

Agricultural Education and Skills Improvement Framework (AESIF) 2015 - 2025



A transformed Africa's Agricultural Education System for the needed human capital to achieve CAADP and Malabo Declaration objectives on agriculture-led development in Africa



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Acronym and Abbreviations

ANAFE	Africa Network for Agriculture, Agroforestry and Natural Resources Education
ATVET	Agricultural Technical Vocational Education and Training
CAADP	Comprehensive Africa Agriculture Development Programme
CEMAC	Communauté Économique et Monétaire de l'Afrique Centrale
CHEA	Council of Ministers of Higher Education in Africa
CGIAR	Consultative Group on International Agricultural Research
CORAF/WECARD	Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles/ West and Central African Council for Agricultural Research and Development
DFID	Department for International Development
DP	Development Partner
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
FAAP	Framework for African Agricultural Productivity
FARA	Forum for Agricultural Research in Africa
GDP	General Domestic Product
IAR4D	Integrated Agricultural Research for Development
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MTP	Medium Term Plan
NAIPs	National Agricultural Investment Plans
NARI	National Agricultural Research Institute
NARS	National Agricultural Research System
NEPAD	New Partnership for Africa's Development
NPCA	NEPAD Partnership and Coordinating Agency
NGO	Non-governmental Organisation or Organisations
OP	Operational Plan
PP	Partners Platform
RECs	Regional Economic Community or Communities
REESAO	Réseau pour l'Excellence de l'Enseignement Supérieur en Afrique de l'Ouest
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SRO	Sub-regional Organisation
STC	Scientific and Technical Committee
TAE	Tertiary Agriculture Education
TAP	Tropical Agriculture Platform
UNDP	United Nations Development Programme
WAAPP	West Africa Agricultural Productivity Programme
TVET	Technical Vocational Education and Training

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Foreword



The empowerment of human Capital is a pre-requisite for the successful implementation of our development programmes toward the African Transformation. Better education and training constitutes the corner stone of this transformation. Indeed, knowledge as “human capital” has always been central to economic development.

Recent evidences from the emerging countries clearly demonstrated the fact that knowledge-based economy is liable to bring innovation, create new jobs, generate income and catalyse an inclusive growth and a sustainable development.

The lessons learnt in reshaping Africa’s agriculture from the implementation experiences of the first decade of the Comprehensive Africa Agriculture Development Programme (CAADP,) clearly indicate that Africa’s capacity to generate knowledge, foster learning, and enable development of skills among its workforce are a game changer. This has been well recognized during the African Union Heads of State summits held in Malabo, Equatorial Guinea in June 2014 and in Addis Ababa, Ethiopia in January 2015. Both Summits made strong commitment to “enhance agriculture education, skills development and knowledge support”. These commitments were further consolidated at the AU summit in Johannesburg, South Africa in June 2015—a Year of Women Empowerment which has also called to action for financial inclusion of women in agribusiness.

The NEPAD Agency, the technical arm of the African Union, has initiated the Agricultural Education and Skills Improvement Framework (AESIF) to transform Africa’s Agriculture Education and Training (AET) in order to leverage the quality and quantity of required skills for the advancement of agricultural growth and achievement of targets set in the Comprehensive Africa Agriculture Development Programme—Malabo Declaration. In light of the economic challenges, demographic pressures, food insecurity and (youth) unemployment African countries constantly grapple with, the implementation of the Agricultural Education and Skills Improvement Framework could not have come at a better and more urgent time.

The framework represents a common agenda for addressing education and skills improvement for the whole Agricultural knowledge systems both at regional and country levels targeting reforms at the: i) Tertiary Agricultural Education (TAE); ii) Agricultural Technical and Vocation Education and Training (ATVET); and iii) informal sector learning, acquired on lifelong training. The framework further provides pathways for institutional reforms, curricula reviews, and leveraging multi-consortia private-public partnerships on agriculture education and skills development to drive innovative solutions and value addition in agriculture. Its ultimate objectives are to address the challenges of disconnect among: i) the types of training provided and the skills needed in the workforce, ii) the fragmentation of knowledge actors and isolation of AET from research and extension and iii) the lack of appeal of youth and women towards AET learning systems.

These current challenges are not insurmountable as some good examples exist in Songhai centre in Benin and the health sector shows a better coordination mechanism between training institutions and hospitals.

Dr Ibrahim Assane Mayaki
NEPAD Agency CEO.



Executive Summary

1 - Context

The context of the Agricultural Education and Skills Improvement Framework (AESIF) is characterised by:

- A high political will of African Union Heads of State and Government: the AU Heads of State and Government summit declarations issued in Malabo (Equatorial Guinea) in June 2014 and Addis Ababa (Ethiopia) in January 2015, both included strong and clear decisions and commitments for capacity development in agriculture. The Malabo Declaration commitment on Ending Hunger in Africa by 2025 identified the supply of appropriate knowledge, information, and skills to users as part of appropriate policies and institutional conditions to accelerate agricultural growth by at least doubling current agricultural productivity levels, towards the year 2025. In response to the Malabo Declaration and in line with the African Union's Agenda 2063, the Implementation Strategy and Roadmap (IS&R) has been developed in 11 strategic action areas (SAA) to anchor the implementation of CAADP within countries. The strategic Area 2d is dedicated to enhancing skills, knowledge and agricultural education. Concurrently, the Science, Technology and Innovation Strategy for Africa (STISA 2024) and the continental strategy for Technical and Vocational Education and Training (TVET) were also adopted by the Heads of State and Government in Malabo to foster science and youth employment in Africa. The June 2015 AU summit in Johannesburg (South Africa) themed as the Year of Women Empowerment has called to action financial inclusion of women in agribusiness.
- Lessons learnt from CAADP first decade: CAADP's ten-year review and subsequent forward planning clearly indicates that Africa's capacity to generate knowledge, foster learning, and enable skills development among its workforce are recognized as a game changer in Africa's agriculture. Yet, notwithstanding the widespread acceptance of the essential role of AET in igniting agricultural transformation, there is no credible and overarching continental-level framework, with a realistic and achievable strategic plan, to effectively address the core problem of human capacity deficit within the African agricultural systems. The AESIF is therefore a direct response to this critical gap. With a coherent vision and agenda to empower AET through institutional reforms to bring about real transformation of the agricultural education system in Africa and promote economic growth and development agenda of the continent.

The AESIF therefore could not have come at a more appropriate time when economic challenges, demographic pressures and unemployment are mounting serious challenges. AESIF aims to be a driving process in targeting reforms at: i) Tertiary Agricultural Education (TAE), ii) Agricultural Technical and Vocational Education and Training (ATVET), as well as iii) informal sector learning, acquired on lifelong training.

2 - AESIF vision and mission

Vision

AESIF envisions to transform Africa's Agriculture Education and Training (AET) in order to leverage the quality and quantity of skilled workforce required for the advancement of agricultural growth and the achievement of targets set in the CAADP Malabo Declaration on accelerated agricultural growth and transformation for shared prosperity and improved livelihoods.

Mission

AESIF's mission intends to address the following AET constraints:

- Misalignment between type of training provided and skills needed in the workforce;
- Fragmentation of knowledge actors and isolation of AET from research and extension services;
- Duplication and inefficient allocation of resources by public, private and development partners;
- The apathy of youth and women towards AET learning systems and development of entrepreneurial skills.

The AESIF's mission is to stimulate and guide policy and institutional reforms to strengthen AET capacity to produce the desired skilled work-force with entrepreneurial competencies. During the first decade of implementing CAADP, the AET actors have been left out without any concrete support to adapt their training programs for needed skills and competencies for the current agricultural demands. Based on that experience, some specific studies have been undertaken, that has yielded three key strategic priority areas for AET, including: (1) Governance and Management policies; (2) Teaching and Learning Systems; (3) Public and Private Partnership mobilization.

3- AESIF Objective and Strategic Actions

By building on lessons learnt from the first decade of the CAADP, AESIF envisages to:

- Play a central role in guiding capacity building to continuously replenish the skilled human capital much needed to drive the agriculture transformation agenda in Africa;
- Provide a common agenda in leveraging multi-consortia private-public partnerships on agriculture education and skills development to drive innovation and wealth creation;
- Offer practical guidelines and tools for sharing of experiences and learning; and
- Ensure coherence among initiatives and alignment between actors, and integration of all processes into a common agenda mainstreamed within the CAADP process.

3.1 - Reforms in AET Governance and Management Policies

Action 3.1.1- Improve the governance policies

Establish a National AET council to coordinate, and drive the entire system of AET according to the national priorities. The council should sensitize a multitude of stakeholders, including political leaders, parliamentarians, the private sector, civil society organization, farmers' organizations, academic institutions, on the importance of transforming AET institutions for its efficiency in producing human capital. These actions should ensure that AET becomes more attractive to the youth and women by providing modern on-the- job training and learning facilities which enhance their entrepreneurial skills and employability. This is feasible through:

- A clear strategic plan based on national priorities and comparative advantages of the countries and the regional dynamics.
- National quality assurance framework with appropriate monitoring and evaluation, self-assessment, accreditation mechanism, and dynamic development of training that responds to the different demands of various target groups.
- Lifelong Learning and Recognition of Prior Learning (RPL) system, in which the skills of workforce are continually upgraded and promoted; and
- Representation of the whole AET system at national and international levels.

Action 3.1.2 - Improve the management system by

- Appointing AET leaders with good managerial skills based on individual merits not other subjective criteria. The AET leaders should be appointed through a competitive selection processes.
- Developing an adequate data recording system to better analyse information about the labour market needs and trends in agricultural employment.
- Providing training opportunities for employees including managers, teachers and support staff with appropriate ICT tools to run daily activities effectively.

3.2 - Updating Teaching and Learning methods:

Action 3.2.1 Reform and update curricula: Update the curricula to take into consideration the dynamic shift of the agriculture sector from family-on-farm production for subsistence purposes to consumers-and-market based needs.

- The curricula must respond to the interests of the youth by offering a wider range of appealing set of courses.
- Career paths may need to be structured around themes such as food security and nutrition, post-harvest storage and processing, agribusiness and entrepreneurship, bio-information and biotechnologies, natural resource management, rural finance, forecasting and risk management and other more appealing themes.
- Training opportunities need to be made more appealing by using guest lecturers from different spectrums of society that relate to agriculture to help raise awareness on the broad range of jobs available in the sector. Lastly, field trips, seminars, and more mobility across countries and regions should be used to motivate qualified students to select agriculture as their top priority.
- Training of trainers in agricultural vocational and technical centres and entrepreneurs in agribusiness should be carried out to upgrade their skills.
- Leverage ICTs to create mobile and online education and training platforms which are accessible to trainees regardless of their circumstances

Action 3.2.2: Improve Training methods:

- Employ Innovation Centres (ICs) which hold training of trainers on best-practices in delivering services for different target groups, such as farmers, workers in agri-business, processors, agripreneurs and start-ups. ICTs have a very important role to play in disseminating information on innovations and best-practices.
- The training must be more practical and use modern teaching methods ICT and online course such as Massive Open Online Courses (MOOCs). This requires the implementation of modularized training delivery in addition to full-time delivery which need to be certified using to a National Qualification Frameworks (NQFs) and Regional Qualification Frameworks (RQFs)

Action 3.2.3: ATVET and TAE systems interrelation and porosity: To facilitate articulation across the pipeline, pathways such as bridging courses must be developed to allow permeability between ATVET and TAE to reinforce rather than limit opportunities.

- The development of NQFS and Regional Qualification Frameworks (RQFs) are important to guide these dynamic and complementary inter-relations.

3.3 - Strategic Action for Public and Private Partnership mobilization

Action 3.3.1: Investment plan: A ten year investment plan coupled with a business model must first be established through a participatory approach during regular National AET fora. The National AET council should approve the budget and follow up its implementation. The current budget of AET stands between 15-20% of the needs and thus must be quadrupled for an adequate and efficient training.

- Governments must invest in infrastructure development , such as paved roads and internet connectivity for efficient and successful delivery of AET. The new infrastructure should be located in rural areas closer to the producers with easy access to experimental land for business incubator models. The NAIPs should be revised and take into account the specific needs of AET systems activities.

The negotiation (business plan) can be engaged with development partners to help governments focus on delivering the right investments as recommended by the Malabo declaration for production and productivity.

- The private sector should be a key player in the system by offering a robust capacity to AET, including on-the-job training, support for student scholarships, current and prospective employees sponsorships and mentorships. This approach of cooperative training through a strong public-private-partnership (PPP) will result in a sustainable knowledge generation for mutual linkages between AET institutions and industry as the demand side. The mobilization of the Private sector can be achieved by creating sector levy schemes (implemented as a payroll deduction of 2-3 % which is committed to an AET fund), encouragement of enterprise-based investment in AET (such concomitant tax incentives), and the expansion of student internships and cooperative training schemes.
- Joint-research activities can be enhanced through technical and financial support as well as convention between research and academic institutions in Africa and advanced countries elsewhere.

Action 3.3.2: Develop a Business model for a sustainable financial mechanism based on:

- Cost sharing with trainees: Affordable training credits or loan (that will be paid back once the trainees are employed), training vouchers, matching grants or loan funds are options to enable trainees to participate in cost sharing.
- Diversify investment opportunities offered specially by the private sector through new partnerships and South-South collaboration.
- Establish training funds that will be resourced through levies and other popular schemes such as fundraising from within countries by advocating the importance of the agricultural sector for African economies.

The framework has been developed in recognition of the need to strengthen and transform the AET system across all training levels, including the non-formal training, the formal vocational and technical training components, as well as the higher education component (at undergraduate and postgraduate levels). A number of key issues cut across all areas for attention and investment in, among others leveraging the potential of women and youth, and entrepreneurship. The institutional reforms of AET are imperative for African Agriculture to improve food and nutrition security, economic opportunity, prosperity, jobs and wealth creation. It is possible to address these current challenges as some good examples exist (in Songhai centre in Benin, at 'Institut Supérieur Agrovétérinaire' de Kimwenza in Democratic Republic of Congo) and the health sector in Africa shows an efficient coordination mechanism between training institutions and hospitals.



1. Introduction and Context

The importance of capacity building in Agriculture is increasingly recognized by all the actors keen for a sustainable development. The recent African Union (AU) Heads of State summits which were held in Malabo, Guinea Equatorial (in June 2014) and in Addis Ababa, Ethiopia (in January 2015) have both made clear decisions to “enhance agriculture education, skills development and Knowledge support”. In response to the Malabo Declaration and in line with the Africa Union’s Agenda 2063, the Implementation Strategy and Roadmap (IS&R) has been developed on 11 strategic action areas (SAAs) and the number 2d is dedicated to Enhancing Skills, Knowledge and Agricultural Education. In a wider perspective, the Science, Technology and Innovation Strategy for Africa (STISA 2024) and the continental strategy for Technical and vocational Education and Training (TVET) were also adopted by the Heads of State and Government in Malabo to foster Science and youth employment in Africa. The recent AU summit of June 2015 in Johannesburg (South Africa) whose over-arching theme was “Year of Women Empowerment and Development towards Africa’s Agenda 2063” has issued a call to action on financial inclusion of women in agribusiness. The need for improving the human capital is also increasingly being recognized by the Regional Economy Communities (RECs), the member states and Development partners. At the global level, The Tropical Agriculture Platform (TAP) was initiated by the G20 summit to promote agricultural innovation in tropical countries by developing a dynamic facilitation mechanism for all actors (individuals and institutions) to communicate, exchange ideas, knowledge, experiences and work in a more coordinated manner. The success stories of emerging countries like India, Brazil, South Korea and

Malaysia, shows that it is possible to build productive and financially sustainable AET systems, and AESIF is keen to transform agricultural Education and Training system for a better impact of African’s agriculture on the development of the continent.

After a decade of experiences with CAADP, the reviews of lessons learnt at national, regional and continental levels have resulted in the ‘Sustaining CAADP Momentum’ framework on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods. The Declaration made seven specific commitments: i) Recommitment to the Principle and Values of the CAADP Process; ii) Commitment to Enhancing Investment Finance in Agriculture; iii) Commitment to Ending Hunger in Africa by 2025; iv) Commitment to Halving Poverty by the year 2025, through Inclusive Agriculture Growth and Transformation; v) Commitment to Boosting Intra African Trade in Agriculture commodities and services; vi) Commitment to Enhancing Resilience of Livelihoods and Production Systems to Climate Variability and other related risks; vii) Commitment to Mutual Accountability to Actions and Results (NPCA, 2015a).

In response to the Malabo Declaration, and in line with the African Union’s vision 2063, the Implementation Strategy and Roadmap to Achieving the 2025 Vision on CAADP (IS&R) has been developed to facilitate the translation of the 2025 vision and goals of the Malabo Declaration into concrete results and impact. At the heart of the IS&R are a set of 11 strategic action areas (SAAs). aim at facilitating and providing guidance actions in support

of the 2025 vision and goals for Africa agriculture. Among them, the systemic action 2d (see insert below) is dedicated to Enhancing Skills, Knowledge and Agricultural Education. This implementation strategy and roadmap are linked with the CAADP results framework, which is the main tool for measuring and reporting progress on performance in achieving the Malabo Declaration commitments and targets (NPCA, 2015b).

In operationalization of the IS&R, an Agricultural Education and Skills Improvement Framework

(AESIF) is required to stimulate and harmonize a vision and agenda that will empower AET institutions. AESIF is an integrated policy framework embracing (a) Tertiary Agricultural Education (TAE) acquired through degree-, diploma- and certificate conferring institutions, which also includes postgraduate education (MSc-level and above); (b) Agricultural Technical and Vocational Education and Training (ATVET), as well as (c) informal sector learning, acquired through active practice/doing, including on-the-job training and other forms of in-field learning-training as illustrated in Figure 1.

Implementation Strategy and Roadmap to Achieve the 2025 Vision on CAADP - Strategic Action Area (SSA 2d)

In recent decades a number of factors have conspired to reduce significantly the critical quality mass of human capacity in African agriculture. These have resulted in a spiral of cause-and-effect, including low recruitment of young professionals and high attrition rates, occasioned by attractive options in other fields. Moreover Africa has, over the year, invested disproportionately little in agricultural training and research: facilities and content of programs in relevant institutions have deteriorated over time and are out of sync with developments in technology. Consequently, knowledge generation, acquisition and sharing in and across Africa is, at best, sub-optimal. These trends present a major challenge to the realisation of agricultural transformation in the continent. Thus, while the African Heads of State and Government have re-affirmed their commitment to positioning agriculture as a key driver for inclusive and sustainable socio-economic development, the weak capacity, low knowledge base and absence of systems and culture of formal knowledge accumulation and sharing represent major impediments to ensuring high and sustained agricultural production and productivity. Yet opportunity exists to leapfrog Africa's agriculture based on the rapid pace of global advances in technology.

- Sub-action areas
- Strengthen capacity for knowledge generation, packaging and dissemination
- Develop innovative ways and incentives to increase youth enrolment in agricultural disciplines in **vocational** and tertiary education - e.g. through exciting agribusiness training programs
- Equip value chain actors with entrepreneurship skills through targeted capacity building programs

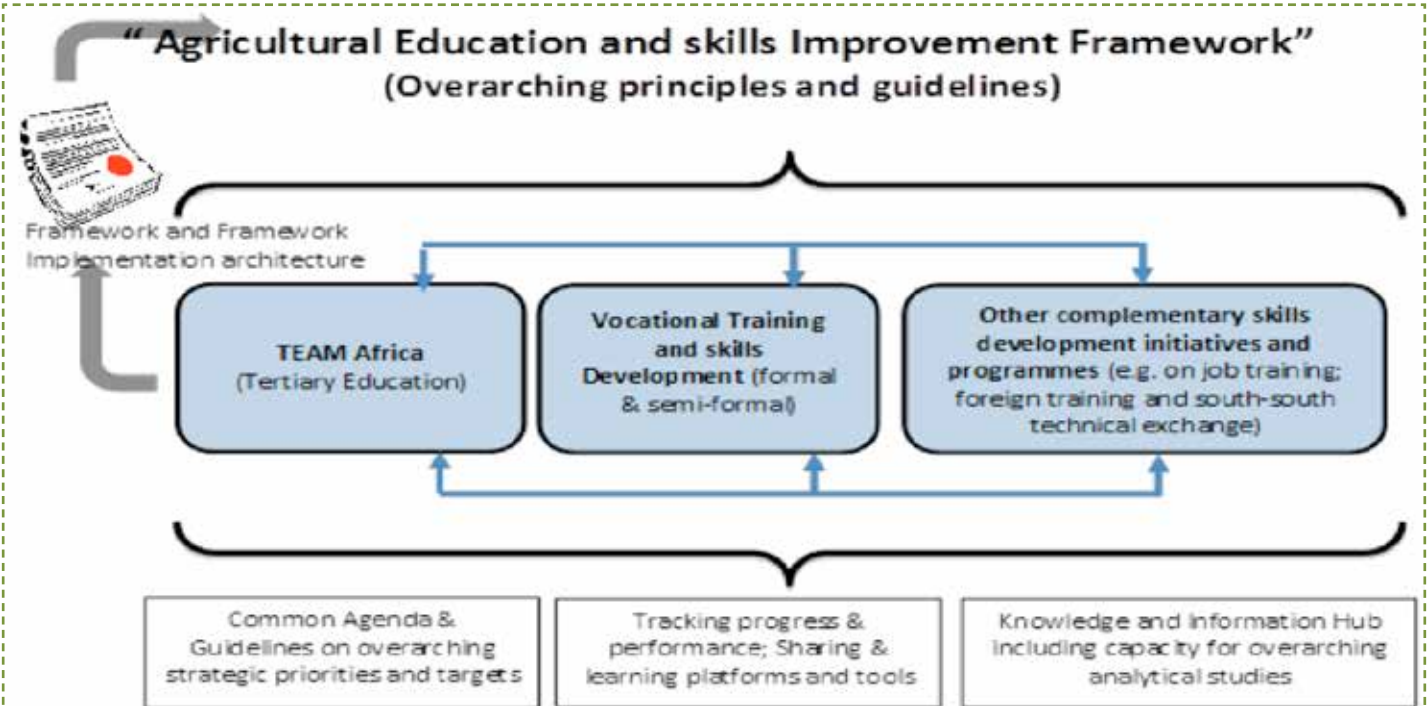


Figure 1: Components of the Agricultural Education and Skills Improvement Framework



2. Background and Justification of AESIF

2.1 - The need to transform African Agriculture Education and Training

The traditional training systems used to produce public servants for government policies are outdated and do not fit the current end-users needs which are gradually shifting towards problem-solving skills, multi-institutional management capabilities as well as value addition, private sector orientation and market-driven systems. As shown in Figure 2, agriculture efficiency is now more knowledge-based, and productivity increases exponentially as the level of education of practitioners' increases. This inevitable shift requires an agricultural workforce

with different/new set of skills and competencies, including understanding and mind-set. Unfortunately, Africa is slow in making the transition from subsistence to commercial farming due to several reasons. First of all, the ATVET centres are not attracting young students due to the obsolete theoretical training and the collapse of outreach and extension services. Secondly, the TAE embedded within Universities academic straitjackets are limited by issues of financial shortcomings. Thirdly, there is a lack of synergies of the TAE with research centres and even more critical no synergic links with industry.

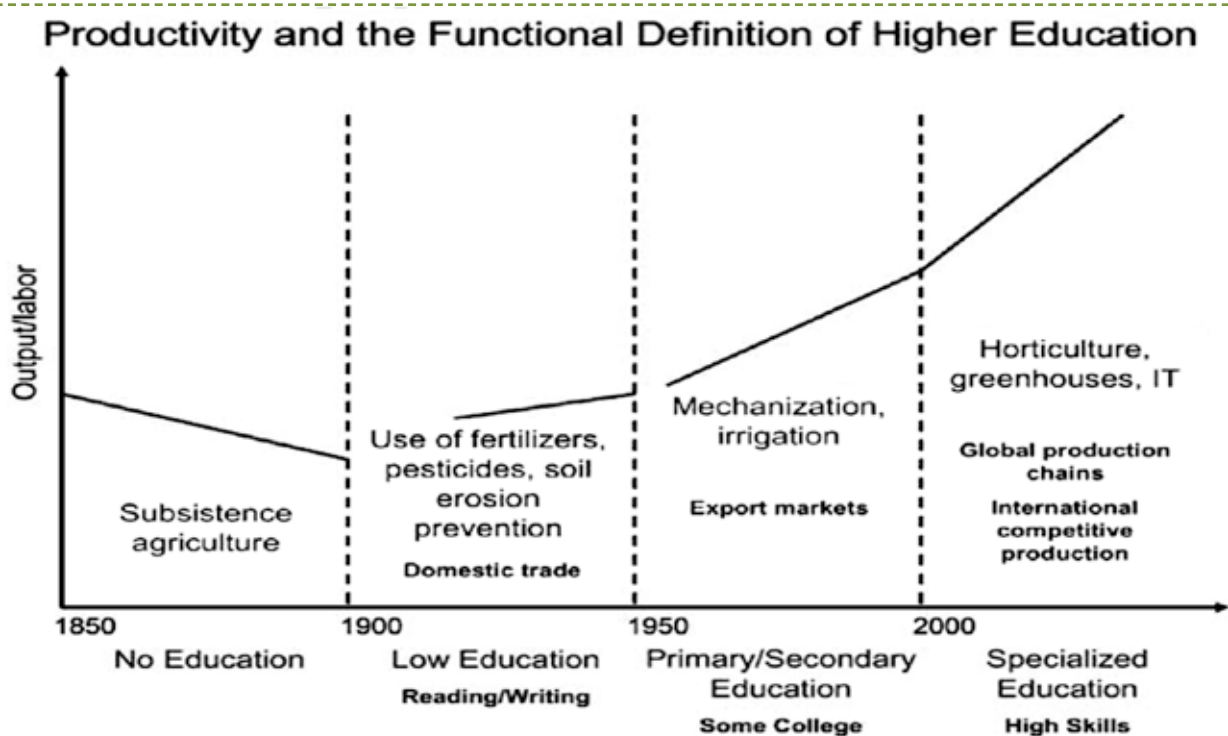


Figure 2: Productivity and the Functional impact of Higher Education (Hess, 2013)

During the first decade of implementing CAADP, the AET actors have been left behind without any concrete guidance and support to adapt their training programs for providing skills and competencies to present day agricultural demands. This is completely different from the research institutions which have had a great impact through their solid organizations led by FARA at the continental level and the SROs at the sub-regional level with their integrated Agricultural Innovation Systems. The weakness of AET has hampered the delivery of the objectives of the Framework for African Agricultural Productivity, adopted by AU head of States in June 2006 in Banjul, The Gambia. In the same manner, the objectives of National Agricultural Research Systems (NARS), including Research-Extension and Education in the Knowledge triangle, were not able to achieve their goals. This issue was highlighted in many international meetings and it came up during the Ministerial Conference on Higher Education in Agriculture in Africa (CHEA), which was held in Kampala (Uganda) in 2010, and which led to the creation of TEAM-Africa in 2012 (African Technology Policy Studies Network, 2011).

The analysis of the challenges of governance and management Policies have demonstrated:

- A lack of coordination and strategic alignment to the national development priorities, in particular those related to the national agricultural priorities. The AET institutions lack a clear vision and strategic plan to address the Agricultural sector needs. They have been poorly represented during the CAADP compact formulation and other parts of the NAIPs. The discrepancy in this approach can be found in the whole chain of Agricultural sector in, from vocational and extension services, tertiary education and their services to farmers' organization and the private sector.
- The AET leaders and advisory boards do not play their role in guiding the system on the need for more efficiency and looking downstream at the effective delivery of the system toward the end-user needs.
- The fragmented administrative structure of AET with a leadership under various government ministries (Education, Vocational Training or Agriculture) hampers a coherent approach towards a common objective. AET are isolated in a complex structure, over centralized or divided administration structure with an academy leadership under Ministry of Higher Education while their graduates should serve Agriculture Ministry needs.

At the management level:

- The appointment of TAE leaders and board members seems to be guided by political imperatives rather than based on managerial and meritocratic recruitment. This inadequacy also arises in terms of weak capacity of AET Leaders who have strong scientific reputations but are rarely trained in managing large and complex institutions.
- Lack of Management Information Systems (MIS) which are expected to provide comprehensive, reliable and updated information on the curricula, educational planning, financial data, administrative staff records, management of the student flow and the integration of the graduates into the labour market. This inadequacy complicates the consolidation of the statistics and deprives the relevant ministries and institutions of the requisite management information necessary for setting up a clear vision of the existing problems and proposed adequate solutions to improve national education systems with a quality assurance mechanism (Swanepoel, 2014).
- Lack of quality assurance mechanism with permanent self-assessment procedure to adjust the needs of actors and move in the world class standard of expertise.

2.2 - Mismatch between AET and Skills requirements in Industry and Public Institutions (Inadapted curricular)

In Africa, agriculture is still perceived as a path to poverty, and the dream of any farmer's family is to keep their children away from its limitations that they have badly experienced. Not surprisingly, agriculture enrolments, both in terms of total number and quality of students, show declining shares at all post-secondary levels. Most students who are enrolled in agricultural programs in Africa are not doing it by choice but because of their poor grades that prevents them from accessing the other options. This is a very critical fact because it means that many graduates within the agriculture sector are not interested in pursuing a career in the sector.

The traditional training systems that have been used to produce public servants for government administrations are outdated and do not fit the current end-users' needs which are gradually shifting towards value addition, private sector orientation and market-driven systems, global challenge on trade, subsidies climate change and resilience.

Furthermore, the analysis of internal inefficiency (repeaters, write-offs and failures of students for examinations) of the Higher Education systems indicates a poor performance rate (around 40-50% at the Bachelor level) which is the result of a multitude of constraints at academic level (weak performance at the lower level of training, quantitative and qualitative inadequacy of teaching staff) and non-academic factors (grants, housing, food, transport and health). That is why in the majority of African countries, while the numbers of students at the universities have increased three to fourfold during the last decades, the numbers of students, especially those enrolled in agricultural science programs, have been stagnant (3-4% increase per year) (Figure 3). Such low growth rates in enrolment, particularly in Tertiary Education, are a great impediment to the production of the much needed agricultural technicians and researchers on the continent. Research shows that on average, Africa has only 70 scientists per million people, which is very low in comparison to other regions of the world.

Moreover, women who are a potential untapped resource due to the role that they play in African agriculture are 3 to 4 times less well represented in student's enrolment in TAE. In Rwanda where there are many success stories have been recorded in terms of have been recorded in terms of the reduction of the gender gap (around 60% at the parliament), the signs of reversing of trends in AET are not yet visible (Figure 4).

A deep analysis of the mismatch between AET and skills requirement reveals that:

- African TAE curricula tend to be outdated and irrelevant to adequately address the challenges facing modern agriculture. Furthermore,

curricula are still focused on farm production rather than encompassing all the segments of the agricultural value chains and entrepreneurship, agribusiness, processing and marketing.

- The teaching methods are traditional lectures and there is a lack complementary practical training. The current learning paradigm makes students relatively passive receivers of information and it does not teach them critical thinking skills to challenge the information provided.
- The modern training tools (ICTs and online courses) are not widely used to attract the youth due to the lack of the teachers capacity to shift from their blackboard and analogical background to a more modern digital method of training. The narrow internet bandwidth and the irregular availability of electricity limit the deployment of a wider use of modern ICT tools.

2.3 - Decreasing of AET financing

Public financial support for AET was drastically reduced during the past two decades, and can only cover less than a quarter of the needs of the training institutions. As a result, student support in terms of scholarships has been drastically reduced by as much as 70 to 80 % in the last decades due to the limited or stagnation of budget allocation in a time of increasing demand for training. The annual value of scholarships provided to students pursuing a Bachelor's degree dropped from about US\$ 1500 per student in 1990 to only US\$ 600 per student in 2012. Likewise, doctoral degree programs are also struggling with only 30-40% of students receiving

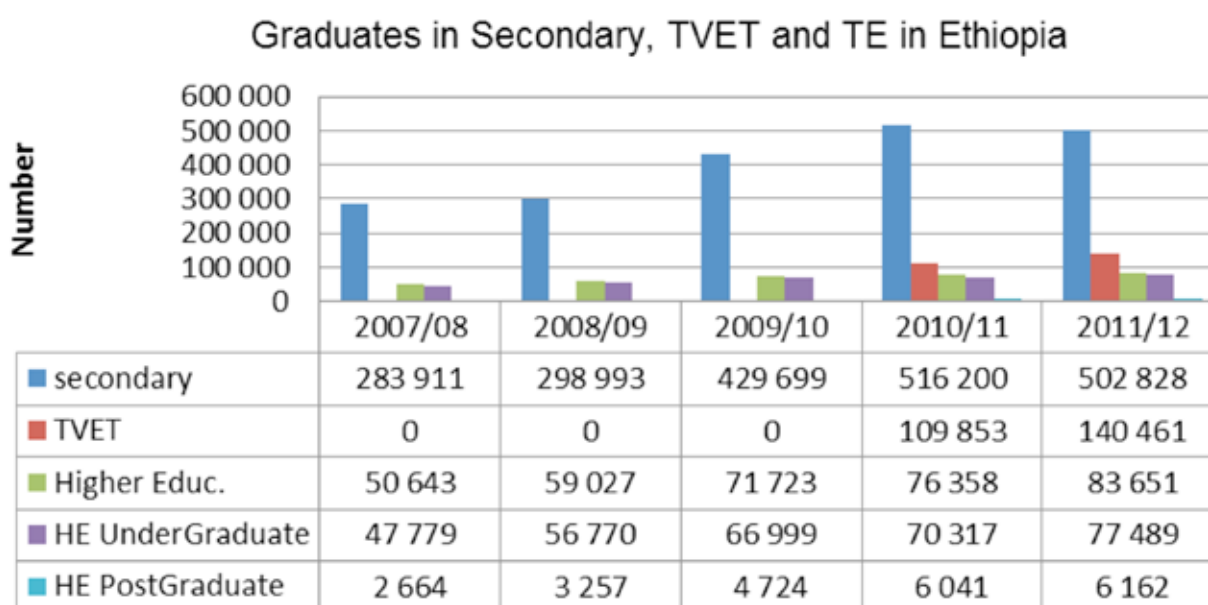


Figure 3: Graduates in Secondary, TVET and TE in Ethiopia (Ethiopian Educ. Annual Stat. 2012)

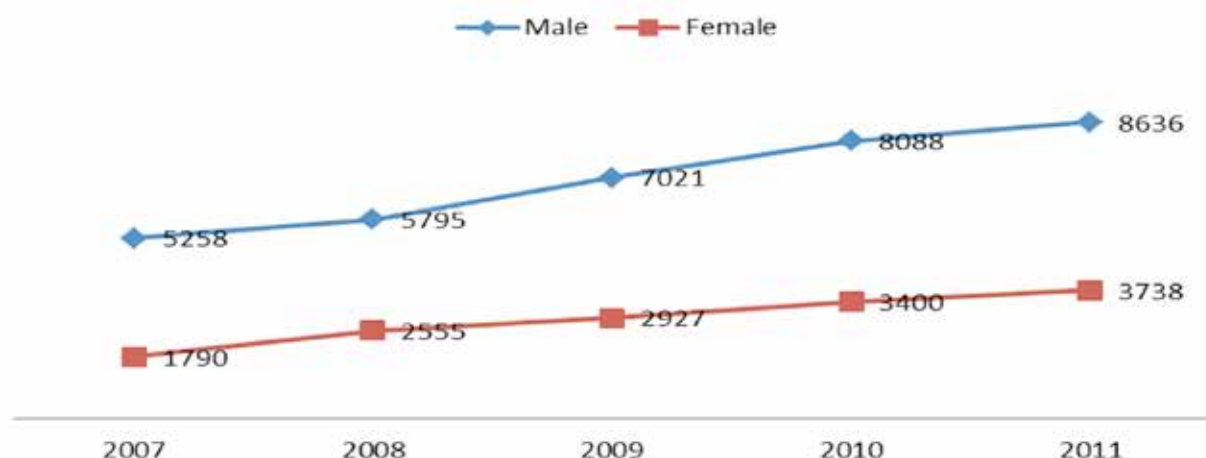


Figure 4: Rwanda Students enrolment and Gender Gap (Rukazambo N. Daniel, 2013)

scholarships. In addition to inadequate stipends, student training is constrained by lack of required infrastructure (training, dormitory) and supplies (Laboratory and practical training facilities) APLU, 2014. The private sector contribution to the AET is very weak and not yet embedded in the financial strategy of AET.

The concept of “Study Loan” has been introduced recently with many difficulties in the mechanism which is still driven by public rules.

The main challenges of the Public and Private Partnership mobilization can be summarised as:

- Lack of incentive from Private sector: The

private sector’s (farmers organization and agricultural industries) contribution in terms of financial support of AET remains very low due to a lack of strategy to sensitize agribusiness partners in the process of showing the benefits for investing in the improvement of AET efficiency.

- Disinterest of Development Partners (DPs): the DPs are fatigued to continue investing in this sector without a clear impact of their actions on the improvement of farmer’s livelihoods. Without any clear re-orientation and new strategy, it will be difficult to attract any development partners and donors into the AET sector in Africa.

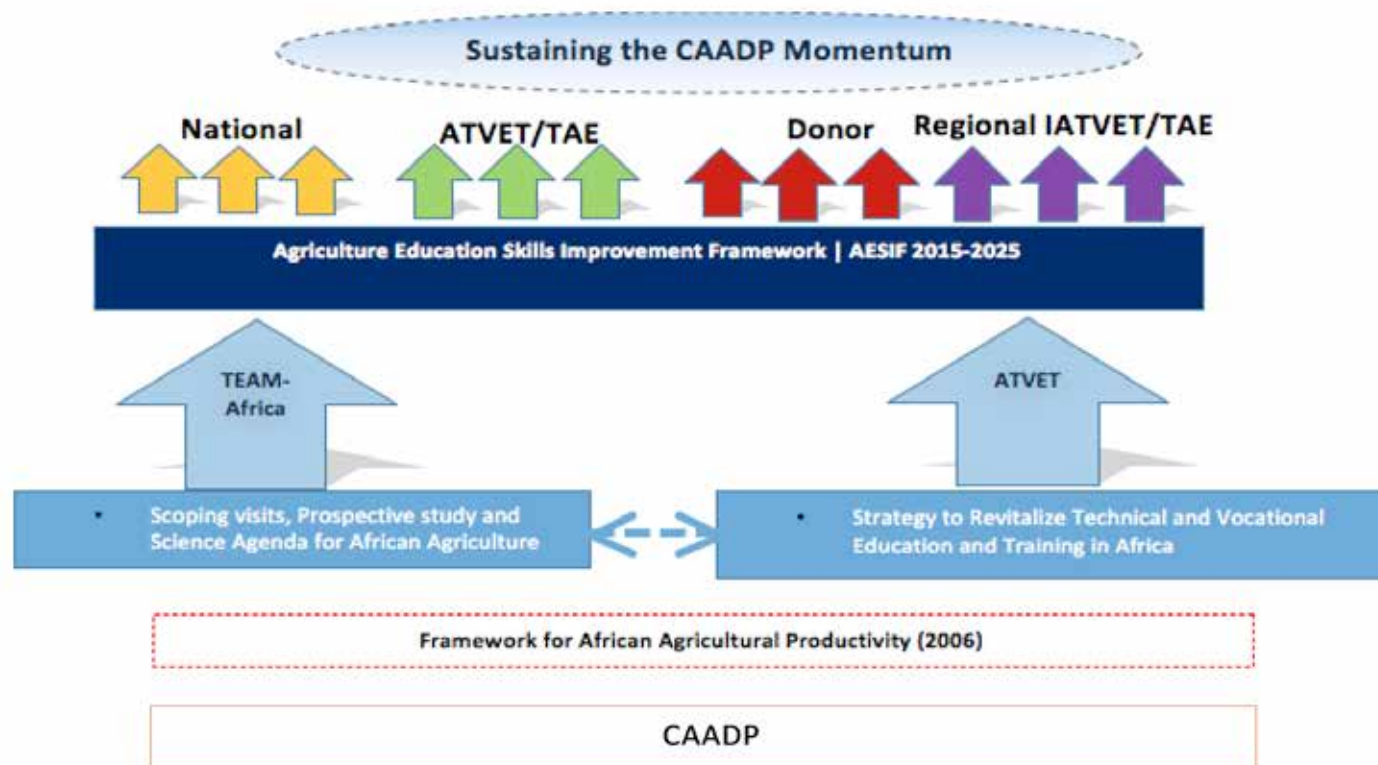


Figure 5: Key strategic policy initiatives driving AESIF development

2.4 - Strategic and methodology to develop AESIF

The strategic approach to developing AESIF is based on five key strategic policy initiatives, as shown in Figure 5:

- (i) the Framework for African Agricultural Productivity (FAAP);
- (ii) the Strategy to Revitalize Technical and Vocational Education and Training in Africa and in particular;
- (iii) the Promotion of Technical Vocational Education and Training for the Agricultural Sector in Africa project (NEPAD, 2013);
- (iv) the Tertiary Education for Agriculture Mechanism in Africa (TEAM-Africa) scoping visit reports and Prospective Study (TEAM-Africa, 2012); and
- (v) the Science Agenda for African Agriculture (S3A).

The methodological process followed for developing the Framework includes:

- A review of ATVET in Africa (NPCA, 2013), and analysis of two scoping studies conducted at the University of Abomey Calavi and Sokoine University of Agriculture, and the TEAM-Africa Prospective Study and Institutional Reform Processes (TEAM-Africa, 2013).

- An inception workshop which was held in Nairobi, in May 2014. Based on the workshop outcomes, a team of two consultants was recruited through a competitive process to produce the broader concept of AESIF.
- Two regional workshops, held in Ouagadougou for West Africa and Dar es Salaam for East, Central and Southern Africa, brought AET leaders to share the AESIF concept and make plans for national AET fora in their respective institutions and countries.
- A draft framework produced by the consultant was presented for deliberation at a validation workshop on November to reach consensus among AET leaders, Researchers and Development partners at the FARA@15 celebration event.
- Following the validation workshop, the consultants submitted a final version to NEPAD during mid December 2014.
- Outcomes from the prospective study initiative which was developed by Swedish SLU Global and Portuguese ITL based on literature review and questionnaire to get the medium and long term expectations of AET leaders and their end-users.





3. AESIF Framework

3.1 - Vision and Mission

Vision

AESIF envisions to transform Africa's Agriculture Education and Training (AET) in order to leverage the quality and quantity of skilled workforce required for the advancement of agricultural growth and the achievement of targets set in the CAADP Malabo Declaration on accelerated agricultural growth and transformation for shared prosperity and improved livelihoods.

Mission

AESIF's mission intends to address the following AET constraints:

- Misalignment between type of training provided and skills needed in the workforce;
- Fragmentation of knowledge actors and isolation of AET from research and extension services;
- Duplication and inefficient allocation of resources by public, private and development partners;
- The apathy of youth and women towards AET learning systems and development of entrepreneurial skills.

3.2- AESIF Objective

By building on lessons learnt from the first decade of the CAADP, AESIF envisages to:

- Play a central role in guiding capacity building to continuously replenish the skilled human capital much needed to drive the agriculture transformation agenda in Africa;

- Provide a common agenda in leveraging multi-consortia private-public partnerships on agriculture education and skills development to drive innovation and wealth creation;
- Offer practical guidelines and tools for sharing of experiences and learning; and
- Ensure coherence among initiatives and alignment between actors, and integration of all processes into a common agenda mainstreamed within the CAADP process.

Three strategic areas of actions have been defined to propel reforms that can improve the AET efficiency: 1) Governance and Management Policies; 2) Teaching and Learning Systems; 3) Mobilization Public and Private Partnership.

3.3 - Strategic area and actions

3.3.1 Strategic area 1: Reforms in Governance and Management Policies

3.3.1.1 At the Governance and policy level, the following actions deserve attention:

Action 3.3.1.1.1: Establishment of a National AET Council as a hosting body of the overall strategically guiding mechanism to coordinate, and drive the entire national AET system.

This agency should preferably be an autonomous body and include various stakeholders' participation, such as (1) Public representatives from Ministry of Education Professional training, Agriculture and AET leaders, (2) Private sector representatives from Agro-industries, Farmers organization

and traders and (3) Civil society organisations, including employers and students. The selection of representatives must be based on solid experiences on Agricultural development strategies. The chair of the board should be elected among the members and a clear governance charter for decision making agreed upon. The secretariat can be hosted in the main AET institution with support for administration and finance. Members of the council should be aware of CAADP objectives, national agricultural priorities and current market requirements and frequent tracer studies might be one of several ways to achieve it.

The experiences of some AET systems reforms in Europe (Netherlands, Sweden, Germany and France) or in South Asia (India, South Korea, and Malaysia) should inspire the National Agricultural Council and study tours have to be organized to learn lessons.

The National AET Council should focus on:

- Sensitizing stakeholders of political leaders, parliamentarians, Private sector, civil society, farmers' organizations, university staff, and students on the need to invest and improve human capital in Agriculture;
- Developing a national quality assurance framework through an appropriate mechanism, monitoring and evaluation, self-assessment, accreditation mechanism, and dynamic development of training offers to respond to the different demands of various target groups;
- Pushing for progressive and responsible youth and gender policies to ensure that AET becomes more attractive to youth and gender;
- Promoting Lifelong Learning and Recognition of Prior Learning (RPL), in which the skills of a workforce are continually upgraded through a lifelong learning approach; and
- Representation of the whole AET system at national and international levels.

3.3.1.2 At the management levels, the reforms should deal with the following issues:

Action 3.3.1.2.1: Election of AET leaders based on individuals' merit, and not political affiliation or other subjective criteria. Members of board management should align their views and advice with national agricultural priorities and market requirements as defined by the AET council.

Action 3.3.1.2.2: Adequate data recording and analysis for better information about labour market needs and trends in agricultural employment. Institutions should consider setting up permanent mechanisms for monitoring the job market in order to adapt the curricula so it can respond to changing employment opportunities and to shifting skill demands (e.g., due to market opportunities and technological advances).

Action 3.3.1.2.3: Train the staff (managers, teachers and support staffs) with adequate software and ICT tools to improve the efficiency of their daily activities.

3.3.2 Strategic area 2: Reform and update curricula and teaching methods

Action 3.3.2.1: Reform and Update curricula: Update the curricula to take into consideration the dynamic change of the agriculture sector which has shifted from family-on-farm production for subsistence purposes towards consumers and market needs.

- The curricula must respond to young people's interests by offering a wider range and more appealing set of courses.
- Career paths might be structured around themes such as Food Security and Nutrition,
- The training must be made more interesting by using guest lecturers from a different spectrums of society that relate to agriculture and this might also help raise awareness about the broad range of jobs available in the sector.. Lastly, field trips, seminars, and more mobility across countries and regions should be used to motivate qualified students to select agriculture as their top priority.

In the end the Curricula should include:

- farming systems approaches, with a strong focus on local (social inclusion, environmental sustainability, resilience), regional, and global (trade, climate change) challenges;
- integrating multi- and interdisciplinary foci, thus cultivating both specialists and generalists;
- synthesizing and integrating knowledge in domains such as production, environmental integrity, social benefits, consumer requirements (health and food safety), sustainability science, and others;
- supporting interaction with farmers—providing them with feedback for evaluation, and

exposing students to practical application in the field;

- developing frameworks and models that Africans own, with African examples and case studies based on African agribusiness experiences;
- focusing on all levels of farmers, and respecting their capabilities and knowledge by placing them in the centre of farming and seeking to incorporate the needs of all farmers – smallholder, emerging and commercial;
- emphasizing the implications of global and regional policies and value chains as well as the interface between political and technical issues in areas such as trade, foreign direct investment, international protocols, and controversial technologies such as genetically modified organisms and food;
- co-creating curricula with smallholders, emerging and commercial farmers to ensure gender-responsiveness at all levels of the AET system and the agriculture sector;

Action 3.3.2.2: Improving Training methods

- The training must be more practical based on the use modern teaching methods based on information and communications technology (ICT) and online course like the Massive Open Online Courses (MOOCs). This requires the implementation of modularized training delivery in addition to full-time delivery and the programs should be certified according to National Qualification Frameworks regulations (NQFs).
- *Innovation Centre* (ICs) should be established at decentralized levels, and according to the agricultural configuration and potential of the region (county, province or state). For this purpose Innovation Centres (ICs) are best-practice institutions due to the quality of their services, the range and scope of AET provision and by virtue of their role as cluster centres that serve and support satellite centres. The business model of a fully-fledged IC is built upon two strategic areas: training and business development services. At the level of training, ICs offer a broad range of services for different target groups, such as farmers, workers in agri-business, processors, agripreneurs and start-ups. ICs can even develop non-academic programs pitched at a higher level for specific target groups, such as farm managers and supervisors in processing companies. ICs

provide regular diploma and certificate programs for rural youth and extension officers. Curricula are designed according to Occupational Standards and should be designed to open pathways to higher education. IC training places, in particular, should place emphasis on practical skills development, combined with appropriate theoretical grounding. Thus, on completion of training graduates should be qualified as farm labourers (employees), farmers (employers), or as self-employed. Extension officer training programs provide structured comprehensive training issues related to technology and extension methodologies. Long-term training programs can be delivered according to a flexible mode, affording target groups, who may be employed, the opportunity to benefit from training. This requires the implementation of modularized training delivery in addition to full-time delivery. Formal program students should be certified according to national regulations.

- *Cooperative training* is a mode of training delivery provided as a partnership between private sector actors (farms, processing companies, marketing firms, etc.) and AET institutions. The core feature of this model is the direct participation of the private sector in the provision of practical training on farms, in workshops, and on production lines. Cooperative AET schemes have in other regions been organized as formal apprenticeship-type training, implying a work or apprenticeship contract between the trainee and the company. Practical training can however be organized in two different formats — as attachments, during school holiday breaks and dedicated training sessions; or, as a dual model, where companies deliver practical training and theoretical aspects are taught in institutions. The two major advantages of cooperative models are, first, the linking of trainees to the ‘world of work’, and, second, the implied cost-sharing for training by public and private sector.
- *Agripreneurial and entrepreneurial training* improves the commercial performance of the target groups. It is a comprehensive set of training instruments that make use of an action-oriented approach and experimental learning methods in order to develop and enhance the business management and personal competencies of the learner. Different concepts are applied — Competency-based Economies (CEFE), Formation of Enterprise,

Farm Business School (FBS); Farm-as-a-Business (FAB); Farmers Entrepreneurial Training (BUS) — that can be used and implemented.

- *Informal training* differs from formal learning to the extent that it takes place outside of the institutional education and training system. It does not require structures such as defined learning sites, curricula, teachers and trainers. Informal training often includes training undertaken by civil society or community-based organizations in the course of their programming or advocacy work. Those working in the informal economy:
 - o are generally unable to spend long periods of time away from work because of their precarious income or family situations and rarely have formal vocational qualifications;
 - o generally have a lower level of school education than employees working in the formal economy; and
 - o have no access to vocational schools or to structured forms of continuing what training they may have, which further prevents the acquisition of recognized (vocational) qualifications.
- *Teacher and instructor training (Pedagogy training centre)*
 Formal teachers and training instructors both require pre-service and in-service training to achieve effectiveness in their respective pedagogical roles (ToT). Studies have shown that the quality of the training of teachers and instructors is one of the critical issues influencing the quality of training delivery.

At the level of pre-service training for teachers, at least two different models apply. The first is the integrated model, which consists of a regular program of study in agriculture—including: occupational theory and practice, pedagogy, subject didactics/methodology, vocational education theories, AET system, labour market-related topics, and so on. The second is the combined model. In this model, bachelor degree-holders in agriculture attend a short-term program of about two semesters in which the curriculum includes the same topics as in the first model. On conclusion of the pre-service program, a one-year mentored internship program in AET institutes, combined with block pedagogy seminars, is recommended. This approach ultimately contributes to better integration of student's into AET, and also improves their pedagogical and methodological skills and abilities. At

the end of this phase a final exam focused on the preparation and delivery, assessed by a mentor, will certify the participant as a teacher. At the level of in-service training, both teachers and instructors need to continuously update their skills and knowledge. Training Needs Assessment (TNA) must determine the qualitative demand for continuous training.

Topics for in-service training typically include:

- o practical and theoretical refreshment courses;
- o value chain training; business advisory services;
- o agripreneurial training;
- o teaching methods;
- o and Media development and application.

- *Vocational guidance and job placement*
 Educational and vocational guidance/counselling services can be offered through a variety of agencies, including but not limited to schools, colleges and universities, community agencies, government departments, public employment services, trade unions, and private enterprises. Educational and vocational guidance services focus on four dimensions:
 - o Labour Market Information System (LMIS): It is the role of AET to use the available data on the labour market contained in the system to analyse economic trends in the sector, employment, qualifications required by the labour market, job opportunities, and the like.
 - o Internships/Cooperative Training: In this model (alluded to above) AET institutions: identify public or private sector cooperation partners willing to engage trainees for internships and/or cooperative training; develop the administrative procedures; send trainees to companies; document the result; and follow up the process.
 - o Vocational Counselling and Trainee Guidance: Vocational guidance and counselling includes a wide range of activities such as: helping trainees to clarify career goals; understanding the 'world of work' and developing career skills; individual and group guidance to assist with decisions about training courses, job choices and opportunities; providing information about and contacts with enterprises; producing and disseminating information about jobs and careers. In sum these services should equip AET trainees with the right information about their occupation of choice, and any related career opportunities.

- o Job Placement: AET institutions should maintain close contact with farmers, farms, and processing enterprises. In knowing the demand for a qualified workforce they play the role of intermediaries between students/trainees and the labour market. One instrument to successfully link trainees with job opportunities is the creation and continuous updating of a database in which company data, job opportunities, qualification profiles needed for vacancies, and the like, are posted.

At the end, the undergraduate and postgraduate training must entail the following aspects:

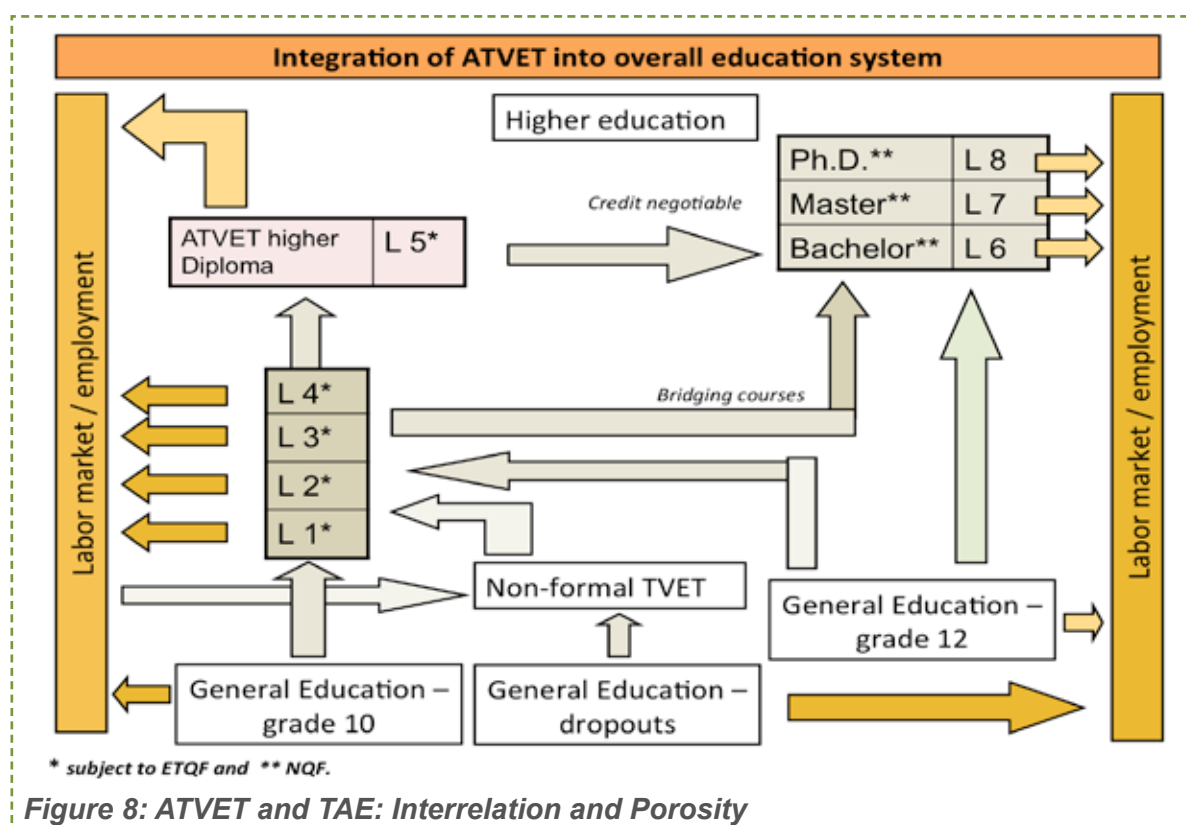
- Reorienting graduates towards a multidisciplinary, systems approach instead of focusing on disciplines;
- Building a value-chain approach based on markets and consumers' needs;
- Educate and be focused on problems solving in African contexts (indigenous knowledge) Focusing on holistic approaches;
- Embedding gender, entrepreneurship, sustainability, quality assurance, resilience and other key concepts in the underlying knowledge systems;
- Ensuring expertise and ability to engage with old and new user communities, agribusiness, and global value chains;

- Understanding smallholder and emerging farmers and the rationale for technology development and use, and being able to participate in shared impact-oriented progress assessments that promote self-reliance;
- Developing researchers and extension agents who can act as agents of change among farmers and in their relationships with other parts of the system. These agents should be catalysts—initiating learning and being conduits for knowledge resources, while respecting and activating the capabilities and knowledge of the farmers.

It is also necessary to attend to the supply pipeline—those who come through the school system as potential candidates for post-secondary studies in agricultural fields. Rapidly urbanizing young people need to have the awareness and incentive to study and work in an arena that is usually seen as less attractive for a prosperous future.

System-wide quality assurance and learning through appropriate and useful external and internal monitoring and evaluation, supported by an effective accreditation system, are needed; these elements are regarded as crucial for the regulation of the system.

Innovative approaches to strengthening the capacities available for teaching and learning – such as engaging the diaspora – must be capitalized on. African academics in the diaspora have a critical role to play in the development of the next-generation of



African academics through mentorship, short- and long-term visits for teaching activities, supervision and collaborative research endeavours.

Action 2.3 - ATVET and TAE Systems Interrelation and Porosity

In order to facilitate articulation across the pipeline, pathways such as bridging courses must be developed to allow for the permeability between ATVET and TAE to reinforce rather than limit opportunities.

- The development of NQFS and Regional Qualification Frameworks (RQFs) are important to guide these dynamic inter-relation and complementary.

3.3.3. Priority area 3: Public and Private Partnership Mobilization

The mobilization of an innovative and sustainable financing mechanism is a pre-requisite for the success of needed reforms for AET. New financing mechanisms, that reduce the burden on the public and incentivize the private sector to contribute to AET financing, must be implemented. Four areas of focus are vital:

Activity 3.3.3.1: A ten year investment plan coupled with a business model must first be established through a participatory approach of National AET forum. The National AET council should approve the budget and follow up its implementation. The new infrastructure should be located in a rural area closer to the producers cooperatives and specific to an agro-ecological production. Currently, as the cost of training covers only 15-20% of needs, it should be quadrupled for an adequate and efficient training.

A Business model for a sustainable financial mechanism should be rethinking by:

- Cost sharing with trainees: training credits or loan (paid back once the trainees are employed), training vouchers, matching grants or loan funds are options to enable trainees to participate in cost sharing.
- Increased enrolment in private training market: This can be through achieved through an improvement of the investment climate to establish private training institutions; establishment of efficient accreditation system; withdrawal of government from strong private sector training fields.
- Strengthening efficiency of public AET institutions: Strategies to achieve efficiencies include: management capacity improvements,

performance based budget allocation, increase capacity utilization, and incentivize income generation.

- Diversify investment opportunities offered by especially the private sector through new partnerships, South-South collaboration, i.e. BRICS.

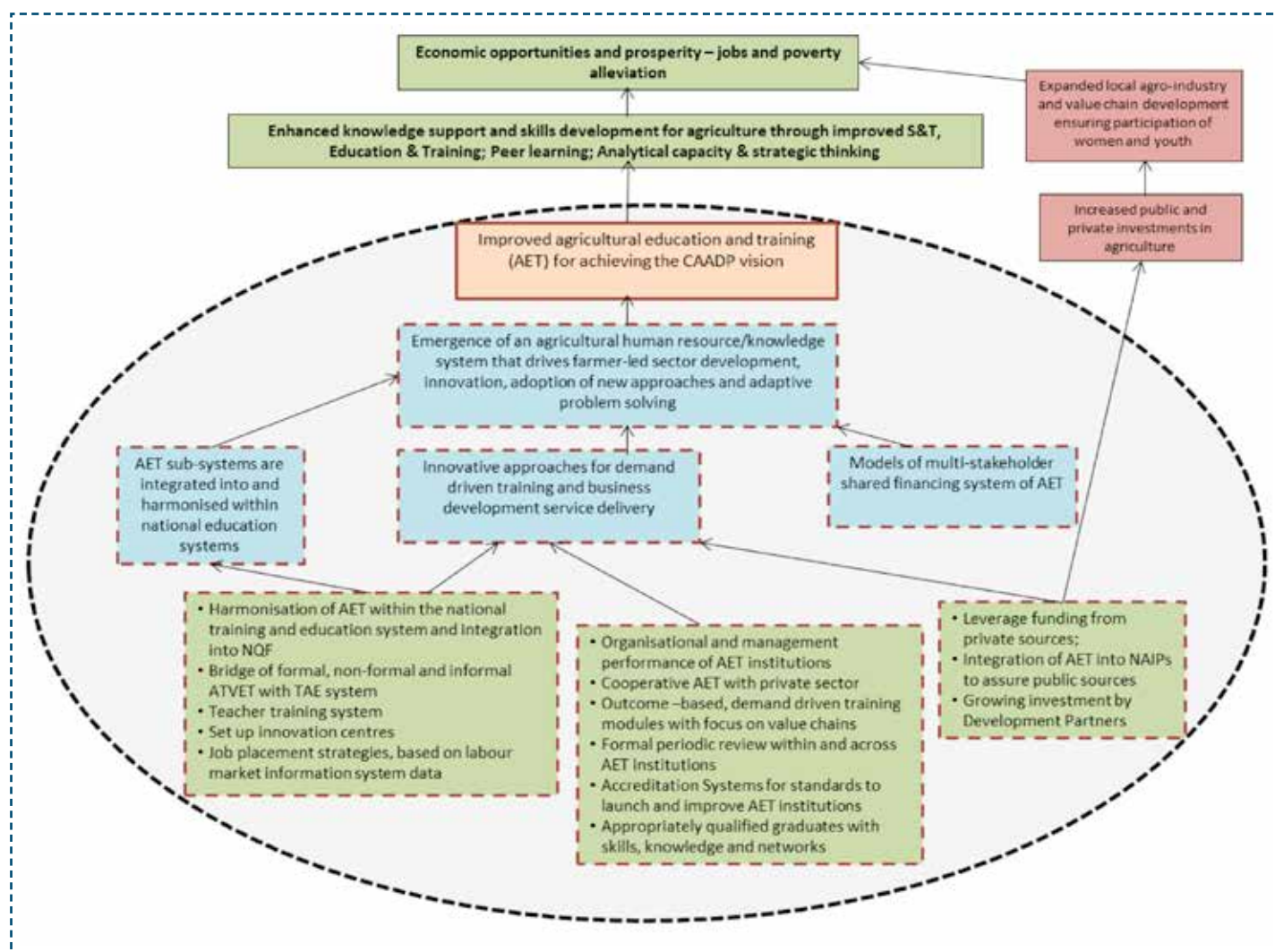
Activity 3.3.3.2: The public must invest in the long term infrastructure for AET and facilitate access with paved roads and Internet connectivity. These investments should be prioritised in the National Agricultural Investment Plans (NAIPs) and negotiation with Development partners can be engaged to help governments focus on delivering the right investments required to deliver on the Malabo declaration for production and productivity.

Activity 3.3.3.3: The private sector should provide support for the running costs including giving support to students with scholarships and mentoring for the future employers in their business. The mobilization of Private sector can be achieved by creating sector levy schemes (implemented as a payroll deduction of 2-3 % which is committed to an AET fund). This should be done through the encouragement of enterprise-based investment in AET, with concomitant tax incentives; and through the expansion of student internships and cooperative training schemes.

Activity 3.3.3.4: The Development partners technical and financial support, through collaboration with their more advanced institutions is, is needed to build scientific collaboration in training and joint-research activities.

3.4 - Key result areas/outcomes

Based on the current major challenges facing African TAE systems, 3 outcome levels have been defined to be achieved in the short, medium and long term. The minimum outcome level represents what AESIF aims to achieve against each specific goal, as a basic minimum. The medium outcome level represents outcomes that are more difficult to achieve, and as such they represent a greater level of success if achieved. The high outcome level is indicative of those outcomes that require a longer time horizon to achieve, but may still be achieved, in part, over the shorter-run (Earl, et al., 2001).





4. Operational modalities

4.1 - Principles of intervention

The principles of intervention of stakeholders should be established through:

- Ensure high-level commitment of stakeholders with clear institutional engagement.
- Institute transparency and trust to build confidence among stakeholders
- Adopt cross-sector collaborative approach
- Establish independent monitoring and evaluation mechanisms

The pillar of the intervention should be based on:

- a. Strong Political will for reform
- b. Resource mobilization with emphasis on domestic resources
- c. Good governance, transparency and accountability
- d. A credible participatory process with a valorisation of endogenous knowledge/cultural sensitivity

4.2 - The institutional arrangement

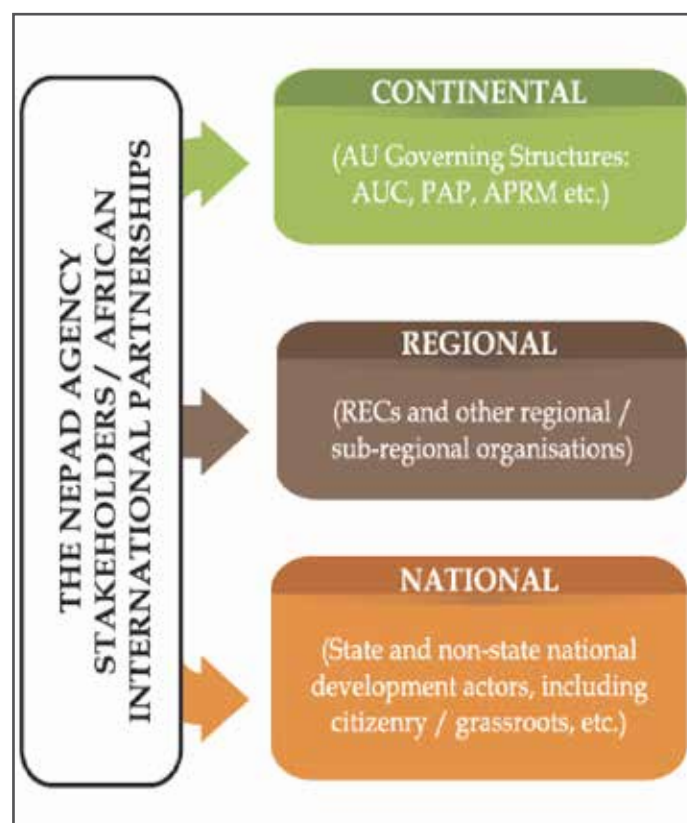
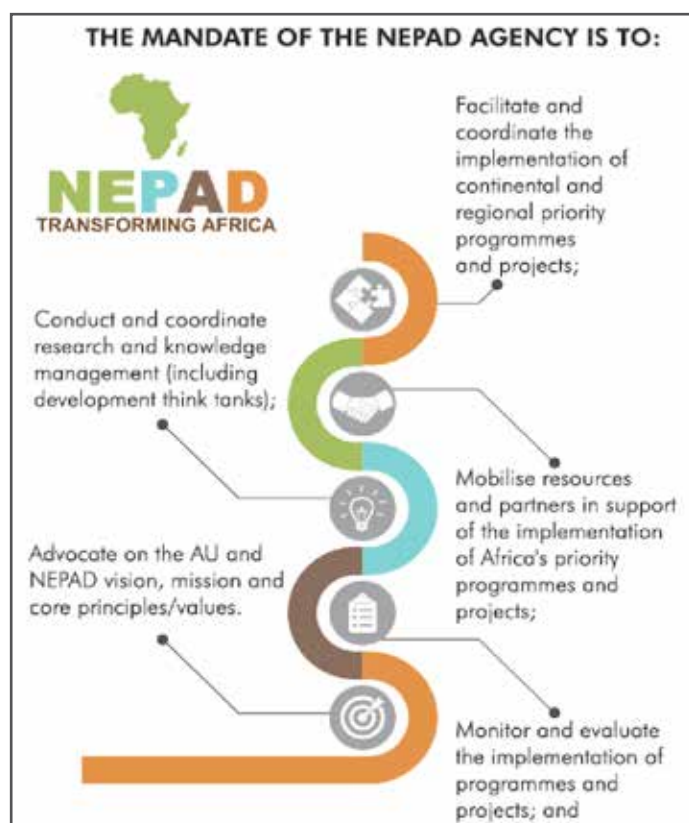
4.2.1 Continental-level institutions: AUC and NPCA

NPCA is responsible for the overall implementation mechanism of AESIF and chairs an advisory board in close relation with the AUC Department of Rural Economy and Agriculture (AUC-DREA) being a co-chair. The advisory board members will be drawn from the representatives of AUC (3), NPCA (3), RECs (5), AAU (1), Representative of Networks (1), FARA (1), AFAAS (1) and Development Partners (1). The advisory board should meet once a year to monitor and evaluate the activities undertaken in

relation to guidelines in order to mainstream AET within the CAADP investment plans in the spirit of the Malabo Strategy (Strategy Action Area 2d) to prioritise investment in the AET. The CAADP partnership platform meeting should be informed also during their regular meeting on the implementation processes of AESIF. The Monitoring & Evaluation procedure should follow the overall Malabo IS&R.

The NPCA/AET Unit is responsible for the overall operational implementation of activities based on annual programs approved by the Advisory board. NPCA administration and financial rules will guide the implementation procedure. NPCA/AET should follow up on:

- The implementation of activities at RECs and countries levels and provide support where needed to facilitate the implementation of reforms.
- The Agricultural Knowledge management by providing best practices to the RECs and countries in their implementation procedure and sharing lessons learnt during the implementation of the AESIF. This should include exchange of experiences learnt outside the continent (through study tours), international cooperation with well-known universities, multi-lateral organization on performed models for scaling up and dissemination.
- The support to RECs and Member states in the development of their own AET regional/national strategies and could facilitate resource mobilisation for the implementation.



- The resource mobilisation: AUC/NEPAD should facilitate the development of monitoring mechanisms that can track funding and support the capacity building efforts aimed at improving stakeholders to design, implement and report programmes according to established standard.

Main Outcome: At the end, NPCA/AET will work for Agricultural Education improvement in the same way as FARA does for the Research system in Africa.

4.2.2 Regional level: Regional Economics Communities (RECS)

RECs should develop their own capacity to take ownership of AESIF, and for its implementation. This will happen through the integration of AESIF principles and standards within related regional programmes and the development of the additional capacity if needed. RECs should:

- Encourage networking between member states by promoting a regional centre for AET system in the same manner of SRO's (CORAF, ASARECA or CCARDESA) for the research network.
- Assist their Member States in the development of their own strategy and instruments to perform the appropriate AET systems for achieving the CAADP goals in the countries.
- Sensitize Members States and Civil Society on the AESIF and facilitate all initiatives aimed at implementation and monitoring the AESIF.

- Promote the concept of regional centres of excellence (or specialized centres) and facilitate teachers and student mobility.

Main Outcome: AET regional bodies established in the same way as SROs.

4.2.3 Country level: AU Members States

Through the National AET Forum of stakeholders, a National Agricultural team should be established to make a follow-up on the process of implementing AESIF. The national team will prospect and propose the National AET council to be appointed by the legal authorities of the countries through consultation between ministries in charge of agriculture, education and professional training. The Leader should build up a national team of actors to translate AESIF strategies into action.

- Take ownership of the AESIF process by internalizing the relevant guidelines in the existing policy and strategy. Therefore this process should provide deep reforms in AET for their efficiency;.
- Encourage the private sector to invest in the AET systems through enabling legislation and policies, and thus fully playing their role in the whole process of implementation;.
- Develop and institutionalize processes that facilitate national dialogue to respond to social, economic, political and governance challenges in the country;.
- Create conditions conducive to public-private

sectors partnerships to boost the AET performance contributing to the agricultural transformation in the country.

Main Outcome: National AET council established in the same way as a National Agricultural Research Institute (NARI).

4.2.4 Private sector

The private sector should be encouraged for its engage and contribution to the implementation of the AESIF by:

- Adopting agribusiness and trade practices that encourage the development of local entrepreneurship and jobs for the youths and the women;
- Practicing procurement policies that favour local industry and give opportunity for cooperative training in agriculture;
- Maintaining dialogue with the government for the development of the need for regulations and a business environment to facilitate the increase of private investment in the AET sector; and
- Supporting programs in the AET systems and participating in their implantation along the different agricultural value chains.

4.2.5 Other continental initiatives

- Forum for Agricultural Research in Africa (FARA): As a leading African Research institution, FARA has come up with an initiative on the African Agricultural Science Agenda, the African Human Capital in Science Technology and Agripreneurship for Food Security Framework (AHC-STAFF).
- The Africa Forum for Agricultural Advisory Service (AFAAS): As the continental organization in charge of revitalizing the Advisory service within the CAADP framework, the collaboration will mainly involve ATVET activities.
- Education Networks: A number of sub-regional institutions have developed innovative and interesting AET models which could contribute to the AESIF implementation. Among the various existing networks on the continent, the following could be mentioned:
 - o The African and Malagasy Council for Higher Education (CAMES) (<http://www.cames.org>); and
 - o The Association of African Universities (AAU) (<http://www.aau.org>).
 - o The African Network for Agriculture,

Agroforestry and Natural Resources (ANAFE) (<http://www.anafe-africa.org>);

- o The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) (<http://www.ruforum.org>);
- o African Women in Agricultural Research and Development (AWARD) (<http://www.award.cgiar.org>);

These sub-regional networks could support the implantation of AESIF through the implementing specific programs interventions aimed at achieving some of the objectives set forth in the AESIF.

4.3 - Knowledge and Information Support

The development of individual and organizational capabilities to innovate requires not only supportive organizational cultures, behaviours, and incentives, but also effective knowledge and information systems. These types of linkages are essential to achieve economies of scale and scope, reduce transactions costs, exploit complementarities among organizations and individuals, and realize synergies in the innovation process. For exchanging knowledge and experiences as effectively as possible: a coherent, comprehensive approach will be developed to address:

- the increase in quality and impacts of the AET systems, and thereby making an important contribution to sustainable development processes;
- harnessing the value of knowledge and experience efficiently and effectively, thereby raising the performance capacity and competitiveness of the AET systems in the countries;
- the interactions between an AET professional and an agro processing plant manager who, traditionally relegated to separate domains, are given an opportunity to collaborate on a specific problem-solving effort. This may offer greater potential to generate innovative outcomes.

For achieving these goals the following management processes should be practically applied:

- Information management: researching, compiling, documenting, structuring, storing, filing and updating knowledge and experience, to make it accessible;
- Exchanging knowledge and experience, networking and cooperating: shaping the

interaction between AET stakeholders by means of national, regional and continental events and dialogue forums, to enable sharing of knowledge and experience on both technical and decision levels of the AET systems;

- Skills development and learning from experience: reflecting, analysing, evaluating and systematically extending the knowledge, to be better equipped for future tasks; and
- Innovation management: developing new ideas, thinking outside the box and combining knowledge and experience in new ways, in to optimize the AET systems in the countries.

4.4 - Communication

An effective communication and advocacy strategy should be developed in sustaining the positive momentum of the AESIF and also to encourage the realization of commitments made in support of African Agriculture Education and Training strategy. The advocacy/communication strategy must also campaign for and support capacity building for the national and regional AET structures in Africa entrusted with AESIF's implementation. AET Stakeholders implementing the strategy should ensure the effective communication between AET national, regional and continental structures. It must also emphasize and continue to promote on-going agricultural and educational reforms in Africa.

The objectives of the AESIF's communication and advocacy strategy are:

- To create an increase awareness and ownership of the concept and idea of AESIF;
- To build credibility for AESIF, its promoters and its projects;
- To highlight the leadership capacity of Africans, including women, and manage the AESIF successfully; and
- To mobilize the stakeholders at different levels for actions.

To achieve these above objectives, an African AET portal will be created under the NEPAD website to disseminate its information and communicate with the public at large. Providing the necessary guidance to the countries and the RECs for feeding, coordinating and harmonizing the development, maintenance and content administration of this portal and usage of social media tools is vital:

- to disseminate timely information to all stakeholders on the activities, best practices and lessons learnt from the AET programs in different countries;

- to provide the necessary and harmonized platform for the exchange of information with stakeholders and to be more efficient and responsive to the public;
- to effectively provide necessary tools and data for researchers, teachers, academy, students and to the agricultural value chain stakeholders, mainly the youth and the women;
- to enhance and portray the image of the AET to the larger public using the online tools.

4.5 - Partnerships and resources

Emerging from this road map, critical areas for investigation and investment occur, namely pre-conditions and a supportive environment, relevant institutions and adequate resources, appropriately trained graduates (right mix of skills and levels of training) and strong effective partnerships and networks for impact. A further analysis of these critical areas provides emerging perspectives for opportunity:

- Invest directly at country level?
- Patterns across Asia and Latin America indicate that AET (and broader agricultural development) requires strong country-level institutions;
- Regional institutes have had a vital role in supporting quality research and providing short-term human capacity across large geographic regions (e.g. SROs (CORAF, ASARECA, CCARDESA in Research, CGIAR centre in Africa (ICRISAT, IITA).
- Expand/create new programmes?
- The context-specific learning and skills development offerings are available across all levels of the AET, including appropriate offerings targeted at unemployed youth in need of informal, experiential training. The offerings should cater to the specific needs of the CAADP goals and vocational and technical training sub-sectors, as well as relevant offerings in the higher education sector at undergraduate and postgraduate level;
- Ensure that there is postgraduate training to invigorate research and domestic sectorial development is not neglected (e.g. Rockefeller/ USAID-supported PhDs have played a central role in TAE development in China, India, Brazil, Malaysia, and elsewhere);
- Recent innovations show the potential for new forms to rapidly scale of AET (e.g. China's new open AET universities).
- Improve quality/align to needs?
- Curricular reform efforts have improved linkages with agribusiness, SHFs, natural

- resource management and practical skills (e.g., Earth University, Zamarano);).
- Faculty retention strategies can increase stability and productivity – and possibly reverse migration (e.g., Tanzania improved working environment and incentives for academic staff).
- Improve AIS coordination?
- Experts stress the importance of integrated agricultural innovation systems for productivity gains. Historically, most success has resulted when education is closely linked to research and extension;.
- Should legislation be required to support this proposed structural transformation in governance, transitional arrangements must be put in place to allow for this in order to allow adequate time for the appropriate legislation to be developed.
- Strengthen funding base?
- Pattern in Asia of significant investment in agricultural R&D and education (20% of GDP) indicates necessity of sustained public funding for TAE;
- Donors have been able to leverage strategic, sequenced investments across agricultural innovation systems by partnering with each other and committed governments.

4.6 - Risk Management and mitigations measures

In Some countries, the CAADP funding processes have achieved significant progress in developing an Investment plans and business meetings and the process may be delayed if Education activities need to be included. As re-emphasized in all of the workshops, securing and harmonizing donor support by pooling funds around the Strategic Plan is essential for effective support. At the same time, aligning support around a broader African Strategic Plan for AET within AESIF that leverages the abilities of these networks would allow DPs to ensure harmonization within the framework of CAADP, thereby avoiding the current fragmentation

in support of African TAE, while enhancing ownership by the African partners. To date, various potential donors have expressed interest in channelling their funds through a mechanism such as Multi Donor Trust Funds (MDTFs) which are attractive to many donors, as they provide a practical means to implement the principles donors signed-up to in the Paris Declaration on Aid Effectiveness (2005) and the Accra Agenda for Action (2008). These principles include a commitment to greater harmonization of donor support, ownership of development initiatives by African partners, alignment with their agendas, management of results and mutual accountability among DPs and African institutions. MDTFs provide the opportunity to put these principles into practice while reducing the administrative burden for the donor institutions, as they are normally managed by one institution only, e.g. by the World Bank.

The mitigating factor will be to participate in the overall actions planned under the ISR of Malabo declaration and follow up the implementation the AESIF Program Management and Results Frameworks.

AESIF will find on the ground some ongoing initiatives developed by DPs and donors which have in general with AET some more formal/official level of bilateral interactions involving the national Ministries of Planning and Finance and the technical ministry of (Tertiary) education or Agriculture. There is also donor-driven prioritization whereby the donors own areas of interest drive the content of the collaboration. These kinds of cooperation are built in a long term individual relationship and it important to integrate it in the process and seek for an African-led initiative.

The mitigating factors will be discussed with these partners and their representatives at AET and bring them into the Sustainable CAADP Momentum and Post Malabo declaration objectives.

4.7 - Conclusion

The framework has been developed in recognition of the need to strengthen and transform the AET system across all training levels, including the non-formal training, the formal vocational and technical training components, as well as the higher education component (at undergraduate and postgraduate levels). A number of key issues cut across all areas for attention and investment in, among others leveraging the potential of women and youth, and entrepreneurship. The institutional reforms of AET are imperative for African Agriculture to improve food and nutrition security, economic opportunity, prosperity, jobs and wealth creation. It is possible to address these current challenges as some good examples exist (in Songhai centre in Benin, at 'Institut Supérieur Agrovétérinaire' de Kimwenza in Democratic Republic of Congo) and the health sector in Africa shows an efficient coordination mechanism between training institutions and hospitals.

5. Annexes

5.1 Detailed AESIF Program Management and Results Matrix

Summary	Indicators of success	Sources of Verification	Key assumptions/risks
AESIF objective: Improve agricultural education and training (AET) for strengthening the human capital needed to achieve the CAADP vision of agriculture-led development in Africa	By 2025, x% increase of skilled agricultural employable persons contributing to African agricultural transformation % increase in income along selected agriculture VCs due to improve training measures	National Labour Force Survey; Tracer studies	Expanded local agro-industry and value chain development ensuring participation of women and youth
Outcome1: ATVET sub-systems are integrated into and harmonised with national TVET systems	XX ATVET institutions accredited within the TVET systems. National ATVET strategy with clear roles and mandates between AET institutions and the private sector. At least YY policy documents (including document on Apprenticeship and ATVET Financing and on Quality Management Framework) developed for AESIF Implementation	Yearly Progress Report of national TVET institutions, minutes of meetings. Yearly Reports; TVET Management Information System. Policy documents, stakeholder meeting minutes, ATVET yearly progress report	Willingness of involved stakeholders at all levels to cooperate horizontally and vertically. Preparedness of private sector and civil society bodies to cooperate with government and assume responsibilities.
Outcome 2: Innovative approaches for demand driven training and business development service delivery	Agreed format for NQF available for implementation. XX standards, yy course concepts and zz assessment packages of outcome –based, demand driven training modules with focus on value chains and suitable for females (minimum 30%) and males students. xx (with 30% females) upgraded male and female teachers (in teaching methods and technical skills). At least XX AET institutions with CBT programmes based on NQF. XX master trainers/ teachers trained (50% male and 50% female)	Documentation of occupational standards, curricula and certification of new teachers Yearly reports review of AET institutions	Preparedness of public and private training institutions to accept paradigm change towards CBT. Training providers release staff for training. Schools are in a position to retain staff after completion of training.

Summary	Indicators of success	Sources of Verification	Key assumptions/risks
Outcome 3: Models of multi-stakeholder shared financing system of AET are implemented	XX financial framework taking into account diversification of funding sources including leveraging funding from private sources; ATVET integrated into NAIPs ensuring necessary investments in institutions and human resources % growing investments of public sources, donor partners and private sector in TAE	Documentation of occupational standards, curricula and certification of new teachers Yearly reports review of AET institutions Innovation fund documentation Implementation plan and annual review reports	

5.2 - Guidelines for the AET strategy development process at country level

5.2.1 Stocktaking study for compiling experiences and good practices in AET and the identification of gaps in the national agriculture educational and training system prior to the preparation of the national forum

- As a starting point, the national stocktaking exercise needs to review the whole “landscape” of the TAE and ATVET organization structures that exist in a country in particularly:
- The country’s Agricultural Education Training sector, including relevance for national economy, major commodities and value chains, priorities for agricultural development, role of private sector investment, etc.;
- How the agriculture training Centre functions, which governance structure, financial model and administrative set-up and
- The priorities and strategic objectives they are currently pursuing and how they interact with each other and the government (and if applicable: how does there participate in the CAADP process).

Based on the assessment, the stocktaking study shall identify good practices and success factors and systematize the lessons learnt and challenges of the AET system in the country. Also the study shall identify opportunities and make recommendations to strengthen and embed AET in the implementation process of National Agriculture Investment Plans (NAIPs).

5.3.2 Organisation of the national AET stakeholders’ forum to agree on the national AET

strategy addressing the two domains —ATVET and TAE —and in three areas within each domain: 1) Policy, Governance and Management; 2) Teaching and Learning Systems; 3) Public and Private Mobilisation.

Content of the strategy plan must highlight the vision, the mission, and the objectives with the logical framework indicating the outputs and indicators for a 10-years implementation period. The AESIF document should be served as a guideline (as indicated in the chapter on 3.3 strategic areas and actions)

5.3.3 Appraisal of institutional and financial/ budgetary options;

Through the National AET Forum of stakeholders, a National Agricultural team should be established to make a follow-up the process of implementing AESIF. The national team will prospect and propose the National AET council to be appointed by the legal authorities of the countries through consultation between ministries in charge of agriculture, education and professional training. The Leader should build up a national team of actors to translate AESIF strategies into action.

This could be pursued in a variety of ways, including among others, the following:

- Take ownership of the AESIF process by internalizing the relevant guidelines in the existing policy and strategy. Therefore this process should and provide deep reforms in AET for their efficiency;
- Encourage the private sector to invest in the AET systems through enabling legislation and policies, and thus fully playing their role in the whole process of implementation;

- Develop and institutionalize processes that facilitate national dialogue to respond to social, economic, political and governance challenges in the country;
- Create conditions that are conducive to public-private sectors partnerships to boost the AET performance, thereby contributing to the agricultural transformation in the country.

Resource requirements should be projected on the basis of the quantitative and qualitative objectives expressed. An estimation of training centre enrolments is necessary, as well as mobilising the human, physical and financial means in order to implement development strategies and realize AET development objectives. The following categories of educational inputs are to be considered:

- Personnel: estimation of number of teaching and non-teaching personnel required (managerial and supervisory staff, administrative and service personnel, technical and maintenance workers, etc.) and to foresee recruitment needs (per year, per region, and by

education level) while taking into account staff attrition. It also enables the evaluation of the training needs of these personnel, both at pre-service and in-service training levels. The new requirements for teachers will indicate to the educational authorities the need to take adequate measures in advance.

- Instructional materials and equipment: There is need for instructional materials and equipment of the training centres so as to meet the curricular reform and to evaluate the recurrent costs resulting from this.
- Educational facilities: On the basis of the number of students and the parameters of pedagogical management, it is important to estimate the number of buildings and rooms to build, on a 10-years' time-horizon. It will also indicate the expenditures needed for the purchase of necessary equipment and maintenance expenses of all kinds. The required number of classrooms and other spaces, as well as the need for new buildings, will be estimated.

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