Workshop on Piloting Farming Systems Approach to Investment Planning for Climate Smart Smallholder Agriculture in Africa (Tanzania)

September 16th – 17th 2015

Morogoro, Tanzania

ABBREVIATIONS

ACIAR	-	Australian Centre for International Agricultural Research
ARI-KATRIN	-	Agriculture research institute (KATRIN)
ASDS	-	Agricultural Sector Development Strategy
BRN-Agric	-	Big Result Now agriculture policy
CAADP	-	Comprehensive Africa Agriculture Development Programme
COSTECH	-	Tanzania Commission for Science and Technology
DADPs	-	District Agricultural Development Plans
DAICO	-	District Agricultural Irrigation Cooperative Officer
FSD	-	Farming System to Development
ICRAF	-	International Centre for Research in Agro Forestry
ILRI	-	International Livestock Research Institute
MAFC	-	Ministry of Agriculture, Food Security and Cooperatives
NBS	-	National Bureau of Statistics
SAGCOT	-	Southern Agriculture Growth Corridor of Tanzania
SUA	-	Sokoine University of Agriculture
TAFSIP	-	Tanzania Agriculture and Food Security Investment Plan
TSMP	-	Tanzania Statistical Master Plan
UN-FAO	-	United Nations- Food, Agriculture Organization
CGIAR	-	Consultative Group for International Agricultural Research
NSGPR	-	National Strategy for Growth and Poverty Reduction

Executive Summary

The workshop on piloting farming systems approach to investment planning for climate smart smallholder agriculture in Africa (in Tanzania) took place in Morogoro, Tanzania at Nashera hotel on 16th and 17th of September 17, 2015 under the co-host of Dr. Fulgence Mishili and Ms. Judith Valerian from the Sokoine University of Agriculture (SUA) with the collaboration of other key stakeholders. The workshop intended to gather expertise knowledge from a pool of key stakeholders on the pilot study of using the farming systems approach to investment planning for climate smart smallholder agriculture in Tanzania. The workshop successfully ended identifying two farming systems where the pilot study will be undertaken thus upland perennial and maize mix farming systems.

The workshop was funded by the Australian centre for International Agricultural Research of the Australian government (ACIAR) in collaboration with Australian partners from the University of Queensland, Australia, Auricht Projects - Christopher Auricht; International partners the ICRAF Consultant Dr. Jean-Marc Boffa, Prof. Mandi Rukuni, Barefoot Education for Africa Trust and Dr. Tilahun Amede, ILRI. Other Agricultural stakeholders from various institutions in Tanzania were also invited. These include the Ministry of Agriculture, Food Security and Cooperatives (MAFC), Sokoine University of Agriculture (SUA), the National Bureau of Statistics (NBS), and Tanzania Commission for Science and Technology (COSTECH).

Wednesday 16th September 2015

The workshop commenced at 8.30am by circulating the workshop timetable to participants beforehand and four sessions were scheduled with respectful activities described hereunder.

Session I

Official opening of the workshop.

The first workshop session started by participants introduction where the chair person, Dr. Fulgence Mishili, who is the country coordinator and leader of the Australian funded project introduced himself and invited the other participants to introduce themselves and their roles in agriculture as far as the workshop was concerned.

The introduction was then followed by a welcome note from the Associate Dean of the Faculty of Agriculture (FoA) from the Sokoine University of Agriculture (SUA), Prof.

Bernard Chove who attended on behalf of the dean Faculty of Agriculture. He welcomed all the participating guests and highlighted that the anticipated pilot study timely activity since there is so much going on with regard to climatic changes, affecting African countries. Tanzania being an example of African countries vulnerable to climatic changes due to the ongoing population explosion amplified by the rural to urban migration, and therefore there is a need to embrace and adapt appropriate technologies to feed the growing population. He also expressed gratitude to Australian government for supporting the project and that it is an honor to the university hosting it and on behalf of the university he promised to provide needed support so that the project can reach its goals. Lastly he declared that the workshop was officially opened.

A presentation on introduction to Africa and Tanzania farming systems projects by Prof. Thilak Mallawaarachchi from the Queensland University was made, which gave the project background and approach in investing in agriculture for growth. He argued that African countries are faced with high population and that things cannot be done like in the past, therefore there is a need to make things better through investing resources for agriculture growth by not just producing for subsistence but to create new economic opportunities while addressing inequity. He proposed enhancing connectedness and system wide approach, prioritize (trade-offs) to manage scarce resources.

He went further by explaining farming system approach to rural development planning as important tool for changes. He insisted in organizing data in farming systems to inform constraints, opportunities and gaps in knowledge and thus facilitating changes while new technologies in planning can reduce uncertainties. Moreover he explained that farming system is important in improving livelihoods when there are competing priorities for investment, context specific solutions, investment targeting with priority setting, and monitoring and evaluation.

Also, Different perspectives on agricultural development were given by various participants who were invited by the chair person.

- Mr. Fikiri Katiko from the department of policy and planning of the ministry of agriculture presented various agricultural policies, programmes and plans formulated by the government with the aim of enhancing its growth. Among policies discussed were the cooperative development policy 2002, national irrigation policy 2010, and the national agriculture policy 2013, ASDS II, KILIMO KWANZA, SAGCOT, CAADP and BRN-AGRIC. Most importantly he recognized

climate changes and the need for Climate Change policy, including undertaking carbon accounting studies of all key investments and identifying opportunities for adaptation and mitigation strategies.

- From the National Bureau of Statistics (NBS), Titus Mwisomba gave the agriculture statistics strategic plan (ASSP) integrated with TSMP with perspective to agriculture development. He discussed efforts thought necessary to address in detail specific issues in the agricultural statistics system due to increased demand of such statistics, benchmarking, monitoring and evaluation of national development initiatives and coordination of interventions for development purposes.

- The District Agricultural Officer in kilombero, Cyprian E. Haule also provided a detailed overview of the Kilombero district and its adherence to the NSGPR II from which there are irrigation projects engagements, funded by DADPs that are ongoing and some are at designing stages. He analyzed some of the challenges faced which are dependence in rain fed agriculture, pests and diseases, unreliable markets and low productivity while among opportunities realized are the research centre (ARI-KATRIN), crop processing machines and financial institution for agriculture credit (agriculture input trust fund).

- Another presentation was done by Mr. Mhagama, who represented DAICO from Morogoro rural district. He analyzed perspectives on enhancing agricultural productivity and adoption of technology through promotion of market access. Given the predominant role of agriculture in livelihoods of majority Tanzanians he perceived that improvement in market access increases agricultural productivity through facilitating specialization and exchange transaction in rural areas, and intensification of technologies.

- The session ended with the presentation from Diana Muywanga, a DAICO in Mvomero district who stressed on commercialization of agriculture that is productive, profitable and utilizes natural resources in a sustainable manner through technology increase (labour saving) and increase pathways for information dissemination.

Session II

Overview of farming systems information for planning

Several presenters gave their contributions regarding farming systems and how such approaches could be beneficial to planning for development purposes, which were then followed by questions and discussion by participants.

Prof. Mandi Rukuni gave an overview on the contexts and requirements for farming systems, spatial and trend analysis for CAADP national investment planning. He provided commonalities within FSD and CAADP in terms of participatory planning, institutional capacity and local ownership in which Tanzania implements CAADP through ASDP (mainland) and ASP (Zanzibar) through the formulated TAFSIP. In his remarks, he looked at SAGCOT as a huge potential but challenged in supporting smallholder farmers and that CAADP is not one big scoop of success, but slowly they will be realized. He asserted that African agriculture is facing new pressures on climate change, urbanization, demographics and global demand for water and land. However, he was skeptical of the commitment to end hunger by 2025 by doubling productivity in ten years (Malabo declaration, 2014) without massive investment in technology. Moreover, He saw potential in applying the FSD tool to support CAADP which will need institutionalization, technical guidelines and implementation.

Jean-Marc Boffa provided the background and approach used in the regional and national farming systems information for planning. He recognized the role of agriculture sector in creating wealth compared to other sectors and he thought it is important to see farms as systems, make it relevant to policy making and target workable number of systems. The approach used in the study was the central tendency with core criteria for classification being agro-ecology (LGP), key commodities, socio economics, expert knowledge and large data providers in which farming systems were identified, with livelihood zones as per rural poverty prevalence in Tanzania being helpful.

Chris Auricht provided the Tanzanian farming systems for planning investment and agricultural development, with the view that current practices will not stay abreast with the growing population and environmental change and therefore proposing the need to delineate new farming system boundaries. In doing so, collaborative methodology with other large data providers e.g. IFPRI – Harvest Choice, UN-FAO, ILRI, ICRAF, IIASA, CGIAR and others. These have been resourceful centres from which the mappings of farming

systems boundaries and livelihood zones have been successful with opportunity in availability of country level data to help improve national level Agricultural Production System classification and delineation.

Questions and discussion

Qn 1; From Jumanne Abdalla (SUA)

To what extent does the farming system represent reality on the ground, in terms of physical features, land use maps and existing livelihoods?

Response

Available information may overlap between zones but it has been useful to distinguish between the zones, however the interactive sections which follow will provide the accuracy of the maps, but also micro statistics from respective experts with local information is very important for the study.

Qn 2; From Festo Maro- COSTECH

i) What outcome does the project intend to achieve?
ii) Where does innovation and technology come in the project?

Response

i) Workshop and the project intended outcomes and objectives has been covered in the workshop objectives and expected output presentation below.
ii) The FSD is a tool that is applicable to various circumstances and needs. Our science and technology institutions are quite disconnected at the ground level, we desperately need any tool or opportunity for innovation and FSD offers such potential for building technology and thematic innovation platforms for farming system and value chain.

Qn 3; From Godfrey C. Mrema

How labour intensive is the FSD effort carrying forward? Given the earlier effort in 1980s when up to 10% of human resources in Tanzania NARS were committed in FS work with similar figures in Botswana.

Response

It depends on the nature and complexity of the application and technology, but three components are important first, data organization can be intensive, from international, national and local level. Second, expert knowledge sharing can be done in 2 -3 day workshop and third, development of pathways for change.

WORKSHOP OBJECTIVES AND EXPECTED OUTPUTS

As he was presenting the workshop objectives and expected outputs, Jean-Marc clarified that the whole thing is not a project as many perceive, it is a pilot study which if successful will move to the project status.

Project objectives

- To differentiate a set of farming systems across a diverse landscape in Tanzania, which will map key farming systems and help identify interventions to enhance viability and competitiveness of smallholder farming systems embracing principles for climate-smart agriculture.
- To develop local capacity to undertake FS-based planning at a regional scale linking farm-level (and landscape level) data to regional assessments in the perennial tree-crop, maize mixed and agro-pastoral farming systems in Tanzania.

Workshop objectives

- To discuss and refine the Level II (regional level and subsystems) Farming Systems map to identify three districts or locations, where the 3 systems occur, Highland Perennial FS, Maize Mixed FS and Agro pastoral FS
- Spatial identification of selected systems, Characterization of selected systems, Identification of development needs and pathways and Identify key stakeholders for partnering in implementation of pilot.

Expected outputs

- Strengthen understanding of FS approach and Spatial delineation of selected systems in three districts or locations

- Characteristics of selected systems identified and Strategic directions for development of selected systems
- Assessment framework to assist prioritization and planning applications of FS framework discussed in relation to ongoing planning and development activities.

Session III

Updating /refining farming systems information for planning

With assistance from Chris Auricht and Jean- Marc, participants started to characterize farming system of choice to be included in the pilot phase of the activity. The idea was to identify three farming systems thus, the perennial tree crop, agro pastoral and maize – mixed farming systems, based on rural poverty prevalence criteria in which the northern highland perennial was chosen for discussion, which covers Kilimanjaro, (Same district) and Lushoto district (TANGA region), known as the coffee- banana humid highlands.

A question was raised by Theresia Massoy from MAFC

i) Based on the expected output, how will information be collected? Will it need survey or rely on existing information in literature and expert knowledge? Since variability of climate has altered cropping system pattern, therefore may not offer accurate FS.
ii) If we classify FS based on regions some FS are mixed between regions, how is it possible to capture all the significant features, because in reality some areas in the region do not depict what livelihood zones show?

Response

i) Available information in the database, current expert knowledge and inputs will be used for the moment.
ii) The classification is using the central tendency approach, therefore it depends on dominance, and only the dominant characteristics will determine the FS since we cannot accommodate every single feature in the region.

The perennial/coffee farming systems was presented by Wakuganda, K. W working in a project which provide coffee partnership in Tanzania whose plan is to provide

interventions in order to increase net income of smallholder farmers in Ruvuma, Mbeya, Arusha, Kilimanjaro, Kigoma and Kagera through improving productivity, farmers resilience and market linkages.

More about Agricultural Routine Data System (ARDS) was detailed by Mr. David from same district on official agricultural data collection from the village level, local government database to agricultural sector led ministries which have been useful to better planning with organized and standardized data. This was followed by a highlight on eastern zone of Tanzania farming system was given by Dr. T. Bucheyeki. Eastern zone covers seven (7) agricultural research zones in four (4) regions, Morogoro, Coastal region, Dar es Salaam and Tanga, in which 5 climatic zones based on 8 farming systems were identified. The presentation shed light to the whole workshop anticipated activity.

The day schedule ended by 5.30pm, and the chairperson thanked the participants for their attention and inputs to the activities, inviting them for the next day.

Thursday 17th September 2015

The workshop resumed with a recap of the previous day by Dr. Fulgence Mishili, who encouraged participants to agree together on the site that the phase of activity can pilot and show that ideas and models in economic planning can be incorporated into government planning system.

Mr. Revelian S. Ngaiza, from MAFC who provided the state of agriculture and planning processes for development in Tanzania, briefed the African initiatives taken to address challenges in agriculture and food security and recognizes huge potential for irrigation and establishments applying science and technology in agriculture, asserting that Tanzania is food sufficient by 125%, challenges being distribution from surplus to deficit.

COSTECH involvement and support of current systemic approach to research, planning and development was put forward by Mr. Festo Maro , the organization has mandate as Principal advisory organ of the government on scientific research & technology development in the country and is centered in knowledge management and connectivity, human resources management, research infrastructure development to mention a few.

Session IV

The session started with a round table discussion on improving planning for development of highland perennial farming systems, in which members added more input to it and unanimously agreed on taking the northern highland perennial farming systems in Kilimanjaro (Same district) and Lushoto district in Tanga region. Afterwards it continued with improving planning for development of maize-mix farming system, whereas Morogoro region was identified among others with particular farming system and participants agreed to consider it as one of the sites for the piloting. Participants engaged in characterization of the region including its districts, Kilombero, Mvomero, Kilosa, Morogoro rural, Morogoro urban and Ulanga in which description of the maize-mix FS fits in.

Way forward

The farming systems discussed were consolidated and it was agreed that the team will analyze and decide which specific farming system will be chosen for the study to be piloted and sited in. Participants will be informed and their support and more information will be needed and inquired for the study to be of success.

Closure and departure

The chair person, Dr. Fulgence Mishili thanked participants for their active participation to the end of the workshop, insisted on keeping them informed about the progress and inquired their further support. Prof. Mandi Rukuni was welcomed for a word, and he thanked for being invited and added that the activity is very beneficial to the country and that other African countries will benefit and learn from it. The workshop was closed and participants departed by 1.30 PM.

Appendix I: Name of Participants

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Appendix II: Workshop Schedule

Piloting a Farming Systems Approach to Investment Planning for Climate-Smart Smallholder Agriculture in Africa: Launching & Consultative Workshop:16-17 September 2015, Nashera Hotel, Morogoro, Tanzania

TIME	ACTIVITY/TOPIC
Day 1	**Wednesday 16th September 2015**
8:30	Registration of participants
9:00	**Session 1: Opening, Chair**: **Fulgence Mishili** • Participants introduction (Fulgence Mishili) • Welcome note Dean Faculty of Agriculture, Sokoine University of Agriculture • Introduction to African and Tanzanian Farming Systems Projects Thilak Mallawaarachchi, The University of Queensland • Housekeeping matters
9:45	Perspectives on Agricultural Development (5 minutes) • Mr Fikiri katiko (MoA) • Mr Titus Mwisomba(NBS) • Mr Respicius Mlokozi (DAICO- Kilombero District) • Ms Maria Leshalu (DAICO- Morogoro Rural District) • Ms Diana Muywanga (DAICO- Mvomero District)
10:30 – 11:00	Tea/Coffee break
11:00	**Session 2 : Overview of farming systems information for planning** • Context and requirements for farming systems, spatial and trend analysis for CAADP national investment planning , **Prof Mandi Rukuni** • Regional and National farming systems information for planning: Background & Approach, **Jean-Marc Boffa** • Agricultural production systems methodology and spatial information support to planning **: Chris Auricht** • Questions and discussion • Workshop objectives and expected output
13:00 – 14:00	Lunch break
14:00	**Session 3:Updating/refining farming systems information in Tanzania, Chair**: **Fulgence Mishili** • Key characteristics of perennial tree crop, agro pastoral and maize-mixed farming systems in Tanzania: **Chris Auricht, Jean-Marc Boffa** • Eastern zone prevailing system, **Dr. Tulole Bucheyeki** • Perennial/coffee farming systems**, Mr. William Kasselle** **Plenary inputs to Tanzanian farming system classification**
15:30 – 16:00	Tea/Coffee break
16:00 – 17:30	Plenary inputs to Tanzanian farming system classification (continued) END of Day 1
18:30	***Team building and networking – (Black and White)***

Day 2: Thursday, 17th September 2015

TIME	ACTIVITY/TOPIC
8:30	• Recap of the previous day (**Fulgence Mishili**) • Plenary inputs to Tanzanian farming system classification (continued)
10:30 – 11:00	Tea/Coffee break
11:00	• Planning processes in agricultural development, **Mr. Ngaiza** • COSTECH involvement and support of Current systemic approaches to research, planning and development, **Mr. Festo Maro**
	Session 4: Round table discussion : Improved planning for Development of Highland Perennial Farming systems , Chair: **Fulgence Mishili** • Current Practices • Priorities, gaps and information needs • Possible pathways to support planning
13:00 – 14:00	Lunch
14:00 – 15:30	**Session 4 Cont'd: Improved planning for Development of maize mixed Farming systems , Chair: Fulgence Mishili** • Current Practices • Priorities, gaps and information needs • Possible pathways to support planning
	Way forward
	Workshop closure : Chair
15:30	***Tea/Coffee Break and Departure***