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Strengthening Local Agricultural Innovation Systems in Less Favoured and More Favoured Areas of Tanzania and Malawi to Adapt to the Challenges and Opportunities Arising from Climate Change and Variability

**STAKEHOLDER CONSULTATION SURVEY REPORT
FOR KONGWA AND BAHI DISTRICT IN DODOMA REGION**

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Preface

In many sub-Saharan African countries, poverty and food insecurity are linked to low agricultural productivity which accelerating climate change (CC) threatens to make even worse. In Tanzania and Malawi, a key challenge for decision makers is to understand the context and strategies of farmers and other stakeholders in agriculture for adapting to CC, including increasingly variable climatic conditions. Diverse farming environments and complexities associated with the context of peoples' livelihoods varying over time and space suggest a need for localised innovation to enhance and sustain productivity. There is therefore a need to foster processes for two-way communication and engagement amongst these stakeholders and for supporting their information and other needs in order to strengthen farmers' and other stakeholders' capacities to adapt. It is in this line that consultations with key stakeholders was undertaken to understand the agricultural innovation system in the context of climate change and variability. This was done as a way to contribute to the project overall aim of strengthening the capacity of individuals, organizations and systems within the agricultural innovation systems in Tanzania and Malawi to adapt to the challenges and opportunities arising from climate change and variability (CC & V).

Acknowledgements

The team wish to take this opportunity to thank all the stakeholders in the study area for their time and enriching discussions. In the course of these consultations, all of the consulted stakeholders have developed keen interest in this study and willing to take part in initiatives involving adaptation to climate change and variability. The survey involved consultations with 12 stakeholders from various domains in a range of agricultural innovation systems. Special thanks are extended to the consulted stakeholders in the following domains: the NGOs, Private sectors, public domain (especially with research institutions extension workers and NGOs), financial institutions and last but not least the community groups.

Summary

The overall objective was to understand the roles and activities in relation to agricultural innovation system. The consultations further aimed at understanding their current perceptions and practices regarding CC&V and adaptation; Identify patterns of interaction, including relationships; Examine enabling environments and Identify possible individuals and organizations to work with the project e.g. in NCG and/or as part of Learning Alliance. The report provides a synthesis of information obtained from consultations with various stakeholders in Kongwa and Bahi Districts; in the central zone of Tanzania.

The survey involved 12 stakeholders from various domains in a range of agricultural innovation systems. The consulted stakeholders lie in the following domains: the NGOs, Private sectors, public domain, financial institutions and the community groups.

The survey was guided by a checklist, which was developed based on the Innovation System (IS) framework in combination with sustainable livelihood frameworks. This combination provided a conceptual frame and a learning alliance approach to guide our action research. The project builds on: Trans-disciplinary partnerships and initiatives in agriculture and natural resources; Tanzania's and Malawi's NAPAs (National Adaptation Programmes of Action), which prioritize agriculture; Farmers' livelihood strategies in relation to CC; and other agricultural stakeholders' (public & private) strategies.

The findings indicate that most of the stakeholders have some level of understanding with regard to issues related to climate change and variability and agree that this is a priority issues as far as their livelihoods are concerned. However, it was established that there was very little awareness with regard to the country's NAPA to guide the adaptation to changing climate in their respective areas. Nevertheless, to some extent there were some levels of interactions among various stakeholder with regard to sharing and understanding farmers situation. Among the strength of the agricultural; innovation system for adapting to CC & V include a variety of key institutions and a willing community. The CCAA project was also singled out as the key institution to facilitate these linkages and information sharing with regard to issues related to climate change and variability.

Acronyms and abbreviations

AFNET	Anti Female Genital Mutilation Network
AMCOS	Agricultural Marketing Cooperative Society
ARD	Agriculture and Rural Development
ARI ILONGA	Ilonga Agricultural Research Institute
ASARECA	
AWICO	
CC & V	Climate Change and Variability
CET	
CRDB	Community Rural Development Bank
DALDO	District Agricultural and Livestock Development Officer
DONET	Dodoma Environmental Network
FGM	Female Genital Mutilation
IRA	Institute of Resource Assessment
IS	Innovation System
LUVIA	Lay Volunteers International Association
MVIWATA	Network of Small Scale Farmer Groups
NAPA	National Adaptation Program of Action
NGC	National Consultative Group
NGO	Non Governmental Organizations
NMB	National Micro finance Bank
PADEP	Participatory Agricultural Development and empowerment project
RLDC	Rural Livelihood Development Company
R&D	Research and Development
SACCOS	Savings and Credit Co-Operatives
SADCC	
SDC	Swiss Development Corporation
TFA	Tanzania Farmers Association
TARO	
TAVICO	
WAE0	Ward Agricultural Extension Officer
WEO	Ward Excusive Officer
WOWAP	Women Wake up Program

1 INTRODUCTION

1.1 Background

Stakeholder consultations involved Kongwa and Bahi Districts. The study area is situated in the central zone of Tanzania, whereby more than 90% of the people live in rural area and depending on agriculture and livestock keeping as their major economic activities.

1.2 Aims

The objectives of the consultation survey were to:

- Identify key stakeholders, their roles and activities in relation to agricultural innovation system and CC &V;
- Understand key stakeholders' current perceptions and practices regarding CC&V and adaptation;
- Identify patterns of interaction, including relationships;
- Examine enabling environments (policies, infrastructure, informal institutions, and incentives);
- Identify possible individuals and organizations to work with the project eg in NCG and/or as part of Learning Alliance.

1.3 Approach

The survey was guided by a checklist, which was developed based on the Innovation System (IS) framework. An Innovation System (IS) is 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' (Agricultural and Rural Development -ARD World Bank 2006). A combination of a sustainable livelihoods framework and innovations systems thinking provide a conceptual frame and a learning alliance approach will guide our action research. The project builds on: Trans-disciplinary partnerships and initiatives in agriculture and natural resources; Tanzania's and Malawi's NAPAs (National Adaptation Programmes of Action), which prioritize agriculture; Farmers' livelihood strategies in relation to CC; and other agricultural stakeholders' (public & private) strategies.

The Innovation Systems concept, although originating from policy debate in more industrialized countries in the 1970s and 1980s, still provides useful insights into strengthening agricultural innovation capacity in developing countries. It is envisaged that the framework will be of benefit to our project because the emphasis of the approach 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 (Arnold and Bell, 2001).

Although there is increasing interest in the IS concept as a means of understanding agricultural innovation in developing countries, approaches to applying the concept to interventions are still being explored. In the World Bank ARD (2006) study, an analytical framework for the IS concept was developed and included four main elements: 1) key actors and their roles 2) the actors' attitudes and practices 3) the effects and characteristics of patterns of interaction and 4) the enabling environment for innovation. The same study suggests an intervention framework comprising: 1) A typology of agricultural innovation environments which helps in the analysis of IS in a particular context 2) Diagnostic features for each stage of IS development 3) Principles for intervention and 4) Options for interventions. The consultations thus drew on elements of the IS concept and the World Bank ARD approach.

Consultations involved the following stakeholders in the following domains:

- NGOs – RLDC (Rural Livelihood Development Company), (Rural Livelihood Development Company) and AFNET- (Anti Female Genital Mutilation Network)
- Public sector Extension - ARI Ilonga, Bihawana Farmers Training Centre and Makutopora Research Station
- Financial Institutions (SACCOS)- Wilunze SACCOS in Chibelela Ward

2 FINDINGS

2.1 Range of stakeholders and grouping (see appendix 2 below) (Qs 2 and 3)

Table 2.1.1 Classification of stakeholders consulted by sector, location and prime role with respect to agricultural innovation and CC&V in Central Zone

Sector+	Prime role++ (be detailed)	Location+++	No. Consulted
NGO	<p>DONET- promotes environmental conservation. The main aims are to sensitize, educate, involve and enhance grassroots communities in designing and sustainable management of their environmental friendly activities.</p> <p>RLDC Is a Rural Livelihood Development Company aims at assist the poorest situation as a policy within SDC trough training of extension services, service providers; research and development of demonstration projects; provision of services on business development; improvement of infrastructure; assisting in securing markets and financial assistance and capacity building on good financial environment.</p> <p>AFNET- Anti Female Genital Mutilation Network deals broadly with a coalition for</p>	Central zone	3

	Advocacy for abolition of Female Genital Mutilation. The main activities are to educate and sensitize the community on the dangers and effects of female genital mutilation; promote empowerment of the communities so as to enable them to identify their own social, political and economic problems and take appropriate action.		
Private Stockist / input supply			
Public Extension and organization	<p>ARI ILONGA - Is a research organisation aims at coordinating zonal research activities and to oversee coordination between farmers, /livestock keepers and extension services. They undertake research in the eastern zone on: maize, sorghum, cowpeas, pigeon peas, pearl millet, sunflower, sesame, groundnuts and cotton; and also involve further in production of new seeds varieties and early maturing varieties and research on enhancement of such crops.</p> <p>BIHAWANA FARMERS TRAINING CENTRE is agricultural research station under the Ministry of Agriculture in the Section of Farmers Education and Publicity (under the extension services). Main activities is to provide training to farmers with residence at the Institute; provide advice to farmers and other institutions and train through demonstration plots in Dodoma and Singida regions.</p> <p>MAKUTOPORA RESEARCH STATION- is a crop research station in Central Zone. Main aims is to conduct crop research in central zone in serials, oils seeds and natural resources management.</p>		3
Public and Village government			
Financial Institutions	<p>Wilunze SACCOS in Chibelela Ward - promote economic opportunities through provision of saving and credit services to local communities.</p> <p>KIBAIGWA MARKET- facilitates the linkage between farmers and business of cereals by providing a favourable environment (weighing balance, storage of farmer's cereals crops for security). It provides market information to farmers so that they can make better decision on their produced</p>	Central zone	2

	crops.		
Community Groups			

+ eg NGO, private, public

++ eg Not for profit Extension/ seed provision, Distributing/ retailing inputs, commercial input supply to intermediaries, extension, policy, regulation, funding, research

+++ eg S.Highlands, Central Zone, Dar es Salaam,

For the purposes of this report, the stakeholders consulted are grouped as follows:

See Appendix 2 for suggestions.

2.2 Aims, interests and activities of stakeholders (Qs 2 and 3)

Characterize the main stakeholder groups according to their overall aims, interests and activities. Emphasis on what the stakeholders in a group have in common whilst also explaining variability within the group. This could be done through 1-3 paragraphs on each stakeholder group

2.2.1 NGO

DONET

The organization was established in 1994 at local level group to promote environmental conservation. The main aims are to sensitize, educate, involve and enhance grassroots communities in designing and sustainable management of their environmental friendly activities.

Main activities (including ongoing programmes) of the organization including: sensitisation of individuals, institutions and organisations on environmental conservation activities in the region; access and exchange information in radio programs, communications, and publications and newsletters; sensitization of meetings in Agenda; Policy analysis and advocacy (Policies having impacts on environment for example land policy, forest policies, and beekeeping) and general capacity building especially to lower levels in: environment committees, ward land Baraza, ward and village government, and capacitate other staff and board members in Dodoma region.

RLDC

RLDC is a Rural Livelihood Development Company funded by Swiss Development Corporation (SDC). It was established in 2005 when SDC shifted from Southern Highlands to Central Tanzania to assist the poorest situation as a policy within SDC.

The Main objectives of RLDC include: training of extension services through service providers; research and development of demonstration projects; provision of services on business development; improvement of infrastructure; assisting in securing markets and financial assistance and capacity building on good financial environment.

The main activities (including ongoing programmes) of the organization including: Market facilitations from market linkage (value chain) in: Sunflower, (an oil seed), sesame, cotton, livestock – beef and dairy, sorghum and pigeon peas and poultry and piggery; and R&D on ECO-CHARCOAL improved production from afforestation activities. The organisation operates in Dodoma, Singida, Shinyanga, and Morogoro region.

AFNET

AFNET is abbreviation of Anti Female Genital Mutilation Network. The organization was established in 1999 with the aim of fighting genital mutilation but now it deals broadly with a coalition for Advocacy for abolition of Female Genital Mutilation (FGM).

The main activities are to educate and sensitize the community on the dangers and effects of female genital mutilation; promote empowerment of the communities so as to enable them to identify their own social, political and economic problems and take appropriate action; collaborate with the government and NGOs , CBOs to eradicate harmful traditions; sensitize , train and facilitate action orientated change processes in governance, gender relations and economic empowerment; build capacity of the communities and groups in lobbying and advocacy skills; facilitate information generation and dissemination. The organization is working in 5 regions of Dodoma, Singida, Arusha, Morogoro, and Manyara in Tanzania.

2.2.2 EXTENSION SERVICES

ARI ILONGA

The organization established in 1943 as a Central Research Centre for Cotton for eastern zone. In 1960 became centre for food crops and in 1989 became zonal centre and TARO –research organisation and was dissolved and Centre went back to Ministry.

The main aims are to coordinate zonal research activities and to oversee coordination between farmers, /livestock keepers and extension services; to undertake research in the eastern zone on: maize, sorghum, cowpeas, pigeon peas, pearl millet, sunflower, sesame, groundnuts and cotton; and also involve further in production of new seeds varieties and early maturing varieties and research on enhancement of such crops.

Main activities including ongoing programmes of the organization, Agronomy, crop production and Technology transfer. The organisation deal with demand driven research, and the ministry has 7 zones. The eastern zone is responsible for Morogoro, Coast region, Dar es Salaam and Tanga. The zone hosts 6 Research Stations which include: Hombolo, Katrin, Ifakara, Dakawa, Tanga Mlingano, Mikochei and Sugar Research at Kibaha.

BIHAWANA FARMERS TRAINING CENTRE

The organisation was established in 1973 as agricultural research station with support from Government of china and Tanzania. The objectives was to promote drought resistant crops namely serena and lulu and bulrush millet; to provide training on ox- plough and to provide training on agro mechanization fabricating on farming tools. In 1979 Chinese left the centre and handed over to Tanzania under the RDD/ RALDO office. During that time the objectives was to produce common grade seeds and to provide training on drought resistant crops and ox- plough technology. In July 1986 the institute was shifted to the Ministry of Agriculture in the Section of Farmers Education and Publicity (under the extension services).

Main activities from 1986- to date is to provide training to farmers with residence at the Institute; provide advice to farmers and other institutions and train through demonstration plots in Dodoma and Singida region.

MAKUTOPORA RESEARCH STATION

The organization was established in 1978/79 as a Project by Kubel Foundation (German) to strengthen the grape vine industry. In 1986 it was handed over to the Ministry of Agriculture. In same year 1986 it was mandated as crop research station in central zone. Main aims being to conduct crop research in central zone in cereals, oils seeds and natural resources management.

Main activities (including ongoing programmes) of the organization including: trials in oil seeds: sunflower, ground nuts, sesame. It also deals with diseases and drought tolerant crops, grapes trials, fertilizers trials, trials in horticulture (tomato and onions) and socio-economic aspects of agriculture in Dodoma and Singida.

2.2.3 FINANCIAL INSTITUTIONS (SACCOS)

WILUNZE SACCOS IN CHIBELELA WARD

The organisation started as a group producing Pato sorghum in 2001 and later sorghum seeds. Later on in 2003 it turned into a SACCOS. The main objective is to generate funds for agricultural training and promote economic opportunities. The main activities of the SACCOS include saving and loaning/ credit in Chibelela Ward.

KIBAIGWA MARKET

Initially organization established by Gargo porters (Gargo Porters Ltd) in 1992. In 1996 MVIWATA a network of small farmers groups came to Kibaigwa with the aim of finding a donor to fund a modern market centre. The market centre in the old days was for maize only but nowadays there are 5 crops being handled namely, maize, groundnuts, sunflower, sorghum, millet, *tetere* (maboga). The complex is managed by 5 board members drawn from: Representative from Kongwa District Council (A Councillor); Representative (expert) from Kongwa District Council- Cooperative Officer; Representative from Groups of Farmers organisations (MVIWATA); Representative from the businessmen and Representative from the Cargo Porters.

The Main objective is to facilitating the linkage between farmers and business of cereals by providing a favourable environment (weighing balance, storage of farmer's cereals crops for security). The main activities include Selling and buying maize of good quality and other crops such as sunflower, sorghum, groundnuts, beans and rice. Take care of customer's properties, cleaning maize coming at the market and weighing incoming cargo and control of excessive weight.

The organisation operates in Manyara, Dodoma, Tanga, Morogoro and Iringa regions. The internal markets are Dar es Salaam, Kilimanjaro and Tanga while Kenya is the external market.

2.3 Aims, interests and activities of stakeholders with respect to CC & V and agricultural innovation (Qs 4, 6, 7, 15, 20)

Characterize the main stakeholder groups according to their specific aims, interests and activities in relation to CC&V and agricultural innovation. Emphasis on what the stakeholders in a group have in common whilst also explaining variability within the group. This could be done through 1-3 paragraphs on each stakeholder group. This would include any experiences in climate change e.g. other projects they have been involved in.

All stakeholders agreed to have experienced changes / variations in the climate within their areas of operations. Changes include increase in temperature, changes in rain season in the past were December to April/may in recent rains is in January/February to March and stops suddenly. Rainfall perceived to be unpredictable, which

has negative effects on to crops production such as sorghum, sunflower and maize. The temperature reported to be increased, it used to have cold spell in June and July but now it has changed. Destructive birds, pests and diseases incidence have been also reported.

2.3.1 NGO

DONET

Climate is changes from year to year and becoming more unpredictable and threatens the crops survival. This has resulted into shifting from old crops to Marcia, and other drought resistant crops. The aspect of change include rainfall which fluctuating and has no regular pattern. Indicators for change are: decrease in forests and pasture health and density, increase out migration (Youths migrate to urban areas for alternative employment).

These changes in climate have had some effect on the organisation's activities. It has increase costs due to low tree survival rates and scarcity of water for seedlings. In response to the weather changes the organisation has to recommend to ministry the use of mixed farming (Kilimo Mseto) – Fruits Trees, food and cash crops, root crops (cassava and sweet potatoes) and fast growing crops. Farmers are the primary beneficiaries of the organisation's activities.

RLDC

The area experience changes in climate, the organisation is operating in a dry region with mean annual rainfall about 550 mm. There is irregularity of rainfall for example 2006 was very dry, 2007 had 1000 mm, and 2008 initially there were no rains in November to December until January. The aspect of change is rainfall, which increased intensity. Indicators for change include the increase in rainfall uncertainty.

The climate change and variability has influence on organisation activities. The organisation focuses more on drought resistant crops. However due to the uncertainty of climate change the organization become victims of the weather. So it is risky and costly. The organisation is dynamic to respond to the impacts of climate change and variability, as they are aware with an uncertain situation.

Farmers are primary beneficiaries of the organisation. The impacts on the primary beneficiaries include provision of improved innovations and scientific advice. Service providers are supported and the policy actors in different management levels get improved innovations and scientific advice.

AFNET

Reported the changes in climate and rainfall perceived to be more unreliable, unpredictable and changed in distribution. Aspects of change include changing in rainfall, temperature (cold is not as intense as it used to be June/July), heat is intense and more dry. Indicators of change include change in wind (is not as intense) with increased in dust.

The changes affect communities which most of them are farmers and livestock keepers that all depend on climate. If there a drought people out migrate for food and the continuity of the project is impacted. In response to climate change and variability in Chibelela village AFNET through Lutheran World Relief is running a project on capacity building on farming drought resistant suitable crops (sesame, serena, sorghum and sunflower). A similar program is undertaken in Kigwe, Buigiri and Msanga Wards. AFNET encourage establishment of SACCOS at list in every wards. AFNET has also initiated a condition that in order for a farmer to get seeds of good variety he/she must be a member of a SACCOS.

Primary beneficiaries of organisation activities are communities in the area of operation. Organization's impacts on advocacy of human rights of the marginalised in: the marginalised people in the communities for primary beneficiaries. The organisation provides facilitations in wards, NGOS and donors to service provider and policy actors (Councils Wards, Villages, and Regions).

2.3.2 EXTENSION SERVICES

ARI ILONGA

Climate is changing, Short rains are decreasing and are unreliable, and onset rains delays very much and is high uncertainty. Element of change include increase in temperature and variation in rainfall. Indicators for changes are increased of heat and cold spell in June/July much colder than before.

The climate change and variability influence organization's activities as her programs are crop based and planting materials rely on rain. The quality of research is affected and costs increase due to uncertainty. In response to climate changes and variability Government is rigid to change vision but at project level changes are made.

Primary beneficiaries are farmers and District Councils. The organisation impacts to Primary beneficiaries, policy actors and service providers by undertaking relevant research to farmers, stockists and Government at Districts, Wards and Villages levels.

BIHAWANA FARMERS TRAINING CENTRE

Climate in the area is changing. Annual rainfall is about 350-700mm and is all in one season. The rain season in old days was December to April or May but in 2008 rains came later in January and in February and then disappeared. Aspects of change include rains (decreased) and temperature (increase). Annual rainfall is 554.6 mm with a range of 381.3-1128 mm and mean temperature 22.3°C with arrange of 20.2-36 °C. Indicators of change include occurrence strong winds.

Influence of climate change and variability to the organization's activities include change of activities and programmes. The organization activities depend on climate for example farm demonstration trials of which cannot survive without rains. Farmers are used to dry planting that is around November. The organisation advice them to wait until are wet and then plough and plant. Currently there is a new design called Magoye ripper (with a V sharp edge) which when dragged along leaves a trench where they sow seeds and this also collect rain for soil moisture of plant. Climate changing affects organisations plan. Farmers are confused between our schedules and the erratic nature of rains nowadays. The organization response to CC&V by promoting Magoye ripper though expensive 260,000/= made in Babati and Singida. The Ripper digs in a 6-inchs drain and usually used in dry planting.

Farmers are the primary beneficiaries of organisation activities. The organization impacts on farmers through provision of good knowledge on farming.

MAKUTOPORA RESEARCH STATION

Climate change has reported in the area of operation of the organisation since 1979- 2008 in decreasing trend of rainfall and temperature. Elements of change include rainfall, temperatures and winds, which are stronger nowadays than before in September and October. Indicators of change include decreased trees, disappearance of wild animals and decline in land productivity.

Climate change and variability has influence on organization's activities because all trials are rainfed therefore in drought periods no results are anticipated. The organization responds to climate change

and variability through seeking for drought tolerant and early maturing variety and taking account on soil water conservation.

Farmers are the primary beneficiaries of the organisation.

2.3.3 FINANCIAL INSTITUTIONS (SACCOS)

WILUNZE SACCOS IN CHIBELELA WARD

An area characterised with high dry conditions and the climate is neither bad nor good. Aspects of change include rainfall and wind. Indicators of change include growing of drought resistant types of crops.

The climate change and variability influence the organisation through the effect on members of the SACCOS depending entirely on agriculture, which is also climate dependent.

In response changes the Organization involves in educating farmers to farm/ grow drought resistant crops.

The beneficiaries of organisation activities are all communities in the Chibelela ward. The organisation impacts to primary beneficiaries and service providers are provision of loans and agricultural training for SACCOS members. The impact to policy actors, which include: ward and Village government is on poverty eradication and provision of education on agricultural

KIBAIGWA MARKET

There is a change in climate in the area of organization operation.

These changes affects the organisation business since is linking farmers and businessmen in agricultural crops. Climate change is crucial to farmers, businessmen and the organisation. The organisation responds to changes by initiation of a communication system with Villagers within the operation area on price of cereals crops. This will enable farmer to be informed and make a good decision on selling their crops.

Farmers are the primary beneficiaries of the organisation. The organisation impacts on primary beneficiaries by provision of reliable access to fair marketing for their crops. The service provider include businessmen were the organisation provides market and the policy actors include that include Kongwa District Council, Ward and villages.

2.4 Perceptions of the climate situation in the area the organisation operates (Qs 4, 5, 8, 9, 10)

Table 2.4.1 Perceptions of importance of CC and V issues by stakeholder group (Q5)

	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
V. Important	√		√		√	
Important						
Slightly important						
Not important						
Total						

Table 2.4.2. Perceptions of CC and V by element and associated indicators of change by stakeholder group (Q4)

Element of change	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Rainfall	Unreliable rainfall, unpredictable and changed in distribution and decrease in rain season. Onset delayed, rains cease abruptly, less predictable rainfall season, indicators of change include decrease in forests and pasture health and density, increase people out migrating and change in wind (is not as intense) with increased dust		Rainfall is unpredictable decreasing and is unreliable, and onset rains delays very much and is high uncertainty. The rain season in old days was December to April or May but in 2008 rains came later in January and in February and then disappeared. Indicators for changes are increased of heat and cold spell in June/July much colder than before, decrease in crop and livestock production, And occurrence strong winds		An area characterised with high dry conditions and the climate is neither bad nor good. Indicators for change include growing of drought resistant types of crops.	
Temperature			Increase of ttemperature, sun shine, and drought period Indicators of change include decreased trees, disappearance of wild animals and decline in land productivity			
Wind	Occurrence of Strong wind with dust		Winds are stronger nowadays than before in September and October. Indicators of change include decreased trees, disappearance of wild animals and decline in land productivity		Occurrence of Strong wind	

Table 2.4.3. Perceptions of who is vulnerable to CC and V and why by stakeholder group (Q8)

Vulnerable groups identified	Stakeholders groups	Private	Extension	Village govt	Financial	Community groups
Widows	NGOs					
	They do not have the energy and resources to engage in production activities					
Poor farmers	Small Farmers with limited resources and opportunities and depend entirely on subsistence agriculture and with perhaps limited livestock		Small scale farmers has limited resources and lost seeds due to trials of onset is costly		poor farmers have limited opportunities unlike the rich ones who have livestock and other resources	
Handicapped people e.g. those with HIV/AIDS, Aged	They do not have the energy and resources to engage in production activities					
	They do not have the energy and resources to engage in production activities		Elderly farmers has limited resources and youth lave for urban areas for employment			
Orphans	They do not have the energy and resources to engage in production activities					

Table 2.4.4. Perceptions of how different groups are adapting to CC and V by stakeholder group (Q9)

Groups identified	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Children	Old people and children stay at home					
Poor farmers	Farmers are aware of the risky so they adopt diversification strategies. Farmers are also dynamic with the climate and try to follow market opportunities (e.g. buyers, c companies etc). Provide education on good farming practices. For example in Kongwa a market has been built for sorghum crop and this will promote the crop it as a cash crop		Farming in valley bottoms, Engage in off-farm activities, Seek for labour from the well to do communities, Farm drought tolerant varieties and Uses whatever seeds obtained, as there are alternatives. The vulnerable engage in charcoal making while others have diversified activities		Growing drought resistant crops and adopting modern livestock keeping techniques	
Aged	Old people and children stay at home					
Youth	Youth migrate to towns e.g. house girls, vendors desperately					
Woman	Women engage in vegetable farming with nearby wells					
Children	Old people and children stay at home					
Aged	Old people and children stay at home					
Youth	Youth migrate to towns e.g. house girls, vendors desperately					
Woman	Women engage in vegetable farming with nearby wells					

Table 2.4.5. Perceptions of how other organizations/ stakeholders are making changes in response to CC and V by stakeholder group (Q10)

Organizations/ stakeholders	Stakeholders groups	Private	Extension	Village govt	Financial	Community groups
AFNET	AFNET supports and advocates that the relatives work together with the affected individuals in order to increase their capacities to farm at least 3 acres of food and cash crops		Promote irrigation systems, Increase research on CCA		AFNET- provide sunflower and sesame seeds	
World Vision			Provide advice and supports to the community		World Vision provide loans on agricultural implements and seeds	
INADES			INADES and others consulted for expert advice and food relief services		INADES – Provide different educational skills on agriculture	
Policy makers			Policy makers introduce bylaws for conservation and also NGOs promote exotic trees species although indigenous trees do better.			

2.5 Trends in agricultural innovation systems (various Qs)

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’ (Agricultural and Rural Development –ARD World Bank 2006). Following this definition, its hard to establish trends in agricultural innovation systems in central zone since almost all stakeholders consulted work separately to fulfill their organization goals and aims. Agricultural activities involve distribution of agricultural inputs and provision of credits for agricultural activities this is mainly done by SACOSS, AMCOS and input suppliers. The village government facilitates good agricultural practices with other stakeholders in agricultural sector. Research organization, service providers (agricultural extension officers and NGOs, cooperative unions) in most cases work together on educating and advising farmers on good agricultural practices such as demonstrations on planting and use of drought resistant crops, conservation of water sources and animal husbandry.

2.6 Patterns of interaction & relationships between stakeholders (Qs 11, 12, 13, 14)

Table 2.6.1. Approaches for sharing and understanding information on farmers’ situation and how they could be improved (Q11 and 12)

Approaches	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Open meetings	Meetings with stakeholders and, focus group discussions. In this approaches, local communities and facilitators from NGOs sit together and discuss issues regarding agriculture and environmental activities and other developmental issues. This should be improved through capacity building for leaders		They use village meetings to deliver information to farmers and other agricultural stakeholders		They organise meetings where all members participate. This improved collaboration with DALDO who provides experts to for training and also solicits experts from donors.	
Workshops/ trainings	Training of TOTs and organise different workshop to educate farmers on various issues regarding good agricultural practices and environmental conservation. This can be improved through Exchange field visits, and action research		Residential training through demonstration plots, on Farm trials. Arrange for a forum for stakeholders/ NGOs and extension officers Workshop which involve entire production chain, (Farmers, experts, stockists, processors,			

Feedback reports	Circulate activity reports, and fact sheets. This should be improved by training manpower for skills in advocacy especially at grass root levels. And improvement in dissemination e.g. Using fliers and Fact sheet	traders) Network, use weekly flash Report to DALDOs and Ministry, Annual Report to Director of Research Ministry, Future sends report to Documentation Unit at Ministry. This can be improvement through improving communication among stakeholders (Ministry Plans to improve Zonal Communication)
Website	Use of Website to generates and circulates information. This can be improved through promotion of sharing of linkage with other partners and work also with institutions of higher learning	
Field visits		Field study tours in other districts
Networking	NGONEDO Coordinates Network of all NGOs in Dodoma in also accessing resources, Share with stakeholders, right from project inception to implementation. This can be improved through conducting a regular meeting with other stakeholders to share information and experiences and through provision of information to all stakeholders in advance so as to avoid overlapping of projects.	Sharing research findings with all Extension officers and stakeholders (e.g. grapes, oil seeds, and sorghum). This should be improved through enhancement of network and linkage through IT Outreach program.
Seminars,	Used in awareness creation and sensitization on plant more trees and	

Participatory Research environmental conservation. Should be improved through training and capacity building for leaders and other stakeholders

Participatory Research (PRA surveys) Farmer extension research interaction, Farmers Research /Research Groups all must be tested by farmers /farmer's assessment. Client oriented research e.g. 4 districts where farmers raise issues, and extension contract us to follow up on the issues

Table 2.6.2. Approaches for sharing and understanding information on other stakeholder's situation (Q11)

Other stakeholders	Stakeholders groups					Community groups
	NGOs	Private	Extension	Village govt	Financial	
Meetings	✓		✓		✓	
Letter			✓			
Mobile Phone	✓		✓		✓	
Flyers	✓		✓			
Personal communication	✓				✓	
Field visits	✓		✓			
Seminars, workshop and training	✓		✓		✓	
Website	✓					
Reports and fact sheets	✓		✓			

Table 2.6.3. How approaches for sharing and understanding information on other stakeholders' situation could be improved (Q12)

Stakeholders	Stakeholders groups					Community groups
	NGOs	Private	Extension	Village govt	Financial	
Television	Can be use in training and communicating research findings to farmers and other stakeholders		Can be used in training and communicating research findings and other relevant information			
Field visits	Field visits can be used as means for sharing experiences with other stakeholders		Conducting a field visit in regular bases			
Use of Participatory approaches						
Feed back	Can be improved through promotion of sharing of linkage with other partners and work also with institutions of higher learning		This can be improvement through improving communication among stakeholder			
Meeting	This should be improved through capacity building for leaders				llaboration with DALDO o provides experts to for ning and also solicit erts from donors.	
Networking	Can be improved through conducting a regular meeting with other stakeholders to share information and experiences and through provision of information to all stakeholders in advance so as to avoid overlapping of projects.		Should be improved through enhancement of network and linkage through IT Outreach program.			

Table 2.6.4. Examples of links between stakeholders consulted and other stakeholders (Q13)

Stated links	Stakeholder groups consulted						Number
	NGOs	Private	Extension	Village govt	Financial	Community groups	
Farmers	✓		✓		✓		3
District extension staff	✓		✓		✓		3
Relevant NGO for example World Vision, WOWAP, DONET, DIAC (dealing with FGM), and Africare (Tunajali)	✓		✓		✓		3
District Council	✓		✓				2
Education Department			✓				1
Agricultural Department	✓		✓		✓		3
Researcher eg IRA, Makotopola etc.	✓		✓				2
Stockists	✓		✓		✓		3
WEO / VEO	✓		✓		✓		3
Religion							
Financial institution (CRDB and NMB)	✓				✓		1
Extension officers			✓				1
Development Partners: NGONEDO, MIGESADO, TAWLA, ARI Hombolo, IRDP	✓		✓				2
Research Institutes,			✓				1
Research Centres (Ilonga- cotton, IPM (Integrated Pest Management) - Kenya, Farmers	✓						1
Regional networks (ASARECA, SADCC, Universities)			✓				1
Processors: CETAWICO, TAVICO, Tanzania Distillers, Ego Beer, Chibuku),	✓		✓				2

✓ = mentioned by at least one stakeholder in that group

For each stakeholders group consulted try to characterize the pattern of interaction with other stakeholders

Eg The ARD World Bank Study (2006) pp 50-53 describes the following types of interactions: Farmer to farmer interaction, Interactions of businesses with the poor, Company-company interaction, Technology transfer interaction, Public-private partnerships, Interactions of multiple actors. The study also identifies 'missing interactions'.

All stakeholders consulted in Kongwa and Bahi districts were not aware of the National Adaptation Programme of Action. This could be due to poor stakeholder’s consultations during preparation of this Programme. Project team members had to explain what NAPA is to all stakeholders, but it was not enough due to time constraints. Therefore there is still a need to raise awareness on NAPA to all stakeholders.

Table 2.6.5. Awareness of NAPAs and assessment of NAPA process (Q14)

Awareness (number/ % aware) Assessment of process	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups

2.7 Strengths, weaknesses, opportunities & threats analysis of agricultural innovation systems and adaptation to CC & V (Qs 16, 17, 18, 19)

Table 2.7.1. Stakeholders' perceptions of the *strengths* of the agricultural innovation systems for adapting to climate change and variability (Q 16)

Strengths (broad categories)	Stakeholder groups		Extension	Village govt	Financial	Community groups
	NGOs	Private				
Availability & appropriateness of seed/ varieties			✓		✓	
Training			✓		✓	
Land Availability			✓		✓	
Research Institutes			✓			
Human Resource	✓				✓	
Willing Community	✓				✓	
<i>Good working relationship with Farmers and other stakeholders</i>	✓		✓		✓	
Fund availability					✓	
Network	✓					
Infrastructure	✓					

Table 2.7.2. Stakeholders' perceptions of the *weaknesses* of the agricultural innovation systems for adapting to climate change and variability (Q 17)

Weaknesses (broad categories)	Stakeholder groups		Extension	Village govt	Financial	Community groups
	NGOs	Private				
<i>Perceptions, knowledge and practices</i>			✓		✓	
<i>Human resources</i>	✓		✓		✓	
<i>Infrastructure</i>	✓		✓		✓	
<i>Policy</i>	✓		✓			
<i>Agro climatic information</i>	✓		✓		✓	
<i>Demand for agricultural inputs</i>			✓		✓	
<i>Finance</i>	✓		✓			
<i>Shortage Land</i>					✓	
<i>Transport</i>			✓			

Table 2.7.3 Stakeholders' perceptions of the opportunities for improving the situation for adapting to climate change and variability (Q 18)

Opportunities (broad categories)	Stakeholder groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Productivity					✓	
<i>Training</i>	✓		✓			
<i>Extension service</i>	✓		✓		✓	
<i>Human resources</i>	✓		✓		✓	
<i>Willing community</i>	✓					
<i>Research</i>	✓		✓			
<i>Network</i>	✓		✓		✓	

Table 2.7.4. Stakeholders' perceptions of the *threats* to improving the situation for adapting to climate change (Q 19)

Threats (broad categories)	Stakeholder groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
<i>Government policy and support</i>	✓		✓		✓	
<i>Finance</i>	✓		✓			
<i>Human resources</i>	✓		✓			
<i>Input supply</i>	✓		✓			
<i>Infrastructure</i>	✓		✓		✓	
<i>Climate change & variability</i>	✓		✓		✓	
<i>Low capacity (Poverty)</i>	✓					
<i>Poor technology</i>			✓			

2.8 How stakeholders could strengthen their own organization’s capacity to adapt to CC&V (Q21, 22)

Table 2.8.1. How stakeholders reported their own organizations’ capacity to adapt CC&V could be improved (Q21)

Broad category of capacity improvement	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Seminars, training and workshop	Involved in Seminars, training and workshop on appropriate measures for climate change and variability and good agricultural practices		Training more staff and Young man power training and involve in training and seminars on appropriate measures for climate change and variability and good agriculture practices		providing training to staff	
Network and feedback reports	Provision of reports and improve communication among all stakeholders		Capacity building through software network, improvement and provision of feed back reports on seminars, workshop, training, meetings and provision of update information on climate change		increasing awareness creation to framers	
Enhancing collaborative partners	Enhancing collaboration with Innovation centres		Increase number of Researchers and provide more resources in research and training			
Field Visit			Improve transport facility and communications, ICT		Increasing capital	

Table 2.8.2. How stakeholders reported their own organizations' information, training and product needs to enhance their capacity to adapt CC&V could be improved (Q22)

	Stakeholders groups NGOs	Private	Extension	Village govt	Financial	Community groups
Information	On adaptation to climate change and variability, NAPA, improved agricultural production and marketing (Trade Fairs)		Relevant Climate weather prediction information, Strengthen network, a network with other related research institutes in the central zones and Extension Liasoning Unit (ZIELU), Breeder, socio economists, processor	.	Information on suitable crops in area, market information in the region and outside and Government to assistance in search	
Training	Training on cclimate change, advocacy, communications, improved agriculture and appropriate measures for climate change and variability		Training manpower, staff training (Capacity in TOT). Involved in training on appropriate measures for climate change and variability		Training on manpower, staff in general, administration, accountancy, and marketing and on appropriate measures for adaptation to climate change and variability.	
Products	Improve infrastructure and input supplies and sharing research findings, website, communication, tools, fliers etc, documents on Climate change, NAPA, global perspectives		Sharing research findings, website, communication tools, fliers etc and documents on Climate change, NAPA, global perspectives		SACCOS building and ICT for Networking with farmers and businessmen	

2.9 How can farmers’ and other stakeholders’ capacity to adapt to CC & V be improved? (Q24)

Table 2.9.1. How stakeholders reported farmers’ capacity to adapt to CC & V can be improved? (Q24)

Broad category of farmer capacity improvement	Stakeholders groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Training on good agricultural practices and CC & V	Training on CC&V, agricultural practices/innovation, marketing of agricultural crops and entrepreneurship skills and environmental management		Training on good agricultural practices/innovations, entrepreneurship skills and adaptation to climate change and variability		Training on environmental conservation, and good agricultural practices, adaptation to climate change and variability	
Diversification of crops and use of improved seeds	Improvement of drought resistant crops		Providing them with more knowledge and opportunities to cope, Participatory Trials (Training and the used of pilot field)		Provision of improved agricultural inputs, and Dairy cattle to increase income generation	

Table 2.9.2. How stakeholders reported other stakeholders' capacity to adapt to CC & V can be improved? (Q24)

Stakeholder category for capacity improvement	Stakeholders groups reporting		Extension	Village govt	Financial	Community groups
	NGOs	Private				
Involved in training on appropriate measures for climate change and variability	Involved in training on appropriate measures for climate change and variability.		Training and Providing them with more knowledge and opportunities to cope with climate change and variability		Farmers should and other stakeholders should be involved on seminars and training on climate change and variability	
Involve in environmental management	Farming with respecting environmental conservation and improve range management					
Enhance networking,			Improvement of training and networking, with stakeholder		Provide training and networking to stakeholder	
Improve Participatory research	Involve all stakeholders in participatory Pilot projects.		Involve in participatory trials			
Diversification of crops and improve inputs	Improvement of drought resistant crops				Provision of improved agricultural inputs, and Dairy cattle	

2.10 How stakeholders would like to be involved in an initiative to improve capacity to adapt to CC & V? (Q23)

Table 2.10.1. How stakeholders would like to be involved in improving capacity to adapt to CC&V (examples below relate to improving seed systems please remove and enter your findings (Q23)

Broad categories	Stakeholder groups					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Involved in action research	Participate in joint research within our mandates.		Involve in participatory trials and Research Relevant to CC and V in the agricultural sector.		Involved in action research	
Facilitation on input supply					Facilitation on SACCOS capital	
Facilitate farmers on good agricultural practices/innovation	Facilitate farmers on good agricultural practices/innovation and promotion of environmental conservation in Dodoma		Facilitate farmers on good agricultural practices/innovation		Promoting and conducive environment education for farmers to improve their economies	
Enhance professional linkages	To carry out AFNET activities with CCAA,		Facilitation on dissemination facilities and information			
Participate in study tour and information exchange					Involve in study tours and Information exchange	
Involved in training on appropriate measures for climate change and variability	Training on climate change adaptations and AFNET fields of specialisation		Involved in training farmers and Field Officers on appropriate measures for adaptation to climate change and variability		Training along the SACCOS	

3 OVERVIEW OF MAIN FINDINGS AND IMPLICATIONS

- Appendix 1 Checklist
- Appendix 2 Project Flyer
- Appendix 3 SWOT analysis of agricultural innovation systems

Appendix 3 Details of SWOT analysis of agricultural innovation systems for adapting to CC&V

STRENGTHS

Strengths (broad category)	Stakeholder groups					
	NGOs	Private	Extension	Village govt	Financial (SACCOS/AMCOS)	Community groups
Availability & appropriateness of seed/ varieties			Competitive system; good varieties with yield, disease drought resistance and grain quality exist.		Seasonal availability of seeds	
Training			Train farmers and Promote Farmers Field schools		Commitment to promoting farmers economic growth	
Land Availability			Land for agriculture and livestock		Suitable land for agricultural practices	
Research Institutes			Zonal centre coordinating 5 Research Institutes in crop research			
Human Resource	Diversity of manpower (researchers, lecturers, farmers, Qualified				Transparent and fair	

	professionals in agriculture etc).					
Willing Community	Engages varieties of staff and Willingness of communities to learn and practice new idea				Active members	
Good working relationship with Farmers and other stakeholders	Good working relationship with other NGOs, research institutes, District council, department of agriculture and private sectors to get more innovations		Good working relationship with communities and other stakeholders		Good Relations with farmers and Good working relationship with district cooperative officer	
Fund availability					Providing renting and saving facilities to members.	
Network	Network of all districts					
Infrastructure	The use of mobile phone for communication					

WEAKNESSES

Weaknesses (broad category)	Stakeholder group					
	NGOs	Private	Extension	Village govt	Financial	Community groups
Perceptions, knowledge and practices			Difficulties in disseminating and implementing good agricultural practices due to lack of research based practices in our areas		Lack of knowledge on climate change and variability and difficulties in understanding weather forecast information	
Human resources	Limited man power (only 20 % of core staff are on permanent terms) others are volunteers and lack of staff at village levels		Shortage of expertise we lack breeding, socio economic and farming system expertise.		lack skilled manpower (Experts are few and have low education)	
Infrastructure	Lack of means of transport to the villages		Lack of means of transport to the villages		Lack of means of transport to the villages	
Policy	Negative mindset of Government on the role of NGOs		Policy District Council allocate limited budget for research and training			
Agro climatic information	Little awareness on climate change issues because of weak linked with partners		Lack of zonal integration /linkages and lack of reliable climatic information so its hard to advise farmers on type of		Inadequate knowledge on climate change and variability	

			crops to be grown during rain season			
Demand for agricultural inputs			Agricultural implements are very expensive (40,000/= per bag of fertilizers) and no subsidy from government. Seeds cost 1000/kg which is quite high for farmers, Most farmers will just pick whatever seeds are available because of lack of funds		Difficulties in accessing inputs due to high price and transport costs and no direct support from the government	
Finance	Lack of sustainable financing and low retention due to limited resources		Lack of capital We mainly depend on the government and occasional donors bringing farmers for training. When the government fails to bring in money for training then we also stuck.			
Shortage Land					Land area is till inadequate though there is a promise by government to expand	
Transport			Lack/ shortage of transport to staff			

OPPORTUNITIES

	Stakeholder groups					
Opportunities (broad categories)	NGOs	Private	Extension	Village govt	Financial	Community groups
Productivity					The productivity of maize, groundnuts, sunflower is increasing in the area	
Training	Participating workshops and training with other stakeholders		Participating workshops and training with other stakeholders in agriculture sector			
Human resources	Good management, situation is quite open and we can approach anybody		The expertise available at the Institute is still required due to changing climate		Many clients requiring joining SACCOS and Customers are increasing even those from Kenya	
Willing community	Stakeholders are ready to cooperate					
Research	Presence of a network of several research centres /expertise		Research is still relevant in the wake of the current climate change			
Network	Network Exchange of information		Climate change is impacting all sectors so interventions needed		Work close with government to ensure compliance	

THREATS

	Stakeholder groups					
Threats (broad categories)	NGOs	Private	Extension	Village govt	Financial	Community groups
Government policy and support	Donor dependence has no continuous because of donor and policy changes by donors.		Government allocate low budget for agricultural sector		Political interference negatively influence performance for instance shifted from one ministry to the other, and delay for compensating the communities	
Finance	Lack of sustainability on the sources of financial resources		Little budget is allocated to agriculture sector, Institute depends on donors			
Human resources	Lack of adequate skilled permanent staff		Experts ran away for better pastures /research is not rewarded			
Input supply	Inputs are sold at very high prices which farmers cannot afford		Inputs are sold at very high prices which farmers cannot afford			
Infrastructure	Lack of transport		Lack of transport		Limited marketing areas (cannot accommodate the influx of all crops brought in so small parallel markets emerge outside the market.	
Climate change & variability	Lack of reliable information of weather and education adaptation to climate change and variability		Lack of reliable information of weather and education adaptation to climate change and variability		Lack of reliable information of weather and education on adaptation to climate change and variability	
Low capacity (Poverty)	Private sector can have a narrow view of maximizing profits and sacrifice long-term perspectives					
Poor technology			Low agricultural technology which results in low production			

Appendix 4 How would stakeholders like to be involved in improving agricultural innovation systems?

Detailed feedback from each stakeholder consulted of how they would like to be involved.

S/NO	STAKEHOLDER	INVOLVEMENT IN IMPROVING AGRICULTURAL
1	DONET	Involve in promotion of environmental conservation in Dodoma
2	RLDC	Participate in joint research within the area of work
3	AFNET- ANTI FEMALE GENITAL MUTILATION NETWORK	To involved in carrying out AFNET activities with CCAA and involved training AFNET fields of specialisation.
4	ARI ILONGA	Involve in research relevant to CC and V in the agricultural sector
5	BIHAWANA FARMERS TRAINING CENTRE	Involve in training of farmers and Field Officers on Climate Change
6	MAKUTOPORA RESEARCH STATION	Participate in participatory Trials, Dissemination facilities and Enhance professional linkages
7	WILUNZE SACCOS IN CHIBELELA	Involve in training along the SACCOS, study tour and information exchange and in facilitation on SACCOS capital.
8	KIBAIGWA MARKET	Involve in promoting favourable environment for farmers to improve their economies.

Appendix 5 Contact details for stakeholders consulted (Q1)

S/NO	STAKEHOLDER	CONTACT
1	DONET	Mr.Josia Mshunda, Coordinator, DONET, Mobile: 0754 458475/ 026 232 4750 Email: donet95@yahoo.com
2	RLDC	Mr. Nicola, Morganti , Advisor, RLDC Rural Livelihood Development Company, Box 2978 Dodoma, Tel 255 26 232 1455, Fax 255 26 232 1457 E-mail: nmorganti@rldc.co.tz
3	AFNET- ANTI FEMALE GENITAL MUTILATION NETWORK	Mr. Samanyi R. Project Coordinator, TUNAJALI Program Kongwa District Mobile: 0713 624174, Email: afnetdodoma@yahoo.com
4	ARI ILONGA	Dr. Fidelis Myaka, ARI Ilonga, Box 33 kilosa , Tel. 023 262 3358, Mob. 0784 415905 Email: famyaka@yahoo.com or zrc@iwayafrica.com
5	BIHAWANA FARMERS TRAINING CENTRE	Mr. Amiri Moamed Waziri, Principal, Bihawana Farmers Training Centre BOX 877 DODODMA Mobile: 0784 33 56 25, Email: waziriamir@yahoo.com
6	MAKUTOPORA RESEARCH STATION	Mr. George Budotele, Makutopora Research Station, Mobile: 0754 816020 Email: vrtcimakutopora@yahoo.com , imrosso@yahoo.com
7	WILUNZE SACCOS IN CHIBELELA	Abihudi Mpanda, Chairman of Wilunze

8	KIBAIGWA MARKET	Mr. Kusekwa N. Dalali , Marketing Manager, Mobile: 786 22 36 03 Email: kibaigwamarkety@yahoo.com
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