

**Final Report for the study**

**on**

**Improving smallholder livelihoods through woodlots management: an adaptation to climate variability & change in Makete District, Tanzania.**

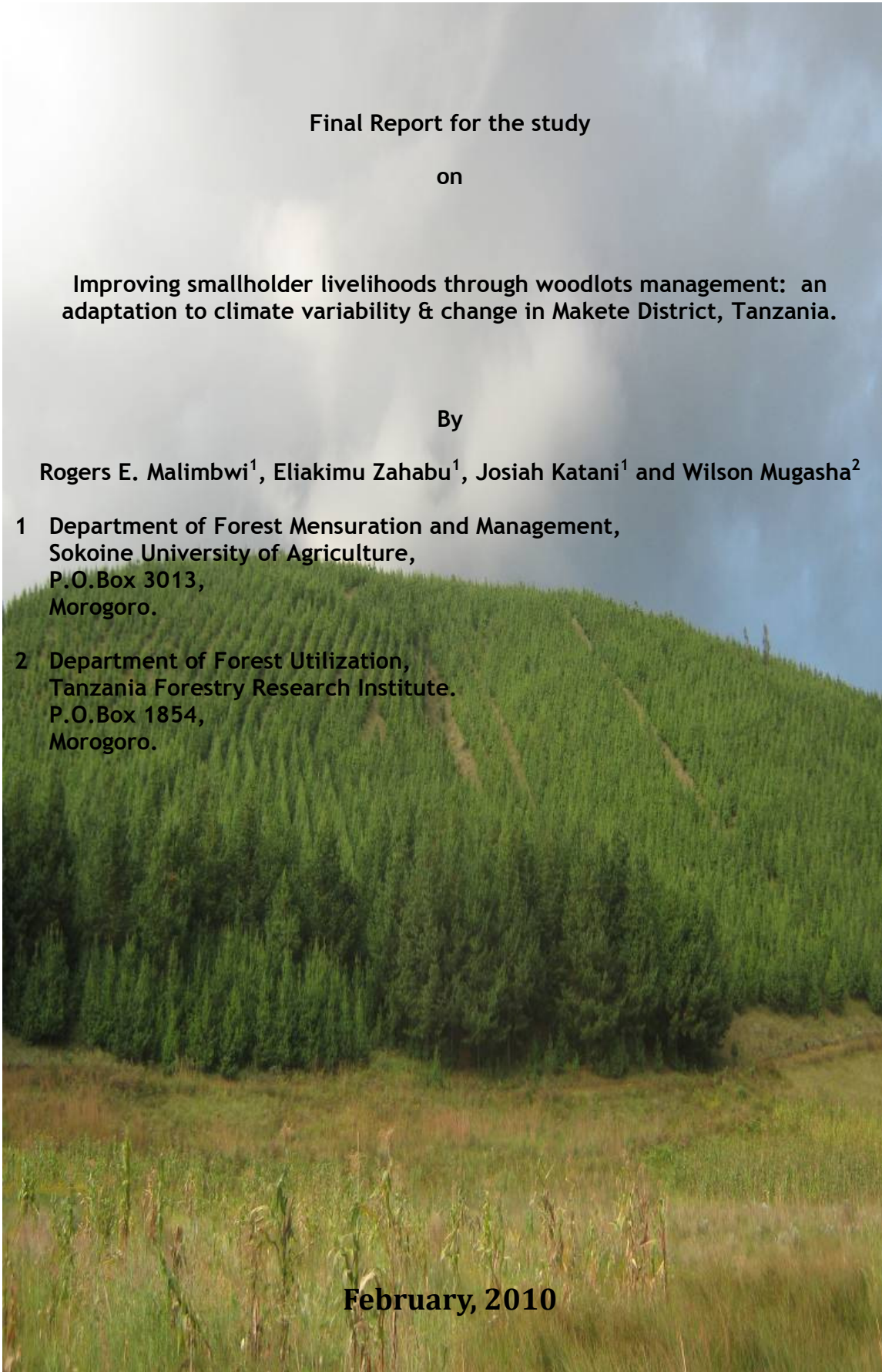
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**February, 2010**



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## ACRONYMS

HIMA	-	Hifadhi Mazingira, Iringa
TAS	-	Tanzanian Shillings
CC-DARE	-	Climate Change and Development -Adapting by Reducing Vulnerability
Dbh	-	Diameter at Breast Height
DED	-	District Executive Director
DC	-	District Commissioner
DAS	-	District Administrative Secretary
SACCOS	-	Savings and Credit Cooperative Organization Societies
MKURABITA	-	Mpango wa Kurasimisha Rasilimali na Biashara za wanyonge Tanzania (Programme to formalize the Property and Business of the poor in Tanzania)
DNRO	-	District Natural Resources Officer
DSD	-	District Security Officer
DSEO	-	District Secondary Education Officer
DALDO	-	District Agriculture and Livestock Development Officer
DPLO	-	District Planning and Logistical Officer
DDO	-	District Development Officer
DMO	-	District Medical Officer
DEW	-	District Water Engineer
Ag	-	Acting
MKUKUTA	-	Mkakati wa Kukuza Uchumi Tanzania (National Strategy for Growth and Reduction of Poverty)

## Summary

A study on improving smallholder livelihoods through woodlots management as an adaptation measure to climate change variability and change measure was conducted in Makete Districts, Tanzania. Tree planting programme in most part of the country has been advocated for decades but adoption to these activities still is not promising to most part of the country. In contrary, people in Makete do not need sensitization regarding tree planting. They already know the importance of trees as they contribute highly to the economy of individuals and to the District at large. Previously people in Makete Districts depended their income through agricultural products such as maize, white flour, potatoes and *pareto*. Later due to climate variability and change, the crops production fell tremendously. As a result food security and the wellbeing of rural people of Makete were threatened. Responding to this situation which is a consequence of climate change, local people of Makete District have established tree woodlots as an alternative source of household income. This is essentially a climate variability & change adaptation strategy. Makete rural area is among the Southern highlands of Tanzania reported to have successful woodlots. These areas are well afforested with trees especially of cypress, pines, eucalyptus and wattle. The woodlots range from 0.25 to 3 hectares. Unfortunately there was little information the contribution of individual woodlots to the income of smallholders, poverty alleviation as a whole and how the benefits are distributed to all stakeholders involved in the industry. It was therefore not clear how much woodlot management was contributing to climate change adaptation. Much as the communities were harvesting and getting income from their woodlots, their management practices including marketing strategies were far from being sound. Therefore this study assessed management practices of smallholder woodlots and marketing of timber and documents effective climate variability & change adaptation in Makete district.

The silvicultural management practices investigated through questionnaire included: sources of planting material, site selection, choice of species to grow in a specified area, trans-planting, tending activities, harvesting and markets for the woodlot products. By utilizing the indigenous knowledge and that of scientists a guideline on best practices for woodlot management was produced as an outstanding output of this study. In the identification of existing marketing channels and practices for softwood timber from smallholder's woodlots, three marketing channels were identified. These were: Farmers selling immature stands to middlemen who manage the woodlots to maturity and then extract timber which they sell to final market destinations of Makambako, Njombe, Dar es salaam and Mbeya; Farmers selling mature stands or round logs to middlemen who convert them to sawn timber and lastly; Farmers themselves converting their mature or immature stands to lumber and sell them to middlemen or to the final destination. The last option is more profitable to farmers and therefore recommended. It was also recommended that farmers form credit associations e.g *Mang'oto Tree Growers Association* from which they can borrow money while keeping their immature woodlots as collaterals and repay when they sell mature timber. This will reduce the loss caused by selling immature timber. The district authorities support this recommendation and promised to facilitate.

# 1 Introduction

Climate Change and Development Adapting by Reducing Vulnerability - CC DARE is a joint UNEP/UNDP programme for Sub-Saharan Africa made possible through a grant from the Danish Ministry of Foreign Affairs. The programme aims at providing a demand driven financial and technical support to sub-Saharan Africa that is targeted, flexible and rapid. The support from CC DARE programme is meant to assist countries to remove barriers for the integration of climate change adaptation issues into development activities and planning at various levels (e.g. local, national, project, sectoral and national planning levels). Thus, the programme is designed to complement and strengthen relevant ongoing and planned project and programme-based activities.

Tanzania is one of the countries in the Sub-Saharan Africa that has been selected to participate in this programme. In respect to this programme, a study on improving smallholder livelihoods through woodlots management as an adaptation measure to climate change variability and change measure was conducted in Makete districts, Tanzania. Tree planting programme in most part of the country has been advocated for decade but adoption to these activities still is not promising to most part of the country. In contrary, people in Makete do not need sensitization regarding tree planting. They already know the importance of trees as it contributes highly to the economy of individuals and to the District at large. Previously the income of people in Makete districts depended on agricultural products such as maize, wheat, rice, round potatoes and pyrethrum but later due to climate variability and change the crops production fell tremendously. This resulted in threatening food security and the wellbeing of rural people of Makete.

Responding to this situation, local people of Makete district have established tree woodlots as an alternative source of household income. Makete rural area is among the Southern highlands of Tanzania reported to have successful woodlots. These areas are well afforested with trees especially of cypress, pines, eucalyptus and wattle. The woodlots range from 0.25 to 3 hectares. Before this study, there was little information on the total forest area covered under individual ownership. Also the contribution of individual woodlots to the income of smallholder and poverty alleviation as a whole and how the benefits are distributed to all stakeholders involved in the industry were not known. It was therefore not clear how much woodlot management was contributing to climate change adaptation. Much as the communities are harvesting and getting income from their woodlots, their management practices including marketing strategies are far from being sound. This study assessed management practices of smallholder woodlots and marketing of timber in order to document best woodlots management practices. This will maximize benefits accrued from woodlots management by households in Makete district.

## **2. Result assessment**

### **2.1 Outputs, Outcomes and Overall conclusions of the study**

#### **a. Outputs**

- Baseline information on the extent of woodlots in Makete district and their contribution to climate change generated. A report on baseline information on woodlot management in Makete district has been prepared. This information is useful for the identification of existing practices and local knowledge with the aim of improving the practices and integrating them with the scientific knowledge.
- Baseline information on the existing marketing channels for timber in Makete district generated. A report containing the baseline information on woodlot management in Makete district was prepared.
- A guideline contains recommendations on more profitable market options for timber was prepared. At least 25% of tree growers are expected to follow the guidelines. Due to the nature of the project, verification of this indicator is however a post project activity.
- Baseline information on the contribution of smallholder woodlots to household income and poverty alleviation in Makete district generated. A report containing baseline information on the contribution of smallholder woodlots to household income and poverty alleviation in Makete district was prepared. This information is useful to researchers, tree growers, District Council, Forest and Beekeeping Division of the Ministry of Natural Resources and Tourism, for planning purposes whereby smallholder woodlots are recognized as significant contributors to the economy of the households, districts and nation at large.
- A guideline on sound woodlots management to enhance productivity as a climate change adaptation strategy was prepared. The guideline also contains recommendations on more profitable market options for timber. It is expected that, at least 25% of tree growers will follow the guidelines. Due to the nature of the project, verification of the indicator is a post project activity. However, the active participation of various stakeholders indicates the acceptability of the technologies. This guideline is a useful tool for the tree growers, District Council, Forest and Beekeeping Division of the Ministry of Natural Resources and Tourism.
- Baseline information on other income generating activities as adaptation strategies to climate change was documented. The activities are: agriculture (of adaptive crops), livestock keeping, beekeeping, small businesses, fisheries, making local brew and milling machine. This information which is useful for planning for the alternative income generating activities for the households, districts and nation at large is contained in a progress report. Tree growers, District Council, Forest and Beekeeping Division of the Ministry of Natural Resources and Tourism were the main clients.

- Local knowledge, scientific knowledge, gender and tenurial arrangement considered on the proposed best woodlots management and marketing practices. The process of developing the guidelines containing best practices on woodlot management and marketing was participatory and considered local knowledge, scientific knowledge, gender and tenurial arrangement. This information is useful for the tree growers for the improvement of woodlots management and income generation. In fact some of the proposed best practices were taken from among the tree growers.

**b. Outcome\Objectives**

- Assessment of silvicultural management practices and growing stocks in the woodlots. The silvicultural management practices investigated through questionnaire included: sources of planting material, site selection, choice of species to grow in a specified area, trans-planting, tending activities, harvesting and markets for the woodlot products. By utilizing the indigenous knowledge and that of scientists a guideline on best practices for woodlot management was produced as an outstanding output of this study.
- Identification of existing marketing channels and practices for softwood timber from smallholders woodlots. Three marketing channels were identified:
  - Farmers sell immature stand to middlemen who manage woodlots to maturity and then extract timber for sell to final market destinations of Makambako, Njombe, Dar es salaam and Mbeya.
  - Alternatively farmers sell mature stands or round logs to middlemen who convert them to sawn timber for sell to the mentioned final destination.
  - Another option is when the farmers themselves convert their mature or immature stands to lumber and sells them to middlemen or to the final destination.

The last option is more profitable to farmers and therefore recommended. It was also recommended that farmers form credit associations e.g *Mang'oto Tree Growers Association* from which they can borrow money while keeping their immature woodlots as collaterals and repay when they sell mature timber. This will reduce the loss caused by selling immature timber. The district authorities support this recommendation and promised to facilitate.

- Assessment of the contribution of smallholder woodlots to household income and poverty alleviation. Farmers acknowledge the dependence on woodlots as their major source of income. The annual income from woodlots ranges from TAS 100, 000 to 2,000,000. The District Council realizes an annual revenue of about TAS 200 million from timber and fire wood coming from the woodlots.
- Proposing management and marketing strategies that will aid in the planning and development of improved woodlots productivity and household income for poverty alleviation. Guidelines in both Swahili and English that provide best woodlots management and marketing strategies have already been prepared.
- To identify alternative adaptation strategies to climate variability & change that can reduce dependence on woodlots and forests. Apart from woodlots, other main income generating activities are agriculture and livestock keeping. In addition there is

beekeeping, small businesses, fisheries, making local brew and milling machine. There is however variations on the dependence of these income sources between the wards e.g. Matamba ward has the highest percentage of farmers who generate income from agriculture and livestock keeping (67%) while the least is Mang'oto (44%).

- To examine the role of gender, local knowledge and tenurial arrangements for land to enable planning and development of alternative adaptation strategies and forest management practices.

In 80% of households:

- All management activities except marketing are done by all members of households

- Marketing is done by the head of household who is the father

- Male children have more rights

Education is important for equal distribution

- Meeting with stakeholders and reporting the findings. Representative woodlot smallholders, and village and ward leaders from the four wards researched in Makete district were given opportunities to meet and share experiences with the researchers on how to manage woodlots and market timber. This was also followed by a meeting with district officials including: District Commissioner, District Executive Director, District Natural Resources Officer, Heads of departments of District Council and Environmental Committee member of the counsellors' assembly. The last meeting was made in December to discuss the Swahili guidelines with the farmers, village leaders, wards and district officials.

### **c. Overall conclusion on the results**

The project has succeeded in assessing management practices of smallholder woodlots in Makete district. It has also assessed marketing of timber in Makete district. The main output of the project is the guideline on the best practices for woodland management and marketing. This document will for a very useful tool for woodland management by small holder farmers not only in Makete district but also in other places in Tanzania. The study also revealed some alternative adaptation strategies to improve forest management and livelihoods of local communities in Makete district.

## **2.2 Institutional strengthening, human resources development and national planning and adaptation to climate change**

### **Institutional linkage and relevance**

The project 'Improving smallholder livelihoods through woodlots management: an adaptation to climate variability and change in Makete District, Tanzania' was implemented by the staff from: Sokoine University of Agriculture, Tanzania Forest Research Institute and Makete District Council. This mix of staff provided good linkage between research institutions and the local governments' staff who are responsible for assisting the farmers on their day to day management of woodlots. The District's staff also have direct linkage to their respective sectoral ministries in the central government system. In this respect the District staff provided feedback on woodlots management to the Ministry of Natural Resources and Tourism on which the forestry sector is anchored.



The methodology used in executing the project activities was participatory in nature where by farmers' own experience in managing their woodlots and technical experience of the researchers were sourced. This provided a direct link between the researchers, district forest staff and the farmers.

### **Human resources development**

Involvement of forest staff and the management staff of Makete district council in this research partly enhanced their capacity on action based research. It is envisaged that experience gained from this research will be utilized by the staff in other related future activities.

### **Effect on mainstreaming climate change into planning with particular reference to National Poverty Reduction Strategies (PRSP), Second National Communications (SNC), National Plan of Actions (NAPA)**

This research provides baseline information on the contribution of woodlots to the individual farmers' incomes. This kind of information is needed for the planning for the National Poverty Reduction Strategies. The information will also be useful for the country when it comes to the reporting on green houses levels for the forestry sector. The contribution of woodlots to the climate change mitigation and adaptation will also be ascertained using among others some of the information generated in this study.

## **3. Technical assistance**

None

## **4. Financial reporting**

- Project starting date: **May 1<sup>st</sup>, 2009**
- Project completion date: **December 31<sup>st</sup> 2009**
- Cash received US \$ 35,256
- Cash balance at the end of this reporting period US \$ 00
- Projected final cash to be received US \$ 15,109

## **5. Lessons learned**

In Makete district people practice woodlot farming as an adaptation strategy following agricultural crop failure. It is important to stress here that when people face problems associated with climate change they develop coping strategies by themselves or with little assistance from the government or local governments. While adopting the coping strategies, they use their indigenous knowledge which is scattered among them. It is the duty of researchers and extension officers to pack the scattered local knowledge and integrate it to the scientific knowledge in order to impart good practices to the local communities.

