Evaluation Report

Climate Change, Agriculture and Poverty Alleviation Project (CCAP)

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ii. Executive Summary

General methodology
A final evaluation of CCAP project was conducted in 6 target villages in Kilosa and Chamwino Districts. Project partners and stakeholders were interviewed to provide key information at national, district and ward levels. Various methodologies were employed by the evaluation team to solicit the necessary information and data presented in this report. Such methodologies included household interviews with small-scale farmers, discussions with special groups, documentary review, observations and interviews with key informants.

Status of progress in project indicators against the baseline situation
The project indicators for the intermediate & immediate objectives and outputs indicate an appreciable positive change compared to the baseline situation. Several evidences were available to validate some positive changes and a good number of them have been recorded in the Section 3.1.

Status of progress markers against the baseline situation
The progress markers describing various attitudes and behaviours of project boundary partners indicate general good positive changes from the baseline situation. The boundary project partners whose attitudes and behaviours were assessed include small-scale farmers, District Officials, MJUMITA and MVIWATA local community networks, elected leaders (members of Village Councils, Ward Councillors), and National Climate Change Steering Committee. Due to the fact that the volume of evidence for achievements in most of the Progress Markers was overwhelming, not all of the evidences cited by the evaluation team are recorded in Section 3.2 of this report. The average levels of achievement in the positive attitudes/behaviours revealed by the evaluation was high **in Expect to See** level for small-scale farmers, MJUIMITA/MVIWATA local networks and District Officials, and between high and medium for NCCSC/NCCTC. The results for **Like to See** for all boundary partners except NCCSC/NCCTC, indicate a mixture between high and medium. The average score for **Love to See** for all except NCCSC/NCCTC was medium. Taking into consideration of the short period of time taken to implement CCAP project, the changes in the progress markers for all except NCCSC/NCCTC are commendable. Much more remained to be done with advocacy at the national level where most of the strategic decisions are made.

Specific Impacts of the C3S agricultural techniques training on farmers
Evaluation results indicate some encouraging achievements in terms of profits realised due to adoption of C3SA techniques by small-scale farmers. For example, 80.0% of maize farmers who were trained realised profits of more than 10.0% as compared to 44.7% of non-trained farmers who realised the same levels of profit. More evidences for the good achievements with C3SA techniques, including yield per acre and incomes are recorded in the main report sections of the report.

Quality and Relevance of the Project Design
The project was well designed through participatory methodologies and focused on addressing the key problems that affected the small-scale farmers in the project areas. The project was an innovative in the sense that it pulled 5 civil society organisations with different but complementary expertise into a consortium with the aim of forging stronger links among themselves and eventually be able to address the problems of small-scale farmers in a more comprehensive manner.

While the project monitoring and evaluation plan contained an exhaustive list of progress markers, it lacked SMART indicators, especially those needed to measure the impact of the climate smart agricultural techniques adopted by small-scale farmers.

Efficiency (Levels of Resources Use and Value for Money)
Generally, the resources (financial, human, and materials) committed for the project implementation were used efficiently for the benefit of the target communities (villages). The overall budget allocation for the project committed by DFID-AcT was USD 1,540,000 of which 1,263,170.20 was already disbursed and received by CCAP. Taking into consideration of the level of implementation of planned activities and the results revealed by this evaluation, it is worth declaring that the project funds were efficiently used to realise the envisaged results presented and discussed in this report.

Effectiveness in Achieving Objectives, Outcomes and Goal
The project implementation was effective in achieving the objectives and goal. This fact is evidenced by the project activities implemented in terms of providing training on C3SA to farmers and change agents and provision of material support by the Local Government Authorities like industrial fertilizer and improved maize and sorghum seeds. As a result of the support, small-scale farmers acknowledged to have improved their livelihoods through the income and profits realised from sales of their crops produced through application of climate smart agricultural techniques.

Project Impact
The project goal was to contribute to the reduction of poverty amongst small-scale farmers in Tanzania and greenhouse gas emissions from agriculture through the widespread adoption of climate resilient, low emission agricultural practices. Despite that no baseline information was available to enable the evaluation team to gauge the actual changes in the incomes, profits and capacities to meet their basic needs, some of the small-scale farmers acknowledged to have reduced their levels of poverty. While the evaluation team attempted to determine the early signs towards achieving the project impact in terms of reducing poverty among the Small-scale farmers, tracing changes in the levels of carbon emissions was even not attempted. An analysis for project impact is further discussed in other sections of this report.

Sustainability
Discussions with District Commissioners, Councillors, DAICO, Ward Agricultural Officers and Village Councils revealed their commitment to sustain the project operations beyond its lifespan. The evaluation team is of the opinion that, considering the real capacity of most District Councils in Tanzania, it is hard to foresee and quantify stakeholders' future resources commitment in these on-going C3S new farming systems. On the other hand, most of the surveyed small-scale farmers expressed their endeavour to continue adopting the climate-smart agricultural techniques and skills acquired during the project implementation. However, despite the achievements realised from the capacity building training supported by the project, there is a great need to continue strengthening capacities of local communities and leaders on their ability to oversee, manage, maintain, protect and sustain the project achievements and future long-term strategies.

Sex of respondents
Out of 210 respondents involved in the small-scale farmers' survey 47.6% were male while 52.4% were female. In terms of the individual Districts, Kilosa had 44.6% female and 55.4%

male respondents while Chamwino District had 59.6% female and 40.4% male respondents. Despite that the evaluation intended to ensure a balanced participation between the two sexes, women were generally more responsive to the evaluation than men.

Education level of respondents

While results of this study indicate that 84.8% of male and 84.7% female respondents completed the universal primary school education (UPE), the 2010 TDHS reported that 69.9% male and 63.2% female either completed UPE or achieved some level of primary education. The evaluation results also indicate that 4.0% of male and 9.9% female respondents never attended school as compared to 33.0% males and 40.0% females reported by the 2010 TDHS for Dodoma region. However, the national average statistics of the 2010 TDHS indicate that 18.0% males and 27% female never attended school.

Knowledge, awareness and experience on climate change

The evaluation results indicate a general improvement in knowledge, awareness on climate change. Example, 82.9% of the surveyed small-scale farmers reported to have heard about climate change of which, 92.0% of them were males and 74.5% were females. On the hand, the proportions of MVIWATA members who acknowledged to have heard about climate change increased from 84.0% reported by the baseline to 100.0% and that of MJUMITA members increased from 75.0% to 100.0%, respectively.

Main climate changes experienced by farmers in the project area

When asked about the climate changes they actually experienced in their respective areas, 37.2% of respondents mentioned increased temperature, 67.9% drought, 19.7% floods, 3.3% changes in rainfall pattern & pests outbreak, and 10.0% had not experienced any climate change. The 10.0% of respondents who reported to have not experienced any climate change could be those born in the late 1990s when the current climatic conditions were not evident.

Knowledge on the causes of climate change among small-scale farmers

72.7% of surveyed small-scale farmers associated the climate change with deforestation, 20.3% gas emissions from vehicles and aeroplanes & power generators, 21.2% industrial wastes, 9.0% pollution from agricultural chemicals and 6.7% others. Further analysis of the results revealed that small-scale farmers in Chamwino were more aware (78.0%) of deforestation as a contributing factor to climate change as compared to 67.0% of those in Kilosa District. MJUMITA as an example of community network its members' knowledge on deforestation improved from 54.0% recorded by the baseline to 95.0%

Knowledge and use of climate smart small-scale agricultural techniques

The evaluation results show that 86.6% of the 209 surveyed farmers had heard about climate smart small-scale agricultural practices and that 74.6% were knowledgeable about the same. An analysis of the group discussion responses indicate that the proportion of MJUMITA members who heard about C3S increased from 70.0% recorded by the baseline to 100.0% and that of MVIWATA increased from 63.0% to 100.0%, respectively.

Farmers trained in C3S/REDD and participated in knowledge dissemination

47.4% of the small-scale farmers surveyed were trained on climate smart small-scale agriculture and adaptation to climate change. A further analysis of the results indicate that the proportion of respondents trained in C3S agriculture increased from 10.0% reported by the project baseline to 42.0% for Kilosa and from 0.0% reported by the baseline to 52.3% for Chamwino District.

Information on the improvement of resilience to climate change
The evaluation results indicate that the proportion of small-scale farmers who received practical information for climate change resilience improved from 17.0% recorded by the baseline in 2013 to 59.4% for Kilosa District villages and from 20.0% to 76.1% for Chamwino District.

Engagement of small-scale farmers in MVIWATA and MJUMITA networks
The evaluation results show that 25.8% and 26.2% of surveyed small-scale farmers were engaged with MVIWATA or MJUMITA local networks, respectively. MVIWATA was involved in demanding C3S agriculture, community oriented REDD, NRM through media, meetings increased from 11.0% reported by the baseline to 80.0%, and that of MJUMITA increased from 20.0% to 75.0%, respectively.

Type of Cooking Fuel Used by Small-scale farmers
The main fuel for both Kilosa and Chamwino communities was wood which accounted for 93.8% of the surveyed households. This finding is comparable with the 98.7% households using fuel wood and charcoal reported by the 2010 TDHS for this indicator. Nearly half (48.6%) of the surveyed households used energy saving stoves and that 69.9% did not cut trees in the past 3 years.

Tree planting and cutting by small-scale farmers
62.7% of surveyed small-scale farmers had planted trees within the past 3 years. Locations where the trees were planted included homestead (61.4%), specific portion of land (27.9%), and scattered across the farmland (10.7%). Comparing the two Districts, the proportion of small-scale farmers who planted trees in Chamwino is higher (83.5%) than of those who planted trees in Kilosa District (40.0%).

Reasons for planting trees by small-scale farmers
Reasons given by small-scale farmers for planting tree household income (15.6%), Fodder and fuel wood (23.1%), construction materials (20.5%), nutrition (45.3%), medicinal (8.9%), increase rainfall (14.3%), soils fertility (8.3%), and 26.2% for shade, boundary, windbreak.

Tree cutting and reasons given by small-scale farmers
30.1% of surveyed farmers reported to have cut trees within the past 3 years. 66.9% of farmers were involved in tree cutting in Chamwino District and 63.2% in Kilosa. Reasons given by farmers for cutting trees include fuel wood (22.0%), selling (3.3%), clearing land for farming (1.9%), and other reasons (2.9%).

Conservation of farm soil fertility and water
Findings of the evaluation indicated that 26.7% of the surveyed households used one or more methods in conserving their farm soil and water. Some of the interesting results about this investigation related to C3S agriculture include the good proportions of farmers who used natural supplements (65.2%) and practiced soil erosion control techniques (54.3%). According to these results, the proportion of small-scale farmers who used natural supplements in Chamwino was higher (78.9%) than for those in Kilosa District (50.5%).

Main agricultural crops grown by small-scale farmers

Types of main crops
The main crops that supported livelihoods of small-scale farmers the most included maize (27.6%), sunflower (24.8%), beans (24.3%), sorghum (14.8%), sesame (5.2%), and groundnut (3.3%).

Farm sizes of main crops
Farm sizes for all 6 crops surveyed ranged from 0.5 to 10.0 acres for maize, 1.0 to 5.0 acres for sorghum, 0.5 to 8.0 acres for beans, 1.0 to 5.0 acres for groundnuts, 10.0 acres for sunflower, and 1.0 to 6.0 for sesame. About 60.0% of the farmland owned by small-scale farmers was less than 2.0 acres.

Crop productivity of main crops
Yields per acre for all crops involved ranged from 1.0 to 10.0 bags for maize, 1.0 to 8.0 bags for sorghum, 0.6 to 10.0 bags for beans, 1.0 to 15 bags for sunflower, 0.5 to 10.0 bags for groundnuts, and 1.0 to 6.0 bags for sesame.

Farmers' incomes from main crops
Results of the evaluation indicate that the highest revenues from the main crops per year/season were TZS 3,500,000 for sunflower, TZS 2,400,000 for both maize and beans, TZS 1,500,000 for groundnuts, TZS 1,200,000 for sesame and TZS 882,000 for sorghum. Further analysis of the farmers' income indicate that 17.0% of sunflower farmers realised the highest range of revenue of TZS 751,000 – 3,500,000 from the crop, 5.2% of the maize farmers realised the highest range of revenue of TZS 1,001,000 – 2,400,000 and 5.7% of bean farmers realised the highest range of revenue of TZS 1,501,000 – 2,400,000. On the other hand, 16.7% of groundnut farmers realised the highest range of revenue of TZS 451,000 – 1,500,000, while 36.3% of sesame farmers realised the highest range of revenue of TZS 451,000 – 1,200,000 and that 3.3% of sorghum farmers realised the highest range of revenue of TZS 601,000 – 882,000.

Profits
Profits from the main crops involved in the C3SA techniques were analysed using Benefits – Costs analysis computations. Main crops involved in cited by the small-scale famers are: Maize, Sunflower, Sorghum, Beans, Groundnuts and Sesame. Very fascinating and promising profits realised by small-scale farmers with the support from CCAP project. For example, cost-benefit analysis indicates that 76.2% of small-scale farmers in both Districts realised profits ranging from 1.0 to 35.0% after selling their maize crop. On the other hand, 23.8% of the farmers involved in the survey sustained losses ranging from 30.0% and 10.0% due to maize production. While with beans crop, evaluation results show that 13.0 % of the small-scale farmers in Kilosa target villages realised losses of 11 to 28%. A further analysis of the results indicates that the smallest proportion (5.6%) of bean farmers in Lunenzi villages suffered from loss and that the largest proportion (50.0%) of farmers in the same village realised the highest range of profit (21.0 – 37.0%). The results also show that 34.8% of the small-scale farmers in three targeted villages of Kilosa scooped profit ranging from 21.0 to 37.0%. Other similar

interesting cost-benefit analysis results for sorghum, groundnuts and sesame are also reported in this report.

Other agricultural components assessed
In addition to the above reported project progress indicators, other various project monitoring indicators were also assessed and analysed, and their statistical status determined and documented in this evaluation report. These indicators include: Trends in yields realised by small-scale farmers; Reasons for yields from main crops not increasing were also analysed; Trends in farmers' incomes realised from main crops; Trends in farmers' profits realised from main crops; Agricultural storage facilities; Agricultural produce value addition practices; Access to Credit and Financial Services; Access to Agricultural Extension Services; Farmers' access to resources from District Councils; Farmers' membership with financial services support associations; and Farmers' Access to Markets, have all been comprehensively assessed, analysed and their current trends and status documented in this evaluation report.

Conclusions and Recommendations

Farmers' knowledge on climate change its impacts and causes
Results on the assessment of knowledge on climate change its impact and causes indicated significant improvements against the baseline levels as presented in Section 3.5.2. Members of MJUMITA and MVIWATA networks demonstrated the highest improvements for all three elements of climate change.

Tree planting
The 4.0% increase in adoption of agroforestry and the 12.2% decrease in forest clearing by small-scale farmers in the project villages is an important result achieved within a short period of 3 years. In order to make this achievement meaningful, the Government and other stakeholders should strive to scale up and replicate the results into other areas with the objective of realising a more significant reduction of the greenhouse gas emissions in the country.

Promotion of energy saving cooking stoves which have not been widely used in the project area, will also enhance the reduction of pressure on the natural forests and saving money for the households. The establishment of wood lots of fast growing tree species like wattles (*Acacia meansii*), *Senna siamea*, *Senna spectabilisi* (*Mijohoro*) should be given priority in order to reduce pressure on the natural forests and maintain the ecological processes. With the invention of natural gas in the country, the Government and other stakeholders should consider coming up with a tangible strategy of promoting of gas as an alternative cooking fuel.

Promotion of environmentally sound Income Generating Activities
The project achieved important outputs that demonstrate positive impacts on the livelihood of the target villages. It is recommended that the Government and other stakeholders work in collaboration to ensure that opportunities for income generation from alternative activities other than those causing deforestation and forest degradation are created. The adoption of climate smart small-scale agricultural techniques by farmers has contributed to the reduction of deforestation, and forest degradation.

Knowledge and Adoption of Climate Smart Agricultural Techniques
Due to the fact that capacity-building training interventions need longer gestation periods for their outcomes to be realised as opposed to physical developments, the CCAP project partners in collaboration with the Government should consider extending their support. It is also

important that the training modules and strategies are revised to commensurate with the contemporary needs of farmers and emerging challenges.

Crop Productivities, Revenues and Profits
The Government and other stakeholders should use the differential productivities in deciding the type of crops to be promoted in particular Districts and villages. For future better results of the crops in terms of ensuring food security and poverty reduction, the use of drought and disease resistant varieties should be emphasized along with adoption of other technically sound climate-smart agronomic practices. Due to the fact that record keeping was a problem with almost all farmers surveyed, the Government (LGAs) and development partners working in the project area should support training on records keeping. With records, community members could easily trace their incomes, profit and loss or other references and increase reliability of the declared information.

Storage facilities
The proportion of households using improved storage practices/facilities (improved granaries/silos, packed in sacks/bags with pesticides) in the project area was less than half (43.0%). The project, Government and other stakeholders should promote improved agricultural storage facilities in the project area.

Access to agricultural extension services
Despite that the proportion of small-scale farmers receiving agricultural extension services was slightly above half (57.1%), there was still a need to strengthen this important service.

Membership to commercial producer groups
The proportion of households with members joining the special groups like VICOBA was still low and needed to be improved through special promotions and campaigns. The project, LGAs and other stakeholders should promote the establishment of VICOBA/SG throughout the project area in order to accelerate sustainable development.

Access to credit and financial services
Although 62.4% of the surveyed farmers reported to be members with community based financial associations or groups, small-scale farmers were not getting enough loans to improve their crop production. The evaluation team revealed that, the existing financial service associations including the traditional self-help groups had poor institutional capacities characterised by low capital base and hence concerted efforts should be employed to strengthen them.

Sustainability Issues
LGAs Participatory process
Although the actual or estimated values of all contributions made to the project by the project were not systematically documented, there was enough evidence given by various evaluation respondents that small-scale farmers received technical and material support from Kilosa and Chamwino LGAs. Due to the fact that the project design was participatory in nature, the partners participated in planning, implementation, monitoring and evaluation. The question remains on whether such support will continue to be sufficient to sustain the CCAP promising innovations without the donor support.

Financial Remarks

The evaluation team reviewed some of the CCAP project financial reports, with confirmation from TFCG Accounts Department and noted that almost six months project budget was not yet to be spent as on 31st December 2014 when the project was supposed to close. Due to failure by partners to spend the money resulted from challenges in operational logistics, the evaluation team recommends a no-cost-extension period of at least six months so that the implementing partners will be able to finalise the pending activities.

Monitoring and Evaluation Indicators
The project monitoring and evaluation plan lacked SMART Indicators, especially those needed to measure the impact of the climate smart agricultural techniques adopted by small-scale farmers. It is therefore recommended that a more comprehensive list of impact indicators should be developed in the form of Indicator Tracking Table for projects similar to CCAP.

Program Extension
Based on the results, conclusions, recommendations and lessons learned discussed in this report, the evaluation team is of the opinion that, another 3 years project phase funding be sought to meet some pending expectations by small-scale farmers and other stakeholders. This will provide more time for TFCG and other partners to empower the local communities and enhance their readiness to take over the project functions, in collaboration with the Government and other local development partners.

Lessons Learned from the Evaluation Process

Capacity Building Interventions as Long Term investments
Capacity building/training interventions are long-term investments in nature as such the realisation of their tangible impacts requires longer gestation periods. For example, adoption of technically sound climate smart small-scale agricultural techniques and other agronomic practices by farmers required a change in the intrinsic behaviours and attitudes of which some are connected to some undesirable traditions and norms which are difficult to break.

Promotion of VICOBA as Pillars of Social Economic Development
Although most of the VICOBA and other self-help groups operating in the project area were still weak, their performance demonstrated the potential to foster social cohesion and the spirit of self-reliance. Efforts should be made by the Government, NGOs and the private sector to strengthen and promote them.

Mapping of Economic Opportunities in the Project Area
In order for the local communities to be able to make the best use of the economic opportunities existing in their localities, a study to collect the necessary information needed to develop a comprehensive analysis of various economic opportunities should be conducted.

iii. Acronyms

AcT	Accountability in Tanzania Programme
ASDP	Agricultural Sector Development Programme
CBO	Community Based Organization
CC	Confidence Coefficient
CCAP	Climate Change, Agriculture and Poverty Alleviation
CI	Confidence Interval
C3S	Climate Smart Small-Scale
C3SA	Climate Smart Small-Scale Agriculture
CSS	Cluster Sampling Scheme
CRMS	Community Resource Mobilization Strategy
DADP	District Agricultural Development Plan
DAICO	District Agriculture, Irrigation and Cooperative Officer
DFID	Department for International Development (UK)
DoE	Department of Environment
ELPS	Employment and Labour Productivity Solutions
EMA-ISP	Environmental Management Act - Implementation Support Programme
ESMF	Earth System Modelling Framework
FAO	Food and Agriculture Organisation of the United Nations
FBO	Faith Based Organization
FGD	Focus Group Discussion
FM	Frequency Modulation
GHG	Green House Gas
HH	Household
IGA	Income Generating Activity
ITT	Indicator Tracking Table
ITV	Independent Television
IUCN	International Union for Conservation of Nature
LED	Local Economic Development
LFA	Logical Framework Analysis
LGAs	Local Government Authorities
M&E	Monitoring and Evaluation
MJUMITA	*Mtandao wa Jamii wa Usimamizi wa Misitu Tanzania*
MOU	Memorandum of Understanding
MVIWATA	*Mtandao wa Vikundi vya Wakulima Tanzania*
N	Sample Size
NAMA	National Appropriate Mitigation Actions
NAPA	National Adaptation Programme
NCCFP	National Climate Change Focal Point
NCCSC	National Climate Change Steering Committee
NCCTC	National Climate Change Technical Committee
NGO	Non-Governmental Organization
NRM	Natural Resource Management
PACC	Project Accountability Committee
PCCB	Prevention and Combating of Corruption Bureau
PM	Progress Markers
PPS	Probability Proportional to Size
QDS	Quality Declared Seeds
REDD	Reducing Emissions from Deforestation and Forest Degradation

ROMA	Rapid Outcome Mapping Approach
RUBADA	Rufiji Basin Development Authority
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SAI	Sustainable Agriculture Intensification
SD	Standard Deviation
SG	Savings Group
SMS	Short Message Service
SPSS	Statistical Package for Social Sciences
TDHS	Tanzania Demographic and Health Survey
TFCG	Tanzania Forest Conservation Group
TOAM	Tanzania Organic Agriculture Movement
TOR	Terms of Reference
TZS	Tanzanian Shillings
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPE	Universal Primary Education
USD	United States of America Dollar
VICOBA	Village Community Banks
VPO	Vice President's Office
VSLAs	Village Savings and Loan Association
WWF	World Wide Fund for Nature

iv. Acknowledgement

ELPS and the entire evaluation team would like to thank all those who in one way or another made this evaluation exercise a success. It will be impossible to mention everyone who contributed to this assignment. However, the following representative list of individuals and institutions is recorded just because without them, this work would have been nearly impossible.

First and foremost, we thank God for giving strength, health, wisdom and knowledge to everyone who participated in supporting and executing this assignment.

Our heartfelt gratitude is due to TFCG leadership on behalf of the CCAP implementing partners TOAM, MJUMITA, MVIWATA and ActionAid together with their project field staff for their logistical support.

ELPS as author of the evaluation report is very grateful for the valuable and constructive comments received from the project partners. The comments are the reasons for the final content of the report which we believe will be very useful for a wide range of the audience.

Our gratitude is also extended to local Government authorities at District, division, ward, village and sub-village levels for their logistical support and permission to conduct the survey in the areas of their jurisdiction.

Our special gratitude is also voted to DFID-AcT Programme for their generous support of financial resources which made the execution of this important assignment possible.

Lastly but not least, ELPS wishes to thank all enumerators for their perseverance and tireless efforts they incurred in the data collection exercise.

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1.0 Introduction and Background

1.1 The Evaluation Design

This report is a product of the final evaluation of CCAP project conducted in the target areas and stakeholders from 30th January to 6th March 2015 by an evaluation team led by two consultants from Employment and Labour Productivity Solutions (ELPS) Limited. The exercise was preceded by development of an inception report which was guided by Evaluation Terms of Reference (TOR) provided by TFCG. Before embarking on the actual data collection exercise, enumerators (research assistants) were trained to equip them with the necessary skills and techniques to be used in the field.

The evaluation assessed and examined implementation, accomplishments and achievements of the CCAP in terms of its 27 months lifespan commenced on 1st October 2012 to 31st December 2014. The Terms of Reference, project document and other project documents were used to guide the identification of key evaluation information needs, methodology, sampling, data collection tools, audiences/data sources, outputs and lessons learnt. A detailed list of timed activities involved in the evaluation process was also developed to provide a clear focus to the evaluation process. The criteria relevance, efficiency, effectiveness, impact, sustainability and project envisaged results were used to design the key evaluation questions used to solicit the required information.

It is expected that the results of this evaluation will inform the project management, development partners, project staff and project beneficiaries about the achievements of the project, lessons learned and challenges faced. The results will also facilitate development of future strategies by stakeholders. In a nutshell, the evaluation determined whether the project remained on track and if its intended objectives were met. Different stakeholders were also involved during preparations of this report and sharing of evaluation findings for validation.

In this report, findings are compared with baseline information, secondary data, TDHS and opinions from different groups to come-up with recommendations on how the generated information can be used to improve performance of other projects or second phase of the same, if any.

1.2 Background

The Climate Change, Agriculture and Poverty Alleviation (CCAP) initiative is a partnership between five civil society organisations with a commitment to improving accountability and with specific experience in agriculture (Action Aid Tanzania and the Tanzania Organic Agriculture Movement) and REDD (TFCG) working with grass-root networks of farmers (MVIWATA) and communities engaged in participatory forest management (MJUMITA). The initiative is an innovative partnership that aims to bridge the gap between NGOs more traditionally focused on forest conservation and those working on agricultural issues. The initiative aims to steer Tanzania towards an agricultural development pathway that achieves the dual goals of poverty reduction and lower greenhouse gas emissions. The project is financed by the Accountability in Tanzania Project. The CCAP initiative was implemented over 27 months from 1st October 2012 to 31st December 2014.

In terms of geographical scope, the project was implemented in two Districts and six villages namely, Kilosa (Lunenzi, Ibingu and Kisongwe) and Chamwino (Mahama, Nzali and Manchali), respectively. However, the advocacy aspect of the project was intended to bring impact at national level.

1.3 The CCAP Theory of Change

The CCAP Theory of change depicts a representation of how the project was expected to lead to the envisaged outcomes and impacts. The theory also has tried to identify the underlying assumptions made with respect to how the change would occur. The theory was examined right from the project conception, planning implementation, monitoring and evaluation, where the inputs in terms of finances, human resources, equipment and materials were also considered (Figure 1.3.1).

The fundamental assumption of the CCAP Theory of Change was that the attitude and behaviour towards climate change and agriculture among the 5 boundary partners would change positively due to the project advocacy, training and other project activities. In the due course of the project implementation, the attitudes and behaviour of the boundary partners changed at various levels, as evidenced by the evaluation results in Section 3.1 and 3.2. It was also assumed that the project would receive a stead funding to ensure timely execution of the planned activities. Based on the project evaluation, the project received a stead funding with some intermittent delays in some of the scheduled funding delivery for reasons discussed in Section 3.4.2. Four strategies were formulated for use through the 5 boundary partners to achieve the envisaged outputs which would lead to achievement of 2 immediate objectives, one intermediate objective and eventually contribute to the goal. Figure 1.3.2 presents a schematic logic model for the project strategies, objectives and goal.

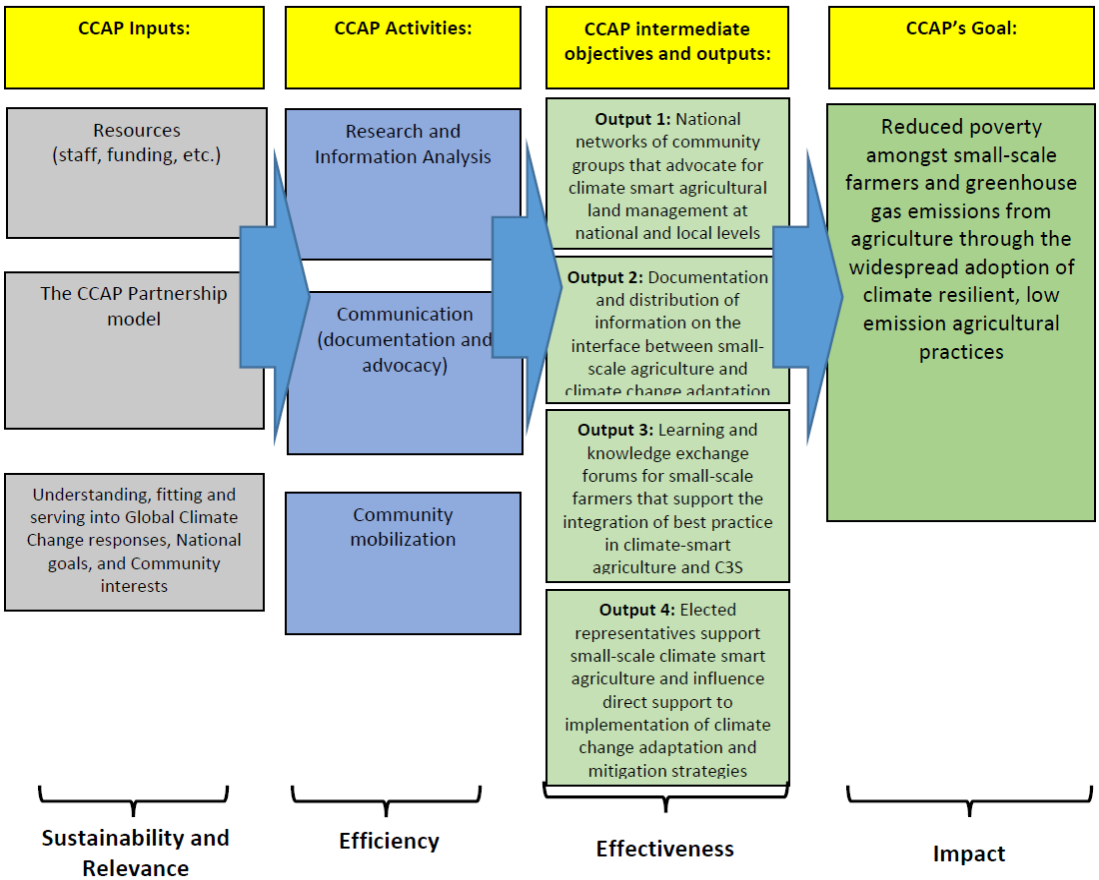


Figure 1.3.1: CCAP Initiative Theory of Change (Adopted from Mid-term evaluation)

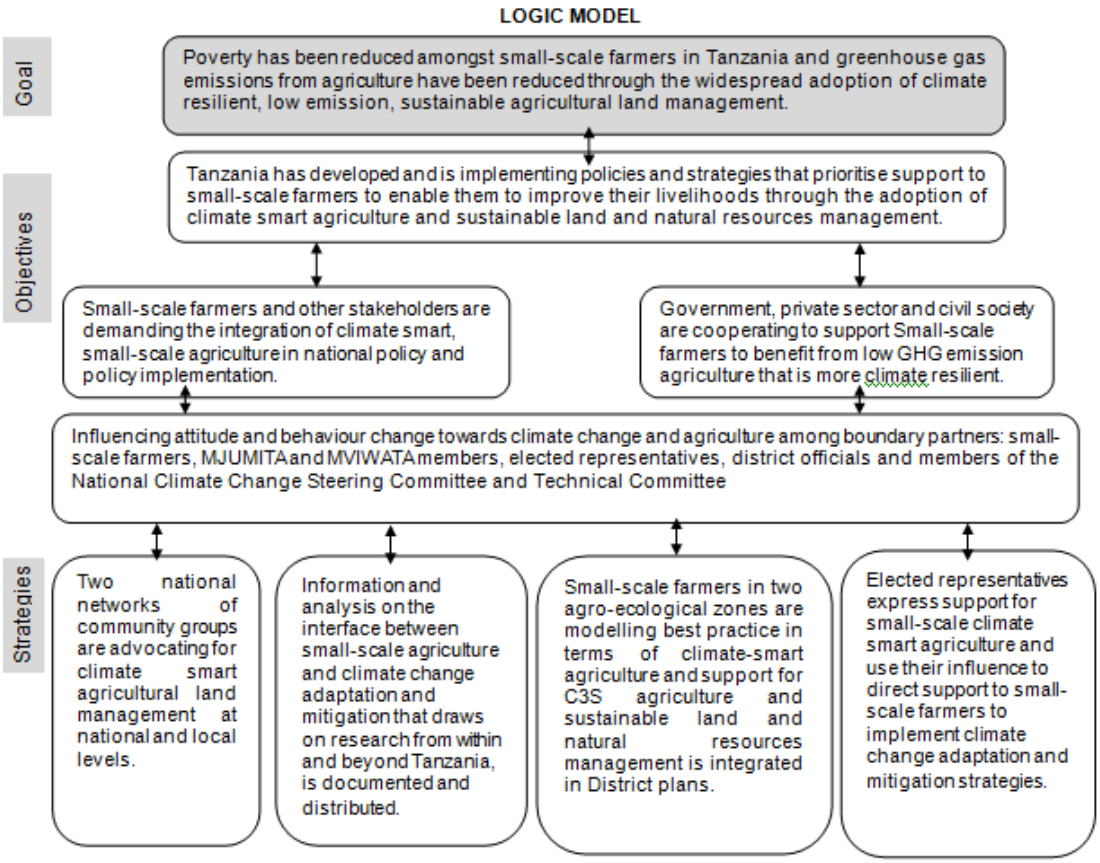


Figure 1.3.2: Project logic model for strategies, objectives and goal (Adopted from project document)

1.4 Project risks

1.4.1 Unfavourable agricultural policies

Agricultural policies and practices that prioritized a shift in investment to more mechanised, fossil fuel dependent, larger scale agriculture were making small-scale farmers poorer and more vulnerable to climate change whilst increasing emissions of GHGs from increased dependence on fossil fuel-based inputs and machinery as well as increased deforestation from displaced small-scale farmers and from new commercial farms.

In order to address this discrepancy, CCAP project envisaged to contribute to the reduction of poverty amongst small-scale farmers in Tanzania and greenhouse gas emissions from agriculture through the widespread adoption of climate resilient, low emission agricultural practices.

The project intermediate objective was to influence Tanzania in developing and implementing policies and strategies that prioritise support to small-scale farmers to enable them to improve their livelihoods through the adoption of climate smart agriculture and sustainable land and natural resources management.

Despite that the project managed to influence a small proportion of small-scale farmers in the 6 project villages who stated to adopt climate smart agricultural practices, Tanzania was still far from realizing the intermediate objective. There was still much to be done at the grass-root, district and national levels as further discussed in this report.

1.4.2 Muffled voices of small-scale farmers

The voices of small-scale farmers, who make the majority of the Tanzanians were muffled and distorted in debates around agriculture in Tanzania resulting in a policy focus oriented towards large, commercial farms risking the nation of entrenching itself on a lose – lose trajectory for climate change adaptation and mitigation in its agriculture sector. This situation posed a significant risk of being impoverished and displaced wile exacerbating conflict over land.

CCAP initiative advocated for alternative approaches to land use and food production that would bring 'wins' in terms of climate change adaptation and mitigation through creation of awareness, accountability and action at community, district and national level. The project through MIWATA and MJUMITA networks and elected leaders at village and ward levels tried to influence the adoption of appropriate land use and food production approaches.

1.4.3 Capacity of District Councils to sustain the project activities and results

In accordance with the 2012 DADPs formulation guidelines, the opportunity for climate smart agricultural techniques to be integrated by the District Councils into the main budget supported by the Central Government is narrowed. Since the District Councils have no reliable sources of income to continue support the newly introduced C3SA techniques, there is a risk for their adoption and diffusion to be severely affected. District councils now have little or no influence over the DADPs contents and implementation strategies or approaches. The revised DADPs profile was mostly based on the priorities of the donor and Ministry. Nevertheless, the billions of money spent on agriculture through DADPs are spread thinly with little impact.

1.4.4 Relatively short period of time invested for the project implementation

Based on the fact that the adoption process is not a one-time event but a process occurring in a sequence of distinct stages as (Beal, Rogers, and Bohlen, 1957), the 27 months of the project implementation could have not been enough for the majority of the trained farmers to adopt the climate smart small-scale agricultural techniques. According to literature from some of the empirical studies, some of the small-scale farmers were still evaluating the innovation or still trying and not yet decided to use the C3S agricultural techniques in a full-scale basis. Immediate and uniform adoption of innovations in agriculture is quite rare. In most cases, adoption behaviour differs across socioeconomic groups and over time. Some innovations have been well received, while other improvements have been adopted by only a very small group of farmers.

1.4.5 Inadequate financial capacity of small-scale farmers

The evaluation results indicate that small-scale farmers realised low levels of income from agricultural production and hence failed to make substantial savings for further investment. This factor contributed to failure by some of the small-sale farmers to adopt the climate smart agricultural techniques, especially those associated with significant additional costs like terracing.

1.4.6 Poor financial credit facilities at the village level

Access to agricultural credits is vital in empowering small-scale farmers to improve their agricultural yields through adoption of climate smart agricultural techniques. Results of the

evaluation indicate very few small-scale farmers (15.2%) were getting credits of any size to improve agricultural production. Furthermore, the evaluation team revealed that the existing financial service associations including the traditional self-help groups had poor institutional capacities. In order to reduce the risks due to lack of credits, capacities of the existing financial associations (SACCOS, VICOBA, & VSLA) should be enhanced through specific capacity building trainings.

1.4.7 Limited size of farmland owned by the small-scale farmers

Most of the surveyed small-scale farmers owned 0.5 – 2 acres farmland. These farmland sizes are likely to limit further investment of profits gained from improved yields as a result of the climate smart agricultural techniques adopted by the small-scale farmers. There are mixed findings in the literature on the influence of landholding size on households' decisions whether or not to adopt new technologies (Kassie et al., 2009; Waithaka et al. 2007; Coady, 1995). However, according to Nani Raut, et al (2011), landholding has a positive and significant relationship with the adoption of agricultural innovations in two different ways. Firstly, the size of the landholding directly influences the amount of cash income that farmers are able to accrue. Secondly, farmers with larger landholding size can more easily bear risks such as crop failure, and can better afford expenditure on farm machinery, by virtue of their higher income.

1.4.8 Poor market linkages

Access to reliable markets is one of the factors known to play influential roles in the adoption of agricultural innovations. According to the evaluation results, 62.8% of the surveyed small-scale farmers sold their produce at low prices to traders at their own village sites. Discussions with Village Councils and individual farmers in Chamwino District revealed that, sorghum farmers were very much discouraged to increase their yields due to poor prices. Capacity building training initiatives should be designed and provided to small-scale farmers in order to be able to identify market opportunities, penetrate the markets and finally make sales of their products.

1.4.9 Poor rural transport Infrastructures

Tanzania rural infrastructures are extremely poor and underdeveloped making it difficult for small-scale farmers to achieve sustainable improvements in their agricultural production. Comparing the two focus project Districts in terms of road infrastructures, small-scale farmers in Kilosa targeted villages had more difficulties in reaching reliable markets at the District headquarters or beyond due to poor roads exacerbated by highland undulating terrain. Taking the case of Lunenzi, the village could not be reached by road and the only means was to walk on foot from the neighbouring Ibingu villages. At regional level, Tanzania compares unfavourably with both SADC and East Africa Sub-region. The Government predominantly provides rural services and infrastructures in the country. Apparently, these are available in only few areas but used by larger and widely scattered populations. This translates to high transaction costs for rural producers. The underdeveloped rural infrastructures and services are ubiquitous; differences between administrative regions are small, except between urban and rural areas – the latter being significantly disadvantaged.

2.0 Methodology and Sampling

The methodology of this evaluation was based on participatory evaluation that covered a combination of qualitative and quantitative methods of data collection and analysis. The evaluation was carried out through interviews to all 6 project villages and various respondents using households' survey, observations and focused group discussion with target groups of 10 to 15 individuals. The FGD involved 12 groups namely: 6 Village Councils, 3 MJUMITA Groups, and 3 MVIWATA Groups. Key informants were also consulted and interviewed at their offices including Director of Environment in Vice-Presidents Office and Chairperson of NCCTC, District Commissioners for each of the 2 focus Districts, 2 District Agricultural Irrigation and Cooperative Officers for Kilosa and Chamwino Districts, Ward Agricultural Officer for Chilonwa. Other key informants consulted include executives or representatives of partner organisations involved in implementing CCAP project including TFCG, Action Aid, MJUMITA, MVIWATA, and TOAM.

2.1 Sampling design and data collection

Sampling procedure for the evaluation involved a combination of both random and purposive sampling to include both trained and untrained farmers, women and men. According to the TOR given, the consultant was required to sample at least one village in each District for interviews with farmers. In order to simulate the baseline methodology, the evaluation team covered all the 6 project villages. The numbers of farmers interviewed in Kilosa District are 28 for Kisongwe, 35 for Ibingu, and 40 for Lunenzi. Farmers interviewed in Chamwino included 40 for Mahama, 40 for Manchali and 40 for Nzali.

Recording of crop yields and standardisation to 100kgs

Due to the fact that the bags of agricultural produce reported by the small scale-farmers had variable weights depending on the type of crops under consideration, their weights were standardised to 100kgs by using relative factors. The factors were generated from the common weights for bags of agricultural produce reported by the farmers and the 100kg used in the report. The factors developed and used are 0.9 (maize), 0.7 (unshelled groundnut), 1.0 (beans), 1.0 (sorghum), 1.0 (sesame), and 0.7 (sunflower). The standardisation of bag-weights to 100kgs was also necessary to facilitate comparisons with yields from Districts' records which were given in tones/ha.

2.2 Data analysis

Quantitative data was analysed using the SPSS and MS Excel software. After entering the data into the appropriate software, they were cleaned to ensure no wrong entries that could interfere with the analysis and consequently affect quality of the information sought. The qualitative data were analysed by reduction and quantification.

2.3 Stakeholders Debriefing Meeting

A one-day stakeholders' feedback workshop was held today to discuss the findings. The objective of this meeting was to give an opportunity for the stakeholders and the consultant to meditate the preliminary findings and provide inputs/comments for the final report.

2.4 Presentation of Findings, Conclusions and Recommendations

In order to determine the specific impact of the project to the primary beneficiaries, the small-scale farmers have been disaggregate into those directly trained by CCAP project and those did not participate into the training and their performance has been compared in terms of crop productivities, incomes and profits. The initial idea to compare the performance between those who practiced the 15 individual C3S agricultural techniques and those who did not was not

technically feasible. Due to the fact that the performance of farmers recorded by this study was a product of interactions between several C3S agricultural techniques adopted by the individual farmers, attributing a single C3SA technique to the entire farmer's yield, income or profit would be technically inappropriate.

This report presents the evaluation findings, conclusions and recommendations for further actions. In order to provide the audience with an analysis of the evaluation situation, the findings are discussed in the light of the baseline information, mid-term review findings and other national findings reported by others on the same.

2.5 Limitations

The implementation of this assignment was not without limitations which necessitated the evaluation team to employ some extra efforts and time resource. Most of the small-scale farmers were unable to provide direct answers on agricultural data as they did not have readily available records on the costs involved in crop production, incomes and profits/losses realised. Some of the small-scale farmers demanded to be paid for their participation in the evaluation. Due to this situation the number of small-scale farmers interviewed in some of the villages was less than 40.

The evaluation team had some difficulties in getting some of the data from the District Agriculture, Irrigation and Cooperatives Officers as some of these data were received one day before the reporting deadline. Due to this reason, the data from the Districts might have not been thoroughly synthesised in the report. These data were also not included in the preliminary findings presented during the partners' debriefing meeting.

The project monitoring and evaluation plan had no clear indicators, especially those needed to measure the impact of the climate smart agricultural techniques adopted by small-scale farmers. This discrepancy is also reflected in the baseline report which lacked important indicators the evaluation team would have used to capture clear differences in the crop yields, incomes and profits realised or losses sustained by the small-scale farmers.

Despite the above-described limitations, the evaluation team spent quality time and managed to maintain a standard implementation of this important exercise. There is no doubt therefore, that the final output of the evaluation process is reliable and within the envisaged objectives.

3.0 Evaluation Results

The following is an analysis of key findings revealed by the evaluation team through the farmers' household interviews, group discussions, documentary review, observations and interviews with key informants. The findings are also discussed in the light of the 2012 baseline records, project document, technical progress reports, mid-term review findings and other national findings on the same indicators. The program strived to work towards steering Tanzania towards an agricultural development pathway that achieves the dual goals of poverty reduction and lower greenhouse gas emissions. In order to give the report a logical structure the evaluation results have been presented in five parts namely, (i) Status of Progress in Project Indicators Against the Baseline Situation, (ii) Status of Progress Markers Against the Baseline Situation, (iii) Specific Impact of the C3S Agricultural Techniques Training on Small-scale farmers, (iv) Project Design, Efficiency, Effectiveness, Impact and Sustainability Analyses, and (v) General Results

Notice for analysis of Indicators and Progress Markers in Sections 3.1 and 3.2:
Because the volume of evidence for achievement in some of the Indicators and Progress Markers was overwhelming, the authors of this report have simply attempted to include representative evidences rather than to present an exhaustive list of the same.

3.1 (a) Summary analysis of comparisons between baseline and end-line

Generally, the evaluation results indicate that most of the project indicators recorded a certain magnitude of positive change against the baselines. A number of indicators showed declining trends due to several possible reasons including fluctuating weather conditions and the relatively shorter period for implementation of the project. In terms of climate smart agricultural techniques, the adoption of one technique could limit the adoption of the other. For example, the decrease in crop rotation from 45.0% to 10.9% reported by Kilosa farmers could have been due to expansion of agricultural production which limited the areas for rotation and fallowing. The following is a discussion of progress made by the various indicators against the baselines:-

Literacy levels among respondent small-scale farmers
Apart from other demographic information, the evaluation team also recorded the highest level of education the respondents achieved. The results indicate that the proportions of respondents who completed primary education were 85.3% for Chamwino and 84.2% for Kilosa District. The proportions of respondents who completed secondary education were 10.1% for Chamwino and 5.9% for Kilosa District. The proportions of those who didn't go to school were 4.6% for Chamwino and 9.9% for Kilosa District (Table 3.5.1.1).

Support for C3S agriculture from the District Council
The extent to which Village Councils received support for C3S agriculture from the District Council increased from 30.0% to 50.0% for Kilosa District; and from 25% to 60.0% for Chamwino District (Table 3.2.11). On the other hand, the proportion of small-scale farmers received support for C3SA from District Councils increased from 2% recorded by the baseline to 29% for Kilosa while the proportion of farmers who reported to have received support for C3SA from Chamwino District Council declined from 32% recorded by the baseline to 1.8% (Table 3.5.12.1). This decline is attributed to the farmers' perception that a declaration of the support already receive could discourage further support from development partners.

Adoption of C3S agriculture by small-scale farmers

Results of the assessment on the adoption of climate smart small-scale agricultural practices by small-scale farmers were promising to some of the C3SA practices. For instance, a commendable improvement was noted in Kilosa district for 4 C3SA practices: use of terrace improved from 3.0% to 50.5%, cover crops from 5.0% to 53.5%, use of fertilizers from 0.0% to 36.0% and use of mulching from 8.0% to 35.6% (Table 3.5.3.2). Similarly, the adoption of climate-smart small-scale agriculture practices by Chamwino farmers recorded both good and poor performance. For instance, adoption of early maturing seeds (from 18.0 to 36.1%), traditional irrigation (from 0.0 to 13.9%), terracing (from 5.0 to 15.9%), use of cover crops (from 3.0 to 39.1%), minimum tillage (from 18.0 to 21.3%), use of fertilizers (from 38.0 to 66.1%) and use of mulching (from 18.0 to 32.1%) performed well while the use of drought resistant varieties, crop rotation, land fallowing, weed control and forest clearance for agriculture perform poorly.

Access to practical information for climate change resilience

Results of the assessment on access to practical information for climate change resilience indicate tremendous improvement against the baselines. The proportion of small-scale farmers who received practical information for climate change resilience increased from 17.0% to 59.4% for Kilosa district and from 20.0% to 76.1% for Chamwino district (Table 3.5.5.1).

Small-scale farmers involved in training other villagers

The proportion of farmers who built capacity of other farmers in other villages on C3S, REDD and NRM increased from 18.3% to 39.6% for men and from 6.7% to 23.1% for women (Table 3.5.4.1).

Participation of small-scale farmers in C3S and REDD training

Training in C3S and REDD was assessed among small-scale farmers. Results of the assessment revealed that the proportion of farmers participated in C3S training increased from 10% to 42% for Kilosa district and from 0.0% to 52.3% for Chamwino district. While the proportion of small-scale farmers participated in REDD training for Kilosa district increased from 8.34% to 63.4%, the proportion of small-scale farmers participated REDD training decreased from 8.34% to 0.9% for Chamwino district (Table 3.5.4.2).

Levels of awareness on climate change

The awareness on climate change among MJUMITA and MVIWATA network members and small-scale farmers was also assessed. Results of the evaluation indicate that the level of awareness on climate change among the members of MJUMITA and MVIWATA networks increased to 100% compared to the baseline records of 75% and 84%, respectively. On the other hand, the evaluation results indicate that the small-scale farmers' awareness on climate change was 82.9% but no baseline information was available to make comparison (Table 3.2.2).

Levels on knowledge on climate change definition

Regarding the climate change definition, members of the MJUMITA local network defined climate change as prolonged drought and reduced rainfall at the start of the project. The evaluation results indicate that that the MJUMITA members improved their definitions of climate change to include changes in temperature, changes in wind pattern, changes in clouds pattern and changes in forest condition (Table 3.2.2). MVIWATA networks members defined climate change with four parameters at the start of the project: Prolonged drought, educed rainfall, change of forest condition and change in wind. At the end of the project, MVIWATA network members improved their definitions of climate change to include changes in clouds pattern and changes in temperature (Table 3.2.3).

Knowledge on the causes of climate change
Results of the evaluation indicate that the levels of knowledge on causes of climate change were more or less the same for both MJUMITA and MVIWATA networks members. The levels of knowledge demonstrated during the baseline survey for deforestation, pollution from uncontrolled burning, pollution from agricultural activities, pollution from power generation and pollution from waste were significantly improved based on the evaluation responses for both MJUMITA and MVIWATA networks members. For example, the maximum level of knowledge among MJUMITA members was 54.0% for baseline and 94.6% for the evaluation while the maximum level of knowledge among MVIWATA members was 45.0% for baseline and 89.2% for evaluation (Table 3.2.4 and Table 3.2.5).

Despite the absence of baseline data to ascertain progress, the evaluation results indicate that small-scale farmers were appreciably knowledgeable on causes of climate change. For example, 72.7% of surveyed small-scale famers mentioned deforestation as the main cause of climate change, followed by industrial waste (21.2%), vehicles and airplanes emissions (11.1%), power generators (9.2%) and pollution from agricultural chemicals as minimum (9.0%). More details are presented by Table 3.5.2.6.

Knowledge on the impacts of climate change
Similarly, the evaluation results indicate that small-scale farmers were appreciably knowledgeable on impacts of climate change despite the absence of baseline data to ascertain progress. For example, 74.8% of surveyed small-scale farmers mentioned drought as the greatest impact of climate change in their localities (Table 3.5.2.3).

Results of the evaluation indicate that the levels of knowledge on the impacts of climate change for both MJUMITA and MVIWATA networks members show an increase against the baseline levels. For example, the baseline levels of knowledge demonstrated by MJUMITA network members ranged from 3.0% to 43.0% while that of MVIWATA network members ranged from 17.0% to 31.0%. On the other hand, the levels of knowledge on the impacts of climate change demonstrated during the evaluation ranged from 21.6% to 83.8% for MJUMITA and from 29.7% to 83.8% for MVIWATA (Table 3.2.8 and Table 3.2.9).

Awareness on climate smart small-scale agriculture
An assessment was conducted to reveal the levels of awareness on climate change and C3SA among MJUMITA and MVIWATA network members and small-scale farmers. Results of the evaluation indicate that the levels of awareness on C3SA among members of the two networks improved to 100% from 70% and 63% baselines for MJUMITA and MVIWATA, respectively.

Information sharing among small-scale farmers
Results of the assessment on the level of information sharing among small-scale farmers revealed an impressive progress against the baseline situation. For instance, the proportion of farmers built capacity of other farmers in other villages on C3S, REDD and NRM increased from 18.3% to 39.6% for men and from 6.7% to 23.1% for women (Table 3.5.4.1). The evaluation results further revealed that 30.9 % of small-scale famers shared information on climate change and C3S agriculture with others (Table 3.5.4.2). The information sharing practice by the farmers is a crucial element for ensuring sustainability of the project results.

Information sharing and demand/advocacy for C3S agriculture
Further assessment was done to find out how network members shared information and demanded for advocacy. Results of the assessment show improvements on both information sharing and advocacy demand. The level of information sharing on climate change and C3S among MJUMITA members improved to 94.6% compared to the baseline of 65%. Similarly, the level of information sharing on climate change and C3S among MVIWATA members improved tremendously to 70.3% compared to the baseline of 5.0% (Table 3.2.10). Both MJUMITA and MVIWATA networks increased their demand for supporting C3S agriculture, community oriented REDD, and NRM through media and meetings to 75.7% and 81.1% as compared to the baselines of 20% and 11%, respectively (Table 3.2.10).

Knowledge on climate smart small-scale agriculture
The evaluation results revealed close similarities on how members of the MJUMITA and MVIWATA community networks described climate smart small-scale agriculture (C3SA) at the beginning and end of the project. While very few members of both networks managed to describe various C3SA practices at the onset of the project ranging from minimum 3% to maximum 24%, more members of the two networks were able to describe confidently the various C3SA agricultural practices during the evaluation ranging from minimum of 35.1% to maximum of 81.1% for MJUMITA (Table 3.2.6) and minimum of 10.8%% to maximum of 89.2% for MVIWATA (Table 3.2.7).

3.1 (b) Status of Progress in Project Indicators Against the Baseline

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
Intermediate objective: *Tanzania has developed and is implementing policies and strategies that prioritise support to small-scale farmers to enable them to improve their livelihoods through the adoption of climate smart agriculture and sustainable land and natural resources management.*		
Intermediate Objective Indicator 1: Districts are receiving and distributing resources to support small-scale farmers to adopt more climate smart agriculture.	Currently both Districts receive and provide support to small-scale farmers through their DADP budget from the government and from the private sector. Support includes: provision of drought resistant seeds and fertilizers. Less support has been directed to supporting farmers to adopt C3S agriculture practices.	Both Kilosa and Chamwino Districts were committed to supporting small-scale farmers to adopt more climate smart agriculture. This commitment was demonstrated by the increase in budgets allocated to support the small-scale farmers. For example, in the budget for financial year 2014/15, Kilosa District allocated TZS 400 million to support agricultural interventions. This increase in the budget followed a successful completion of the pilot project worth TZS 40 million which was implemented last year to support small-scale farmers on C3S agriculture in 30 villages using the family farming approach. The up-scaled project focused on promoting C3S agricultural techniques including use of improved inputs, water harvesting techniques and conservation of soil fertility. Chamwino District Council had committed to use 10 – 20 % of their internal revenue (from crop cess) to support C3S agriculture. In the past, the District was 100% dependent on the Central Government and donors for its budget to support agriculture. The

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
		District also produced Quality Declared Seeds (QDS) grade that would be sold to farmers at a subsidized price. These seeds include: 24 tonnes of sorghum (Wahi variety), 16 tonnes of sunflower (record variety) and 2 tonnes of sesame (Lindi 02 variety). In addition, in order to increase farmers' access to quality seeds, the District had distributed sorghum seeds (12 kg/village) to 11 villages (including the 3 project villages) for producing second generation QDS seeds. The farmers would keep and use the 2nd generation seeds. By providing the 1st generation seeds, the District would help farmers to use quality seeds including varieties intended to increase resilience to climate change.
Immediate Objective 1: *Small-scale farmers and other stakeholders are demanding the integration of climate smart, small-scale agriculture and sustainable land and natural resources management in national policy and policy implementation.*		
Immediate Objective 1 Indicator 1: MJUMITA and MVIWATA Networks make demands at local, national and international level through media and meetings for increased support for C3S agriculture and improved natural resources governance.	MJUMITA and MVIWATA have made demands for increased support for C3S agriculture through meetings, especially during annual general meetings, where journalists are welcomed. Information from the meetings is believed to be communicated back to the local and general public by those media. Neither network has organised more deliberate media campaigns on C3S agriculture.	MJUMITA and MVIWATA Networks have made more demands at both local and national level through media and meetings for increased support for C3S agriculture and improved natural resources governance. The level of demands increased to 75.7% from 20.0% and to 81.1% from 11.1% recorded by the baseline survey for MJUMITA and MVIWATA, respectively (Table 3.2.10). As an example, during a joint meeting held on 13/11/14 with the Agriculture, Livestock and Water Parliamentary Committee; and the Land, Natural Resources and Environment Parliamentary Committee, MJUMITA and MVIWATA members highlighted the need for more support to be provided to small-scale farmers in terms of improved infrastructure; and improved access to capital and markets. Issues discussed during that meeting were broadcasted through ITV, Radio One and Dodoma FM; and an article related to this event was published in the Guardian newspaper. At local level, examples of the two networks making joint demands for more support for C3S agriculture include cooperation between MJUMITA network members and the MVIWATA network members from Lumuma Ward, Kilosa District during the launch of a new MVIWATA network. During the launch members from both networks asked the District to support village agriculture development plans that include scaling up Climate Smart Small-scale Agricultural techniques. The linkages between the two networks were strengthened in order to promote a more unified and targeted community voice. Both networks through their MJUMITA and MVIWATA Board Members

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
		participated in joint meetings with representatives from the Ministry of Food, Agriculture and Cooperation, Tanzania Forest Services agency, Ward councillors from Kilosa and Chamwino and journalists. During stakeholders meeting held in Dar to share DADPs findings with high authorities, MJUMITA chairperson pointed out that a total of 400,000ha of forest are lost every year and the major causes is shifting cultivation. He therefore called upon the government and private sector to support any initiatives that aim at promoting sustainable agriculture such as C3S agriculture techniques. Board member and representative of MVIWATA in the lake zone, Mr Projestus Mwakanyoro visited Muleba District office seeking for district support to C3S techniques as a way of scaling up project initiatives. However the district responded that it was difficult for the Government to implement activities outside of their plan rather they are ready to provide technical support whenever funds were available.
Immediate objective 2: *Government, private sector and civil society are cooperating to support Small-scale farmers to benefit from climate smart agriculture and sustainable land and natural resources management.*		
Immediate Objective 2 Indicator 1: Two Districts demonstrate multi-stakeholder coordination in support of C3S agriculture.	Both Kilosa and Chamwino Districts are currently involving different stakeholders; especially in agricultural activities planning. This has been done through District agriculture stakeholder meetings. Both Districts are collaborating with the private sector and there is one example of this linking to strategies aimed at increasing resilience to climate change.	Kilosa and Chamwino Districts Government Authorities were increasingly becoming proactive in promoting multi-stakeholder coordination in support of C3S agriculture. For example, Kilosa District Council involved multiple stakeholders in the preparation of its 2015 – 20 agricultural strategy and development plan. Participants included livestock keepers, private sector, CSOs and farmers associations. The District invited the CCAP project team to present their experiences in promoting C3S agriculture techniques. Kilosa District also worked with the project to organise a study visit for 24 (8 women) Ward and Village agricultural officers to visit one of the project villages, Ibingu, in order to learn more about C3SA and thereby build the capacity of the local Government staff to implementing the District's annual plan effectively as outlined under Outcome Indicator 1.1. In Chamwino, the District Council had been actively supporting communities and the project including taking more action to enforce the Environment Act in order to protect water sources.
Output 1: *Two national networks of community groups are advocating for climate smart agricultural land management at national and local levels.*		
Output Indicator 1.1:	MJUMITA strategic plan does	The MVIWATA advocacy strategy, finalised in

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
MJUMITA and MVIWATA institutional strategies integrate small-scale farmers and climate change mitigation and adaptation.	not currently state explicit support for small-scale farmers. The plan does state a commitment to integrate communities living adjacent to forest reserves to fully participate and equitably benefit from forest management. In terms of climate change, the MJUMITA strategy focuses on assisting communities to engage in REDD. The MVIWATA strategic plan integrates small-scale farmers through lobbying and advocacy for their rights and by helping them to access improved value chains (markets). To integrate climate change, mitigation and adaptation, the plan envisages mainstreaming climate change in MVIWATA programmes and creating adequate awareness to members. Details on how communities will be helped to mitigate and adapt to climate change are not specified.	January 2015, prioritises advocacy for increased support for C3S Agriculture in ways that benefit small-scale farmers whilst simultaneously addressing climate change adaptation and mitigation. A key priority for the strategy was to scale up the lessons learnt from Kilosa to other Districts starting with Ludewa and Kyela Districts. MJUMITA planned to review their organisational strategy in 2015 and it was their plan to integrate climate smart Small-scale agriculture whilst continuing to promote climate change mitigation and adaptation.
Output Indicator 1.2: At least 500 network members and network leaders trained in C3S agriculture and climate change mitigation and adaptation.	In the two MJUMITA networks in the study area, 35% of members had participated in C3S agriculture training. In the two MVIWATA groups available in the study area, 38% of members reported that they have participated in C3S agriculture training. The national MJUMITA chairman has participated in some of the C3S agriculture practices training. He had also participated in some climate change mitigation and adaptation training. The national MJUMITA secretary has not participated in C3S agriculture training but has attended seminars and workshops with some C3S agriculture practices and	Evaluation results indicate that 89.2% and 86.5% of the networks' members for MJUMITA and MVIWATA were trained in C3SA, respectively. This indicates a high proportion of networks' members had been trained in C3SA. For example, during the last Quarter preceding the final evaluation, at least 91 network members and 18 Board members were trained in C3SA and climate change mitigation and adaptation. In Kilosa for instance, following training of several hundred network members and lead farmers in field schools on C3S agriculture techniques in horticulture, maize, beans, and compost making, 130 farmers were reported to apply the techniques in their own fields. Both the farmer field schools and the individual fields demonstrate the techniques to other farmers including use of improved maize seeds, use of manure, spacing, no burn, low tillage and basins. In order to share the C3S model more widely, open days were organized to attract other farmers to visit and learn from the plots; and a meeting was held in Kilosa to communicate the

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
	climate change mitigation and adaptation. The national MVIWATA chairperson has participated in C3S agriculture training and on climate change mitigation and adaptation.	project's key findings and recommendations to a range of stakeholders. In Chamwino, TOAM had been building local extension capacity as part of its efforts to ensure the sustainability of the project interventions. Local Lead farmers and extension officers were trained. The training focused on facilitation skills and subject matter competencies. TOAM provided training to several farmers both women and men at 3 different times following crops growth stages. Specifically, trainings enabled farmers to understand crop-specific recommended spacing; performance of quality seeds as compared to local seeds; rationale for applying contour bands and cover crops; identification of some pests and nutrient deficiency symptoms; and ecologically sound measures. Farmers were able to learn the effectiveness of these techniques by comparing the model fields with nearby traditionally managed fields. The comparison which could be a very attractive incentive to new farmers from adjacent and distant villages.
Output 2: *Information and analysis on the interface between small-scale agriculture and climate change adaptation and mitigation that draws on research from within and beyond Tanzania, is documented and distributed.*		
Output Indicator 2.1: Two status reports on national policy in relation to small-scale agriculture and climate change mitigation and adaptation and 5 technical reports looking at specific issues.		Over 7 status reports were developed during the project lifetime including:- A baseline report was prepared at the beginning of the CCAP project, a report that provided benchmark for monitoring project activities. In addition, one technical report on the lessons and best practices on C3S Agriculture was produced and shared to the CCAP partners. The report was also uploaded for online access at the project web page: http://www.tfcg.org/CCAP.html. Two (2) status reports on national policy in relation to small-scale agriculture and CC adaptation and mitigation and at least 5 technical reports looking at specific issues had been produced. The reports had been shared through various stakeholders meetings and can be found on the project webpage at: http://www.tfcg.org/CCAP.html Other reports were developed through research findings including: A report on the best practices for scaling up technologies for small-scale farmers; Report on District Budget analysis including sources and DADP allocations; Agriculture and REDD+; Policy briefs on Climate Change adaptation and mitigation; Risks and opportunities of different kind of inputs for Small-scale farmers; District Agricultural Development Plans (DADPs) can address climate change; *Athari za uharibifu wa mazingira; Kilimo*

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
		rafiki wa mazingira; and Economic returns for investing in C3S for Small-scale farmers. **Technical reports looking at specific issues** Three six monthly project progress reports were prepared and shared by TFCG during the project period. The reports were addressing all four project strategies plus progress status against project monitoring indicators. In addition, one mid-term evaluation report was also prepared and shared to all project partners. The mid-term evaluation report was an assessment of project progress towards project's set goals, objectives, and implementing strategies.
Output Indicator 2.2: At least 5 detailed reports on best practices in C3S agriculture.		Several reports were developed regarding best practices in C3S agriculture. A report on the best practices for scaling up technologies for small-scale farmers; Report on District Budget analysis including sources and DADP allocations; Agriculture and REDD+. A report providing detailed lessons on best practices in 3CS agriculture was also produced and uploaded for online access at: http://www.tfcg.org/CCAP.html
Output 2.3: Two technical meetings on C3S agriculture.		Several technical meetings were held during project lifetime about C3S agriculture. Stakeholders' meeting was held in Dar es Salaam which brought in all key project partners – TFCG, MVIWATA, MJUMITA, TOAM, and ActionAid. Others included representatives from the Ministry of Agriculture and Food Security, Tanzania Forestry Services, and Technical staff from Kilosa and Chamwino Districts. The purpose of this meeting was to lobby at local and national level through media and meetings for increased support for C3S agriculture and improved natural resources governance. One meeting was conducted between CCAP staffs and Member of Parliament and Chair of the parliamentary committee of Agriculture, Livestock and water in Dodoma. The last 5 technical meetings were organized and convened by the project during which the project's findings and recommendations on C3S agriculture were communicated to stakeholders. The issues that have been presented and discussed in these meetings include: the status of District Agricultural Development plans and challenges associated with the planning process and with implementation; an analysis of how District councils' budgets allocated to small-scale agriculture; best practices on C3SA; and a policy analysis in relation to climate change, and agriculture. In all meetings there was an

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
		emphasis on identifying opportunities for increasing support to small-scale farmers in the context of climate change mitigation and adaptation. Participants included MAFC, MJUMITA and MVIWATA board members, MVIWATA and MJUMITA network members, small-scale farmers, District officials; and representatives from VPO-Environment.
Output 3: *Small-scale farmers in three agro-ecological zones provide a forum for learning and knowledge exchange on best practice in terms of climate-smart agriculture and support for C3S agriculture is integrated in District plans.*		
Output Indicator 3.1: 360 farmers are modelling best practice in climate smart, small-scale agriculture by end of Y3.	21% of small-scale farmers are implementing at least 1 C3S agricultural practice in the 3 Kilosa study villages; and 27% in the Chamwino study villages.	At least 310 farmers were modelling best practices in C3SA in the 6 project villages. This includes 121 farmers in Kilosa and 189 in Chamwino.
Output Indicator 3.2: 10,000 farmers have learned at first-hand about C3S agriculture and are integrating key elements of C3S agriculture on their farms.	10% of the small-scale farmers have participated in C3S agriculture trainings in Kilosa study villages. No farmers had participated in C3S agriculture training in Chamwino study villages. However, 21% of farmers in Kilosa and 27% in Chamwino are integrating some of the C3S agriculture on their farms.	At least 1,990 farmers from the project villages had learned at firsthand about C3SA during the last Quarter of the project implementation and were integrating key elements of C3SA on their farms. These include farmers who were trained in C3S A (180 – Kilosa, 180 - Chamwino), farmers participated in farm field school open days (1000 – Kilosa, 450 - Chamwino), farmers from outside project villages who were facilitated to visit project villages for learning C3SA techniques (120 – Kilosa, 60 - Chamwino).
Output Indicator 3.3: Farmers in 6 villages have improved access to agricultural credit and support for adding value to their agricultural produce.	No farmers in any of the study villages stated that they have accessed agriculture credit for adding value to his/her agriculture produce.	The evaluation results indicate that only 15.2% (31) of 204 interviewed farmers had accessed agricultural credits. Farmers living in the 6 project villages had slightly improved access to microfinance as a result of interventions linked to, but not directly supported by the project. For example TFCG has been supporting improved access to microfinance in the Kilosa project through the REDD project. In Ibingu Village, the value savings and loans circulating within the groups had increased from TZS 9,093,000 in Year 1 to TZS 17,208,000 by the end of Year 2 of the CCAP project. At least 120 farmers from both project sites were supported on value addition for their crops. For example farmers from Chamwino were assisted to network with sunflower oil processors and sellers in order to learn more about value addition. Also farmers in Kilosa and Chamwino were trained on crop quality control, specifically for maize, sunflower, sesame and beans.
Output Indicator 3.4: 5 million farmers have	20% of small-scale farmers in Chamwino and 17% in Kilosa	The evaluation results indicate that the proportion of small-scale farmers who received practical

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
received practical information on measures that they can take to improve their resilience to climate change.	study villages stated that they have received practical information on measures to improve their resilience to climate change.	information for climate change resilience improved from 17.0% recorded by the baseline in 2013 to 59.4% for Kilosa District villages and from 20.0% to 76.1% for Chamwino District. Practical information on measures that gained by farmers were used to improve their resilience to climate change and were communicated through programmes on 8 radio stations; and 5 TV stations. Although listenership figures are not available for those programmes, a survey was conducted in 3 villages of the impact of listening to radio programmes about climate change. The survey results indicate that: 78% (Kisongwe), 70% (Ibingu) and 62% (Manchali) of respondents know about climate change and its impacts. Specifically, it was found that 80 % (Ibingu), 70% (Kisongwe) and 30% (Manchali) of respondents indicated that they know about mechanisms of responding to the consequences of climate change (Nyagonde 2014).
Output Indicator 3.5: 45 community trainers trained on C3S agriculture.	There are 11 community based trainers in the Kilosa study villages that have been trained on C3S agriculture. There are no community trainers in Chamwino study villages that have been trained on C3S agriculture.	390 farmers (14 women) were trained to a level of trainers in Kilosa this period. 10 farmers were selected from each of the three project villages and trained. The trainings covered the following topics among others: The basic understandings of the climate change. REDD+, the status of its implementation in Kilosa, the benefits, challenges and key lessons learned in the implementation of REDD+ in Kilosa. The C3S agriculture techniques including agroforestry. Sustainable natural resources management. Gender, poverty, network formation, marketing, group formation and management and teaching methodologies. CBTs were introduced on MAMIS SMS system which provides agricultural commodities marketing information to different user through mobile short message on request. For example when a farmer want to sell maize, to learn the price at different markets, s/he is supposed to write " *Bei Mahindi*" and send to 0654555884 and the system will respond by sending prices at different markets plus contacts. The trainings comprised class sessions and practical sessions. These trainers have started supporting farmers technically in their villages to ensure sustainability of project initiatives. A total of 30 (15 women) CBTs (21 new and 9 old) have been trained in Chamwino on: C3S agriculture practices/innovations, sustainable natural resources management and REDD, basic facilitation skills and key contents of a given training session.

Indicator	Status of Indicator at Baseline	Status of Indicator at End of Project Evaluation
		Understanding why and how to apply specific C3S agriculture practices/innovations was core approach for ensuring effective learning process. Tools employed included print outs of different titles, simple and pictorial translated booklets on C3S agriculture such as soil organic matter improvement and pests control by use of local knowledge.
Output 4 *Elected representatives express support for small-scale climate smart agriculture and use their influence to direct support to small-scale farmers to implement climate change adaptation and mitigation strategies.*		
Output Indicator 4.1: 5 policy briefs on specific issues relating to C3S agriculture.		1,000 copies of A4-page policy briefs on CC adaptation and mitigation, agriculture and REDD+ were prepared and printed. The briefs were shared with relevant stakeholders including farmers, councillors, District agriculture officers and CBTs.
Output Indicator 4.2: At least 8 national level radio and television programmes; 12 local radio programmes and 10 articles in national newspapers per year.		At least 30 national level radio and television programmes; and 25 local radio programmes programmes were broadcasted with information about C3SA.These include 3 live TV programmes on Abood TV and one live programme on Radio Jamii FM about C3SA. In addition 20 newspaper articles about C3SA have been published over the lifespan of the project. Media outlets that were communicated about C3SA as a result of the project include: the Guardian, Nipashe, Tanzania Daima, Majira, and Habari leo newspapers; ITV, Abood TV, StarTv, SUA TV and TBC1 Television stations; and Radio One, TBC Taifa, Clouds FM, Abood radio, Dodoma FM, Radio Uzima, Morning Star Morogoro and Jamii FM in Kilosa radio stationsA total of 7 news - casts of project farmers issues around access to improved seeds, markets of their produce, false measurement and discouraging farming close to water sources were aired through ITV and Abood TV. Also 10 radio programmes and news broadcasts of the same issues were aired through radio one, Abood radio and Dodoma FM and 7 stories covered on the guardian and Nipashe newspapers. Through a blog site (www.c3sagriculture.wordpress.com), 9 posts were published and got 216 hits with 100 hits from Tanzania and the rest are from the other part of the world. New more followers were still coming in.

3.1 (c) Status of Progress Markers Against the Baseline Situation

L = Low (No progress on this marker)
M = Medium (One or more example of progress on this marker)
H = High (Progress marker fulfilled or there are multiple examples of the behaviour, it is the norm)

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
A	**Small-scale farmers**		
1	**Expect to See**		
H	Small-scale farmers participate in training and awareness raising events related to climate change, climate smart agriculture, land tenure, micro-finance and REDD+.	6% of Small-scale farmers in Kilosa and 3% of farmers in Chamwino stated that they have participated in climate change training. 10% (all from Kilosa) of respondents stated that they have participated in C3S agriculture training. 4% of small-scale farmers in Chamwino and 2% in Kilosa stated that they have participated in land tenure training. 5% of small-scale farmers stated that they have participated in microfinance training and 6% of respondents from the Kilosa study villages stated that they have received REDD trainings.	Results of the final evaluation of CCAP project indicate that 42.0% and 52.3% of surveyed farmers participated in training on C3S agriculture & adaptation to climate change in Kilosa and Chamwino Districts, respectively. The same results also indicate that 63.4% participated in REDD training in Kilosa District. On the other hand, 19.7% and 14.3% of small-scale farmers reported to have received information through meetings, seminars, and workshops in Kilosa and Chamwino, respectively. In Chamwino, farmers have been active participants in trainings and forums organized by the project. For instance, during the District workshop to share key project findings, farmers confidently shared their feelings about the council including the fact that the council is not providing appropriate and timely support for them to mitigate the effects of climate change. Farmers called for the council's plans and strategies to originate from community priorities rather than the priorities of district officials. In Kilosa, farmers continue attending various training and awareness raising events related to C3SA. This period farmers attended trainings on C3SA techniques for horticultural, roots and tuber cultivation, tree nurseries for fruits and timber and terrace making as C3SA technique in areas with steep slopes. During the Quarter 1 and Quarter 2 2014, A total of 181 farmers (106 men and 75 women) in Kilosa District attended training on C3S techniques in maize production; and 122 farmers (46 male and 76 females) attended training on C3S techniques for beans. During

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			the same period, 108 farmers (61 women) in Chamwino District participated in training events on C3S agriculture at three different stages of crop development; and 9 farmers participated in training of trainers.
2 H	Farmers in project villages implement C3S agriculture in their farm field schools and communicate results to other farmers during farmers' days and with local and national media organised by the project.	There are farm field schools in Kisongwe, Lunenzi and Ibingu villages in Kilosa. These were established by the TFCG and MJUMITA REDD project. 0 farmer field schools were reported to be in existence in the Chamwino study villages. No respondents reported any communication of C3S agriculture practices results to other farmers during farmer's days and with local media.	During the period of July – December 2014, 180 farmers (105 men and 75 women) established plots to propagate improved tubers and root crops in 6 FFS. Project farmers in Chamwino and Kilosa use village meetings, radios stations, TV stations, newspapers and Church services to communicate results to other farmers. During Quarter 1 & 2 for 2014, farmers established 12 FFS (6 for maize and 6 for beans) in Kilosa and applied C3S techniques for maize and beans. The same FFS were used by farmers to communicate C3S techniques to other farmers in the villages during farmers open days. In Kilosa, 285 farmers participated in the farmer field school open days during this reporting period to communicate their results to other farmers. In Kilosa, project farmers in Kisongwe were visited by Kisongwe primary school students and teachers in order to learn about C3S techniques. Farmers used that opportunity to give their testimonies on the importance of adopting C3S agriculture techniques. Small scale farmers from Lunenzi, Ibingu and Kisongwe villages in Kilosa district and from Nzali and Mahama villages in Chamwino district shared C3S agriculture information through ITV, Abood TV, SUA TV, Abood Radio, Radio One, Radio Jamii, Radio Times fm, Dodoma fm, The guardian, Nipashe and Majira newspaper. Farmers commented that C3S agriculture techniques have transformed their lives and kept them out of shortage of food All the 6 villages involved in the project namely Kisongwe, Ibingu, Lunenzi (Kilosa District), Mahama, Nzali and Machali (Chamwino District) established farmer field schools through which small-scale farmers received practical training on climate smart agricultural techniques. TFCG and MJUMITA facilitated the farmer field schools in Kilosa and TOAM facilitated the

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			farmer field schools in Chamwino District.
3 H	Farmers in project villages are displaying information about climate change, C3S agriculture, land tenure and REDD.	Farmers in Kisongwe and Ibingu villages are displaying C3S agriculture, land tenure and REDD information through posters. There is no displayed information with regards to the above issues in Lunenzi and Lumbiji village. Land tenure and agroforestry information was being displayed in Nzali and Chinangali I respectively.	During its life time, the project was able to share various communication materials with farmers such as booklets, poster and brochures including those with information on how to improve soil fertility, recommendations for improving C3S adoption etc. Farmers communicated this information with other farmers in various ways such as: farmers from all 3 project villages in Chamwino composed songs advocating C3SA techniques and sang these songs in various events within and outside their villages. In Ibingu Village, project farmers in Kilosa displayed information about climate change, C3S agriculture, land tenure and REDD to 60 non project farmers who visited their village for learning C3SA techniques. Also 45 project farmers who were supported by project to visit nane nane exhibition returned and shared what they had learned with fellow FFS members. During farmers open day in Kilosa, 180 farmers displayed project leaflets to over 239 farmers visited their farms. During the launching of MVIWATA network at Lumuma ward, farmers sang various songs pertaining causes, effects and adaptation measures of the climate change to 400 participants. Information about climate change, C3S agriculture, land tenure and REDD was displayed in the 6 project villages in the form of posters, brochures and calendars. Small-scale farmers reported to have been reading the displayed information. In some of the villages, brochures and posters were tarnished by dusts and farmers requested some new ones that looked decorative.
1 H	**Like to See**		
	Small-scale farmers including both women and men in the project villagers are applying on-farm and off-farm climate-smart techniques to their own livelihood activities including farmers not involved in the project-supported training events.	8% of women and 9% of men in the study villages are applying on-farm and off-farm climate-smart techniques to their own livelihood activities.	Evaluation results indicate that Small-scale farmers in all project villages were applying on-farm and off-farm climate-smart techniques to their own livelihood activities including farmers not involved in the project-supported training events. For example, in Kilosa District the use of terraces increased compared to the baseline from 3.0% to 50.5%, use of cover crops from 5.0% to 53.5%, use of fertilisers from 0.0% to 36.0%, mulching from 8.0% to 35.6%, use of minimum tillage from 8.0% to 15.8%, use of

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			proper Uphill and downhill farming from 3.0% to 15.8%, agroforestry from 0.0% to 5.9%, and forest clearing for agriculture from 10.0% to 3.0%. The progress recorded against the baseline situation for Chamwino District includes the use of early maturing crop varieties from 18.0 to 36.1%, use of cover crops from 3.0% to 39.1%, use of fertilisers from 38.0% to 66.1%, mulching from 18.0% to 32.1%, use of minimum tillage from 18.0% to 21.3%, agroforestry from 10.0% to 13.9%, traditional irrigation from 0.0% to 13.9%, and forest clearing for agriculture from 15.0% to 2.8%. <u>In Kilosa:</u> • 90 farmers established individual farm fields for improved cassava and sweet potatoes. • 180 farmers from three villages established tree nurseries for fruits and timber. • 12 farmers purchased 1200 tree seedlings of various types for planting in their fields to control wild fires. • 20 farmers established terraces to their fields. Some farmers in project villages started off-farm climate smart income generating activities. These activities include pig, goat and local chicken rearing, the activities which also contribute to availability of manure to farmers. Other farmers at Ibingu and Kisongwe villages have shown interest to start fish farming.
2 H	Small-scale farmers in project villages are advocating elected representatives and government officers for improvements in governance in relation to land, natural resources and agriculture.	16% of the small-scale farmers stated that they are advocating elected representatives and government officers for improvements in governance in relation to land, natural resource and agriculture. Some of the strategies that were described by respondents include: reporting those who misuse their offices to the higher authorities, not electing them in the forthcoming elections and removing them from their post.	Discussions with the Village Councils revealed that good governance was the main campaign agenda for Local Governments elections which were held 3 months prior the evaluation. Voters for these elections used good governance as the main criterion on deciding about the appropriate candidates. During the meeting with parliamentary committees, small scale farmers asked the MPs to push the government to review and improve DADPs guidelines to give more priority to supporting small scale farmers rather than medium and large scale farmers. During a learning visit of MJUMITA and MVIWATA staffs to Lunenzi village, small scale farmers asked MJUMITA to continue with the excercise of dashboard monitoring tool as the process is useful in raising awareness to

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			community members on good governance.
3 M	Small-scale farmers from project villages are building the capacity of farmers from other villages and Districts on C3S agriculture, REDD+ and sustainable land and natural resources management.	Small-scale farmers from project villages are building the capacity of farmers from other villages and Districts on C3S agriculture, REDD+ and sustainable land and natural resources management.	39.6% and 23.1% of Small-scale farmers surveyed during the final project evaluation reported to have participated in building capacity of others in other villages on C3S, REDD and NRM in KIlosa and Chamwino Districts, respectively. Project interventions spill-over was realized in some villages adjacent to the project area. For instance, 5 farmers of Manchali B village reported to have learnt C3SA techniques/practices from Manchali A. 6 out of 55 farmers from Makoja and Chinangali I villages who were supported by project to visit project villages have started applying C3SA techniques in their fields and most farmers promised to use improved seeds of sorghum and sunflower in their fields. 12 farmers from Ibingu and Lunenzi villages visited Kinole village in Morogoro rural and share their experience on C3SA with farmers. Farmers covered the cost of food and accommodations by themselves for two days at Morogoro rural while MVIWATA provided transport costs. The District has also set aside a budget to facilitate the process of preparing village land use plan and agro ecological zones in 15 villages. The plan will provide informed decisions on the kind of interventions needed in different areas, and it can help to conserve areas that have other potentials. Through listening to radio programs, small scale farmers from the project villages were training others in the neighbouring villages on the techniques they had listened and sometimes they listened to radio programs together. Ibingu project farmers displayed information about C3SA techniques to 60 farmers from Kigunga, Ulaya, Mbuyuni and Nyameni non-project villages. Farmers were inspired with horticultural practices and promised to pilot in their farm fields.
1 M	**Love to See**		
	Small-scale farmers from non-project villages adopt climate smart agricultural technologies using the experiences and	0 farmers in the non-project village reported that they had adopted C3S agricultural technologies using the experience and guidelines	The project learned that some farmers from Dodoma Isanga, Nyali and Chabima villages who visited Ibingu village to learn about C3SA techniques had started piloting techniques especially on horticultural production.

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
	guidelines shared by the project.	shared by the CCAP project.	
2 M	Small-scale farmers from non-project villages actively advocate at village, District and national level for more sustainable land and natural resources management.	Small-scale farmers in the non-project villages are not actively advocating at village, District and national level for more sustainable land and natural resources management.	Small-scale farmers from Gongoni, Rudewa and Mbuyuni (through Wami Water User Association) were actively advocating at village, District and national level for more sustainable land and natural resources management.
3 M	Small-scale farmers actively engage with their local MJUMITA and MVIWATA networks to lobby for more support for C3S agriculture, REDD and sustainable land and natural resources management.	5% per cent of small-scale farmers are involved with the MJUMITA network; and 5% of farmers are engaging with MVIWATA groups to lobby for more support for C3S agriculture, REDD and sustainable land and natural resources management.	36.0% of small-scale farmers surveyed during the evaluation were actively engaged with local MJUMITA in Kilosa District. On the other hand, 31.3% and 20.9% of small-scale farmers surveyed were actively engaged with local MVIWATA in Kilosa and Chamwino Districts, respectively. The small-scale farmers used their local networks to lobby for more support for C3S agriculture, REDD and sustainable land and natural resources management. During farmers' open days and MVIWATA network launching in Kilosa, farmers in the project village requested ward councillors from Lumbiji and Lumuma wards to demand district the agricultural officer to allocate funds for tree and spices seedlings. Farmers believed wild fire can be easily controlled if they planted spice crop plant in the natural forest, as community members will take very good care of the forest because of their spices in the forest.
B	**MJUMITA and MVIWATA Community Networks**		
1 H	**Expect to See**		
	National-level community network leaders have a firm understanding of the linkages between climate change, C3S agriculture and sustainable land and natural resources management.	Both MJUMITA and MVIWATA national leaders are aware of the linkage that exists between climate change, C3S agriculture and sustainable land and natural resource management. Their descriptions generally focus on how climate change affects agriculture; how forests are affected by low agricultural yields and how reduced conservation effort results in climate changes and low agricultural yields.	Interviews held with National-level leaders for both MJUMITA and MVIWATA indicate that they have a firm understanding of the linkages between climate change, C3S agriculture and sustainable land and natural resources management. For example the MVIWATA Executive Director said *"The big challenge worrying most smallholder farmers in the country was the trend of current agricultural policies that seem to embrace and prefer foreign investors while fuelling land grabbing"*. This statement was given in the presence of journalist and Government officials during the 20th anniversary ceremony of MVIWATA cerebrated on 23-26 July 2014 in Morogoro. During the meeting between the project and the parliamentary committees for Environment and agriculture, MJUMITA and MVIWATA board

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			members informed the parliamentarians that the most effective and efficient way to fight the changing climate is through supporting C3SA techniques which proved successful in the project sites. They said that through C3SA the small scale farmers would have reduced their dependence on deforestation as a basis for securing new agricultural land.
2 M	National-level community network leaders are providing information to their members on the linkages between climate change, C3S agriculture and sustainable land and natural resources management.	MJUMITA national network leaders are currently providing information through their zonal members in areas where MJUMITA has projects. Currently C3S has been communicated by the national leaders to 9 networks in Usambara and Kilosa. MVIWATA shares information on climate change through their field officers. 34 MVIWATA groups in Kyela, Arusha, Monduli, Rudewa and in Mvomero have received information on climate change from their national leaders.	National-level leaders for both MJUMITA and MVIWATA affirmed before the evaluation team that they provided information to their members on the linkages between climate change, C3S agriculture and sustainable land and natural resources management. For example, the two leaders participated in sensitising their members and the public on the inclusion of C3S agriculture and sustainable land and natural resources management matters in the new constitution. As a result, 2 members of MVIWATA network were able to participate in the special National Constitutional Assembly held in 2014. During MJUMITA AGM meeting held in Dodoma from 16th-19th December 2014. Eastern zone MJUMITA board members said the biggest enemy to human being was the changing climate. She said it was a pity that human was also contributing to it through unsustainable utilization of resources such as forests. She requested the government to intervene in the situation before it is too late
1 M	**Like to See**		
	At national level, community networks have integrated climate change issues in their institutional strategies and are providing training, user-friendly guides and other support to their members to adopt C3S agriculture, REDD+ and other climate smart strategies.	Climate change issues are reflected in the MJUMITA and MVIWATA strategies. The MJUMITA strategy is primarily focused on mitigation. The MVIWATA strategy is primarily focused on adaptation. Both networks have provided training to a few of their members on climate change in general. MJUMITA have provided more detailed training to some of its members on REDD.	Both MJUMITA and MVIWATA networks have climate change issues integrated in their institutional strategies and provided training, user-friendly guides and other support to their members to adopt C3S agriculture, REDD+ and other climate smart strategies. MJUMITA continued to assist 24 communities in Lindi and Kilosa Districts to engage in REDD+. During the last Quarter of the project implementation, MJUMITA organised the validation and verification of the Lindi REDD+ project. The validation and verification process was due to be completed by the end of February 2015. Information about C3SA was included in the January 2015 edition of Komba magazine with an article about how farmers had already

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			benefited from C3SA in Kilosa District.
2 H	Local level community networks are aware of climate change, C3S agriculture and are sharing this information with others in their communities.	25% of MJUMITA network members and 16 % of MVIWATA members in the study area are aware of climate change. 30 % of MJUMITA members and 37 % of MVIWATA members stated that they were aware of C3S agriculture. 65 % of MJUMITA members and 5 % of MVIWATA members in the study villages share this information with other farmers.	75.0% of local MJUMITA members and 67.5% of local MVIWATA members were aware of the main causes of climate change namely deforestation, pollution from power generation, pollution from agricultural activities and pollution from uncontrolled fire/burning. 90.0% of both MJUMITA and MVIWATA local network members were able to define climate change. MJUMITA network members from Ibingu project village shared their knowledge and experience on C3SA techniques with 60 farmers from Kigunga, Ulaya Mbuyuni and Nyameni non project villages.
3 M	Community networks are regularly consulted by policy makers on climate change related issues and provide recommendations to Kilimo Kwanza, ASDP and SAGCOT.	MJUMITA and MVIWATA leaders are currently not regularly consulted by policy makers to provide recommendation to Kilimo Kwanza ASDP and SAGCOT.	Although MJUMITA and MVIWATA leaders were not regularly consulted by policy makers, they were invited to participate in some of the institutional meetings. For example MVIWATA leaders were invited and participated in the Land Policy Workshop. Through their invitation to participate in some of the national policy fora, MVIWATA managed to send 2 representatives (Veronica Sofu and Catherine Gabriel) into the National Constitutional Assembly held in 2014.
4 M	Community networks are advocating at local, national and international level through media, meetings and other forums for more support for C3S agriculture, community-oriented REDD and other climate smart strategies.	MJUMITA and MVIWATA members have not demanded support for C3S agriculture, community-oriented REDD and other climate smart strategies through the media. However demands have been made in their annual general meetings but this has been on C3S agriculture and none of the farmers interviewed had made demand for REDD. However at national level MJUMITA have been active in working with the media to advocate for an equitable approach to REDD.	MJUMITA and MVIWATA networks were advocating at local, national and international level through media, meetings and other forums for more support for C3S agriculture, community-oriented REDD and other climate smart strategies. According to evaluation results, 75.7% and 81.1% of MJUMITA and MVIWATA members reported that their networks were actively involved in making demands for C3SA, respectively. Another evidence for networks commitment was their active involvement in sensitisation of the network members and the public to advocate for the same through their participation in the formulation of the new National Constitution. MJUMITA and MVIWATA board members through media demanded DADPs to support small scale farmers instead of medium and large scale farmers during the meeting with parliamentary committee. During stakeholders meeting in Dar to share DADPs findings with high authorities, MJUMITA chairperson pointed out that a total of 400,000ha of forest were lost every year and the major causes was shifting cultivation. He

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			therefore called upon the Government and private sector to support any initiatives that aim at promoting sustainable agriculture such as C3S agriculture techniques. Board member and representative of MVIWATA in the lake zone, Mr Projestus Mwakanyoro visited Muleba District office seeking for district support to C3S techniques as a way of scaling up project initiatives. However the district responded that it was difficult for the Government to implement activities outside of their plan rather they were ready to provide technical support on availability of funds.
1 H	**Love to See**		
	Community networks are recognised as leaders in climate change adaptation and mitigation and are invited to participate in policy formulation, monitoring and evaluation forums at national and international level.	MJUMITA were invited to participate in the National REDD Task Force's technical working group on REDD standards; and MVIWATA have been invited to participate in consultation on the draft Agricultural Strategy.	Both MVIWATA and MJUMITA networks' leaders were recognised as leaders in climate change adaptation and mitigation. For example, MJUMITA leaders were invited to participate in the National REDD Task Force's technical working group on REDD standards; and MVIWATA leaders were invited to participate in preparation of the draft Agricultural Strategy and the National Land Policy.
2 H	Community networks hold elected representatives at local and national level accountable for the quality of the support that network members are receiving for climate change adaptation and mitigation.	50% of MJUMITA network members and 11% of MVIWATA group members reported that they are holding elected representatives at local level accountable for the quality of the support that the network members are receiving for climate change adaptation and mitigation.	81.1% of MJUMITA network members and 70.3% of MVIWATA network members reported to have held some of their elected representatives at local level accountable for the governance and provision of quality services. This achievement indicated a significant improvement in exercising good governance. One of the agreed resolutions during MJUMTA AGM meeting held in December 2014 was that: In the coming election, members should support the contestants and parties with the clear policy support forest conservation; and climate change mitigation and adaptation.
3 H	Community networks in Tanzania share their knowledge on appropriate, climate change adaptation and mitigation strategies with communities in other countries.	No evidence of this was recorded	MJUMITA Executive Director was invited to share her knowledge and experience on appropriate, climate change adaptation and mitigation strategies with communities in other countries.
C	**District Officials**		
1 H	**Expect to See**		
	District Officials participate in awareness raising events about	The Chamwino District Executive Director, the District Forest Officer, the District Livestock and	District officials in both districts participated in most project activities including in the farmer open days; and farmer reflect events.

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
	Climate Change, REDD and Agriculture.	Fisheries Officer have not participated in climate change and REDD awareness raising events. The District Agriculture and Cooperative Societies Officer have participated in climate change awareness raising events but not in REDD events. All of the District staff interviewed, with the exception of the Forest Officer, stated that they have participated in agriculture awareness raising events and said that it is part and parcel of their work The Kilosa District Agriculture Officer and the District Executive Director stated that they have not participated in climate change awareness raising events. The agriculture officer has participated in REDD awareness raising events organised by the TFCG and MJUMITA REDD project. Both the agriculture officer and the District executive director have participated in agriculture awareness raising events. The District Forest Officer has participated in both climate change and REDD+ awareness raising events. In all Districts, District officials are willing to participate in awareness raising events about Climate Change, REDD and Agriculture.	District Officials participated in awareness raising events about Climate Change, REDD and Agriculture. For example, in Chamwino the District Commissioner and District Agriculture and Cooperative Officer participated in climate change and REDD+ awareness-raising. Participation in C3S agriculture awareness raising events were part and parcel of agricultural related District departments. In Kilosa, the District Agriculture, Irrigation and Cooperatives Officer participated in REDD+ awareness raising events organised by the TFCG and MJUMITA REDD project. Both the DAICO and DED participated in C3S agriculture awareness raising events. The District Forest Officer participated in both climate change and REDD+ awareness raising events.
2 M	District officials integrate climate friendly agriculture in their DADPs where external support is provided.	Kilosa is not integrating climate friendly agriculture in their DADPs although they have been participating in the conservation agriculture training provided by TFCG as part of the TFCG and MJUMITA REDD project. Chamwino have been generating drought resistant sorghum based on a project receiving FAO support.	Based on the 2012 DADPs formulation guideline, the opportunity to integrate climate friendly agriculture was narrowed. This was because the District councils had little or no influence over the DADPs contents and implementation strategies/approaches. The DADPs profile was mostly based on the priorities of the donor and Ministry. The only potential opportunity for the Districts to support farmers in C3S adoption was through use of their own resources (internal revenues). The project continued advocating these observations through various platforms and media.

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			Kilosa district prepared district strategic plan for five years that integrated climate friendly agriculture. DAICO for Kilosa promised farmers from project villages that she would provide them with transport to purchase spices seedling at Kinole village in Morogoro rural. Both District Councils were also supporting Small-scale farmers with subsidized agricultural inputs like fertilisers, seeds for drought resistant and early maturing crop varieties.
3 M	District Officials support integration of community plans in DADPs where external support is provided.	District Officials support integration of community plans in DADPs where external support is provided.	Based on the 2012 DADPs formulation guideline, the opportunity to integrate climate friendly agriculture was narrowed. This was because the District councils had little or no influence over the DADPs contents and implementation strategies/approaches. The DADPs profile was mostly based on the priorities of the donor and Ministry. The only potential opportunity for the Districts to support farmers in C3S adoption was through use of their own resources (internal revenues). The project continued advocating these observations through various platforms and media.
1 M	**Like to See**		
	District Governments are providing DADP guidelines that include issues of climate-friendly agriculture and gender to all wards and villages in a timely manner; are ensuring that the ward and village level facilitation teams are developing plans that adequately support climate friendly agriculture; and these are properly reflected in the District level plans and are then implemented.	In both Districts there are delays in the delivery of DADP guidelines to ward and village level. This is caused by delays in the delivery of funds from the government. Gender is considered in agriculture related training, projects, planning, decision-making and implementation. In both Chamwino and Kilosa, District officials stated that it is through environmental and social management frameworks that the environmental impacts of their DADPs projects are assessed. However, the ESMF does not cover small-scale initiatives.	Kilosa district have directed its ward and village agriculture officers from highly climatic affected areas to establish budget for the land use plan that would provide the agro ecological picture of the area for better agricultural interventions. During the financial year 2013/2014, Kilosa district allocated budget for land use planning in 15 villages including Lumbiji, Vidunda, Msolwa, Kitati, Mkungulu and Kibasigwa. The DADP guidelines by the District Councils of Chamwino and Kilosa were not delivered timely implemented at both ward and village levels. The delayed delivery was reported to be due to untimely budgeting and disbursing of the required funds from the Central Government. Gender was well addressed in agricultural related training, projects, planning, decision-making and implementation. The environmental and social management frameworks were used to guide assessment and monitoring of the environmental impact of DADPs projects in both Kilosa and Chamwino

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			Districts.
2 M	District Governments are raising awareness about climate change, climate-friendly agriculture and gender amongst communities in their Districts.	In Chamwino, District Officials organise village assembly meetings that cover agriculture, environmental conservation and good animal husbandry. In Kilosa, through the land, environment and natural resource committee, District Officials have been raising awareness about climate change and climate friendly agriculture, however this has been conducted in line with other issue in the villages and there have not been specific awareness raising events on climate change and climate smart, small-scale agriculture.	During the last Quarter of the project implementation, Chamwino district government continued to raise awareness amongst communities on climate change and its associated effects. This was done through meetings at various levels and the DC was a champion on this. The District became more active in raising awareness on the importance of stopping deforestation and on good management of water sources. They had also become more committed to enforce laws intended to protect the environment. Chamwino District council had developed a strategy to allocate 15% to 20% of her revenues from internal sources for supporting farmers' livelihood initiatives. During the last Quarter of the project implementation, Kilosa district reached 15 villages on awareness raising about climate change, climate friendly agriculture amongst communities in the district. Kilosa district in collaboration with the project facilitated 24 (8 women) ward and village agriculture officers to visit Ibingu project village to learn about C3SA techniques. This was after the district increased its agriculture budget to support more villages on C3SA. District Governments for both Chamwino and Kilosa were actively involved in raising awareness about climate change, climate-smart agriculture and gender amongst communities in their Districts. This fact was evidenced by the responses of the Village Councils collected during the Focus Group Discussions. The awareness-raising on climate change, climate-friendly agriculture and gender was implemented along with other activities as a long term agenda of the District Councils.
1 M	**Love to See**		
	Support for best practices in terms of supporting climate change resilient and low GHG agriculture are integrated in DADPs and adequate funds are disbursed for their implementation.	No evidence of this was recorded in either District.	The Councils were advocating for increased yield per unit area (productivity) among the Small-scale farmers in order to do away with forest clearing for expansion of agriculture. The interest is to discourage further deforestation due to agriculture and instead intensify production within the same area. In order to achieve this, District Councils provided

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
			subsidized fertilisers, seeds for drought and early maturing crop varieties, among others. Forest clearing for agriculture is commonly associated with burning of trees which in turn contribute to GHG emissions.
2 M	District governments are supporting communities to implement actions that will reduce deforestation and are assisting communities to access REDD finance.	In Chamwino, the District have supported tree planting (6000 trees were planted in 2012); and are enforcing laws to protect reserves from deforestation for agriculture. Kilosa District officials stated that they have been conducting patrols in forest reserves and providing education to forest adjacent communities on the impact of deforestation and bushfire. On helping communities to access REDD finance, they are collaborating with TFCG/MJUMITA in their REDD project to learn the process and perhaps start running and claiming for REDD finances to the needy communities.	Kilosa district had budgeted to support 130 smallholder farmers to adopt C3SA techniques for July – December 2014 period. In Kilosa District, laws and by laws were enforced with the objective of ensuring integrity of forests in the designated areas. Awareness raising and provision of education among communities located adjacent to protected areas were also used in conjunction with law enforcement as a comprehensive strategy against deforestation.
3 M	District governments take action against individuals engaging in corrupt practices that undermine efforts to promote pro-poor, climate-friendly agriculture.	There have been efforts to address corruption issues in the two Districts. Some Village Executive Officers have been fired and charged in the court of law for misusing public funds in Chamwino and Kilosa. The two Districts are also working in close collaboration with the Prevention and Combating of Corruption Bureau (PCCB) to address corruption in the District.	Similarly, the evaluation team revealed that efforts to reduce corruption were made in both Kilosa and Chamwino Districts. Some Village Executive Officers have been fired and charged in the court of law for misusing public funds in Chamwino and Kilosa. The two Districts were also working in close collaboration with the Prevention and Combating of Corruption Bureau (PCCB) to fight corruption.
D	**Elected Representatives**		
1 H	**Expect to See**		
	Elected representatives participate in awareness raising days and stakeholder meetings on small-scale agriculture and climate change when external support is provided.	In Chamwino District, the Chilonwa ward councillor stated that he has not participated in any awareness raising events or stakeholder meetings on small-scale agriculture and climate change but he underscored that he is willing to participate as it is one of his responsibilities to cooperate with development partners in the area of his jurisdiction.	The Chilonwa Ward Councillor (Chamwino District), Hon. Yared Sinoni reported to have participated in awareness raising events or stakeholder meetings on small-scale agriculture and climate change in support for CCAP initiative. Ward councillors had actively participated in the awareness raising events and stakeholder meetings on small-scale agriculture and climate change that were organised by the project. For example, two ward councillors from Lumuma

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
		In Kilosa, both the Lumbiji and Lumuma ward councillors have participated in agriculture and climate related awareness raising events and meetings organised by REDD project in Kilosa. Both Kilosa and Chilonwa Members of Parliaments have not participated in awareness raising days and stakeholder meetings on climate change issue but have been participating in agriculture awareness raising events. They are willing to participate in awareness raising events.	and Lumbiji wards in Kilosa participated in farmers' day events in their respective wards where they learned about C3SA techniques and market challenges. In Kilosa District, both the Lumbiji and Lumuma Ward Councillors reported to have participated in agriculture and climate related awareness raising events and meetings organised by REDD project in Kilosa.
2 H	Elected representatives make statements to the media to demand more support for Small-scale farmers and sustainable land and natural resources management.	No evidence of this was recorded in either District.	The Chilonwa Ward Councillor, Hon. Yared Sinoni reported to have made statements to the media to demand support for Small-scale farmers. For example, he used Ddoma FM Radio to demand timely delivery of agricultural inputs in the area of his jurisdiction. He also used the same media to demanded immediate construction of Nzali bridge following the loss of human lives due to seasonal flooding. During the workshop that organized by the CCAP project on 05/09/2014 in Chamwino District to communicate key project findings, the Chair of Chamwino District Council spoke with journalists stating that District councils should improve budget support to small scale farming and gave an example that his council had set a target of investing 15%-20% of its internal collections into support for agriculture. The Chairperson for Kilosa district council during an interview with journalists requested the Government to find solutions to the barriers that farmers faced in accessing markets and in obtaining subsidized inputs.
1 L	**Like to See**		
	MPs raise questions about climate change steering committee effectiveness and the integration of support for small-scale farmers in current agricultural policies (DADPs, SAGCOT, Kilimo	No evidence of this was recorded in either District.	No evidence of this was recorded in either District.

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
	Kwanza) including references to Tanzania's commitments under the Maputo Declaration.		
2 M	Ward Councillors and Village council members push for DADPs to integrate support for Small-scale, climate smart agriculture.	No evidence of this was recorded in either District.	Chilonwa Councillor claimed to have demanded Chamwino District Council to ensure that support for Small-scale, climate smart agriculture was integrated into the DADP. Ward councillors from project wards used different platforms including meetings with farmers, project meetings at district level, media and meeting with MPs to call for the DADPs to integrate support for C3SA.
3 M	Ward councillors push District Officials to expedite and prioritise support for small-scale farmers in the implementation of DADPs.	Both Wards stated that they have pushed for timely support for their electorate in relation to DADPs.	Chilonwa Councillor claimed to have pushed Chamwino District Officials to expedite and prioritise support for small-scale farmers in the implementation of DADP. Councillors in Chamwino agreed with district planning officer to prepare budgets to support agriculture to the tune of 15% - 20% of the total internal collections. Chair of the economic committee of the council of Kilosa shared with farmers in the project meeting that the district had increased internal collections and directed the planning officers the increment to be directed to support small scale agriculture.
1 L	**Love to See**		
	MPs make changes to national CC related policies to reflect the interests of communities and Small-scale farmers		No evidence of this was recorded
2 L	Elected leaders monitor and follow up on the implementation of national policies and laws relating to small-scale farmers and climate change adaptation and mitigation.	No evidence of this was recorded	No evidence of this was recorded
E	**National Climate Change Steering Committee and National Climate Change Technical Committee**		
1 H	**Expect to See**		
	The NCCSC and the NCCTC meet at least twice per year including representatives from MNRT, PMO RALG, MAFS and VPO DoE; civil society organisations; research	NCCSC and the NCCTC had two (2) meetings in 2012, three (3) meetings in 2011 and one (1) in 2010. It was further revealed that the NCCSC and NCCTC are designated to hold their meetings concurrently, whereby the NCCTC sits first and	One meeting of the NCCTC was held on 03/02/2015 where representatives from VPO, TFCG and others attended. The meeting agenda included feedback from the UNFCCC meeting in Lima and presentation of on the EU-funded Low Emission Capacity Building project. In most cases, the NCCSC and NCCTC

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
	institutions and private sector.	thereafter inform the NCCSC in its meeting.	achieved their schedule meetings i.e. 2 meetings per annum and sometimes had convened some ad-hoc meetings to address emergency issues. It was further revealed that the NCCSC and NCCTC are designated to hold their meetings concurrently, whereby the NCCTC sits first and thereafter inform the NCCSC in its meeting.
2 M	Representatives from NCCSC / TC participate in media events on climate friendly agriculture.	NCCSC/TC does not organize any media events to promote climate friendly agriculture. However, NCCSC/TC has been participating in media events through sending its experts upon invitation to various media events	NCCSC/TC does not organise any media events to promote climate friendly agriculture. However, NCCSC/TC has been participating in media events through sending its experts upon invitation to various media events. The Ministers for Environment may issue statements on climate friendly agriculture in media during special events.
1 M	**Like to See**		
	NCCSC representatives participate in civil society events related to linkages between Small-scale agriculture, climate change and REDD.	NCCSC is willing to send representatives to the events related to linkage between small-scale agriculture, climate change and REDD. NCCST/SC representatives participated in the IUCN hosted workshop to develop a national strategy on gender and climate change was conducted in September 2011.	During Quarter 1 & 2 for the year 2014, a representative of the chair of the NCCSC attended the project's PAC meeting. He was happy to learn about the partnership between 5 NGOs with different focus (agriculture and forestry) that were jointly implementing Government policy, plans and strategies in a community. The representative remarked that the initiative would reduce confusion to farmers in the fight against climate change. During Quarter 1 & 2 for the year 2014, senior officers from ministries forming the NCCSC participated in project events. For example, the Director of the Environmental unit from the ministry of Agriculture and Assistant Manager of the Tanzania Forest Service in central zone attended the PAC meeting in Dodoma in April 2014. Also others senior officers attended the meeting including a senior officer from the Agriculture Sector Development Programme coordination unit from MAFC and another senior officer from MNRT attended a workshop in Dar es Salaam. The workshop was organised by the project to communicated DADPs findings to high level officials. Due to the fact that NCCSC is a Government institution, the NCCSC-interests were also taken care by the Local Governments at all levels. As such local Government officials participated on behalf of the NCCSC in civil society events related to linkages between Small-scale agriculture, climate change and REDD.
2	NCCSC and NCCTC	No evidence of this was	NCCSC and NCCTC played a central role in

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
H	consider policy harmonisation in relation to CC mitigation and adaptation including issues around Small-scale agriculture and REDD.	recorded	guiding implementation of all climate change related activities. The NCCSC composition provides a strategic approach in harmonizing policies which would bring confusion if considered in isolation by the individual ministries. In order to address this need, the NCCSC is consisted of 13 permanent secretaries of ministries with potential conflicting policies.
3 M	NCCSC host meetings for communities, civil society, local government, research institutions and private sector to provide inputs on the National Climate Change strategy, NAPA and REDD + strategies.	Development of national REDD+ involved a series of awareness meetings and consultation meetings in different areas in Tanzania from local level, District level, and regional level and at national level where different stakeholders were consulted for their inputs. Consultation meetings for the national climate change strategy were held in the Lake and Southern Highland zones.	NCCSC hosted meetings for various stakeholders at various levels. For example, formulation of the National REDD+ Policy/Strategy involved a series of awareness meetings and consultation meetings in different areas in Tanzania from local level, District level, and regional level and at national level where different stakeholders were consulted for their inputs. Consultation meetings for the national climate change strategy were held in the Lake and Southern Highland zones.
4 M	Gender issues are well covered in key plans including the National REDD+ strategy and NCCS.	The national REDD+ strategy emphasizes gender to be considered in its implementation.	The national REDD+ strategy emphasized gender to be considered in its implementation.
5 M	NCCTC advise MAFS on measures needed to ensure that the ASDP effectively promotes pro-poor, climate change mitigation and adaptation.	NCCTC is structured to provide technical assistance to individual sectors and in most cases the NCCTC advises those sectors (including agriculture sector) through different strategies (e.g. national climate change strategy) and guidelines.	In accordance with its structure, NCCTC provided technical assistance to individual sectors and in most cases the NCCTC advised those sectors (including agriculture sector) through different strategies (e.g. national climate change strategy) and guidelines.
6 L	NCCTC approves information resources on climate friendly agriculture for distribution to Local Government with the DADP guidelines.	NCCTC has not approved any information as this is done through the Policy and Regulatory framework in the agriculture sector. The agriculture ministry is implementing the Environmental Management Act - Implementation Support Programme (EMA-ISP) through its environmental management unit where this approval is channelled.	No evidence was available to ascertain approval of information resources on climate friendly agriculture for distribution to Local Government with the DADP guidelines. On the other hand, the Agricultural Sector Development Policy and its Regulatory Framework specify about the information resources to be distributed to LGA within the DADP guidelines. The Ministry of Agriculture implements the Environmental Management Act - Implementation Support Programme (EMA-ISP) through its environmental management unit where this approval was channelled.
1 L	**Love to See**		
	The NCCSC is demanding the allocation of 10 % of the national	No evidence of this was recorded. It was stated that this would be inappropriate	No evidence of this was recorded.

	Progress Marker	Progress Markers at Baseline	Progress Markers at End of Project Evaluation
	budget for climate-friendly agriculture in ways that directly contribute to achieving MDGs.	behaviour for the NCCSC.	
2 M	The NCCSC is supporting the NCCFP to be a role model for other countries in the integration of climate friendly agriculture in NAMAs, NAPAs and REDD	The NCCSC has not supported the national climate change focal point to be a role model for other countries in the integration of climate friendly agriculture in national appropriate mitigation actions, national adaptation programme for action and reduction of emission from deforestation and degradation.	No evidence of this was recorded.

3.2 (a) MJUMITA and MVIWATA progress in support for Climate Smart Agriculture

The evaluation team assessed the level of progress of MJUMITA and MVIWATA networks' members in terms of their awareness, knowledge and involvement in C3SA, climate change adaptation and impact mitigation. Results of the assessment indicate significant improvements in the awareness, knowledge and involvement of the networks' members in climate change and C3SA issues. For example, 100.0% of the interviewed members reported to have heard about climate change as compared to 75% recorded by baseline survey. Tables 3.2.1 to Table 3.2.10 below present the progress status of MJUMITA and MVIWATA local networks in various areas. The comparisons between the baseline status and project end-line evaluation status of the two local networks are also summarised in the Project Indicator Tracking Table (PITT) presented in Appendix 6.23.

Table 3.2.1: Percentage number of MJUMITA & MVIWATA members aware of CC & C3S agriculture

Local Network	Kisongwe	Ibingu	Lunenzi	Total
MJUMITA members heard about climate change	100.0	100.0	100.0	100.0
MVIWATA members heard about climate change	100.0	100.0	100.0	100.0
MJUMITA members heard about C3SA	100.0	100.0	100.0	100.0
MVIWATA members heard about C3SA	100.0	100.0	100.0	100.0

Table 3.2.2: Percentage number of MJUMITA members defined climate change

Definition Items	Kisongwe	Ibingu	Lunenzi	Total
Changes in temperature	83.3	64.3	63.6	70.3
Changes in rainfall quantity, pattern and distribution	91.7	71.4	72.7	78.4
Changes in wind pattern	41.7	21.4	36.4	32.4
Changes in clouds pattern	25.0	21.4	36.4	27.0
Drought	100.0	100.0	100.0	100.0
Changes in forest condition	33.3	28.6	18.2	27.0

Table 3.2.3: Percentage number of MVIWATA members defined climate change

Definition Items	Kisongwe	Ibingu	Lunenzi	Total
Changes in temperature	83.3	85.7	54.5	75.7
Prolonged drought	91.7	92.9	100.0	94.6
Changes in rainfall quantity, pattern and distribution	75.0	85.7	100.0	86.5
Changes in wind pattern	33.3	21.4	36.4	29.7
Changes in clouds pattern	25.0	28.6	27.3	29.7
Change in forest condition	75.0	78.6	72.7	75.7

Table 3.2.4: Percentage number of MJUMITA members responded to causes of climate change

Causes of climate change	Kisongwe	Ibingu	Lunenzi	Total
Deforestation	91.7	92.9	100.0	94.6
Uncontrolled burning	75.0	78.6	72.7	75.7
Pollution from vehicles, planes emissions	25.0	42.9	27.3	32.4
Pollution from power generators emissions	33.3	57.1	27.3	40.5
Pollution from industrial wastes	16.7	35.7	36.4	29.7
Pollution from agro-chemicals	91.7	85.7	90.9	89.2

Table 3.2.5: Percentage number of MVIWATA members responded to causes of climate change

Causes of climate change	Kisongwe	Ibingu	Lunenzi	Total
Deforestation	75.0	92.9	100.0	89.2
Pollution from agriculture activities	91.7	92.9	81.8	89.2
Pollution from uncontrolled fires/Fire burning	50.0	50.0	54.5	51.4
Pollution from power generation	16.7	50.0	27.3	35.1
Pollution from waste	33.3	42.9	45.5	40.5
Pollution from agro-chemicals	83.3	92.9	90.9	89.2

Table 3.2.6: Percentage number of MJUMITA members knowledgeable with C3SA

C3SA Technique	Kisongwe	Ibingu	Lunenzi	Total
Agroforestry	33.3	42.9	63.6	45.9
Minimum tillage	58.3	92.9	90.9	81.1
Crop rotation	41.7	64.3	72.7	59.5
Soil conservation	58.3	78.6	72.7	70.3
Downhill and uphill trenches	75.0	85.7	81.8	81.1
Terraces	50.0	64.3	36.4	51.4
Spacing	41.7	42.9	36.4	40.5

Stopping forest clearing for agriculture	33.3	42.9	45.5	40.5
Fire management	33.3	42.9	27.3	35.1
Best use of agricultural inputs	41.7	42.9	18.2	35.1

Table 3.2.7: Percentage number of MVIWATA members knowledgeable with C3SA

C3SA Technique	Kisongwe	Ibingu	Lunenzi	Total
Weed control	33.3	42.9	45.5	40.5
Use of best seeds	91.7	85.7	72.7	83.8
Minimum tillage	58.3	78.6	72.7	70.3
Crop rotation	50.0	71.4	72.7	64.9
Soil conservation	91.7	85.7	90.9	89.2
Downhill and uphill trenches	33.3	57.1	27.3	40.5
Spacing	16.7	7.1	9.1	10.8
Stopping forest clearing for agriculture	33.3	42.9	27.3	35.1
Fire management	41.7	42.9	36.4	40.5
Best use of agricultural inputs	25.0	35.7	27.3	29.7

Table 3.2.8: Percentage number of MJUMITA members knowledgeable with CC impact

Impact of climate change	Kisongwe	Ibingu	Lunenzi	Total
Decrease in crop yield	75.0	78.6	72.7	75.7
Disease outbreak	33.3	50.0	36.4	40.5
Water shortage	91.7	85.7	72.7	83.8
Flood	25.0	64.3	18.2	37.8
Loss of animals and plants species	25.0	28.6	9.1	21.6

Table 3.2.9: Percentage number of MVIWATA members knowledgeable with CC impact

Impact of climate change	Kisongwe	Ibingu	Lunenzi	Total
Decrease in crop yield	75.0	85.7	63.6	75.7
Disease outbreak	33.3	50.0	36.4	40.5
Water shortage	83.3	85.7	81.8	83.8
Flood	41.7	21.4	27.3	29.7

Loss of animals and plants species	33.3	35.7	18.2	29.7

Table 3.2.10: Percentage number of village network members responded to various questions

Local Networks and Evaluation Items	Kisongwe	Ibingu	Lunenzi	Total
MJUMITA Network demanded for C3SA	75.0	78.6	72.7	75.7
MVIWATA Network demanded for C3SA	83.3	78.6	81.8	81.1
MJUMITA members trained in C3SA, mitigation & CC adaptation	91.7	85.7	90.9	89.2
MVIWATA members trained in C3SA, mitigation & CC adaptation	83.3	78.6	100.0	86.5
MJUMITA members shared information on C3SA & CC	100.0	92.9	90.9	94.6
MVIWATA members shared information on C3SA & CC	66.7	71.4	72.7	70.3
MJUMITA members attended training on REDD	83.3	92.9	90.9	89.2
MVIWATA members attended training on REDD	91.7	85.7	72.7	83.8
MJUMITA members came across policy briefs on C3SA	66.7	71.4	81.8	73.0
MVIWATA members came across policy briefs on C3SA	75.0	71.4	81.8	75.7

3.2 (b) Village Councils awareness and knowledge on climate change and C3SA issues

The evaluation team assessed the level of awareness and knowledge of Village Councils on climate change issues and adoption to climate smart small-scale agricultural techniques. Results of the assessment indicated a general improvement in the awareness and knowledge on climate change and C3SA among members of Village Councils. For example, 100.0% of village leaders involved in the evaluation reported to have heard about climate change as compared to 85% recorded by the baseline survey. Evaluation results affirming the improvements in the awareness and knowledge on climate change and C3SA among members of the Village Councils are presented in Tables 3.2.11 to Table 3.2.14 and the Project Indicator Tracking Table (PITT) presented in Appendix 6.23.

Table 3.2.11: Percentage number of Village Council members agreed on the 3 evaluation items

Evaluation Item	Kisongwe	Ibingu	Lunenzi	Mahama	Nzali	Manchali	Total
Heard about C3SA	66.7	76.9	63.6	77.8	71.4	80.0	72.5
Heard about climate change	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Village Council received resources from District Councils	50.0	61.5	36.4	44.4	64.3	70.0	72.5

Table 3.2.12: Percentage number of Village Council members defined climate change

Definition of Item	Kisongwe	Ibingu	Lunenzi	Mahama	Nzali	Manchali	Total
Changes in temperature	83.3	69.2	63.6	77.8	57.1	60.0	68.1
Changes in rainfall quantity, pattern and distribution	91.7	76.9	72.7	88.9	71.4	70.0	78.3
Changes in wind pattern	33.3	30.8	18.2	33.3	35.7	40.0	31.9
Changes in clouds pattern	25.0	15.4	27.3	22.2	28.6	30.0	24.6

Table 3.2.13: Percentage No. of Village Council members knowledgeable on causes of CC

Causes of climate change	Kisongwe	Ibingu	Lunenzi	Mahama	Nzali	Manchali	Total

Deforestation	75.0	76.9	63.6	66.7	57.1	60.0	66.7
Pollution from vehicles, planes emissions	25.0	23.1	27.3	22.2	21.4	20.0	23.2
Pollution from power generators emissions	16.7	7.7	27.3	11.1	14.3	30.0	17.4
Pollution from industrial wastes	8.3	30.8	18.2	33.3	14.3	20.0	20.3
Pollution from agro-chemicals	25.0	23.1	18.2	33.3	28.6	10.0	23.2

Table 3.2.14: Percentage No. of Village Council members knowledgeable on CC impacts

Impact of climate change	Kisongwe	Ibingu	Lunenzi	Mahama	Nzali	Manchali	Total
Floods	25.0	15.4	27.3	11.1	28.6	10.0	20.3
Drought	33.3	23.1	36.4	88.9	57.1	70.0	49.3
Changes in crop yields	83.3	76.9	63.6	88.9	71.4	90.0	78.3
Diseases outbreaks	33.3	30.8	18.2	55.6	50.0	50.0	39.1
Loss of animal and plant species	16.7	7.7	27.3	22.2	21.4	10.0	17.4

3.3 Specific Impacts of the C3S Agricultural Techniques Training on Farmers

3.3.1 Impact on farmers crop productivity, income and profit

Training of small-scale farmers on climate smart agriculture was one of the major activities that were implemented by the project. In order to determine the impact of the training on the first hand participants, the results on the profit and loss analyses, crop productivities and incomes were disaggregated into trained and untrained farmers. Apart from profit, income from sales of agricultural produce was also used in determining the impact of the training on C3S agriculture. An agricultural income gives information on the viability of the agricultural sector and is properly taken into account into discussions on policy perspectives.

Profit computations

The methodology used to reveal the profits and losses started by the identification of all cost elements involved in the production of a crop an individual farmer regarded it as the most important in terms of supporting his/her livelihood. The cost elements identified and furnished with data on the actual expenses incurred by the small-scale farmers include; land preparation, ploughing, inputs (seeds, fertilizers, pesticides), application of C3S techniques like terracing, other farm operations (weeding, pests control, harvesting, sorting, storage, transport). Farmers were then asked to disclose their revenues accrued from sales of main crops. Equivalent values of agricultural produce in monetary term kept by individual or household for food security or already consumed were also included to get the total revenues. Finally, the total costs were deducted from the total revenues to capture the profit or loss realised by each individual farmer.

In accordance with the results of the cost-benefit analysis, 80.0% of maize farmers who were trained realised profits of more than 10.0% as compared to 44.7% of non-trained farmers who realised the same levels of profit. The results also indicate that 12.0% of trained-farmers realised profits in a range of 31.0 to 35.0% compared to 5.3% of the untrained farmers who realised the same levels of profit from maize (Table 3.3.1). In terms of productivity, 50.0% of the trained-farmers realised high yields of maize in a range of 7 to 10 bags per acre as compared to 23.7% of untrained farmers who realised the same levels of unit yields (Table 3.3.9). Similarly, 56.2% of sorghum farmers realised profits of more than 10.0% as compared to 46.1% of untrained farmers who realised the same levels of profit from sorghum crop (Table 3.3.2).

Trained farmers also proved more effective than untrained farmers in terms of achieving commendable productivities. For example, 82.3% of trained farmers realised productivity in a range of 4 to 10 bags per acre of sorghum as compared to 66.7% of untrained farmers who achieved the same levels of productivity in sorghum (Table 3.3.10).

Trained farmers also performed better in bean production where 13.6% of them realised the highest yields of 9 – 10 bags per acre as compared to only 6.6% of untrained farmers who realised the same yields per unit area (Table 3.3.11). Trained farmers also proved more effective in groundnut production where 75.0% of them realised profit compared to 50.0% of untrained farmers who realised profit from groundnut production. The high profits realised by trained farmers from groundnut production was also reflected in the high yields realised per unit area. For example, 25.0% of the trained farmers realised 10 bags of groundnut per acre which was the highest productivity. None of the untrained farmers achieve this level of groundnut productivity (Table 3.3.12).

Trained farmers demonstrated their superiority in realising high levels of income generated from production of the main crops. The highest incomes generated from the production of sunflower, maize, and sorghum were realised by trained farmers (Table 3.3.15, Table 3.3.16, and Table 3.3.17, respectively).

An assessment of trends in profits realised by farmers indicate that 68.4% of trained farmers reported an increase in the profits realised for the past 3 seasons as compared to 49.1% of untrained farmers who reported an increase in profits during the same period (Table 3.3.7). An analysis of the evaluation results also indicate that 70.7% of trained small-scale farmers reported to have experienced some increases in their incomes realised from agricultural production as compared to 46.8% of untrained farmers (Table 3.3.21).

Due to the fact that 30.7% of the surveyed small-scale farmers acknowledged to have been informed about C3S agriculture by their fellow villagers, some of the untrained farmers had effectively utilised the second hand information to improve their profits, productivities and incomes in a more or less similar way demonstrated by those who received the first hand training. This fact is evidenced by the high levels of productivity, income and profits realised by this group of small-scale farmers in sesame and sunflower.

Nevertheless, apart from the above-described achievements attributed to the training on C3SA received by some of the small-scale farmers surveyed, there are areas where the trained famers did not perform well. Results generated by various studies conducted on adoption of agricultural innovations indicate that not all farmers exposed to agricultural innovations adopt them at the same time as suggested by some inconsistencies exhibited by the evaluation results. This situation could also be attributed to the innovation adoption theory put forward by Rogers in 1958. According to his theory, farmers disaggregate into five adopter categories including Innovators (2.5%), Early Adopters (13.5%), Early Majority (34.0%), Late Majority (34.0%) and Laggards (16.0%) in the due process of adopting an agricultural innovation (Figure 3.3.1). The identification of the actual categories of the farmers in terms of adoption of the climate smart small-scale agricultural techniques was beyond the scope of this study. Depending on which adopter categories the famers were in during the evaluation, the small-scale famers could achieve more if given longer period of time than the 27 months of the project implementation.

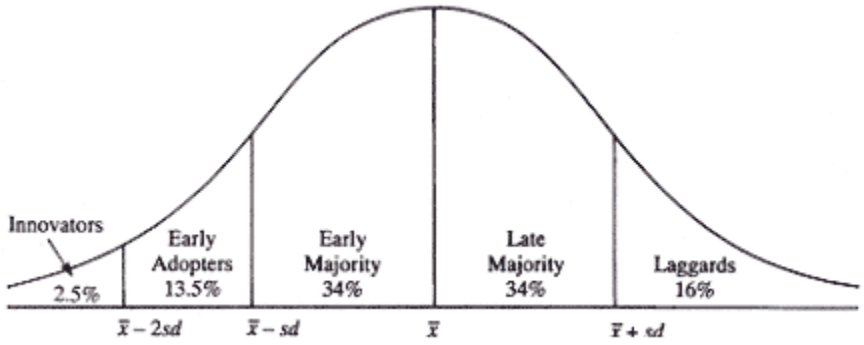


Figure 3.3.1: The classic adoption curve indicating a small number of individuals adopting the innovation early (left tail), followed by the majority of adopters and laggards (after Rogers, 1958).

Stages of the Adoption Process

According to Beal, Rogers, and Bohlen (1957), the adoption process is not a one-time event but a process occurring in a sequence of distinct stages as follows:

(i) Awareness-The farmer knows of the existence of the innovation but lacks details.
(ii) Information-The farmer becomes interested in the innovation and seeks further information.
(iii) Evaluation-The farmer takes the information about the innovation and weighs the alternatives regarding resources of land, labour, capital, and management ability.
(iv) Trial-The farmer uses the innovation on a small-scale basis.
(v) Adoption-The farmer uses the innovation on a full-scale basis.

Based on this, the 27 months of the project implementation could have not been enough for the majority of the trained farmer to adopt the climate smart small-scale agricultural techniques. It was possible that after 27 months, some were still evaluating the innovation, and some were still trying and not yet decided to use the C3S agricultural techniques in a full-scale basis. There are several factors that make some of the Small-scale farmers fail or take more time before they adopt new agricultural techniques. Lack of enough capital to meet costs and other requirements involved in adoption of the new agricultural techniques is one of the most important factors. Some of the farmers surveyed during the evaluation reported that they were not able to make terraces due to lack of enough money needed to facilitate this labour intensive C3S technique. Lack of reliable market for sorghum was another factor that seemed to discourage small-scale farmers from expanding their agricultural production.

3.3.2 Quotations of Project Success Testimonies from Small-scale Farmers

Lunenzi village

"My name is Emilian Daniel Mdoma, a smallholder farmer living in Lunenzi village located in Lumuma Ward in Kilosa district. I would like to testify about my achievement emanated from my participation into the Farmer Field Schools facilitated by CCAP project. Through the CCAP operations, I have learned and adopted climate smart improved agricultural practices for the past two years. Through the use of these practices, the crop yields from my plots have increased from 3 to 7 bags of maize per acre and that of beans from 2 to 4 bags per acre. Fortunately, the increase in my crops yields has also increased my income and profit. As an outcome of this achievement, I have been able to support my children with school fees and

related scholastic materials. In order to manage my income, I joined the savings and credit group where I keep my money and get loans to expand my agricultural production".

Manchali village

"My name is Charles Stanley Msakazi, a smallholder farmer living in Manchali village located in Chamwino district. To me CCAP project was a redeemer which delivered my household from chronic hunger and poverty. The climate smart Small-scale farming practices taught by the project have been a powerful tool in increasing crop production. Since I adopted the improved agricultural practices, my life has changed and my household has been enjoying a year round food supply from sorghum. On the other hand, the project assisted us in getting improved seeds for sunflower that has increased our production and profit. The use of improved seeds and other technical recommended agricultural practices has increased sunflower productivity from 3 to 7 bags per acre and profit from 5% to 25%".

Kisongwe village

"My name is Valentina Simon Mnyagatwa, a smallholder farmer living in Kisongwe village located in Lumbiji ward, Kilosa district. The CCAP project has been an eye opener to my knowledge and practical application of climate smart Small-scale farming techniques. Through CCAP facilitation, I have been able to improve my farm soil organic matter and moisture. This has improved the performance of our traditional crop plant varieties in terms of increased yields and profits. For example, the bean productivity has increased from 3 bags per acre in 2012 to 4 bags per acre in 2014 and the profit from 10% to 30%, respectively".

a) Profits

Table 3.3.1: Maize profit and loss analysis by participation in project training (N=63)

Profit or Loss in %	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
-30.0 to -19.0	2	8.0	3	7.9	5	7.9
-18.0 to -10.0	1	4.0	5	13.2	6	9.5
-9.0 to -5.0	1	4.0	3	7.9	4	6.4
1.0 to 10.0	1	4.0	10	26.3	11	17.5
11.0 to 20.0	12	48.0	8	21.0	20	31.8
21.0 to 30.0	5	20.0	7	18.4	12	19.0
31.0 to 35.0	3	12.0	2	5.3	5	7.9
Total	25	100.0	38	100.0	63	**100.0**

Table 3.3.2: Sorghum profit and loss analysis by participation in project training (N=29)

Profit or Loss in %	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
-20.0 to -10.0	1	6.3	4	30.8	5	17.2
-5.0 to -2.0	2	12.5	1	7.7	3	10.4
1.0 to 10.0	4	25.0	2	15.4	6	20.7
11.0 to 20.0	7	43.7	2	15.4	9	31.0
21.0 to 25.0	2	12.5	3	23.0	5	17.2
31.0 to 37.0	0	0.0	1	7.7	1	3.5
Total	16	100.0	13	100.0	29	**100.0**

Table 3.3.3: Groundnut profit and loss analysis by participation in project training (N=6)

Profit or Loss in %	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
-5.0 to -4.0	1	25.0	1	50.0	2	33.3
8.0	1	25.0	0	0.0	1	16.7
25.0	1	25.0	0	0.0	1	16.7
35.0 to 38.0	1	25.0	1	50.0	2	33.3
Total	4	100.0	2	100.0	6	**100.0**

Table 3.3.4: Sunflower profit and loss analysis by participation in project training (N=52)

Profit or Loss in %	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
4.0 to 20.0	12	36.4	7	36.8	19	36.5
21.0 to 25.0	10	30.3	4	21.1	14	26.9
26.0 to 31.0	7	21.2	6	31.6	13	25.0
32.0 to 37.0	4	12.1	2	10.5	6	11.6
Total	33	100.0	19	100.0	52	**100.0**

Table 3.3.5: Bean profit and loss analysis by participation in project training (N=45)

Profit or Loss in %	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
-28.0 to -15.0	2	11.8	2	7.1	4	8.9
-14.0 to -11.0	0	0.0	2	7.1	2	4.4
2.0 to 10.0	5	29.4	1	3.6	6	13.3
12.0 to 20.0	4	23.5	13	46.5	17	37.8
21.0 to 30.0	4	23.5	7	25.0	11	24.4
31.0 to 37.0	2	11.8	3	10.7	5	11.2
Total	17	100.0	28	100.0	45	**100.0**

Table 3.3.6: Sesame profit and loss analysis by participation in project training (N=11)

Profit or Loss in %	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
-5.0	1	25.0	0	0.0	1	9.1
4.0 to 16.0	1	25.0	2	28.6	3	27.3
20.0 to 22.0	2	50.0	2	28.6	4	36.4
30.0 to 35.0	0	0.0	3	42.8	3	27.2
Total	4	100.0	7	100.0	11	**100.0**

Table 3.3.7: Trend in % profits from the main crops in the last 3 seasons (N=208)

Profit trend status	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
Increased	67	68.4	54	49.1	121	58.2

Remained the same	8	8.2	11	10.0	19	9.1
Decreased	22	22.4	42	38.2	64	30.8
Don't Know	1	1.0	3	2.7	4	1.9
Total	**98**	**100.0**	**110**	**100.0**	**208**	**100.0**

b) Crop productivity

Table 3.3.8: Sunflower crop productivity by participation in project training (N=53)

Yield in bags (100kg@) per Acre	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
1.0 – 3.0	7	21.2	4	20.0	11	20.8
4.0 – 6.0	16	48.5	11	55.0	27	50.9
7.0 – 8.0	6	18.2	2	10.0	8	15.1
9.0 – 10.0	3	9.1	2	10.0	5	9.4
11.0 – 15.0	1	3.0	1	5.0	2	3.8
Total	33	100.0	20	100.0	53	**100.0**

Table 3.3.9: Maize crop productivity by participation in project training (N=58)

Yield in bags (100kg@) per Acre	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
1.0 – 3.0	5	25.0	13	34.2	18	31.0
4.0 – 6.0	5	25.0	16	42.1	21	36.2
7.0 – 8.0	6	30.0	8	21.1	14	24.1
9.0 – 10.0	4	20.0	1	2.6	5	8.6
Total	20	100.0	38	100.0	58	**100.0**

Table 3.3.10: Sorghum crop productivity by participation in project training (N=29)

Yield in bags (100kg@) per Acre	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
1.0 – 3.0	3	17.65	4	33.3	7	24.14
4.0 – 6.0	11	64.7	6	50.0	17	58.62
7.0 – 8.0	3	17.65	2	16.7	5	17.24
9.0 – 10.0	0	0.0	0	0.0	0	0.0
Total	17	100.0	12	100.0	29	**100.0**

Table 3.3.11: Bean crop productivity by participation in project training (N=52)

Yield in bags (100kg@) per Acre	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
0.6 – 3.0	10	45.5	19	63.4	29	55.8
3.5 – 6.0	9	40.9	9	30.0	18	34.6
7.0 – 8.0	3	13.6	1	3.3	4	7.7
9.0 – 10.0	0	0.0	1	3.3	1	1.9

Total	22	100.0	30	100.0	52	**100.0**

Table 3.3.12: Groundnut crop productivity by participation in project training (N=6)

Yield in bags (100kg@) per Acre	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
5.0	2	50.0	1	50.0	3	50.0
7.0	1	25.0	0	0.0	1	16.7
8.0	0	0.0	1	50.0	1	16.6
10.0	1	25.0	0	0.0	1	16.7
Total	4	100.0	2	100.0	6	**100.0**

Table 3.3.13: Sesame crop productivity by participation in project training (N=11)

Yield in bags (100kg@) per Acre	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
1.0	1	25.0	4	57.1	5	45.5
2.0	1	25.0	2	28.6	3	27.3
3.0	2	50.0	0	0.0	2	18.2
5.0	0	0.0	1	14.3	1	9.0
Total	4	100.0	7	100.0	11	**100.0**

Table 3.3.14: Trend in yields from the main crops in the last 3 seasons (N=209)

Yields trend status	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
Increased	69	69.7	51	46.4	120	57.4
Remained the same	3	3.0	15	13.6	18	8.6
Decreased	27	27.3	44	40.0	71	34.0
Total	**99**	**100.0**	**110**	**100.0**	**209**	**100.0**

c) Incomes

Table 3.3.15: Income realised by farmers from sunflower by participation in project training (N=53)

Income in TZS	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
50,000 – 250,000	8	24.2	6	30.0	14	26.4
251,000 – 500,000	12	36.4	8	40.0	20	37.7
501,000 – 750,000	8	24.3	2	10.0	10	18.9
751,000 – 1,000,000	1	3.0	1	5.0	2	3.8
1,001,000 – 1,700,000	3	9.1	3	15.0	6	11.3
3,500,000	1	3.0	0	0.0	1	1.9
Total	33	100.0	20	100.0	53	**100.0**

Table 3.3.16: Income realised by farmers from maize by participation in project training (N=57)

	Training in C3S Agriculture	

Income in TZS	Trained		Untrained		Total	
	N	%	N	%	N	%
30,000 – 250,000	4	20.0	18	48.7	22	38.6
251,000 – 500,000	8	40.0	10	27.0	18	31.6
501,000 – 750,000	5	25.0	6	16.2	11	19.3
751,000 – 1,000,000	2	10.0	1	2.7	3	5.3
1,001,000 – 1,400,000	0	0.0	2	5.4	2	3.5
2,400,000	1	5.0	0	0.0	1	1.7
Total	**20**	**100.0**	**37**	**100.0**	**57**	**100.0**

Table 3.3.17: Income realised by farmers from sorghum by participation in project training (N=30)

Income in TZS	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
40,000 – 250,000	12	70.6	8	61.5	20	66.7
251,000 – 400,000	2	11.8	3	23.1	5	16.7
401,000 – 600,000	2	11.8	2	15.4	4	13.3
601,000 – 882,000	1	5.8	0	0.0	1	3.3
Total	**17**	**100.0**	**13**	**100.0**	**30**	**100.0**

Table 3.3.18: Income realised by farmers from bean by participation in project training (N=52)

Income in TZS	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
75,000 – 250,000	6	28.6	6	19.4	12	23.1
251,000 – 500,000	3	14.3	10	32.2	13	25.0
501,000 – 750,000	3	14.3	3	9.7	6	11.5
751,000 – 1,000,000	5	23.8	5	16.1	10	19.2
1,001,000 – 1,500,000	4	19.0	4	12.9	8	15.4
1,501,000 – 2,400,000	0	0.0	3	9.7	3	5.8
Total	**21**	**100.0**	**31**	**100.0**	**52**	**100.0**

Table 3.3.19: Income realised by farmers from groundnut by participation in project training (N=6)

Income in TZS	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
150,000	1	25.0	0	0.0	1	16.67
200,000	1	25.0	0	0.0	1	16.67
300,000	1	25.0	1	50.0	2	33.30
432,000	1	25.0	0	0.0	1	16.67
1,500,0000	0	0.0	1	50.0	1	16.67
Total	**4**	**100.0**	**2**	**100.0**	**6**	**100.0**

Table 3.3.20: Income realised by farmers from sesame by participation in project training (N=11)

	Training in C3S Agriculture	

Income in TZS	Trained		Untrained		Total	
	N	%	N	%	N	%
120,000 – 280,000	0	0.0	4	57.1	4	36.4
281,000 – 400,000	1	25.0	0	0.0	1	9.0
401,000 – 600,000	2	50.0	1	14.3	3	27.3
601,000 – 1,200,000	1	25.0	2	28.6	3	27.3
Total	**4**	**100.0**	**7**	**100.0**	**11**	**100.0**

Table 3.3.21: Trend in incomes from the main crops in the last 3 seasons (N=208)

Incomes trend status	Training in C3S Agriculture				Total	
	Trained		Untrained			
	N	%	N	%	N	%
Increased	70	70.7	51	46.8	121	58.2
Remained the same	9	9.1	13	11.9	22	10.6
Decreased	20	20.2	44	40.4	64	30.8
Don't Know	0	0.0	1	0.9	1	0.4
Total	**99**	**100.0**	**109**	**100.0**	**208**	**100.0**

3.3.3 Comparisons between farmers directly trained by the project and others

Apart from comparing crop productivities, incomes and profit levels realised by farmers directly involved in the project (through trainings, workshops etc.) and others, the evaluation team also made a comprehensive comparisons of the two groups. These comparisons yielded very interesting results as demonstrated by Table 3.3.22 – Table 3.3.40, where farmers directly trained by the project performed better in most of the variables compared to other farmers. For example, trained farmers were more knowledgeable on climate change than those not trained: temperature 46.9% versus 39.1%, change in wind pattern 16.3% versus 14.5%, changes in rainfall 81.8% versus 52.7%, changes in clouds pattern 14.3% versus 12.7%, respectively (Table 3.3.25). Trained farmers were more knowledgeable on the impacts of climate change: floods 31.6% versus 23.6, drought 88.9% versus 62.7%, changes in crop yields 45.9% versus 29.1%, loss of animal and plant species 6.2% versus 5.5%, decrease in water levels 1.0% versus 0.0%, respectively (Table 3.3.26). Trained farmers were more knowledgeable on the causes of climate change than untrained: deforestation 86.9% versus 60.6%, industrial wastes 22.4% versus 20.2%, pollution from agricultural chemicals 9.5% versus 8.5%, respectively (Table 3.3.27). The analysis of the evaluation results indicate that 86.9% of the trained farmers were more knowledgeable on climate smart agricultural techniques compared to 64.2% of those who were not directly trained by the project (Table 3.3.28).

More interestingly, the results of the evaluation indicate that the proportions of trained farmers who adopted climate smart agricultural practices were higher compared to those for farmers not directly trained by the project: use of drought resistant varieties 43.9% versus 26.6%, use of early maturing varieties 30.6% versus 23.6%, cover crops 53.5% versus 40.4%, cultural weed control 15.2% versus 9.2%, mulching 39.4% versus 29.1%, respectively (Table 3.3.29). Other variables indicating better performance of trained farmers against those not directly trained by the project include: engagement with MVIWATA - 27.3% versus 23.9% and MJUMITA - 30.3% versus 21.8% (Table 3.3.30), access to extension services - 73.7% versus 41.8% (Table

3.3.30), access to agricultural credit - 16.3% versus 13.6% (Table 3.3.31), access to resources from district councils - 20.2% versus 10.1% (Table 3.3.35), access to information for improvement of resilience to climate change - 84.8% versus 53.6% (Table 3.3.38), and tree planting practices - 71.7% versus 55.0% (Table 3.3.39).

Table 3.3.22: Comparison between male and females trained on C3SA (N=209)

Training on C3SA and climate change	Sex of Respondent				Total	
	Male		Female			
	No	%	No	%	No	%
Trained on C3SA and response to climate change	52	52.0	47	43.1	99	47.4
Not trained on C3SA and response to climate change	48	48.0	62	56.9	110	52.6
Total	101	100.0	109	100.0	209	**100.0**

Table 3.3.23: Comparison between levels of education reached by trained and untrained farmers (N=209)

Farmers' level of education	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Not attended school	4	4.0	11	10.0	15	7.2
Primary education	89	89.9	88	80.0	177	84.7
Secondary education	6	6.1	11	10.0	17	8.1
Total	99	100.0	110	100.0	209	**100.0**

Table 3.3.24: Comparison between main crops grown by trained and untrained farmers (N=209)

Main crops grown by farmers	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Maize	21	21.2	37	33.6	58	27.8
Beans	19	19.2	30	27.3	49	23.4
Sorghum	18	18.2	13	11.8	31	14.8
Sunflower	32	32.3	20	18.2	52	24.9
Simsim	4	4.0	7	6.4	11	5.3
Maize and Beans intercrop	1	1.0	0	0.0	1	0.5
Groundnuts	4	4.0	3	2.7	7	3.3
Total	99	100.0	110	100.0	209	**100.0**

Table 3.3.25: Comparison of levels of knowledge on climate change between trained and untrained farmers

Farmers knowledge on climate change	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Temperature (N=208)	46/98	46.9	43/110	39.1	89	42.8
Change in wind pattern (N=208)	16/98	16.3	16/110	14.5	32	15.4
Changes in rainfall quantity, pattern & distribution (N=209)	81/99	81.8	58/110	52.7	139	66.5
Change in clouds patters (N=208)	14/98	14.3	14/110	12.7	28	13.5

Table 3.3.26: Comparison of levels of knowledge on impacts of CC between trained and untrained farmers

Farmers knowledge on climate change impacts	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Floods (N=208)	31/98	31.6	26/110	23.6	57	27.4

Drought (N=209)	88/99	88.9	69/110	62.7	157	75.1
Changes in crop yields (N=208)	45/98	45.9	32/110	29.1	77	37.0
Disease outbreaks (N=207)	8/98	8.2	11/109	10.1	19	9.2
Loss of animal and plant species (N=207)	6/97	6.2	6/110	5.5	12	5.8
Others – Decreased water levels (N=209)	1/99	1.0	0/110	0.0	1	0.5

Table 3.3.27: Comparison of levels of knowledge on causes of CC between trained and untrained farmers

Farmers knowledge on causes of climate change	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Deforestation (N=208)	86/99	86.9	66/109	60.6	152	73.1
Vehicles and aero-planes emission (N=207)	9/98	9.2	14/109	12.8	23	11.1
Power generators emissions (N=206)	9/98	9.2	10/108	9.3	19	9.2
Industrial wastes (N=207)	22/98	22.4	22/109	20.2	44	21.3
Pollution from agricultural chemical (N=207)	9/95	9.5	9/106	8.5	18	9.0

Table 3.3.28: Comparison of levels of knowledge on C3SA between trained and untrained farmers (N=208)

Farmers knowledge on C3SA practices	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Knowledgeable on C3SA	86	86.9	70	64.2	156	75.0
Not knowledgeable on C3SA	13	13.1	39	35.8	52	25.0
Total	99	100.0	109	100.0	208	**100.0**

Table 3.3.29: Comparison of C3SA practices adoption levels between trained and untrained farmers

C3SA techniques adopted by farmers	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Drought resistant crop varieties (N=207)	43/98	43.9	29/109	26.6	72	34.8
Early maturing crop varieties (N=208)	30/98	30.6	26/110	23.6	56	26.9
Traditional irrigation (N=208)	11/98	11.2	8/110	7.3	19	9.1
Terraces (N=207)	35/98	35.7	33/109	30.3	68	32.9
Perennial crops (N=206)	6/98	6.1	3/108	2.8	9	4.4
Crop rotation (N=208)	19/98	19.4	17/110	15.5	36	17.3
Cover crop (N=208)	53/99	53.5	44/109	40.4	97	46.6
Minimum tillage (N=208)	19/98	19.4	20/110	18.2	39	18.8
Land fallowing (N=207)	16/98	16.3	15/109	13.8	31	15.0
Cultural weed control (N=208)	15/99	15.2	10/109	9.2	25	12.0
Uphill & downhill farming (N=207)	11/98	11.2	10/109	9.2	21	10.1
Agroforestry (N=208)	10/98	10.2	11/110	10.0	21	10.1
Use of fertilizers (N=208)	63/98	64.3	45/110	40.9	108	51.9
Forest clearing for agriculture (N=208)	3/98	3.1	2/110	1.8	5	2.4
Mulching (N=209)	39/99	39.4	32/110	29.1	71	34.0

Table 3.3.30: Comparison of engagement with local networks between trained and untrained farmers (N=208)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Engaged with MVIWATA (N=208)	27/99	27.3	26/109	23.9	53	25.5
Engaged with MJUMITA (N=209)	30/99	30.3	24/110	21.8	54	25.8

Table 3.3.31: Comparison of access to agricultural credit between trained and untrained farmers (N=208)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Accessed credit to finance agric. production	16	16.3	15	13.6	31	14.9
Not accessed credit to finance agric. production	82	83.7	95	86.4	177	85.1
Total	**98**	**100.0**	**110**	**100.0**	**208**	**100.0**

Table 3.3.32: Trend in access to agricultural credit between trained and untrained farmers (N=86)

Status of trend in access to agricultural credit	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Increased	17	42.5	17	37.0	34	39.5
Decreased	3	7.5	3	6.5	6	7.0
Don't Know	20	50.0	26	56.5	46	53.5
Total	**40**	**100.0**	**46**	**100.0**	**86**	**100.0**

Table 3.3.33: Comparison of access to agric. extension services between trained and untrained farmers (N=209)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Accessed agricultural extension services	73	73.7	46	41.8	119	56.9
Not accessed agricultural extension services	26	26.3	64	58.2	90	43.1
Total	**99**	**100.0**	**110**	**100.0**	**209**	**100.0**

Table 3.3.34: Comparison of visits by agricultural extension officer between trained and untrained farmers (N=205)

Frequency of visit to famers by extension officer	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Once per year	7	7.2	12	11.1	19	9.3
Twice per year	13	13.4	12	11.1	25	12.2
Thrice per year	9	9.3	6	5.6	15	7.3
Four times per year	6	6.2	4	3.7	10	4.9
More than 4 times	42	43.3	16	14.8	58	28.3
Never visited	20	20.6	58	53.7	78	38.0
Total	**97**	**100.0**	**108**	**100.0**	**205**	**100.0**

Table 3.3.35: Comparison of access to resources from district councils between trained and untrained farmers (N=208)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Accessed resources from district councils	20	20.2	11	10.1	31	14.9

Not accessed resources from district councils	79	79.8	98	89.9	177	85.1
Total	**99**	**100.0**	**109**	**100.0**	**208**	**100.0**

Table 3.3.36: Comparison of membership to financial services groups between trained and untrained farmers (N=209)

Frequency of visit to famers by extension officer	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Trade association	1	1.0	2	1.8	3	1.4
SACCOS	1	1.0	2	1.8	3	1.4
VICOBA	32	32.3	33	30.0	65	31.1
Other	38	38.4	22	20.0	60	28.7
None	27	27.3	51	46.4	78	37.4
Total	**99**	**100.0**	**110**	**100.0**	**209**	**100.0**

Table 3.3.37: Comparison of market access between trained and untrained farmers (N=206)

Frequency of visit to famers by extension officer	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Aggregate with other farmers	5	5.1	11	10.2	16	7.8
Sell to traders at the village	67	68.4	62	57.4	129	62.6
Sell to traders at the market	7	7.2	6	5.6	13	6.3
Sell to neighbours and local people	6	6.1	15	13.8	21	10.2
Sell at markets (in small quantities to customers)	5	5.1	3	2.8	8	3.9
Sell to company/buyer agents	2	2.0	6	5.6	8	3.9
Others	6	6.1	5	4.6	11	5.3
Total	**98**	**100.0**	**108**	**100.0**	**206**	**100.0**

Table 3.3.38: Comparison of access to information for improvement of resilience to CC between trained and untrained farmers (N=208)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Accessed information for improvement of resilience to CC	84	84.8	59	53.6	143	68.8
Not accessed information for improvement of resilience to CC	15	15.2	51	46.4	66	31.2
Total	**99**	**100.0**	**110**	**100.0**	**208**	**100.0**

Table 3.3.39: Comparison of tree planting practices between trained and untrained farmers (N=208)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Planted trees in the past 3 years	71	71.7	60	55.0	131	63.0
Not planted trees in the past 3 years	28	28.3	49	45.0	77	37.0

Total	**99**	**100.0**	**109**	**100.0**	**208**	**100.0**

Table 3.3.40: Comparison of use of energy saving cooking stove between trained and untrained farmers (N=209)

Engagement with local networks	Training on C3SA & CC				Total	
	Trained		Not Trained			
	No	%	No	%	No	%
Used energy saving cooking stove	47	47.5	54	49.1	101	48.3
Not used energy saving cooking stove	52	52.5	56	50.9	108	51.7
Total	**99**	**100.0**	**110**	**100.0**	**209**	**100.0**

3.4 Project Relevance, Efficiency, Effectiveness, Impact and Sustainability

3.4.1 Quality and Relevance of the Project Design

a) General

The project was well designed through participatory methodology and focused on addressing the key problems that affected the small-scale farmers in the project areas. The project was an innovative in the sense that it pulled 5 civil society organisations into a consortium with the aim of forging stronger links among themselves and eventually be able to address the problems of small-scale farmers in a more comprehensive manner. Implementation of CCAP project by this consortium is an innovative approach that needs to be emulated by other organisations and the Government. The five organisations, coordinated by TFCG, shared a commitment to increasing social accountability; reducing rural poverty; improving governance; and enhancing the ecological sustainability of Tanzania's development pathway. Whilst the partners enjoyed many shared values, they each brought something unique to the partnership and were able to complement each other in terms of skills, experience and networks required for efficient implementation of CCAP project.

b) Complementarity to the Country Development Needs

The project implementation was well in line with the national development needs and towards achieving the Vision 2025 aspirations for high quality livelihoods. According to Tanzania's Vision 2025, the high quality livelihood for all Tanzanians is expected to be realized in terms of food self-sufficiency and food security, UPE, gender equality and the empowerment of women in all economic and political relations and cultures, access to quality primary health care for all, access to quality reproductive health services for all individuals of appropriate ages, reduction in infant and maternal mortality rates, universal access to safe water and absence of abject poverty. In this way, the program intervention objectives also fully complemented to the implementation of National REDD+ Strategy to contribute to climate change mitigation, adaptation and overall sustainable development.

c) Program Monitoring System

Learning and knowledge management was given priority in the project document. Reflection meetings were planned and convened on quarterly basis where all key partners and project staff attended. Issues and challenges emerged during the project implementation were critically discussed and appropriate strategies to overcome them devised. For example, the issue of some of the partners not responding to deadlines set for submission of financial reports was discussed in depth and appropriate resolutions passed to halt the discrepancy. The project also had a functional Management Information System and the information was properly managed, stored and distributed to relevant stakeholders. Project management reports were prepared and

timely shared with key stakeholders on quarterly basis. As an overseer of CCAP, the Project Advisory Committee (PAC) met on quarterly basis to monitor the project implementation and played an advisory role to the project team. Members from various partners together with VPO, Ministry of Agriculture, Regional Authority, and respective District Councils constituted the PAC.

According to the evaluation plan, the project planned to use three types of indicators in monitoring its progress in the due course of its implementation. These indicators include intermediate outcome indicator, immediate outcome indicators, and output indicators. The changes in attitude and behaviour of boundary partners were measured by progress markers.

While the project monitoring and evaluation plan contained an exhaustive list of progress markers, it lacked SMART indicators, especially those needed to measure the impact of the climate smart agricultural techniques adopted by small-scale farmers.

3.4.2 Efficiency (Levels of Resources Use and Value for Money)

a) Funding and financial expenditure

Generally, the resources (financial, human, and materials) committed for the project implementation were used efficiently for the benefit of the target communities (villages). The overall budget allocation for the project committed by DFID-AcT was USD 1,540,000 of which 1,263,170.20 was already disbursed and received by CCAP. On the other hand, the total amount of fund spent for the project implementation was 1,265,982.94. Comparing between the funds received and spent, there was an over expenditure of USD 2,812.74 (0.2%). Based on the total funds committed for the project, development partners (DFID-AcT) owe the project a total sum of USD 274,017.06 (17.8%). From the above analysis, the project was able to spend all the money it received from development partners with a good over-expenditure that is well below 5%.

Taking into consideration of the level of implementation of planned activities and the results revealed by this evaluation, it is worth declaring that the project funds were efficiently used to realise the envisaged results presented and discussed in this report.

A review of the financial reports revealed some mathematical discrepancies which needed to be corrected. For example, the financial report for the period 1st July 2014 to 31st January 2015 recorded a variance of USD 61,178.63 instead of USD 71,940.55 which was the actual difference between the total budget of USD 324,759.81 and the total expenditure of 252,819.26 which also tallied with the 18.8% variance.

Nevertheless, the evaluation team revealed that there were some delays in funds disbursement from DFID-AcT to TFCG. One of the reasons for the delays noted was untimely retirements and submission of the financial reports to TFCG for consolidation by Action Aid and MVIWATA. Since development partners' (donor's) requirement of contractual obligation was for the implementing partners to achieve an expenditure of at least 75% of the disbursed semi-annually budget. Unfortunately, ActionAid and MVIWATA were a bit slower in both implementation and in producing financial reports to TFCG. As such TFCG delayed to submit a consolidated financial report to DFID-AcT, and ultimately the donor could not disburse the next funds until the implementation level was at 75%. Due to these differences in partners' commitment the project had some variances ranging from 18.8% to 42.7% as per 5 financial reports covering the period of October 2012 to January 2015. From experience point of view, projects implemented by a

consortium as the case of CCAP, normally need a longer period to ensure that all partners are able to shoulder their responsibilities amid an overlap of commitments.

Apart from its strength to bring together different institutional skills, experiences and expertise to complement each other within CCAP project, the Project Agreement signed by the five partners (TFCG, MJUMITA, MVIWATA, TOAM and ActionAid) had some operating challenges. Due to differences in individual institution operating systems including financial procedures, some partners were not able to facilitate timely implementation of planned activities. For example, some of the partners were not able to achieve 75% burning rate of approved six monthly budgets. As a result of this snag, financial reports were not timely received by TFCG for compilation and submit them to DFID-AcT.

The evaluation team learned that the project partners envisaged to seek additional funding of US$ 70,000 for capacity building at District level on climate change and REDD; participation in national and international meetings; one national meeting on climate change and agriculture; and support for micro-finance in the six project villages. However, no any remark to ascertain whether this plan materialised or not.

b) Alternatives for more efficient use of resources

The demand by the small-scale farmers to be paid for their participation in the project activities like training and evaluation was a derailing habit against the spirit of self-reliance. If the project was to use the committed funds in a more efficient way, the money paid to the farmers would have been used to train more small-scale farmers or pay for more materials for the demonstration plots. In order to foster the spirit of self-reliance and enhance sustainability in the future projects, village Governments should be required to sign a contract/MOU with the project committing themselves that they will share the project costs in terms of meals or fare, if any. Similarly, individual small-scale farmers should be sensitized during the village meetings or trainings

Normally, agricultural development workers are inclined to think that their problems would be solved if they just had more money to work with. And having more money to use is certainly better than having too little. But more money may not always result in greater impact if the money is not well used. For example, a specialist's message getting through to a small-scale farmer in Lunenzi village does not totally depend on how much money is spent on the process. Knowing the most efficient alternative of how should the project money be spent is the right approach to achieve more impact with less or same resource.

The resources committed to CCAP project could have also been used more efficiently, if all five implementing partners had same level of commitment towards the project tasks. It was learnt during the evaluation that some partners did not meet their contractual obligations on time as such there were a number of unnecessary delays during implementation of the planned project activities. For example MVIWATA was tasked to allocate an Agricultural Officer to the project but the earmarked officer went for further studies to pursue MSc, as a result the project in Kilosa survived with no Agricultural officer for a long time. Eventually, a forester with limited skills in agriculture was appointed by MVIWATA to act as an Agricultural Officer.

The CCAP project partners should have agreed to harmonize some of the financial and procurement regulations by selecting a fixed number of service providers in the database for the project in order to harmonize the costs and the qualities of project materials. Instead, some of the procurement invoices such as printing costs were extra ordinarily higher than it should be.

c) Measures that could be taken to improve value for money

Proper planning based on research findings and experience from similar project could improve achieving value for money. Allocation of funds committed for the project implementation based on the budgets, work-plans and financial agreed financial regulations also provide an avenue for achieving value for money. Both financial and programmatic monitoring, including audits with regular feedbacks with all partners and stakeholders are of paramount importance. Implementation of these measures provides the basis for transparency, participatory leadership and good governance.

3.4.3 Effectiveness in Achieving Objectives, Outcomes and Goal

a) General

The project implementation was effective in achieving the objectives and goal. This fact is evidenced by the project activities implemented in terms of providing training on C3S to farmers and change agents and provision of material support by the Local Government Authorities like industrial fertilizer and improved maize and sorghum seeds. As a result of the support, Small-scale farmers acknowledged to have improved their livelihoods through the income and profits realised from sales of their crops produced through application of climate smart agricultural techniques. The evaluation revealed that farmers' capacity to meet their basic needs has been improved to a certain extent as a result of the project support. On the other hand, through MJUMITA and MVIWATA networks, farmers managed to raise their voices demanding the Government to increase support for climate smart agriculture to enhance their adaptation and mitigation for climate change impacts. The evaluation team also noted that, through MVIWATA network two representatives of Small-scale farmers participated into the National Constitutional Assembly held last year (2014).

From the analysis of the project implementation versus the planned activities, the evaluation team revealed that most of the planned activities were implemented to realise the envisaged outputs, outcomes and objectives. While most of the activities targeting the Small-scale farmers at village level and the District Councils were executed by the project, not much was done in terms of advocacy at the national levels to influence the national level decision makers. An analysis for project effectiveness is further discussed in other sections of this report.

b) Contribution of the joint project modality to achievement of project results

Both project contracts signed between TFCG and DFID AcT and MOU agreed and signed by participating partners had clear roles and responsibilities clearly understood by each partner. The MOU borrowed (copy and paste) most of the clauses from the AcT vs TFCG Project Agreement. The MOU drew merits of technical background of all these five partners to enhance technical complementarity. There is no doubt that TFCG is very good not only at forest and biodiversity conservation and project management, but also at coordinating various implementing partners. TOAM is well experienced in agricultural issues and organic farming skills. MVIWATA is extremely good at fighting for farmers' rights including access to affordable agricultural input and assured good markets for their agricultural produce. MJUMITA is well known in mobilizing local communities and establishing local forest networks to take part in forest management and fight for good forest governance. ActionAid is very good at livelihoods and poverty alleviation interventions as well as research work. Despite differences in institutional policies and financial regulations, donor's contractual requirements were the main basis for implementing this CCAP project. TFCG ensured that each partner adhered to the contractual obligations – contributing project results recorded by the evaluation. There have

been some ideas from the project partners that the project partnership be extended to include the Government. This approach is likely to enhance the project effectives as it has been the case with Chololo village project in which the Government was also an internal partner.

c) Contribution of the coordination mechanisms

Vast experience of TFCG coordinating and implementing joint projects like CCAP was an added advantage to ensure effective coordination and implementation of this CCAP project. In the past, TFCG had coordinated and implemented several joint projects in the past with WCST, WWF, ICIPE, Birdlife International and KWS, in CEPF programme; TFS, CARE International, WCST and UNDP in Mount Uluguru; TFCG and MJUMITA in the REDD Project; WCST, FBD, CARE International, and WD in the Coastal Forest Project funded by Norway; just to mention a few examples. Through these past exposures, TFCG was appointed as the main coordinator to sign the project contract with DFID-AcT, followed by an operational MOU that spelt out clear roles and responsibilities of each participating partners, finally this was agreed and jointly signed by all partners – TFCG, ActionAid, TOAM, MJUMITA and MVIWATA. All participating partners were involved in developing six monthly work plans and reporting technical progress and financial reports to TFCG on timely basis. Most of the contractual obligations signed by TFCG and DFID-AcT were applicable in the MOU and it was a responsibility of each partner to adhere to.

d) Results achieved versus resources invested (human, time, financial)

Discussions with Village Government Councils revealed that the project met their expectations by 80%. The number of members per Village Council participated in the discussions were 10 to 15. This rating was reached by comparisons between the planned and implemented village level project activities. However, comparisons between planned activities and those implemented as documented by the technical progress reports, indicate that the project implementation was achieved by 90%. The 10% variance in the programmatic implementation was due to policy advocacy work that targeted the national level leaders.

Results from assessments of awareness, knowledge, and practice of climate smart agricultural techniques indicate appreciable achievements. The proportions of small-scale farmers realised profits of more than 5.0% was encouraging providing an evidence that that the resources invested and utilized by the project were efficiently used. More details on the project achievements can be referred to the Section 3.5.

e) Involvement of partners and collaborators in the project implementation

The CCAP project had laid down some mechanisms to ensure that project partners and collaborators or stakeholders are adequately involved in the implementation of the project. First, the project was overseen by the Project Advisory Committee (PAC), which drew members from the project partners, representatives from District and regional authorities, Councillors, Ministry of Agriculture, and Vice President's Office. All project six monthly work plans were prepared jointly with all project partners. Site base action plans were prepared and agreed in collaboration with District councils and Village representatives. All respective village Governments and local area MJUMITA and MVIWATA networks were actively involved in project planning, implementation, monitoring and evaluation.

3.4.4 Project Impact

a) General

The project goal was to contribute to the reduction of poverty amongst small-scale farmers in Tanzania and greenhouse gas emissions from agriculture through the widespread adoption of

climate resilient, low emission agricultural practices. Despite that no baseline information was available to enable the evaluation team to gauge the actual changes in the incomes, profits and capacities to meet their basic needs, some of the Small-scale farmers acknowledged to have reduced their levels of abject poverty. These claims are also evidenced by calculated levels of profits realised from sales of agricultural produce based on data provided by the Small-scale farmers. However, given the short period of the project implementation and the small number of the Small-scale farmers directly involved in the project trainings, the adoption and diffusion of the C3S agricultural techniques were still at the infancy stage. With time, more impact is expected especially if the support for training of farmers on climate smart agricultural techniques will be sustained in the project area. The evaluation team noted that some farmers were still experiencing some problems in practicing the C3S agricultural techniques associated with more costs as compared to conventional practices. For example, some of the farmers claimed to have limited labour force or financial resources to facilitate preparation of enough terraces, water harvesting troughs/pits and compost to cover large areas. Too few livestock were kept in the project area to guarantee availability of enough farmyard manure which was very important in sustaining soil productivity. Due to these factors, the Government and other stakeholders should promote the establishment of community-based savings and credit facilities in order to increase capacity of Small-scale farmers to meet costs associated with application of C3S agricultural techniques. Promotion of livestock production is also important in order to avail appropriate farmyard manure while at the same time diversifying livelihoods of the Small-scale farmers.

While the evaluation team attempted to determine the early signs towards achieving the project impact in terms of reducing poverty among the Small-scale farmers, tracing changes in the levels of carbon emissions was even not attempted. An analysis for project impact is further discussed in other sections of this report.

b) Other factors influenced the impact of the project

Apart from the above factors, this project had others factors that positively influenced and contributed to the results and impact of this project as discussed below. Before CCAP project started, TFCG and MJUMITA were already in Kilosa District implementing other similar projects on REDD+, Sustainable charcoal project and Forest management through Community Based Forest Management and Joint Forest management. MJUMITA had already established some local forest networks in the area to promote sustainable forest management and forest governance. TFCG was also working in other national Forest Reserves like Rubeho to carry our biodiversity research. TFCG and MJUMITA had already established good rapport with Morogoro regional authorities, Kilosa District council and Village Councils in the project area. Likewise, TOAM and ActionAid were already implementing similar projects in Dodoma and Chamwino in particular before CCAP project was initiated. Just like TFCG and MJUMITA in Kilosa, these institutions had already established good relationship with Dodoma regional authorities, Chamwino District and Village Authorities in the project area. MVIWATA presence in both Districts was there at least up to District headquarters. Later on, through CCAP project MVIWATA managed to establish local MVIWATA networks in project targeted villages. All the five civil societies had experience and knowledge about the CCAP project areas, which was a good basis for project smooth landing and taking off.

3.4.5 Sustainability

a) Community and Local Leaders Commitment

Discussions with District Commissioners, Councillors, DAICO, Ward Agricultural Officers and Village Councils revealed their commitment to sustain the project operations beyond its lifespan.

On the other hand, most of the surveyed small-scale farmers expressed their endeavour to continue adopting the climate-smart small-scale agricultural techniques and skills acquired during the project implementation. Small-scale farmers not directly involved in the training on C3S supported by the project expressed their readiness to learn from their fellows or attend to similar trainings whenever such an opportunity unfolds.

However, despite the achievements realised from the capacity building training supported by the project, there is a great need to continue strengthening capacities of local communities and leaders on their ability to oversee, manage, maintain, protect and sustain the project achievements and future long-term strategies.

b) Community and LGAs Participation (Contribution)

Although the actual or estimated values of all contributions made by the Local Government Authorities to complement the project efforts were not systematically documented, there was enough evidence that the project implementation received contributions from LGAs. However, Small-scale farmers seemed to be more dependent to the project than it was expected something which needs to be closely examined when designing for future projects or programmes. For example, some of the villagers demanded to be paid for their participation into the evaluation exercise. Much remains to be done to change the small-scale farmers' perception of NGOs as being donors instead of development partners. Discussions with the DAICOs and Village Councils revealed that the issues of climate-smart small-scale agricultural techniques as well as climate change adaptation and mitigation have been integrated into their respective plans. For example, regardless of whether these were sufficient, District Councils were providing technical support, improved seeds, fertilisers and pesticides to the farmers. In response to the project advocacy, Chamwino District decided to set aside a budget to establish a seed bank farm for reproducing crop seeds suitable in the area. Farmers in the project villages and others received the seeds from the District. Kilosa District also set aside an area for irrigation scheme and allocated TZS 40 million to support the irrigation project. The successful completion of the irrigation period led to upscale of the initiative at the budget of TZS 400 million. Due to the fact that the project design was participatory to a certain extent, the 5 project-implementing partners participated in planning, implementation, monitoring and evaluation. In order to build the capacity of local communities to finance various development initiatives including C3S agriculture after the CCAP graduation, a Community Resources Mobilization Strategy should be formulated and operationalized.

c) Community Based Savings and Credit Facilities

The establishment of self-propelling community based savings and credit facilities like VICOBA and SG will provide a new impetus to the historical endeavour of the project to empower the small-scale farmers. Under proper management of VICOBA and other similar groups, community members will be able to acquire substantial capital for investment into appropriate household IGAs and business micro-enterprises. Taking lessons and experience from other communities involved in VICOBA, farmers in the project area has an opportunity to achieve transformational development through a systematic process catalysed by constant learning, use of locally available resources and investment into appropriate livelihood activities.

3.5 General Results

3.5.1 Demographic Characteristics

a) Sex of respondents

Out of 210 respondents involved in the small-scale farmers' survey 47.6% were male while 52.4% were female. In terms of the individual Districts, Kilosa had 44.6% female and 55.4% male respondents while Chamwino District had 59.6% female and 40.4% male respondents. Despite that the evaluation intended to ensure a balanced participation between the two sexes, women were generally more responsive to the evaluation than men.

b) Education level of respondents

While results of this study indicate that 84.8% of male and 84.7% female respondents completed the universal primary school education (UPE), the 2010 TDHS reported that 69.9% male and 63.2% female either completed UPE or achieved some level of primary education. The evaluation results also indicate that 4.0% of male and 9.9% female respondents never attended school as compared to 33.0% males and 40.0% females reported by the 2010 TDHS for Dodoma region. However, the national average statistics of the 2010 TDHS indicate that 18.0% males and 27% female never attended school.

In terms of secondary education, the evaluation results indicate that more men (12.1%) completed secondary school as compared to women (4.5%). No any respondent of the evaluation reported to have attended tertiary education (college or university). For further information refer to Table 3.5.1.1 and Table 3.5.1.2.

Table 3.5.1.1: Comparison of levels of education between Kilosa and Chamwino (N=210)

Respondent's Level of education	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Not attended school	10	9.9	5	4.6	15	7.1
Primary education	85	84.2	93	85.3	178	84.8
Secondary education	6	5.9	11	10.1	17	8.1
Tertiary education	0	0.0	0	0.0	0	0.0
Adult education	0	0.0	0	0.0	0	0.0
Total	**101**	**100.0**	**109**	**100.0**	**210**	**100.0**

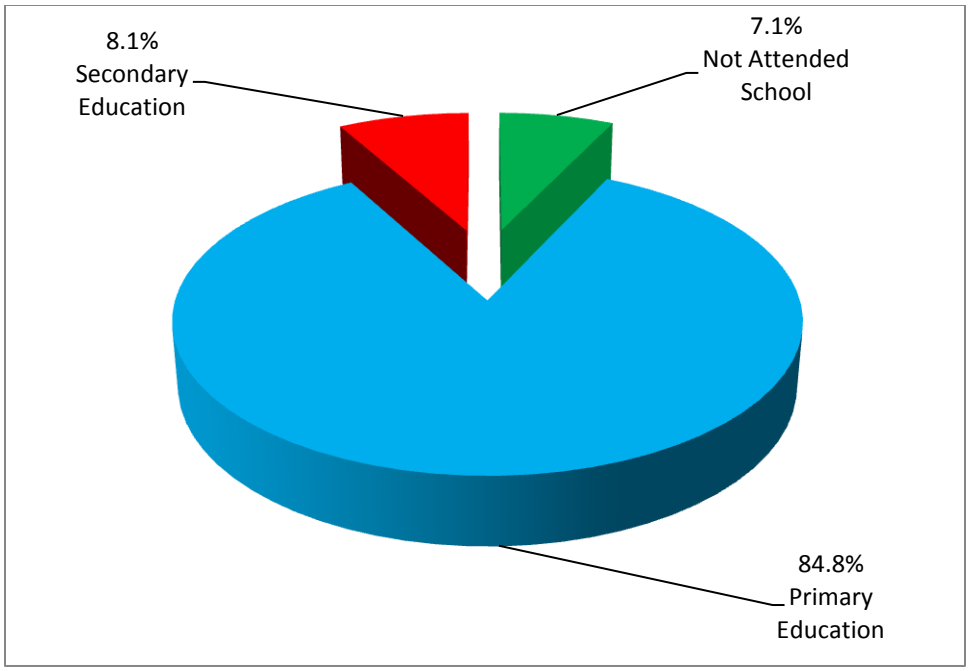


Figure 3.5.1.1: Respondent's Level of Education

Table 3.5.1.2: Comparison of levels of education between men and women (N=210)

Respondent's Level of education	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Not attended school	4	4.0	11	9.9	15	7.1
Primary education	84	84.8	94	84.7	178	84.8
Secondary education	12	12.1	5	4.5	17	8.1
Tertiary education	0	0.0	0	0.0	0	0.0
Adult education	0	0.0	0	0.0	0	0.0
Total	**99**	**100.9**	**111**	**99.1**	**210**	**100.0**

3.5.2 Knowledge, Awareness and Experience on Climate Change

a) Respondents' knowledge on definition of climate change

The evaluation team assessed awareness and the level of understanding on the definition about climate change among respondents. Results of this assessment revealed that out of the 2010 surveyed small-scale farmers, 82.9% (174) reported to have heard about climate change of which, 92.0% of them were males and 74.5% were females. On the hand, the proportions of MVIWATA members who acknowledged to have heard about climate change increased from 84.0% reported by the baseline to 100.0% and that of MJUMITA members increased from 75.0% to 100.0%, respectively. These findings indicate that members of MVIWATA and MJUMITA networks are more aware of climate change than non-members. The better understanding of climate change by the networks' members is further demonstrated by the fact that majority of them were able to define the term as follows: The proportions of MJUMITA

members who were able to define climate change increased from 41.0% reported by the baseline to 100.0% (prolonged drought), from 59.0% to 80.0% (reduced rainfall). On the other side, the proportions of MVIWATA members who were able to define climate change increased from 35.0% reported by the baseline to 95.0% (prolonged drought), from 50.0% to 85.0% (reduced rainfall), 9.0% to 75.0% (change in forest condition), and from 6.0% to 30.0% (change in wind). An analysis of proportions of small-scale farmers who were able to define climate change components is presented in Tables 3.5.2.1 and 3.5.2.2.

Table 3.5.2.1: Components included in farmers' definitions about climate change

Components of climate change	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Farmers heard about climate change (N=210)	92	92.0	82	74.5	174	82.9
Defined climate change as change in temperatures (N=209)	46	46.0	43	39.4	89	42.6
Defined climate change as change in rainfalls (N=210)	78	78.0	61	55.5	139	66.2
Defined climate change as change in winds (N=209)	15	15.0	17	15.6	32	15.3
Defined climate as change in clouds (N=209)	14	14.0	14	12.8	28	13.4

Table 3.5.2.2: Components included in farmers' definitions about climate change by District

Components of climate change	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Farmers heard about climate change (N=210)	83	82.2	91	83.5	174	82.9
Defined climate change as change in temperatures (N=209)	43	42.6	46	42.6	89	42.6
Defined climate change as change in rainfalls (N=210)	59	58.4	80	73.4	139	66.2
Defined climate change as change in winds (N=209)	13	12.9	19	17.6	32	15.3
Defined climate as change in clouds (N=209)	10	9.9	18	16.7	28	13.4

b) Farmers' knowledge on the impacts of climate

The evaluation team noted that small-scale farmers had various levels of understanding about the consequences and impacts of climate change as follows: floods (27.3%), Drought (74.8%), changes in crop yields (36.8%), disease outbreaks (9.1%) and loss of animal and plant species (5.8%). An analysis of the same results in terms of sex and individual Districts is presented in Tables 3.5.2.3 and 3.5.2.4.

On the other hand, members of MJUMITA and MVIWATA networks made commendable improvements in terms of their knowledge on the impacts of climate change against the baseline situation. The evaluation results indicate that MJUMITA members' knowledge improved from 43.0% recorded by the baseline to 75.0% (decrease in crop yield), from 30.0% to 40.0% (disease outbreak), from 9.0% to 85.0% (water shortage), from 15.0% to 45.0% (flood), and from 3.0% to 25.0% (loss of animals and plants species), respectively. MVIWATA members' knowledge improved from 31.0% recorded by the baseline to 75.0% (decrease in crop yield), from 21.0% to 40.0% (disease outbreak), from 31.0% to 85.0% (water shortage), and from 17.0% to 30.0% (flood), respectively.

Table 3.5.2.3: Knowledge on impacts of climate change among farmers by sex

Impacts of climate change	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Floods (N=209)	31	31.0	26	23.9	57	27.3
Drought (N=210)	81	81.0	76	69.1	157	74.8
Changes in crop yields (N=209)	41	41.0	36	33.0	77	36.8
Disease outbreaks (N=208)	13	13.0	6	5.6	19	9.1
Loss of animal and plant species (N=208)	7	7.0	5	4.6	12	5.8

Table 3.5.2.4: Knowledge on impacts of climate change among farmers by District

Impacts of climate change	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Floods (N=209)	27	26.7	26	27.8	57	27.3
Drought (N=210)	72	71.3	85	78.0	157	74.8
Changes in crop yields (N=209)	29	28.7	48	44.4	77	36.8
Disease outbreaks (N=208)	9	8.9	10	9.3	19	9.1
Loss of animal and plant species (N=208)	3	3.0	9	8.4	12	5.8

c) Main climate changes experienced by farmers in the project area

When asked about the climate changes they actually experienced in their respective areas, 37.2% of respondents mentioned increased temperature, 67.9% drought, 19.7% floods, 3.3% changes in rainfall pattern & pests outbreak, and 10.0% had not experienced any climate change. Majority of small-scale farmers not experienced climate changes were those born in the late 1990s when the good rain pattern had already been disrupted. An analysis of the results indicate an increase in temperature and drought were more pronounced in Chamwino than in Kilosa District (Table 3.5.2.5)

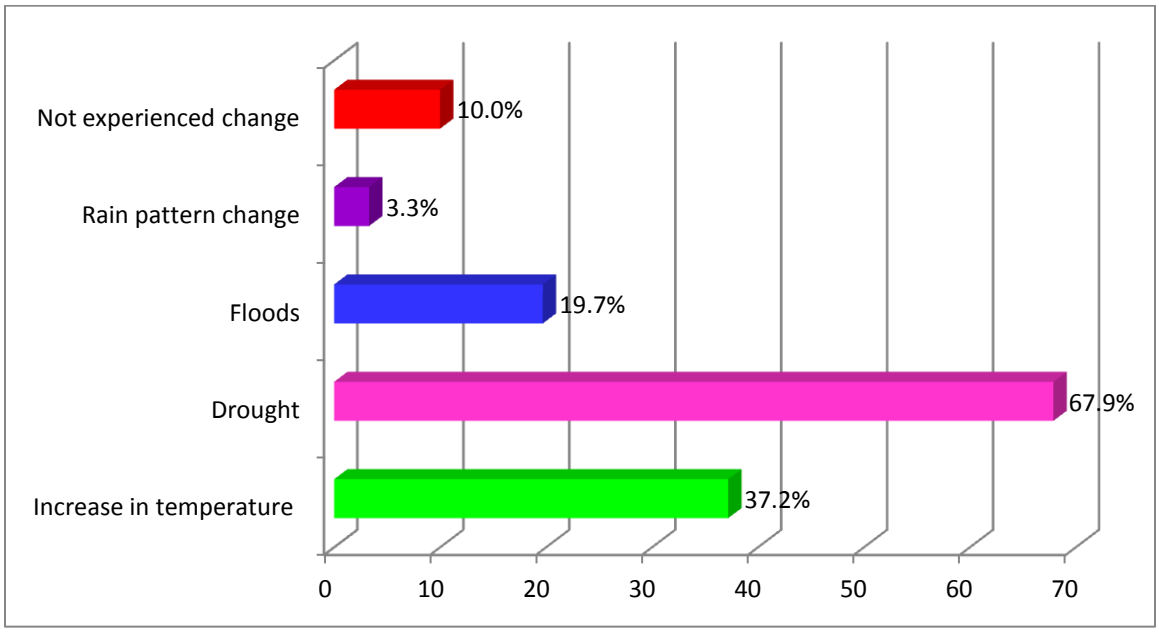


Figure 3.5.2.1: Main climate changes experienced by farmers in the project area

Table 3.5.2.5: Type of actual climate change or impact experienced by farmers by Districts

Components of climate change or impacts	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Increase in temperature (N=207)	32	32.0	45	42.1	77	37.2
Drought (N=209)	59	59.0	83	76.1	142	67.9
Floods (N=208)	21	21.0	20	18.5	41	19.7
Others (Change in rainfall pattern, pests outbreak (N=210)	4	4.0	3	2.8	7	3.3
Not experienced any change in climate (N=201)	12	12.2	8	7.8	20	10.0

d) Knowledge on the Causes of Climate Change among Small-scale farmers

The evaluation team was curious to know how knowledgeable were small-scale farmers regarding the causes of climate change. Results of this assessment revealed that 72.7% of surveyed small-scale farmers associated the climate change with deforestation, 20.3% gas emissions from vehicles and aeroplanes & power generators, 21.2% industrial wastes, 9.0% pollution from agricultural chemicals and 6.7% others. Further analysis of the results revealed that small-scale farmers in Chamwino were more aware (78.0%) of deforestation as a contributing factor to climate change as compared to 67.0% of those in Kilosa District (Table 3.5.2.7).

Members of MJUMITA and MVIWATA networks demonstrated higher levels of understanding regarding the causes of climate change as compared to that of small-scale farmers discussed above. Moreover, their levels of understanding on the factors involved in climate change improved against the baseline situation as follows: MJUMITA members' knowledge improved from 54.0% recorded by the baseline to 95.0% (deforestation), from 29.0% to 75.0% (pollution from uncontrolled burning), from 11.0% to 90.0% (pollution from agricultural activities), from 6.0% to 40.0% (pollution from power generation). MVIWATA members' knowledge improved from 45.0% recorded by the baseline to 90.0% (deforestation), from 15.0% to 50.0% (pollution from uncontrolled burning), from 25.0% to 90.0% (pollution from agricultural activities), from 12.0% to 35.0% (pollution from power generation) and from 3.0% to 40.0% (pollution from wastes).

Table 3.5.2.6: Knowledge on the causes of climate change among farmers by sex

Causes of climate change	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Deforestation (N=209)	77	77.0	75	68.8	152	72.7
Vehicles and aero-planes emission (N=208)	12	12.0	11	10.2	23	11.1
Power generators emissions (N=207)	8	8.0	11	10.2	19	9.2
Industrial wastes (N=208)	29	29.0	15	13.9	44	21.2
Pollution from agricultural chemical (N=201)	10	10.6	8	7.5	18	9.0
Others (N=210)	10	10.0	4	3.6	14	6.7

Table 3.5.2.7: Knowledge on the causes of climate change among farmers by District

Causes of climate change	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Deforestation (N=209)	67	67.0	85	78.0	152	72.7
Vehicles and aero-planes emission (N=208)	13	13.0	10	9.3	23	11.1
Power generators emissions (N=207)	8	8.1	11	10.2	19	9.2
Industrial wastes (N=208)	19	19.0	25	23.1	44	21.2
Pollution from agricultural chemical (N=201)	5	5.2	13	12.5	18	9.0
Others (N=210)	9	8.9	3	2.8	13	6.7

3.5.3 Knowledge and Use of Climate Smart Small-scale Agricultural Techniques

The evaluation team wanted to know whether the small-scale farmers were informed about the climate smart small-scale agricultural practices and whether they practiced the same. Results of this assessment show that 86.6% of the 209 surveyed farmers had heard about climate smart small-scale agricultural practices and that 74.6% were knowledgeable about the same. It is evident that the increase in the proportion of MJUMITA members who shared information on climate change, C3S agriculture with others from 65% reported by the baseline to 95.0% and that of MVIWATA members from 5.0% to 70.0%, respectively, contributed to the appreciable levels of awareness and knowledge on C3S agriculture among small-scale farmers.

Progress against the Baseline

An analysis of the group discussion responses indicate that the proportion of MJUMITA members who heard about C3S increased from 70.0% recorded by the baseline to 100.0% and that of MVIWATA increased from 63.0% to 100.0%, respectively. Further investigations revealed that small-scale farmers were practicing climate smart small-scale agriculture learned from the project. Outstanding progress made against the baseline situation for Kilosa District includes the use of terraces from 3.0% to 50.5%, use of cover crops from 5.0% to 53.5%, use of fertilisers from 0.0% to 36.0%, mulching from 8.0% to 35.6%, use of minimum tillage from 8.0% to 15.8%, use of proper Uphill and downhill farming from 3.0% to 15.8%, agroforestry from 0.0% to 5.9%, and forest clearing for agriculture from 10.0% to 3.0%.

Outstanding progress made against the baseline situation for Chamwino District includes the use of early maturing crop varieties from 18.0 to 36.1%, use of cover crops from 3.0% to 39.1%, use of fertilisers from 38.0% to 66.1%, mulching from 18.0% to 32.1%, use of minimum tillage from 18.0% to 21.3%, agroforestry from 10.0% to 13.9%, traditional irrigation from 0.0% to 13.9%, and forest clearing for agriculture from 15.0% to 2.8%.

From group discussion with Village Councils for all 6 project villages, the adoption rate of climate smart agricultural techniques was retarded by a number of constraints including lack of enough capital to cope with additional costs associated with making terraces, pits/troughs, compost, lack of credit, limited land for fallowing and expansion, insufficient human capital, absence of equipment (e.g. animal drown ploughs) to relieve labour shortages, thus preventing timeliness of land preparations, sowing, etc.

The analysis of the evaluation results for climate smart small-scale agricultural practices disaggregated by sex and individual Districts is presented in Tables 3.5.3.1 and 3.5.3.2, respectively.

Table 3.5.3.1: Farmers' knowledge and use of climate smart small-scale agricultural practices by sex

Component of knowledge and practice	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Heard about climate smart small-scale agriculture (N=209)	89	89.0	92	84.4	181	86.6
Knowledgeable about C3S agriculture practices (N=209)	73	73.0	83	76.1	156	74.6
Used drought resistant crop varieties (N=208)	35	35.0	38	35.2	73	35.1
Used early maturing crop varieties (N=209)	25	25.0	31	28.4	56	26.8
Adopted to traditional irrigation (N=208)	6	6.0	13	11.9	19	9.1
Used terraces (N=208)	35	35.4	33	30.3	68	32.7
Planted perennial crops (N=207)	6	6.0	3	2.8	9	4.3
Used crop rotation (N=209)	18	18.0	19	17.4	37	17.7
Planted cover crop (N=209)	50	50.0	47	43.1	97	46.4
Used minimum tillage (N=209)	19	19.0	20	18.3	39	18.7
Used land fallowing (N=208)	14	14.0	17	15.7	31	14.9
Used cultural weed control (N=209)	14	14.0	11	10.1	25	12.0
Applied proper uphill & downhill farming (N=208)	11	11.0	10	9.3	21	10.1
Applied agroforestry (N=209)	6	6.0	15	13.8	21	10.0
Adopted appropriate use of fertilisers (N=209)	49	49.0	59	54.1	108	51.7
Cleared forest for agriculture (N=209)	2	2.0	4	3.7	6	2.9
Applied mulching (N=210)	34	34.0	37	33.6	71	33.8

Table 3.5.3.2: Farmers' knowledge and use of climate smart small-scale agricultural practices by District

Component of knowledge and practice	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Heard about climate smart small-scale agriculture (N=209)	89	88.1	92	85.2	181	86.6
Knowledgeable about C3S agriculture practices (N=209)	76	75.2	80	74.1	156	74.6
Used drought resistant crop varieties (N=208)	19	18.8	54	50.5	73	35.1
Used early maturing crop varieties (N=209)	17	16.8	39	36.1	56	26.8
Adopted to traditional irrigation (N=208)	4	4.0	15	13.9	19	9.1
Used terraces (N=208)	51	50.5	17	15.9	68	32.7
Planted perennial crops (N=207)	5	5.0	4	3.8	9	4.3
Used crop rotation (N=209)	11	10.9	26	24.1	37	17.7
Planted cover crop (N=209)	54	53.5	43	39.1	97	46.4
Used minimum tillage (N=209)	16	15.8	23	21.3	39	18.7
Used land fallowing (N=208)	10	9.9	21	19.6	31	14.9
Used cultural weed control (N=209)	10	9.9	15	13.9	25	12.0
Applied proper uphill & downhill farming (N=208)	16	15.8	5	4.7	21	10.1
Applied agroforestry (N=209)	6	5.9	15	13.9	21	10.0
Adopted appropriate use of fertilisers (N=209)	36	36.0	72	66.1	108	51.7
Cleared forest for agriculture (N=209)	3	2.8	3	2.8	6	2.8
Applied mulching (N=210)	36	35.6	35	32.1	71	33.8

3.5.4 Farmers Trained in C3S/REDD and Participated in Knowledge Dissemination

One of the main activities of the project was to train small-scale formers on Climate Smart Small-scale Agriculture. Results of the evaluation regarding this main activity indicate that

47.4% of the small-scale farmers surveyed were trained on climate smart small-scale agriculture and adaptation to climate change (Tables 3.5.4.1 and 3.5.4.2).

Progress against the Baseline

A further analysis of the results indicate that the proportion of respondents trained in C3S agriculture increased from 10.0% reported by the project baseline to 42.0% for Kilosa and from 0.0% reported by the baseline to 52.3% for Chamwino District. The evaluation also revealed that 96.1% of those trained found the training on C3S agriculture and adaptation to climate change to be useful.

The analysis of the results also indicate that the proportion of respondents participated in REDD training increased from 8.3% reported by the project baseline to 63.4% for Kilosa. However, most of the small-scale farmers for Chamwino District reported to have not participated in REDD training despite the strong positive evidence revealed by the documentary review. This situation could have been attributed to the need by respondents to conceal the truth in the auspices of being considered for more training by development partners.

It was also worth noting that the proportion of farmers who attended training on REDD and participated in building capacity of others in other villages regarding C3S, REDD and natural resources management (NRM) increased from 18.3% reported by the baseline to 39.6% for males and from 6.7% baseline figure to 23.1% for females. Group discussions with those who received training revealed that lack of transport and financial support limited their outreach services.

Due to the fact that 30.7% of the surveyed small-scale farmers acknowledged to have been informed about C3S agriculture by their fellow villagers, there is no doubt that the first-hand knowledge received by small-scale farmers who were involved in the field farmer schools diffused among the community members.

Table 3.5.4.1: Farmers trained in C3S/REDD and participated in knowledge dissemination by sex

Component of training and practice	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Trained on C3S agriculture & adaptation to CC (N=209)	52	52.0	47	43.1	99	47.4
Training on C3S agriculture & adaptation to CC was useful (N=155)	71	98.6	78	94.0	149	96.1
Informed about C3S agriculture by fellow villagers (N=163)	29	34.9	21	26.3	50	30.7
Participated in any training on REDD (N=210)	39	39.0	26	23.6	65	31.0
Participated in building capacity of others in other villages on C3S, REDD and NRM (N=204)	38	39.6	25	23.1	63	30.9

Table 3.5.4.2: Farmers trained in C3S/REDD and participated in knowledge dissemination by District

Component of training and practice	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Trained on C3S agriculture & adaptation to CC (N=209)	42	42.0	57	52.3	99	47.4
Training on C3S agriculture & adaptation to CC was useful (N=155)	72	96.0	77	96.3	149	96.1
Informed about C3S agriculture by fellow villagers (N=163)	24	27.0	26	35.1	50	30.7
Participated in any training on REDD (N=210)	64	63.4	1	0.9	65	31.0
Participated in building capacity of others in other villages on C3S, REDD and NRM (N=204)	48	47.5	15	14.6	63	30.9

3.5.5 Information on Improvement of Resilience to Climate Change

It is worth noting that more than two thirds (68.1%) of the surveyed small-scale farmers received information on improvement of resilience to climate change. It is quite evident that the access to this important information contributed to the adoption of climate-smart practices by small-scale farmers discussed in the previous sections and improvements in their crop yields discussed in the subsequent sections. A further analysis of the results indicate that the proportion of Chamwino small-scale farmers (76.1%) accessed the information is greater than the proportion of those (59.4%) who accessed the information in Kilosa District (Table 3.5.5.1). This difference in access to information on improvement of resilience to climate change could be attributed to the fact that Chamwino villages are found on the midland plains that can be easily reached by roads. On the other side, Kilosa villages are remotely situated in the hilly undulating highlands that cannot be easily reached by roads, especially during the rainy seasons. For example, Lunenzi village cannot be accessed by road and the only way to get there is on foot from the neighbouring Ibingu village.

Progress against the Baseline

The evaluation results indicate that the proportion of small-scale farmers who received practical information for climate change resilience improved from 17.0% recorded by the baseline in 2013 to 59.4% for Kilosa District villages and from 20.0% to 76.1% for Chamwino District.

The main sources of this information mentioned by the farmers include radio (35.2%), NGOs (42.1%) and meetings (16.6%). Further analysis of the sources of information indicates that more farmers (50.0%) in Chamwino received information through NGOs as compared to Kilosa District (31.1%). This situation could have been due to the presence of more NGOs in Chamwino as compared to Kilosa District (Table 3.5.5.2).

Table 3.5.5.1: Farmers Received Practical Information on C3S agriculture (N=210)

Information Status	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Received Information	60	59.4	83	76.1	143	68.1
Did not receive information	41	40.6	26	23.9	67	31.9
Total	**101**	**100.0**	**109**	**100.0**	**210**	**100.0**

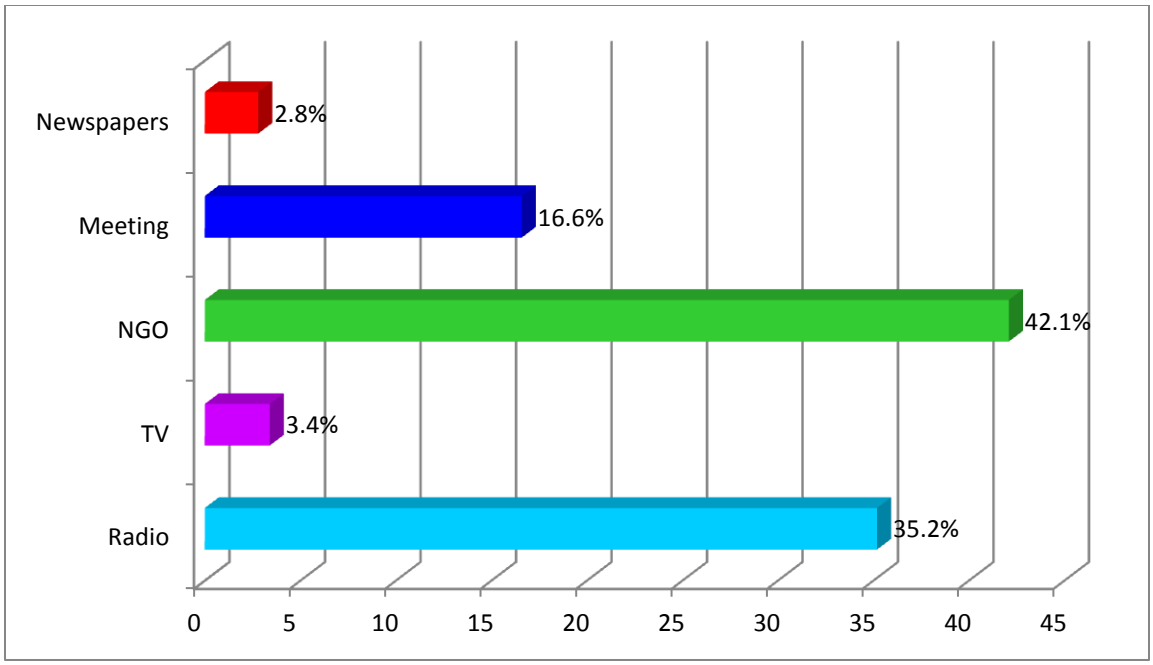


Figure 3.5.5.1: Source of information for improvement of resilience to climate change (N=145)

Table 3.5.5.2: Source of information for improvement of resilience to climate change (N=145)

Source of information	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Radio	25	41.0	26	31.0	51	35.2
TV	2	3.3	3	3.6	5	3.4
NGOs	19	31.1	42	50.0	61	42.1
Meetings, seminars, workshops	12	19.7	12	14.3	24	16.6
Newspapers	3	4.9	1	1.2	4	2.8
Total	61	100.0	84	100.0	145	100.0

3.5.6 Engagement of Small-scale farmers in MVIWATA and MJUMITA Networks

The evaluation results show that 25.8% and 26.2% of surveyed small-scale farmers were engaged with MVIWATA or MJUMITA local networks, respectively. The results also indicate that both local networks were more active in Kilosa where 52.0% and 59.5% of the respondents were involved in MVIWATA and MJUMITA, respectively. In terms of Chamwino District the level of farmers' participation in MVIWATA and MJUMITA networks was as low as 1.8% and 4.6%, respectively (Table 3.5.6.1)

Progress against the Baseline

It was learnt from discussions with members of both MJUMITA and MVIWATA that their involvement in these networks enhanced their collective voices to demand for support from the Government. It is through such actions MVIWATA managed to have two of its members nominated to participate into the special Constitutional National Assembly. As an outcome of this effort, the farmers' rights to be listened were included in the draft National Constitution. In line with this, the level to which MVIWATA was involved in demanding C3S agriculture,

community oriented REDD, NRM through media, meetings increased from 11.0% reported by the baseline to 80.0%, and that of MJUMITA increased from 20.0% to 75.0%, respectively.

Quotes: *"The big challenge worrying most smallholder farmers in the country was the trend of current agricultural policies that seem to embrace and prefer foreign investors while fuelling land grabbing"*. This statement was given by the MVIWATA Executive Director (Stephen Ruvuga) in the presence of journalist and Government officials during the 20th anniversary ceremony of MVIWATA cerebrated on 23-26th July 2014 in Morogoro.

Table 3.5.6.1: Small-scale farmers' Engagement with MVIWATA and MJUMITA Networks

Status of Engagement with Community Networks by Sex	Sex of Respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Engaged with local MVIWATA network (N=209)	31	31.3	23	20.9	54	25.8
Engaged with local MJUMITA network (N=210)	36	36.0	19	17.3	55	26.2
Status of Engagement with Community Networks by District	**District**				**Total**	
	Kilosa		**Chamwino**			
	N	**%**	**N**	**%**	**N**	**%**
Engaged with local MVIWATA network (N=209)	52	52.0	2	1.8	54	25.8
Engaged with local MJUMITA network (N=210)	50	59.5	5	4.6	55	26.2

3.5.7 Environmental Conservation Practices

a) Main Methods Used to Prepare Land by Small-scale farmers

It is widely known that agriculture is one of the main factors that contribute to environmental degradation if famers do not observe technically recommended practices. In line with this fact, the evaluation assessed the main methods used by farmers to prepare their land. These results indicate that majority (92.8%) of the farmers observed climate-smart land preparation practices, and that only 7.2% the farmers surveyed used fire in preparing their farmland. An analysis of the methods used by famers to prepare land include 6.2% of farmers who used slash and burn, 1.0% burned farmland, 43.8% slashed and left slashes to decay in the farm, 37.1% tilled their land by hand hoe, 1.4% used power tiller or tractor and 10.5% used animal plough. The animal ploughs and power-tillers are appropriate implements in terms of cost and enhancing minimum to deep tillage that favours aeration, root penetration and water conservation in areas of bare/compact soil like Chamwino District.

These results also provide clear evidence that the project succeeded in improving farmers' awareness and knowledge on climate-smart small-scale farming. From these results, power tillers and animal ploughs were only common in Chamwino where hand hoe was less pronounced (16.2%) than in Kilosa District (20.9%). Table 3.5.7.1 provides more details.

Table 3.5.7.1: Main methods used by farmers to prepare their land by District (N=210)

Land preparation methods	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Slash and burn	7	6.9	6	5.5	13	6.2
Burn	1	1.0	1	0.9	2	1.0
Slashing and leaving slashes to decay in the farm	49	48.5	43	39.4	92	43.8
Tilling by hand hoe	44	43.6	34	31.2	78	37.1
By power tiller or tractor	0	0.0	3	2.8	3	1.4
By animal plough	0	0.0	22	20.2	22	10.5

b) Type of Cooking Fuel Used by Small-scale farmers

One of the main factors contributing to environmental sustainability is the choice of cooking fuel used by the community. According to Table 10, the main fuel for both Kilosa and Chamwino communities was wood which accounted for 93.8% of the surveyed households. This finding is comparable with the 98.7% households using fuel wood and charcoal reported by the 2010 TDHS for this indicator. Due to the fact that all households used wood and charcoal for cooking and that only 23.1% of the planted trees were used for this kind of fuel and fodder (Table 3.5.7.2), the natural forests remain to be the main source of cooking fuel in the project areas.

The evaluation team explored the use of energy saving cooking stoves among the households as a means of reducing pressure on the natural forests and carbon gas emissions. The results of this survey indicate nearly half (48.6%) of the surveyed households used energy saving stoves and that 69.9% did not cut trees in the past 3 years (Table 3.5.7.2 and Table 3.5.7.5).

Table 3.5.7.2: Type of cooking fuel and use of energy saving cooking stoves by District (N=210)

Cooking fuel or use of energy saving cooking stove	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Main type of fuel used for cooking - Fuel Wood	101	100.0	96	88.1	197	93.8
Main type of fuel used for cooking – Charcoal	0	0.0	13	11.9	13	6.2
Used energy saving cooking stove (Jiko Sanifu)	78	77.2	24	22.0	102	48.6
Did not use energy saving cooking stove (Jiko Sanifu)	23	22.8	85	78.0	108	51.4

c) Tree Planting and Cutting by Small-scale farmers

Tree planting is one of the deliberate measures that reverse loss of environmental resources and general degradation in line with the Millennium Development Goal 7 of ensuring environmental sustainability. The evaluation team assessed tree-planting practices and revealed that 62.7% of surveyed farmers had planted trees within the past 3 years. Locations where the trees were planted included homestead (61.4%), specific portion of land (27.9%), and scattered across the farmland (10.7%). Comparing the two Districts, the proportion of small-scale farmers who planted trees in Chamwino is higher (83.5%) than of those who planted trees in Kilosa District (40.0%). Table 3.5.7.3 provides an analysis of the tree planting practices in the two project Districts.

Table 3.5.7.3: Tree planting practices among households by District

Afforestation practices	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Planted trees in the past 3 years (N=209)	40	40.0	91	83.5	131	62.7
Not planted trees in the past 3 years (N=209)	60	60.0	18	16.5	78	37.3
Planted the trees scattered across the farmland (N=140)	6	13.3	9	9.5	15	10.7
Planted the trees in specific portion of land (N=140)	14	31.1	25	26.3	39	27.9
Planted the trees at homestead (N=140)	25	55.6	61	64.2	86	61.4

d) Reasons for Planting Trees by Small-scale farmers

Reasons given by farmers for planting tree include generation of household income (15.6%), Fodder and fuel wood (23.1%), construction materials (20.5%), nutrition (45.3%), medicinal (8.9%), increase rainfall (14.3%), soils fertility (8.3%), and 26.2% for shade, boundary, windbreak (Table 3.5.7.4).

Table 3.5.7.4: Reasons given by farmers for planting trees by District

Afforestation practices	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Household income (N=147)	11	22.0	12	12.4	23	15.6
Fodder and fuel (N=147)	6	12.2	28	28.6	34	23.1
Construction (N=146)	15	30.0	15	15.6	30	20.5
Nutrition (N=148)	24	48.0	43	43.9	67	45.3
Medicinal (N=146)	5	10.0	8	8.3	13	8.9
Increase rainfall (N=147)	7	14.0	14	14.4	21	14.3
Soil fertility (N=144)	4	8.3	8	8.3	12	8.3
Others - Shade, windbreak, boundary (N=210)	10	9.9	45	41.3	55	26.2

e) Tree Cutting and Reasons Given by Small-scale farmers

The evaluation results indicate that 30.1% of surveyed farmers reported to have cut trees within the past 3 years. The evaluation results also show that the proportion of farmers (66.9%) involved in tree cutting in Chamwino District was greater than that for Kilosa (63.2%). Reasons given by farmers for cutting trees include fuel wood (22.0%), selling (3.3%), clearing land for farming (1.9%), and other reasons (2.9%). Table 3.5.7.5 summarises the discussion on the tree cutting practice and associated reasons given by Small-scale farmers.

Table 3.5.7.5: Tree cutting and reasons given by farmers by District (N=209)

Afforestation practices	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Did not cut trees	77	76.2	69	63.9	146	69.9
Fuel wood	17	16.8	29	26.9	46	22.0
Selling	3	3.0	4	3.7	7	3.3
Clear land for agriculture	2	2.0	2	1.9	4	1.9
Others	2	2.0	4	3.7	6	2.9

f) Conservation of Farm Soil Fertility and Water

Productivity and sustainability of any farm depends much on how its soil and water are conserved. Due to this, the evaluation team investigated the status of this important practice in the project area which is predominantly a farming community. Findings of the evaluation

indicated that 26.7% of the surveyed households used one or more methods in conserving their farm soil and water. Some of the interesting results about this investigation related to C3S agriculture include the good proportions of farmers who used natural supplements (65.2%) and practiced soil erosion control techniques (54.3%). According to these results, the proportion of small-scale farmers who used natural supplements in Chamwino was higher (78.9%) than for those in Kilosa District (50.5%). An analysis of the findings on soil and water conservation methods and proportions of households involved in the practices are by Table 3.5.7.6.

Table 3.5.7.6: Methods used by farmers to conserve farm soil fertility and water

Methods of soil fertility & water conservation	District				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Proper land tillage practices (N=210)	25	24.8	28	25.7	53	25.2
Crop rotation (N=209)	13	12.9	25	23.1	38	18.2
Natural supplements (N=210)	51	50.5	86	78.9	137	65.2
Chemical & mineral supplements (N=209)	6	5.9	5	4.6	11	5.3
Erosion control techniques (N=210)	53	52.5	61	56.0	114	54.3
Vegetable cover (N=209)	18	17.8	12	11.1	30	14.4
Other methods – controlled grazing, intercrop, mulch (N=210)	7	6.9	2	1.8	9	4.3

3.5.8 Main Agricultural Crops Grown by Small-scale Farmers

a) Types of main crops

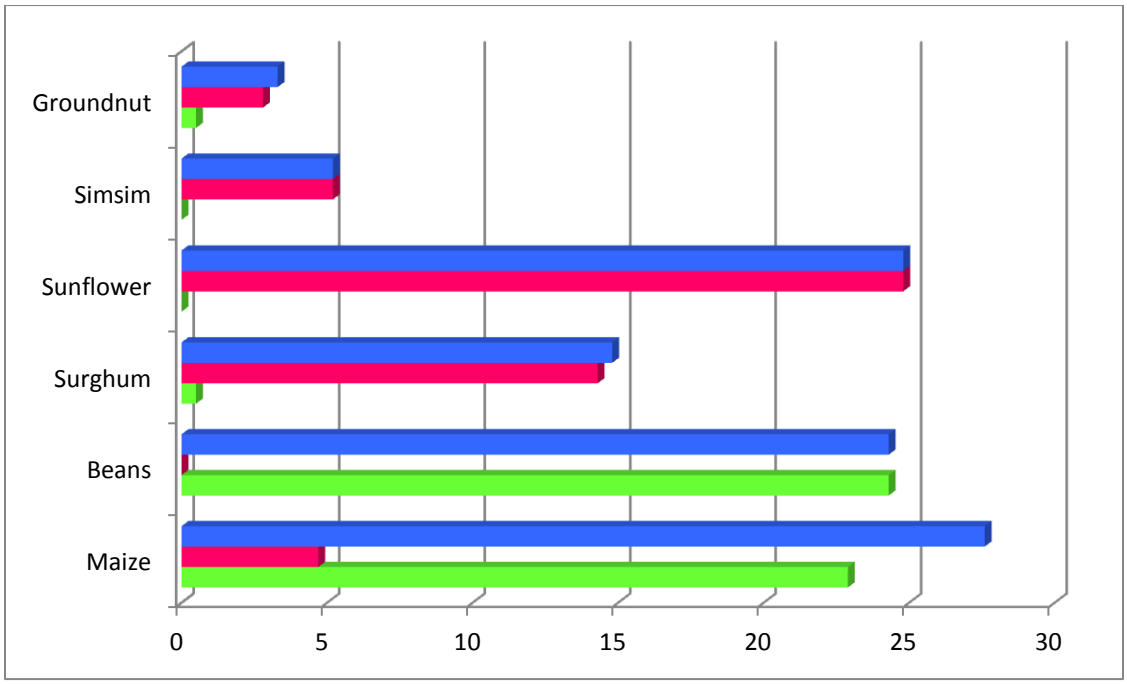
The evaluation team investigated about a single agricultural crop that an individual small-scale farmer depended the most for livelihood. Results of this investigation show that maize was mainly grown by 27.6% respondents followed by sunflower (24.8%), beans (24.3%), sorghum (14.8%), sesame (5.2%), and groundnut (3.3%). Comparing the geographical distribution for each of the 6 crops between the two agro-ecological zones of highland (Kilosa) and semi-arid low land (Chamwino), the results show that maize was mainly grown in Kilosa (82.8%) than in Chamwino, beans was mainly grown in Kilosa (100.0%). The remaining four crops were mainly grown in Chamwino District, i.e. sunflower (100.0%), sesame (100.0%), sorghum and (96.8%), and groundnut (85.7%). Statistical analysis of the information is presented in Tables 3.5.8.1 and Table 3.5.8.2.

Table 3.5.8.1: Distribution of main crops by Districts (N=210)

Type of main crop grown	Districts				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Maize	48	47.5	10	9.2	58	27.6
Beans	51	50.5	0	0.0	51	24.3
Sorghum	1	1.0	30	27.5	31	14.8
Sunflower	0	0.0	52	47.7	52	24.8
Sesame	0	0.0	11	10.1	11	5.2
Groundnut	1	1.0	6	5.5	7	3.3
Total	**101**	**100.0**	**109**	**100.0**	**210**	**100.0**

Table 3.5.8.2: Distribution of main crops across the Districts (N=210)

Type of main crop grown	Districts				Total	
	Kilosa		Chamwino			
	N	%	N	%	N	%
Maize	48	82.8	10	17.2	58	100.0
Beans	51	100.0	0	0.0	51	100.0
Sorghum	1	3.2	30	96.8	31	100.0
Sunflower	0	0	52	100.0	52	100.0
Sesame	0	0	11	100.0	11	100.0
Groundnut	1	14.3	6	85.7	7	100.0
Total	**101**	**33.4**	**109**	**66.6**	**210**	**100.0**



Key: Series1 (Blue) = Total; Series2 (Purple) = Chamwino; Series3 (Green) = Kilosa

Figure 3.5.8.1: Type of main crops grown by farmers (N=210)

b) Farm sizes of main crops

Maize

Farm size is one of the components that determine the quantity of yields and revenue to be realised by farmers. In order to determine the possibility of farmers to expand their agricultural production, the evaluation team assessed the current farm sizes involved in production of the main crops. The results of the assessment indicate that nearly half (47.4%) of the farmers engaged in maize production had farms ranging from 0.5 to 2.0 acres. Similarly, 47.4% farmers

engaged in maize production had farms ranging from 3.0 to 5.0 acres and 5.2% had farms of 6.0 to 10.0 acres [Table 3.5.8.3(a)]. Due to limited land, increasing productivity is the only feasible measure farmers can use to improve their yields and income.

Sorghum
71.0% farmers engaged in sorghum production had land ranging from 1.0 to 2.0 acres and 29.0% land ranging from 2.5 to 5.0 acres. The current sizes of land currently owned by farmers are not enough to guarantee a sustainable expansion of sorghum production in the project area [Table 3.5.8.3(b)].

Beans
The results indicate that nearly half (48.1%) of the farmers engaged in beans production had farms ranging from 0.5 to 2.0 acres. Similarly, 46.3% farmers engaged in beans production had farms ranging from 3.0 to 5.0 acres and 5.6% had farms of 6.0 to 8.0 acres [Table 3.5.8.3(c)].

Groundnuts
The results indicate that one third (33.3%) of the farmers engaged in groundnuts production had farms ranging from 1.0 to 1.5 acres and 66.7% farmers engaged in groundnuts production had farms ranging from 2.0 to 5.0 acres [Table 3.5.8.3(d)].

Sunflower
The results indicate that 62.3% of the farmers engaged in sunflower production had farms ranging from 1.0 to 2.0 acres, 32.1% of them had farms ranging from 2.5 to 5.0 acres and 5.7% had farms of 6.0 to 10.0 acres [Table 3.5.8.3(e)].

Sesame
The results indicate that 63.6% of the farmers engaged in sesame production had farms ranging from 1.0 to 3.0 acres, and 36.4% of them had farms ranging from 4.0 to 6.0 acres [Table 3.5.8.3(f)].

Table 3.5.8.3(a): Farm size in acres used for production of main crop - Maize

Farm sizes (Acres)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
0.5	1	0	0	0	0	0	1
1.0	1	1	4	1	0	1	8
1.5	1	0	0	0	0	0	1
2.0	2	6	4	3	2	0	17
3.0	4	5	1	0	1	0	11
4.0	4	5	0	0	0	0	9
5.0	0	3	2	1	0	1	7
6.0	1	0	0	0	0	0	1
9.0	0	1	0	0	0	0	1
10.0	0	1	0	0	0	0	1
Total	**14**	**22**	**11**	**5**	**3**	**2**	**57**

Table 3.5.8.3(b): Farm size in acres used for production of main crop - Sorghum

Farm sizes (Acres)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	2	3	1	6
1.5	0	0	0	2	0	0	2
2.0	1	0	0	10	0	3	14
2.5	0	0	0	1	0	0	1
3.0	0	0	0	2	2	1	5
5.0	0	0	0	2	1	0	3
Total	**1**	**0**	**0**	**19**	**6**	**5**	**31**

Table 3.5.8.3(c): Farm size in acres used for production of main crop - Beans

Farm sizes (Acres)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
0.5	1	0	2	0	0	0	3
1.0	1	3	2	0	0	0	6
1.5	1	0	0	0	0	0	1
2.0	7	6	3	0	0	0	16
3.0	6	6	1	0	0	0	13
4.0	4	2	2	0	0	0	8
5.0	4	0	0	0	0	0	4
6.0	0	1	0	0	0	0	1
7.0	0	0	1	0	0	0	1
8.0	0	1	0	0	0	0	1
Total	**24**	**19**	**11**	**0**	**0**	**0**	**54**

Table 3.5.8.3(d): Farm size in acres used for production of main crop - Groundnuts

Farm sizes (Acres)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	0	1	0	1
1.5	0	0	0	0	0	1	1
2.0	0	0	0	0	0	3	3
5.0	0	0	0	0	1	0	1
Total	**0**	**0**	**0**	**0**	**2**	**4**	**6**

Table 3.5.8.3(e): Farm size in acres used for production of main crop - Sunflower

Farm sizes (Acres)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	3	5	4	12
1.5	0	0	0	0	0	1	1
2.0	0	0	0	5	8	7	20
2.5	0	0	0	0	0	1	1
3.0	0	0	0	1	4	2	7
4.0	0	0	0	2	2	1	5
5.0	0	0	0	1	2	1	4
6.0	0	0	0	1	1	0	2
10.0	0	0	0	0	0	1	1
Total	**0**	**0**	**0**	**13**	**22**	**18**	**53**

Table 3.5.8.3(f): Farm size in acres used for production of main crop - Sesame

Farm sizes (Acres)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	0	1	1	2
2.0	0	0	0	0	2	0	2
3.0	0	0	0	0	2	1	3
4.0	0	0	0	0	1	1	2
5.0	0	0	0	0	1	0	1
6.0	0	0	0	1	0	0	1
Total	**0**	**0**	**0**	**1**	**7**	**3**	**11**

c) Crop productivity of main crops

Maize

Results of the crop productivity assessment show that out of 47 farmers who mentioned maize as their main crop in Kilosa, 10.6% (5) of them realised the lowest productivity of 1.0 to 2.0 bags of maize per acre and 36.4% of famers in Chamwino realised the same level of productivity. On the other hand, the same proportion (10.6%) of farmers in Kilosa realised the highest productivity level of 8.5 to 10 bags of maize per acre while the highest productivity in Chamwino District was 4.5 to 6 bags of maize which was realised by 27.3% of respondents (Table 3.5.8.4).

Sorghum

The assessment of crop productivity for sorghum shows that out of 28 farmers who mentioned sorghum as their main crop in Chamwino, 7.1% (2) of them realised the lowest productivity of 01.0 to 2.0 bags of sorghum per acre and none of famers in Chamwino realised the same level of productivity. On the other hand, 17.9% of farmers in Chamwino realised the highest productivity level of 6.5 to 8.0 bags of sorghum per acre while the highest productivity in Kilosa

District was 4.5 to 6 bags of sorghum which was realised by 100.0% of respondents (Table 3.5.8.4).

Beans
Assessment of crop productivity for beans show that out of 53 farmers who mentioned beans as their main crop in Kilosa, 34.0% (18) of them realised the lowest productivity of 0.6 to 2.0 bags of beans per acre and none of famers in Chamwino had beans as their main crop. On the other hand, 9.4% of farmers in Kilosa realised the highest productivity level of 6.5 to 10 bags of beans per acre (Table 3.5.8.4).

Sunflower
Assessment of crop productivity for sunflower show that out of 53 farmers who mentioned the sunflower as their main crop in Chamwino, 9.4% (5) of them realised the lowest productivity of 1.0 to 2.0 bags of sunflower per acre and none of famers in Kilosa had sunflower as their main crop. On the other hand, 13.2% of farmers in Chamwino realised the highest productivity level of 8.5 to 15 bags of sunflower per acre (Table 3.5.8.4).

Groundnut
Assessment of crop productivity for groundnuts show that out of 5 farmers who mentioned groundnut as their main crop in Chamwino, none of them realised the lowest productivity of 0.5 to 2.0 bags of groundnut per acre and none of famers in Kilosa had groundnut as their main crop. On the other hand, 20.0% of farmers in Chamwino realised the highest productivity level of 8.5 to 10 bags of groundnut per acre (Table 3.5.8.4).

Sesame
Assessment of crop productivity for groundnuts show that out of 11 farmers who mentioned sesame as their main crop in Chamwino, 72.7% (8) of them realised the lowest productivity of 1.0 to 2.0 bags of sesame per acre and none of famers in Kilosa had sesame as their main crop. On the other hand, 9.1% of farmers in Chamwino realised the highest productivity level of 4.5 to 6.0 bags of sesame per acre (Table 3.5.8.4).

Table 3.5.8.4: Summary crop productivity in bags of 100 Kg per acre of main crops

Bags (100 Kg@) per Acre	Main Crops Grown by Small-scale Farmers											
	Maize		Sorghum		Beans		Sunflower		Groundnuts		Smsim	
	Kilosa	Cham	Kilosa	Cham	Kilosa	Cham	Kilosa	Cham	Kilosa	Cham	Kilosa	Cham
0.5 – 2.0	5	4	0	2	18	0	0	5	0	0	0	8
2.5 – 4.0	14	4	0	14	18	0	0	17	0	0	0	2
4.5 - 6.0	9	3	1	7	12	0	0	16	0	3	0	1
6.5 – 8.0	14	0	0	5	4	0	0	8	0	1	0	0
8.5 – 10.0	5	0	0	0	1	0	0	5	0	1	0	0
10.5 – 15.0	0	0	0	0	0	0	0	2	0	0	0	0
Total	**47**	**11**	**1**	**28**	**53**	**0**	**0**	**53**	**0**	**5**	**0**	**11**

Table 3.5.8.5(a): Crop productivity in bags of 100 Kg per acre of main crop - Maize

Bags (100 Kg@)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	1	0	1	2	1	0	5
2.0	0	2	1	0	0	1	4
3.0	4	1	2	2	0	0	9
4.0	0	5	2	0	1	1	9
5.0	1	4	1	1	0	1	8
6.0	1	2	0	0	1	0	4
7.0	4	2	1	0	0	0	7
8.0	2	2	3	0	0	0	7
9.0	2	1	0	0	0	0	3
10.0	0	2	0	0	0	0	2
Total	**15**	**21**	**11**	**5**	**3**	**3**	**58**

Table 3.5.8.5(b): Crop productivity in bags of 100 Kg per acre of main crop - Sorghum

Bags (100 Kg@)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	0	0	1	1
2.0	0	0	0	0	0	1	1
3.0	0	0	0	4	1	0	5
4.0	0	0	0	6	1	2	9
5.0	0	0	0	4	3	0	7
6.0	1	0	0	0	0	0	1
7.0	0	0	0	2	1	0	3
8.0	0	0	0	2	0	0	2
Total	**1**	**0**	**0**	**18**	**6**	**4**	**29**

Table 3.5.8.5(c): Crop productivity in bags of 100 Kg per acre of main crop - Beans

Bags (100 Kg@)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
0.6	0	0	1	0	0	0	1
1.0	2	2	0	0	0	0	4
1.5	0	0	1	0	0	0	1
2.0	6	5	1	0	0	0	12
3.0	5	5	2	0	0	0	12
3.5	0	1	0	0	0	0	1
4.0	0	3	2	0	0	0	5
5.0	3	1	2	0	0	0	6
6.0	3	2	1	0	0	0	6
7.0	2	1	1	0	0	0	4

10.0	1	0	0	0	0	0	1
Total	**22**	**20**	**11**	**0**	**0**	**0**	**53**

Table 3.5.8.5(d): Crop productivity in bags of 60 Kg per acre of main crop - Groundnuts

Bags (70 Kg@)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
5.0	0	0	0	0	1	2	3
7.0	0	0	0	0	0	1	1
8.0	0	0	0	0	1	0	1
10.0	0	0	0	0	0	1	1
Total	**0**	**0**	**0**	**0**	**2**	**4**	**6**

Table 3.5.8.5(e): Crop productivity in bags of 100 Kg per acre of main crop - Sunflower

Bags (100 Kg@)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	0	0	1	1
2.0	0	0	0	1	3	0	4
3.0	0	0	0	2	3	1	6
4.0	0	0	0	2	6	3	11
5.0	0	0	0	4	3	5	12
6.0	0	0	0	0	4	0	4
7.0	0	0	0	1	0	4	5
8.0	0	0	0	1	1	1	3
9.0	0	0	0	1	1	0	2
10.0	0	0	0	0	0	3	3
15.0	0	0	0	1	1	0	2
Total	**0**	**0**	**0**	**13**	**22**	**18**	**53**

Table 3.5.8.5(f): Crop productivity in bags of 60 Kg per acre of main crop - Sesame

Bags (100 Kg@)	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
1.0	0	0	0	0	3	2	5
2.0	0	0	0	0	3	0	3
3.0	0	0	0	1	0	1	2
5.0	0	0	0	0	1	0	1
Total	**0**	**0**	**0**	**1**	**7**	**3**	**11**

d) Farmers' incomes from main crops

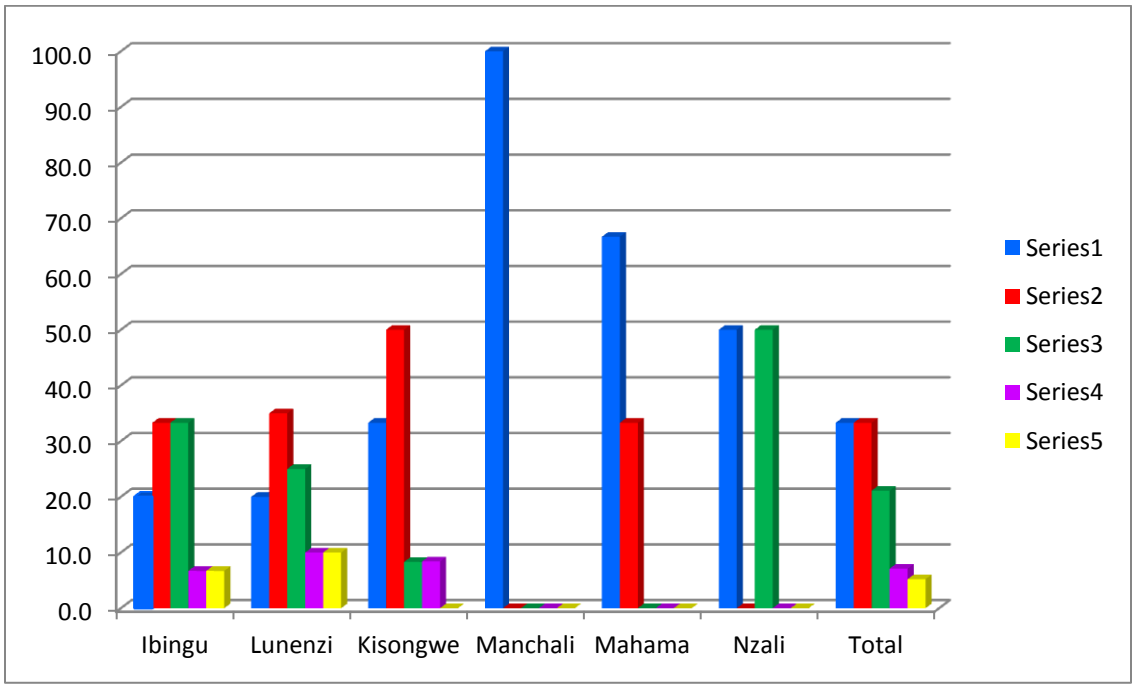
Improvements in the farmers' income and profitability constitute an important indicator for impact of agricultural interventions. In order to ascertain whether CCAP project intervention had impact, the evaluation team assessed the trends in the famers' incomes and profits in the past 3 years. Results of the evaluation indicate that the highest revenues from the main crops per

year/season were TZS 3,500,000 for sunflower, TZS 2,400,000 for both maize and beans, TZS 1,500,000 for groundnuts, TZS 1,200,000 for sesame and TZS 882,000 for sorghum. Further analysis of the farmers' income indicate that 17.0% of sunflower farmers realised the highest range of revenue of TZS 751,000 – 3,500,000 from the crop, 5.2% of the maize farmers realised the highest range of revenue of TZS 1,001,000 – 2,400,000 and 5.7% of bean farmers realised the highest range of revenue of TZS 1,501,000 – 2,400,000. On the other hand, 16.7% of groundnut farmers realised the highest range of revenue of TZS 451,000 – 1,500,000, while 36.3% of sesame farmers realised the highest range of revenue of TZS 451,000 – 1,200,000 and that 3.3% of sorghum farmers realised the highest range of revenue of TZS 601,000 – 882,000. Discussions with the village council and agricultural extension officers working in the project area revealed that poor market linkages were some of the factors that contributed to the low incomes, where sorghum was the most affected crop by low costs.

Table 3.5.8.6(a) to Table 3.5.8.6(f) present a full analysis of summaries of revenues realised by the farmers from sales of their main crops by District and village.

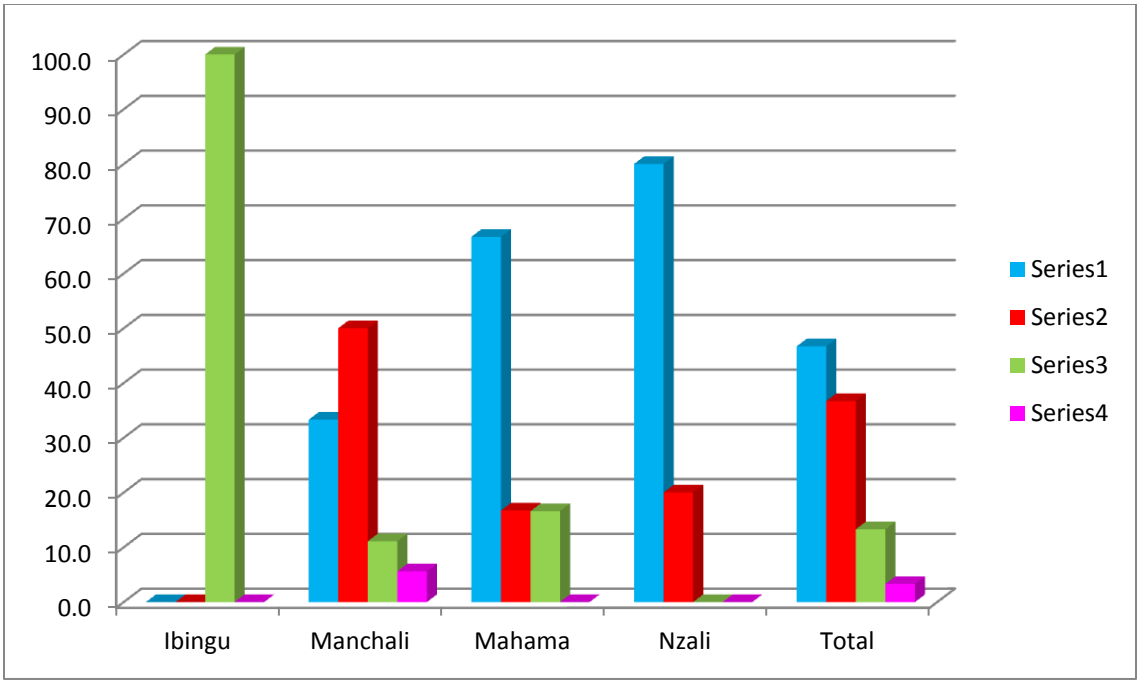
Table 3.5.8.6(a): Percentage number of farmers realised income from maize

Income in TZS	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
30,00 – 200,000	20.0	20.0	33.3	100.0	66.7	50.0	33.3
201,000 – 400,000	33.3	35.0	50.0	0.0	33.3	0.0	33.3
401,000 – 600,000	33.3	25.0	8.3	0.0	0.0	50.0	21.1
601,000 – 1,000,000	6.7	10.0	8.4	0.0	0.0	0.0	7.1
1,001,000 – 2,400,000	6.7	10.0	0.0	0.0	0.0	0.0	5.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**



Key: Series1 = Farmers with income 30,000-200,000; Series2 = Farmers with income 201,000- 400,000 Series3 = Farmers with income 401,000- 600,000; Series4 = Farmers with income 601,000-1,000,000; Series 5=Farmers with income 1,001,000-2,400,000.

Figure 3.5.8.6(a): Percentage number of farmers realised income from maize

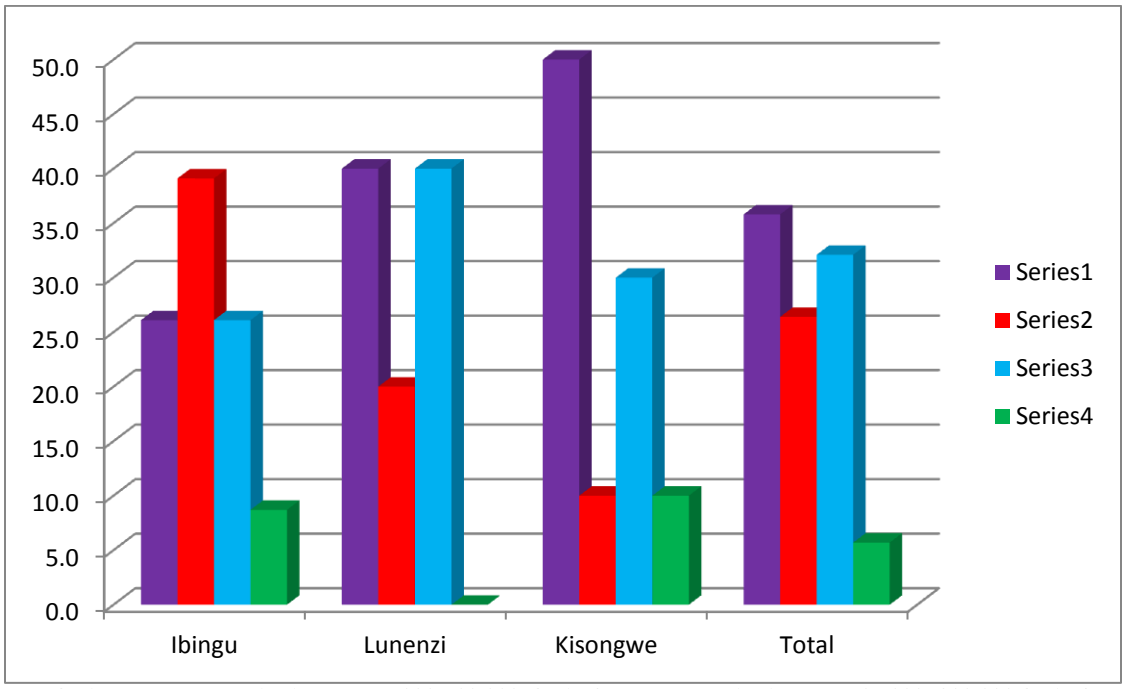


Key: Series1 = Farmers with income 40,000-200,000; Series2 = Farmers with income 201,000- 400,000 Series3 = Farmers with income 401,000- 600,000; Series4 = Farmers with income 601,000-882,000.

Figure 3.5.8.6(b): Percentage number of farmers realised income from sorghum

Table 3.5.8.6(b): Percentage number of farmers realised income from sorghum

Income in TZS	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
40,00 – 200,000	0.0	0.0	0.0	33.3	66.7	80.0	46.7
201,000 – 400,000	0.0	0.0	0.0	50.0	16.7	20.0	36.7
401,000 – 600,000	100.0	0.0	0.0	11.1	16.6	0.0	13.3
601,000 – 882,000	0.0	0.0	0.0	5.6	0.0	0.0	3.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

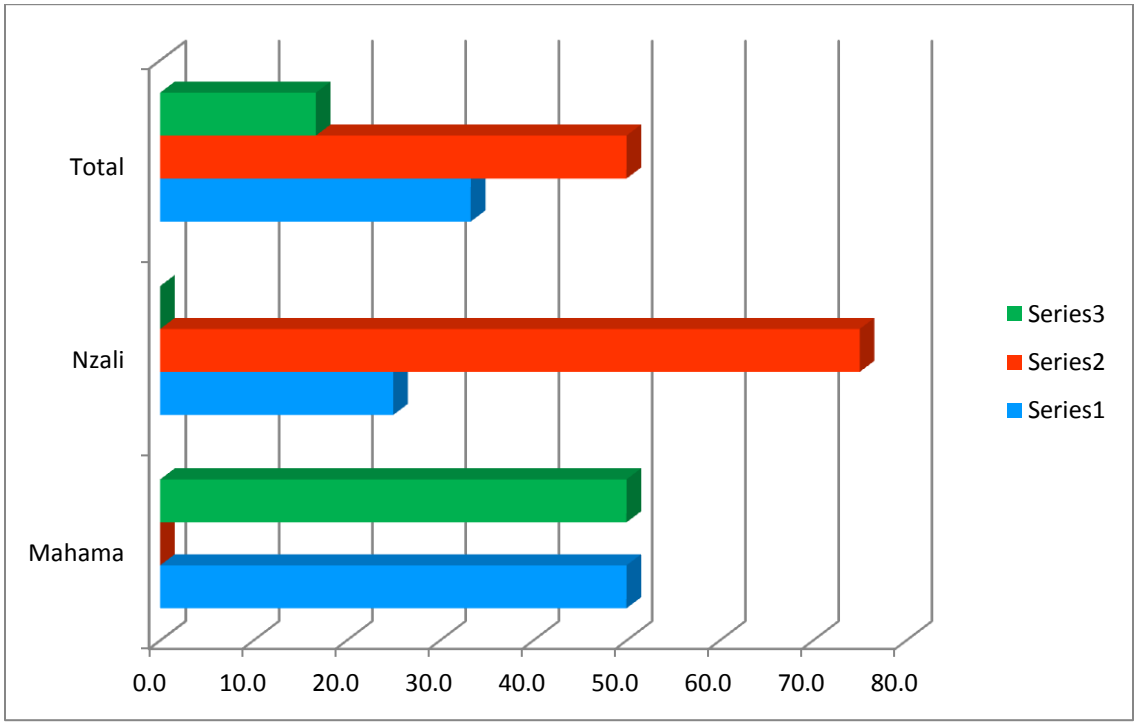


Key: Series1 = Farmers with income 75,000-400,000; Series2 = Farmers with income 401,000- 800,000 Series3 = Farmers with income 801,000- 1,500,000; Series4 = Farmers with income 1,501,000-2,400,000.

Figure 3.5.8.6(c): Percentage number of farmers realised income from beans

Table 3.5.8.6(c): Percentage number of farmers realised income from beans

Income in TZS	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
75,000 – 400,000	26.1	40.0	50.0	0.0	0.0	0.0	35.8
401,000 – 800,000	39.1	20.0	10.0	0.0	0.0	0.0	26.4
801,000 – 1,500,000	26.1	40.0	30.0	0.0	0.0	0.0	32.1
1,501,000 – 2,400,000	8.7	0.0	10.0	0.0	0.0	0.0	5.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

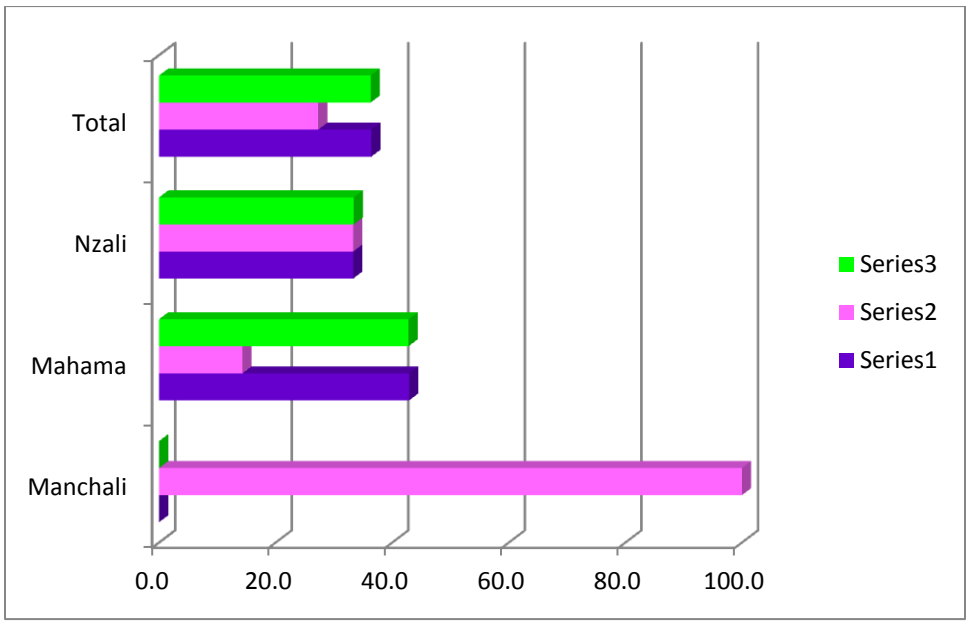


Key: Series1 = Farmers with income 150,000-200,000; Series2 = Farmers with income 201,000- 450,000 Series3 = Farmers with income 451,000- 1,500,000.

Figure 3.5.8.6(d): Percentage number of farmers realised income from groundnuts

Table 3.5.8.6(d): Percentage number of farmers realised income from groundnuts

Income in TZS	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
150,000 – 200,000	0.0	0.0	0.0	0.0	50.0	25.0	33.3
201,000 – 450,000	0.0	0.0	0.0	0.0	0.0	75.0	50.0
451,000 – 1,500,000	0.0	0.0	0.0	0.0	50.0	0.0	16.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

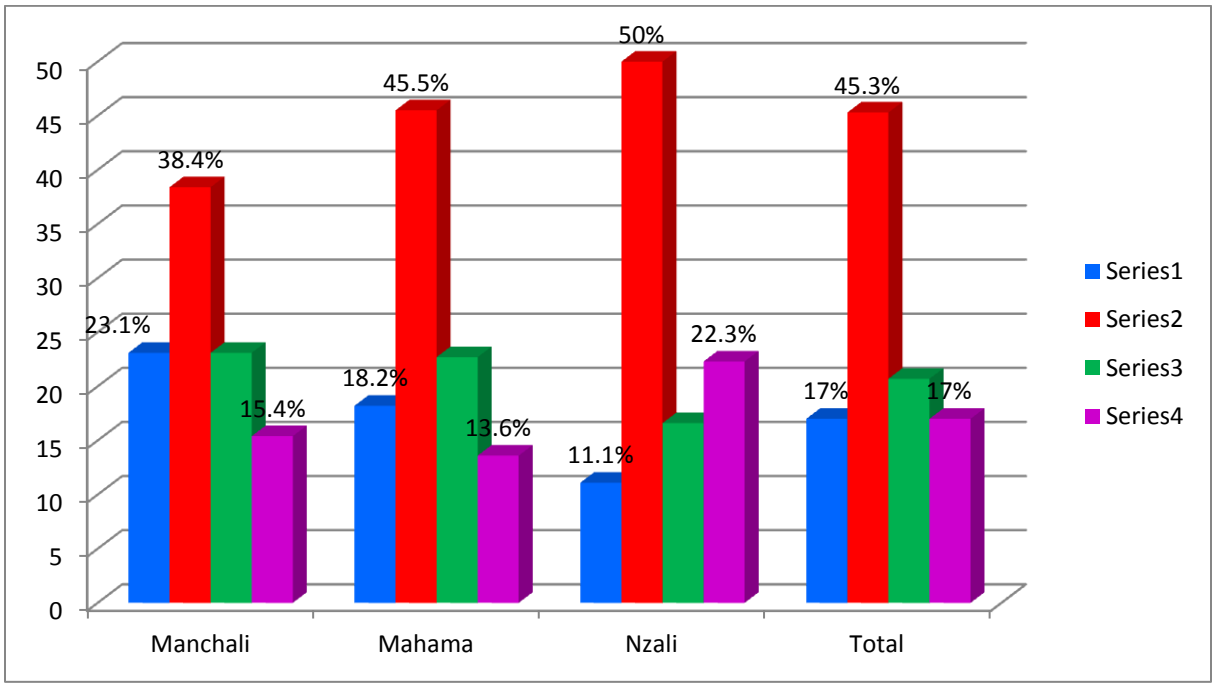


Key: Series1 = Farmers with income 120,000-350,000; Series2 = Farmers with income 351,000- 450,000 Series3 = Farmers with income 451,000- 1,200,000.

Figure 3.5.8.6(e): Percentage number of farmers realised income from sesame

Table 3.5.8.6(e): Percentage number of farmers realised income from sesame

Income in TZS	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
120,000 – 350,000	0.0	0.0	0.0	0.0	42.9	33.3	36.4
351,000 – 450,000	0.0	0.0	0.0	100.0	14.3	33.3	27.3
451,000 – 1,200,000	0.0	0.0	0.0	0.0	42.8	33.4	36.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**



Key: Series1 = Farmers with incomes 50,000 – 200,000; Series2 = Farmers with income 201,000-450,000; Series3 = Farmers with income 451,000-750,000; Series4 = Farmers with income 751,000-3,500,000.

Figure 3.5.8.6(f): Percentage number of farmers realised income from sunflower

Table 3.5.8.6(f): Percentage number of farmers realised income from sunflower

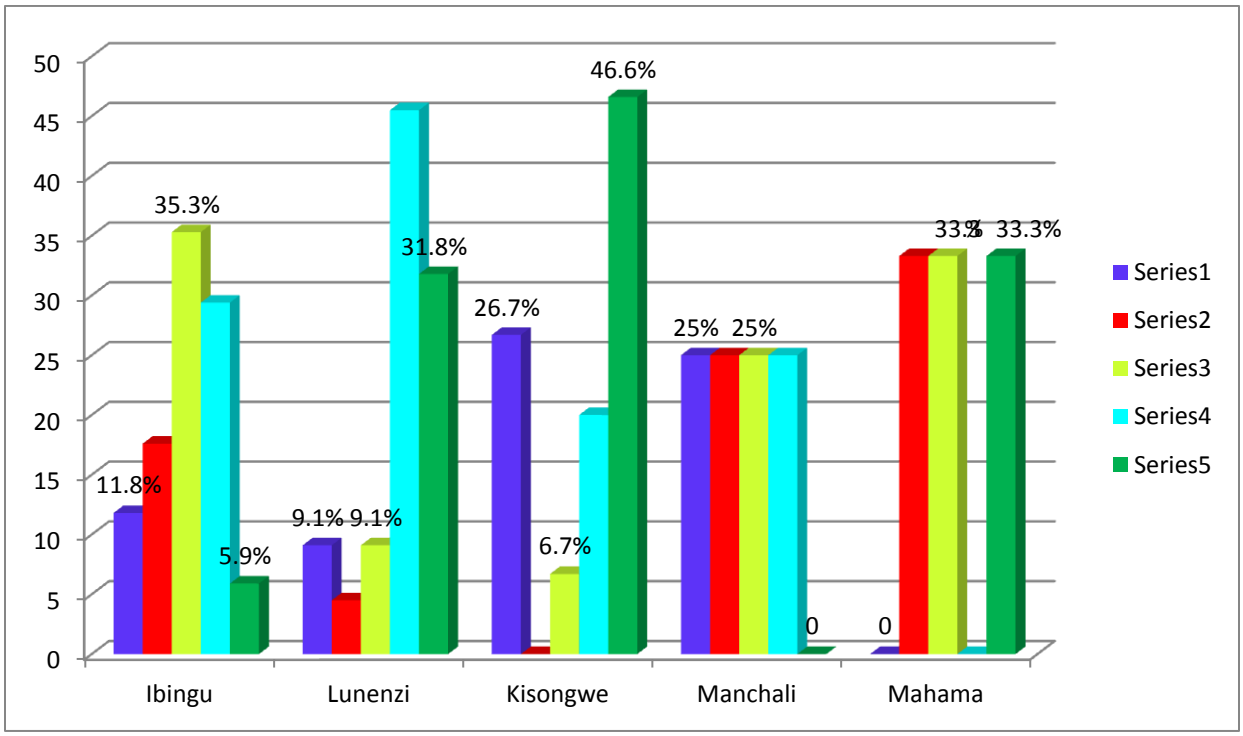
Income in TZS	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
50,00 – 200,000	0	0	0	23.1	18.2	11.1	17.0
201,000 – 450,000	0	0	0	38.4	45.5	50.0	45.3
451,000 – 750,000	0	0	0	23.1	22.7	16.6	20.7
751,000 – 3,500,000	0	0	0	15.4	13.6	22.3	17.0
Total	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**	**100.0**	**100.0**

e) Profits

Maize Crop

Maize is a major staple food crop not only in Tanzania but also across Sub-Saharan Africa. This is the reason why maize can be seen grown even in semiarid ecological zones like Chamwino. Through the introduction of water harvesting techniques like Chololo pits and other climate

smart agricultural practices by CCAP project, farmers have been able to realise increase in yields and incomes. Maize is grown primarily for household food security because most of the local people prefer stiff porridge or *Ugali* (Swahili) from maize. Maize was one of the major crops adopted by small-scale farmers in all six targeted villages where C3S technologies were introduced by CCAP project and other partners. The general cost-benefit analysis indicates that 76.2% of small-scale farmers in both Districts realised profits ranging from 1.0 to 35.0% after selling their maize crop. On the other hand, 23.8% of the farmers involved in the survey sustained losses ranging from 30.0% and 10.0% due to maize production. Failure by some of the small-scale farmers to adopt climate-smart small-scale agricultural practices could have been attributed to these losses. Apart from being a staple food, the maize crop like with other food crops, it earns cash to the farmers and hence standing a better chance of combating farmers' abject poverty while ensuring food security for the households. An analysis of maize profitability is presented in Table 3.5.8.7(a) and Figure 3.5.8.7(a).



Key: Series1 = Farmers with loss 11 to 30%; Series2 = Farmers with loss 5-10%; Series3 = Farmers with profit 1-10%; Series4 = Farmers with profit 11-20% and Series 5 = Farmers with profit 21-35%.

Figure 3.5.8.7(a): Percentage number of farmers realised the profit/loss from Maize

Table 3.5.8.7(a): Percentage number of farmers realised the profit/loss from Maize

% Profit/Loss Range	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
From -11 to -30	11.8	9.1	26.7	25.0	0.0	0.0	14.3
From -5 to -10	17.6	4.5	0.0	25.0	33.3	0.0	9.5
From 1 to 10	35.3	9.1	6.7	25.0	33.3	0.0	17.5
From 11 to 20	29.4	45.5	20	25.0	0.0	50.0	31.7
From 21 to 35	5.9	31.8	46.6	0.0	33.3	50.0	27.0

Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Sorghum

Sorghum is commonly grown in areas with marginal annual rainfall, such as Chamwino District and other similar areas. The crop has the potential to significantly improve food security and the incomes of smallholder subsistence farmers, especially those that live in dry areas where maize production has dropped due to low rainfall. According to the evaluation findings, sorghum was grown in both Kilosa and Chamwino Districts for food security, selling and a bit for local brews. The agronomy of sorghum is that it is both a drought and disease resistant crop and is more favoured in areas that receive less rainfall per annum such as Dodoma region. However, due to increased drought caused by climate change, the use of C3S practices is inevitable if farmers are to realise appreciable yields and incomes. The suffering of 27.5% of small-scale farmers from 1.0 to 20.0% losses recorded by this study could have been due to failure of the farmers to adopt C3S practices advocated by CCAP project.

On the other hand, 72.5% of sorghum farmers realised promising profits to the magnitude of 10.0 to 37.0% in all three project villages of Chamwino and Ibingu village of Kilosa District. Like with maize and beans, sorghum is a dual purpose crop, as cash and food crop that can address both food security and abject poverty at household level. Following the resolution by the East Africa Breweries Limited to use sorghum to produce one of its beer brands, the demand for sorghum in East Africa region is expected to increase dramatically and famers should organise themselves to take advantage of this opportunity. An analysis of sorghum profitability is presented in Table 3.5.8.7(b) and Figure 3.5.8.7(b).

Table 3.5.8.7(b): Percentage number of farmers realised the profit/loss from Sorghum

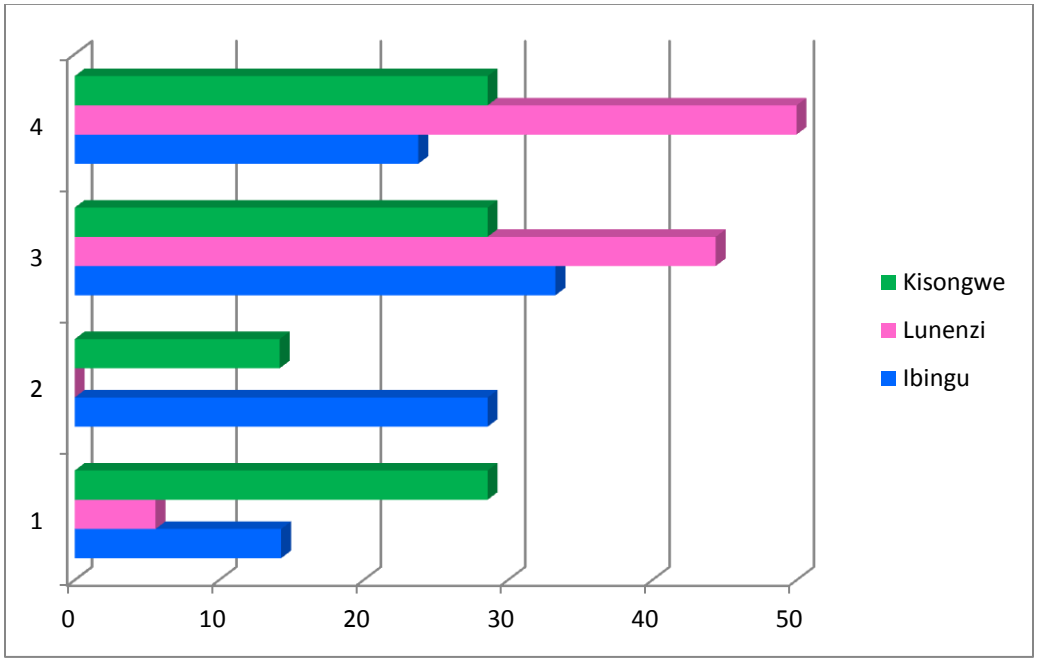
% Profit/Loss	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
From - 11 to - 20	0.0	0.0	0.0	6.0	16.7	60.0	17.2
From - 1 to - 10	0.0	0.0	0.0	17.6	0.0	0.0	10.3
From 1 to 10	100.0	0.0	0.0	17.6	0.0	40.0	20.7
From 11 to 20	0.0	0.0	0.0	29.4	66.7	0.0	31.0
From 21 to 37	0.0	0.0	0.0	29.4	16.6	0.0	20.7
Total	**100.0**	**0.0**	**0.0**	**100.0**	**100.0**	**100.0**	**100.0**

Bean Crop

Beans farming in the targeted villages of Kilosa District seemed to be a lucrative agri-business. Over 85% of small-scale farmers engaged in beans farming in the villages supported by CCAP project realised profit at various levels. Evaluation results show that 13.0 % of the small-scale farmers in Kilosa target villages realized loss of 11 to 28%. A further analysis of the results indicates that the smallest proportion (5.6%) of bean farmers in Lunenzi villages suffered from loss and that the largest proportion (50.0%) of farmers in the same village realised the highest range of profit (21.0 – 37.0%). The results also show that 34.8% of the small-scale farmers in three targeted villages of Kilosa scooped profit ranging from 21.0 to 37.0%. An analysis of bean profitability is presented in Table 3.5.8.7(c) and Figure 3.5.8.7(c).

Indeed, promoting beans farming in conservation agriculture is likely to achieve duo goals of the CCAP project of reducing carbon emissions at the same time reducing poverty of small-scale farmers as experienced by the target Kilosa villages. The added value of beans crop is that it is

both cash and food crop – that means it stands a better chance of combating farmers' poverty at the same time guaranteeing food security at household level and beyond.



Key: Label1 = Farmers with loss 11 to 28%; Label2 = Farmers with profit 1-10%; Label3 = Farmers with profit 11-20%; Label4 = Farmers with profit 21-37%.

Figure 3.5.8.7(c): Percentage number of farmers realised the profit/loss from bean crop

Table 3.5.8.7(c): Percentage number of farmers realised the profit/loss from Beans

% Profit/Loss	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
From -11 to -28	14.3	5.6	28.6	0.0	0.0	0.0	13.0
From 1 to 10	28.6	0.0	14.2	0.0	0.0	0.0	15.2
From 11 to 20	33.3	44.4	28.6	0.0	0.0	0.0	37.0
From 21 to 37	23.8	50.0	28.6	0.0	0.0	0.0	34.8
Total	**100.0**	**100.0**	**100.0**	**0.0**	**0.0**	**100.0**	**100.0**

Groundnut

Groundnut farming was adopted by Mahama and Nzali villages in Chamwino District where C3S agricultural techniques were introduced and supported by the CCAP project. Groundnut small-scale farming was really a viable agricultural undertaking in Mahama as all small-scale famers engaged in groundnuts farming realised profits in a range of 26-38%. These results suggest that groundnut is a more viable undertaking in Mahama village and with the adoption of C3S agricultural techniques, farmers can widen and/or sustain their profit margins. In Nzali village, there were mixed results in that 50% of small-scale farmers involved in groundnuts farming sustained losses in a range of -1 to -5%, and that the other half of the farmers engaged in groundnuts farming realised profits in a range of 1% to 25%. Since Nzali is a neighbouring village to Mahama, through the adoption of C3S agricultural techniques, farmers in this village

can equally achieve good levels of yields and profits. The good profit margins recorded by this assessment at the period of less than 3 years of the project implementation gives a great hope for better results in the future provided the adoption of C3S agricultural techniques by farmers prevails. An analysis of groundnut profitability is presented in Table 3.5.8.7(d) and Figure 3.5.8.7(d).

Table 3.5.8.7(d): Percentage number of farmers realised the profit/loss from Groundnuts

% Profit/Loss	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
From -1 to -5	0.0	0.0	0.0	0.0	0.0	50.0	33.3
From 1 to 25	0.0	0.0	0.0	0.0	0.0	50.0	33.3
From 26 to 38	0.0	0.0	0.0	0.0	100.0	0.0	33.3
Total	**0.0**	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**	**100.0**

Sesame

It is worth noting that 81.8% of small-scale farmers engaged in sesame farming in the CCAP project villages realised promising profits at various levels. A further analysis of the results indicates that out of the total number of small-scale farmers recorded profit, 45.4% of them realised profits in a range of 1.0 – 20.0% and 36.4% of them realised profits from sesame farming in a range of 21.0 – 35.0%. Like with groundnut, 57.1% of all small-scale farmers engaged in sesame production, in Mahama village realised profits in a range of 21.0 – 35.0%. Both results indicate that, Mahama village is well placed to make a substantial progress in agricultural production through adoption of the climate smart small-scale agricultural techniques. On the other side, only 18.2% of the small-scale farmers sustained losses from sesame production in Chamwino target villages. The general results regarding sesame production indicate that the crop is a viable with the potential to contribute significantly towards the reduction of abject poverty at the household level and beyond. An analysis of sesame profitability is presented in Table 3.5.8.7(e) and Figure 3.5.8.7(e).

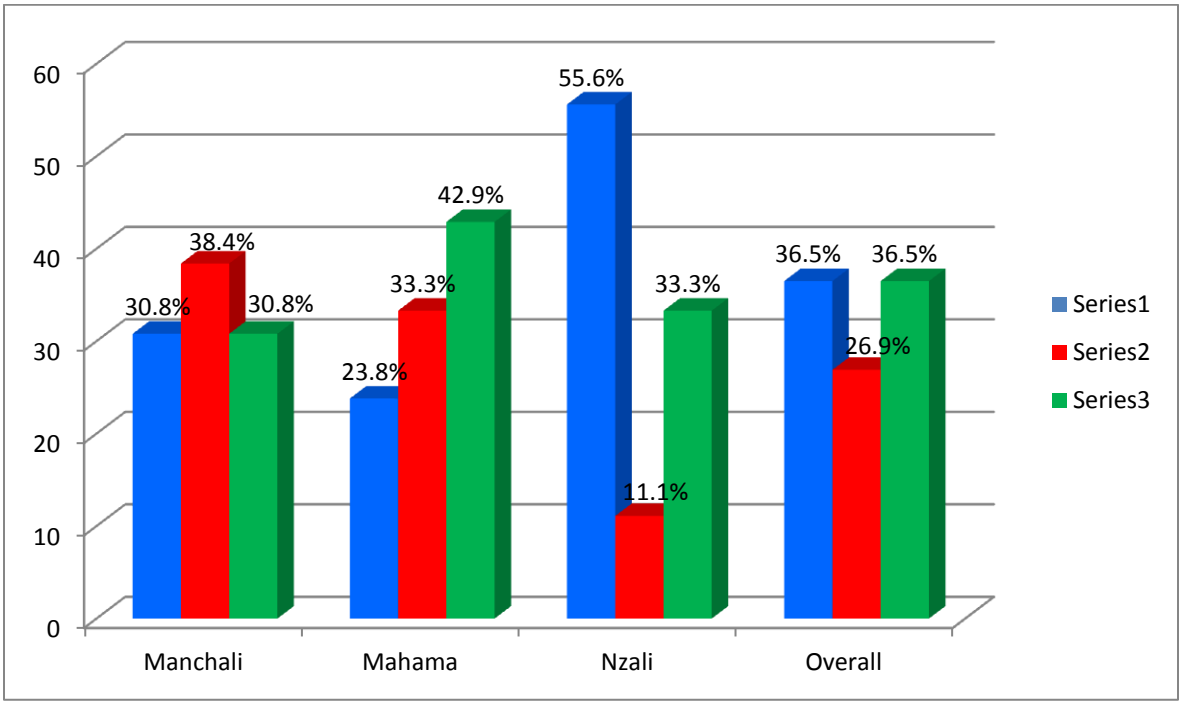
Table 3.5.8.7(e): Percentage number of farmers realised the profit/loss from Sesame

% Profit/Loss Range	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
From -1 to -5	0.0	0.0	0.0	100.0	0.0	33.3	18.2
From 1 to 20	0.0	0.0	0.0	0.0	42.9	66.7	45.4
From 21 to 35	0.0	0.0	0.0	0.0	57.1	0.0	36.4
Total	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**	**100.0**	**100.0**

Sunflower

Sunflower production was a viable undertaking in all project villages of Chamwino District. Evaluation results indicate that every small-scale farmer engaged in sunflower production realised a profit. Discussion with the village councils and other key informants revealed that sunflower crop was a low capital undertaking that required no pesticides and hardly any industrial fertilizer material. Based on small-scale farmers' experience, a single weeding operation was normally enough for sunflower as opposed to maize which required two or three weeding operations. The discussions also revealed that the crop had a better market as compared to maize and sorghum. For example the crop fetched TZS 28,000 during the harvesting season to TZS 49,000 per bag during the end of the season compared to TZS 21,000 to TZS 35,000 for maize and 21, 000 to TZS 28,000 for sorghum, respectively.

It is evident that the achievement in sunflower productivity and high profits is attributed to the project support in facilitating the adoption of climate smart small-scale agricultural techniques. A strategic promotion of this crop is necessary to ensure its sustainability in terms of improved productivity and wide profit margins. Interestingly, 36.5% of farmers in Chamwino project villages realised profits from sunflower production in a range of 26% to 37%. Like with groundnuts and sesame, the evaluation results indicate that Mahama village was the best profit earner from sunflower production. There is no doubt that farmers in this village employed extra efforts in adopting C3S agricultural techniques as compared to others. An analysis of sunflower profitability is presented in Table 3.5.8.7(f) and Figure 3.5.8.7(f).



Key: Series1 = Farmers with profit 1-20%; Series2 = Farmers with profit 21-25% & Series3 = Farmers with profit 26-37%

Figure 3.5.8.7(f): Percentage number of farmers realised the profit/loss from Sunflower

Table 3.5.8.7(f): Percentage number of farmers realised the profit/loss from Sunflower

% Profit/Loss Range	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
From 1 to 20	0.0	0.0	0.0	30.8	23.8	55.6	36.5
From 21 to 25	0.0	0.0	0.0	38.4	33.3	11.1	26.9
From 26 to 37	0.0	0.0	0.0	30.8	42.9	33.3	36.5
Total	**0.0**	**0.0**	**0.0**	**100.0**	**100.0**	**100.0**	**100.0**

f) Trends in yields realised by farmers from main crops

In order to determine stability of the main crops and their potential to support livelihoods of small-scale farmers, the evaluation team assessed the trends of their yields. Results of this assessment show that 57.1% (120) of the 210 surveyed farmers reported an increasing trend of

their yields in the last 3 years. On the other hand 33.8% of the surveyed farmers reported a decreasing trend in yields and that 9.1% of them realised the same yields for the past 3 years. An analysis of yield trends of the main crops for each of the individual villages is presented in Table 3.5.8.8.

Table 3.5.8.8: Trend of yields from the main crops in the last 3 seasons/years (N=210)

Trend status	Kilosa District			Chamwino District			Total
	Number of farmers by villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
Increased	16	19	19	21	28	17	120
Remained the same	7	4	2	5	1	0	19
Decreased	16	17	1	11	11	15	71
Total	**39**	**40**	**22**	**37**	**40**	**32**	**210**

g) Reasons for yields from main crops not increased

The main reason (81.1%) revealed by the evaluation as why the incomes of farmers did not increase was drought, followed by pests and vermin (7.8%) and too much rainfall/floods (4.5%), not used fertilizers (3.3%) and do not know (3.3%). Table 23(b) provides a full list of the reasons for farmers to have not realized an increase in their yields by villages for the past 3 years. Discussion with the Village Councils in Ibingu and Lunenzi revealed that there was a concern over crop destruction by problem animals (vermin) partly due to improved forest conservation (Table 3.5.8.9).

Table 3.5.8.9: Reasons why crop yields of main crops not increased

Reasons	Kilosa District			Chamwino District			Total	
	Number of farmers by villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Rainfall shortage/drought	14	15	6	13	11	14	73	81.1
Too much rainfall/floods	2	0	0	2	0	0	4	4.5
Not used fertilizers	0	3	0	0	0	0	3	3.3
Pests, vermin	5	1	0	0	1	0	7	7.8
Don't know	1	2	0	0	0	0	3	3.3
Total	**22**	**21**	**6**	**15**	**12**	**14**	**90**	**100.0**

h) Trends in farmers' incomes realised from main crops

In order to determine stability of the farmers' incomes realised from their main crops, the evaluation team assessed the trend of revenues from the crops. Results of this assessment show that 57.9% (121) of the 209 surveyed farmers reported an increasing trend of their incomes in the last 3 years. On the other hand 30.6% of the surveyed farmers reported a decrease in the trend of incomes, 11.0% of them maintained the same levels of incomes while 0.5% were not informed whether their revenues increased or not. An analysis of trends in the farmers' incomes realised from their main crops for each of the individual villages is presented in Table 3.5.8.10.

Table 3.5.8.10: Trends in incomes realised from the main crops in the last 3 years (N=209)

Trend status	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
Increased	19	22	18	17	25	20	121
Remained the same	7	3	2	7	4	0	23
Decreased	12	15	2	12	11	12	64
Don't know	0	0	0	1	0	0	1
Total	**38**	**40**	**22**	**37**	**40**	**32**	**209**

i) Reasons for farmers' income not increased

The main reason (70.0%) revealed by the evaluation as why the incomes of farmers did not increase was drought, followed by pests (8.3%) and poor rainfall pattern (6.7%). Table 3.5.8.11 provides a full list of the reasons for farmers to have not realized an increase in their incomes for the past 3 years. Discussion with the Village Council in Ibingu and Lunenzi revealed that there was a concern over crop destruction due to vermin as partly from improved forest conservation.

Table 3.5.8.11: Reasons for incomes of farmers to have not increased

Reasons	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
Diseases	0	0	0	0	1	1	2
Drought	6	10	0	11	9	6	42
Pests	1	3	0	0	1	0	5
Lack of inputs	0	1	0	0	0	0	1
Low prices for agric. produce	0	0	0	0	1	1	2
Poor rainfall pattern	4	0	0	0	0	0	4
Unreliable markets	0	0	0	0	1	0	1
Vermin	2	0	0	0	0	0	2
Yield decrease	0	1	0	0	0	0	1
Total	**13**	**15**	**0**	**11**	**13**	**8**	**60**

j) Trends in farmers' profits realized from main crops

In order to determine sustainability of profits realised by farmers from sales of their mail crops, the evaluation assessed the trend of profits realised from sales of the main crops. Results of this assessment show that 57.9% (121) of the 209 surveyed farmers reported an increasing trend of profits in the last 3 years. On the other hand 30.6% (64) of the surveyed farmers reported a decrease in the profits' trend, 9.6% of them maintained the same levels of profits while 1.9% of them didn't know whether their profits were increasing or not. An analysis of trends in the farmers' profits realised from their main crops for each of the individual villages is presented in Table 3.5.8.12.

The stability of profits among the 57.9% small-scale farmers is mainly attributed to the sustained adoption of the climate smart agricultural techniques facilitated by CCAP project and other stakeholders. According to these results, the adoption of climate smart agricultural techniques is cost effective making production of the main crops in the project area a viable option. The success achieved by this project has therefore disapproved the belief by some of the farmers that the costs involved in adopting climate smart agricultural techniques are too high. This success also provides an attractive package for replication to other communities, policy making and appropriate public awareness.

Table 3.5.8.12: Trend of profit realised from the main crops in the last 3 seasons/years

Trend status	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
Increased	20	23	17	18	26	17	121
Remained the same	7	4	0	5	4	0	20
Decreased	11	13	5	12	9	14	64
Don't know	1	0	0	1	1	1	4
Total	**39**	**40**	**22**	**36**	**40**	**32**	**209**

3.5.9 Agricultural Storage Facilities Processing and Value Addition

a) Agricultural storage facilities

Damage caused by pests (insects, rodents) mould, moisture, etc. can lead to deterioration of agricultural produce and result in losses in quality and food value as well as quantity. Farmers can incur serious losses if crops are not well stored against the above-mentioned factors. In order to know whether farmers are aware of this critical measure, the evaluation team investigated ways through which the farmers were storing their agricultural produce. Results from this investigation indicate that 43.0% of the surveyed farmers were using improved crop storage facilities (improved granaries and packing in sacks with pesticides) that minimised post-harvest losses and to store for future marketing. An analysis of types of storage facilities/methods and proportions of households involved is presented in Table 3.5.9.1.

Table 3.5.9.1: Agricultural produce storage facility used by small-scale farmers

Type of storage facility	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Number	%
None	0	1	0	0	1	0	2	0.1
Local granaries	2	0	0	3	3	0	8	3.9
Improved granaries	0	0	3	1	0	0	4	2.0
Packed in sacks with pesticides	17	18	10	14	19	4	82	41.0
Packed in sacks without pesticides	18	21	6	15	17	28	105	51.5
Others	2	0	1	0	0	0	3	1.5
Total	**39**	**40**	**20**	**33**	**40**	**32**	**204**	**100.0**

b) Agricultural Processing and Value Addition

Agricultural produce value addition practices

In terms of processing and value addition, the evaluation results indicate that 91.2% of surveyed farmers did something to add value to their agricultural products. This was accomplished

through application of processing techniques and other practices as per analysis presented in Table 3.5.9.2.

Table 3.5.9.2: Agricultural produce value addition practices adopted by farmers

Value addition practices	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Processing (N=207)	0	0	0	5	7	5	17	8.2
Sorting (N=209)	9	8	7	10	6	5	45	21.5
Preservation (N=209)	32	32	16	23	30	23	156	74.6
Packaging (N=209)	1	4	0	6	5	3	19	9.1
Storage (209)	3	8	6	6	9	2	34	16.3
Drying (N=210)	2	3	0	0	1	2	8	3.8
No value addition (N=205)	2	3	2	3	5	3	18	8.8

Support for agricultural value addition

The evaluation team investigated about whether small-scale farmers in the project area were accessing support for agricultural value addition. The evaluation results indicate that 10.6% of surveyed small-scale farmers accessed support for agricultural value addition (Table 3.5.9.3). Further investigation revealed that the kind of support received by farmers in the crop value addition included training and material resources. The evaluation results also revealed that 60.0% of the farmers realised an increase in accessing support for agricultural value addition, 16.7% of them realised a decrease in the support while 23.3% realised the same level of support for agricultural value addition (Table 3.5.9.4).

Table 3.5.9.3: Access to support for agricultural value addition by smallholder farmers

Value addition support	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Accessed support	5	2	4	4	2	5	22	10.6
No support	34	38	18	32	37	27	186	89.4
Total	**39**	**40**	**22**	**36**	**39**	**32**	**208**	**100.0**

Table 3.5.9.4: Trend in access to support for agricultural value addition in the last 3 years

Value addition support	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Increased	3	2	4	4	2	3	18	60.0
Decreased	1	1	1	0	0	2	5	16.7
The same	2	1	1	1	2	0	7	23.3
Total	**6**	**4**	**6**	**5**	**4**	**5**	**30**	**100.0**

3.5.10 Access to Credit and Financial Services

The evaluation team investigated the availability and the level of access to credit and financial services among the small-scale farmers. Results of this study show that 15.2% (31) of 204 farmers surveyed reported to have accessed loans (Table 3.5.10.1). When asked about the trend of availability of loans for the past 3 years, 39.5% (34) of the farmers reported an increase

in the service, 7.0% reported a decrease in the financial services while 53.5% were not informed of the trend in the availability of financial loans (Table 3.5.10.2).

Table 3.5.10.1: Farmers' access to credit for financing agricultural production (N=204)

Status of access to credit	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
Received credit	14	9	8	0	0	0	31
Did not receive credit	25	31	14	36	40	32	178
Total	**39**	**40**	**20**	**33**	**40**	**32**	**204**

Table 3.5.10.2: Trend of access to financial credit by farmers in the past 3 years (N=86)

Trend of access to credit	Kilosa District			Chamwino District			Total
	Villages						
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	
Increased	16	11	7	0	0	0	34
Decreased	2	1	1	1	1	0	6
Don't Know	5	10	5	11	12	3	46
Total	**23**	**22**	**13**	**12**	**13**	**3**	**86**

3.5.11 Access to Agricultural Extension Services

Agricultural extension is a crucial element in raising awareness and knowledge on innovations and ultimately ensuring effective adoption of technical innovations including the climate-smart small-scale agricultural techniques. In the due course of determining the availability of this important service, the evaluation team revealed that only 57.1% of the surveyed farmers accessed agricultural extension services (Table 3.5.11.1). It was also revealed by the evaluation that about two thirds (62.1%) of the surveyed small-scale farmers were visited by extension officer(s) and that 28.2% of the farmers were visited more than 4 times per year. An analysis of the frequency at which the farmers were visited by the extension officers per village is graphical represented by Figure 3.5.11.1. Extension service providers mentioned by farmers include District Councils, TOAM and MVIWATA and MJUMITA.

Table 3.5.11.1: Access to agricultural extension services by farmers

Status	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Accessed services	19	17	19	23	21	21	120	57.1
No access to services	20	23	3	14	19	11	90	42.9
Total	**39**	**40**	**22**	**37**	**40**	**32**	**210**	**100.0**

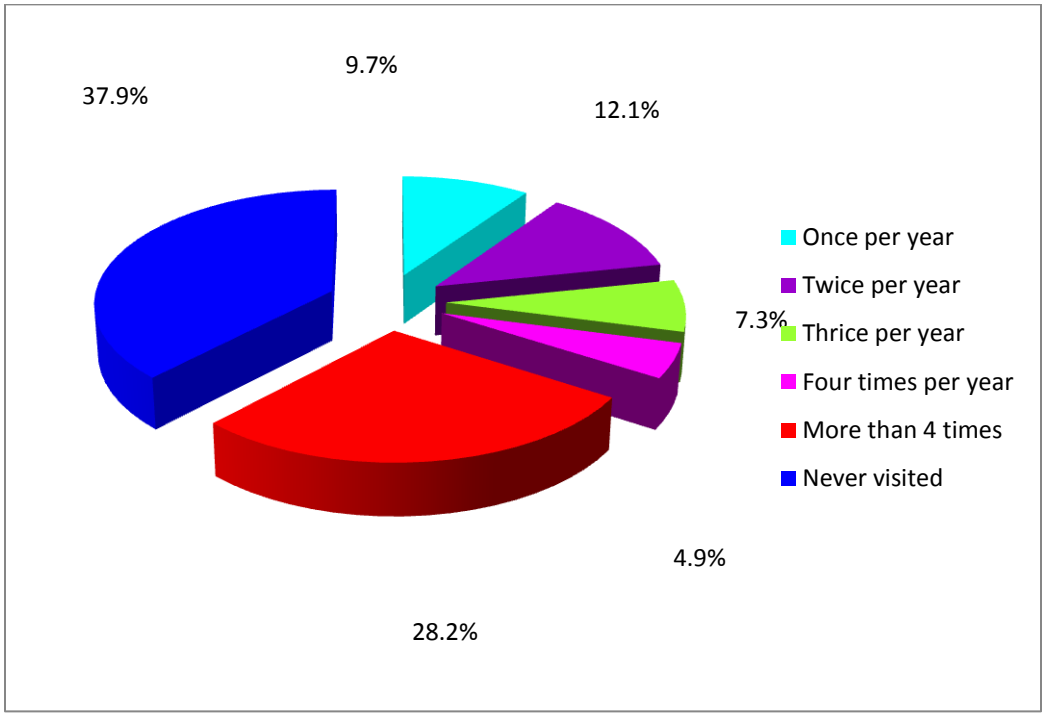


Figure 3.5.11.1: Frequency of being visited by agricultural extension officer (N=206)

3.5.12 Farmers' access to resources from District Councils

The project worked primarily at national level with pilot activities in two Districts namely Kilosa and Chamwino. In collaboration with project staff, both Districts had been involved in the training of farmers on C3S agricultural techniques and distributing some farming inputs. The Districts have gone further to advocate for the changes of the DADP guidelines to insist more on the participation of small-scale farmers in the decision-making and provision of more financial support to many small-scale farmers. Chamwino District council has made deliberate efforts to enforce the Environment Act's law prohibiting farming activities within the immediate vicinity of water sources.

In line with the forgoing discussion, 14.8% of surveyed farmers reported to have received resources support from the Kilosa and Chamwino District Councils (Table 3.5.12.1). While Kilosa District supported the project villages with fertilizers, herbicides and seeds, as part of the District plan to scale up the adoption of climate smart small-scale agricultural techniques. Likewise, Chamwino District supported farmers in the project villages to access quality agricultural inputs, specifically production of well-adapted sorghum, sesame and sunflower seeds (Table 3.5.12.2). Chamwino District for instance, was selling these seeds to farmers at subsidized prices. The small proportion of farmers (14.8%) acknowledged to have received material support from the District Councils is an evidence for their low budgets committed for the small-scale farmers.

Progress against the Baseline

A further analysis of the evaluation results indicate that the proportion of respondents who reported to have received support for climate smart Small-scale agriculture from Kilosa District Council increased from 2.0% reported by the baseline to 29.0%. However, most of the small-scale farmers for Chamwino villages reported to have not received the support for C3S agriculture from the District Council despite the strong positive evidence (60.0%) given by the Village Councils. This situation could have been attributed to the need by respondents to conceal the truth in the auspices of being considered for more support by development partners. On the other hand, the proportion of Village Councils members for Kilosa who acknowledged to have received support for C3S agriculture from their District Council increased from 30.0% reported by the baseline in 2013 to 50.0% and that for Chamwino Village Councils increased from 25.0% to 60.0%, respectively.

It was also encouraging to note that both Districts appreciated the effectiveness of the C3S agricultural techniques, as demonstrated by the project in the targeted villages. Both Districts had plans to increase their budgets to reach more villages in the future.

Table 3.5.12.1: Farmers' access to resources from District authorities

Status	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Received	13	5	11	1	1	0	31	14.8
Never received	25	35	11	36	39	32	178	85.2
Total	**38**	**40**	**22**	**37**	**40**	**32**	**209**	**100.0**

Table 3.5.12.2: Kind of resources received by farmers from District authorities

Status	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Extension services	1	0	1	1	0	0	3	8.8
Irrigation equipment	0	0	1	0	0	0	1	2.9
Drought resistant crop seeds	2	3	9	0	0	0	14	41.2
Fertilizers, other agro-chemicals	10	2	2	0	1	0	15	44.1
Other	1	0	0	0	0	0	1	2.9
Total	**14**	**5**	**13**	**1**	**1**	**0**	**34**	**100.0**

3.5.13 Farmers' membership with financial services support associations

Community based financial services are very important in providing appropriate and affordable services. Majority of Small-scale-farmers do not qualify for loans offered by banks and other professional financial service providers. These institutions view small-scale farmers as a high risk group which do not have feasible collaterals. In order to know whether small-scale farmers were organised for soft loans from community-based local financial service associations or groups, the evaluation revealed that 62.4% of the surveyed farmers were members of community based financial associations/groups. These groups and association include SACCOS, VSLA, VICOBA and other community self-help groups. An analysis of type of groups and distribution of membership is presented in Table 3.5.13.1 and Figure 3.5.13.1. The operations of such financial service associations have proved effective in providing loans to small-scale farmers and petty business operators.

Despite providing financial services, VSLAs can be used to facilitate timely availability of appropriate agricultural inputs and purchase of small-scale agro-processing machines. With the small-scale agro-processing machines, farmers will be able to improve quality of their produce and hence fetch better prices.

Table 3.5.13.1: Membership with financial services support associations or groups

Status	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Trade association	1	0	0	2	0	0	3	1.4
SACCOS	1	0	0	2	0	0	3	1.4
VICOBA, VSLA	19	26	8	3	7	2	65	31.0
Other	6	1	12	12	9	20	60	28.6
None	12	13	2	18	24	10	79	37.6
Total	**39**	**40**	**22**	**37**	**40**	**32**	**210**	**100.0**

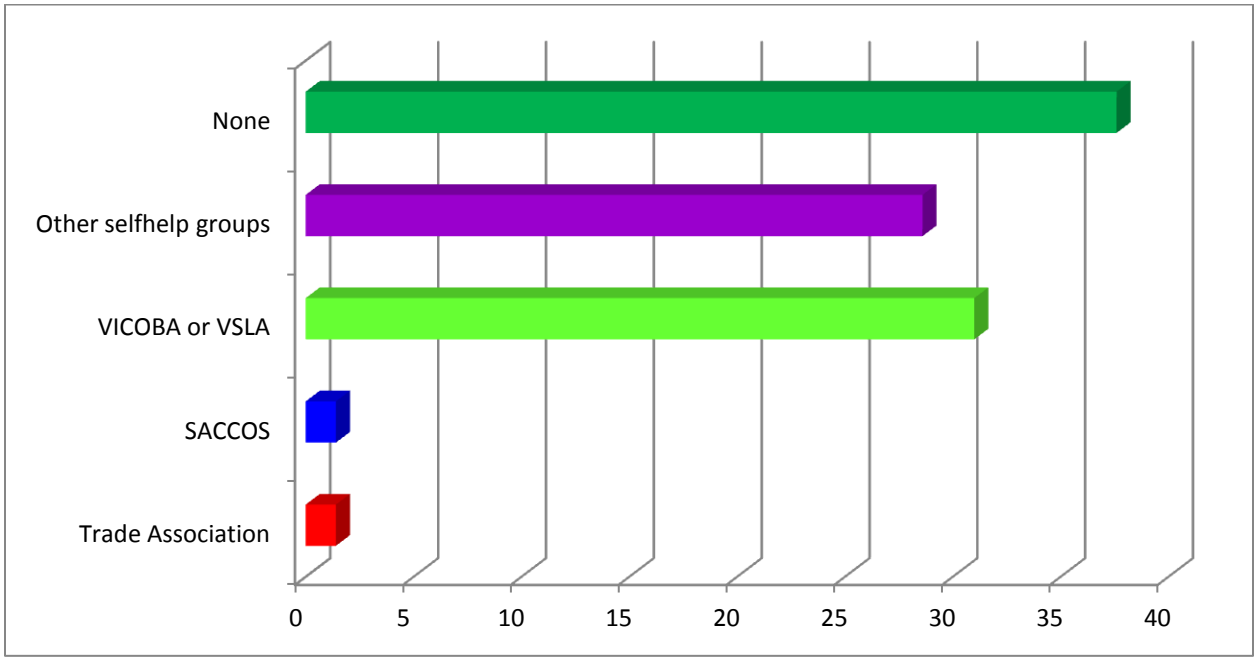


Figure 3.5.13.1: Membership with financial services support associations or groups

3.5.14 Farmers' Access to Markets

Access to market is of extreme importance in improving livelihoods of the smallholder farmers. In order for farmers to be able to access the markets, they should have the capacity to identify market opportunities, be able to penetrate the markets and finally make sales of their products. The assessment of this important aspect and revealed that 62.8% of the surveyed small-scale farmers sold their produce to traders at the village and that 10.1% of them sold their produce to

neighbours and local people. It is therefore evident from these findings that the small-scale farmers in the project area were not organised for better marketing of their agricultural produce. An analysis of how and where farmers sold their agricultural produce is presented in Table 3.5.14.1.

Table 3.5.14.1: Market linkages (how farmers sell their agricultural produce)

Market Channel	Kilosa District			Chamwino District			Total	
	Villages							
	Ibingu	Lunenzi	Kisongwe	Manchali	Mahama	Nzali	Freq.	%
Aggregate with other farmers	7	3	3	0	2	1	16	7.7
Sell to traders at the village	17	21	11	31	25	25	130	62.8
Sell to traders at the market	4	1	1	2	3	2	13	6.3
Sell to neighbours, local people	5	4	6	1	4	1	21	10.1
Sell at markets (in small quantities to customers)	1	2	1	0	3	1	8	3.9
Sell to company/buyer agents	4	3	0	0	1	0	8	3.9
Others	1	6	0	0	2	2	11	5.3
Total	**39**	**40**	**22**	**34**	**40**	**32**	**207**	**100.0**

4 Conclusions and Recommendations

4.1 Farmers' knowledge on Climate Change its impacts and causes

Results on the assessment of knowledge on climate change its impact and causes indicated significant improvements against the baseline levels as presented in Section 3.5.2. Members of MJUMITA and MVIWATA networks demonstrated the highest improvements for all three elements of climate change. Due to the fact that the knowledge of the Small-scale farmers was lower compared to the MVIWATA and MJUMITA network members, awareness raising and further training was still needed. The Government and other stakeholders should consider sustaining the capacity building activities introduced by CCAP project. Experience show that the more time spent into pursuing additional education or training, the more knowledgeable a person or community becomes.

4.2 Natural resource management and adaptation to climate change

4.2.1 Tree Planting

An analysis of the tree planting practice indicates that, more farmers in Chamwino were involved in tree planting as compared to those in Kilosa District. One of the main reasons for this difference could be due to less natural woodlands for forest products in Chamwino as compared to Kilosa District. Due to the fact that 61.4% of the total number of farmers who practiced tree planting had planted only a few trees in their homestead, the need for fuel wood by 93.8% households in the 6 project villages cannot be met by the current tree planting efforts. This situation was further complicated by another fact that only 22.0% of the planted trees were used for both cooking fuel and animal fodder. As a result of this mess, the natural forests which are necessary for maintenance of the ecological functions remained to be the main source of cooking fuel. Nevertheless, the use of energy saving stoves designated to reduce the high pressure on the natural forests was less than half (48.6%).

The 4.0% increase in adoption of agroforestry and the 12.2% decrease in forest clearing by small-scale farmers in the project villages is an important result achieved within a short period of 3 years. In order to make this achievement meaningful, the Government and other stakeholders should strive to scale up and replicate the results into other areas with the objective of realising a more significant reduction of the greenhouse gas emissions in the country.

In order to rescue natural forests from extinction and retard the environmental degradation, the village Governments should be sensitized on the need to designate specific areas for forest conservation. For villages with land use plans should ensure they effectively translate them into actions instead of keeping them in papers. The community members and local leaders should be sensitized on the need to establish wood lots of fast growing tree species in order to cope with increasing needs for fuel wood, timber, poles, etc. Bylaws should also be formulated and reinforced to complement the C3S knowledge in order to protect the natural forests from unsustainable uses.

4.2.2 Conservation of Farm Soil and Water

The 23.4% of surveyed farmers practiced conservation of farm soil and water is low given that majority of the population in the 6 project villages constituted smallholder farmers. If this trend is left unchecked, most of the farms in the study area will be degraded and their productivity severely affected. The consequences resulting from failure to conserve farm soil and water include soil erosion caused by wind or water, deterioration of the physical, chemical and biological properties of soil and long-term loss of natural vegetation. The major causes of farm

degradation include, inappropriate land preparation, poor farming practices, overgrazing, inappropriate irrigation, and soil pollution.

The project implementing partners, Government and other stakeholders should promote C3S agricultural practices and support Sustainable Agriculture Intensification (SAI) practices in the project area. SAI is a new global consensus for a more systemic approach to better conservation or restoration of natural resources base and increases the resilience of farming systems to climatic and environmental change. SAI concept seeks to maintain a balance between increased agricultural output and environmental sustainability. With SAI, Chamwino and Kilosa farmers will also be able to reduced agricultural inputs, particularly those inputs that are becoming scarcer (such as water) or can damage the environment (such as heavy metal persistent pesticides).

4.2.3 Types of cooking fuel

The evaluation team purposely decided to assess the level of adoption and use of energy saving-stoves in the project area. Today, in rural areas of developing countries like Tanzania, and particularly in the project villages, many people still use inefficient modes of cooking caused by the use of basic stove designs (Oliver Adria and Jan Bethge, 2013). The introduction of improved cooking stoves to households in the project areas could tap large energy efficiency potentials related to cooking at relatively low costs. Fuel inputs could be reduced by up to 80 per cent depending on the type of improved biomass stove introduced and on the technology used before by the household in question. Taking into consideration the huge number of people relying on biomass cooking, policy interventions aiming at the introduction of improved biomass stoves as an alternative strategy, represents a highly relevant and sounded measure to ensure higher levels of energy efficiency. Energy saving could assist with household economy. However, the proportion of households used the improved cooking stoves was found not big enough to make a significant contribution to conservation of the natural forests in the project area.

Promotion of energy saving cooking stoves which have not been widely used in the project area, will also enhance the reduction of pressure on the natural forests and saving money for the households. The establishment of wood lots of fast growing tree species like wattles (*Acacia meansii*), *Senna siamea*, *Senna spectabilisi* (*Mijohoro*) should be given priority in order to reduce pressure on the natural forests and maintain the ecological processes. With the invention of natural gas in the country, the Government and other stakeholders should consider coming up with a tangible strategy of promoting of gas as an alternative cooking fuel.

4.2.4 Promotion of environmentally sound Income Generating Activities

The project achieved important outputs that demonstrate positive impacts on the livelihood of the target villages. It is recommended that the Government and other stakeholders work in collaboration to ensure that opportunities for income generation from alternative activities other than those causing deforestation and forest degradation are created. The adoption of climate smart small-scale agricultural techniques by farmers has contributed to the reduction of deforestation, and forest degradation. The project also enhanced the conservation of biodiversity in the target project villages. Nevertheless, a negative impact to crop production was remarked by some of the small-scale farmers in Ibingu and Lunenzi villages who claimed that the decrease in forest clearing for agriculture increased the incidences of problem animals like monkeys, baboon and wild pigs Table 3.5.8.9 and Table 3.5.8.11.

4.3 Knowledge and Adoption of Climate Smart Agricultural Techniques

According to the evaluation results, more than 85.0% of the Small-scale farmers in the project villages had heard of C3S agriculture among Small-scale and that 74.6% of them were knowledgeable about the same. Furthermore, findings of the evaluation revealed that the average proportion of Small-scale farmers adopting climate smart Small-scale agricultural practices increased significantly from 21.0% to 30.2% for Kilosa District and from 27.0% to 36.8% for Chamwino District. While the average proportions of farmers adopted C3S agricultural techniques seem to be low, the proportions of farmers that adopted certain C3S agricultural techniques were impressive. Examples of techniques which attracted appreciable numbers of adopters include; the use of fertilisers (51.7%), cover crops (46.4%), Terraces (32.7%), mulching (33.8%), early maturing varieties (26.8%) and drought resistant varieties (35.1%). There is therefore no doubt that the improvement in the use of C3S agricultural techniques contributed to the improved crop productivities, incomes and profits for the early adopter farmers.

Due to the fact that capacity-building training interventions need longer gestation periods for their outcomes to be realised as opposed to physical developments, the CCAP project partners in collaboration with the Government should consider extending their support. It is also important that the training modules and strategies are revised to commensurate with the contemporary needs of farmers and emerging challenges.

4.4 Crop Productivities, Revenues and Profits

According to findings of the crop productivity assessment, each of the two Districts indicated unique potentialities in the production of particular crops. While Kilosa was favourable for maize and bean crops, Chamwino District was favourable for sorghum, sesame, groundnut, and sunflower. The levels of crop productivities, incomes and profits for majority of the target farmers revealed by the evaluation were low indicating an urgent need for sustained support by the Government and development partners.

The findings of this study suggest that Chamwino District should drop maize as their main crop and focus on other crops of which they have potentialities. Such alternative crops that indicated a better adaptability in Chamwino District were sunflower and sorghum. The same study findings suggest that Kilosa should focus in the production of maize. With adoption to C3S, farmers in Kilosa could achieve more in terms of yields and incomes levels. However, both Districts should, through research, find possibilities of introduction of other crops as means of diversifying their livelihoods. Promotion of livestock farming is both Districts is recommended with the objective of enhancing environmental smart small-scale agriculture through application of animal farmyard manure.

The Government and other stakeholders should use the differential productivities in deciding the type of crops to be promoted in particular Districts and villages. For future better results of the crops in terms of ensuring food security and poverty reduction, the use of drought and disease resistant varieties should be emphasized along with adoption of other technically sound climate-smart agronomic practices.

Implementation of the project activities contributed to improvements in crop productivities for some of the farmers and not all. This observation is attributed to both the limited number of small-scale farmers directly involved in the farmer field schools by the project and the short period of time scheduled for the project implementation. Those who attended the training/farmer

field schools and adopted the C3S agriculture had their crop productivities, revenues and profits increased as opposed to those who did not participate in the project training or did not learn from their fellows.

Due to the fact that record keeping was a problem with almost all farmers surveyed, the Government (LGAs) and development partners working in the project area should support training on records keeping. With records, community members could easily trace their incomes, profit and loss or other references and increase reliability of the declared information.

4.5 Storage Facilities

The proportion of households using improved storage practices/facilities (improved granaries/silos, packed in sacks/bags with pesticides) in the project area was less than half (43.0%). The lack of improved storage facilities implies a high risk of farmers to sustain great post-harvest losses due to damage caused by pests, moisture and theft. This discrepancy is a major obstacle to achieving food security and sustainable household income as it can lead to serious losses of farm produce to the tune of 50.0% and above.

The project, Government and other stakeholders should promote improved agricultural storage facilities in the project area. Specific activities for this could include community sensitization on the importance of improved facilities, training of community based technicians who can assist with construction and repairing of the facilities, supporting vulnerable households with construction materials, and construction of demonstration facilities.

4.6 Access to Agricultural Extension Services

Despite that the proportion of small-scale farmers receiving agricultural extension services was slightly above half (57.1%), there was still a need to strengthen this important service. According to recommendations given by some of the extension officers working in the project area, more refreshers courses and study visits were needed to broaden their knowledge in addressing contemporary agricultural challenges.

Project implementing partners, LGAs and other stakeholders should ensure increased awareness on the importance of extension services among small-scale farmers in order to increase their demand for the service alongside with ensuring timely availability of the same. Research and extension services are the crucial elements necessary for sustainable development of the agricultural sector. In order for the agricultural sector to regain its lost glory as backbone to the national economy, the Government and stakeholders should strive to strengthen both agricultural research and extension services.

4.7 Membership to Commercial Producer Groups

The proportion of households with members joining the special groups like VICOBA was still low and needed to be improved through special promotions and campaigns.

The project, LGAs and other stakeholders should promote the establishment of VICOBA/SG throughout the project area in order to accelerate sustainable development. With VICOBA, many community members will be able to access soft loans to invest into climate smart and economically viable IGAs. In order for group members to be able to utilize their loans more efficiently, the formation of VICOBA groups should be backstopped with intensive trainings in group management, entrepreneurship and business management. For better results, specific technical trainings should be organised for each of the various types of IGAs, e.g. production of

specific crops, vegetable production, dairy farming, poultry and vending or small-scale trade business.

4.8 Farmers Access to Markets

Due to the fact that 72.9% of the surveyed farmers sold their produce to traders at their villages and neighbours at low prices, there were poor market linkages for small-scale farmers in the project area.

The Government and stakeholders involved in the agricultural sector should work in close collaboration to develop and strengthen market linkages. According to discussions with Mahama Village Council, the increase in sorghum yields from 3 to 6 bags per acre was not very much celebrated due to lack of good market. Following the resolution by the East Africa Breweries Limited to use sorghum to produce one of its beer brands, the demand for sorghum in East Africa region is expected to increase dramatically. Due to this, the Government and development partners working towards supporting small-scale farmers should mobilise them to take advantage of this golden opportunity.

4.9 Access to Credit and Financial Services

Although 62.4% of the surveyed farmers reported to be members with community based financial associations or groups, small-scale farmers were not getting enough loans to improve their crop production. The evaluation team revealed that, the existing financial service associations including the traditional self-help groups had poor institutional capacities characterised by low capital base.

Due to the weakness inherent within the existing local financial service associations like SACCOS, VICOBA, VSLA, efforts should be made to strengthen their institutional capacities. According to discussion with the Village Councils, the capacity building needs for the financial service associations/groups include:

- governance,
- management,
- human resources development,
- financial management,
- business services delivery, and
- external relations/networking

In order to achieve appropriate community based financial services association, experienced experts in Micro Finance Management and Enterprise Development Sector should be engaged.

4.10 Sustainability Issues

a) LGAs Participatory process

Although the actual or estimated values of all contributions made to the project by the project were not systematically documented, there was enough evidence given by various evaluation respondents that the small-scale farmers received technical and material support from Kilosa and Chamwino LGAs. The question remains on whether such support will continue to be sufficient to sustain the CCAP promising innovations without the donor support. Due to the fact that the project design was participatory in nature, the partners participated in planning, implementation, monitoring and evaluation.

Despite the achievements realised from the capacity building training supported by the project, there is a great need to continue strengthening capacities of local communities and leaders on their ability to oversee, manage, maintain, protect and sustain the project achievements and future long-term strategies.

b) VICOBA

VICOBA groups or VSLAs have the potential to grow in terms of capital and service delivery. With time and proper facilitation, some of the VICOBA groups will merge into bigger and more efficient community based savings and credit associations.

The project in collaboration with LGAs and other stakeholders should organize and facilitate VICOBA/IGA capacity building training modules. Special training modules should be tailored to prepared community based trainers who will always be available to assist with community sensitisation, VICOBA groups' formation, intensive training of VICOBA members in group's management, basic entrepreneurial skills, business selection, planning & management. VICOBA and associated IGA groups' members should also be trained in technical skills required to operate specific businesses like horticulture, beekeeping and dairy husbandry.

4.11 Financial Remarks

The evaluation team reviewed some of the CCAP project financial reports, with confirmation from TFCG Accounts Department and noted that almost six months project budget was not yet to be spent as on 31st December 2014 when the project was supposed to close. Due to the fact that the failure to spend the money resulted from operational logistics, the evaluation team recommends a no-cost-extension period of at least six months so that the implementing partners will be able to finalise the pending activities. The extension period would also help to prepare a smooth exist and handing over of the project interventions to the respective District Councils and the beneficiary small-scale farmers.

4.12 Monitoring and Evaluation Indicators

The project monitoring and evaluation plan lacked SMART Indicators, especially those needed to measure the impact of the climate smart agricultural techniques adopted by small-scale farmers. This discrepancy is also reflected in the baseline which failed to provide a clear basis for effective comparison of the crop yields, incomes and profits realised or losses sustained by small-scale farmers at the baseline and the end-line evaluation. It is therefore recommended that a more comprehensive list of impact indicators should be developed in the form of Indicator Tracking Table for projects similar to CCAP. The rigorous Indicator Tracking Table will provide unshakable basis for any evaluator to furnish all the necessary data/information.

4.13 Future Project Design

While CCAP project was praised by many as being an innovation of its own kind, there were some opinions from among the project implementing partners that the partnership be extended to include the Government. These opinions were given as a means of improving future design of CCAP II, if such an opportunity unfolds. Being an internal partner, the Government will be obliged to ensure efficient achievement of the envisaged project results as failure to do so will translate to its own failure.

4.14 Program Extension

Based on the results, conclusions, recommendations and lessons learned discussed in this report, the evaluation team is of the opinion that the project be extended for another phase. This will provide more time for TFCG and other partners to empower the local communities and

enhance their readiness to take over the project functions, in collaboration with the Government and other local development partners.

5 Lessons Learned from the Evaluation Process

5.1 Capacity Building Interventions as Long Term investments

Capacity building/training interventions are long-term investments in nature as such the realisation of their tangible impacts requires longer gestation periods. For example, adoption of technically sound climate smart small-scale agricultural techniques and other agronomic practices by farmers required a change in the intrinsic behaviours and attitudes of which some are connected to some undesirable traditions and norms which are difficult to break. It is worth noting that traditions and norms are inherited across generations in a particular society and those undesirable behaviours associated with them require a step-by-step transformation. Some of the evaluation findings on capacity building not shown any positive change, especially when compared to the project baseline, their impacts will be realised after several years from when the evaluation was conducted.

5.2 Promotion of VICOBA as Pillars of Social Economic Development

Although most of the VICOBA and other self-help groups operating in the project area were still weak, their performance demonstrated the potential to foster social cohesion and the spirit of self-reliance. If assisted to review their structures and design appropriate constitutions along with provision of continuous capacity building and learning, they can provide all the financial services needed by small-scale farmers. Experience with VICOBA from other areas where they operate effectively has proved them to be an appropriate model for facilitating Local Economic Development (LED).

5.3 Mapping of Economic Opportunities in the Project Area

In order for the local communities to be able to make the best use of the economic opportunities existing in their localities, a study to collect the necessary information needed to develop a comprehensive analysis of various economic opportunities should be conducted. An economic activity is likely to reduce poverty rapidly if it involves a larger proportion of the poor population, either horizontally through employing a big number of people or vertically through involving a high level of value addition.

5.4 Other lessons remarked by stakeholders

- Small-scale farmers are highly affected by climate change impacts, and are willing to change if well assisted or facilitated both financially and technically (types of suitable crops, seasons, timing, how to address problems with pests issues, etc.).

- To change attitudes of local communities need more time. While a few can be early adopters, others are laggards keep waiting to see the benefits. Small-scale farmers learn slowly such the CCAP project needed at least 4 to 5 years of implementation in order to bring forth some tangible results.

- Value addition and marketing were not well built in the project planning and later in the implementation. In future project, the entire value chains should be considered right from the conception level.

- It is possible to reduce poverty and emissions by implementing conservation agriculture. This depends on the response from the small-scale farmers and appreciation for the concept.

- It will take long time for farmers to do away with traditional farming systems. They don't want to risk too much with C3S new technologies.

- Capacity of District Councils to take over the CCAP project interventions is still low.

- It pays to implement a project with multiple objectives with partners of different skills and professions in order to complement each other – TFCG, MJUMITA, MVIWATA, TOAM, ActionAid was the case. Diversity of skills and experiences by project partners and building in other voices to adopt new ideas, e.g. media to small-scale farmers.

- While working in larger partnerships with different institutional policies and rules challenges are inevitable.

- Early results from the CCAP project are an important basis for developing similar new projects, and/or replicate into other villages.

- Given another opportunity to implement CCAP Phase II Project, we will have to consider a value chain approach in order to address the issues of agriculture and climate change in a more comprehensive manner. Such elements like value addition, marketing, profit analysis etc. should be taken in board.

6 Annexes

Annex 6.1: Terms of Reference for End Line Evaluation of CCAP

ToR for the CCAP End Line Evaluation E

Appendix 6.2: Inception Report for CCAP Final Evaluation

Inception Report - CCAP Final Evaluatior

Annex 6.3: List of small-scale farmers interviewed

List of small-scale farmers.pdf

Annex 6.4: List of Village Councils' Members

List of Village Council Members.pdf

Annex 6.5: List of MJUMITA and MVIWATA Networks' members

List of MJUMITA and MVIWATA Members.p

Annex 6.6: SPSS Data inputs for small-scale farmers' interviews

CCAP - Small-scale Farmers.sav

Annex 6.7: Questionnaire for small-scale farmers' interviews

Questionnaire - Small-scale Farmers.p

Annex 6.8: FGD Guide for MVIWATA and MJUMITA

FGD Guide - MVIWATA-MJUMITA I

Annex 6.9: FGD Guide for Village Councils

FGD Guide - Village Council.pdf

Annex 6.10: Interview Checklist for District Officials

Interview Checklist - District Officials.pdf

Annex 6.11: Interview Checklist for Elected Leaders

Interview Checklist - Elected Leaders.pdf

Annex 6.12: Interview Checklist for Ministry of Agriculture Officials

Interview Checklist - Ministry of Agriculture

Annex 6.13: Interview Checklist for Project Partners' Executives

Interview Checklist - Partnership Officials.p

Annex 6.14: Interview Checklist for National Climate Change Leaders

Interview Checklist - National CC Leaders.p

Annex 6.15: List of MJUMITA and MVIWATA Network members

List of MJUMITA and MVIWATA Members.p

Annex 6.16: List of Project Partners and Key Informants

List of Project Partners and Key Info

Annex 6.17: List of Small-scale farmers interviewed

List of small-scale farmers.pdf

Annex 6.18: List of Village Council Members

List of Village Council Members.pdf

Annex 6.19: Data for Chamwino Agricultural Production

Chamwino Agricultural Productio

Appendix 6.20: Evaluation in Photos

Evaluation in Photos.pdf

Appendix 6.21: MJUMITA & MVIWATA Members' Data

MJUMITA-MVIWATA Members Analysis.xls

Appendix 6.22: Village Council Members' Data

Village Council Members Analysis.xls

Appendix 6.23: CCAP Project Indicator Tracking Table (PITT)

CCAP Project Indicator Tracking Tal