



**African Forum for Agricultural  
Advisory Services**  
Knowledge is Novelty for Africa's Livelihoods



**agriculture,  
forestry & fisheries**

Department:  
Agriculture, Forestry and Fisheries  
REPUBLIC OF SOUTH AFRICA



**SASAE**

## CONCEPT NOTE

**THE 3<sup>rd</sup> AFAAS AFRICA-WIDE AGRICULTURAL EXTENSION WEEK; AND; 51<sup>st</sup> ANNUAL CONFERENCE  
OF THE SOUTH AFRICAN SOCIETY FOR AGRICULTURAL EXTENSION**

**Theme: "SCALING UP CLIMATE SMART AGRICULTURE: INTEGRATING YOUTH, WOMEN, AND THE  
DIGITAL REVOLUTION"**

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## 1. INTRODUCTION

In Africa, food and nutrition insecurity is still a critical constraint to economic growth and one of the main causes of widespread suffering. National governments and their development partners can do a great deal on many different scales to facilitate and ensure their citizens' access to the tools that will allow them to meet their food and nutrition requirements. In order to do so, rural people, and especially women and youth, have to be placed at the forefront of the African agricultural transformation, by engaging them in effective utilisation of available productive resources (e.g. land, labour) if hunger and poverty on the continent are to be reduced sustainably. Among the factors limiting the realisation of these outcomes is the weak capacities of Agricultural Extension and Advisory Services (AEAS), which are supposed to be the bridges, linking smallholders to the knowledge, technologies and innovations they need.

The understanding and implementation of AEAS in some countries in Africa is at a crossroads. There has been a shift from the traditional top-down, exclusively public sector led which focuses on technical issues to the more complex innovation systems approach, a focus on facilitation, brokering, knowledge /learning, and pluralism with more inclusive public-private orientations. Utilizing innovations such as information and communications technologies (ICTs) offers much promise; though we should be cautious in viewing them as yet another "silver bullet" to solve the problems of rural development. Moreover, extension in Africa today is pluralistic, with many different providers and models, but still mainly dominated by public extension provision through the ministries of agriculture or similar institutions. The technologies and practices to transform African agriculture are available, but the extension system is a bottleneck in the transformation process because these innovations are not reaching farmers. Whereas each country has a central extension agency, limited resources have meant that the extension capacity at the periphery is weak: understaffed, not comprehensive or able to keep up with emerging innovations and extension approaches.

In light of climate change and variability and market shocks, the need to put in place systems that foster inclusive and sustainable livelihoods for the smallholder farmers is paramount. Climate change is a reality in Africa, yet AEAS capacity to mainstream climate-smart techniques and approaches is very low. The need for climate-smart agriculture cannot be overlooked. This is due to the fact that millions of smallholder farms who provide up to 80 % of food in sub-Saharan Africa and make up the largest share of the undernourished. As the most vulnerable and marginalized people in rural societies – many of them being women heads of household and the youth – smallholder farmers are especially exposed to the risk of climate change and variability. Over the years, youth and women in Africa have proved their potential in promoting and implementing climate change adaptation projects. However, the youth and women face various challenges that include lower education levels, higher rates of poverty and lack of access to financial resources. Within the context of agriculture, youth in Africa continue to battle challenges associated with the negative perception of agriculture as a "difficult" job, with poor returns and also lack of access to land and markets.

AEAS acts as bridges, linking smallholders to the knowledge, technologies and innovations they need: however they are not yet well equipped to perform this bridging function in an inclusive manner. It was against this background that, in 2004, the AEAS African stakeholders formed the African Forum for Agricultural Advisory Service (AFAAS) and set its goal to "enhance utilization of improved knowledge and innovations for improving agricultural productivity oriented towards individual and national development objectives.

The AFAAS is a Continental body that brings National AEAS actors under one umbrella. The AFAAS' goal is to enhance utilization of improved knowledge, technologies and innovations by agricultural value chain actors for improving productivity oriented towards their individual and national development objectives. AEAS is a key component of the innovation system, playing a pivotal role in promoting productivity, increasing food security, strengthening rural communities, and underpinning agriculture as the engine for pro-poor economic growth. AEAS is one of the key pillars for transforming rural livelihoods and contributing to Africa's agenda 2063. AFAAS upholds the 2014 Malabo Declaration and the Comprehensive Africa Agriculture Development Programme (CAADP), whose Monitoring and Evaluation Framework is overarching for the CAADP institutions

One of the main mechanisms that AFAAS has used for pursuing its mission is by promoting lesson learning, sharing of information and increased professional interaction through the "Africa-Wide Extension Week" (AEW) events. The AEW is a key mechanism for AFAAS to pursue its mission and capitalizes on in order to

reach its stakeholders and delivering results. This mechanism was demanded and identified by AEAS stakeholders in Africa as a tool to bring together AEAS stakeholders from all African countries to focus on topical issues that need concerted actions including technology and innovation adaptation and scaling up and out, policy advocacy, promoting lesson learning, sharing information on good practices and increased professional interaction – especially to influence AEAS policies and programming in Africa. The AEW is held biennially, and so far, two AEWs have been held. The first AEW was held in August 2013 in Gaborone, Botswana focusing on “Value Chain Approach in Agricultural Development: Coping with new demands for Agricultural Advisory Services”. The second one was held in Addis Ababa, Ethiopia, in October 2015 under the theme: “Reinvigorating Extension Services for Market-led Agriculture within the Context of the Malabo Declaration”. The 3<sup>rd</sup> AEW will be held in Durban South Africa from 30<sup>th</sup> October to 3<sup>rd</sup> November 2017.

## **2. About the Extension Week 2017**

The AFAAS and the South African Society for Agricultural Extension (SASAE) together with Department of Agriculture, Forestry and Fisheries (DAFF) will be organising the 3<sup>rd</sup> AEW conference on the theme of “**Scaling up Climate Smart Agriculture (CSA): integrating youth, women, and the digital revolution**”. The theme was selected by the AFAAS Board and stakeholders in recognition of the negative impact of climate change on the right to and access of productive resources (finance, land, water and assets) by the most vulnerable populations, specifically the youth and women. In this respect, there is need to actively boost an inclusive access of information, knowledge, technologies and innovations to rural farmers in order to enhance their utilisation of productive resources for improved livelihoods. Additionally, integrating CSA as an approach that can help to guide actions needed by the most vulnerable groups to transform and reorient their agricultural practices to effectively support development and ensure food security in a changing climate, will further help reduce their vulnerability. Hence the AEAS have to reorient and re-equip themselves to be able to provide vulnerable farmers, especially women and youth, and other actors in agricultural innovation systems with the knowledge and technologies they need to identify and deploy agricultural strategies and practices suitable to their local conditions. Specifically the AEW will focus on the following sub-themes: (i). Integrating Youth and Women in CSA (ii) Scaling up ICT innovations for CSA (iii) Scalable CSA technologies and innovations (iv) Capacity development for scaling up CSA Innovations (v) Knowledge Management and ICT tools for CSA, and (vi) CSA Innovations for entrepreneurship. Giving the focus on integrating youth and women, this proposal falls under the strategic direction one of IFAD strategy. In particular, sub-themes (iii), (iv), (v) and (vi) of the Extension Week will be inclusive of experiences, practices and tools that strengthen the capacities of, and empowers the vulnerable groups to access and productively use available resources, and especially in light of climate change. Additionally, the focus on ICT tools makes this proposal event more relevant and a very useful means to improve AEAS capacities, widen their knowledge base; and to support value chain development and access to productive resources and information, including weather forecasting, market information, agricultural financing and other tools and information sources. The themes that will be addressed at the AEW are relevant for Rural Inclusiveness – as gender and youth are integral in Rural Transformation. ICT for Development and development of rural entrepreneurship are themes that will be central to the event.

The Africa-Wide third AEW is scheduled to run from 30<sup>th</sup> October to 3<sup>rd</sup> November 2017 in Durban, South Africa. The Government of the Republic of South Africa (RSA), through its Ministry and Department of Agriculture, Forestry and Fisheries together with the South African Society for Agricultural Extension are the main partners, organisers and hosts of this noble event.

### 3. GOAL, OBJECTIVES AND EXPECTED OUTCOMES:

**Goal:** Contribute to mainstreaming of CSA techniques in AEAS approaches to enhance environmental sustainability and climate resilience of most vulnerable farming populations- especially women and youth- in Africa

#### **Objectives:**

- i. Facilitate networking and enhance information, knowledge and experience sharing on CSA among several stakeholders (including policy makers and technocrats)
- ii. Promote mainstreaming of CSA in AEAS at local, national and continental level;
- iii. Build consensus for scaling up and out CSA technologies, innovations and practices;
- iv. Creating space for women and youth to be integral in finding solutions within the CSA knowledge platforms;
- v. Take stock of available CSA technologies, innovations and practices and devise a joint strategies for scaling up and out through partnerships;
- vi. Build strong linkages of IFAD Country programs and other Development Partners' programmes/ projects within the continental AEAS knowledge and innovation networks.

**Expected outcomes:** Established and strengthened partnerships and improved knowledge and awareness of the importance of CSA to support the vulnerable rural farmers to demand and for better access to and utilization of technologies, innovations, management practices created and shared among AEAS actors

#### **Expected outputs:**

- i. Knowledge on scaling up CSA in AEAS for multiple actors to support farmers, especially youth and women to increase and add value to their agricultural productivity, production and marketing shared;
- ii. Best fit practices on CSA for reducing vulnerability profiled and a framework developed for sharing among AEAS actors
- iii. Strong linkages of IFAD Country programs and other Development Partners' programmes/ projects within the continental AEAS knowledge and innovation networks developed;
- iv. Two follow up operational meetings held for internal reflection and lesson learning;
- v. Reporting from AEW proceedings generated and shared with participants.

### 4. PARTICIPANTS.

AFAAS AEW is an open event; however, there will be a transparent and inclusive pre-selection of participants. AFAAS launched a drive for mobilising funding for the event and so far commitments have been made from the European Union – AFAAS Multi Donor Trust Funds- MDTF, the International Fund for Agricultural Development, (IFAD) the Government of South Korea, SASAE and the Republic of South Africa. The key participants in the AEW include: AEAS providers from public (Ministry of Agriculture officials especially Directors<sup>1</sup> of Extension from the 40 member countries) and private sectors<sup>2</sup> (e.g. Telecommunications companies, agro processors) as they will be given space to exhibit their innovations, Farmers, fishermen/folks, farmer based organisations, NGOs, as well as institutions and programmes actively involved in Agricultural and Rural Development will be invited to attend. Staff of the Ministries of Agriculture, who form part of AFAAS General Assembly, and are critical for policy influence in their respective countries, while equally central for the growth of AFAAS network.

For the selection process, the Local Organising Committee (LOC) and the Regional Planning Committee are the mandated organs, with a dedicated Selection Committee constituted from the above organs. In the selection process there shall be a regional balance within Africa. There will also be a consideration for international AEAS

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<sup>1</sup> IFAD support shall be used to support participation of Directors / Managers of extension mainly from the Ministries of Agriculture.

<sup>2</sup> Targeted invitations shall be sent to private actor especially in agricultural value chains. AFAAS will also liaise with Africa Agribusiness incubation Network to mobilise private sector participation.

professionals, who have high capacity and profile in sharing AEAS knowledge. As a guiding criteria in selection participants, emphasis shall be placed on: Youth and gender considerations; level of contribution to the AEAS knowledge pool in the AEW theme; active role in national, regional and global AEAS activities; ability to positively influence national AEAS policies, institutions and programmes; and ability to fully self-support or partly support own participation among others. The Government of the Republic of South Africa (RSA), through its Ministry of Agriculture; Department of Agriculture, Forestry and Fisheries together with the South African Society for Agricultural Extension (SASAE) shall host the event and share their vast experience in Agriculture. IFAD representative Ms. N Zwane who is based in Southern Africa is involved and is key in the LOC.

Furthermore, the engagement and participation of Development Partners like IFAD, EU, USAID, SDC, among others has been instrumental in AEW, not only in terms of financial support but through sharing global good practices, therefore targeted invitations have been sent and others shall be sent by end of August 2017. Other regional partners like FAO, CGIAR, CTA, FARA, AGRA, SASAKAWA Africa Association, global projects among others. Given the diversity of participants and in order to facilitate communication, translation in English and French will be provided. In some side events translations to South African local languages may also be provided.

## **5. . LINKAGES:**

Close linkages shall be established with the South Africa Ministry of Agriculture, Forestry and Fisheries, and the relevant IFAD investment projects in Africa mentioned above. Collaboration with other relevant regional IFAD divisions (ESA and WCA) will be strengthened or established. The post conference events shall be discussed and planned with IFAD country teams, so that both parties benefit from them. IFAD country program team shall be engaged to participate in the Country Fora in countries where the post conference events shall take place. Linkages shall be ensured with the ESA Farmer's Forum which provides a useful platform of engaging with the Farming community in the ESA region. AFAAS has contact with Pan African Farmers Organisation (PAFO) and Regional Farmer organisation hence they will be part of AEW. The linkage organ shall be the Local Organising Committee<sup>3</sup>. The previous AEWs were held in partnership variously with GFRAS, CGIAR Centres, IFAD, CTA, AGRA, GIZ and USAID. These shall again be approached. Partnerships with members of the Science for Agriculture Consortium (S4AC) that was recently formed and is headed by FARA shall be sought. Farmer organisations and private sector actors shall be invited to the event either as side event organisers or sponsors.

## **6. SUSTAINABILITY**

As the AEWs become better known, there is increased number of individuals and organisations sponsoring themselves and/ or their stakeholders to the event. This will eventually become the major source of funding for participants. African Governments, NGOs and some private sector actors have indicated the willingness in the future to sponsor similar events. AFAAS will continue to build strong partnerships and alliances in implementing its activities. In future the events shall be held jointly with such partners. Additionally, the culture of paying registration is being introduced and this will be a major source of financial sustainability for future editions of Extension Week.

## **7. SUMMARY OF THE METHODOLOGY:**

The preparation for the event shall include e-discussions and planning workshop/meetings to design the event process and resources. The event shall have (i) Plenary and parallel sessions, policy dialogue, panel discussions; (ii) Field visits to sites highlighting extension activities; (iii) Exhibition and side events; (iv) Networking and knowledge exchange: using World Cafe, Round Tables, Food for thought and Open Spaces among others; (v) Evaluation, reflection and synthesis of activities from the week, and participant action planning. After the event participants shall be followed up to track the outcomes of their participation. Two post-conference meetings shall

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<sup>3</sup> There is IFAD representative in the LOC but IFAD will be included in the Regional Planning Committee – which gives expert advice.

be held for internal reflection and lesson learning and documentation by the AFAAS Secretariat and key informants such as Country Fora Focal Persons, members of Thematic Working Groups and partners who contributed to the event.

## **8. EXTENSION WEEK THEME AND SUB-THEMES**

### **Scaling Up Climate Smart Agriculture: Integrating Youth, Women, and the Digital Revolution**

The need for climate-smart agriculture for the world's 500 million smallholder farms cannot be overlooked: they provide up to 80 % of food in developing countries, manage vast areas of land (farming some 80 per cent of farmland in sub-Saharan Africa and Asia) and make up the largest share of the developing World's undernourished. As the most vulnerable and marginalized people in rural societies – many of them are women heads of household or indigenous peoples – smallholder farmers are especially exposed to climate change. Scaling up Climate Smart Agriculture (CSA) is multifaceted because it involves more than scaling up technological innovations in agriculture. Scaling up, as defined by the World Bank (2003), is “to efficiently increase the socioeconomic impact from a small to a large scale of coverage”, referring to the “replication, spread, or adaptation of techniques, ideas, approaches, and concepts (the means), as well as to increased scale of impact.

Furthermore, described by the Food and Agriculture Organisation of the United Nations (FAO) in 2010, CSA is believed as an integrative approach to addressing the challenges of food security and climate change. CSA sustainably increases crop productivity, builds resilience through climate change adaptation, and reduces GHG emissions. Envisioning, implementing and monitoring CSA requires integrating biophysical, socioeconomic and institutional dimensions, with careful attention to the issues and interactions of these dimensions at different scales. Therefore, successfully scaling up CSA requires identifying and promoting appropriate practices, technologies or models (new, improved, adapted) within favourable enabling environments comprising supportive institutional arrangements, policies and financial investments at local to international levels. Anticipating potential opportunities and bottlenecks to scaling up CSA, such as market and policy drivers, will be central to implementing CSA at scale.

Climate-smart agriculture (CSA) is an approach to reorienting agricultural planning and investments to better achieve three main objectives: improve food security, support climate change adaptation and reduce agriculture's contribution to greenhouse gas emissions, particularly in developing countries. The FAO defines CSA as “agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes GHGs (mitigation), and enhances achievement of national food security and development goals.” Since the term was coined in 2009, CSA has seen both incredible appeal and strong opposition. The concept has galvanized great public and private sector support for its potential to join the global agendas of development, agriculture and climate change under one brand. At the same time, it has raised concerns that some aspects of CSA, in particular GHG mitigation, will be promoted at the expense of food security and adaptation. As with any potentially transformative approach, the actual outcomes of CSA will be most beneficial when interventions and investments are informed by diverse knowledge sets and community priorities.

Generally, scaling up CSA is as a long-term, non-linear process that will often require combining generalized and context-specific approaches and complex leadership. There is no blueprint for scaling up CSA, consequently, dynamically combining horizontal i.e. replication of promising or proven practices, technologies or models in new areas or target groups; and vertical i.e. institutional and policy change, scaling approaches in response to specific geographical and institutional needs.

There is a growing consensus that climate change is transforming the context for rural development, changing physical and socio-economic landscapes and making smallholder development more expensive. But there is less consensus on how smallholder agriculture practices should change as a result. The question is often asked: what really is different about ‘climate-smart’ smallholder agriculture that goes beyond regular best practice in

development? AFAAS Africa wide Extension Week, will bring different experts and practitioners to discuss and share experience, innovations and technologies based on this theme.

### **Integrating youth and women in CSA**

In dealing with CSA adoption, as well as with agricultural technology adoption, there has been increasing recognition of the importance of focusing on the gender-heterogeneity behind the adoption choice itself. To understand gender dynamics in agriculture it is not sufficient to compare male to female farmers or male- to female-headed households. Instead, we need to understand the heterogeneous system of household behaviour embedded in the agricultural economy and to analyse the different situation of women in both male- and female-headed households in terms of their access and control of productive resources, services and employment opportunities. Further, more, there is a growing realization that agriculture represents a huge potential for young entrepreneurs and, youth in general, as they are the farmers of tomorrow – and we hold the natural resources in trust for them. On the other hand, the role of women in agriculture and the importance of agriculture to women are no more subjects for debate. This sub-theme provides an opportunity for researchers and practitioners to share their experience on how extension can adequately embrace youth and women in the diffusion of climate-smart agricultural technologies.

In promoting the wide-scale adoption of climate smart agriculture (CSA)<sup>4</sup>, as well as with adoption of other new agricultural technologies, there has been an increasing recognition of the importance of focusing on being gender-inclusive in the adoption choices. To understand the gender dynamics in each agricultural system, it is not sufficient to compare male to female farmers or male- to female-headed households. Instead, we need to understand the heterogeneous system of household behaviours embedded in each agricultural economy and to analyse the different situations of women in both male- and female-headed households in terms of their access and control of productive resources, services and employment opportunities. Furthermore, there is a growing realization that agriculture represents a huge potential for young entrepreneurs and youth in general, as they are the farmers of tomorrow – and we hold the natural resources in trust for them. On the other hand, the role of women in agriculture and the importance of agriculture to women are no more subjects for debate. This sub-theme provides an opportunity for researchers and practitioners to share their experiences on how extension systems can adequately embrace youth and women in the diffusion of climate-smart agricultural technologies.

The rationale is premised in the fact that, given the role of agriculture in meeting current and future economic demands in Africa, as well as to meet food nutrition and security needs, there is an urgent need to make CSA<sup>5</sup> attractive and accessible to the youth who form the majority of the population. Indeed, greater emphasis needs to be placed on building the capacity of women and youth, as they make up the majority of farmers in Africa. It is important to build their capacities so that the next generation of farmers and land managers can build on today's successes. We need to promote research and innovation through encouraging demand-driven research, value chain addition, encouraging the promotion of drought tolerant crop varieties and emphasizing CSA technologies that are appropriate, gender sensitive and locally based. This also means exploring and introducing more business and market-oriented approaches to agriculture for youth engagement in the sector, as well as making the agricultural sector a more productive and attractive profession. This should also help retain innovative youth and women in rural areas, halting the migration of these important groups to urban areas.

Over the years, youth and women in Africa have proved their potential in promoting and implementing climate change adaptation projects. These innovations are largely driven by climate change impacts. However, the youth and women face various challenges that include lower technical capacity and education participation / attainment

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<sup>4</sup>CSA = sustainably increasing productivity, resilience (adaptation), reducing/removing greenhouse gases (mitigation), while also enhancing achievement of national food security and development goals

<sup>5</sup> CSA is not a single specific agricultural technology or practice that can be universally applied. It is an approach that requires site-specific assessments to identify suitable agricultural production technologies and practices

levels, higher rates of poverty and lack of access to financial resources. Within the context of agriculture, youth and women in Africa continue to battle challenges associated with the negative perception of agriculture as a “difficult” job, with poor returns and also lack of access to land and markets.

*However, there are opportunities in terms of;* Climate change adaptation and mitigation, and empowerment of youth and women, are key priority concerns for the African Union Commission and African development priorities. In fact the African Union Commission strongly encourages and supports sustainable development at the economic, environmental, social and political level which recognizes the importance of empowering the youth and women, allowing them to become agents of change in our societies, as enshrined in the AU Agenda 2063. Emerging issues affecting the youth and women in agriculture include mentorship, training, knowledge management and financing. Given the increased focus on youth and women, and the increasing dependence on agriculture for economic development and food security, this theme will create a platform to explore practical solutions which governments and institutions can apply to engage the youth and women actively in CSA<sup>6</sup>.

### **Scaling up ICT innovations for CSA**

In 2015, during the 2<sup>nd</sup> Extension Week held in Ethiopia, the ICT working group put ICT innovations high in AFAAS agenda. In partnership with other international development partners like CTA, GFRAS, AGGRA, the working group organized a set of activities to enhance awareness and sensitization of AFAAS stakeholders in the use of ICT for RAS in Africa. A dozen of young innovators were invited to present their ICT solutions during the plug and play session co-organized with CTA ([www.ict4ras.org](http://www.ict4ras.org)) and innovation demo sessions, web 2.0 trainings, multimedia production trainings and a video competition enriched activities of the 2<sup>nd</sup> Extension Week. The ICT working group shall put ICT innovations higher by linking it to an actual central topic: Climate Smart Agriculture.

There is no doubt that both ICT and CSA are hot topics in actual context. The sub-theme “scaling up ICT innovations for CSA” will attract a diversity of interested individuals, organizations and institutions and provide an opportunity for different knowledgeable and/or experienced stakeholders to showcase how ICT and CSA are closely interlinked and serve the pro-farmers food and nutritional security agenda at the same time helping in the adaptation and mitigation vis-à-vis of climate change.

The rationale is that, it is estimated that about 75% of the world’s poor live in rural areas, with agriculture being their most important income source (Lipper et al. 2014). Population in Africa is among the most rural compared to any other continent. According studies made by ILRI, Africa contains many vulnerability hotspots in the West African Sahel, the Great Lakes area, coastal areas of Eastern Africa and the dry zones of Southern Africa. Well known for its natural resource and wealth, Africa is actually under serious threat from various angles but maybe more concerning are the persistent poverty and malnutrition on the continent which might be multiplied in the next decades due to climate change. Changes that are required are massive and urgent. While it is recognized that efforts must be intensified, means and good-will at different levels seems not to follow the urgency of the situation. It is estimated that climate change will result in an 8-24% loss of global caloric production from maize, soy, wheat and rice by 2090 (Elliott et al. 2015) and Sub-Saharan Africa will be hit particularly hard: it is estimated that maize yields will drop by 5% and wheat yields by 17% before 20150 (Knox et al. 2012). Climate is changing and agricultural practices and systems must also change if Africa want to avoid catastrophe. We need to develop innovative approaches and tools to tackle what is likely to be the most complex challenge that food production systems in Africa will ever face.

How can we increase agricultural production, reach food and nutrition security, and develop adaptation and mitigation options? This might be where ICT can be of great help. We need new ways of working, new communication and collaboration tools, new educational tools for speed and mass trainings, new alert systems

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<sup>6</sup>See FAO (2013) Climate Smart Agriculture Sourcebook. Available from: <http://www.fao.org/docrep/018/i3325e/i3325e.pdf>

adopted and adapted for all stakeholders at all levels and ICT can be of great help if used properly. Furthermore, there is a wealth of knowledge regarding CSA but the missing links are between knowledge, action and possible retroactions. There is therefore, urgent need to for deeper and massive understanding of the problem in short period of time, become more effective and efficient in implementing practical, concrete solutions. And this is why Extension in general and ICT in Extension more particularly plays a key role. ICT is a powerful effect multiplier. New tools and methods must be developed if not already available to showcase, share and widely spread CSA knowledge and practices. Collaborative efforts are already initiated and coordinated between individuals, institutional and organizations in some countries and in some advanced regions of the world. Africa must grab the opportunities that ICT offers. ICT can enhance and accelerate information sharing, alerting, information exchange and collaboration, learning and training, collecting data and monitoring.

### **Scalable CSA technologies and innovations**

There is huge, and growing, debate and concern about climate-smart agriculture. However, it is not clear what climate-smart technologies are available and usable by small-holder farmers who constitute a large majority of farmers in Africa. This sub-theme provides an opportunity for researchers and practitioners to share their experience with, and/or showcase, appropriate climate-smart technologies that are awaiting scaling up.

### **Capacity development for scaling up CSA innovations**

Issues on, and concern about, the impact of climate change on agriculture, including climate-smart technologies, are only beginning to gain prominence. The majority of researchers and practitioners in the field are largely unaware and need retooling. This sub-theme provides an opportunity for researchers and practitioners to share their experiences on how those in the field can be retooled to enable them cope with the new demands.

In Africa, Agriculture is one of the key levers to meet the rampant food and nutrition security, economic and environmental challenges, hence contributing to the achievement of sustainable development goals. However, climate change and variability are tangible realities in various countries of the continent, their negative effects are actual, increasing and would be worse in the future if adequate measure are not taken. The shift towards a climate smart agriculture (CSA) is imperative not only to adapt but also to mitigate climate change and variability. Youth and Women have to be considered in this shift so as to enable them to fully participate and benefit also outcomes from innovations in farming practices.

The rationale is that, CSA is relatively recent in Africa. Its development and scaling have to be gender sensitive to consider and harness the diversity of farmers' profile. This require a transformation of agricultural innovation systems. This transformation can be achieved only if there are adequate investments in capacity development for agricultural stakeholders at individual, organisational and system levels to address challenges related to innovation, generation and management of new knowledge and learning processes for the promotion of CSA. Technical capacities of a critical mass of field operators (NGOs, Producers organisations, extension services etc.) should be strengthened to provide farmers with the support they need adopt climate smart agriculture hence be able to continue farming and face risks of climate change and variability. There is necessity of building enabling policy and regulatory frameworks through adequate strategic orientation and improved coordination of agricultural, climate change/environmental and food system policies. Moreover, transition to CSA requires increased and improved financing. There exist opportunities at local and international levels, but local actors need to be sensitized and to develop capacities that will enable them to tap into those opportunities as well as to be more familiar and harness the potential of new policies, regulatory mechanisms, community frameworks and international conventions related to the climate change. Strengthening capacities of organisations will enable them to design and implement CSA plans and programmes and mainstream best practices related to climate change adaptation in agriculture.

Though CSA is quite recent in most African contexts, there exist several past or initiatives potential bearing interesting lessons to learn regarding capacity development. The AFAAS Africa Extension week offers a unique

opportunity to share these lessons and experiences, but also to discuss key areas for future investments on capacity development for successful scaling of CSA.

### **Knowledge management for CSA**

CSA is not a set of practices that can be universally applied, but rather an approach that involves different elements embedded in local contexts. CSA relates to actions both on-farm and beyond the farm, and incorporates technologies, policies, institutions and investment. This sub-theme provides an opportunity for researchers and practitioners to share their experiences and good practices on farms, ecosystem and landscape management, crops, livestock, aquaculture and services for farmers to manage resources better, produce more with less while increasing resilience.

The Rationale is that, FAO estimates that feeding the world population will require a 60 percent increase in total agricultural production. With many of the resources needed for sustainable food security already stretched, the food security challenges are huge. At the same time climate change is already negatively impacting agricultural production globally and locally. Impacts on agriculture threaten both food security and agriculture's pivotal role in rural livelihoods and broad-based development. Climate-smart agriculture (CSA) is an integrative approach to address these interlinked challenges of food security and climate change. So it is very important to support farmer to adapt into climate change need innovative extension and advisory services approaches. The knowledge management is a discipline that seeks to improve the performance of individual (farmers) and organizations by maintaining and leveraging the present and future value of knowledge asset... it also encompasses any (social) processes and practices concerned with the creation, acquisition, capture, sharing and use of knowledge, skills and expertise, whether these are explicitly labelled as knowledge management or not. (Ferguson et al 2008). But there is a general agreement that KM is about striking the right balance among people, processes and technology.

### **CSA Innovation for entrepreneurship**

The uncertainty of climate change, especially extreme events, makes it difficult for individual farmers to incorporate risk into their decision-making. Vulnerabilities to climate effects on production, pests, disease and price volatility depend on farmers' assets and natural resource base. Appropriate risk management tools, such as improved forecasts and extension support, and appropriately designed safety nets or insurance instruments must revolve around the vulnerabilities in specific farming situations. Rural households in developing countries, limited in both resources and access to information, could be disproportionately affected unless appropriate measures are introduced to manage the additional risk and uncertainty related to climate change. Innovative management of risk and uncertainty employs financial mechanisms (for example risk transfer or insurance contracts) that use several types of methods to understand investment decisions, technology choices, and risk perceptions. These methods include remote-sensing technology, micro-level household data, analysis of diversification, and farm surveys. Implementation of such insurance instruments requires appropriate technical innovation, building awareness and trust, ensuring viable market demand, and enhancing local capacity building among local financial institutions.