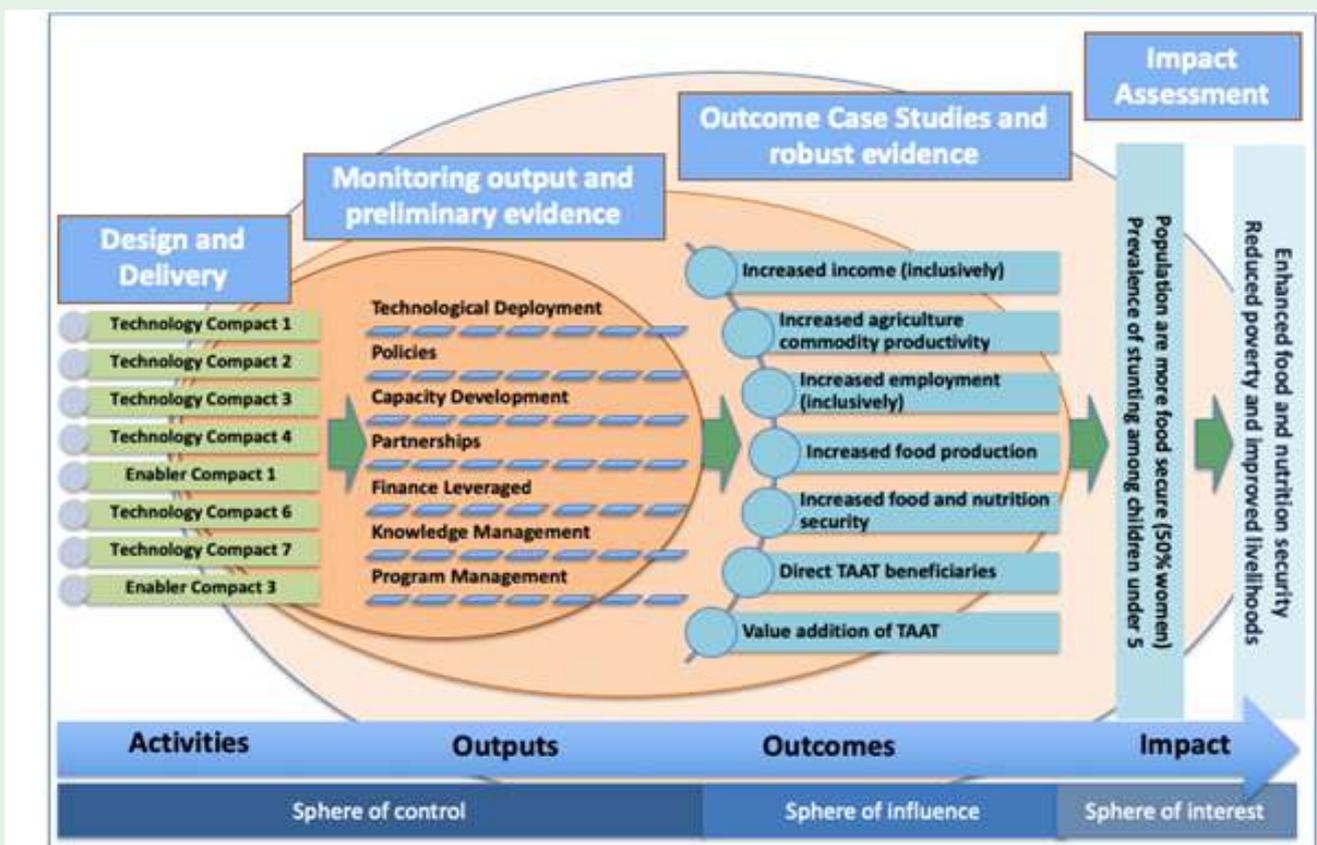


Figure 1. The Theory of Change of the TAAT Program

actors. The TAAT Program has a Results-Based Logical Framework (RBLF), which captures expected Inputs, Outputs, Outcomes and Impacts as well as performance indicator categories to ensure that program processes and products lead to the achievement of the set results in line with AfDB Feed Africa's objectives. These objectives aim at

results. showing the sphere of control, the sphere of influence and the sphere of interest. It has helped to establish a clear and common vision for the program and ensure that the M&E system provides evidence of the performance of the program.

The design of the MEL system began with the

recruitment of a Monitoring and Evaluation Officer in September 2018. The need for harmonization of data collection tools and methods, aggregation and analysis of data to generate results was the main driver of establishing the program MEL framework based on the Theory of Change. A suite of 29 common Key Performance Indicators (KPIs) cutting across all Compacts and aligned to the 4 components of the program was developed. A summary of these

The M&E unit started building a training database while developing the M&E framework to ensure that the Compact teams understand the type of data that will be required from them ready for aggregation, analysis and performance reporting to feed the M&E system and report upon progress. An example of such is the Number of people trained as presented in Figure 2.

It shows that about 35% of the total number of people

Box 3. Twenty-nine quantitative Key Performance Indicators organized into seven action categories established for Program performance monitoring.

Policies (7 indicators): Number of policy reforms, implementation reports, new laws and regulations, evidence-based policy dialogue events, advocacy strategies for private sector participation actions, inputs dealer certified and accredited, and access to credit and productive assets.

Finance Leverage (3 indicators): Volume of funds leveraged by Compacts through country programs, volume of funds leveraged for intermediate beneficiaries, finance leveraged from independent initiatives to farmers and country programs, and from sponsoring partners.

Partnerships (3 indicators): Number of partners (disaggregated by category), new partnership formed, and new entrepreneurs engaged.

Capacity Development (4 indicators): Number of people trained, functional multi-stakeholder platforms formed and their participation, national seed system strengthened.

Technology Deployment (10 indicators): Number of production and post-harvest technologies deployed and technology packages (toolkits) demonstrated, Intermediate beneficiaries involved in technology scaling up, final beneficiaries accessing and effectively using technology products and services, farmers or primary processors with access to and use of market facilities, communities with better access to input and output markets, Farmers using improved post-harvest technologies, final beneficiaries engaged in commercial agri-business supply chains, campaigns or promotional activities organized, total beneficiaries reached.

Knowledge management (1 indicator): Number of information and visibility materials disseminated.

Program management (1 indicator): Number of fiduciary activities handled effectively and efficiently.

29 KPIs appears in Box 3. The next steps for a functional M&E system include the development of a Performance Measurement Framework, the Monitoring, Evaluation and Learning Plan whereby each KPI has a unique Performance Indicator Reference Sheet (PIRS) and data collection template. The program will also need to procure data collection tools and methods and provide a performance reporting format to Compact teams involved in day-to-day implementation of the program activities.

trained (20,807) were trained in Tanzania by HIB Compact which has partnered with school to support school feeding program using High Iron Beans in children's diets. It can also be observed that Mozambique and Nigeria have benefited from training activities organised by the Orange-Fleshed Sweet Potato Compact to introduce women in those two countries to nutritious diets based on Orange-Fleshed Sweet Potato.

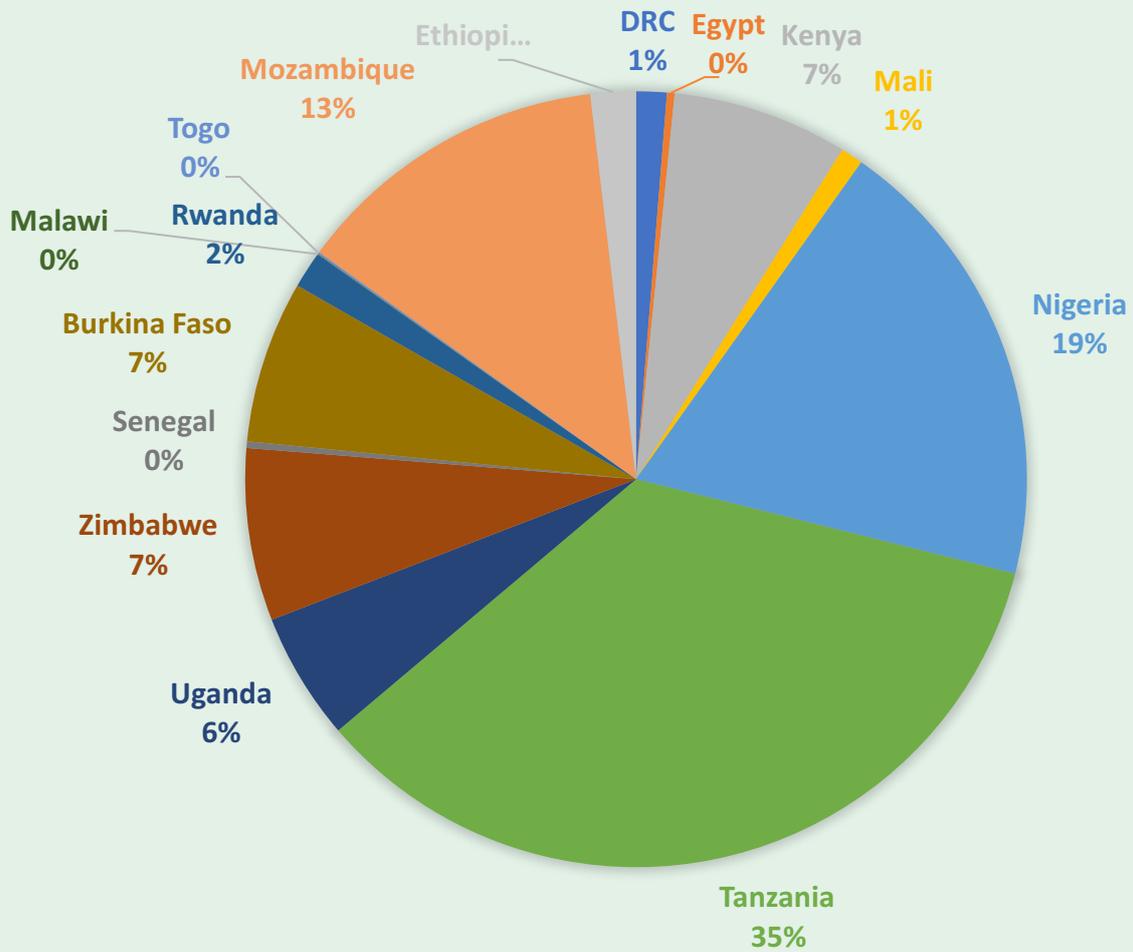


Figure 2. Percentage of people trained by the TAAT program per country of origin in 2018

The strength of these KPIs is the perspectives they provide when they are disaggregated by technology types, products and services, countries, compacts, gender and geographic scope. The Clearinghouse intends to take this analysis further by developing derived indicator results, forecast their performance over time, and using them to initialize economic or predictive models to see patterns and trends of change and inform decision making and/or policy formulation.

Technology deployment in 2018

In 2018, Commodity Compacts started deploying 36 Lead Technologies and 150 accompanying technologies with an average of four accompanying technologies per lead. In most cases, these accompanying technologies are necessary to secure the benefits of the lead ones, as with the importance of fertilizers in fields where improved crop varieties are introduced, or the necessity of veterinary care in association to improved animal

The OFSP and Maize Compacts have the largest coverage in part because their outreach efforts were an extension of other projects. The activities of the Livestock and Millet & Sorghum Compacts are represented by more than one commodity and when combined are 9% and 16%, respectively. In the case of Millet & Sorghum it largely represents germplasm multiplication sites intended to provide seeds. The value for the Wheat Compact appears low because

Table 3. Technology deployment by the Commodity Compacts in 2018

Commodity Compact	Technologies		Countries	Sites
	Lead	Accompanying		
Rice	3	22	8	47
Maize	1	10	9	119
Sorghum & Millet	Sorghum	3	10	47
	Millet	4	10	47
Wheat	1	4	7	24
Cassava	5	8	7	27
Sweet Potato	4	11	9	310
Beans	1	8	1	35
Aquaculture	5	18	4	18
Livestock	Poultry	1	5	10
	Goats	4	22	3
	Sheep	4	22	3
Total	36	150	23	565

feeding regimes. Technology dissemination during 2018 occurred in 23 countries in 565 sites (Table 3). In the case of sites, these are not individual farms but rather farmer group locations or communities. At this point it is too early to enumerate beneficiaries within these groups or communities because many of the cases presented in Table 3 had not completed their growing cycles by the end of 2018, particularly in East and Southern Africa.

The distribution of the 565 technology demonstration sites per commodity appears in Figure 3.

the Compact operates in relatively few countries. The value for the Cassava Compact appears low because these data represent field sites and the Compact itself has a large value addition component. The Bean Compact as well includes seed multiplication activities intended to be planted in dissemination activities the following season, mostly in East Africa.

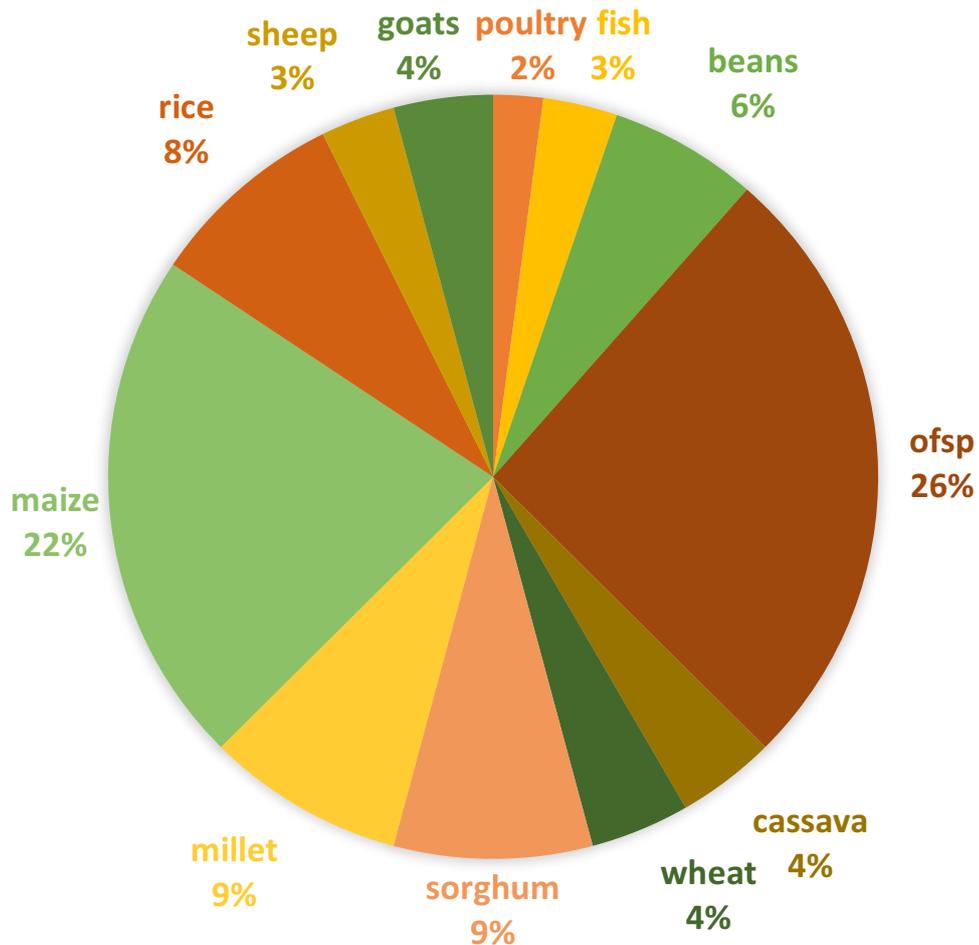


Figure 3. The proportion of 565 technology outreach sites among commodity compacts

The number of lead and accompanying technologies advanced by each Compact and their respective commodities appears in columns 3 and 4 of Table 2. Overall, there are three lead technologies per commodity and about 150 accompanying ones, or four accompanying technologies per lead one. The sum of lead and accompanying technologies represent the total agricultural technologies being advanced. In this case, the total ranges between five (for wheat) and >20 (for aquaculture, goats, rice and sheep). Compacts promoting too few technologies risk being simplistic and not widely applicable, while those promoting too many may be viewed as too complex for many stakeholders. Note that the animal compacts tend to have more technologies than crop-based ones, in large part because they must consider breed, housing, feeds and health care.





Field technician displays big and bulky cassava roots harvests from TAAT cassava demonstration trial

Activities of TAAT Technology Delivery Compacts

The Rice Compact



Rice deficits currently stand at 9.8 million MT per year and is expected to grow to 12.9 million MT in 2025 unless corrective actions are taken. To close the current production deficit, yields must increase by about +1.0 MT per ha (52%) and these gains must increase to 1.25 MT per ha (58%) by 2025. The target average yield of 3.40 MT per ha is achievable through introduction of improved varieties, proven accompanying soil, irrigation and pest management technologies and increased mechanization. Self-sufficiency in rice production is a major developmental objective in West Africa as rice importation contributes to large trade imbalances. Specific progress toward project implementation within the major components of TAAT follows.

Creating an Enabling Environment: Six Innovation Platforms were established in Benin, Côte d'Ivoire, Nigeria and Niger and technology champions with different roles identified. In Nigeria 1600 stakeholders were sensitized on the Compact's

technologies and the informational flyers distributed to participants from eight local government areas and an audio on RiceAdvice was produced. In Benin and Niger over 150 actors were trained from 72 cooperatives and in Côte d'Ivoire a training manual was written and translated into French for distribution in 2019. The platform in Benin also produced a video on its outreach campaigns on rice technologies. Finally, electronic registration was conducted among 4,713 of rice value chain stakeholders in Côte d'Ivoire including their geo-referenced mapping.

Building a Regional Technology Delivery Infrastructure: The Compact was launched jointly with national partners, millers, seed enterprises, equipment fabricators, micro-finance, equipment service providers, women groups working in value addition, and two TAAT Enabler Compacts. During 2018, eleven countries were involved in main streaming of Rice Compact technologies.

Deploying Appropriate Technologies: The *RiceAdvice* digital tool was distributed to 13,389 rice farmers in Burkina Faso, Mali and Nigeria. The platform was also distributed to 379 service providers. In Madagascar, Uganda and Côte d'Ivoire partners were identified for training scheduled in early 2019, and appropriate training materials developed. Mechanization to improve rice productivity and reduce post-harvest loss is underway in Benin, Cameroon, Côte d'Ivoire, Nigeria and Mali through the mobilization of five threshers and five paddy cleaners. Quality parboiled rice is also being promoted in Côte d'Ivoire where the GEM parboiling system was installed at two sites and uses only rice husk as parboiling fuel, resulting in great fuel savings. A private sector partner has adopted this technology and is producing 4.4 tons per month. Similar efforts are underway in Benin where 893 tons of rice processed into 625 tons of parboiled rice over nine months. Production of seed was initiated in Gambia, Nigeria and Sierra Leone for use in 2019.



The Rice Compact at a glance ...

Coordinator: Sidi Sanyang, Africa Rice, Abidjan, Côte d'Ivoire.

Target countries in 2018: Benin, Burkina Faso, Côte d'Ivoire, Niger and Nigeria.

Lead technologies: Foundation seed release of varieties *NERICA 4*, *NERICA 19*, *WAB 638-1*, *Orylux 6*, *FARO 44*, *WITA 4* and others, irrigation and water management, GAP through *RiceAdvice*, parboiling technology.

Accompanying technologies: Mechanized land preparation and weeding, row planting at recommended rates, NPK fertilizer application.

Post-harvest technologies: Rice husk fuelled gasifiers, GEM soaking and steaming tanks.

AR051H - Paddy

AfricaRice



Hybrid rice varieties are released by TAAT in Africa following a decade of breeders' efforts (insert: a new variety on display).

The Maize Compact



Maize deficits currently stand at 23 million MT per year and is expected to grow to 35 million MT in 2025 unless corrective actions are taken. To close the current production deficit, yields must increase by about +770 kg per ha (37%) and these gains must increase to 1.15 MT per ha (51%) by 2025. The target average yield of 3.38 MT per ha is achievable through introduction of hybrid varieties and proven accompanying soil and pest management technologies. The recent invasion of Fall Armyworm poses a serious threat to maize security. Maize remains the staple crop of the moist savannas and greater food security rests in achieving these production gains, as does expected growth in animal enterprises as maize is the major ingredient of feed. The Compact has five visions of success to measure the level of achievement of its objectives. These are, to reach at least 2 million households across 12 countries; to increase maize productivity by at least 30% in target countries; to enhance incomes by at

least 20% for households involved in the value chain; to engage at least 40% women and 25% youth in the value chain by 2021 and to generate an extra 12 million tons of maize grain. Specific progress toward project implementation within the major components of TAAT follows.

Creating an Enabling Environment: The Compact supports farmer linkages, access to credits and utilization of ICT platforms in Uganda, Kenya, Nigeria, Rwanda, and Tanzania where fifteen credit providers are linked to farmers. In Nigeria, 60,000 farmers were registered in 19 states to access credit from one financial institute alone. In addition about 2,000 tons of seed were distributed to cultivate about 100,000 ha of farmland. Overall, nine inception meetings were held with national programs and private sector partners to ensure program implementation. Policy issues affecting agricultural lending and marketing were identified and shared with the TAAT Policy Support Enabler for action.

Building a Regional Technology Delivery Infrastructure: Partnership agreements were formalized with 12 maize country leads from NARS and commodity associations to oversee implementation in the 12 target countries.

Deploying Appropriate Technologies: Efforts are well underway to extend climate-smart maize varieties to farmers using seven technology toolkits and 54 climate smart varieties. Formal agreements were made with 29 seed companies to produce maize hybrids for use in 2019. Outreach campaigns established 2,418 demonstration plots leading to 631 field day events conducted and the distribution of 55,138 free promotional packs of seed. In Nigeria about 38,000 farmers cultivating more than 60,000 hectares of land accessed 12 elite varieties. The mean grain yield of the released maize varieties was about 5 tons per ha with one hybrid producing nearly 7.5 tons per ha. The Compact also engaged in Fall Army Worm control using Fortenza Duo seed treatment in Zambia and Zimbabwe.



Farmers are introduced to a recently-released, drought-tolerant maize hybrid in Kenya.

The Maize Compact at a glance ...
Coordinator: Gospel Omanyara, African Agricultural Technology Foundation, (AATF) Nairobi, Kenya
Target countries in 2018: Ethiopia, Kenya, Nigeria, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe.
Lead technologies: Climate Smart Maize Hybrids KH 500-31A SAWA, WE1101, WE4141, WE3106, and many others
Accompanying technologies: Fertilizer blends and topdressing, planting density, weed and disease management, mechanization services.
Post-harvest technologies: Marketing support and credit services.

The Sorghum and Millet Compact



Sorghum and millet are the core of food security in the Sahel. Sorghum deficits currently stand at only 125,000 MT per year but is expected to grow to as much as 7.4 million MT in 2025 unless corrective actions are taken. To close the production deficit, yields must increase by about +220 kg per ha (54%) by 2025. The target average yield of 1.45 MT per ha is achievable through introduction of improved varieties and proven accompanying soil, water and pest management technologies, but is also dependent upon precipitation patterns as this dryland crop will continue to be produced under rain fed conditions. A similar analysis performed for millet suggests that yield improvement of 110 kg per ha is needed by 2025, in part because acreage can grow by about 2.5 million ha, but gains are even more precarious as millet is grown in the most drought-prone areas. The food security and livelihoods of millions of Africa's poorest farmers rests upon achieving these gains. Specific progress toward project implementation within the major components of TAAT follows.

Creating an Enabling Environment: The Compact identified several Innovation Platforms in Burkina Faso, Nigeria, Mali, Senegal, and Sudan. Country inception and planning workshops were held in

Burkina Faso and Nigeria with over 81 stakeholder groups represented.

Building a Regional Technology Development Infrastructure: The compact multiplied improved crop varieties and provided them to farmers. In Burkina Faso production kits were distributed to 730 farmers; in Mali 381 demonstration plots of 11 varieties were established in three sites; 1,206 kits of Striga management were distributed at three sites. Additional variety demonstrations were established in Nigeria, Senegal and Sudan. New hybrids were also demonstrated at 300 locations with 1,443 production kits of distributed. Similar approaches were developed for dual-purpose millet and sorghum for human and animal food (55 demonstrations). Breeder seeds were produced in Burkina Faso (498 kg), Mali (213 kg), Senegal (800 kg) and Senegal (125 kg). Similar efforts were conducted for foundation seed in Burkina Faso (17 tons), Mali (6.5 tons), Nigeria (4.3 ha of 3 sorghum varieties), Senegal (41.9 tons of 7 sorghum varieties) and Sudan (41 tons). Finally large quantities of *certified seeds were produced in* Burkina Faso (89 tons), Mali (202 ha), Senegal (72.2 tons) and Sudan (five tons).

Deploying Appropriate Technologies: Field days were organized, information printed and distributed, and in some cases covered by broadcast media. The Compact conducted outreach campaigns in several Sahelian countries. In Mali 708 farmers attended field days in 7 sites. In Nigeria 309 participants were drawn to two field day events in two sites; in Senegal two field day campaigns were conducted; and in Sudan nine field days were held. Farmers were trained in community-based seed production. In Mali 84 farmers were trained at two sites; in Senegal 127 farmers and seed producers were trained in six sites; and in Sudan 190 farmers were trained in 4 sites. Stakeholders were also trained in residue management (250 farmers), agro-chemical safety (137 participants); water harvesting (60 farmers); and in sorghum and millet processing (24 women). Demonstrations of supplementary irrigation approaches using rainwater harvested in on-farm ponds and shallow ground water were established in Mali (three sites) and Sudan (four delivery systems) in partnership with the Water Management Enabler.



The Sorghum and Millet Compact at a glance ...

Coordinator: Dougbedji Fatondji, Sorghum and Millet Compact, ICRISAT, Niamey, Niger.

Target countries in 2018: Burkina Faso, Nigeria, Mali, Senegal, and Sudan.

Lead technologies:

Sorghum: Striga- and disease-resistant varieties Soubatimi, Tiandougoucoutra, Darrell-ken, Wassa and Grinkan, Sewa, Pablo, including some with stay-green characteristics, and release of parasitoid wasps.

Millet: High yielding, market preferred, Striga- and disease-resistant varieties Maiwa, Synthétique, Souna 3, Thialack II, Chakti, GB8735, Ashana, and Dembi and release of parasitoid wasps.

Accompanying technologies:

Sorghum: Fertilizer micro-dosing with DAP, seed dressing with Apron, striga management, mechanized land preparation, mid-season water harvester by ridging.

Millet: Fertilizer micro-dosing with DAP, seed dressing with Apron, mechanized land preparation.



A stover chopper is demonstrated to farmers during a field event in Mali (insert: an improved variety of pearl millet).

The Wheat Compact



Wheat deficits in Africa are massive, currently 40 million MT per year and is expected to grow by another 10 million MT by 2025 unless corrective actions are taken. To close the current production deficit, yields must increase by about +3.51 MT per ha (+163%). The target average yield of 6.32 MT per ha appears excessive but may be achievable through introduction of improved varieties tolerant to heat and stem fungi, and proven accompanying soil fertility, irrigation and pest management technologies. The release of varieties with potential to produce during the cooler season of the Sahel under irrigation is a huge step forward. If this level of yield improvement cannot be achieved, then production gains may result from greatly increasing wheat acreage, but this requires mechanization support and investment into reduced tillage systems. The massive importation of wheat results from changing consumer preference and poses an economic burden on African economies unless greater levels of domestic production are achieved. Specific progress toward project implementation within the major components of TAAT follows.

Creating an Enabling Environment: In preparation for Compact actions, country meetings were held in six countries. A wheat technology brochure was produced and distributed to promote information on the competitiveness and profitability of wheat

technologies. By year's end registration and mapping of collaborating Innovation Platforms had started as well. In order to strengthen the efficiency and effectiveness of national wheat seed system, the Compact conducted analysis of the national wheat seed systems and formulated a seed road map that is aligned with the country strategy for achieving wheat self-sufficiency in Sudan, Nigeria and Ethiopia. Next, training and technical backstopping was provided to 22 producer associations in six countries.

Building a Regional Technology Development Infrastructure: A strong initial focus is placed upon large-scale production of seed from popular and newly-released varieties in seven countries. In Sudan private and public seed enterprises grew over 850 tons of basic seed of five popular varieties as well as 26,000 tons of certified seed. In Ethiopia 24,516 tons of certified seed of six popular varieties were produced by partner seed companies as well as 114 tons of new heat-tolerant varieties. In Nigeria over 2000 tons of certified seed of three new heat-tolerant varieties were produced by engaging five seed companies. In Zimbabwe a partnering private enterprise multiplied seed on 20 ha that is expected to yield 120 tons of certified seed. In Kenya a national research partner and seed companies multiplied 338 tons of certified seed. In Mali 15 ha of certified seed of two new heat-tolerant varieties is under production. The availability of these seed positions the Compact to undertake massive outreach campaigns in 2019.

Deploying Appropriate Technologies: Outreach campaigns were conducted among 24 Innovation Platforms in seven countries reaching about 41,200 farmers and providing insights into raising wheat productivity from the current 2 tons per ha to 4 to 6 tons per ha. The Compact has engaged youth and women across the wheat value chain. By latest count, 39 youth and women groups have received training in seed production, business development and entrepreneurship skills in five countries. Strengthening the skill and capacity of stakeholders in value addition was a major activity of the Compact reaching 4455 stakeholders, 34% women and 41% youth.



Farmers participating in the travelling wheat workshop in Sudan (delete the info in the bracket)



*The Wheat Compact at a glance ...
 Coordinator: Solomon Assefa Gizaw,
 International Center for Agricultural Research
 in the Dry Areas (ICARDA), Cairo, Egypt.
 Target Countries in 2018: Ethiopia, Kenya,
 Nigeria, Mali, Sudan, Tanzania, and
 Zimbabwe.
 Lead technologies: Heat-tolerant varieties
 Imam, Goumria, Zakia, Elnielain, Bohaine,
 Lucy, Obora, Sanate Utuba and others;
 Disease-resistant varieties Sifa, Juhudi,
 Lumbesa, Riziki C1, Merina, Robin Kenya, Tai
 Kenya, Sunbird, Eagle10 and others.
 Accompanying technologies: Planting method,
 plant spacing, mineral fertilizers, raised bed
 irrigation, and weed and disease control.*

The Cassava Compact



Cassava deficits currently stand at 1 million MT per year but is expected to grow to as much as 28 million MT in 2025 if anticipated increases in cassava industrialization and exports occur. To close the current production deficit, yields must increase by about +800 kg per ha and these gains must increase to 2.8 MT per ha (+17%) by 2025. The target average yield of 14.1 MT per ha is readily achievable through introduction of high starch and pest-resistant varieties, proven accompanying soil and weed management technologies, and increased mechanization. Cassava remains a staple crop for many but its larger potential rests in its value addition and export. It will also become an increasingly larger ingredient of animal feeds. Specific progress toward project implementation within the major components of TAAT follows.

Creating an Enabling Environment: The Compact seeks to achieve rapid cassava intensification through raising farm-level productivity and to make cassava an agro-industrial crop. It is establishing a baseline against which progress will progressively be measured, starting in Togo through farmer registration and data collation on project beneficiaries. It also posted on-line support to cassava-based agricultural extension for use in DR Congo, Tanzania, Togo and Zambia. In addition, the Compact participated in country missions organized by AfDB to Central Africa Republic, DR Congo and Tanzania to identify options for including Compact technologies within future and on-going country loan programs.

Building a Regional Technology Delivery Infrastructure: A country-level technology transfer consortium was formed starting with national partners in Benin, Rwanda and Uganda as a means to create demand-driven Compact services. This action serves to convene a consortium of Innovation Platforms and assigns roles for wider cassava transformation activities in 2019. Farmer training approaches were tested in Nigerian collaboration with national extension. An evaluation of 10 inefficiently performing cassava processing centers in Sierra Leone was conducted and a strategy developed to improve their operations, with lessons learned applicable to other countries.

Deploying Appropriate Technologies: The Compact is establishing a robust seed system in each country in order to deploy higher yielding and yellow-fleshed (vitamin A fortified) varieties. Three yellow-fleshed cassava varieties were introduced in Benin, Nigeria and Togo, and their multiplication sites are being managed by NARS. Propagation facilities designed around the Semi-Autotrophic Hydroponics (SAH) technology were established in three countries, plantlets produced and national partners trained. Within 10 months this activity will provide cuttings of these new varieties. Variety deployment is conducted in conjunction with a Good Agricultural Practice technology toolkit that includes plant spacing, fertilizer application, and weed management. In Togo, these demonstrations led to the adoption of improved management by over 100 farmers, and similar tracking will be conducted throughout 2019. Outreach on cassava processing techniques was initiated that focuses upon both intermediate processed products (e.g. chips and starch) and consumer items (e.g. baked products, sweeteners and ethanol). The processing of cassava wastes and peels for use in animal feeds is conducted in collaboration with the Aquaculture and Small Livestock Compacts. Mechanization options to promote small- and medium-scale cassava processing are being examined, including a mobile processing system for use in remote areas.



*The Cassava Compact at a glance ...
Coordinator: Adebayo Abass, IITA, Dar es
Salaam, Tanzania.
Target Countries in 2018: Benin, Nigeria,
Sierra Leone, Tanzania, and Togo.
Lead technologies: Yellow flesh (Vitamin
A) varieties IBA070539, 070593 and
IBA011412, high dry matter variety
TMEB419, and rapid propagation through
Semi Autotrophic Hydroponics
Accompanying technologies: Fertilizer
application, herbicide and mechanized
weed control, improved plant spacing.*

A farmer in Benin Republic harvesting yellow-fleshed (Vitamin A) cassava

The Orange-Fleshed Sweet Potato Compact



This Compact's strategy is based upon the widespread release and popularization of varieties with a higher Vitamin A content. This vitamin is deficient in many diets across Africa, in part due to shortcomings in access to assorted vegetables, resulting in a Compact primarily focused upon nutritional security in both rural and urban areas. Youth appear particularly attracted to this Compact, both as a production enterprise and in its value-addition opportunities.

Creating an Enabling Environment: The Orange Fleshed Sweet Potato (OFSP) Compact advocates for the importance of vitamin A within healthy diets with its efforts reaching 2,133 nutrition stakeholders, including community health workers. This effort resulted in 20 media events and 23 exhibitions. In Rwanda, its exhibit was awarded first prize for best value chain activity.

Building a Regional Technology Delivery Infrastructure: The Compact includes a strong training component. Stakeholders were trained in OFSP technologies using a Training of Trainers (TOT) approach. In total, 143 training sessions involving

1,730 trainers were conducted between April and December 2018. Additional TOT training was offered in Senegal in December 2018 through the Center for Horticulture of the Ministry of Agriculture that is intended to reach over 20,000 Senegalese farmers in 2019.

Deploying Appropriate Technologies: The OFSP compact worked with its partners in four areas; distribution of improved varieties and improved cutting systems, accompanying Good Agricultural Practice, post-harvest handling and storage practices, and processing OFSP into value-added food products. Seed systems were adjusted to the needs and capacities of each country with improved varieties conserved within research stations and then distributed by cutting multipliers. Eight new varieties were released in Ghana and Nigeria alone. A major concern remains protection from virus disease so that cuttings may then be multiplied in open fields. Demonstration plots were established in six countries and 310 locations in order to promote Good Agricultural Practice. Compact actions are conducted in conjunction with other ongoing projects, and through this approach it reached about 296,000 beneficiaries with over 86 million cuttings, and when harvested this effort will result in over 5 million tons of additional harvested sweet potato. Training was offered to 86 food processors with 28 of them adopting new OFSP-based products. One new product developed by partner processors in Ghana that uses OFSP as a sweet crusting for granola is now available in supermarkets. In Uganda, the Compact works with three processors to producing new products from OFSP flour. Sweet potato vines are also being used as animal feeds, and 21 entrepreneurs were designated to start silage processing, an activity conducted in conjunction with the Small Livestock Compact.



*sweet potato, (left);
a first step in many value-addition operations (right).*

The OFSP Compact at a glance ...

Coordinator: Kiri Sindi, OFSP Compact, International Potato Center (CIP), Kigali, Rwanda. Target Countries in 2018: Ghana, Kenya, Nigeria, Rwanda, Senegal and Uganda.

Lead technologies: Improved varieties Nan, Apomuden, Ligri, Gavana, Okumkom Obare, Mother's Delight, Solo Gold, NASPOT, Vita, Kabode, Irene, Delvia, Tainung 64 and others, and their virus-free cutting systems.

Accompanying technologies; Irrigation, net tunnels for virus protection, ridging and hills, mineral fertilizers, crop rotation and relay planting.

Post-harvest technologies: Production of bread, juice, yoghurt, snacks, puree, and livestock feed.



The High-Iron Bean Compact



This Compact is based upon the development of bio-fortified bean varieties rich in iron and zinc and lines increasingly resistant to root disease. It includes both bush and climbing varieties. These varieties are disseminated through both commercial and community-based seed production.

Creating an Enabling Environment: The High Iron Bean (HIB) Compact operates through a novel bean corridor approach where business platforms eliminate bottlenecks across the value chain. This provides greater access to improved varieties, stronger linkages between farmers and buyers and active engagement with policy makers. It works with over 70 public and private sector players including seed companies, agro-input dealers, farmer groups, grain buyers, and processors across eight countries to the benefit of over 245,000 households. It advanced information on improved HIB varieties and complementary technologies for improved production and productivity, access to market, value addition and nutrition of HIB. Project inception meetings were held across its eight countries with a total attendance of 371 participants, including government officials in a way that advanced HIB within national agendas. For example, 14 county governments in Kenya agreed to promote agribusiness opportunities around high iron beans, high iron beans were included within a seed and input program in Zimbabwe, and the Malawi government now includes HIB within its subsidy program. Note that a joint inception meeting with the OFSP Compact was held in Rwanda, and that the Maize and OFSP Compact Leaders participated in the Kenyan meeting.

Building a Regional Technology Delivery Infrastructure: Technology Delivery Platforms were established as a result of its country-level inception meetings to further the deployment of the HIB technologies within their respective countries. The Compact trained technical and financial teams of lead implementing partners from all the eight countries on 4 and 5 December 2018 to understand TAAT procurement and accounting processes; review the Compact's technology toolkit, reinforce its gender responsive actions, prepare for TAAT's M&E requirements, and explore opportunities for interfacing with other programs. In addition, the Compact co-sponsored an event with St Mary's College in Kisubi, Uganda in December 2018 on *"Engaging youth into agribusiness through the use of information and communication technologies"* that attracted 204 youth and included the integration of ICT across the bean value chain.

Deploying Appropriate Technologies: During 2018, Compact partners produced 1,259MT of breeder seed and 4,493MT of certified seed reaching a total of over 245,817 households. This success was accompanied by participation within field days, agricultural fairs, and training activities. These efforts were conducted in collaboration with the Kenya Quick Wins, the One Stop Shop Operation Mechanism, the Swiss Development Corporation, Global Affairs Canada, AGRA, World Vision, Catholic Relief Services, One Acre Fund and others. The eight Technology Delivery Platforms identified 31 improved HIB varieties, country-level best production practices, and two processed products for deployment in 2018. The 31 improved varieties include five in Uganda, four in Kenya, three in Tanzania, five in Rwanda, three in Burundi, five in DR Congo, three in Zimbabwe and three in Malawi. Good practice includes seed dressing, organic and inorganic fertilizers, power weeders and sprayers, bean threshers, solar driers and hermetic storage bags. These technologies were demonstrated by partners in over 536 on-farm demonstrations across the eight countries in 2018. Processed products ready for immediate expanded commercial application include precooked beans and bean flour.



Close up of High Iron Bean varieties displayed in Kenya



The High Iron Bean Compact at a glance

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***Coordinator: Robin Buruchara,
International Center of Tropical
Agriculture (CIAT), Africa Regional Office,
Nairobi, Kenya.***

***Target Countries in 2018: Burundi, DR
Congo, Kenya, Malawi, Rwanda,
Tanzania, Uganda and Zimbabwe.***

***Lead technologies: High Iron Bean
varieties NUA45 and 674, Cherry, Sweet
Violet and others.***

***Accompanying technologies: Use of
inorganic fertilizers, pre- and post-
emergent herbicides, fungicides and
insecticides within IPM strategies.***

***Post-harvest technologies: PICs hermetic
storage bags, bean flour, and canning.***

The Aquaculture Compact



An increase in farmed fish is needed to offset the steady decline in the catches of inland wild populations. Current aquacultural production is about 1.4 million MT per year and demand is expected to increase by 451,000 MT by 2025. This increased demand can be met by increasing pond productivity by 13% (from 24.0 to 27.2 MT per ha of pond, and increasing pond coverage by 30% (from 62,000 to 71,000 ha), or other combinations thereof. Gains are achieved through introducing improved breeds of fish through commercial hatcheries, improving the quality and cost effectiveness of feeds, upgrading less productive ponds and introducing a wide variety of modern rearing techniques including cages, tanks, and runways. Improved water availability and quality is essential to expanding African aquaculture. All of these technologies are being promoted within the TAAT Aquaculture Compact. Specific progress toward project implementation within the major components of TAAT follows.

Creating an Enabling Environment: The Compact aims to promote, demonstrate and upscale

aquaculture technologies through demonstrations, capacity building and extension delivery systems to value chain actors in the targeted countries. Country inception meetings, inauguration and planning workshop were conducted in conjunction with NARES and value chain actors. A country level facility assessment for aquaculture technologies demonstration was conducted in 10 target countries. Certification guidelines for value-added aquacultural products for export were finalized. Policies and their impacts on aquaculture production have been identified in the targeted 10 countries.

Regional Technology Delivery Infrastructure: GIS mapping and clusters for fish farms around participating Innovation Platforms was concluded. Outreach campaigns for up-scaling technologies were conducted. A business model and financing frameworks meeting for the value chain with was conducted in partnership with NIRSAL. Focus of the compact in fourth quarter was on building the capacity of value chain actors in the 10 selected countries. Awareness and sensitization for fish farmers on technology adoption was prioritized. The compact and its partners leveraged on existing country level projects to reach the target beneficiaries.

Deployment of Appropriate Technology: Through training and demonstration, five aquaculture technologies were disseminated and adopted by farmers. Over 3,500 fish farmers in the 10 selected countries were trained on aquaculture technologies disseminated and Better Management Practices. In collaboration with the TAAT Small Livestock Compact, over 400 fish farmers in Nigeria were sensitized on the inclusion of cassava peel mash to produce quality low cost fish feed. This innovation was adopted by over 2,000 fish feed producers in Nigeria.



Training is provided in the construction of fish cages in Egypt (insert: an improved farmed tilapia).



The Aquaculture Compact at a glance ...
Coordinator: Bernadette Fregene, World Fish at IITA, Ibadan, Nigeria.
Target Countries in 2018: DR Congo, Ghana, Kenya, Nigeria, Zambia, Burundi, Cameroon, Côte d'Ivoire, Republic of Benin and Tanzania.
Lead technologies: Fingerling production, pond- cage- and raceway-based systems, feed production, and value addition through smoking.
Accompanying technologies: Water quality management, prevention of disease outbreaks, sex manipulation, spawning techniques.
Post-harvest technologies: Degutting techniques, drying and smoking, packaging.

The Small Livestock Compact



This Compact advances technologies related to poultry, goats and sheep.

Poultry: Poultry meat deficits currently stand at 938,000 MT per year but is expected to grow to 1.28 million MT in 2025. There are currently about 7.4 billion birds produced in Africa's savannas per year with an average live weight of 0.9 kg each. To meet the deficit, live weight must increase to about 1.5 kg per bird (+67%), a target that is readily achievable by better breeds, feeds and veterinary care. Similarly, there are about 282 million layers in the savanna zone, each producing 4.0 kg of eggs per year. This should be increased by 50% (to 6.0 kg eggs per layer per year) by 2025 to meet expected demand. Poultry enterprise is particularly important to African farmers, as it allows for stepwise intensification and market for live birds and eggs is widely available. Improvement in poultry is largely dependent upon the availability of lower cost, quality feeds composed primarily of maize and soybeans, linking these three commodities. Currently within TAAT, poultry as a value chain is grouped within the Livestock Compact and it should perhaps be treated as its own commodity.

Goats and Sheep: This effort represents the second

commodity value chain within the Small Livestock Compact coordinated by the International Livestock Research Institute (ILRI) through multi-stakeholder actions in seven countries located in Central, East, Southern and West Africa. It relates to sheep and goats and the need to intensify production practices that transition their rearing from subsistence to commercial operations. It is based upon promotion of proven technologies that can improve small livestock genetics, feed, health, production systems and marketing. Localized herd improvement results from introducing improved animal breeds through community-based breeding. While the benefits of open grazing are recognized, so too are the advantages of part-time containment in protective sheds and zero-grazed fattening in the final stages of meat production.

Specific progress toward project implementation follows. Compact activities included small ruminants fattening, formulation and production of feed resources, distribution of improved poultry and cassava peels mash. The Compact undertook activities related to livestock technologies in three countries; Ethiopia, Mali and Nigeria. These actions reached nearly 250,000 farmers. In Ethiopia, the Compact, through the private sector, business and technical training, is providing support to chicken agents in two regions. Through this support, agent distributed 1.35 million chickens to about 100,000 households. The combined activities under sheep fattening, fodder production and high-quality cassava peels mash reached another 100,000 beneficiaries. In Mali, 1,593 small ruminant producers including 674 women developed skills in profitable small ruminant fattening, 32,730 small ruminants were vaccinated against PPR and about 30 tons fodder biomass produced for dry season feeding. In Ethiopia, about 475 youths received entrepreneurial training in sheep fattening and production.



*The Small Livestock Compact at a glance ...
Coordinator: Samuel Adeniyi Adediran,
International Livestock Research Institute
(ILRI), Ethiopia.*

*Target Countries in 2018: Ethiopia, Mali
and Nigeria.*

*Lead technologies: Improved poultry
breeds Sasso, Koekoek, Kuroiler and
others. Improved goat and sheep breeds
through community-based breeding,
feeding systems including use of cassava
peels, and fattening operations.*

*Accompanying technologies: Poultry
brooding, housing, ration formulation and
vaccination. Goat and sheep vaccination,
deworming, and feed improvement using
Brachiaria, sorghum, groundnut and
cowpea.*



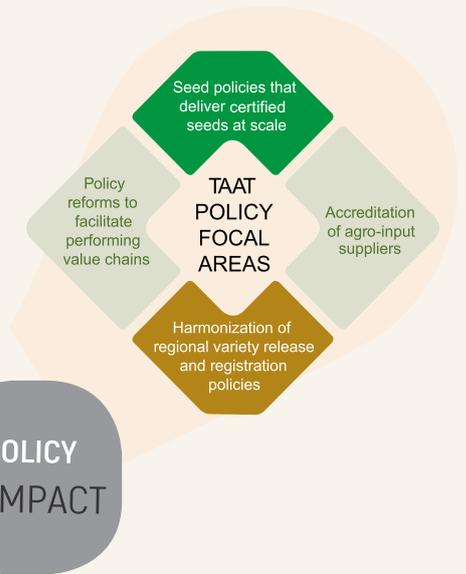
Farmers enthusiastically receive an improved breed of poultry in Ethiopia (left); Women display their fattened rams during a field event in Ethiopia (right).

Enabler Compacts As A Unique Feature of TAAT

One of the features within TAAT that led to a refinement in its operations was the better definition of the roles of TAAT Enabler Compacts. The TAAT Framework Document prepared by the African Development Bank in late 2017 introduced these Enablers as Compacts within the Program. These six Enablers and their respective roles follow.

Policy Support Compact: This Compact operates within the realm of Enabling Environment, often interacting with regional bodies. In 2018 it identified policy support priorities, primarily related to seed systems and movement of production inputs, and in 2019 it intends to invoke policy reform actions.

The six Enabler Compacts provide support services for soil fertility management, water management, capacity building and development, advocating supportive seed technology policy, mobilising youth into agribusiness and organising a response to fall army worm invasion.



Capacity Development Compact: This Compact is intended to assist the Commodity Compacts with their training needs, primarily through training-of-trainer approaches. Initial attention is directed toward training of extension agents in TAAT technologies and to gender equity.

ENABLE TAAT (Youth) Compact: A strategy of advancing TAAT's proven agricultural technologies through youth-led entrepreneurship is being pursued through youth advocacy, agribusiness incubation and agribusiness support.

Water Management Compact: This Compact works with irrigation and water delivery systems, water harvesting and watershed management. In this way it is relevant to all crop and the aquaculture compacts, but its initial efforts are largely directed toward the Sahel and West Africa.

Soil Fertility Compact: This Compact provides soil management advice to the crop Compacts. It quickly advanced two potent fertilizer technologies; urea pellets and micro-dosing; and is moving into issues related to the larger availability of fertilizers and soil management information.

Fall ArmyWorm Emergency Response: This Compact is based upon the recent invasion of Africa by the Fall ArmyWorm. As this pest threatens maize, the Fall ArmyWorm Compact is closely linked to that of the Maize Compact; but the expanding feeding habit of this pest suggests that other Compacts may also become involved.

It was clearly the intention of the design of TAAT that these Enabler Compacts would provide services to the Commodity Compacts in a manner that assists them to reach their commodity technology dissemination targets.

The Enabler Compacts were required to develop work plans for evaluation by the Clearinghouse (alongside the Commodity Compacts) and it was noted that several of the Enabler Compacts intended to conduct their own "stand-alone" activities, often in conjunction with existing projects of their Coordinating (Lead) Institution. This approach was viewed as flawed and the Enabler Compacts were redirected toward the Commodity Compacts as partners.

Once partnership with the Commodity Compacts was reinforced, three important trends emerged. First, Enabler Compacts were instructed to report their achievements only through partnering Commodity Compacts, but this proved unrealistic.

Second, of the six Enabler Compacts, three are much better positioned to contribute to the accompanying technologies of other compacts (Soil Management, Water Management and FAW Emergency Response) while the other three (Policy, Capacity Development and ENABLE TAAT) were strategically positioned to offer other specialized services. For example, bottlenecks in the cross-boundary movement of seeds, animal breeds and production inputs is a pressing concern suited for policy intervention. Similarly, youth were more attracted to some technology-based enterprises but not others.

The Enabler Compact approach is a unique feature of TAAT and its effectiveness requires innovative application by its many partners as the Program develops.

Policy Support Compact

The Policy Support Compact is coordinated by Francis Nang'ayo of the African Agricultural Technology Foundation from its office in Nairobi, Kenya. The focus of this Compact is creating an enabling environment for technology adoption by farmers. This is achieved through engaging governments, regional bodies and other stakeholders to facilitate policy reform interventions that will fast-track crop variety release and registration, spur market incentives for agro-inputs and agricultural produce, promote regional harmonization of policies and regulatory processes for delivery of technologies across similar agro-ecological zones in the grand aspiration of “technologies without borders”. Towards this end, the TAAT Policy Support Compact's work plan is anchored on four objectives:

1. Create a strong seed system within countries via an evaluation and preparation of interventions that can be effectively disseminated to the seed industry.
2. Increase access and availability of quality seeds via accreditation of seed, fertilizer, and agro-input suppliers to farmers.
3. Harmonize regional technology release and registration policies through the study of existing protocols and enactment of relevant policies that improve cross-boundary movement of seeds and agricultural goods.
4. Facilitate competitive value-added chains through an analysis of existing value chain studies and synthesis of policies that create market incentives for farmers and agribusinesses

All four of these objectives are geared towards creating a more enabling environment for technology deployment.

Policy support continued along several inter-related work streams. We conducted rapid seed industry assessment missions in 12 countries (Burundi, C. d'Ivoire, DR Congo, Kenya, Liberia, Mali, Nigeria, Sierra Leone, Rwanda, Uganda Zambia and Zimbabwe). This assessment primarily sought to identify chokepoints in the seed delivery systems that

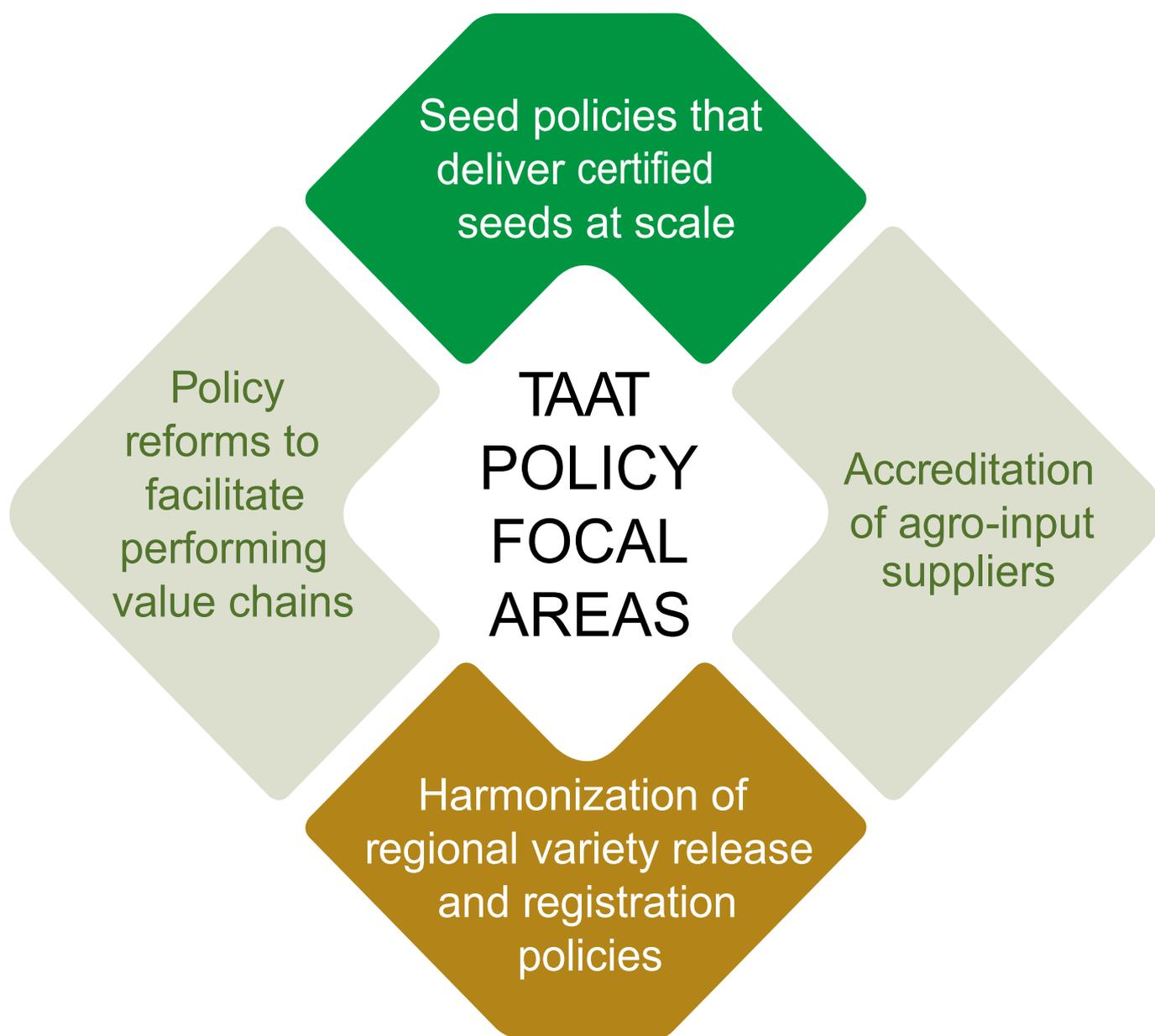
will help focus discourse with governments on policy interventions to engender efficiency in quality seed supply. As a result, the following actions were initiated: (1) Updating of the National Seed Catalogue and strengthening of provincial seed associations in DR Congo, (2) Compilation of a Seed System map in Liberia to characterize key industry players and their functions as well as the flow of actions in the seed supply chain, and the attendant policy environment and (3) the adoption of National Seed Policy in Uganda.

In order to ensure quality seed supply, the Policy Support Compact also conducted assessment of existing accreditation processes for agro-input dealers in seven countries (Nigeria, Malawi, Ghana, DR Congo, Tanzania, Kenya, Rwanda, and Mozambique). When concluded, this effort will result in a catalogue of certified agro-dealers that can reliably supply quality seed to farmers. A protocol for identifying accredited and genuine seed suppliers and agro-dealers was also developed. Guided by this protocol, a survey for seed companies and agro-dealers was conducted in Nigeria and Tanzania to identify genuine seed suppliers and agro-dealers.

To support harmonization of regional variety release and registration policies, a high-level consultative workshop was organized for public and private stakeholders in the seed industry within COMESA regional economic block. The workshop aimed at assessing the current status of implementation of regionally harmonized seed regulations, identifying the implementation challenges and developing action plans for accelerating implementation of harmonized seed regulations in COMESA region. The workshop was attended by 85 delegates from 16 COMESA member states and concluded with a commitment to fast track domestication and implementation of the regionally harmonized seed regulations. A detailed account of Workshop Proceedings has been compiled as well as a Policy Brief on “*Accelerating Seed Policy Harmonization: Key Challenges and Action Plans for COMESA*”.

A review of the TAAT Small Ruminant and Poultry value chain was conducted in Ethiopia, Mali and Nigeria to identify constraints and gaps and was prioritize the need policy interventions. Going forward attention will be focused on conducting reviews on value chain studies for Maize and Rice. Furthermore, the Policy Compact conducted in the demand and supply gap analysis to contribute towards fostering trade across African countries. The Policy Compact also supported the management of the FAW emergency by advocating for policy and regulatory interventions to fast-track registration of

promising pest control products (such as Fortenza Duo) in countries of Southern Africa as an integral component of an IPM strategies. Finally, in response to requests from TAAT Commodity Compacts, the TAAT policy Compact participated in the inception workshop for TAAT compacts in Burkina Faso. This provided an opportunity for engaging stakeholders in the seed and fertilizer trade as well as government representatives on pertinent policy issues on Sorghum/Millet, Rice, Water and Soil fertility management.



Capacity Development and Technology Outreach (CDTO) Compact

This Compact is coordinated by Krishan Bheenick of the Forum for Agricultural Research in Africa (FARA) from its office in Accra, Ghana. Capacity Development activities started with the recruitment for the positions of Coordinator, Knowledge Management Officer, and Accounts Officer. This was followed by an Inception Workshop in June 2018 with Enabler stakeholders, Commodity Compact Leaders and prospective value chain actors in Accra, where the initial steps for the development of a detailed country-based and value chain specific work program was developed for an initial set of 10 countries. Procurement procedures for the acquisition of office equipment and furniture, ICT equipment for use in countries and for filed data collection were initiated.

Much effort addressed administrative preparation. FARA assembled components of a capacity audit. In line with the partnership mapped during the Inception Workshop, sub-grant agreements with AFAAS, ASARECA, CORAF, CCARDESA and AWARD were prepared. The agreement with AWARD guides gender mainstreaming in CDTO activities. Other sub-grant agreements will follow. The reporting period also saw FARA recruiting a CDTO Agribusiness Expert, who joined the team in December 2018. During the year, CDTO compact interacted directly through meetings and activities with the Soil Fertility Enabler and Youth Enablers, and the Cassava, and Aquaculture Compacts. In addition, coordination meetings organized by the PMU and Clearinghouse, provided direct interactions with all Compacts. Communication mechanisms among the Commodity Compacts and Enablers resulted from this participation.

Subsequently, the CDTO launched a series of activities aligned to the activities of the Commodity Compacts. A series of regional Training of Trainers (ToT) workshops was conducted in Nigeria, Kenya and Malawi in 2018. For each country, participants were trained on the establishment and management of Innovation Platforms as a means of scaling agricultural technologies. In addition, the ToT

activities provided opportunities to the establishment of the Community of Practice on IP managements and registration with FARA's electronic and digital services. During 2018, a total of 275 participants (trainers) from 17 countries were trained. Of these, only 24% were women. However, with the development of gender mainstreaming instrument by AWARD, we expect this proportion to increase in subsequent activities.

The CDTO Compact continues to engage and complement the technology toolkits of the Commodity Compacts. It offers assistance to the Commodity compacts in designing knowledge products about these technologies in a manner suitable for outreach purposes. In the initial stages of TAAT, Commodity compacts have been rushing to set up demonstration plots to get the proven technologies better known among stakeholders, particularly seed multiplication and Good Agricultural Practice. However, as the scaling process begins, these technologies must be disseminated at an increasingly larger scale that can only be achieved through the design and packaging of learning resources for use within IPs and their target communities. Thus, CDTO will continue to develop knowledge products based upon lessons from the field but intended for widespread dissemination.



TAAT CDTO Compact Leader addressing participants at a capacity building workshop

ENABLE-TAAT (Youth in agribusiness) Compact

ENABLE TAAT is led by Evelyn Ohanwusi of the IITA Youth in Agribusiness Unit in Ibadan-Nigeria through its widely recognized Youth Agripreneur Movement. It provides services to nine TAAT Commodity Compacts, starting with their respective commodities and technologies and delivering them in forms that stimulate youth-led agribusiness. Its operations are guided by four objectives; to expand agribusiness opportunities, to provide agribusiness support for those businesses, to improve human nutrition through access to TAAT crop varieties, particularly its bio-fortified crops, and to advance youth empowerment through advocacy for and awareness of agricultural transformation. Its Enabler plans were advanced through two planning workshops in 2018. The first one was the "ENABLE TAAT Implementation Workshop: Agripreneur Opportunities and Responsibilities" conducted at the IITA Conference Center, Ibadan Nigeria from 9 to 11 May 2018. The workshop defined five major thrusts for its work plan,

including advocacy, youth registration, agribusiness completion, experiential learning and technology outreach. A second event, "ENABLE TAAT Implementation Workshop: Agripreneur Opportunities and Responsibilities in Central, East and Southern Africa" was conducted at the ICIPE Conference Center, Duduville, Nairobi, Kenya from 20 to 24 August 2018. This workshop served to develop detailed plans for ENABLE TAAT activities in DR Congo, Kenya, Tanzania, Uganda and Zambia. Both of these meetings resulted in published implementation plans that served as guidelines to project partners.

During 2018, the Compact provided young people the opportunity to link with the TAAT Program. About 678 youth were trained on commodity technologies, 748 were sensitized through food basket (demonstration plots) outreach and 28,400 were reached through youth advocacy meetings and social media platforms.



Youth Agripreneurs at a farm

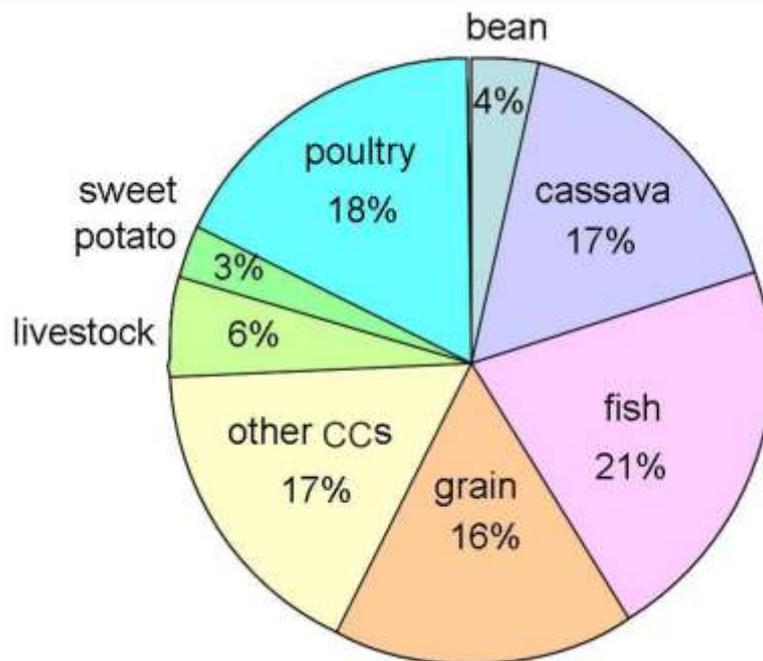


Figure 4. Relationship between youth-led agribusiness plans and the TAAT Commodity Compacts. Note that "grain" relates to the rice, maize, sorghum and wheat commodities.

Nonetheless the focus of these business plans is quite revealing in terms of which TAAT commodities attract youth. Reasonable but not perfect balance exists between submitted business plans and these TAAT Commodities (Figure 4). Cassava, fish, poultry, grain-based enterprises each attracted >16% of the business plans. Orange fleshed sweet potato, high iron beans and small livestock attracted between 3 to 6% of those enterprises. Relatively few (17%) of the business plans included commodities outside of TAAT priorities. Youth are directly linked to TAAT Compacts and their technologies through its Food Basket Outreach activity and this effort will continue into 2019.



Water Management Compact

The Water Management Compact is coordinated by Sander Zwart of the International Water Management Institute (IWMI) from its office in Accra, Ghana. It contributes directly to the technologies advanced through several of the crop-based Commodity Compacts. It commenced scaling of irrigation and water management technologies for wheat in Nigeria, Sudan and Ethiopia through



A modern pressurized water conveyance distribution system in demonstration site in Alkamawah, Kano State, Nigeria.

the advancement of 12 technologies are being scaled out in Nigeria (6), Sudan (3), and Ethiopia (3). Demonstrations attracted 420 farmers and more are planned in 2019 when scaling activities are expanded to include additional farmer field days, as well as greater awareness through media campaigns.

Following successful engagement with the Wheat Compact, preparations were made for promoting irrigation and water management technologies with the Rice and Millet & Sorghum Compacts in Burkina Faso, Mali and Nigeria starting in early 2019. In preparation for this assistance, the Enabler co-organized an Inception Workshop for Burkina Faso. Our approaches include widespread and high-level awareness raising. In Sudan and Ethiopia high-level governmental officials were informed on TAAT activities during visits to the demonstration sites. Stakeholder meetings are planned for early 2019 that lead to policy recommendations. Water and agricultural development policies will be inventoried and analyzed in collaboration with the Policy Enabler Compact led by AATF.

Partnerships are being formalized. Project coordination focused on planning and timely implementation of activities, and making administrative arrangements to support interventions in the countries. A planning meeting for water management was organized in Accra on 5 and 6 December 2018 and national coordinators from Nigeria, Mali, Burkina Faso, Sudan and Ethiopia participated. Four national coordinators were recruited and three sub-agreements with national partners were finalized. Sub-agreements with national partners in Mali and Burkina Faso were initiated, and procurements to support equipping the demonstration sites were prepared.

Soil Fertility Management Compact

The Soil Fertility Compact is led by Francois Lompo of the International Fertilizer Development Center (IFDC) from its office in Ouagadougou- Burkina Faso. It works in synergy with TAAT's crop Compacts and other Enablers to scale up input-based technologies for accelerated productivity growth, resilience and improved livelihoods. Special attention is paid to establishing a responsive agro-input dealer system and access to finance to support the scaling up of input technologies. Three fertilizer technologies are prioritized, micro-dosing, deep placement and balanced recommendations in support of the crop Compacts. Overall, the Soil Fertility Compact is targeting at least 1,783,000 farmers with technologies and related information materials and 3,070 agro-dealers in 21 selected countries.

To achieve these goals, the Compact identified key partners in targeted countries. IFDC organize two TAAT national meetings. The first was a joint meeting in Burkina Faso that involved six Compacts. A subsequent one in Benin involved four Compacts. During these meetings, institutional arrangements were established and partners developed consolidated Compact-Enabler work plans. Contracts and MoUs were initiated around Enabler activities that include soil analysis and mapping as well as data collection on agro-dealers and their strengthened capacities. The Soil Fertility Compact is supporting the Rice compact in training agro-dealers and extension agents in use of the RiceAdvice digital tool. Additional collaborative training activities are planned during 2019 in Ghana and Tanzania.

In summary, many key accomplishments occurred between July to December 2018. Staff was recruited including a Coordinator, Technology Transfer Officer and Accountant by August 2018. A Soil Fertility Compact Kick-off meeting was held in Ouagadougou from 28-30 August 2018. A joint monitoring visit with the ICRISAT Millet and Sorghum Compact was conducted in Toma, Ouahigouya, Gampela, Koubri regions of Burkina Faso from 1 to 3 September 2018. The Enabler contributed to the Rice Compact kick-off

meeting at Bouake, Côte d'Ivoire on 6-7 September 2018. An awareness and planning meeting was held in Nigeria at the Centre of Dryland Agriculture of Bayero University in Kano, Nigeria on 16-19 October 2018, in Mali at the El-Farouk Hotel in Bamako, 23-24 October 2018 and again with five other Compacts on 21-23 November 2018 in Ouagadougou. In addition, the Compact formalized three sub-contract agreements with Nigeria TAAT stakeholders including an ICT provider to map agro-dealers and Intriio-Synergy Limited to train agro-dealers. Other sub-contract agreements are in preparation. As an enabler Compact, its performance is tied to that of its collaborating Commodity Compacts and the start of TAAT followed the beginning of the West Africa growing season causing some activities to be postponed, a situation that will be corrected in 2019.



Nabintou Ouattara, in her inland valley rice field , transplanting rice in Kadiolo Mali

Fall Armyworm Emergency Response Compact

The Fall Armyworm Emergency Response operates as a TAAT Compact as a result of the biological invasion of this pest in Africa. Within a few years it spread across the continent and devastated the maize in smallholder farming systems. This Compact is coordinated by Peter Chinwada of IITA operating from its regional office in Lusaka, Zambia. The Compact activities started through a series of awareness-raising and planning regional workshops including the “From Plan to Action” High-Level Partnership Meetings for Southern, Central & West and East Africa held in Lusaka (26-27 July), Yaoundé (11-12 September) and Nairobi (11-12 October), respectively. The TAAT Partnership Workshop held in Nairobi from 5-7 November addressed collaboration within TAAT.

Technologies needed to control the pest quickly surfaced. Foremost among them was maize seed treatments with Fortenza Duo, a systemic blend that offers several weeks protection to young maize. Training workshops and seed treatment was conducted in Zambia and Zimbabwe, and then treated seeds distributed to target beneficiaries through various channels. Smallholder farmers received treated seed on an introductory basis while commercial farmers purchased them on the open market. Distribution to smallholder beneficiaries

occurred through the Farmer Input Support Programme in Zambia. SeedCo Ltd. treated the largest amount in both Zambia (897.5 MT) and Zimbabwe (1,050 MT). Agreement reached with Syngenta to monitor Fortenza Duo performance on its already-established demos in Zambia at 2,000 sites in and in 150 sites in Zimbabwe. These actions were conducted in collaboration with the Maize Compact. Challenges were encountered in the promotion of Fortenza Duo that reduced the amount of seed treatment in both Zambia and Zimbabwe. Owing to the urgency of these actions, tracking the precise distribution of seed treated with Fortenza Duo proved difficult, but information was available at a district-level. Furthermore, the rainy season was delayed in Southern Africa during 2018, resulting in planting as late as mid-December, making it difficult to report results during 2018. Administrative difficulties were encountered as well because the FAW Compact proposal and Annual Work Plan was not considered by the TAAT Program Steering Committee, resulting in difficulties in subcontracting for services. Nonetheless, seed treatment for early FAW control appears to be a viable technology, especially in combination with other Integrated Pest Management control measures. The campaigns to control FAW will continue during 2019 and be expanded to East and West Africa.



Participants at the East African edition of the TAAT Regional Workshop on Responding to Fall Armyworm Invasion

Communicating technology delivery

Like partnerships, the concept of communication in TAAT assumes a strategic and targeted approach towards increasing wider awareness of the program and the benefits it brings. Purposeful application of communication conveys TAAT's successes and serves

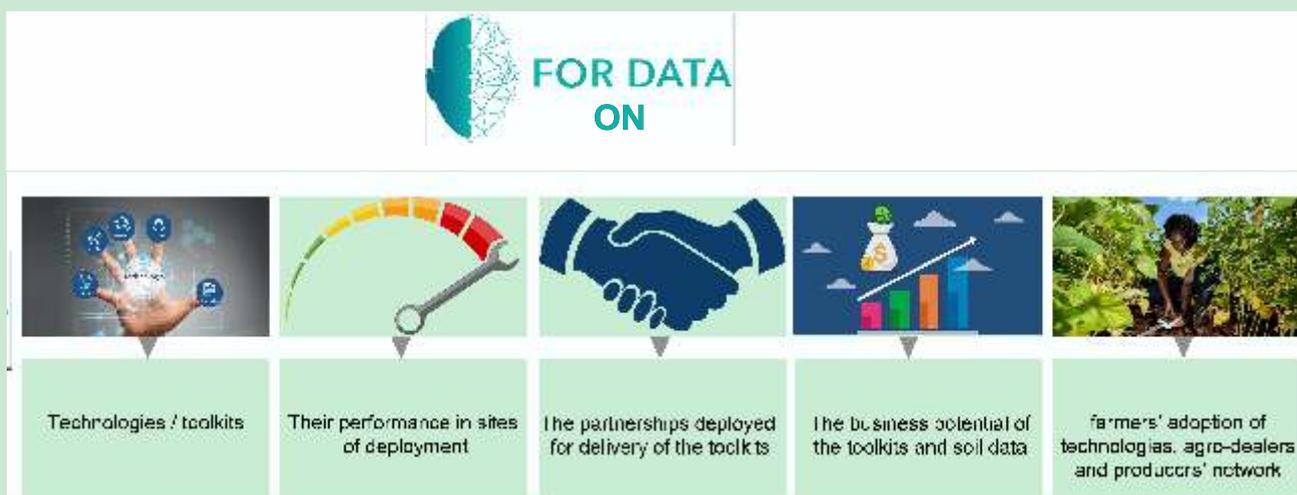
to incentivize and drive the program forward. To drive extensive coverage of the programme's activities, the following social media handles were established:

- o Facebook: <https://www.facebook.com/taatafrica>
- o Twitter: https://twitter.com/Taat_Africa
- o Flickr (Photos): <https://www.flickr.com/photos/159352184@N06/>
- o Instagram (Photos): https://www.instagram.com/taat_africa/
- o youtube channel (Videos): https://www.youtube.com/channel/UCc6ui4yVVFsefvSi_bhWHFA/featured?view_as=subscriber



In 2018 information awareness of the program was achieved through various print and social media campaigns that were widespread to reach millions of Africans that include: (i) thousands of Twitter impressions and followers across 22 countries providing instant connections between TAAT and farmers, (ii) hundreds of Instagram and Flickr followers with the intent of bringing change to African farmers, and (iii) hundreds of Facebook followers connecting beneficiaries and stakeholders and providing the necessary medium to reinforce the importance of partnerships and a successful integrated network.

TAAT Information Portal



The TAAT-IP is a “mega Portal” whose design was initiated in June 2018 by the Clearinghouse to store data on: (i) technologies/ toolkits, (ii) their performance in their sites of deployment, (iii) the partnerships for delivery of the technology toolkits, (iv) the business potential of the toolkits, soil data and (v) other factors affecting technology performance. TAAT-IP will contain practical information on technology toolkit descriptions including how to best access their components and seek assistance in their adoption. The on-line portal will be used to map farmer networks, identify bottlenecks of scaling, and capture performance of deployed technologies by multi-location, social knowledge sharing. It will provide information on technology toolkits and their commercial, country and agro-ecological applications and will include a geo-reference database that will provide real-time mapping of TAAT interventions.

TAAT-IP links to all TAAT stakeholders and should be accessible in different ways through different mediums including mobile phone. TAAT-IP will allow users to conduct an array of analyses including foresight for learning about the challenges, successes and failures of technologies deployed, to inform the applicability of technologies in similar agro-ecological zones and socio-economic conditions and/or make decision to terminate interventions that are not yielding the desired results. The Portal will not only assemble real time information coming from the field, but it will also craft messages and devise outreach strategies to bring information to those who need it, including farmers' associations, farming community leaders, suppliers of inputs and farming advice.

In order to align with a country's national investments and priorities, it is envisaged that TAAT-IP will be customized to include associated technology interventions as per a country's agriculture transformation agenda, needs and priorities. This information will be easily transferable to a national institution to ensure that countries participating in TAAT will have access to the full range of information required to identify the toolkits meeting their needs, environment and socio-economic conditions, thus enabling such decision support system to be available to the countries even after the TAAT Program will have ended.



TAAT's footprint in Africa

143 interventions, 259 technology toolkits deployed in 732 sites across 31 countries



With 143 interventions in 27 countries in its first year, TAAT has embarked on a continent-wide effort to modernise agriculture and promote agribusiness by scaling up proven agricultural technologies to increase crop and livestock productivity; ensure food self-sufficiency; create jobs and wealth; and make Africa a net food exporter!

In partnership with:



Conclusion and Plans for 2019

A solid foundation was prepared during 2018 for TAAT to achieve its ambitious goals related to transforming African agriculture. First, the bold Program design envisaged in the context of the Feed Africa Strategy was established, including its network of Commodity Compacts and Enabler Compacts. This achievement required that coordination and supervision structures be installed and that a series of adjustments be made. Foremost among them is that TAAT is not an opportunity to fund research, but rather a means to mobilize proven technical advances and bring them to their intended beneficiaries. In many cases, these advances were the improved varieties of crops and breeds of animals that resulted from past research, and the accompanying technologies that realize their advantages. In many cases, these technical innovations were built upon large, recently concluded projects conducted by the CGIAR system and funded by donors. In this way, TAAT serves as a welcome, and often unplanned, exit strategy to sustain the achievements of past projects.

Another solid achievement is the realization of services offered by TAAT's network of Enabler Compacts. Initially these Enabler Compacts sought to establish their own separate activities within TAAT, often in support of the existing programs of their respective lead institutions, but this trend was actively resisted by TAAT's management and instead a series of collaborative services resulted. Some of these services directly supported the Compact technology toolkits, while others provided needed services to Compact beneficiaries. But this foundation is only the beginning, and the efficiency of the Enabler Compacts will improve. This will ensure that TAAT is catapult to deliver improved technologies to Africa's underperforming farming community.

Clearly TAAT is intended not to simply catalog and display agricultural technologies, but rather to set them into action. To a large extent, the gains achieved during 2018 have positioned the Program for agricultural transformation, but must not be confused with its impacts. Several constraints were

identified during the early stages of TAAT, and actions taken to relieve bottlenecks and speed up delayed implementation. Several opportunities were recognized and refinements must be undertaken to improve Program operations; some of these requiring paradigm shift. Key elements of the way forward follow.

Improving fund replenishment mechanisms: Implementation partners were not adequately prepared for compliance with the fiduciary and procurement procedures of AfDB. The PMU quickly recognized this shortcoming and worked to correct the situation. The PMU will continue to undertake systematic solutions to assist the Compacts as implementation agents.

Implementing policy reforms: During 2018 policy support activities by both the Policy Support Compact and the Clearinghouse were devoted to identifying supportive policy conditions and the bodies best able to reinforce policy actions. It is essential that the next stage be to introduce and advocate needed policy reforms that facilitate technology access and to devise a strategy for their respective regulatory and legislative outcomes.

Linking to the private sector: A strategy for linking TAAT technology deliver to an expanding private sector is not yet in place. Different sectors engaged in technology delivery include manufacturers, distributors and last-mile agro-dealers, and each requires separate approaches to accelerated technology deployment. The situation is more advanced for seed-based technologies and their seed systems, and this success could serve as a model for other accompanying technologies.

Expanding the scope of M&E, learning and communications: The M&E requirements of TAAT were not well anticipated given its ambitious targets and the scope of its operations. Presently, Program M&E is conducted by only one fulltime officer and a part-time assistant and they are overwhelmed by tasks at hand. Furthermore the M&E approach

initially addressed Compact supervision, but now must include larger-scale impact assessment and its expression through straightforward “dashboard” representation. Better linking emergent M&E findings to Program learning and communications is another priority for 2019.

Reach versus resources: TAAT is admittedly an ambitious Program and it did not reach some of its intended partners and countries in 2018. Reasons for this shortcoming include a mid-year start to the Program, causing some growing seasons to be missed and leaving too little time for necessary formalities. Moreover, funds available to TAAT program implementation through centrally managed operations by the Compacts, the PMU and the Clearinghouse are not sufficient to directly trigger the much sought after agricultural transformation. Instead, TAAT implementation should leverage the much larger national agricultural development projects funded through country's own resources,

sovereign loans or philanthropic investments. These projects are in need of technical inputs and knowhow at the design, planning and implementation stages, which the TAAT Program can readily provide.

Catalyzing technology deployment: The importance of catalyzing technology deployment through others rather than attempting to direct it through insufficient Program resources is an emergent paradigm. This perspective was lost in the urgency to identify and mobilize technology toolkits and to launch them through country-level promotion campaigns, but became reinforced when the reality of the costs of securing a technology beneficiary was calculated. Plans to situate TAAT technologies into the designs of others' developmental programs, including the investment, public and private sectors, must be better achieved over the next two years of TAAT activities for these catalytic intentions to be realized.



Orange-fleshed sweet potatoes



RiceAdvice App

TAAT Financials for 2018

International Institute of Tropical Agriculture
Technologies for African Agricultural Transformation (TAAT)
CONSOLIDATED STATEMENT OF SOURCES AND APPLICATION OF FUNDS
FOR THE YEAR ENDED 31 DECEMBER 2018

	2018 Audited (US\$)	2017 Audited (US\$)		2018 Sites yet to be visited (US\$)
Sources of fund:				
African Development Bank	4,309,199			1,990,916
Other donors				
BMGF		1,139,762		
Total funding for the year	4,309,199	1,139,762		1,990,916
APPLICATION OF FUNDS				
COMPONENT - 1 – Creation of an Enabling Environment				
Works				
Goods	55			8,193
Services	465,956			101,109
Personnel				
Recurrent	77,869			3,921
SUBTOTAL	543,880			113,223
COMPONENT - 2 – Strengthening the Regional Technology Delivery Infrastructure				
Works				
Goods	108,875			17,083
Services	791,084		5,187	266,725
Personnel				30,196
Recurrent	137,564			12,549
SUBTOTAL	1,037,523		5,187	326,553
COMPONENT - 3 – Strengthening Technology Delivery				
Works				
Goods	89,940			63,022
Services	722,999			505,611
Personnel				44,839
Recurrent	206,284			13,179
SUBTOTAL	1,019,223			626,651
COMPONENT - 4 – Program Management				
Works				
Goods	125,405	52,451		8,987
Services	471,737	263,030		114,803
Personnel	1,008,503	955,860		530,729
Recurrent	188,565	18,330		49,223
SUBTOTAL	1,794,211	1,289,671		703,742
TOTAL FUNDS APPLIED	4,394,837	1,289,671	5,187	1,770,169

Who's Who in TAAT in 2018

PROGRAM STEERING COMMITTEE

Members:

Mr. Gaston Cossi DOSSOHOU	Chairperson
Dr. Mary A. MGONJA	Vice-Chairperson
Dr. Dunstan S.C. SPENCER	Vice-Chairperson
Dr. James Ambrose AGONA	Member
Dr. Janet Mfon EDEME	Member
Dr. Stella Ama ENNIN	Member
Dr. Sophia E.N. MLOTE	Member
Prof. Abdourahmane SANGARE	Member
Dr. Abdou TENKOUANO	Member
Dr. Noe WOIN	Member
Ms. Maria F.Z. ZALOUMIS	Member

Ex Officio Members (non-voting)

Dr. Kenton DASHIELL	Representing the Executing Agency
Dr. Iain WRIGHT	Representing the Implementing Agencies
Dr. Mpoko BOKANGA	Secretary of the PSC, Head of TAAT Clearinghouse

CLEARINGHOUSE:

Mpoko BOKANGA	Head of Clearinghouse
Oluwatoyin ADETUNJI	Value Chain Specialist
Boris ADOUGAN	Driver/Messenger
Fidelia BABADJIDE	Executive Assistant
Mary IGBINNOSA	Partnership Engagement Expert
Welissa MULEI	Technical Assistant
Linda MULINDI	Administrative Assistant
Atayi OPALUWAH	Communication Specialist
Henri TONNANG	Technology Outreach Expert
Ayoko VIAS	Program Officer
Paul WOOMER	Technical Adviser
Rachel ZOZO	Monitoring & Evaluation Specialist

PROGRAM MANAGEMENT UNIT :

Chrysantus AKEM	Program Coordinator
Adeola ADEEKO	Procurement Officer
Kikelomo ADEKOYA	Accounting Officer
Ebenezer ADENEKAN	Executive Assistant
Tarhyel AYUBA	Driver
Monsuru BAKARE	Procurement Specialist
Seyi FASHOKUN	Program Accountant
Becca OLAMUYIWA	Accounting Officer

TECHNOLOGY DELIVERY COMPACTS

Rice Compact

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Abiba Omar MOUSSA
Kevin KOUADIO

Compact Coordinator
Technology Transfer Officer
Accountant

Maize Compact

Gospel OMANYA
Samuel ANGWENYI
Fredah NYAGA

Compact Coordinator
Project Officer
Accountant

Sorghum & Millet Compact

Dougbedji FATONDJI
Boubakary CISSE
Madeleine NKOLNDENG

Compact Coordinator
Technology Transfer Officer
Accountant

Wheat Compact

Solomon Assefa GIZAW

Compact Coordinator

High Iron Beans Compact

Robin BURUCHARA
Justin MACHINI
Jesika ODUOR

Compact Coordinator
Technology Transfer Officer
Accountant

Cassava Compact

Adebayo ABASS

Compact Coordinator

Orange-fleshed Sweet Potato Compact

Kirimi SINDI
Daniel MBOGO

Compact Coordinator
Technology Transfer Officer

Livestock Compact

Samuel Adeniyi ADEDIRAN
Getachew FEYE
Abubakar MUSA
Sidi TOUNKARA
Ermiyas SEBSIBE

Compact Coordinator
Technology Transfer Officer (Ethiopia)
Technology Transfer Officer (Nigeria)
Technology Transfer Officer (Mali)
Accountant

Aquaculture Compact

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Ajibola OLANIYI
Toyin EMMANUEL

Compact Coordinator
Technology Transfer Officer
Accountant

Fall Armyworm Compact

Peter CHINWADA

Compact Coordinator

ENABLE-TAAT Compact

Evelyn OHANWUSI
Idowu OSUN

Compact Coordinator
Business Development Officer

Soil Fertility Compact

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Hortence ZOUNDRANA

Compact Coordinator
Technology Transfer Officer
Accountant

Water Management Compact

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Richard APPOH
Seth NKETSIAH

Compact Coordinator
Technology Transfer Officer
Accountant

Capacity Development & Technology Outreach Compact

Krishan BHEENICK
Benjamin ABUGRI
Belinda KASEI

Compact Coordinator
Knowledge Management & Technology Outreach Officer
Accountant

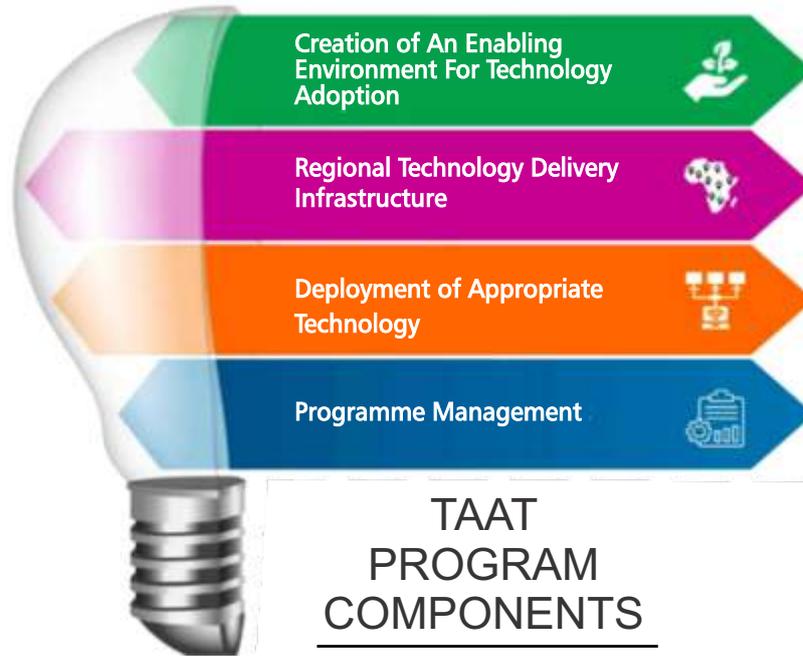
Policy Support Compact

Francis NANG'AYO
Daniel Kyalo WILLY

Compact Coordinator
Programme Officer

Acknowledgements

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