Food and Agriculture Organization of the United Nations

Report of the Validation Workshop on the Framework for Sustainable Agricultural Mechanization in Africa (SAMA): Sustainable Mechanization across Agri-food Chains

11th- 12thMay, 2017
Addis Ababa, Ethiopia

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
AMS	Agricultural Mechanization Strategy
AUC	African Union Commission
AU	African Union
BNDB	Botswana National Development Bank
CAADP	Comprehensive Africa Agriculture Development Program
FAO	Food and Agriculture Organization of the United Nations
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
IITA	International Institute for Tropical Agriculture
IW	Inception Workshop
LAC	Latin American Caribbean
NAIP	National Agricultural Investment Plan
NDB	National Development Bank
Q&A	Question and Answer
RAI	Retouch Africa Consulting
REC	Regional Economic Community
SAMA	Sustainable Agricultural Mechanization in Africa
SAM	Sustainable Agricultural Mechanization Strategy
SAMS	Sustainable Agricultural Mechanization Strategy
SSA	Sub-Saharan Africa
SSTP	Scaling Seeds and Technologies Partnership
SUA	Sokoine University of Agriculture
UDSM	University of Dar e-s Salaam
UNECA	United Nations Economic Commission for Africa
USAID	United States Agency for International Development
WB	World Bank

EXECUTIVE SUMMARY

The African Union Commission (AUC) and the Food and Agriculture Organization of the United Nations (FAO) convened a workshop in Addis Ababa, Ethiopia from May 11th – 12th, 2017 to validate the draft framework for Sustainable Agricultural Mechanization in Africa (SAMA). The SAMA framework seeks to provide a menu of the priority elements to be considered by countries in Africa that are in the process of developing, refining and implementing their strategies for sustainable agricultural mechanization and transformation. The framework is designed to contribute towards the attainment of some of the CAADP and Malabo Declaration targets and commitments, especially the commitment to end hunger on the continent by 2025.

The highly interactive workshop was attended by 54 experts from governments; research and financial institutions; non-state actors; private sector and academia. Most of the participants had attended the Inception Workshop [IW] held earlier in Addis Ababa from 30th June to 1st July 2016 to discuss the modalities for the implementation of the project.

The validation workshop was officially opened by Her Excellency Josefa Leonel Correia SACKO, Commissioner, Department for Rural Economy and Agriculture (DREA**),** African Union Commission who in her remarks expressed her gratitude to all the participants for responding positively to bring their expertise and diverse experiences towards a successful push for Sustainable Agricultural Mechanization in Africa. She pointed out that the provision of mechanization services in the 21stcentury has to be along the entire agricultural value chain for increased systemic competitiveness; be private sector driven and affordable especially to small–scale farmers who constitute the bulk of African farmers in addition to targeting women and youth; as well as being environmentally sustainable and climate-smart.

The draft report on the framework for SAMA which was presented shows that while agricultural transformation is already underway in several African countries following the adoption of the Comprehensive Africa Agriculture Development Programme (CAADP), as Africa's policy framework for agricultural development, much still needs to be done to transform on-farm mechanization to liberate the African farmer from the ergonomically debilitating hard labor associated with the predominantly hand-held hoe farming. In addition, agricultural mechanization should contribute to, among other things, increasing productivity by breaking labor bottlenecks that constrain on-farm production and growth of rural incomes as well as making agribusiness attractive to the youth and educated. On a larger scale, mechanization should be viewed as a necessary component of a transformational development process that promotes the sustainable commercialization and modernization of small, medium and large scale farms in order to accelerate agricultural development and initiate sustained poverty-reducing economic growth in both rural and urban areas.

Participants recommended that the framework should take a holistic approach to mechanization and broaden its scope beyond crop production to include livestock, fisheries and forestry. However, it was agreed that countries should prioritize the commodities to be mechanized in developing their framework or strategy rather than target all commodities simultaneously. Experiences from other continents and especially in the developing economies of Asia and Latin America where agriculture has been successfully mechanized show that cereals (maize, wheat, rice etc.) are the first crops to be mechanized and this normally leads to a significant increases in total factor productivity. Thus, the focus of SAM framework, at the country level including choice of which crops to mechanize, should be based on the increase of total factor productivity.

The SAMA validation workshop recommended the way forward in finalizing the project. This includes; timelines for submission of the validation workshop report, which would include additional submissions and written comments from participants as well as proposals on the outline of the SAMA framework document to be received by the end of May 2017. The incorporation of the comments and submission of the final SAMA framework document to the African Union (AU) should be done before October 2017 for it to pass through the AU's processes before its adoption by African Heads of State and Governments. The implementation of the SAMA framework also envisages identification of SAMA champions, development of country specific guidelines, proposals on action-plans on priority activities at the sub-regional and continental levels including a robust SAMA advocacy plan.

1.0 INTRODUCTION AND BACKGROUND

The African Union Commission (AUC) and the Food and Agriculture Organization of the United Nations (FAO) convened a workshop from May 11th – 12th, 2017 in Addis Ababa, Ethiopia to validate the draft framework for Sustainable Agricultural Mechanization in Africa (SAMA). The draft SAMA framework provides a menu of the priority elements to be considered by African countries in the process of developing and implementing their strategies for sustainable agricultural mechanization and transformation.

The process of developing the framework for SAMA was initiated by the AUC in 2016 as a follow-up to decisions made at the 2014 Summit of African Heads of State and Government in Malabo, Equatorial Guinea. The process also supports the AU Chairperson's initiative, launched at the June 2015 Summit in Durban, South Africa, with the objective significantly reducing by 2025 the use of the hand-held hoe as the main implement in African agriculture. Against this background, in 2016, the AUC requested technical assistance from the FAO to develop a framework for SAMA. FAO accepted the request and developed a Technical Cooperation Project on Sustainable Agricultural Mechanization with the AUC. The objective of the project is to contribute to promoting investments into, and the intensification of agricultural mechanization in Africa using a value chain approach, as well as its integration in agricultural development strategies at country level.

An inception workshop was held on 31st June and 1st July 2016 at the African Union Commission, Addis Ababa in Ethiopia. Participants were drawn from the AUC, FAO, the private sector, research institutions, member states and other stakeholders active in the agricultural mechanization sub-sector in Africa. This workshop concluded that the Framework should have a continental scope, with options on mechanization models that could be scaled up. It was also agreed that partnership should be broadened to include other organizations such as the AfDB in order to facilitate the mobilization of additional resources to support this work.

A Steering Committee was subsequently formed to oversee the consultative processes and drafting of the framework which culminated in holding this Validation Workshop in Addis Ababa, Ethiopia to review and validate draft SAMA document. The validation workshop brought together 54 experts who were drawn from Governments; Research Institutions; Non Sate Actors; Financial Institutions, Private Sector and Academia.

2.0 OPENING OF THE WORKSHOP

The validation workshop which brought together fifty four experts/ stakeholders from different countries and sectors to comprehensively scrutinize the draft document and provide inputs for its improvement was officially opened by Her Excellency Josefa Leonel Correia SACKO, Commissioner, Department for Rural Economy and Agriculture**.** Her Excellency Sacko expressed deep gratitude to all the participants for

responding positively to the invitation and bringing their expertise and diverse experiences towards realizing Sustainable Agricultural Mechanization in Africa. Commissioner Sacko proposed that SAMA has to be developed along the entire agricultural value chain; it must also be private sector driven, therefore, it must make business sense; it must be affordable especially to small–scale farmers who constitute the bulk of African farmers, and it must target women and youth who are key to increasing productivity in African agriculture. In addition, it must be environmentally sustainable and climate-smart. While expressing confidence that the draft framework document has captured all these aspects she called on the validation participants to ensure the proposed mechanization models in the framework document are implementable. She concluded by stressing that the Malabo commitment on ending hunger by 2025 will remain a mirage unless mechanization is taken up seriously.

Dr. Patrick KORMAWA, FAO's Sub Regional Coordinator for Eastern Africa and representative to AU and UNECA in his opening remarks pointed out that the framework will be a vital instrument to guide the efforts towards achieving Africa's quest for a zero hunger continent. He reminded the participants that despite significant progress being made in the past few decades, Africa is still a net importer of food. He reiterated that even though Africa has 60% of the world's uncultivated arable land, its land productivity rate is the world's lowest, with an estimated yield gap of up to 80 percent. This illustrated the importance of the task to the participants. He posed a poignant question: "Will Africa achieve the zero hunger target by 2025 with the agriculture that is reliant on human muscle power?

The FAO representative was optimistic about the future, stating Africa has great hope and capacity to feed its people. Nonetheless, this can be possible when agricultural production and productivity is significantly transformed from a traditional system to a modern farming system based on, among other things an appropriate mechanization strategy. Once finalized, the SAM framework will provide countries with a blue print that could be adapted or used to develop their own national agricultural mechanization strategies and this he asserted must be part of their overall agricultural transformation agenda.

The representative of the African Development Bank (AfDB) representative Dr. Lawal UMAR in his remarks reiterated that the Bank was supporting the implementation of a continent-wide strategy for the Transformation of African Agriculture through its 'Feed Africa Initiative of the 'High 5 Agenda'. This is done in partnership with the African Union Commission, United Nations Economic Commission for Africa (UNECA), and Development Partners. The 'Feed Africa Initiative' strategy has four specific goals namely: Contribute to eliminating extreme poverty in Africa; End hunger and malnutrition in Africa; Make Africa a net food exporter; and, Move Africa to the top of export-orientated global value chains where it has comparative advantage. He noted that the Bank has seven enablers to achieve these goals, among which is a focus on increasing productivity. Under this, the Bank has started developing effective input distribution systems, mechanization, and reduction in post-harvest losses. Dr. Lawal UMAR assured the participants that the Bank will facilitate increased investment into agricultural research and technology dissemination;

expanded input finance, establishment of a financing facility for on-farm mechanization and investment in infrastructure and training to reduce on-farm and post-harvest loss.

Dr Adama Ekberg COULIBALY, Chief for Food Security, Agriculture and Land of the United Nations Economic Commission for Africa (UNECA), in his remarks noted that Africa is the epicentre of the 21st century where Agriculture will play a key role in the continent's development. He noted that the development and implementation of an agricultural mechanization strategy is an important part of this process. Dr. Coulibaly reiterated support of UNECA to promote agricultural mechanization as one of the premier institutions in the continent and stressed that mechanization will be a game changer for Africa. He called for effective technology generation and transfer to those who need it; and, good business models that tap into Africa's uniqueness especially making agriculture attractive to the youth and women. Finally, he called on learning from others on what has worked and not worked with Agricultural mechanization, drawing on lessons to help in designing and implementing Africa's own agricultural mechanization strategy.

Dr. Richard B. JONES, AGRA Chief of Party, Scaling Seeds and Technologies Partnership in Africa (SSTP), applauded the continental initiative on mechanization, and pointed out that AGRA's board had requested for a mechanization strategy. The AGRA strategy looks at green revolution with aspects of mechanization and financing elaborated. He noted that mechanization is more than just "*tractorization*", but also include policies which promote increased use of other inputs such as fertilizers and seeds as well as better crop management, among others. He echoed the former AUC Chairperson Dr. Zuma clarion call of banishing the hoe to the museum.

3.0 WORKSHOP OBJECTIVES AND AGENDA

The AUC CAADP Advisor on Agribusiness, Mr. Mark Kofi FYNN shared the background information about SAMA and stated the objectives of the two- day validation meeting, namely: 1.) Facilitating a common understanding and agreement on key elements for sustainable agricultural mechanization in Africa; reaching an agreement on an action plan for execution of the framework and 2.) Promoting cooperation and partnerships for effective execution.

Mr. FYNN then handed over the workshop facilitation to Douglas OUMA of Retouch Africa Consulting (RAI), who took participants through the workshop agenda and the process and guidelines of conducting the validation workshop.

4.0 METHODOLOGY AND APPROACH

The facilitator employed a multifaceted approach in the delivery of this validation workshop. The methodology and approaches included: plenary presentations, syndicate group discussions, and questions and answer sessions. The draft Sustainable Agricultural Mechanization Framework was presented by the lead consultant Professor Geoffrey MREMA from Sokoine University, Tanzania. The presentation was followed by interactive question and answer sessions, which involved the other consultants who conducted studies in various sub-regions (Eastern, Southern, Central, Western Africa), as part of the formulation of the Framework for SAMA.

Group discussions were conducted experts were given guiding questions for their discussions on specific elements of the framework. Each group had a rapporteur and a group leader to do the presentations and guide the discussions respectively.

5.0 OUTCOMES AND RESULTS

5.1 Draft Framework of Sustainable Agricultural Mechanization in Africa

Professor Geoffrey C. MREMA, Lead Expert for the team that conducted studies and drafted the framework presented a summary of key aspects of the framework titled *Sustainable Agricultural Mechanization in Africa (SAMA): A Value Chain Approach.* The main contents include introduction to agricultural mechanization and the process of formulating the framework, the agricultural mechanization process, evolution of mechanization in Africa, issues on current status of agricultural mechanization in Africa, proposed elements of a SAM framework for Africa and some ideas on priority action areas for implementation of SAMA.

Four sub regional studies were undertaken by a team of four experts namely: Professor Mathias FONTEH of Cameroon (Central Africa sub-region); Dr. Pascal KAUMBUTHO of Kenya (Eastern Africa sub-region); Dr. Mataba TAPELA of Botswana (Southern Africa sub-region) and Prof. Emmanuel AJAW of Nigeria (West Africa sub-region). Also the Team participated in the Workshop on Agricultural Mechanization in Africa held in Nairobi in December 2016 which was organized by among others, the World Bank, AGRA and FAO.

5.2 The Process of Developing the Framework for SAMA

The steering committee met and agreed on the consultative process to be followed in developing the framework for the SAMA as outlined herein: 1) Review of studies and reports on agricultural mechanization of the past 50 years , including several pan-African studies; 2) Draw lessons from both successful and failed programs and projects of the past; 3) Learn from other sub-sectors e.g. transportation; ICT etc.; 4) Learn from other regions of the world e.g. Asia, LAC e.g. and 5) Undertake a number of sub-regional and country studies including consultations with Regional Economic Communities (RECs).

Basic Stages in the Agricultural Mechanization Process

Six Basic Stages in Agricultural Mechanization

Stage 1: Power substitution stage – from animate to mechanical power
Stage 2: Mechanization of human control functions
Stage 3: Adaptation of the cropping system to the machine
Stage 4: Adaptation of farming systems to facilitate mechanization
Stage 5: Adaptation of the crops to mechanization systems
Stage 6: Automation of agricultural production – automated production process

Most of African countries are still at stage one, the very basic stage with regard to on-farm field operations. This stage of mechanization should be viewed strategically and with a long-term perspective. While sharing lessons from Asia where Professor Mrema also led a similar process, he singled out the following as key factors to the success of mechanization there: the presence of sizeable number of medium size farmers and their entrepreneurial skills; careful planning; political leaders support and commitment in creating enabling environment and taking a long term perspective of mechanization.

The Components of a SAMA Strategy

1. Recognition of the need to tackle **the farm power** constraint in agriculture in the region. Currently about 60% of land preparation is done with the hand hoe [some sub regions up to 80%]
2. The implements used/hitched/driven by the power source. Past concern on agricultural mechanization in SSA [and even in Asia] was more on the sources of farm power and the socio-economic consequences and impact of their increased use on small holder farmers and less on the implements being used. Research on implements focused on reduction of their power demand & their versatility for different operations e.g. plowing, weeding etc.
3. Production on a commercial basis to meet the higher cost for machinery services.
4. Types of crops being cultivated e.g. cereal grains; roots and tubers etc.
5. Holistic approach to mechanization considering the entire agri-food chain including financing of capital investments required to support the acquisition of farm machinery and implements, factor-in off-farm uses of mechanization inputs and value addition activities on what is produced
6. Efficient utilization rates of agricultural machinery and timeliness of performing field operations
7. Commercial viability of the franchises and supply chains for agricultural machinery and implements.
8. Testing and manufacturing of agricultural machinery and implements in the SSA
9. Institutions and policies including for: financing of agricultural mechanization inputs as well as services for research and development
10. Sustainability of agricultural mechanization in SSA taking into consideration commercial, environmental and socio-economic sustainability.

Priority Action Areas

The draft SAMA Framework identifies the following key priority action areas as shown in the table below.

- Developing detailed guidelines to help member countries in the design and formulation of policies and strategies for SAM covering all three aspects of sustainability of agricultural mechanization interventions – commercial, environmental and socio-economic.
- Developing mechanisms for increasing the flow of financial resources for agricultural mechanization investments from commercial banks and other financial institutions to provide loans to small and medium scale commercial farmers and entrepreneurs.

- Strengthening of the national, sub-regional and regional institutional infrastructure supporting the development of agricultural mechanization in, among other areas, research and innovation; standards and testing; manufacturing and trade in agricultural machinery and implements; technology transfer and extension; capacity building in all aspects.
- Establishment and/or strengthening of centres of excellence as well as coordinating mechanisms at national, sub-regional and regional levels
- Developing regional cooperation protocols for the implementation of many activities in order to attain economies of scale and scope as well as create sustainable organizations and institutions given the current small size of many national markets.
- Establishment of a regional coordinating mechanism will be necessary as it has happened in other regions.
- Involvement of national, regional and international organizations/institutions in this effort, [such as National Governments; Farmer's Organizations; AUC; RECs; AfDB; AGRA; FAO, UNECA; UNIDO and the World Bank] will be critical to the success of SAMA

The draft SAMA framework recommends the need to view agricultural mechanization in a long term perspective especially with focus on Farm Power issues e.g. the Asia region has had a long term strategy and is now moving out of animal power for primary land preparation; Ethiopia has set a target of reducing DAP by 50% by 2035 while Tanzania is developing a process of significantly reducing use the hand hoe in primary tillage. In addition, there is also need to learn from others especially where mechanization has occurred in the recent past. Agricultural mechanization is critical to the future of agricultural development and food security in SSA.

5.3 Discussions and Feedback

The SAMA presentation was followed by question and answer session where participants sought clarifications and delved into much deeper issues with recommendations and proposals. There were debates on pros and cons on some of the proposals. Issues which emerged from these deliberations include, among others, the following:

First, there is an important need for Africa to evaluate each value chain and the entry point for mechanization, its relevance, as well as the different forms in order to adapt at high levels while taking into account profitability and existing markets.

Second, discussions on mechanization should be broadened to incorporate elements beyond on-farm production, aspects such as land suitability, the role of women, youth and elderly, involvement of small scale farmers and agro-ecological zones should be integrated. An enabling environment which will remodel agriculture into a business in the short-term should be encouraged.

Third, a feasibility study on the return on investment on mechanization through the past decades needs to be carried out. This will be essential in identifying minimum thresholds for mechanization to trigger a paradigm shift resulting in targeted interventions, including policy interventions.

Fourth, the framework should clearly define sustainable mechanization and its correlation with agricultural transformation and to the extent possible include a consensus on precise targets and indices for progress in its implementation.

Fifth, the contribution of the private sector and multinationals in agricultural mechanization in Africa should be spelt out in the framework, this contribution needs to be linked to the industrialization strategy for Africa. Each country must then strive to domesticate the framework with regular capacity development.

The concerns raised include whether what was presented was a strategy or a framework? It was clarified that what was presented was a Framework for Sustainable Agricultural Mechanization, which should guide countries in developing and implementing their own Agricultural Mechanization Strategies. Some participants wanted to be sure that the framework was compliant with the Malabo Declaration targets. There was reassurance that this is in fact the case. Another concern expressed was the need to clearly define agriculture and mechanization in the document and this should explicitly show guidelines that include livestock, fisheries, and beekeeping. The participants called for explicit reference and incorporation of the youth, women and ensure that the document is gender sensitive. They noted the need for sensitivity to country dynamics and enlisting political commitment for successful implementation of the framework.

5.4 Presentation of SAM Business and Financing Models for Mechanization

There were selected presentations on business and financing models which enabled the participants to deliberate on some of the operationalization issues raised in the draft SAMA framework document. The models presented were a)Botswana Agricultural Mechanization Initiatives by Dr. Mataba TAPELA of Botswana University of Agriculture and Natural Resources;b)Agricultural Mechanization Status, Experience and Lessons from Ethiopia by Addisu TADEGE, Director, Ethiopian Agricultural Transformation Agency;c) Sustainable Mechanization Service Delivery Models: Nigeria and Rwanda Business models by Dr. Ahmed D. ADEKUNLE and presented to the workshop by Innocent OGIRINYE, Coordinator of Nigeria PSDAMP and Technical Project Assistant to the Chairman; and d)Machinery Ring Model in Germany by Andreas HASTEDT.

The key highlights of these presentations are:

A: Botswana Business and Financing Model

TheFinancing Mechanisms and Strategies in Botswana include institutions such as National Development Bank (NDB); Citizen Entrepreneurial Development Agency (CEDA); Botswana Development Corporation; and Commercial Banks. The model enables tax-free importation of agricultural machinery and inputs andguarantees market for strategic grains through the Botswana Agricultural Marketing Board. Some of thechallenges of the Botswana model include: high cost of machinery; few skilled operators and maintenance technicians; erratic rainfall; unsustainable subsidies and aging farming population. Key success factors of the Botswana model includes: mechanized food value chain; sustained and progressive mechanization policy interventions; proximity to equipment supply and after sales support; credit facilities and guarantee schemes; embracing climate smart farming technologies; attracting youth into farming and research and development**.**

B: Ethiopian Financing and Business Model

Agricultural Mechanization (AM) is recognized in the Growth and Transformation Plan II (GTP-II) and key interventions are planned to implement the AM strategy.The rationale for Ethiopian Agricultural Mechanization strategy are: power shortage due to the decline in draught animal power and migration of the youth to the cities and nearby towns; low level of productivity of most crops; high post-harvest loss; increasing labor wage rates particularly during peak seasons (harvesting, and tillage, planting etc.).Despite the importance of mechanization, the country has one the lowest numbers of tractors per 100 square kilometers of arable land (about 2.2 tractors per 100 sq.km) in comparison to Europe –Poland having 1300 tractors per 100sq.km.Therefore, the Ethiopian Agricultural Mechanization promotion and adoption strategy evolved over fives phases namely: the era of early attempts in introducing and promoting technologies (mainly ploughs)(1939-1950s};the era of establishment of Rural Technology Centers and large scale projects promoting farm implements and tractors (mid 1950s – 1995); the era of slowing down on agricultural mechanization and reduction in tractor use (mid 1990s - 2012);and the era of Renaissance (from 2012 onwards).

The strategy underlines that the sustainable approach to enhance AM is to use a business model approach. The initiatives provide for private sector including farmer economic institutions (cooperatives) for service provision and technology supply; 'best' business model for small holder farmers; mechanization services through custom-hire approach; and kick off- mechanization service centers with investments from regional governments. The potential service provider business models in Ethiopia are: the private companies (supply led/manufacture led) or independent enterprise created for mechanization services; public enterprises working in the mechanization sector; cooperatives, youth groups with special support for appropriate scale of mechanization technologies.

The key gaps observed in implementing the Ethiopian strategy are: limitations in capacity (institutional capacity gap; skilled professionals, lack of operators and related skills); lack of finance for value chain actors (importers and manufacturers; service providers; technology users); lack of appropriate scale of mechanization technologies; and low private sector involvement.

The following options have been suggested in dealing with the challenges in the Ethiopian case: (i): On the key capacity gaps (create/strengthen institutions enhancing agricultural mechanization; human capacity building, develop training institutions and encouraging the private sector to invest in this area. (ii): Other recommendations are to develop diversified financial products to address the needs of all value chain actors; creating conducive environment for domestic manufacturing, research & development, developing a need based machinery supply system and widening the playground for the active involvement of the private sector.

C: Sustainable Mechanization Service Delivery Models: Nigeria and Rwanda Models

The focus of sustainable business models for mechanization service delivery is small, medium and large scale farmers. The presentation drew practical experiences and lessons from the Nigerian Government enabled private sector driven agricultural model program (PSDAMP) and the designed Rwanda model. The core of the model is Agricultural Equipment Hiring Enterprises (AEHE) to reach all categories of farmers. For SAM business model to be sustainable, it must encompass the following components: Mechanized Equipment/ Technology Requirement; Mechanization Service Delivery to Farmers; Productivity Enhancement Scheme (PES);Bush Clearing/Land Development; Mechanization Extension Service Delivery, Standards and Certification Regulatory Framework; Local Industry Development Strategy; Off-Farm Mechanization Services (Storage and Processing Factories & Transportation).

A public sector enabled Private Sector Driven Agricultural Mechanization Service Delivery is recommended using a Public Private Partnership (PPP) platform. The PPP will involve the National Government (Ministry of Agriculture); Financial Institutions; Representatives of Agro-Machinery Vendors/Manufacturers (Not Contractors) & Local Fabricators; Private Mechanization Service Providers (PMSP); Credit Risk Guarantee Agencies; Insurance companies and the farmers.

The PPP is to set up **Agricultural Equipment Hiring Enterprises (AEHEs**) in demand driven farming communities to render services to farmers in a value chain cluster payable at a set fee. Looking at the peculiarities of different categories of farmers in Africa, the following different mechanization service deployment structures are planned: *model 1:* Medium Scale Service Provider: Standard AEHE; *model 2:* Small Scale Service provider: Mini/Mobile AEHE; *model 3*: Direct Machinery Ownership Scheme; *model 4*: Bush Clearing/Land Development Service Providers. Each model has different equipment and funding arrangement (see annexes for details).

D. Machinery Ring Model: Experience and Lessons

The situation in Germany in the 1950s necessitated the need to establish the Machinery Ring Model (MR) premised on the fact that industrialization led to the withdrawal of the labor force from agriculture, thus new agricultural techniques had to replace the labor force. First MR was founded in 1958 in Bavaria by 192,000 members.

What does Machine Ring entail?
Aggregations organized by the farmers themselves ◎Common or individual investments and mutual aid ◎Efficient management of mechanization on individual farms with modern technology ◎Structure for regional common projects in value chains ◎Canvassing projects with new business for extra income to the members (farmers) ◎Organization of farm help ◎Modern center of different services to members with professional knowledge ◎Proposals as a functions of regional frame conditions ◎Office with modern technique of communication ◎Non-profit organization

Experiences and Lessons Learnt on Machine Ring (MR)

- Machine Rings in Germany are very successful
- Farmers must take the initiative to establish MR
- Motivated and well-trained staff is needed
- Excellent MR-Manager
- Clear and transparent rules are important
- Economical and reliable business will convince farmers
- Farmers like to work together and thus synergy should be promoted
- MR is a flexible response for modern mechanization and organization to changing agriculture challenges

What will it take to establish Machine Rings in Africa?

- Farmers must be convinced of this idea
  - Agricultural entrepreneurs
  - Possibilities of education
  - Good regulatory framework
  - Good infrastructural conditions
  - Liquid markets
  - Access to markets of seeds, fertilizers, pesticides, techniques with after sales support
  - Reliable financing system
  - **Excellent Manager, Excellent Manager, Excellent Manager!**

5.5 Technical Group Work and Discussions

To enable a deeper discussion of the framework, participants were divided into four groups based on the key themes from the draft SAMA presentation. The four themes were as follows: Increasing availability of farm power and agricultural mechanization services to farmers; Business models and financing of agricultural mechanization in Africa; Promoting Private Investments for Manufacturing Companies; and Policies and Institutions to support Sustainable Agricultural Mechanization in Africa.
The groups selected their team leaders and each of the four consultants participated in the group discussions as rapporteurs. The groups reviewed and debated the content of the SAMA framework document using prepared guiding questions (see annexe 6). The following captures the key outcomes of the group deliberations while the details are in the annexes.

Theme One:
Increasing Availability of Farm Power and Agricultural Mechanization Services to Farmers

The group provided comments on the framework which included development of a definition of agricultural mechanization; it also noted exclusivity from a gender perspective; it recommended the categorization of youth, women and elderly instead of lumping them together. The group delved into deeper analysis and provided options /suggestions where they pointed out the need for increasing the availability of farm power and equipment; increasing the utilization rates of farm power and equipment. Training capacity and standards was brought up as well; the use of a business model to enhance availability of farm power was highlighted; resource mobilization and the need for member states to create an enabling environment for agricultural mechanization to flourish was discussed at length. Finally the involvement of Government officials and RECs during validation workshop to get buy-in was emphasised.

The facilitated discussions after the presentation stressed the need for caution, pointing out thatapproaching mechanization the wrong way, might not bring profitability and environmental sustainability, which would be in contradiction to its three pillars. There is need to consider giving more emphasis to climate smart technologies and animal draft technology. The links between the Regional Economic Community (RECs) both at the continental and national levels should be strengthened in order to develop a measure of standardization of mechanization on the African Continent.

The SAM framework should be linked with the NAIPs/CAADP/Malabo to promote country specific policies based on the framework and increase government buy-in for the creation of enabling environments. The discussions called for countries to have smart subsidies for mechanization; linking of extension service to mechanization and the absorption of skilled human resource in the sector to service and maintain the machinery.
There was debate on the issue of importation of agricultural machinery. Some participants considered this as a viable option, but must be subjected to regulation. It came out clearly that in the different contexts and

landscapes; there is need for machinery suitable for each country context, owing to the differences in value chains and agro-ecological zones that exist in these countries (Sahel, Sahara, Forest, Savannas). Most developed countries have highly sophisticated machinery that are not adapted to Africa's local needs hence misuse and under-utilization of these machinery and equipment could arise when imported to Africa. Governments should be involved right from the onset given that the States will be required to contextualize and domesticate the framework in their countries once adopted.

The Mechanization Challenge

Mechanization is defined as **all the activities that improve the efficiency of human labour along the agricultural value chain**. Hence, mechanization goes beyond "tractorization" to include other means that help farmers move up the value chain. For example, the use of milk coolers that is used to add value to milk products. These agricultural value chains go beyond crops to include fisheries and livestock. The report uses the number of tractors as an indication of mechanization due to scarcity of other data.

Mechanization can be demand driven and as such not looked at from the production side. Mechanization can be viewed from the market side. For example, seed enhancement—which is a form of mechanization, led to and increased tractor use to meet the demands of enhanced seeds. This can be facilitated by enhancing the role of agricultural research in Africa. This will be key in making mechanization an attractive option by making hand power more expensive.

The Big Question
If mechanization is an important tool for increasing profitability due to seed enhancement and precision, how do we mechanize smallholder farmers as they form a big chunk of Africa's farmers? How do you ensure financial sustainability in agricultural mechanization?

Theme Two:
Business Models and Financing of Agricultural Mechanization in Africa (SAMA)

The group was tasked to deliberate on the following guiding question: Are there other business models for financing agricultural mechanization? What roles should various key players in financing agricultural mechanization have?

The group deliberated upon the case studies of Botswana National Development Bank (BNDB) on insurance and subsidised interest rates funding model. While presenting to the plenary they pointed out that the models were functioning well and they were government secured. The second model was the Nigeria mechanization scheme model which is based on funding service providers or the medium-scale farmers willing to serve others. In this model the service providers have a network where defaulting members can pass machine to a fellow member.
The other financing models discussed in the group included:

- **Finance Leasing** such as EFTA Model of Tanzania where all assets, farmers must have 100 acres and mobile machinery is tracked.
- **AGRA Lease to Own Scheme** this is where the funder provides finances, backed by Africa Guarantee Fund of the World Bank.
- **Rwanda BDF** which provides 75% funds for Women and Youth, 100% Guarantee for mainstream banks and finally **Agrimech** which entailsfarmer mapping, clustering, training and SACCO formation.

The following emerged from the facilitated discussions after the presentation: The need to identify the different working models within the continent and use them as a benchmark for other countries to learn from. It was observed that funds for Agricultural Mechanization play an important role hence development partners such as AfDB (already working with Nigeria on youth programs) and RECs should lead the way in facilitating their provision to member countries. Commercial funding is also needed in the sector to help in mechanization adoption. Investment risk and risk mitigation strategies are essential when considering financial models for mechanization.

Theme Three:
Promoting Private Investments for Manufacturing Companies

The group deliberated on partnerships and policies geared towards attracting the private sector to invest in SAM. SAM collaborations in Africa both successful and unsuccessful ones were discussed. Other issues discussed include: the role of private and public sectors in making these collaborations work as well as the need to link demand for AM services to supply. Ideas for promoting private investment in manufacturing were explored. It was agreed that there was a need for testing centers for agricultural machinery and implements as well as developing strategies for resource mobilization for implementation of SAMA in strategic partnerships with key players.

The discussions following the presentation also revealed the need for collaboration with research institutions, as well as the Government's pivotal role in supporting foreign technology acquisition. The group discussed a few initiatives on SAM collaboration that has been successful in Africa in the domain of agricultural processing through private sector, international research institutions and governments. These include: sorghum threshing and de-hulling by IRRI & ICRISAT; cassava processing by IITA/SUA/UDSM and sunflower oil processing by CAMARTEC in Arusha, Tanzania. Other success stories and best practices in the implementation of the same could be used as a benchmark for SSA countries to learn from. For example, tax relief and incentives in Tunisia, Open Laboratory in South Korea and Common Facility Workshops (SIDO) in Tanzania.

Theme Four:

Policies and Institutions to support Sustainable Agricultural Mechanization in Africa

The group was guided by the following questions**:** Are there existent policies on Sustainable Agricultural Mechanization that are functional or not? 2. What lessons have we learnt to help in going forward and not to repeat past mistakes such purchase of agricultural machinery without looking into their value chain approach when making those decisions? 3. What can be done differently in formulating and implementing policies to ensure Sustainable Agricultural Mechanization in Africa? 4. What strategies and programs in SAM are currently working well and which ones are not working well? 5. What types of institution will make SAM successful and why?

The following issues emerged from the discussions after the presentations; there is an urgent need to compile an inventory of existing policies on agricultural mechanization in the different countries and their functional status. Some countries do not have mechanization policies, while in others; mechanization is only mentioned briefly in the broad agriculture strategy. For those with policies, there is often no strategy for implementation. Countries where mechanization is more elaborate in agricultural policies include: Zimbabwe, Malawi, Sierra Leone, Nigeria and Angola. In some instances, the inefficiency of government systems impedes implementation.

There has been no feasibility study undertaken to operationalize the sustainability of the schemes i.e. spare parts and maintenance in South Sudan, Malawi, Sierra Leone and Angola. In future, there should be an implementation strategy through public-private partnerships and domestication of the policies together with its monitoring and evaluation system. There is need to promote synergy across the value chain among stakeholders.

5.6 Plenary discussions and conclusions:

In general the plenary agreed on the following way forward:

i. The framework should be aligned to the Continental Agenda 2063
ii. The document should clearly explain the definition of Sustainable Mechanization that correlates to Sustainable Agricultural Transformation and Development
iii. Link and align the framework to the CAADP Framework and Malabo Declaration
iv. Policies should be formulated to give incentives for mechanization e.g. through subsidies.
v. Look beyond mechanization policies and also consider policies on livestock, labor and social issues as there may be inadequate linkages between mechanization policies and other policies.
vi. Establish minimum required skills for achieving a sustainable mechanization
vii. Evidence based measure of the level of mechanization over the years
viii. Framework should include policies on energy owing to mechanization being highly energy dependent.
ix. Inclusion of implementation strategy, this has been lacking
x. Inclusion of policies and guidelines on machinery and type of energy used by the small holder farmers
xi. Involve the partner institutions in the establishment of these institutions and centers to avoid reinvention of the wheel instead improve the already existing ones

Policy

Agricultural mechanization policy is not a standalone issue. It is affected by other policies such as those for energy, investment and other related policies. In Africa, these policies are not aligned to mechanization policy, neither are there exhaustive policies. Furthermore, the few that exists have not been implemented effectively. There is a big gap between policy formulation and implementation in the agricultural sector at continental level. Thus, agricultural mechanization policies need to be incorporated into the overall transformation agenda of the continent for them to be sustainable.

Attractive and friendly manufacturing policies are important to mechanization. Patenting regulations and manufacturing policies to support capacity building of local manufacturing of mechanization tools should be put in place. The framework should recommend ways on how to gradually limit imports of machinery in the future.

Policies should be formulated to provide incentives for mechanization (for example land fiscal incentives etc.). It should be noted that subsidies for machinery importation may lead to the more economically

empowered groups to benefit at the expense of farmers.Adoption of mechanization requires not only the policies in place but also policy implementation.

Gender mainstreaming should be addressed in the SAMA framework as well. The participants noted that women are an important stakeholder group in mechanization as they form a considerable proportion of farmers and they should not be lumped together with other groups such as youth as they have different specific and unique needs. The framework needs to highlight how mechanization will benefit women.

The private sector has a central role to the success of this framework and thus its role needs to be clearly identified. The lack of private sector strategies linked to agriculture will hamper its role in this endeavor. Hence, the state should create an enabling environment so that the private sector can effectively participate in the mechanization process of agriculture.

Africa's capacity for manufacturing locally agricultural machinery should be built to make mechanization more sustainable. National centers for mechanization should be given more capacity and authority to play their role in the mechanization process with special attention to mechanization research and technology. Harnessing the potential of current and new technology on mechanization and automation will lead to leapfrogging of DAP to mechanical technologies and help attract more youth into agriculture.

With careful financial engineering, considerable finances for mechanization could be unlocked from the private sector. The private sector also plays a role in providing important services such as machinery hiring which reduces the cost of mechanization. Risk-sharing schemes provided by the private sector are key in mechanization. Since these activities could be financially rewarding, the private sector needs to invest in dialogue on mechanization to clearly identify their needs and demands for an efficient participation.

6.0 WAY FORWARD/ ACTION PLANS FOR THE SAMA FRAMEWORK IMPLEMENTATION

At the close of the workshop, participants agreed on the way forward for the framework and the desired timelines:

1. Receiving of written comments from participants including proposed new outline– 19/5/2016
2. Circulation of proposed outline to participants and receiving their comments/reactions by 31stMay 2017. on Outline circulation
3. Validation Workshop report submission to participants – end of May 2017
4. Incorporation of the comments on Workshop report from participants – 17/6/2017
5. Editing of Draft SAMA Document to be completed by 25th June 2017
6. Generation of final SAMA document – 30th June 2017
7. Submission to the AU (to pass through the AU's processes) 31st July 2017
   Included as an STC Agenda – October, 2017

In addition in the process ofimplementation of framework for SAMA the following issues should be considered: Proposal to identify and select SAMA champions from the private sector and former and current Presidents who are active in the agriculture and mechanization sector. Some of the proposed names include; the current Prime Minister of Ethiopia, H.E Moi (retired president Kenya), H.E Kagame (Rwanda), H.E.Obasanjo (retired president of Nigeria), H.E. Dr. Jakaya Kikwete (retired president Tanzania). Also the need, as a matter of priority, to develop detailed guidelines to help member countries develop their national frameworks. There is a need to develop an institutional framework for coordination of SAMA activities at sub-regional and continental levels. AUC and FAO together with other partner organizations such as AfDB, UNECA and AGRA to follow up on these issues.

7.0 VALIDATION MEETING EVALUATION FEEDBACK

The workshop evaluation conducted at the end of the workshop pointed out good representations in the attendance and participation of key stakeholders who were well prepared. The allocated time for the interactive sessions was sufficient. The participants also applauded the venue as being suitable for networking. The evaluation also suggested areas that needed improvements on logistic issues which include: proper arrangements on the sending back of the boarding passes and scanned copy of a filled form for sponsored participants. While taking note of the few gaps, and need for additional evidence, participants went ahead to endorse the framework subject to the suggested amendments.

The participants were grateful to the AU, FAO and Retouch Africa Consulting for the opportunity and success of the validation workshop and also agreed unanimously that the Framework should demonstrate a clear departure from the old ways of doing things by use of philosophical approaches towards mechanization and creation of a vision towards industrialization, emphasize the need for internal financing i.e. "By Africans for Africans" as it explicitly indicated in line with AU Agenda 2063.

QUOTABLE QUOTES FROM THE WORKSHOP

"Doubling agricultural productivity, and eliminating hunger and malnutrition in Africa by 2025 will be a mirage unless mechanization is accorded utmost importance" H.E Sacko JOSEFA

"Will Africa achieve the zero hunger target by 2025 with the agriculture that is reliant on human muscle power? Dr. Patrick KORMAWA-FAO

"This is the time Africa is writing its own story" Professor Linus OPARA, Distinguished Professor of Post-Harvest Engineering University of Stellenbosch South Africa

"Africa has no way out but to get into mechanization full swing"

"Either we miss it or we make it happen" by making sure Africa feeds itself and this cannot be done without mechanization and irrigation" Prof. AJAV

8.0 SAM WORKSHOP PHOTO GALLERY

Mark Kofi FYNN, AUC CAADP Advisor moderating the opening session

H.E. Josefa SACKO, Commissioner, Department for Rural Economy and Agriculture delivering the opening speech during the workshop opening session

Participants during the opening session of the workshop

Participants listening to the validation group presentations

	
COMESA representative and Dr KORMAWAof FAO shake hands while Richard JONES of AGRA centerlooks on at the start of validation workshop	*H.E SACKO having a chat with Dr Aifa Niane NDOYE of the World Bank based in Senegal at end of opening session*
	
Opening session in progress following keenly from Left to right (COMESA; Richard B JONES (Chief of Party AGRA; Ernest RUZINDAZA (AUC/DREA; Dr Godfrey BAHIIGWA (Director AUC/DREA), Douglas OUMA (Facilitator/Team Leader Retouch Africa) and Mark Kofi FYNN (AUC).	*Dr Adama Ekberg COULIBALYof UNECA making his welcomingremarks*

9.0 ANNEXES

Annex 1: Commissioner's Opening Statement

AFRICAN UNION
الاتحاد الأفريقي

UNION AFRICAINE
UNIÃO AFRICANA

Addis Ababa, ETHIOPIA P. O. Box 3243 Telephone 002511-115 517 700
website : www.au.int

OPENING STATEMENT BY

H.E JOSEFA LEONEL CORREIA SACKO

AT THE VALIDATION WORKSHOP OF THE DRAFT SUSTAINABLE AGRICULTURAL MECHANIZATION STRATEGY FOR AFRICA

DEVELOPED THROUGH THE AUC-FAO TECHNICAL COOPERATION PROJECT ON AGRICULTURAL MECHANIZATION

AUC SMALL CONFERENCE ROOM 4, ADDIS ABABA, ETHIOPIA
11 – 12 MAY, 2017

Dr. Patrick Kormawa, FAO Sub-regional Coordinator for Eastern Africa and Representative to African Union and UNECA.
Dr. Adama Coulibaly, Chief, Food Security, Agriculture and Land, United Nations Economic Commission for Africa,
Dr. Lawal Umar, Agriculture, Water, Social and Human Development, African Development Bank, East Africa Regional Center
Colleagues and staff of the Africa Union Commission.
Distinguished Guests, Ladies and Gentlemen,

I am very pleased to welcome you all to the African Union Commission on the occasion of this important event to review and validate the draft framework on Sustainable Agricultural Mechanisation in Africa. I would like to thank FAO for collaborating with us to develop this important document, the validation and

subsequent implementation of which will contribute significantly to the transformation of agriculture on the continent.

Distinguished Guests, Ladies and Gentlemen, I am informed that this fruitful collaboration was initiated by my predecessor H.E. Rhoda Peace Tumusiime, resulting in an inception workshop in July last year, here at the Commission. Since then, a lot of work has gone into developing this document and I would like to thank the team behind this, for the hard work. It is now time to move a step further – to review and validate the document, and then quickly move towards its implementation. I would like to thank all of you for responding positively to our invitation to bring your expertise and your diverse experiences towards a successful push for Sustainable Agricultural Mechanization in Africa.

Ladies and Gentlemen, let me reiterate the point that we at the African Union Commission view Agricultural Mechanization in Africa as an urgent matter, which should receive all the attention it deserves at the highest level. It is the reason why the immediate past Chairperson of the Commission, Her Excellency, Dr. Nkosazana Dlamini-Zuma championed the campaign to relegate the hand hoe to the Musuem and replace it with tillers, a symbolic effort to drum home the importance of removing the drudgery from agriculture, and thereby improving labour productivity, especially for women. The transformation of agriculture is a key strategic pillar of the Africa we want to see over the next decades as articulated in the African Union's Agenda 2063, the economic development blueprint for the continent. We will not be able to achieve the laudable objectives we have set for ourselves if agriculture continues to be saddled with the heavy drudgery of farm and off-farm activities in the sector. It is the recognition of this fact that in making the commitment to ending hunger by 2025 as part of the 2014 Malabo Declaration, the African Heads of State and Government resolved to accelerate agricultural growth by at least doubling current agricultural productivity levels, by creating and enhancing the necessary policy and institutional conditions and support systems to facilitate suitable, reliable and affordable mechanization, amongst others.

Doubling agricultural productivity, and eliminating hunger and malnutrition in Africa by 2025 will be a mirage unless mechanization is accorded utmost importance. Enhancing access to mechanization services, together with other support measures including enhancing access to quality and affordable inputs such as seed and fertilizer; and efficient water resources management systems including irrigation, are the prerequisites for attaining these laudable objectives. It is our hope that the

Implementation of this Framework document will help catalyze the required intensification of sustainable agricultural mechanization in Africa.

As elaborated in the draft Framework document, the provision of mechanization services in the 21st century must follow some core principles. It has to be built along the entire agricultural value chain for increased systemic competitiveness; it must also be private sector driven, therefore, it must make business sense; it must be affordable especially to small–scale farmers who constitute the bulk of African farmers, and it must target women who bear the brunt of African agriculture. Additionally, it must be environmentally sustainable and climate-smart. I am confident that the draft framework document captures all these aspects. It is your task to ensure that these core principles, and others, are very well aligned with the proposed mechanization models, and are implementable.

Distinguished Guests, Ladies and Gentlemen, this framework document will have no impact if it remains on the shelf after its finalization. We need to move quickly towards mobilizing the necessary support for implementation. In this regard, I am pleased to note that initial discussions have started with the governments of the Republic of Korea, and of India, as well as other key partners such as the African Development Bank, the World Bank and the Alliance for a Green Revolution in Africa (AGRA) on possible cooperation to support the implementation of this strategy. We will intensify these efforts to ensure success.

Ladies and Gentlemen, once again, thank you for coming. I wish you a fruitful two days of critical review of the proposals and models contained in this draft document so that we reach consensus on the requisite components of a robust and grounded strategy, whose implementation will bring immense benefits to our farmers across Africa.

With these words, I declare the workshop open. I thank you all for your attention.

Annex 2: Welcoming Remarks

WELCOMING REMARKS

Patrick KORMAWA, PhD
Sub regional Coordinator for Eastern Africa and
FAO Representative to AU and UNECA

At the Continental Workshop for the Validation of the Framework for Sustainable Agricultural Mechanization in Africa, May 11-12, 2017, African Union Commission, Addis Ababa, Ethiopia.

Protocol

Your Excellency Mrs. Josefa Leonel Correia Sacko, Commissioner for the Department of Rural Economy and Agriculture of the African Union Commission,
Distingusihed ladies and gentlemen

I am happy and honored to be here today with all of you! This validation workshop has been convened by AUC and FAO to get your inputs into the formulation of a Sustainable Agricultural Mechanization Framework for Africa. The Framework, when finalized, will be a vital instrument to guide our efforts towards achieving Africa's quest for a zero hunger continent.

Despite significant progress has been made in the past few decades, Africa is still a net importer of food. The continent has 60% of the world's uncultivated arable land; and yet its land productivity rate, that is, yields per unit of area, is the world's lowest, with an estimated yield gap of up to 80 percent.

On the other hand, the population growth in Sub-Sahara Africa is evolving and growing with unprecedented rate. Sub-Sahara Africa accounts for more than 950 million people, approximately 13% of the global population; of which 65% is under the age of 35; which again constitute 60% of the unemployed portion of the population. By 2030, one in four youth in the world is African. And the total population of Africa will reach 2.1 billion by 2050. Currently, a total of 23.2 percent of the population is food insecure, making Sub-Sahara Africa the region with the highest prevalence of food insecurity in the world.
One of the underlying reasons for this predicament has been that the production and productivity of the agriculture sector in Sub-Sahara Africa has remained very low and hence unable to generate enough food for its growing population. In Sub-Sahara Africa, 80 percent of farm activity is being done by smallholders

and is characterized by mostly small scale family-led farms that rely almost entirely on manual labour for most farm tasks. Smallholder farms are operating under extremely low levels of mechanization contributing to agricultural productivity far below the level achieved in other parts of the developing world. It is estimated that over 60% of agricultural power is still provided by human power, mostly by women, the elderly and children.

Your Excellency; ladies and gentlemen

A key question I would like all of us to consider is: - Will Africa achieve the zero hunger target by 2025 with the agriculture that is reliant on human muscle power?

Globally, to feed the growing population, agriculture in 2050 will need to produce almost 50 percent more food, feed and biofuel than it did in 2012. In sub-Saharan Africa, agricultural output would need to more than double by 2050 to meet increased demands.

It is our view Africa has great hope and capacity to feed its people. Nonetheless, this can be possible when agricultural production and productivity in Africa is significantly transformed from a traditional system to a modern farming system based on an appropriate mechanization strategy.

At FAO, we believe that agricultural mechanization is pertinent to Africa's ambition to end hunger in the continent by 2025 as stated in the Malabo Declaration of 2014.
Your Excellency; ladies and gentlemen

In recognition of this fact, the African Union Commission requested FAO to develop a framework to promote sustainable agricultural mechanization in the continent. This framework is the result of this partnership and we are all here to validate it.

Agricultural mechanization is a broad term that can be viewed from irrigation to food processing, packaging etc. However, most discussions in Africa have focused primarily on the use of tractors. Unlike this misleading perception, this framework tries to address the issues of mechanization in a holistic and comprehensive manner. It informs us that a resultant increase in food production in sub-Saharan Africa can be achieved only when the issues relating to acquisition, utilization, financing and maintenance of farm machinery can be addressed.

Once this framework is validated and finalized, it will provide countries a blue print that could be adapted or used to develop their own agricultural mechanization strategies. We advocate that such strategy must be part of their overall agricultural transformation agenda.

Knowing that promoting agricultural mechanization in isolation will lead to failure, courtiers will have to also take an agricultural mechanization value chain development approach and promote innovative financing of mechanization programs. They will also have to build up their research, extension, advisory and technical services for proper and safe application of machineries.

Also, countries should not attempt to develop a SAM for all commodities at the same time. Countries need to focus on a few priorities profitable and market oriented commodities that provide adequate returns to pay for mechanized services.

Experiences around the world have shown that cereals (maize, wheat, rice, etc.) can be profitably mechanized and has led to a high increase in total factor productivity. Thus the focus of SAM and choice of crops to mechanize should be based on a serious analysis including the total factor productivity to be achieved.

We look forward to your ideas to enrich the framework, which, at the end, will be our road map to support Africa's drive towards a Sustainable Agricultural Mechanization in the continent.

With these few remarks, I welcome you to this workshop. I thank you very much!

AFRICAN DEVELOPMENT BANK GROUP

Validation Workshop on the Framework for Sustainable Agricultural Mechanization in Africa.
11-12 May, 2017.
AUC Headquarters, Addis Ababa

OPENING STATEMENT

BY

DR. Lawal UMAR

Agriculture, Water, Social and Human Development
African Development Bank Group | East Africa Regional Centre (EARC)
Nairobi, Kenya

The Bank, as part of the 'High 5 Agenda' and in partnership with the African Union Commission, United Nations Economic Commission for Africa (UNECA), and Development Partners, is supporting the implementation of a continent-wide strategy for the Transformation of African agriculture. The 'Feed Africa Initiative' as the strategy is known as has four specific goals:

- **Contribute to eliminating extreme poverty in Africa;**
- **End hunger and malnutrition in Africa;**
- **Make Africa a net food exporter; and,**
- **Move Africa to the top of export-orientated global value chains where it has comparative advantage.**

The Bank is applying a targeted investment strategy to achieve the goals of the Feed Africa Initiative. A set of agricultural commodities and agro ecological zones identified as being priority intervention areas for investment include: (i) Achieve self-sufficiency in key staples (rice, wheat, fish); (ii) Move up the value chain in key export orientated commodities (cocoa, coffee, cotton, cashew, cassava and horticulture); (iii) Creating a food secure Sahel (sorghum, millet, cowpea, livestock); and, (iv) Realizing the potential of the Guinea Savannah (maize, soybean, livestock).

Fulfilling Africa's potential in each of these areas requires a set of seven enablers, namely:

a) **Increase productivity** by development of effective input distribution systems, mechanization, and reduction in post-harvest losses;
b) **Realize the value of increased production** by facilitating increased investment into output markets and supporting market incentives;
c) **Increase investment into enabling infrastructure**, both hard infrastructure (such as roads and energy) as well as soft infrastructure (especially ICT, which can have positive effects);
d) Create an enabling agribusiness environment with appropriate policies and regulation;
e) **Catalyze flows of capital** (especially commercial lending and private investment) to scale agribusinesses;
f) **Coordinate** activities to kick start transformation, align activities and investments of different actors, and guide initial activities to the point where private sector actors can be crowded in;
g) Ensure that transformation delivers on broad-based needs of Africans, by ensuring **inclusivity, sustainability and effective nutrition** beyond what the market may deliver otherwise.

Under the increased productivity enabler, the Bank will facilitate:

- Increased investment into agriculture research and technology dissemination
- Expanded input finance
- Establishment of a financing facility for on-farm mechanization
- Investment in infrastructure and training to reduce on-farm and post-harvest loss

Conclusion

The areas of focus for the Bank under the Farm Mechanization Enabler
To achieve the objective of the Flagship on Agricultural mechanization, the Bank will seek to among other things

- Expand mechanized agricultural equipment hiring by partnering with RMCs to create equipment hiring enterprises
- Support manufacturing and repair workshops.
- AfDB and its partners will provide concessional financing for equipment hiring - and purchase in more mature markets,
- Fund technical assistance and data collection on mechanization access across Africa. In addition, AfDB will work with RMCs to streamline regulatory requirements for importing, licensing, distributing, and operating machinery which are often confusing, opaque, inconsistently enforced, and poorly designed.

Thank You

Annex 3: List of Participants

S/No.	Name	Title / Position	Organization	Email
1	Prof Timothy Emanuel SIMALENGA	Executive Director	Africa Century for Development (AC4D)	tsimalenga@yahoo.co.uk
2	Dr. Folasade AYONRINDE	Representative	African Capacity Building Foundation (ACBF)	f.ayonrinde@acbf-pact.org
3	Meaza MELKAMU	Policy and Strategy Adviser	African Conservation Tillage Network	meaza.melkamu@act-africa.org
4	Saidi MKOMWA	Executive Secretary	African Conservation Tillage Network (ACT)	saidi.mkomwa@act-africa.org
5	Dr. Godfrey BAHIIGWA	Director, Department of Rural Economy and Agriculture (DREA)	African Union Commission (AUC)	BahiigwaG@africa-union.org
6	Dr. Janet EDEME	Department of Rural Economy and Agriculture (DREA)	African Union Commission (AUC)	EdemeJ@africa-union.org
7	Mark Kofi FYNN	CAADP Advisor, Department for Rural Economy and Agriculture (DREA)	African Union Commission (AUC)	fynnm@africa-union.org
8	Richard B JONES	Chief of Party Scaling Seeds and Technologies Partnership in Africa (SSTP)	Alliance for a Green Revolution in Africa (AGRA)	RJones@agra.org
9	Argent CHUULA	Chief Executive Officer	Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA), COMESA	achuula@comesa.int

10	Samrawit G/HIWOT	Program Assistant	AUC	samrag@africanunion.org
11	Alfred MOLOTO	DREA	AUC	moloto@african union.org
12	Alomani DAMPHA	Senior Policy Officer	AUC	damphaa@africa-union.org
13	Ernest RUZINDAZA	CAADAP, Team leader	AUC	ruziandaza@africa-union.org
14	Dr. Mataba TAPELA	Agriculture Principal / Professor of Agricultural Mechanization	Botswana University of Agriculture and Natural Resources, Gaborone	mataba.tapela@gmail.com
15	Dr. Hans BALYAMUJURA	CEO - Zed Group Limited	Consultant for AGRA	hans@zedgroupza.com
16	Grace MKENDA	Investment Officer	EFTA-Equipment Loans Arusha Trade Centre	gmkenda@efta.co.tz
17	Addisu TADEGE	Director of Mechanization Program	Ethiopian Agricultural Transformation Agency (ATA)	addisu.tadege@ata.gov.et
18	Dr. Jerome AFEIKHENA	Partnership Development Officer, Sub-regional Office for Eastern Africa (SFS)	FAO	afeikhena.jerome@fao.org
19	Dr. Nomathemba MHLANGA	Agribusiness Officer, Sub-regional Office for Eastern Africa (SFE)	FAO	Nomathemba.Mhlanga@fao.org
20	Filippo BRASESCO	Agribusiness Officer, (FRETH)	FAO	filippo.brasesco@fao.org
21	Joseph Jeremia MPAGALILE	Agro-Industry Officer, Agricultural Plant Production and Protection (AGP) Division	FAO	joseph.mpagalile@fao.org
22	Zita RITCHIE	Food Security Officer	FAO-SFE	zita.ritchie@fao.rog
23	Abebe DEMISSIE	Media and Communication Consultant	FAO-SFE	Abebe.Banjaw@fao.org

24	Tezeta MESHEHSA	Communications Expert,	FAO-SFE	Tezeta.Hailemeskel@fao.org
25	Henryson JUSU	Agribusiness Intern	FAO-SFE	Henryson.jusu@fao.org
26	Mohamed NAEIM	Agribusiness Consultant	FAO-SFE	mnaeim99@gmail.com
27	Billion KEFELEGN	Program Assistant	FAO-SFE	Billion.kefelegn@fao.org
28	Mathew ABANG	Crop production Officer	FAO-SFE	mathew.Abang@fao.org
29	Mohamed AWDAHIR	Senior Officer (Program and Partnership	FAO-SFE	Mohamed.AwDahir@fao.org
30	Dr. Patrick KORMAWA	Sub-regional Coordinator and FAO Representative to AU and UNECA, Sub-regional Office for Eastern Africa (SFE)	Food and Agriculture Organization of the United Nations (FAO)	patrick.kormawa@fao.org
31	Dr. Ing. Rabé YAHAYA	Integrated Mechanization Expert.	GIZ/ CIMMYT-Ethiopia	R.Yahaya@cgiar.org
32	Prof. Emmanuel AJAV	Dean Faculty of Technology	Ibadan University	eaajav@yahoo.co.uk
33	Dr. Asnake FIKRE		ICRISAT	
34	Peter CHISAWILLO	Director	Intermech Engineering Ltd- small scale manufacturer	pchisawillo@gmail.com
35	Dr. Edward BAARS	Senior Business Development Officer	International Institute of Tropical Agriculture (IITA)	E.Baars@cgiar.org
36	Dr. Frederic BAUDRON	Senior Tropical Systems Agronomist	International Maize and Wheat Improvement Center (CIMMYT)	f.baudron@cgiar.org

37	Patrick KUBYANA	Strategic Planning Manager for Sub-Saharan Africa	John Deere Pty.	kubyanapatrick@johndeere.com
38	Pascal Gitari KAUMBUTHO	Chief Executive Officer (formerly, Professor of Agricultural Engineering at University of Nairobi)	Kenya Network for Dissemination of Agricultural Technologies (KENDAT)	pkaumbutho@kendat.org
39	Andreas HASTEDT	Manager	Machinery Ring-Germany	hastedt@mr-harburg.de
40	Walter CHIGWANDA	Managing Director	Mealie Brand – Zimplow, Zimbabwe	wchigwada@zimplow.co.zw
41	Sethunya GAOLEBOGWE	Head of Client Services	National Development Bank, Botswana	sgaolebogwe@ndb.bw
42	Innocent Adoga OGIRINYE	Technical Project Assistant	Nigerian Federal Ministry of Agriculture	ogirinyeinnocent@gmail.com
43	Jeanne d'Arc KANAKUZE	Chairperson	Profemmes Twese Hamwe	jeannecap@yahoo.fr
44	Andrimady RONDROMALALA	Chief of Service	Promotion of Agricultural Mechanization	rondromala_andriamady@yahoo.fr
45	Douglas OUMA	Facilitator	Retouch Africa Consulting	douglas.ouma@retouchafrica.or.ke
46	Phidel Hazel ARUNGA	Rapporteur	Retouch Africa Consulting	Phidel.arunga@retouchafrica.or.ke;
47	Prof Geoffrey Christopher MREMA	Professor of Agricultural Engineering	Sokoine University of Agriculture (SUA), Morogoro	geoffmrema@yahoo.co.uk
48	Professor Linus OPARA	Distinguished Professor of Post-Harvest Engineering	Stellenbosch University	opara@sun.ac.za Cc umunam@yahoo.co.uk

49	Dr. Adama Ekberg COULIBALY	Chief for Food Security, Agriculture and Land	United Nations Economic Commission for Africa (UNECA)	acoulibaly@uneca.org
50	Prof Mathias FONTEH FRU	Head, Agricultural Engineering Department	University of Dschang	matfonteh@yahoo.com
51	Mr. Jonas CHIGARIRO	Mechanization Expert	University of Namibia	jchigariro@unam.na
52	Aifa Niane NDOYE		World Bank	andoye@worldbank.org
53	Dr. Grace ONGILE	Policy and Development Expert		grace.ongile@gmail.com
54	Professor Siza TUMBO	Director General of Centre for Agricultural Mechanization and Rural Technology (CAMARTEC)		siza.tumbo@gmail.com Cc dg@camartec.go.tz

Annex 4: Workshop Agenda

AUC/ FAO Validation Workshop for the Draft Framework for Sustainable Agricultural Mechanization in Africa (SAMA)
11th -12th May 2017, Addis Ababa, Ethiopia
Venue: Small Conference Room 4

Time	Activity	Responsibility
Thursday, 11 May, 2017		
08:30 – 09:00	Arrival and registration	AUC
SESSION1: OPENING SESSION		
09:00 – 09:45	Welcome Remarks, by Sub-regional Coordinator and FAO Representative to AU Statements from African Development Bank, AGRA and UNECA Opening statements by Commissioner, Department for Rural Economy and Agriculture.	Dr. Patrick KORMAWA Dr. Lawal UMAR Richard JONES Dr. Adama Ekberg COULIBALY H.E. Josefa SACKO
09:45 – 10:00	Workshop Objectives, Agenda and guidelines	Douglas OUMA and Mark Kofi FYNN
10:00 – 10:30	Group Photo and Health Break	AUC/DREA Photographer
SESSION 2: SUSTAINABLE AGRICULTURAL MECHANIZATION FRAMEWORK		
10:30 – 11:15	Presentation of the main contents of the draft Framework : Sustainable Agricultural Mechanization in Africa [SAMA]: A Value Chain Approach	Prof. Geoffrey MREMA, Lead Mechanization Expert
11:15 – 11:45	Discussions on the Presentation	Douglas OUMA and All Participants
11:45 – 12:30	Presentation of SAM Business Models (Small, medium and large-scale farmers) • Botswana • Ethiopia • Nigeria • Ring Machine Model Germany	 Dr. Mataba TAPELA Addisu TADEGE Dr. Innocent ORIGINYE Andreas HASTEDT

12:30 – 13:00	Discussion on Business Models	Douglas OUMA and All Participants
13:00 – 14:00	Lunch Break	Participants
SESSION 3: SAM GROUP WORK SESSIONS		
14:00 – 16:15	Guidelines and group formation (10 minutes)	Douglas OUMA
	Validation of SAMA Framework Group Working Sessions: Four Themes Guidelines and group formation (10 minutes) Increasing Availability of Farm Power and Agricultural Mechanization Services to Farmers Business Models and Financing of Agricultural Mechanization Promoting collaboration in Manufacturing and Testing of Agricultural Machinery and implements Policies and Institutions to support SAM in Africa	Participants
16:00 – 16:15	Health Break	Participants
SESSION 4: PANEL DISCUSSION		
16:15 – 17:15	Group Discussions	Group Chairs and Rapporteurs
18:00 – 19:00	Reception	AUC
Friday, 12 May, 2017		
SESSION 5: GROUP WORK PRESENTATIONS		
09:00 – 10:30	Presentation of Group Work and Plenary Discussions (Groups 1& 2) Each group 20 minutes presentation 15 Minutes Q&A	Rapporteurs/ Douglas OUMA
10:30 – 11:00	Coffee break	
11:00 – 12:30	Presentation of Group Work and Plenary Discussions (Groups 3& 4) Each group 20 minutes presentation 15 Minutes Q&A	Rapporteurs/ Douglas OUMA

12:30 – 13:00	Action Plan for Implementation of the Framework Resource Mobilization and Strategic Partnerships for SAM implementation	Douglas Ouma, Mark Kofi FYNN and Nomathemba MHLANGA
13:00 – 13:30	Next Steps and Way Forward	Mark Kofi FYNN and Nomathemba MHLANGA
13: 30 – 14:00	Concluding Remarks	Mark Kofi FYNN Dr. Adama Ekberg COULIBALY (UNCEA) Dr. Patrick KORMAWA
14:00 – 15:30	Lunch and Networking	AUC

Annex 5: Validation Group work guiding queries

Group 1 Room 26

Increasing Availability of Farm Power and Agricultural Mechanization Services to Farmers

S/NO.	NAME	INSTITUTION	SIGNATURE
1.	Mr Mamadou Kane	AfDB	
2.	Dr. Fredrick Boudron	CIMMYT	
3.	Dr. Janet Edeme	AUC	
4.	Mr Martin Ager	FAO	
5.	Mr Phidel Arunga	Kenya	
6.	Emanuel Ajav	Nigeria	
7.	Mr Edwin Omare	AUC	
8.	Mr Patrick Kubyana	John Deere Pty	
9.	Prof Timothy Simalenga	AC4D	
10.	Mr Walter Chigwanda	Zimploy, Zimbabwe	
11.	Dr. Jonas Chigariro	University of Zambia	
12.	Mr Saidi Mkomwa	ACT	
13.	Mr Aifa Niane Ndoye	World Bank	
14.	Mr. Richard Jones	AGRA	
15	Ms. Grace Ongile	Kenya	

Group 2 Room 27

Business Models and Financing of Agricultural Mechanization Inputs and Services

S/NO.	NAME	INSTITUTION
1.	Ms. Ouriatou Danfakha	AUC
2.	Dr. Ing Rabe Yahaya	GIZ/CIMMYT
3.	Mr Joseph Mpagalile	FAO
4.	Mr Innocent Ogirinye	FMA, Nigeria
5.	Jeanne d'arc Kanakuze	Kenya
6.	Mr Argent Chuula	COMESA
7.	Ms. Sethunya Gaolebogwe	National Development Bank, Botswana
8.	Mr. Meaza Melkamu	ACTN

9.	Dr. Stephen Njoka	DLCO
10.	Mr Andrimady Rondromalala	Madagascar
11.	Mr Zita Ritche	FAO
12.	Ms. Grace Mkenda	EFTA Tanzania
13.	Mr. Christopher Litt	EIB
14.	Mr Pascal Kaumbutho	KENDAT

Group 3 Room 28

Promoting collaboration in Manufacturing and Testing of Agricultural Machinery and implements

S/NO.	NAME	INSTITUTION
1.	Dr. Edwin Baars	IITA
2.	Prof. Mathias Fonteh	University of Dschang, Cameroun
3.	Dr. Stephen Kargbo	UNIDO
4.	Mr. Maurice Lorka	AUC
5.	Mr Frank Mugyeni	AUC
6.	Mr Addisu Tedege	ATA, Ethiopia
7.	Prof Emmanuel Ajav	University of Ibadan, Nigeria
8.	Mr. Talemwa Bosco	Rwanda Agriculture Board
9.	Mr Hans Balyamujura	Zed Group
10.	Mr Peter Chisawillo	Intermech Engineering, Tanzania
11.	Prof. SizaTumbo	CAMARTEC, Tanzania

Group 4 Room 29

Policies and Institutions to support Sustainable Agricultural Mechanization in Africa

S/NO.	NAME	INSTITUTION
1.	Prof. Linus Opara	Stellenbosch University
2.	Prof. Bogale Ayalneh	AUC
3.	Dr. Adama Coulibaly	UNECA
4.	Mr Fillipo Brasesco	FAO
5.	Mr Laila Lokosang	AUC
6.	Mr Derek Biruk	ATA, Ethiopia
7.	Dr. Mataba Tapela	Botswana University of Agriculture

8.	Dr. Folasade Ayonrinde	ACBF
9.	Mr Mohammed Naeim	FAO
10.	Mr Henrison Jusu	FAO
11.	Mr Valentine Miheso	AGRA
12.	Dr. Lawal Umar	AfDB

Preamble

Agricultural mechanization is key to Africa's ambition to end hunger in the continent by 2025 as stated in the Malabo declaration of 2014. As well as expanding the area under cultivation, mechanization offers the ability to perform operations at the right time to maximize production potential; provides multi-functional machinery not only for crop production but also for transport, stationary power applications and infrastructure improvement (drainage and irrigation canals, road works); compensates for seasonal labour shortages (and releases labour for more productive work); and reduces the drudgery associated with manual agricultural labour.

Agricultural mechanization in Africa significantly lags behind other developing and emerging regions. Recent statistics indicate that Africa has the lowest land productivity in the world, and agricultural mechanization has either stagnated or regressed in most countries in the sub-region. Currently, over 60% of farm power is provided by people's muscles, mostly from women, the elderly and children; only 25% of farm power is provided by drudge animals and less than 20% of mechanization services are provided by engine power. Estimates from the World Bank indicate that Africa's average of 13 tractors/100km^2 of arable land compares unfavorably both with the global average (200/100km^2) and with the average for other developing regions such as South Asia (129/100km^2). Previous efforts of promoting agricultural mechanization have failed due to a complex set of factors, but in particular because of poor or no integration of mechanization in the broader agricultural development frameworks.

Mechanization is, however, witnessing resurgence in Africa, especially in African Union circles. Several countries are also reengaging in upgrading the level of agricultural mechanization, realizing the potential to address some of the most fundamental farming challenges in Africa in a profound and comprehensive manner. These developments could be attributed to the growing realization that mechanization is an indispensable pillar for attaining the vision of zero hunger vision by 2025; reducing drudgery and making farm operations efficient and more productive.

The Framework is NOT a prescriptive document (One size fits all)
Parallel Working Group Sessions: Validation of the Framework for Sustainable Agricultural Mechanization

The purpose of group work is to facilitate in-depth discussions on the various components of the framework. Each group will consider how comprehensively the topic is covered and suggest in writing changes and new technical inputs needed to enrich the framework. They will also propose concrete actions that are needed to operationalize the Framework.

Guidelines for Syndicate Group Discussions:
Organizing group to work as a team: 1 on 1;

i. Get the Group Leader
ii. Get a rapporteur: Already provided
iii. Time keeper**:**
    a. Review guides to know what is expected and start the assignment
    b. Discuss your allocated theme based on the guiding queries, reach a consensus and then record your outcomes
    c. Get your rapporteur to present your outcomes at the plenary (power point presentation).

Guiding Questions for the group work per theme

Break-out Group 1: Policies and strategies for SAM in Africa

Rationale: Countries need to learn from one another; hence discussion will centre on the development and application of SAM policies
Mechanization 'value chain'- pre-/&planting, post-harvest, processing, etc.

1. Are there policies on Sustainable Agricultural Mechanization that are working or NOT working? Explain WHY and give examples?
2. What lessons have we learnt to help us going forward not to repeat mistakes such purchase of Agricultural machinery without looking into their value chain approach when making those decisions?
3. What can be DO DIFFRERENTLY in formulating and implementing policies to ensure Sustainable Agricultural Mechanization in Africa?
4. What strategies and program in SAM that are currently working well and which ones are not working well?
5. What type institution will make SAM work and why? What types of institution will not make SAM work? At national, regional, sub-regional levels
6. How should Institutionalization of SAM be done in the African Union and RECs level?
7. How do we facilitate countries to integrate SAM in their agricultural transformation agenda? Making it part of the existing policy frameworks

8. How do we ensure active and meaningful the participation of the private sector in SAM (give practical examples)

Discuss Resource Mobilization and Strategic Partnerships required for sound SAM implementation

Break-out Group 2: Business Models and Financing Agricultural Mechanization Intervention

Mechanization 'value chain'- pre-/&planting, post-harvest, processing, etc.

a. Are there other business models for financing Agricultural Mechanization? Please share these based on scale; commodity value chain; access to these financing models? Access for smallholder, medium sized and large scale? Are they feasible?
b. What roles should the following play in financing Agricultural Mechanization?
    i. Owners of the machine?
    ii. Users of the machines and pay for it?
    iii. Government
    iv. Development partners
c. Lower interest rates for AM lending – policies and strategies (how it work?)
d. What are some of the Innovative financing models required to facilitate farmers' access to mechanization and equipment (Identify best practices; emerging good practices).
e. What nature of support is required for and leveraging commodity exchanges for agricultural mechanization?
f. What are the prospects for setting up an Agricultural Mechanization Fund (Africa/sub-regional/Country)
g. Discuss Resource Mobilization and Strategic Partnerships required for sound SAMA implementation

Break-out Group 3: Promoting private investments for fabrication/manufacturing companies

The group will explore requite collaboration that will promote manufacturing and testing centers (among countries and with external partners)

a) What specific partnerships and requisite policies are required by private investors to invest in SAM? (in- country and external)
b) What SAM collaborations work for Africa and Why? Give practical examples
c) And which collaborations do not work in Africa and why? And what lessons learned have we learned going forward?
d) What is Role of private sector and public sectors to make these collaborations work?
e) How do we link the demand for AM services to supply?

f) What else can be done differently to promote private investment for fabrication/manufacturing companies? Give practical examples)
g) Testing requires collaboration. How should SAM organize themselves to set up available testing centre?

Discuss Resource Mobilization and Strategic Partnerships required for sound SAMA implementation

Break-out Group 4: Capacity Building for agricultural mechanization

Think of capacities using the value chain approach

a. What capacities are required Farmers, agro-processors, agribusinesses to engage in SAM?
b. What are existing SAM capacities Vocational and Middle level training institutions? What are the GAPs/missing pieces? How do we address those gaps? What are the capacities gaps in the draft document framework document? And how do we address these?
c. What are prospects towards setting up Centers of Excellence for Agricultural mechanization
d. What support for training in local institutions, R& D for local solutions in SAM?
e. What else can be done differently in capacity building for agricultural mechanization?

Discuss Resource Mobilization and Strategic Partnerships required for sound SAMA implementation

Additional Guide for Breakaway Sessions

- Comments on the Report
- Point out omissions in the Report
- Any additional information which might add value to the Report. Examples of what has worked or fail and why?
- What are the capacity implications? What realistically can countries achieve on their own and what requires regional collaboration? What modalities should be used for the regional collaborative efforts?
- How do you attract more private sector investments? Examine this holistically

Annex 6: Validation Group work Feedback

GROUP 1: INCREASING AVAILABILITY OF FARM POWER AND AGRICULTURAL MECHANIZATION SERVICES TO FARMERS

Members

1. Grace Ongile: Chair
2. Timothy Simalenga: Time Keeper
3. Mathias Fonteh: Rapporteur
4. Phidel Hazel Arunga
5. Patrick Kubyana
6. Walter Chigwada
7. Jonas Chigariro
8. Saidi Mkomwa
9. Aifa Niane Ndoye
10. Fredrick Boudron
11. Andreas Nastedt

General Comments about Framework

Comments/Missing/Addition information

- Include a definition of agricultural mechanization so everybody has the same understanding.
- Scale: report gives impression it is only for medium to large scale agriculture. Emphasize small scale farming is concerned as well.
- Not enough emphasis on gender aspects.
- Women, youth and elderly should not be lumped into one category as in the executive summary cos their needs are different.
- Section 1.3: Need to evidence to justify assertion
- Need to include data on agricultural productivity
- Need to emphasize the creation of demand for equipment by the public sector (state, development partners etc). Guaranteeing prices of agricultural produce is good way to stimulate demand
- Emphasize development of PPP.

Specific Issues to Group 1

a) Increasing availability of farm leasing availability of farm power and equipment
   - Promote multi-farmer ownership/use e.g. cooperatives
   - Encourage leasing with the involvement of financial institutions
   - RECs should facilitate cross border use of agricultural machinery as obtains currently between Senegal, Mauritania and Gambia. Also RSA, Lesotho and
   - Stimulate demand for agricultural machinery/equipment using SMART subsidies
   - Rehabilitation of machinery in machinery grave yards
   - Information sharing using ICT

b) Increasing the utilization rates of farm power and equipment
   - Encourage development of irrigation to extend the growing season
   - Promote multi-farmer ownership/use
   - Off farm use of farm machinery e.g. construction and transportation.

c) Training capacity and standards
   - Promote the standardization of locally made equipment to facilitate interchangeability of parts and hence spares.

d) Business Model to enhance availability of farm power
   - Multi farmer use and ownership of machinery (e.g. cooperatives).
   - Information sharing (ICT)
   - Leasing of machinery

e) Resource mobilization
   - Contract farming
   - Development of AMS by various countries leading to mobilization of resources for specific projects/activities

Other Issues
- Emphasize the need for states to create the enabling environment for agric mechanization to flourish.
- Government officials and RECs should have been involved in this validation workshop to get buy-in.

GROUP 2: BUSINESS MODELS AND FINANCING OF AGRICULTURAL MECHANIZATION IN AFRICA (SAMA)

Members

1. Joseph Mpagalile – Chair
2. Rabe Yahaya
3. Innocent Ogirinye,
4. S Gaolebogwe
5. S Njoka
6. A Rondlomalala
7. Grace Mkenda
8. Richard Jones
9. Jean Kanakuze
10. Pascal Kaumbutho - Rapporteur

1. **Business Models for financing Agricultural mechanization**

i) Botswana National Development Bank

- Insurance and Subsidized Interest Rates Funding model
- Each farmers' business case is assessed and duly approved or rejected
- Bank charges Base (Prime) interest rate, Government pays 8% interest to bank to eradicate risk. Current prime is 7%
- Farmer insures against drought (@ 10% of Annual Instalment), of which (if declared by His Excellency the President), 85% is paid by Government Insurance company and 15% by Farmer.
- This is working perfectly for 42 largescale farmers located North and growing Sorghum, Maize, Beans and Groundnuts – all consumed locally.
- NDB is organizing smallholders into a cluster in South of the country: Assessed based on general stability and access to market – Market is assured through Botswana marketing Board
- NDB is also funding emerging urban-based farmers who are venturing into farming (5 year Salary income is assessed)
- NDB is also out to fund city council workers and counsellors with passion for farming.

Feasibility:

Working well but very Government secured

ii) Nigeria Mechanization Scheme

Entrepreneur Based Funding Model

- Based around funding the Service Provider or the medium-scale farmer willing to serve others
- Asset buyer puts down 20%, Vendor (to be dedicated to service and repair) puts down 10%, Bank gives 35% (and is paid within 2 years and Government gives 35% (Interest Free, Revolving Fund) paid over 4 years
- Government owned NAIC insures the process at .25%
- NAISA provides Credit Guarantee – happy to cover the 35% from the bank should everything fail
- Asset serves as collateral
- Equipment is closely monitored
- Crops are rice, beans, sorghum, millet, wheat and groundnuts

Viability:

SPs are in a membership where weak payers can pass machine to a fellow member

2. Other Models

a) Finance Leasing:

- EFTA Model of Tanzania: All Assets, Farmers must have 100 acres, Mobile machinery is attacked

- AGRA Lease to Own: Funder provided funds, backed by Africa Guarantee Fund of World Bank (150% insured)

b) Others:

- Rwanda BDF: 75% fund for Women and Youth, 100% Guarantee for mainstream banks
- Agrimech:
- Farmer mapping, clustering, training and SACCO formation

Owner: The buyer of the Machine

- Pay for machine
- Insurance
- Repair and Maintenance (Service Culture)
- Training of operators
- Improve quality of service – be dependable
- Record keeping

User: The farmer

- Pay for the service effectively

Government

- Machinery testing, approvals,
- Subsidy , Incentives
- Capacity building (all levels), conducive environment
- Bush clearing
- Conducive environment: Links with banks, development partners, tax system, spare parts

Development Partners

- Capacity Building
- Seed capital (Impact investment)
- Demand development support
- Model farms and Demonstrations
- Environmental Security _ Conservation Smart Ag programs

Lower Interest Rates

- Covered above

Leveraging Commodity exchanges

- Investing in upper end of chain pulls every other chain actor along
- China offer in machinery-grans barter trade with Nigeria ($4.5b)

Ag Mechanization Fund

- COMESA, SADC, others – AUC Organized
- AfDB should lead the way (– already working with Nigeria/IITA on youth program
- Private Sector (banks and machinery providers) de-risking funds

Development Partners:

- USAID via Agrimech, Hello Tractor – targeting youth
- Global Innovation Fund
- Global Communities
- Global Partners

- AHL

Resource Mobilization & Strategic Partnerships

- Steering Committee of this gathering
- Guide Council of Ministers
- Strategy Building and National Compacts
- Build on existing hot spots of coordination, testing, training, service provision

GROUP 3: PROMOTING PRIVATE INVESTMENTS FOR MANUFACTURING COMPANIES

Members

1. Dr. Edwin Baars
2. Prof. Emmanuel Ajav-Rapporteur
3. Mr. Hans Balyamujura
4. Eng. Peter Chisawilo
5. Prof. Siza Tumbo

Partnerships and policies for private sector to invest in SAM

- Collaboration with research institutions
- Government support for foreign technology acquisition
- Support to market research – Government
- Private sector clustering across borders to promote specialization
- Stable government policies and market protection

SAM collaborations work for Africa

- Agricultural processing – private sector, international research institutions, government
  - Sorghum threshing and dehulling – IRRI & ICRISAT
  - Cassava processing – IITA/SUA/UDSM
  - Sunflower oil processing – ATI – Arusha

Collaborations didn't work in Africa due to:

- Unfair competition/conflict of interest
- Intellectual property rights and patenting
- Trust
- Jealousy

Role of private sector and public sectors to make these collaborations work:

- Appreciation of a shared vision
- Joint strategies, defined roles and responsibilities
- Business leadership provision by the private sector, Govt – enabling environment
- Local economic development platforms
- How do we link the demand for AM services to supply

- Information brokering using ICT

What can be done differently to promote private investment in manufacturing?

- Tunisian example: Tax relief/tax incentive
- South Korea: Open laboratory
- Tanzania: Common facility workshops – SIDO

- Set up sub-Regional Centers for testing
  - West
  - Central
  - South
  - East
- Resource mobilization and strategic partnership for SAMA implementation
  - International organizations – AfDB, WB, FAO, USAID, UKAID and other organizations
  - National Development Banks – Example in Tanzania – TADB, Tz Ind. Deve. Bank

GROUP 4: POLICIES AND INSTITUTIONS TO SUPPORT SUSTAINABLE AGRICULTURAL MECHANIZATION IN AFRICA

Are there policies on SAM that are working or not working?

- Some countries do not have Mechanization policies. Mechanization is mentioned briefly in the broad Agricultural policies.
- For those with policies, there is often no strategy for implementation.
- Mechanization is more elaborate in agricultural policies in countries such as Zimbabwe, Nigeria, and Zambia
- Inefficiency of government and governance systems and processes hampers implementation
- No feasibility study undertaken to operationalize the machinery schemes sustainability i.e. spare parts, maintenance (South Sudan, Malawi, Sierra Leon, Angola)

What lessons have we learnt?

- Policies should be developed through extensive stakeholder consultation suppliers, farmers, training institutions, civic leader, experts, maintenance technician.
- Agriculture must be commercialized: Promote entrepreneurship and financial literacy
- Develop Business Models and contextualize around the value chain.

What can you do differently?

- Have implementation strategy through
  - Public Private Partnership
  - Domestication of the policy
- Include monitoring, evaluation and reporting (knowledge management platform)
- Promote synergy across value chain stakeholders

What strategies and program in SAM are currently working well and which ones are not working well.

Working well

- Seasonal financing in Botswana
- Government guaranteed credit insurance scheme
- Guaranteed commodity purchasing
- Lease financing

Not working well

- Livestock insurance scheme
- Value addition

What type of Institutions will make SAM work and Why?

- National Agricultural Machinery Center – to coordinate, quality assure and give policy advice. E.g. Center for Agriculture Mechanization and Rural Technology in Tanzania, National Centre for Agriculture Mechanization in Nigeria
- National Agric. Machinery Institutions dedicated to testing, teaching and research.
- Regional Center dedicated to Agricultural Machinery policy advice and trade facilitation

Institutionalization of SAM in AU and REC level

- Dedicated UNIT at AU level which facilitates partnership, coordinates cross cutting issues e.g. ADAR for livestock

How to facilitate countries to integrate SAM

- Align the AU Mechanization framework to CADAAP
- Promote development of country specific policies based on the framework
-

How to ensure active participation of the private sector in SAM

- Involve private sector in planning and implementation from onset.
- Incorporate exclusive business models that balance between government and private sector participation.

Resource mobilization and strategic partnerships required

- Develop strong PPP
- Government to provide leadership in sourcing and funding take-off projects
- Government to provide incentives for private sector participation through reduced/exemptions tax on imports of inputs and raw materials
- Model for economic zones can be applied to Agricultural Mechanization and related industries

General Comments on the Framework

- In Executive summary, what is the timeframe proposed to achieve the Framework objectives
- What does "institutional issues" mean in the executive summary in relation to women and youth
- Action Items – Isolate the areas in the Exec Summary requiring immediate action
- Show data on South Africa as an exceptional case in data on number of tractors and related machinery in SADC to show the true picture in other parts of the region (i.e. show two data points: SA, other SADC)
- 10 key elements identified but report goes on to list other elements – reconcile

- Discuss unique challenges of smallholder farmers in Africa such as very small farm size (often in multiple locations), under stumped land (used to source firewood), inter-cropping (e.g. cassava, maize, beans, vegetables, yam…on same piece of land)
- Discuss issues of land ownership and fragmentation as challenges faced by farmers
- What is the threshold of the level of mechanization targeted?