Experience from action Research on Strengthening Local Agricultural Innovations to Adapt to Climate Change in Tanzania.

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1.0 Background

- Smallholder agriculture underpins most rural livelihoods and national economy in Tanzania.
- Agricultural production is frustrated by several factors including climate change and variability impacts (CC&VI)
- The rural livelihoods context, including climate-related trends and shocks, together with people's capital asset base varies over time and space resulting in a wide range of coping and adapting strategies.
- A key challenge for local and national, particularly public sector, decision makers is to understand the context and strategies of farmers and other stakeholders in agriculture for coping and adapting to variable climatic conditions, in order to engender innovation.

Continue.....

- The project builds on Tanzania's and Malawi's National Adaptation Programmes of Action
- The NAPAs are linked to external funds, and prioritize agriculture in both countries being one of the most vulnerable sector
  - including incremental changes in cropping systems
  - Coping/livelihood strategies in relation to CC; at district levels eg through DADPs and other initiatives

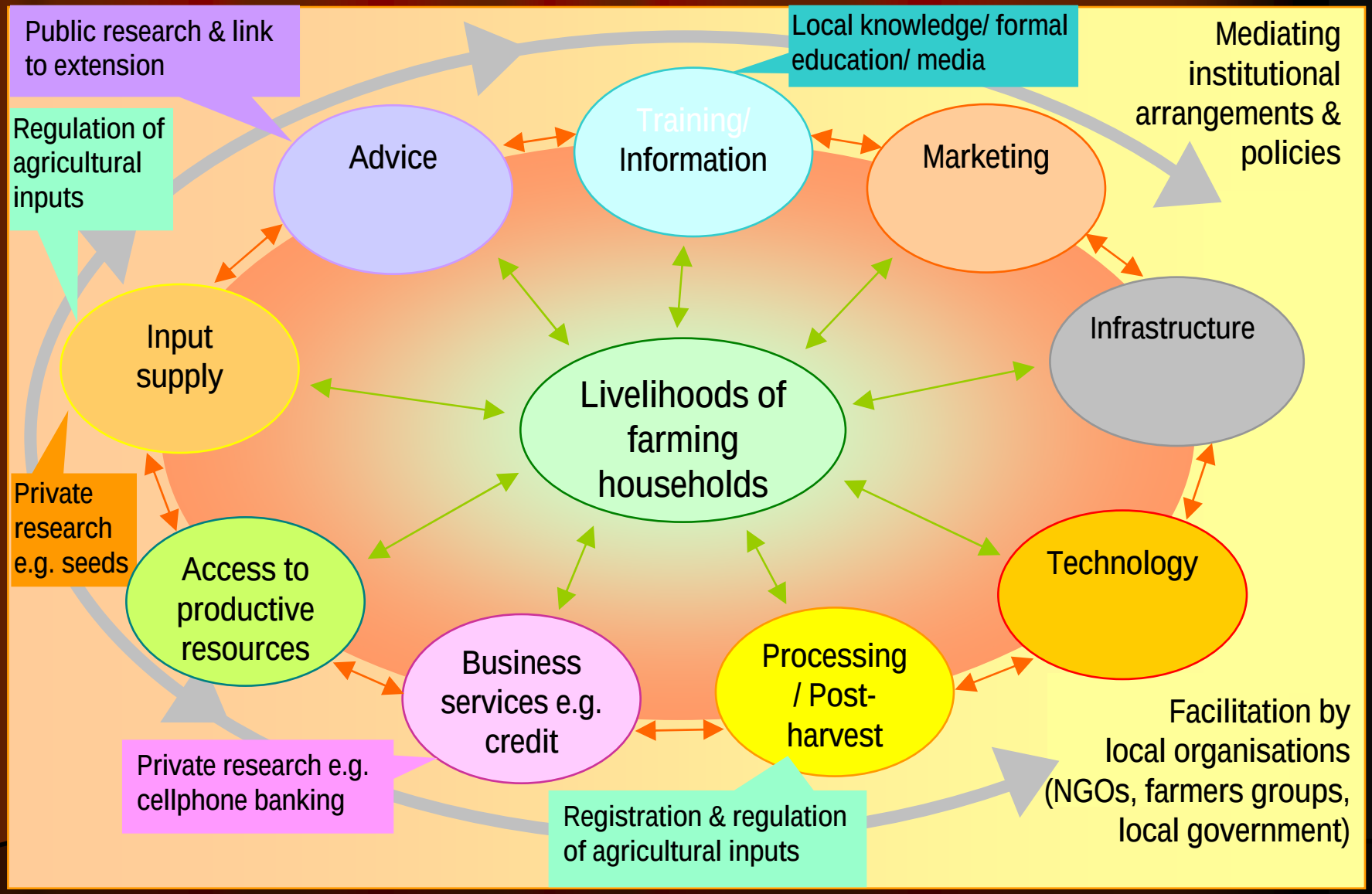
Continue……

- **KEY CHALLENGE**: Understand the context and strategies of farmers and other stakeholders in agriculture for coping and adapting to variable climatic conditions, in order to engender innovation.
- Action research project aims to facilitate a process of interaction and learning whereby information/ knowledge from different sources is shared and used in effective ways by stakeholders in AIS to better adapt to CC&V

Innovation systems concept

- The IS concept originates from policy debate in more industrialized countries in the 1970s and 1980s
- An Innovation System (IS) may be defined as a '**network of organizations, enterprises and individuals** focused on bringing **new products, new processes and new forms of organization into economic use,** together with the **institutions and policies** that affect their behaviour and performance' (ARD World Bank 2006).
- Emphasis is not only on professional scientists but the **totality and interaction of actors** involved in innovation.
- The IS concept moves beyond the creation of knowledge and encompasses factors affecting **demand for and use of knowledge in novel and useful ways**

Agricultural Innovation System we are working with



1.2 OVERALL OBJECTIVE

- To **strengthen** the capacity of **individuals, organizations and systems** within the agricultural innovation systems in less favoured areas and more favoured areas of Tanzania and Malawi to adapt to the challenges and opportunities arising from CC & V.

1.2 Specific objectives….

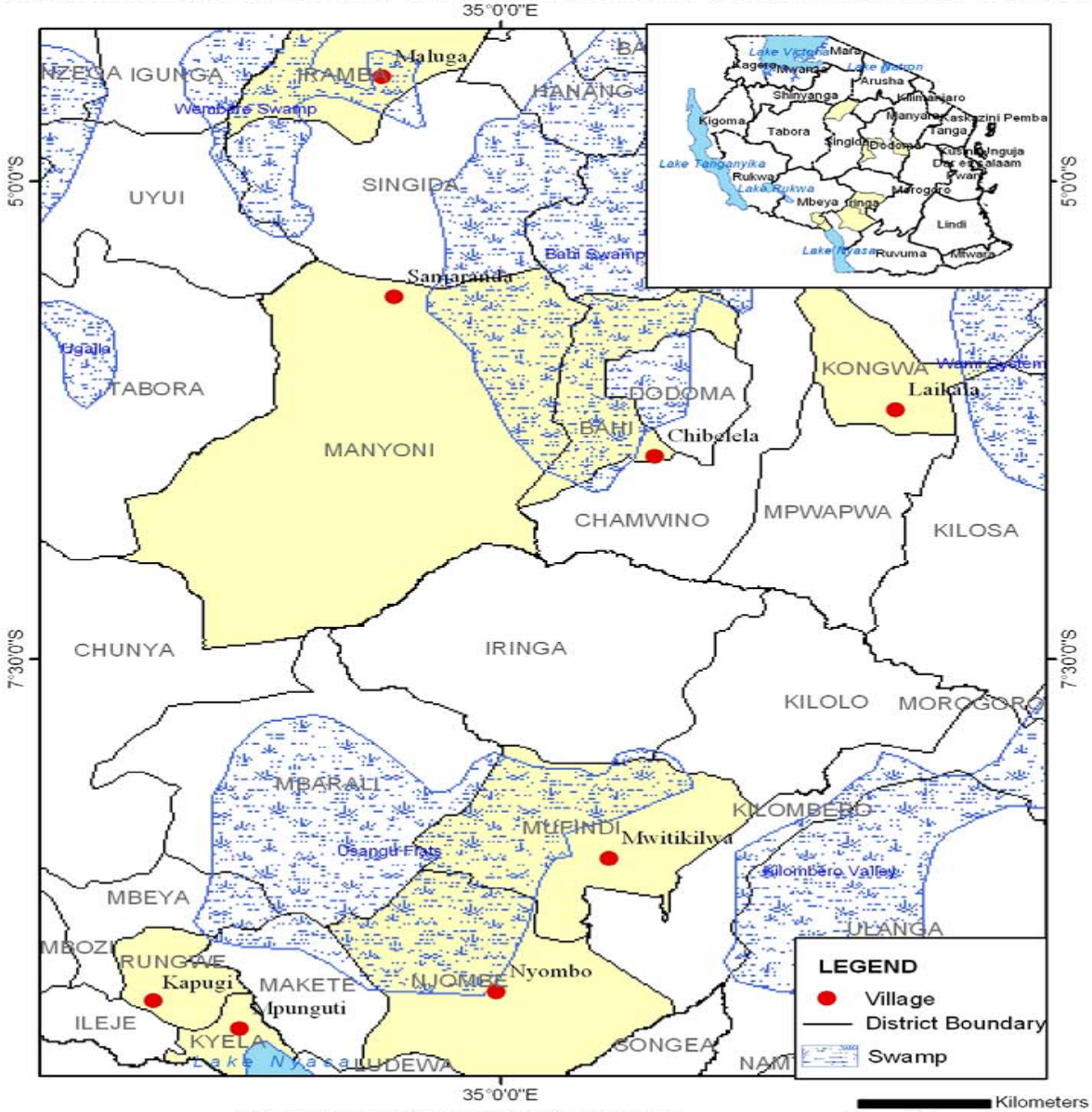
- Strengthen farmers' capacity to access and use quality information, training and products in order to adapt to climate change and climate variability
- Strengthen the capacity of private and public sector stakeholders to make agricultural innovation systems work more efficiently, equitably and responsively to climate change and climate variability
- To learn and share lessons for scaling up successful strategies for capacity strengthening (individuals, organizations and systems) within agricultural innovations systems to adapt to climate change and climate variability

2.0 RESEARCH METHODOLOGY

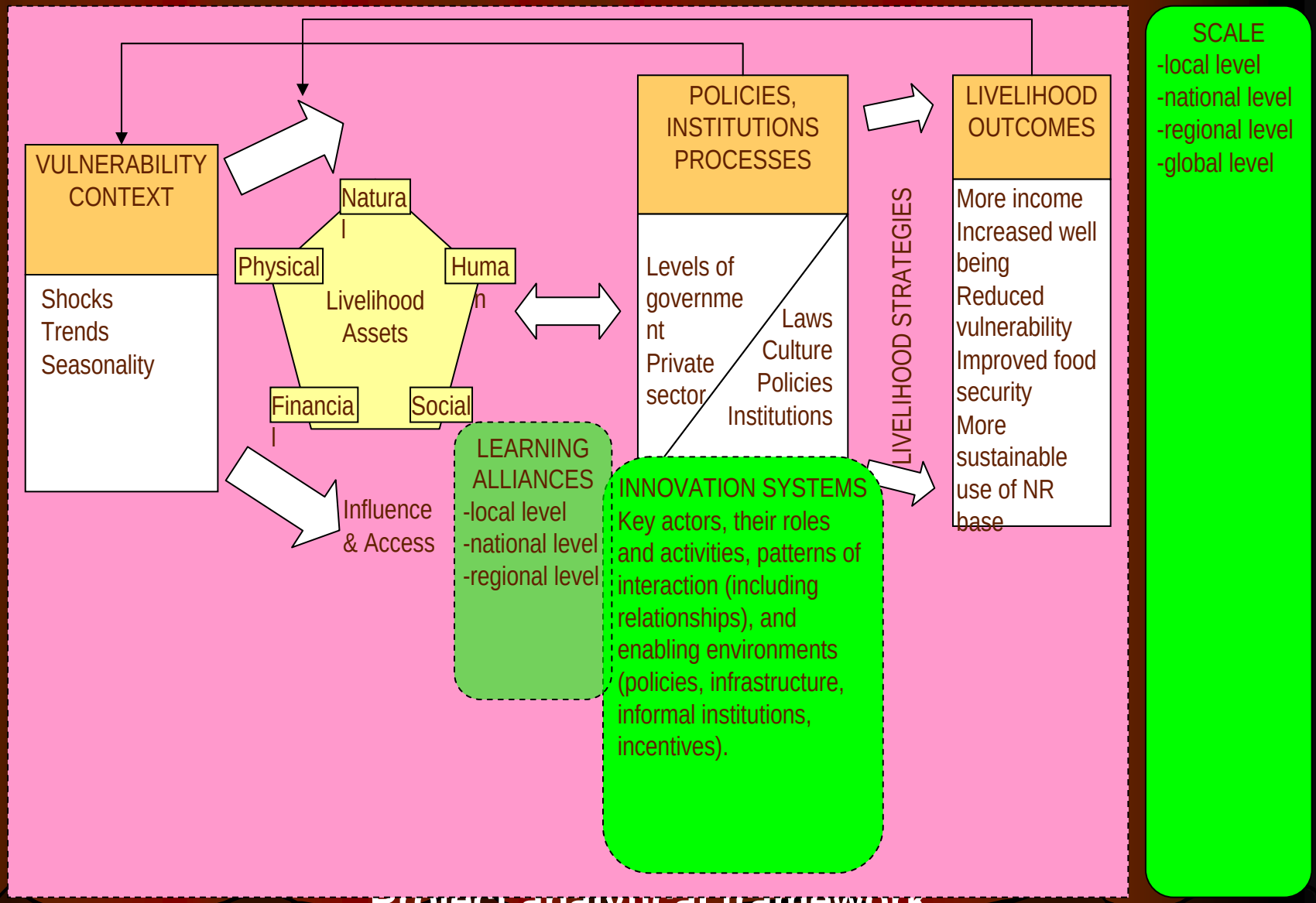
- ***Project areas***

In Tanzania, the project is implemented in low and high potential areas of semi arid Tanzania and southern highland areas respectively.

PROJECT SITES FOR THE PROGRAM ON STRENGTHERNING LOCAL AGRICULTURAL INNOVATION SYSTEMS IN LESS FAVOURED AND HIGH POTENTIAL AREAS OF TANZANIA



CLIMATE CHANGE ADAPTATION IN AFRICA



Project analytical framework

Demand on adaptations-BP Farmer

- **Training**
  - Training on soil water management
  - Understanding visual symptoms of nutrient deficiency in key crops
  - Training on systematic weather data recording
  - Undertake participatory land use planning
  - Training on current land reform act 1999 and land title deeds
  - Training on community seed production (quality, isolation distance, storage)
  - Training on participatory variety/ crop evaluation
- **Information / products**
  - Current impact of existing technologies on soil water conservation and soil fertility
  - Weather data
  - Market information (price, quality, demand)
  - Adaptation and coping strategies to CC & C
  - Information on available local credit schemes
  - Lending mechanisms and procedures
  - Micro-finance and cooperative policy

BP-Extension

- **Training**
  - Entrepreneurship and value addition of agricultural products to enhance the competitiveness in the market
  - Provide appropriate agricultural input /knowledge in line with climate change and variability.
  - Training on appropriate measures for CC & CV
  - Adaptation to climate change and variability
  - Onset and end of rain season (linking of traditional and scientific knowledge)
- **Information / products**
  - Current impact of existing technologies on soil water conservation and soil fertility
  - Relevant climate information and weather prediction

Implementation of action research 2008/09

- Central Zone Tanzania
  - Bringing all BP into a farmer school or learning plot to test different innovations and learning
  - More focus on Adapting to Climate Change and Variability through soil & water management and crop variety selection
  - Different tillage options (normal, spring jembe, ox plough, power tiller and magoye ripper
  - Different fertilizer types and rates (manure, minjingu mazao
  - Tree planting
  - Different sweet potatoes variety
  - Sunflower varieties (record Vs local)
  - Training on climate and agronomic practices

Aims of the learning	How
1) To share the learning associated with the learning plot activities among the project team	Participatory analysis guided by a checklist with farmer groups and other appropriate boundary partners: This included: What has been done, what has been learnt by who, what worked well and what not so well. Changes and plans for next season. Team review on how to take forward
2) To take forward implementation of the project M&E plan	Participatory assessment with boundary partners of changes in behaviour or achievements using project M&E framework develop in Bagamoyo workshop. Team review on how to take forward
3) To review communication and learning strategy	Team review of our communication and learning strategy Team review on how to take forward








Farmers: Outcome challenges

The key outcome challenge for farmers is that "the project intends to see farmers are diversifying crops to increase yields and income, using appropriate soil and water conservation techniques. They are using appropriate crop storage, reducing crop loss and selling at appropriate time when prices are reasonable. They are accessing and experiment appropriate innovations such as small pack of improved seeds and appropriate fertilizers. Farmers are accessing, sharing and using meteorological, adaptation and marketing information. They are networking with input suppliers, NGOs, researchers and extension in experimenting, disseminating and sharing new information and agricultural technologies. They are making use of local and technical knowledge in establishing multi-purpose wood lots and other agro-forestry practices, and construct post-harvest storage structures to ensuring food security".

District	Village	Group name	When established	Female	Males	% female	Total
Bahi	Chibelela	Nazareth Chiwona	2003 2003	20 12	5 12	80 50	25 24
Kongwa	Laikala	Jitegemee	2006	3	4	43	7
Iramba	Maluga	Ufumbuzi	2007/2008	8	9	53	17
Manyoni	Sanjaranda	Hali ya Hewa	2007/2008	12	13	48	25

a) Changes identified from Farmers

- Knowledge of water harvesting/ tillage practices;
- Knowledge of spacing, planting in lines, thinning;
- Knowledge of new crop varieties
- Knowledge of bird scaring techniques;
- Knowledge of fertility management;
- Knowledge of pesticide use.
- Learning how to measure, record and follow instructions was reported by Maluga men
- Awareness of CC impact as a problem was reported by Maluga men. (cm)

b) Changes identified from Extension

- Individuals gaining knowledge and experience on various aspects of crop, soil and water management
- Changed thinking about the impact of CC on crops and the environment in general in Bahi district..
- Extension staff taking knowledge acquired elsewhere eg to other villages in the same ward in Iramba and other farmers being trained in use of Magoya ripper in Manyoni.
- Allocation of DADP funds, in particular for local manufacture of spring jembes in Iramba.

c) Changes identified from NGOs

- Project has helped to foster proper agricultural practices compared to previous times.
- Group formed because of the project
- Their involvement has raised the profile of CC within their thinking, and CC has become more noticeable to them
- Drought tolerant crops and management practices (eg deep tillage) close to farmers
- Exposure to new constraints and opportunities for change in those areas.

d) Changes identified from Media

- More involvement in discussion of research plans.
- Farmers exposed to wider range of early maturing crops varieties
- Participated in sensitizing communities on climate change adaptation issues in other parts of Dodoma Region namely:
  - Hogolo and Hembahemba in Kongwa District; and
  - Bereko and Farkwa in Kondoa District.

4.0 Conclusions

- There were strong and positive views about what had worked well and very clear suggestions about what had not worked so well and should be changed
- In most cases, the introduction of new agricultural innovations to the communities based on their needs seems to work quite well in terms of acceptability
- From the project sites, more can be learnt and be shared by a wide range of stakeholders

5.0 We recommend

- actions needs to be taken and researchers working on agricultural innovations needs to change their research approach to reflect what different actors needs in terms of training, research and products.
- Political support is strongly needed
- Integrate climate change into development plans at all levels
- More capacity building is needed

THANK YOU 4 YOUR ATTENTION

KARIBU SANA