INFLUENCE OF TIMBER TRADING ON POVERTY REDUCTION IN MUFINDI DISTRICT, IRINGA REGION, TANZANIA

BY

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN RURAL DEVELOPMENT OF SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

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ABSTRACT

Sustainable use of forest resource products such as timber has been reported to produce different benefits, which enhance households' income and reduce poverty. This study assessed the influence of timber trading on poverty reduction to the selected communities in Mufindi District, Tanzania and its contribution to district revenue. As well the study focused on the challenges and opportunities to timber trading in the study area. Structured questionnaires and checklist were the data collection tools used. A sample of 100 households engaged in timber trading was randomly selected from four villages for a questionnaire survey. Observation and focus group discussion (FGD) were other methods employed. Descriptive statistics and comparative analysis were used to analyze data and compare relationships between and among variables. Quantitative data were analysed using computer program Statistical Package for Social Sciences (SPSS). Qualitative data analysis was subjected to content analysis. Results show that timber trading contributed to 61% of the households' income. 73 percent of households' physical assets were acquired using income accrued from timber trading. Besides, timber trading contributed up to 35% of the district own sources of revenues. However, access to credit facilities by timber traders was very weak. Increase in the price of fuel, price of buying tree plots and poor infrastructure led to an increase in the costs of timber production. The situation decreases both household income and district revenues in terms of log cess (levy). Moreover, revenue collection from private owned wood lots remained a challenge to district council authority. It is recommended that package of Small and Medium Enterprises (SMEs) business support programs, extension services and cost-effective technological support is provided to timber traders in the district to accelerate the meeting of the national strategy for growth and reduction of poverty (NSGRP) and realisation of Millennium Development Goals (MDGs).

DECLARATION

I, Egid Francis Nkwera, do hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my original work and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.

_____ _____

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The above declaration is confirmed

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Dr. Stephen Justice Nindi Date

(Supervisor)

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LIST OF ABBREVIATIONS

ADT	-	Animal Drawn Technology
AIDS	-	Acquired Immune-deficiency Syndrome
CIFOR	-	Centre for International Forestry Research
FAO	-	Food and Agricultural Organisation
GDP	-	Gross Domestic Product
HIMA	-	Hifadhi Mazingira
HIV	-	Human immune-deficiency Virus
ICTs	-	Information and Communication Technologies
IIED	-	International Institute for Environment and Development
LGAs	-	Local Government Authorities
M.A	-	Master of Arts
MDC	-	Mufindi District Council
MDG	-	Millennium Development Goals
MNRT	-	Ministry of Natural Resources and Tourism
MUCOBA	-	Mufindi Community Bank
NGOs	-	Non Governmental Organizations
NMB	-	National Microfinance Bank
NSGRP	-	National Strategy for Growth and Reduction of Poverty
PRS	-	Poverty Reduction Strategy
SACCOS	-	Saving and Credit Cooperative Societies
SAP	-	Structural Adjustment Programme
SCSRD	-	SUA Centre for Sustainable Rural Development
SHFP	-	Sao Hill Forest Plantation
SMEs	-	Small and Medium Enterprises

SNAL	-	Sokoine National Agricultural Libraries
SPSS	-	Statistical Package for Social Sciences
SUA	-	Sokoine University of Agriculture
URT	-	United Republic of Tanzania

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

More than 25 % of the world's population or an estimated 1.6 billion people in the world rely on forest resources for their livelihoods, and almost 1.2 billion of these live in extreme poverty (FAO, 2006). In particular, the indigenous and other forest-dwelling communities have long managed and protected forests and owned and operated small scale forest enterprises. Until recently, however, these enterprises operating mainly in the shadows of formal forest conservation, employment and local development were underappreciated. Despite having an impact in the poverty reduction and conservation of natural resources, they face array of challenges including insecure tenure, lack of financial support, excessive red tape, high taxes and inaccessible markets (FAO, 2001).

Indeed, commercial forestry including timber trading needs to do more on poverty reduction, and a major push to scale up pro-poor commercial forestry and make it feasible. Good information, strong local democracy, fair enforcement of simple rules, creative ideas and models, and a range of highly committed partnerships will all be needed to make timber trading worthwhile (Mayers, 2006). In most cases, timber is considered to be out of poor people's reach but, where the rights and policy framework are favourable, evidence is growing that small and medium forestry enterprises like timber trading can reduce poverty.

Economic growth is emphasized in the current existing debates on development as the most important driver of poverty reduction. However, the role of the forestry sector in lifting significant numbers of people out of poverty by contributing to household income, employment generation, trade and general economic growth is remarkably poorly analyzed, especially in the light of market globalization and production. Forestry's role in

many economies is certainly significant as it provides 10% or more of Gross Domestic Product (GDP) for some of the poorest countries, and 5% of GDP for many more developing countries (Steele and Kragt, 2006). For all developing countries, the average share of forestry products in measurable GDP is around 2%, and forestry's share in developing country exports is about 3% (FAO, 2005). These figures still underestimate forestry contribution to the development arena particularly to the rural poor. Thus, investigating the contribution of forestry products on poverty reduction among smallholders is crucial.

1.2 Contribution of Forestry Sector in Tanzania

Contribution of the forestry sector in Tanzania GDP is estimated at 3.3% (MNRT, 1998). Nonetheless, there seems to have been little exploration of whether and how this national forest income trickles down to help the poor (Angelsen and Wunder, 2003). Forestry and forest industry in Tanzania based on natural forests and plantations are to certain extent acknowledged in keeping ample employment opportunities to rural as well as urban people. The largest part of the employment opportunities are generated by the natural forests though plantation forests also have a great potential in this aspect (Mlowe, 2007). Further, natural forests not only act as a saving account for people living in and around them, but also they provide a range of products for subsistence.

In this sense, natural forests should not be considered in terms of economic value of timber alone, besides, they draw on local knowledge to learn the full range of benefits and functions of the resources and how different groups of people use them. For instance, it helps in assessing the impact of interventions on livelihoods by studying and analyzing the complex interactions between local people and forests (FAO, 2006).

Forest enterprise has been extensively examined as a means of reducing the wide spread of poverty among forest-dependent people in some parts of the country. Indeed, when poverty reduction is considered solely in terms of income generation, small forest enterprises may or may not compare favourably with large enterprises (Macqueen *et al.,* 2007). However, when multitude of dimension of well-being are considered, small forest enterprises are seen to have a vital role in enhancing the quality of life of forest-dependent people and lifting them out of poverty (IIED, 1996).

Despite their potential to improve quality of life by reducing poverty, small-forest enterprises still face difficulties that may prevent them from so doing. According to FAO (2001), small-scale producers of timber and other forest products are frequently subjected to costly controls when harvesting, transporting, and selling woods and other forest products, while state and large corporate producers are sometimes subsidized. Business deficiencies are often intensified by isolation from market information, financial and business development services and policies biased against small scale actors.

Recently, the Tanzania Ministry of Natural Resources and Tourism (MNRT, 2005) noted that, over the past three decades the perspectives on the role of forest for the society have changed and broadened considerably as a consequence of social, economic, environmental, cultural and political changes. On the other hand there is relentless pressure on the forest resources arising from ever increasing demand for fuel wood, fodder, timber and demand for forest land for other uses. On this respect, the overall objective of National Forestry Policy is to enhance the contribution of forest sector to sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of the present and future generations (MNRT, 1998). It is from this aspect that the rationale of examining the influence of small-scale timber trading to poverty reduction emerged.

1.3 Problem Statement

Iringa, Mbeya and Kilimanjaro Regions in Tanzania grow plantation trees on large scale. They represent 30% of all plantation trees in the country. Forest plantations by the private sector are relatively new development though there are a few large scale plantation projects in Tanzania for instance the Kilombero Teak Plantations. These plantations provide income and employment generated by industrial needs. Tree plantations also provide timber and other raw materials for local craftsmen, small-scale artisans for their workshops and other processing activities. Further, they offer building materials such as poles and sawn timber that accelerates provision of good shelter to the people.

The primary objective of the government to establish forest plantations is to produce timber for sale and generate enough revenue to make the forestry sector contribute significantly to the country's GDP. Although the sector contributes 10% of the country's registered exports, the current GDP contribution of the forestry sector is estimated at less than 3.5% (MNRT, 1998). The recorded contribution of the forestry sector to the total GDP is certainly underestimated possibly because of parallel economy transactions such as wood fuel and other forest products that have not been well assessed in terms of revenue and its contribution to poverty reduction. Therefore, presently there exist no reliable records for the GDP share and growth figures for the forest industry in the country (O'Kting'ati and Bohero, 1996).

Besides the missing detailed information on the contribution of forest products to GDP and growth, indeed, the contribution of forestry and forest related products have not contributed much towards poverty reduction through income generation and food security. Most forestry-dependent people in the country especially in rural areas still experience poverty, despite the availability of plentiful resources including forestry. However, the

forest-dependent people living in Mufindi District may have a different story to reveal on how forest is contributing to poverty reduction. This study investigated on the extent of contribution of this sector to the household economy and seek alternative paradigms that would ensure effective contribution of the forestry sector to poverty reduction so as to meeting the national strategy for growth and reduction of poverty (NSGRP) and Millennium Development Goals (MGDs).

1.4 Justification of the Study

The Government of the United Republic of Tanzania (URT) signed the Millennium Declaration in 2000 and committed itself to achieve the Millennium Development Goals (MDG) by 2015 by halving that the number of people living in extreme poverty will be reduced to half (URT, 2005a). To meet this MDG challenge, the URT formulated National Forestry Policy to enhance the contribution of forestry sector to sustainable development of Tanzania and for conservation and management of its natural resources for the benefit of the present and future generations (MNRT, 2005).

Ever since many researchers in the forestry sector have concentrated their studies on forests management and quality of timber industries and tree plantation. The intention of this study was however to assess the influence of timber trading to the livelihood improvements particularly in Mufindi District. Besides, the study examined to what extent the community surrounding the tree plantations benefits from timber trading in improving their standard of living and socio-economic services. This study focused on producing knowledge and empirical information on how the timber industry contributes to local peoples' livelihoods, revenue generation to Mufindi District Council and the challenges the timber trading is facing. The information will act as a base for sectoral plans to effectively improve livelihoods in the District and feedback to NSGRP and MDGs. Moreover, the

information obtained will help the policy makers, planners, and other development partners to come up with relevant policies and strategies concerning the impact of timber trading in the entire development process.

1.5 Objectives

1.5.1 General objective

To examine the influence of timber trading on poverty reduction in Mufindi district.

1.5.2 Specific objectives

i. To determine households' income and other livelihood assets accrued from timber trading compared to other sources.
ii. To compare the district revenue from timber trading versus other sources.
iii. To identify the challenges and opportunities faced in timber trading.

1.6 Research Questions

The main research questions of this study were;

1. What are the socio-economic gains accrued from timber trading versus other sources?
2. What is the proportion of tax (cess) paid to Mufindi District Council from timber trading activities compared to other sources?
3. What are the challenges that hinder promotion of timber trading in the district and way forward?
4. What are the opportunities available that can be used to promote timber trading in the district?

1.7 Conceptual Framework

The conceptual framework of the study is based on the assumption that in the presence of tree plantations, timber trading and the market for the forestry products like sawn timber,

there would be more benefits generated from timber trading to the surrounding households. These benefits will contribute to the poverty reduction not only to people involved in this business, but also to the surrounding community and have positive contribution to district revenue.

Moreover, with presence of tree plantations as source of raw materials for timber products, good markets, transport and communication networks and access to financial institutions, timber trading will have much contribution on households' income, through creation of income generating activities and employment opportunities to local communities. These will either be transformed into improving people's standard of living in terms of settlement development and housing conditions, ownership of assets and even increase in the demand of land for houses build in the district, as well as expanding their business. Besides, it is assumed that, the more the benefits gained from timber trading, the more the involvement of the households in timber trading and hence better improvement of their livelihoods. However, for the better performance of timber trading in the study area, the dependent variable; age, sex, marital status, education level and households' size were observed to see how they affect the performance of the independent variables as indicated in Appendix 1.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This chapter retrospectively describes issues of poverty and poverty reduction. It covers key definitions, concepts and fundamental features of poverty. Also the chapter discusses the occurrence of poverty in the country and some strategies on tackling such problem. Explicit reference is made to rural communities and how timber trading can help in reducing poverty. Poverty reduction strategies, the role of timber trading in poverty reduction, factors that affect timber trading, contribution of timber trading to livelihoods assets are also covered. Furthermore, the relationship of poverty and environmental destruction and how do they affect the household economic status and the marketing aspect of forestry products are also some of the aspects covered in this chapter.

2.1 Poverty and Poverty Reduction

The development literature is littered with various definitions, measurements and causes of poverty. As a dynamic concept, its meaning and how it is perceived have undergone several changes with time (Handley *et al.*, 2009). This has concluded in different and expanded applications and consequences. Therefore there is no universally accepted definition of it. However, certain salient features appear to characterize most of the existing definitions, measurements and causes. The concept of poverty implies that households are poor in some absolute sense. Jimoh (2006) defined poverty as a state of need or want or general inability to meet one's basic personal needs such as food, shelter, healthcare, clothing and education services.

One can identify poverty through its specific manifestation such as starvation, severe malnutrition, and illiteracy, substandard clothing and housing though there is more to

poverty than that. Fundamentally, poverty is defined in social terms (Gillis *et al.*, 1983). Poverty is generally seen in Structural Adjustment Programme (SAP) II as a human condition characterized by sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political and social rights (Republic of Gambia, 2004). In essence, poverty is not just lack of money and jobs, but of assets, services, civil and political rights, voice and rule of law. Poverty is as well linked to powerlessness, isolation and vulnerability to irreversible retches of impoverishments.

The URT (2005a) has categorised poverty into two aspects; income poverty and the non income poverty. The income poverty is when a person or a portion of population experiences a shortage of income to meet its basic needs. The non-income poverty is when a person or a portion of population experience deprivation of social needs and services such as health services, education, water, sanitation, environmental care and decision making.

The prevalence of income poverty in Tanzania is still high, especially in rural areas. The URT (2005a) in its household budget survey of 2000/01 reveals that the proportion of the population below the national foods poverty line is 18.7% and that below the national basic needs poverty line is 35.7%. Apart from the decline of the basic needs poverty from 38.6% to 35.7% and food poverty from 21.6% to 18.7% from 1991/92 to 2000/01 respectively, poverty in Tanzania especially in rural areas is still overwhelming where about 87% of the poor population is living.

Economic growth is emphasized in the current prevailing dialogue on development as the most important driver to poverty reduction. However, the role of the forest sector in lifting significant numbers of people out of poverty by contributing to employment creation, trade

and economic growth is remarkably poorly analyzed, especially under current trends of globalization of markets and production. According to Mayers (2006), forestry can potentially contribute to poverty reduction more than many other sectors. On the other hand, the same author contends that commercial forestry's inputs contribute to national economic development by paying taxes and reinvesting profits. This may have a trickledown effect to help the poor though the evidence is not strong. Important contribution of forestry in many economies GDP and poverty reduction is also acknowledged by FAO (2005) and Steele and Kragt (2006).

The contribution of commercial forestry to poverty reduction through services provision and sale of goods include not just timber and other commercial forest products but a wide variety of other collectibles, agroforestry products as well as services such as maintenance of soil fertility, watershed conservation and carbon (Pearce, 2005). Without the ability to assign a monetary value to ecosystem benefits the assets of the poor are systematically undervalued as are the benefits of improved investment in those assets (Anderson *et al*., 2006). On the same merit, Monela *et al.* (2005) illustrate that amongst the 833 villages (approximately 2.22 million people) of Shinyanga Region in Tanzania, the value of restored woodlands to rural people's livelihood is $14 per person per Month (or about $1,200 per household per annum), which is significantly higher than the national average monthly spending per person in rural Tanzania of $8.50. Thus, multiple parameters or variables need to be considered while evaluating the contribution of forestry and forestry products on livelihood assets.

2.2 Poverty Reduction Strategies in Tanzania

Poverty reduction can be defined as the improvement of the well-being through satisfying the necessary human basic needs by meeting or exceeding poverty lines through

improvement of consumption levels, adequate clothing and improved housing, education and reduction to vulnerability and exposure to risks (URT, 2005a). In this aspect, the government of the United Republic of Tanzania is undertaking various initiatives towards poverty reduction and attainment of social and economic development in various sectors (URT, 2006). Among the initiatives the government is taking include increase in investments in the infrastructures such as feeder roads, market, and telecommunications. Other strategies include sustainable supply of forest products and services by maintaining sufficient forest area under effective management. Also increase employment and foreign exchange earnings through sustainable forests based industrial development and trade (MNRT, 1998). However, the government has signed the MDGs and setting of the NSGRP as the major strategy for reducing poverty in the country. This will increase the inflow of foreign investments and increase domestic revenues (URT, 2005a).

Enhanced tree-based systems and improved tree products marketing have the potential to address key aspects of rural poverty, child malnutrition, poor access to conventional health care, national tree product deficits like timber, inequitable returns to small-scale farmers from tree product marketing and lack of enterprise opportunities on small-scale farm (Fisher, 2004).

The forest sector therefore has a great role to play regards to not only environmental conservation and agricultural production but as well as to the direct benefits related to employment opportunities and contribution to the national economy (MNRT, 2001). Besides, forests are important economic base for development in terms of providing revenue from various direct value products and services such as timber. To meet this role, the government has approved retention of the logging for all forest plantations amounting to about 45% of the forest royalties to service silvicultural and road maintenance activities

in the plantations (MNRT, 2001). However, the situation is faced with some challenges including increase in sector's revenue base and how to improve its own revenue collection. Also, poorly functioning timber markets creates another constraint especially for private sector involvement.

Poverty Reduction Strategy (PRS) from 2001/02 to 2004/05 followed by a five year National Strategy for Growth and Reduction of Poverty (NSGRP), which has been in operation since July 2005 (URT, 2005a). In the implementing the National Forest Policy, the MNRT purposely developed the National Forest Programme (NFP) aiming at increasing the forest sector's contribution to the national economy and more so in poverty reduction (MNRT, 2001). Since forests and trees play multiple roles in relation to food security and household subsistence, forests are increasingly becoming important in the rural life of the majority of Tanzanian people. Recent studies indicate that forest-based income accounts for a large share of rural income in the country (MNRT, 2001). Forest related goods and services have a significant potential for the economic development of the country. In the same NFP the government has put forward strategies like promoting village and community forestry aiming at producing sufficient amount of forest products and services to meet both local demands and promote the forests contribution to global environmental conservation. The government is also working harder to improve lasting forestry management through introducing participatory forest management (PFM).

2.3 Role of Timber Trading to Poverty Reduction

FAO (2001) argues that, forests and trees resources contribute to food security as they include provision of commercial opportunities and employment for the poor. Likewise, forestry plays an important role in the livelihoods of hundreds of millions of rural people, principally as a subsistence safety net, but also as a source of cash income, capital asset,

and a source of employment (Scherr *et al.,* 2003). They are often central to the development of good local governance (MNRT, 2001). Thus, the removal of obstacles that prevent forests and trees from contributing to livelihoods of the poor as well as support for emerging opportunities is important to realize fully advantage of the sector. In poverty reduction many approaches are incorporated. One of these approaches is people-centred approach. This approach can increase the impact of forests and trees in reducing poverty (Soriaga and Walpole, 2006).

Certainly, pro-poor commercial forestry can take many different forms. Models of pro-poor commercial forestry may include first, effective management of public forests, efficient revenue collection capture, and proper expenditure of this revenue on a variety of pro-poor developments. The second model is small and medium enterprises run by, and/or employing poor people; and thirdly the large enterprises that directly engage in equitable partnerships with poor people (Bass *et al.,* 2006). Statistics show that, as the economic inequity is increasing to the poor, demand on forests and trees are also increasing, with about 1.6 billion people relying heavily on forest resources for their livelihoods. On the other hand, as living standards improve people would become less dependent on forests to meet their basic needs (FAO, 2003).

In the late 1990s it was estimated that the timber industry provided 10 million jobs in developing countries, and that they were about 30-50 million more informal jobs in the wood industry. Employment in timber production generally tends to be less labour intensive than agricultural. Also forestry’s employment creation and general success has been greatest where agricultural potential is lower, though there has been little research on poverty profile of forestry employment (Mayers, 2006).

Moreover, in the case of Africa, particularly in Tanzania, persistent poverty and especially an increase in the abject poverty imply continued dependence on forestry and other natural resources. Although forestry may play a limited and sometimes short-lived role in reducing poverty, given the poor development of other resources, forests and forestry will continue to be important asset in meeting people's basic needs. Indeed, the role of forests and trees in poverty reduction is multidimensional as it may be an important source of both products and income (Handley *et al.*, 2009).

The timber trading may provide important sources of livelihoods' income for rural people and provide safety nets in times of need. In particular, rural households depend on forest and woodland resources to meet their basic needs such as timber and non-timber products, construction and roofing materials. In addition, forests products trade can be an important source of income. However, within communities, some households are more forest dependent than others due to a number of factors such as age, households' size, level of education, and level of non-forest income (Kilahama, 2006). The value of production is generally higher for richer households, though the value in relation to total household production is highest for poor households. This raises the important considerations for assessing the role of timber trading to poverty reduction (Coad *et al*., 2008).

2.4 Factors Affecting Timber Trading

Forest based industries like other industries have been affected by different factors. The study done by Ngaga (1998), pointed out some of the major factors affecting production in forest based industries. These factors include financial constraints, which is the main problem for timber-related companies in Tanzania and inadequacy of infrastructure and incentives. Other factors are unreliable power supply, old machinery equipment, low level of mechanization and technology. He also noted that inadequate facilities for maintenance

and repair, inadequate trained personnel, inadequate availability of raw materials and problems caused by the institutional set-up as factors affecting production in forest based industries. The problems of unreliable power supply, and communication and transport infrastructure have as well raised the production costs of timber significantly, largely due to interrupted power supply especially for small timber sawmills and transportation due to hiking fuel prices (Personal observation, 2008).

Related to the above point is a lack of key technical and institutional competencies by local communities and government actors (including forestry and planning departments), which undermines the potential for forest products and services to contribute to economic growth and poverty reduction. At this level, capacity is needed to coordinate different ideas from forestry stakeholders during planning and implementation stage of those plans. At policy level, capacity is required to analyze, formulate and implement trade policy options best suited to economic growth, poverty reduction and environmental sustainability. Capacity is as well required to meet national standards and trade regulations, to introduce environmentally sound technologies, for product development, and to negotiate equitable trade agreements. Local communities require capacity to influence policies and practices that directly affect them (Cunningham *et al.*, 2008).

2.5 Livelihood Capitals in Timber Trading

Livelihood comprises the assets (natural, physical, human, financial and social capital) the activities required for means of living (Abdallah *et al.*, 2006). Thus, in order to obtain the contribution of timber trading to poverty reduction, it is necessary to understand what determines people participate in the development sector. Gordon and Craig (2001) cite human, social, financial, natural and physical capitals or assets as important factors to participation.

2.5.1 Human capital

Skills, knowledge and health are the key elements of human capital needed to pursue different types of livelihood strategies. Business people those doing people in timber trading need such skills and knowledge to excel in their business. This will increase the ability to interact with other people to rural business opportunities (Nkurunziza, 2006). Moreover, the most significant development in understanding both economic growth and income distribution is the development of human capitals in the form of education and skills (Piachaud, 2002). Equally important in the business like timber trading, the education levels of the household's heads and the members in general will help in terms of interpreting business guidelines, searching for markets information, and the use of micro credits from the financial institutions available and will help in technological adoption (Handley *et al.*, 2009).

2.5.2 Social capital

Timber traders do not do their business in isolation. They need to combine social resources including networks, membership of groups, and relationships of trust and access to wider institutions of society upon which rural people draw in search of livelihoods strategies (Hassanshahi *et al.*, 2008). However, social groupings of timber traders are seen as an instrument for members to enhance their market power by providing training and extension services, and facilitating acquisition of technology and other inputs. Also, as organized body it plays a galvanizing role and builds capacity to manage business (Al-Hassan, 2006). Furthermore, education being one of the social capitals is a powerful instrument for reducing inequality and poverty in the society and laying the foundations for sustained economic growth, effective institutions and sound governance (Handley *et al.*, 2009).

2.5.3 Financial capital

Financial resources such as savings, credit, remittances and pensions are important to engaging in economic activities, whether in farm or non-farm sectors (Nkurunziza, 2006). He further added that, without adequate financial capital, households remain in activities which have fewer barriers to entry and, unfortunately, low remuneration. Fisher (2002) described that financial capital, whether savings or income, is flexible in a sense that it can be applied in different ways when serving a range of objectives. Moreover, financial capital, being money for credit, savings or pensions can enable purchases to sustain health, maintain tools and travel in search of opportunities (Fisher, 2002). However a study in four African countries by Bagachwa and Stewart (1992) cited by (Nkurunziza, 2006) found that 30%–84% of rural industries like small timber trading industries, had limited access to credit, which was a restraining factor to business development. Thus, building financial capital in remote communities might improve the productivity of savings (Fisher, 2002).

2.5.4 Natural capital

Natural resource endowments, including land, water, wildlife and minerals, help to determine the nature of rural activities. Activities such as timber processing, fishing, mining, construction and tourism depend on the resource endowments of a certain area (Nkurunziza, 2006). Land is a primary asset for survival and development of most rural people. The importance of land in development is underlined by the fact that around 60% of the Africa's population derives their livelihoods and incomes from farming, livestock production and related activities (Kironde, 2009). Land is not only the primary means of generating a livelihood but also often a main vehicle in investment and accumulation of wealth. This includes the way in which access to land is regulated, how rights to it are defined and conflicts around land ownership and use are resolved. However, in the forestry arena Cunningham *et al*. (2008) pointed out that access to and control over

resources determines the extent to which different actors are able to secure and negotiate benefits associated with forest product trade. However, both formal and informal tenure exerts a strong influence on the use and trade of forest products, the distribution of costs and benefits, ability to access credit and markets, and incentives to make sustainable resources management (Shackleton *et al.,* 2007). Therefore, the relationship of indigenous people to the land is a fundamental characteristic of their way of life by using of a combination of natural, financial and social capital to penetrate markets which may be very distant (Fisher, 2002).

2.5.5 Physical capital

Basic infrastructure (including transport, communication, energy and water) complement individually owned production equipment and buildings in the development of rural activities (Nkurunziza, 2006). The availability of rural employment opportunities is associated with good infrastructure like market, roads, electricity and telecommunications. For example, in Africa, the mobile telecommunications sector has grown by an average of 78% per annum over the last 10 years (Overa, 2006). This is providing new opportunities for improved flow of information and better linkages between producers, traders and the markets. The author also assets that this will decrease the transaction and transport costs which will lead to creation of high profit margin, increased efficiency, and enhanced trust building within trade networks.

2.6 Marketing of Forestry Products

For many millions of poor people in low- and middle-income countries, forest market development can positively contribute to local livelihoods and community development though some disappointed observers have argued that forestry can contribute little to

poverty reduction (Scherr *et al.*, 2003). Indeed, prevailing markets and government policies often hurt the poor. From the agricultural sector we have learned that promoting small-scale enterprises is one of the most effective ways to trigger broad-based, job-creating rural development. Commercial forestry offers one of the few economically viable options to reduce poverty for poor producers and indigenous peoples living in regions where crop production is a higher-risk endeavour (Scherr *et al.*, 2003).

The livelihood of the people living in East Africa depends largely on agriculture for food production and income generation. These incomes generated from economic activities include exploitation of forestry products, tourism and employment in available agro-based industries (Maitima *et al.*, 2004). Trade in timber and non-timber forest products are important contributors to agricultural and economic development through the revenue they generate for government and the income they provide to rural households. In selecting eco-regions, forestry is the highest income earning sector especially for rural households residing around forest land or plantations (Cunningham *et al.*, 2008). However, URT (2000) pointed out that, most of the timber mills in Tanzania have been producing for the local market only and attempts have been made to secure export market though not until recently, only hardwood fetched good foreign market. In specific flooring, black wood and carvings have now increased demand for local and export market. While the local market for softwood demand is expanding, recent trends indicate that the export of softwood timber is also increasing. Due to trade liberalization wood products are now imported in the country and these products are of very high quality and relative low price compared to those produced in the country. There is need to improve product qualities in order to compete in the market. This also necessitates improvement of the quality of raw materials (URT, 2000).

However, it is very important especially for small timber traders to be aware on the costs they might be facing during trading. Small timber traders willing to market their products often face high transaction costs, which create wide gaps between sales prices and purchase prices, and hence limit agents' benefits from the transaction. These transaction costs may include the costs associated with finding a partner to trade with, negotiating a contract, and enforcing the agreement (Bernard *et al.,* 2006). In this sector also, transportation costs are very important to be viewed in advance. Because of the small size of their transactions, their lack of collaterals, their distress in selling, and their lack of information, small timber traders typically face proportionally higher transaction costs (Key *et al.,* 2000). In some cases, this may lead to situations where it is preferable for a household not to participate at all into the market.

The above discussion has introduced poverty and poverty reduction concepts. The concept is dynamic as it changes with time and space. When analysing this concept, focus has been put on its applications and consequences. However, certain silent features appeared to characterise most of the existing definitions, measurements and causes. Basing on this dynamism, the government of Tanzania put forward strategies to improve well-being of its people through satisfying basic social and economic services. These strategies include; increase investments in the infrastructure like feeder roads, markets and telecommunication; increase the forest area for sustainable supply of forest products; introducing and enhancing forest based industries and trade aiming at increasing employment opportunities; increasing in sector's revenue base and improving its own revenue collections and promoting village and community forestry aiming at producing sufficient amount of forest products. All these people's, government and global initiatives

aimed at attaining NSGRP and MDGs. The subsequent chapter presents the research methodology.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Overview

This chapter describes the methodology which was used to carry out this study. It includes description of the study area, study population, research design, sampling procedures and sample size, data collection methods and data processing and analysis.

3.2 Description of the Study Area

3.2.1 Location

The study was conducted in Mufindi District, which is located in the Southern highlands of the United Republic of Tanzania (URT), about 600 km from Dar es Salaam City and about 80 km from Iringa regional headquarters. The area extends between latitudes 8^{o} and 9^{o} South and longitudes 30^{o} and 36^{o} East. The District occupies a total area of about 7123 square kilometers. The district borders Njombe and Iringa Rural districts in the south and north, respectively while Mbalali and Kilombero boarders it to the west and east in that order (Fig. 1). Administratively, the district consists of five divisions, 28 wards and 132 villages.

The study was conducted in four villages (Igowole, Nzivi, Wambi and Kinyanambo) selected from two wards (Igowole and Mafinga) of Mufindi district. This was because these villages were situated along the tree plantations and timber trading was one of the major economic activities carried out by the households. A total of twenty five households were randomly selected from each study village as described in section 3.4.2. All sampled households were located around Sao Hill Forest Plantation and were all dealing with

timber trading activities. Structured questionnaires were used to collect information from all sampled households.

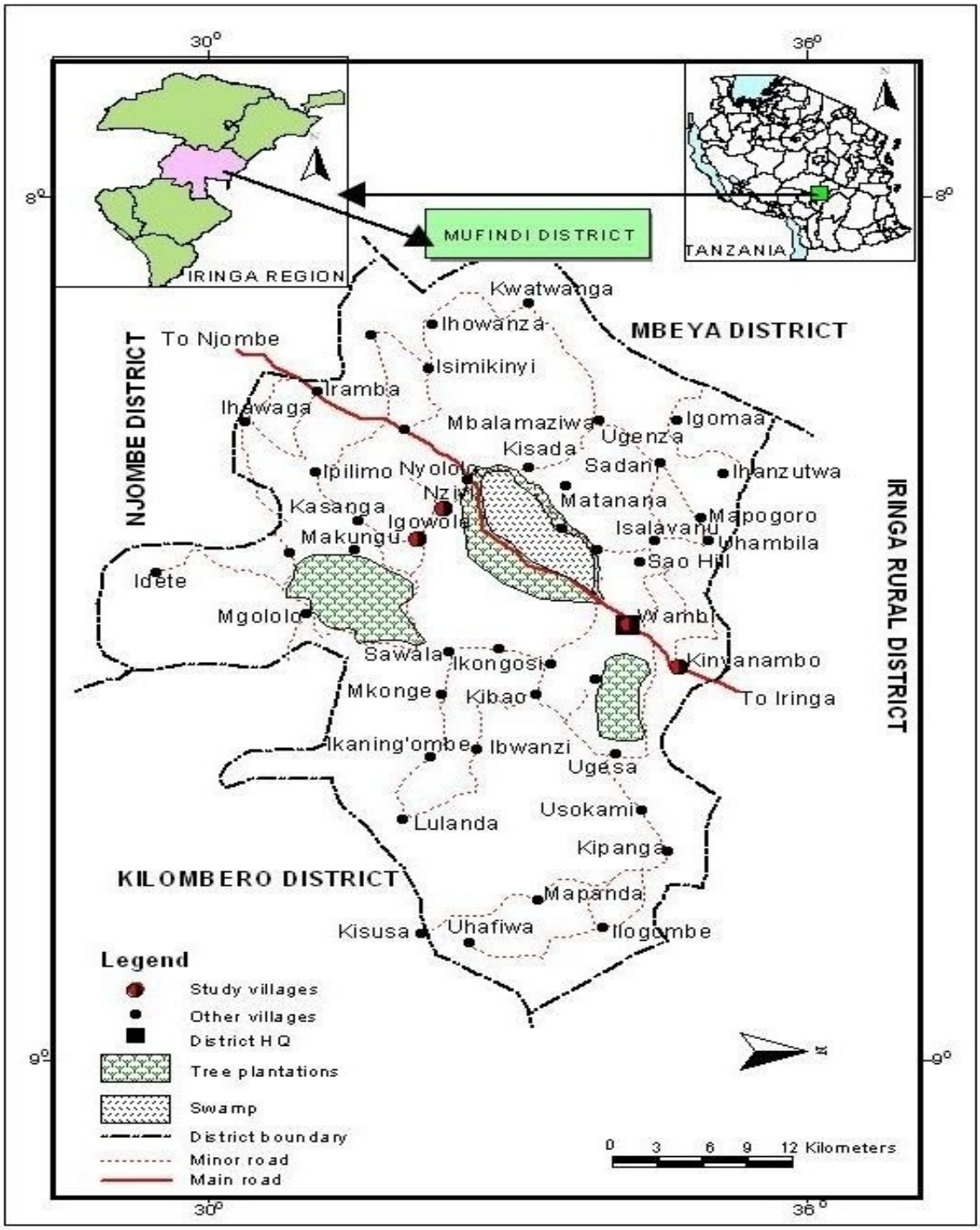


Figure 1: The map of Mufindi District showing the study villages

3.2.2 Economic activities in the study area

Mufindi district has the second largest number of households (66 058) in the region after Njombe District (98 825) and it has the highest percentage of households involved in smallholder agriculture in the region. Most smallholders are involved in crop farming such as maize, beans, round potatoes, wheat, sweet potatoes, groundnuts, peas, cassava and sorghum. Cash crops include tea and forest products mainly in form of timber and poles. However, the most important livelihood activity for smallholders in Mufindi district is annual crop farming followed by off farm income (URT, 2007).

Smallholder rain-fed agriculture (crop production and livestock keeping) is the main economic activity in the district dominated by average landholding of 3-5 acres per household. Although agriculture is seen to dominate main economic activity in the district, the trend of it is gradually declining and this could be due to shift from agriculture to forestry. The District has significant forest reserve supporting various economic activities related to forestry, which also provide relatively stable income to the households. There are 203 188ha under forests, which are about 28% of the total land area in the district; of these around 66 000ha are tree plantations of which 65% are Sao Hill Forests and the remaining 35% is occupied by the Mufindi District Council, NGOs and individuals (URT, 2007).

The economic activities of the studied villages were agriculture in terms of food crops such as maize, beans, Irish potatoes and variety of vegetables and cash crops which include tea, forestry and forest products such as timber and non-timber. Other economic activities include lumbering, livestock keeping, petty trading and selling of casual labour in the tree plantations and tea estates.

3.3 Research Design

A cross-sectional study research design as suggested by Cooper and Schindler (2006) and Saunders *et al.* (2007) was employed in this study. The design allowed collection of information at one point in time and be used for a descriptive study as well as for determination of relationship between and among variables.

3.4 Sampling Procedures and Sample Size

3.4.1 Study population

The study population included a representative sample of the households that engage in timber trading and live in the vicinity of the tree plantations in Mufindi district. According to URT (2003), the total population of Mufindi district in 2002 was 283 032. Out of this, 47% were male. The population of the four study villages of Igowole, Nzivi, Wambi and Kinyanambo and their respective wards are shown in Table 1. The main ethnic group in the study villages was Hehe who constituted about 85% of the population while the remaining percent was made up by the Bena and Kinga who migrated from Njombe and Makete districts.

Table 1: Population profile of the study wards and villages

Name of Ward	Name of Village	Village population	Ward population	Average Household size
Igowole	Igowole	6249	11113	4.1
Igowole	Nzivi	2862		4.1
Mafinga	Wambi	16612		4.1
Mafinga	Kinyanambo	7656	33519	4.1

Source (URT, 2003)

The district average inter-census growth rate was 1.5% and the district average household size was 4.3 while the average number of household members per sleeping room was two.

According to URT (2005a)~~, the~~, the percentage of population living below the poverty line was 32%; people using piped and protected water sources in 2002 were 46% households; those with electricity were 4.3%, and households with poor quality material for walls were 20% and households using grass for roofing accounted for 59%. Literate people comprised 76% of the entire district population and 2% of households use flush toilets or ventilated improved pit latrine.

3.4.2 The sample

Bailey (1998) argues that regardless of the population size, a sample of 30 is the bare minimum for data collection for statistical analysis. Also Saunders *et al.* (2007) emphasises that, a sampling intensity of 30 households is regarded to be a reasonable sample size usually used in social science study and statistically large enough to make scientific conclusion. However, Matata *et al.* (2001) argued that having 80-120 respondents is adequate for social-economic studies in sub-Saharan African households. Thus, the household was the sampling unity for this study and a total of 100 households were selected as sample size. Two wards occupied by tree plantations namely Igowole and Mafinga were selected from Igowole and Kasanga divisions, respectively. The two wards were purposively selected because of the accessibility by the researcher. Two villages were randomly selected from each ward to make a total of four villages. Twenty five households were as well randomly selected from each study village. Figure 2 shows selection process of the study area and the number of households from each village.

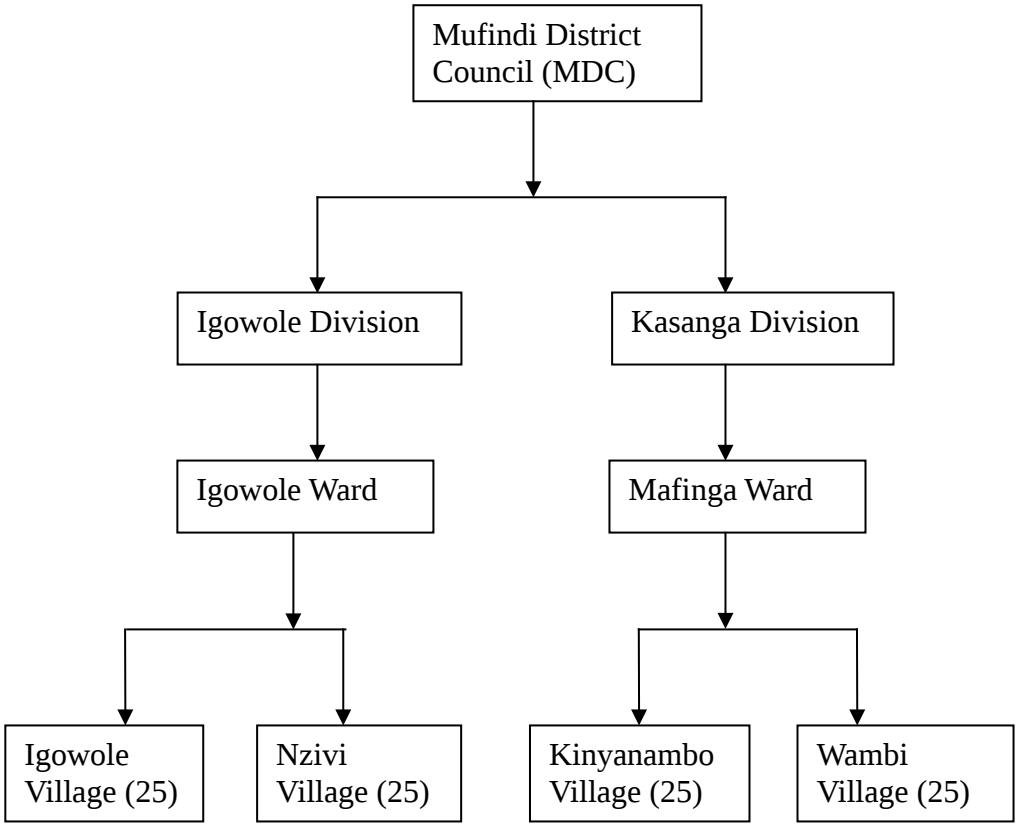


Figure 2: Layout of study area selection process

Note: Numbers in parenthesis are the number of households

According to URT (1993), cited by Mayetta (2004), the household is a single person or a group of people who live and eat together and share common living arrangements. A household criterion was used in the study because in most rural areas of the developing world, the household is the basic unit of production and reproduction. Moreover, in most African traditions and customs, household is the basic unit of social structure (Lubida, 2004; de Sherbinin, 2006). The heads of households were the respondents in this study. The heads of households were focused since in most of African traditions and customs they were the major decision makers on important matters of the family (Lubida, 2004).

3.4.3 Sampling design

Purposive and random sampling methods were used in the selection of the samples for the interviews. Purposive sampling technique was applied in selecting two divisions and two wards that were located around the tree plantations and which were dealing with timber trading in the district. However, the villages from the wards and the households (sampling unit) from the villages were first systematically selected from a list of timber trading communities available at the district and village office and then randomized. Simple random sampling technique was used to select the sampling unit (household) in order to avoid biases. This was done by writing each of the possible samples (villages and households dealing with timber trading) on slip of paper, mixed those slips of paper, mixed them thoroughly in a container and then drawn as a lottery.

The method of selection of the study area was based on selection of two divisions, one ward from each division and two villages from each ward as previously shown in Figure 2. Kasanga and Ifwagi divisions and Igowole and Mafinga wards were respectively selected due to presence of tree plantations like Sao Hill Forest Plantation in their location. The Sao Hill Forest Plantation covers about 43 000 ha out of country's total gazetted area of 95 000 ha (MDC, 2006). Moreover, the two divisions were the ones dealing in timber trading as one of their major economic activities and occupy a good number of private woodlots, although these woodlots might decrease the land for agricultural activities. From the selected wards, four villages namely Nzivi, Igowole, Wambi and Kinyanambo were then randomly selected to form the study villages.

3.5 Data Collection

3.5.1 Primary data source

The range of methods and techniques were employed so as to get different information about the study in order to increase data validity. Primary data were collected using structured questionnaire with closed and open ended questions (Appendix 2). The questionnaires were designed to capture household demographic characteristics all productive activities performed by timber traders' households and the total households' income from these activities. Furthermore, from this method, information on timber trading, activities related to timber trading, people involved in this activity and the benefits were obtained. Reconnaissance field survey was conducted in Wambi village to pre-test the questionnaire.

Also, the study involved interviewing other authorities for background information. Key informants were interviewed using checklist questions as presented in Appendix 3. Among key informants interviewed were the District Natural Resources Officers, District Treasurer, District Trade Officers Sao Hill staff and village leaders. Key informants were interviewed to obtain primary data on harvest or production trend of timber and its contribution of district revenues and to people's livelihood.

Focus group discussion method was also adopted and the interviewees included influential timber traders, casual labourers and other service providers. The discussion was guided by a checklist. The discussion was aimed at collecting information concerning socio-economic issues like land-use practices, population issues, employment opportunities, and timber trading trends. One FGD was carried out in each village and the size ranged from eight to twelve members. According to Saunders *et al.* (2007), a typical focus group discussion involved four to twelve participants depending on interviewer skill and subject matter.

3.5.2 Secondary data source

The collection of secondary data relating to timber trading and its relation to poverty reduction was done through literature review from Sokoine National Agricultural Libraries (SNAL), searching from internet and various reports from the MDC fact files to ascertain the results obtained from primary data sources.

3.6 Data Processing and Analysis

Statistical Package for Social Sciences (SPSS) computer program version 12.0 was used to process and analyze quantitative data from household questionnaire-based interview whereas qualitative data was subjected to content analysis. Different variables within each village and across the villages were compared using measures of central tendency like frequency distribution and percentages. Data from interview schedule were coded and recoded before they were entered in the computer and analysed. Content analysis was used to analyse the information from key informants and FGD. The components of semi structured interview which were held with key informants and FGDs were broken down into smallest meaningful units of information. This enabled the researcher to ascertain values and altitude of respondents.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Overview

This chapter presents results and discussion on the influence of timber trading on poverty reduction in the study area. The first section in this chapter presents and converse the socio-demographic characteristics of the surveyed households such as household age, level of education, household size, economic activities and land size. Other attributes include household assets and their sources of income, housing conditions, and household access to financial capital. The section also explains the importance of social capital in the community. The second section confers the importance of timber trading as major source of income and as source of employment to the community in the study area as well as the neighbourhood. Partly, this section reveals the trickledown effect of timber trading to the community such as it promotes industries, housing, and ensure food security.

The third section presents the major economic activities of the study area. These activities were categorized into two groups; forestry related activities and farm activities. The last section illustrates the maximum and minimum income of the households. The section also highlights some of the bottlenecks faced by timber traders. These limitations include lack of capital, lack of reliable timber markets, high transport costs, and high log prices. The increase in the price of fuel and prohibition on the use of natural forests were also some of the important challenges. It must be noted that heads of households and respondents are synonymously referred in this chapter.

4.2 Socio-Demographic Characteristics of the Surveyed Households

The following sub-sections provide basic information about characteristics of individual respondents including age, sex, level of education, marital status, occupation, economic

activities, sources and levels of household income and land ownership. These attributes are ought to provide important household socio-demographic and economic characteristics which are the basis of production and reproduction.

4.2.1 Household characteristics

According to URT (2006), household is defined as a single person or a group of persons who live together and share living expenses. Usually these are husband, wife and children. Other relatives, boarders, visitors and servants are included as members of the households if they were present in the household on the census night. Results showed that the majority of the households (99%) were male-headed (Table 2). The situation is a typical household heading characteristic of most countries situated in sub-Saharan Africa (Manyong *et al.*, 2008).

Table 2: Household headship according to sex

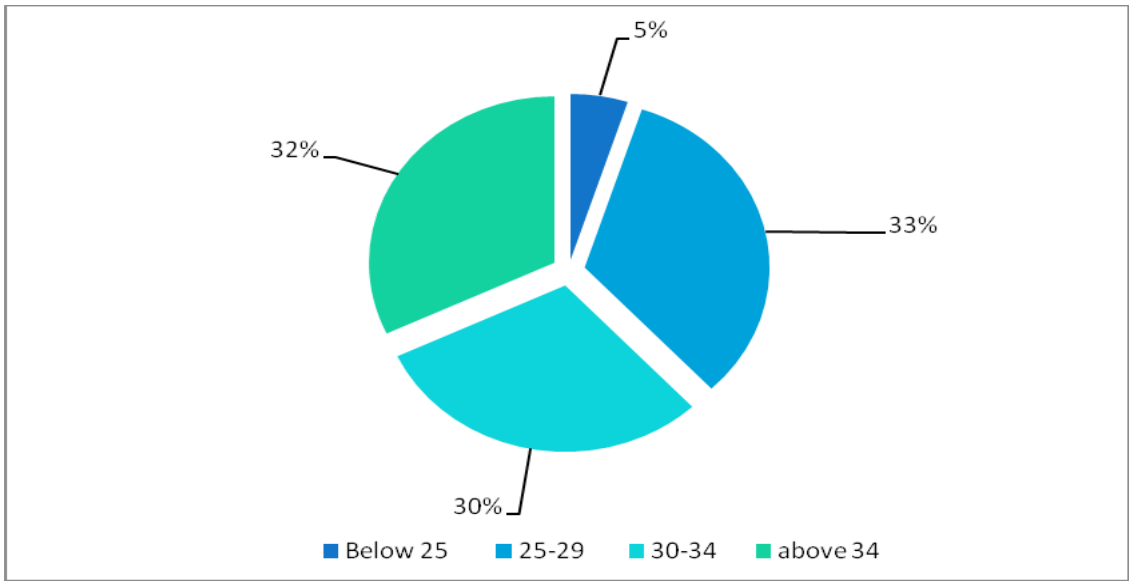
Sex of household heads	Number	Percentage
Male	99	99.0
Female	1	1.0
Total	**100**	**100.0**

In this scenario, timber trading was mostly dominated by male possibly due to the nature of the business which needs physique and sometimes argent attention and flexibility interms of movement (mobility). Sceptically, such male dominance might affect resource ownership and decision making at household level especially on the use of income accrued from timber trading. This is supported by DWAF (2005) as cited by Dore and Mandondo (2005) who contended that women, especially female-headed and child-headed households, are particularly vulnerable, arguing that the role of women has been downplayed in the development process. Further argued that, prevailing cultural attitudes continue to marginalize women's decision-making role in society, as a result limit their

access to basic rights like participation in decision making on the use of income, ownership of assets, notably land. Thus it is concluded that since women are marginalized even in the forest sector, any strategy for poverty reduction within the forest sector must take gender issues into account.

4.2.2 Age of respondents

Age is the most fundamental characteristic of a population. Age structure of a population is a reflection of population dynamics in the past. Age affects the future growth of the population and its structure changes in the future (URT, 2006). The results revealed that, the majority of surveyed household respondents (63%) were in the age group ranging from 25-34 years old, while 32% were in the age group above 34 years and only 5% of respondents had age below 25 years (Fig. 3). Characteristic to the study area, the age of the respondents ranged from 22 years to 53 years old. This shows that, all respondents were above 18 years old and capable to respond to questions promptly.



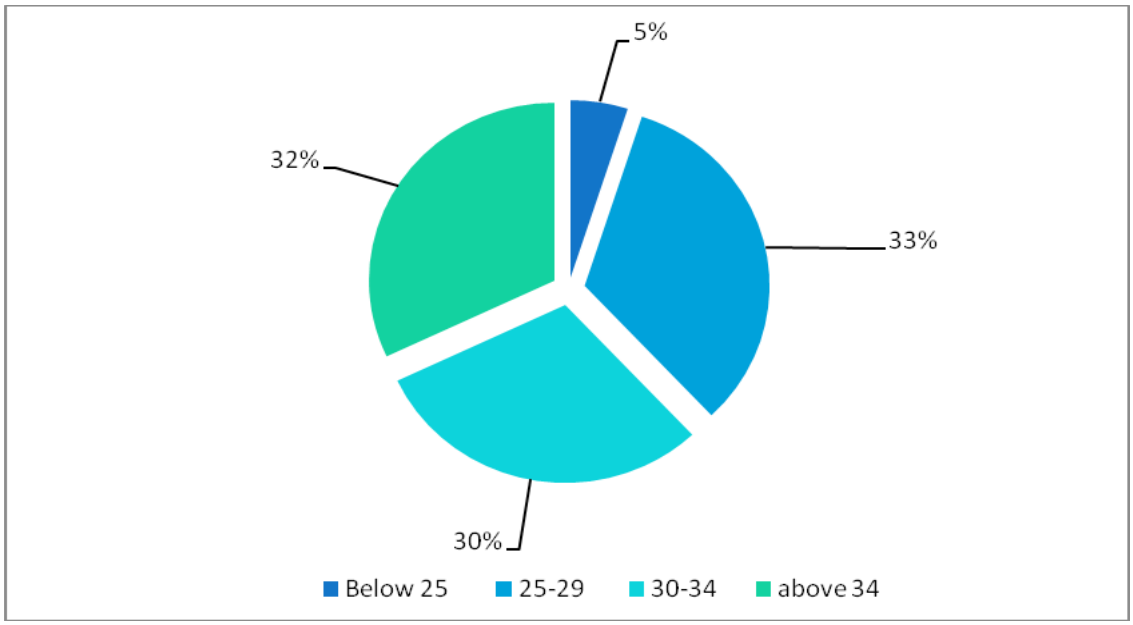


Figure 3: Age distribution of respondents

Such population group falls under economically productive age group since they were within the range of 15 to 64 years old. This is in agreement with URT (2006) which stated that economically productive people or active working group people are those who are in the age group of 15 to 64 years old. It can therefore be deduced that the majority of the respondents in the study area who were participating in timber trading and other forestry-related activities were active, energetic and productive to their households and to the community at large.

4.2.3 Educational level and marital status in relation to timber trading

The average education level of the majority of the respondents was primary education (66%) followed by secondary education (29%) and only 5% of the respondents managed to have tertiary education (Table 3). The findings reveal that all timber studied traders had not less than basic education, which is important in carrying out such important business. The results concurred with Handley *et al.* (2009) who reported that education is the important parameter regarding to human capital for reducing inequality and poverty and

laying the foundations for sustained economic growth, effective institutions and sound governance. Also, these results concurs with Owen *et al*. (2005) who argued that being knowledgeable of something increases the ability to control your livelihood. He further noted that people and systems of living have to influence to livelihoods capitals.

Table 3: Respondents education level according to study villages

	Education level			Total
Villages	**Primary education**	**Secondary education**	**Tertiary education**	
Igowole	20(30.3)	3(10)	2(40)	25
Nzivi	16(24.2)	8(27.6)	1(20)	25
Wambi	13(19.7)	12(41.4)	0(0)	25
Kinyanambo	17(25.8)	6(20.7)	2(40)	25
Total	**66(100)**	**29(100)**	**5(100)**	**100.0**

Note: Numbers in parentheses are the percentages along the table

However, there was a slight difference in education level from one village to another. For instance, about 30% of the respondents from Igowole village had primary education level compared to about 20% from Wambi village (Table 3). The information from FGD revealed the reasons for such difference by noting that, Igowole village was located in rural areas where there were limited educational facilities compared to Wambi village which was located in the town centre of Mufindi district. They further added that, presence of tea estates in the vicinity of Igowole village attracts young people to concentrate on employment opportunities than logging for education. However, relative higher education level reached by households in the study area is fundamental for efficient household resource management and a prospect for the future as well as creating high esteem to the bearer. This result is in line with Kajembe and Luoga (1996) who argued that education tends to create awareness, positive attitudes, values and motivation. Furthermore, education tends to stimulate self confidence and self reliance. Education is regarded as a key to better opportunities for employment, accessibility to information, services and

independent and correct actions with regard to survival and development (Nkurunzinza, 2006).

The study also showed that, about 77% of the respondents were married while only 22% and 1% were single and divorced, respectively. For those who were married, 80.5% of the respondents had primary education and for those who were single, 68.2% of the respondents had secondary education as illustrated in Table 4.

The presumption from such results is that both married and single household heads had satisfactory literacy level of at least primary education level, which permits them to read and write. Moreover, it is an important level in adapting to business skills and strategies which will lead to improve household aspects. This is precisely because education normally has a significant influence on a household's income strategies, land management and labour use (Nkonya *et al.*, 2004).

Table 4: Distribution of respondents according to marital status and educational level

Marital status	**Education level**			
	Primary education	**Secondary education**	**Tertiary education**	**Total percentage**
Married	62(80.5)	13(16.9)	2(2.6)	77.0
Single	4(18.2)	15(68.2)	3(13.6)	22.0
Divorced	0(0)	1(100)	0(0)	1.0
Total	**66(66)**	**29(29)**	**5(5)**	**100.0**

Note: Numbers in parenthesis are percentages of respondents across the table

Moreover the results were supported by Mbwambo, (2000) who contended that, people with high education level stand a good chance of adopting new technologies in conserving, processing and marketing of forest products. Furthermore, increase in educational attainment encourages the next generation of forest people to carry on sustainable forest

management principles and practices of their elders with greater participation in governance (Handley *et al.*, 2009). This increases the interest to protect areas for biodiversity stemming from better education and greater opportunity (Soriaga and Walpole, 2006).

On the other hand, Rudebjer *et al.* (2008) argues that education on forest resources has largely focused on tree breeding of plantation species and conservation ecology to protect forest biodiversity under threat, and it has less attention to the livelihood. He further argued that, livelihood levels depend on how people use, manage and interact with forests and trees outside forests and education has shown various qualities and ability to manage forest resource utilization and conservation.

4.2.4 Household size according to villages

Typical to most sub-Saharan African countries, Tanzania has a young age structure, which according to URT (2006) is broad at the base with 44% of its total population below 15 years of age and about 52% between 15-64 years of age. This age is generally regarded as working group. The old age population (above 64 years of age) constitutes only about 4% of the total national population. This means that, over 48% of the total country population are the dependants of the working age group. For the case of the Iringa region, the dependency ratio was 94.2%, while the youth dependency ratio was about 86.5% (URT, 2006). The results from the study show that about 71% of timber trading households had four to nine members of the household, followed by 29% who had one to three members and the average household size for the study area was five (Table 5). This number of members in the household was still high compared to the regional (Iringa) average household size of 4.3 (URT, 2006) and larger than respective village average household size of 4.1 as earlier presented in Table 1.

Table 5: Household size according to villages

Household size	Name of village				Percentage
	Igowole	Nzivi	Wambi	Kinyanambo	
	N				
1-3	5	5	11	8	29.0
4-6	18	19	13	17	67.0
7-9	2	1	1	0	4.0
Total	**25**	**25**	**25**	**25**	**100.0**

N= Number of household in that household size

This result may imply that appreciable proportion of income accrued from timber trading and other activities is contributed and shared by members in the family. These results were also supported by URT (2006), which pointed out that; large household size has significant contribution to economic and domestic activities. However, economists and social thinkers are still debating on the influence of population change on economic growth.

Thus, Bloom *et al.* (2001) pointed out that, their discussion fall under three alternative concepts; that population growth restricts, promotes, or is independent of economic growth. He further noted that, these thoughts focused on two aspects, which are population size and growth.

4.2.5 Economic activities and household income

During the survey respondents were asked to list main economic activities in their households. The results show that main economic activities were timber saw milling and timber trading, agricultural and livestock keeping activities. On farm production enabled farmers to get food for the subsistence as well as earn income for their households. On farm activities involved production of maize, beans as food crops and tea as cash crop. Also, livestock keeping involved keeping of cattle, goats, pigs and other small animals like, chickens and ducks. Fig. 4 reveals that timber related activities including timber

saw milling and timber trading (61%) were found to contribute a lion share of household income followed by agriculture and livestock keeping (35%).

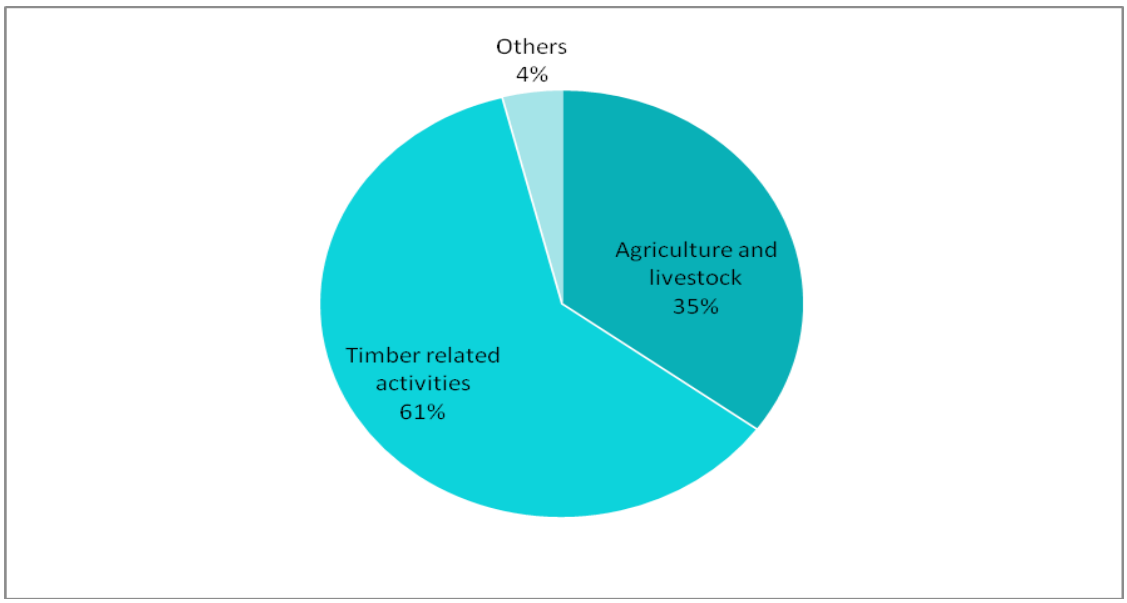


Figure 4: Distribution of respondents according to economic activities

This implies that about (61%) of the respondents were their household main source of income being contributed by timber related activities. The information from FGD and key informants noted that abundance of timber related activities in the study area was significantly influenced by presences of tree plantations, timber market and presence of power supply at village centres. As a result, timber trading and preliminary timber processing activities have been scattered across the study villages, which in turn contribute appreciably to poverty reduction strategies and improving rural livelihoods through earned income for their households.

Furthermore, from such economic activities, people do benefit from employment opportunities. Majority of those who benefit from such employment pattern were from the adjacent villages and a few were migrants from distant areas. These results correspond to the study by Mlowe (2007) who revealed that 98% of casual labourers in the Sao Hill

Forest plantation were the indigenous. Through the multiple effects of timber trading many people are linked to timber related activities and hence increase the number of employment. URT (2000) estimated that about 800 000 people per year are employed in the forest based activities. This indicates that forest plantations in Tanzania are substantial employers of local communities thus contributing substantially to their livelihoods.

For instance, the information from Sao Hill Company Limited collected during key informants interview showed that, for the year 2008/2009 the Company estimated to harvest 1 000 000 m^3 of sawn timber from her tree plantations, the work which was done by 362 private timber harvesters. They further added that, each harvester was estimated to employ a range of 35 to 66 people per man-day depending of the size of harvesting plot and number of saw milling machines he/she possesses at a time. This means that, for the year 2008/2009 about 13 000 to 24 000 people equivalent to 4.5 to 8.4 percent of the total population were directly employed in timber trading. This number can as well go beyond doubling due to the fact that it does not include those who are indirectly employed in the forest related activities like those providing of catering and groceries services.

4.3 Forest-related Economic Activities

The forest related economic activities in the study area comprised of tree planting and replanting, log cutting and sizing, timber trading and forest management activities like fire lines, pruning and thinning (Table 6). Timber from the planted forests was one of the important sources of income for the surveyed households. Indeed, timber forest related economic activities as afforestation could create more jobs by investing in nurseries and plantations, taking care of the planted forests, engaging in wood exploitation and processing. These findings were also supported by Thuan, (2005) who noted that employment opportunities in the forest industry could become a solution for poverty

reduction because this industry accounts for a relatively large ratio in the total labour force. The author further added that, the same attention has been accorded to exploitation, processing, and services related to forestry products.

The results show distribution of respondents by forest economic activities. These include tree planting and replanting, log harvesting, timber trading and forest management. The study indicated that 46% of respondents were involved in timber trading activities while only 6% of the respondents participated in log harvesting and 9% of the respondents do participate in the management of the forests. Besides, 25% of the respondents were engaged in tree planting and replanting, while 14% were involved in all forest activities (Table 6).

Table 6: Distribution of respondents by forest economic activities

Activities	**Number**
Tree planting and replanting	25
Log harvesting	6
Timber trading	46
Forestry management activities	9
All of the above	14
Total	**100**

Tree planting is an activity which needs use of resources in terms of labour and time, the cost of which is very substantial. Kilahama (2006) pointed the importance of such forestry-based activities to the Tanzania's development, as they are needed for improving and enhancing environmental conservation.

Moreover, the information from key informants added that timber trading had the multiplier effects not only to the study villages, but also to the district as a whole. Such

effects like industrial promotion, emerging transportation business, hotels, guest houses, garages, food stalls and contribution to employment creation and overall livelihood improvements of the people.

Plate 1 shows pieces of timber placed at Mafinga timber market for drying before being transported to other outside markets like Morogoro, Dar es Salaam and Arusha centres. The information obtained from the key informants was that, this drying process was done purposely to reduce weight of the timber pieces so as to reduce the tonnage in the truck and increase number of timber when transporting. At the background of the plate shows some of the planted pine trees for future timber use.

Plate 1: Timber drying at Mafinga timber market

Therefore, the study shows positive contribution of timber trading in the study villages in reducing poverty to the community. This was justified by job creation, improving people's income and living standard. Thus, more emphasis is needed in sensitizing the

community around and potential areas to acquire land for tree planting and plant more trees suitable for timber so as to sustain the business and conserve the environment.

4.4 Land Ownership under Forestry

Tanzania has 942 600 kilometer square of land, out of which 46% of the total land area is under forests and woodland. The study revealed that, the majority of the respondents (99%) possess land and only 1% uses the rented land (Table 7). The study further showed that, out of the land owned by the respondents, 77% of respondents owned land below 5 ha, 13% own land above 14 ha and only 10% possessed land from 5 to 14 ha which is under forestry (Table 7). All land is owned under customary tenure system.

These results coincided with URT (1997) which revealed that nearly 93.4% of the total land area under cultivation is used for small-scale farming by land holders who cultivate the land mainly under customary tenure.

Table 7: Household land ownership under forestry

Category	Percentage
Owned land	99.0
Rented land	1.0
Total	**100.0**
Land Below 5 Ha	77.0
5 - 9 Ha	5.0
10 – 14 Ha	5.0
Above 14 Ha	13.0
Total	**100.0**

The results still shows the importance of land as a primary asset for survival and development in the study area, since it supports the livelihoods of most rural people. These results corresponded with Kironde (2009) who noted the importance of land in the

development of Africa by the fact that around 60% of the population derives their livelihoods and incomes from farming, livestock production and related activities. The study revealed that timber trading households had relative high income levels compared to district, region and national levels and this was influenced by the presence of timber trading in the study area.

Having the majority of respondents (77%) possessing land below 5ha, it indicates that most of timber traders have land which is not enough for planting private tree plantations for future harvesting. Indeed, this is typical land ownership scenario among smallholders in the country. A study by Uliwa and Fished (2004) found that about 70% of the farmers in Tanzania cultivate less than one hectare of land which is not enough even for subsistence crop production.

Table 8: Size of land (Ha) under forestry by villages

	Size of land under forestry				
Village name	**Below 5ha**	**5-9ha**	**10-14ha**	**Above 14ha**	**Total**
Igowole	20(26.0)	1(20.0)	0(0.0)	4(30.8)	25
Nzivi	19(24.7)	1(20.0)	1(20.0)	4(30.8)	25
Wambi	18(23.4)	2(40.0)	2(40.0)	3(23.1)	25
Kinyanambo	20(26.0)	1(20.0)	2(40.0)	2(15.4)	25
Total	**77(100)**	**5(100)**	**5(100)**	**13(100)**	**100**

Numbers in parenthesis are the percentages of respondents along the table.

The study further shows that from those who have land below 5ha, 26% were from Igowole and Kinyanambo villages, about 25% and 23% were from Nzivi and Wambi villages respectively (Table 8). The information from key informants pointed out contribution factors to this situation. These factors are presence of government tree plantations and tea estates around villages and rapid growth of town centres that reduced

access to forest land by individuals. This implies that timber traders from these villages will continue to depend on government tree plantations (Sao Hill tree plantation) for their livelihoods and poverty reduction. In most cases, dependence on government plantations cannot be sustainable for timber traders in the study area because, small timber traders have little influence to the government especially when it comes to making of decision on when to harvest and on the size of the tree plot to acquire. It is very certain that land will remain the primary means of generating livelihood and main vehicle to invest, accumulating wealth in rural areas and thus ownership of land becomes another indicator of poverty.

4.5 Housing Conditions

The study shows that 99% of the respondents' houses were thatched using corrugated iron sheets and had concrete floors and cement-plasted walls and all had ventilated pity latrines which can be termed as good and secure. All households had access either to tape water and or shallow wells. About 94% of roofing, walls and floors materials were accrued from timber trading (Table 9). Thus, respondents utilized part of their income to enhance their physical livelihood asset through purchase of corrugated iron sheets and cement, and utilize their timber from pine trees for roofing and eucalyptus trees for burning of bricks for house construction. Consequently, timber trading contributed to relative high living standards of people in the study area as observed during field survey. Also the information obtained from village leaders supplemented that timber trading activities influenced not only timber traders housing conditions but also has influenced introduction of other businesses in the villages like lodging and groceries.

Table 9: Distribution of respondents on housing condition and sources of fund

Roofing condition	Number
Thatched by corrugated iron sheets	99
Grass thatch	1
Total	**100**
Source of fund	
Timber business	94
Agricultural products	2
Other business	4
Total	**100**

Information obtained from survey showed that, most of the respondents involve themselves in such business because they get enough income to buy corrugated iron sheets and utilize timber from pine trees for roofing their houses and they use eucalyptus trees for burning of bricks for house construction. This could be the reason behind relative high living standards found in the study villages. As pointed out that the majority (99%) had houses thatched by corrugated iron sheets with wall and floor cement which are good houses and secured and that is to say, timber traders are well off and capable of sustaining their lives. Plate 1 shows housing condition in the study area. Furthermore, –key informants supplemented that, timber trading activities influenced not only timber traders settlements like building good houses for shelter (Plate 1), but has also influenced other businesses in the villages like lodging and groceries.

Plate 2: House built using burnt bricks and roofed with timber in Mufindi District.

This implies that most of the households in the study area were living in good houses which also can be the sign of lessened poverty. This concurs with URT (2005a) which defined poverty reduction as the improvement of well being through satisfying the necessary human basic needs through improvement of consumption levels, adequate clothing and improved housing.

4.6 Household's Non-essential Assets and Sources of Income

The analysis of household assets (non-essential items like radios, mobile phones, television and others) was used as indicators of disposable income. The study revealed that timber trading had greater contribution to households' income.

This was ascertained through determining the value of household assets and source of income to buy such assets. The specific questions on household assets were asked to the

respondents to provide information on important physical assets they possess, the cost of each asset and the source of fund to buy such assets as indicated in Appendix 8.

4.6.1 Radio

Radio is one of the household assets used as an indicator of disposing income of the household. The study showed that 100% of the respondents owned radios. Of which the majority 40% of respondents owned radio worth less than TAS 60 000 each and 9% possessed radio worth between TAS 60 000 - TAS 90 000 each. A substantial number of households 34% owned radios valued TAS 90 001 to TAS 150 000 whereas 12% owned radio worth TAS 150 001 to TAS 210 000 and 5% owned radio of more than TAS 210 000 each. Among those who owned radios, about 85% of respondents had bought their radio using income acquired from timber and timber related business, 14% from agriculture and only 1% from other enterprises. This shows how timber trading has contributed significantly to the ownership of such asset by the households.

Table 10: Sources of fund for purchasing household non-essential physical assets (%)

	Types of household assets										
Source of fund	**Radio**	**Cell-phone**	**Electric Iron**	**Wheel barrow**	**Ox-plough**	**Oxen**	**Livestock**	**Bicycles**	**Furniture**	**Tv set**	**Average**
Timber business	85	89	76	74	17	100	42	74	73	83	73
Agriculture business	14	6	17	26	83	0	54	13	19	17	23
other business	1	5	7	0	0	0	4	13	8	0	4
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

The experience from Mali and Uganda by Foodnet organization showed that, the local (community) radio was the main vehicle of disseminating market information, since it was cost effective and efficient (Mukhebi *et al.,* 2007). This also could be applied in the study villages as all timber traders' households have radio. Using private FM stations such as

radio IBONY which operate from nearby Iringa town, timber traders could be linked to it for accessing market information patterning to their business.

4.6.2 Cellular phone

Mobile phone is another physical asset possessed by timber traders' households. Appendix 8 shows that each household owned at least one cell-phone. Cell-phone was used as means for communication in the household and for business purposes. The study revealed that 20% had cell-phones worth below TAS 60 000 each and 32% owned cell-phone of TAS 60 000 - 90 000 whereas 34% possessed cell-phones worth TAS 90 001 - 150 000 each. About 10% of households had cell-phones worth TAS 150 001 - 210 000 and 4% owned cell-phones of more than TAS 210 000 each. Of all the mobile phones owned by the respondents, 89% were bought from income accrued from timber and timber related business, 6% from agriculture and 5% from other business, respectively.

Such results are concurrent with that of Mukhebi *et al.* (2007), which pointed out that communications revolution is occurring across Africa. The liberalization of the communications sector in many African countries including Tanzania has allowed cellular phone companies and FM radio stations to enter rural areas. Previously under-developed and excluded villages now have opportunities to access markets and market information with the help of mobile telephone and the FM radio stations. In review of the state of information and communication technologies (ICTs) in the study villages, offers new opportunities to test new models for reaching the rural poor with market information and market linkage services that could eventually have an impact on livelihood transformation.

Moreover, with these modern ICTs, extraordinary potential to deliver information to timber traders and link them to remunerative markets could be offered and thus contribute to

reducing poverty and transforming social and economic conditions in the rural areas. Njuki *et al*. (2004) cited by Mukhebi *et al.* (2007) confirms that information technology, together with the ability to use it and adapt it, is the critical factor in generating and accessing wealth, power, and knowledge in our time.

The presence and ownership of radio and cellular phone as physical assets by the respondents can facilitate communication between sellers and buyers of forest products like timber from the study area. The facilitation can be in terms of provision of relevant and timely marketing information, provide transparent and competitive market price discovery mechanism through the operations of the exchange trading floors, control and apply the power of information and communication technologies (ICTs) as a strategic tool for rural value addition and empowerment.

4.6.3 Livestock

Cows, goats, pigs were some of the livestock owned by the respondents. The study revealed that only 2% of the respondents owned livestock worth above TAS 210 000 and 81% of the respondents had livestock like chickens, cocks, docks and goats worth TAS 60 000 to TAS 150 000. These livestock seem to have low value though they contribute much to poverty reduction in the household. Kazybayeva *et al.* (2006) pointed out that, livestock are relatively more important sources of income in poorer households compared to their wealthier counterparts, but still only constitute around 10% of household income, largely due to the low productivity of traditionally managed livestock systems and low incentives for commercialization of livestock and livestock products. However, the study revealed that, timber trading has contributed only 42% to the purchase of livestock compared to agriculture business (54%) and other business which contributed to 4%.

4.6.4 Ox-plough

Hand hoe was still major mean of cultivation among households in the surveyed villages. Only a very few households owned ox-plough which they used for farming activities. Results show that only 6% of the respondents in the study villages owned ox-plough and timber trading contributed only 17% to their acquisition whereas agriculture production and livestock keeping contributed the remaining percentage. The information from the respondents pointed out that, low possession of ox- plough was mainly due to low awareness on the use of such asset and inaccessibly of the areas due to mountainous landscape. Indeed, intervention on the promotion of the use of such important household asset is not an over emphasis.

4.6.5 Wheelbarrow

Wheelbarrow is a tool used by farming households for transporting goods such as farm manure and farm products or yields or any other farm inputs. It was found in the study villages that larger proportion of households (81%) did not possess such an asset. Out of those (19%) who possessed wheelbarrows, timber trading contributed 74% of their acquisition while agriculture production contributed the remaining 26% (Table 10). The information from the respondents pointed out that, low possession of wheelbarrow was mainly due to low awareness on the use of it and inaccessibility of the areas especially during wet season. Sticky clay soils during wet season makes the use of wheelbarrows in the fields very tricky.

4.6.6 Bicycles

Bicycle is another asset which was owned by the households as a major means of transport in the surveyed villages. The study revealed that 94% of the household possess bicycle as a

transport facility and out of that, timber trading contributed to 74% to their acquisition compared to agriculture and other businesses which contributed to a tune of 26%. Also, the study showed the retail prices of bicycles in the study villages ranging from TAS 75 000 to TAS 150 000 depending on the model, but the costs went as far as above TAS 210 000 depending on the number of bicycles the household possess. Such enterprise, bicycles have been considered by the respondents as an effective means of transport for both urban and rural development. It facilitated access to social services, income generating opportunities and community activities. Such results are concurrent with that of Omar (2001), which emphasised on the importance of transport element for sustainable development. He further noted that, poor access to transportation services greatly hinders economic and social development and thus contributes to poverty, while affordable, appropriate and reliable transport can lead to a 'virtuous cycle', improving livelihood strategies of the rural poor. It also strengthens the exchange of information, social awareness and the promotion of social unity.

4.6.7 Electric iron

Appendix 8 shows the number of households which possess electric iron. The study indicates that, about 98% of respondents owned electric iron for domestic use out of which 76% were bought using income from timber trading and other related activities, 17% from agricultural production and 7% from other sources. This shows that, timber trading still contributes significantly to acquisition of such household asset as well.

The information from FGD revealed that, electric iron was seen as luxury item and not priority in the households, though, ownership of electric iron indicates wellbeing of the entire household. The use of iron would improve the health condition of the household by

reducing risks patterning skin born diseases. By reducing expenditure on medicare, the family can concentrate on other development issues. Massive electric iron possession by the households in the study area indicates that there are more than 4.3% of the district households which have access to electricity as indicated by the URT (2005a).

From Appendix 8, it was revealed that, respondents own different types of physical assets of different values like Radio, telephone, iron, wheelbarrow, ox-plough, oxen, livestock, bicycle, furniture and Television sets. Table 10 shows that the average contribution of timber trading (73%) to the acquisition of household assets was significant and by far important than any other sources in the study area. This means that most of the timber trading households depend much on what is gained from timber trade to enhance their household physical assets.

4.7 Financial Capital in the Study Area

Financial capital represents the financial resources which are available and accessible to people (whether financial savings, supplies of credit, loans or government aids and income levels) and which provide them with different livelihood options (Hassanshahi *et al.*, 2008). The access to and use of credit facilities and sources is discussed in this section. In order to understand the nature and extent of use of the credits sources, the timber traders were interviewed on whether they were aware on the presence of financial institutions in the study area and whether they use them.

4.7.1 Financial assets and household's sources of capital

Various formal financial institutions were found in the study area including National Microfinance Bank (NMB), Mufindi Community Bank (MUCOBA), and Savings and Credit Cooperative Societies (SACCOS). These Institutions were situated in the district and wards' headquarters only and not at village levels, which is contrary to URT (2003)

who suggested that institutions supporting the SMEs sector should be evenly distributed and should not be concentrated in urban areas only.

The study indicates that the majority of the timber traders in the study area depended on their own savings as source of capital to carry out their timber businesses. Out of 100 respondents, 58% indicated to have used their own cash savings to start timber trading business, while 27% relied on formal credit from the financial institutions available in the area and 15% reported to have had access to informal credit (contribution from the family members and/or friends) (Table 11).

Table 11: Respondents' sources of capital to start timber business

Type	**Number**	**Percentage**
Cash saving	58	58.0
Formal credit	27	27.0
Informal credit	15	15.0
Total	**100**	**100.0**

These results concurs with Hassanshahi *et al*. (2008) who argued that financial assets or capital represents the financial sources which are available to people (whether financial savings, credit, loans or government aids, income levels) and which provide them with different livelihood options. The study found that people wishing to start up timber trading with low capital and without business experience, are likely to face difficulties in the business though they have the possibility to grow.

This was also reported by Buckley (1997) who asserts that, enterprises that start business with very small capital and that depends on owner's experience, their business will grow as the enterprises grow. On the other hand, it was also found that inaccessibility to financial institutions and other credit facilities was due to high interest rates charged which ranged

from 19% to 24% (MUCOBA, 2008; Per. com.), collaterals like possession of title deeds, and other conditionality hindered the utilisation of such good business opportunity. According to Buckley (1997), household with higher incomes will have a wider range of business investment opportunities, and can afford more risks than households with low income. Therefore the financial institutions should design credit programmes that suit particular low-income groups such as timber traders so as to increase the incomes and sustain their timber trading activities.

4.8 Social Capital in the Study Area

The social capitals identified in the study area were community development groups, religious groups, credit and saving groups and women groups. The study showed that over 50% of the respondents were none members of the social groups or associations in the community (Fig.5).

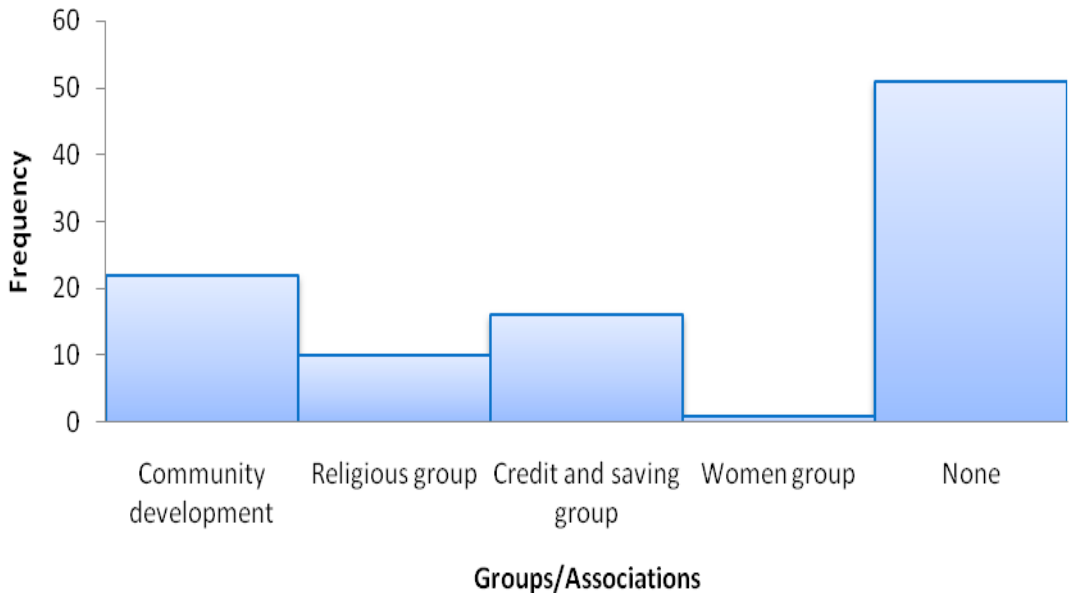


Figure 5: Distribution of respondents by membership and type of association/group

This implies that it will be difficult for timber traders to enjoy opportunities in common like building capacity on business management skills, common bargaining power in the market. Manyong *et al*. (2008) observed that members in the communities rely on each other for material and moral support as well as sharing ideas and also it is easier to access new technologies and other support services. Normally, it is quite not uncommon to find strong social groups where official government services provision is weak or unavailable.

Moreover, it was found that about 49% of the respondents or members of their households were members of at least one group or association in the community. The results also point out that about 75.5% of the respondents who had primary education, belonged to the community association or group compared to 4.1% of those who had tertiary education (Table 12).

Table 12: Membership or Association to groups by Education levels

Attributes **Education level**	**Belong to group (N)**	**Percentage**
Primary education	37	75.5
Secondary education	10	20.4
Tertiary education	2	4.1
Total	**49**	**100.0**

N= Number of respondents

This indicates that as education level increases the percentage of those who are involved in groupings or association decreases. This could be due to the reason that, the more the education level the member has, the more the integral power, as a result member tend to

isolate from other group members in the community. These results were contrary to Handley *et al.* (2009) who observed that education is fundamental and powerful instrument for reducing inequality among members in groups and laying the foundations for sustained economic growth, effective institutions and sound governance. On the other hand, the general low number of respondents who had tertiary education could have eventually contributed to such low percentage of their participation in the social groupings.

4.9 Respondents Average Annual Income

The existence of multinational companies that are engaged in agricultural and forestry related activities in the study areas might have contributed substantially to the average income of the people in the study area.

The study shows that 59% of the respondents had an average annual income above TAS 500 000 which was greater by 40% of the district per capita income in 2008. About 32% of respondents had average annual income between TAS 200 000 to 500 000 and only 9% had an average annual income below TAS 200 000 (Table 13).

Table 13: Distribution of respondents according to average annual income

Average annual income	Number	Percentage
Below TAS 200,000	9	9.0
TAS 200,000-500,000	32	32.0
Above TAS 500,000	59	59.0
Total	**100**	**100.0**

N=Number of respondents

These results were relatively higher when compared to the results from MDC (2008) which pointed out that the district per capita income was estimated to be TAS 190 000 per annum in 2004, TAS 290 000 in 2007 and TAS 300 000 in 2008, respectively. Further, the results

are in greater proportion than those of the regional per capita income of TAS 394 449 in 2008 (MDC, 2008).

The household income statistics showed that about 61% of household income was accrued from timber related activities. This means that timber trading has significant influence on poverty reduction to those who do timber business as well as to those falls under trickle down or multiplier effect of the enterprise. Though the income gained by the respondents may seem to be higher than the district and region per capita, the study revealed that only 6% of respondents said the income gained from timber trading was very satisfactory to cover their basic needs, while the rest 84% and 10% of the respondents said it covers only to some extent and not satisfactory at all, respectively (Table 14).

Table 14: Respondents' attitude toward income satisfaction on basic needs

Response	Number	Percentage
Very satisfactory	6	6.0
Only to some extent	84	84.0
Not satisfactory	10	10.0
Total	**100**	**100.0**

N = Number of respondents

The study showed that what the respondents were getting from timber trading was high compared to national, regional and district per capital income levels. Indeed, it was not enough to cover the basic need of the households.

4.10 Contribution of Forest Sector to Mufindi District Revenue

The forestry sector contributes substantially not only to Mufindi district council revenue but also to Tanzania's economy in general. It generates about 10% of the country's registered export and employs some 800 000 (URT, 2000). This indicates that forest plantations in Tanzania are good employers of local communities thus contributing

substantially to their livelihoods. Although officially recorded contribution to GDP in 1987 was only TAS 1.7 billion (1-2% of GDP), its real contribution is underestimated as most consumption of wood, particularly fuel wood is under-recorded (URT, 2000).

The study pointed out the contribution of forest sector to district revenue. This was dual focused in terms of revenue collection and employment of people in their district. Fig. 6 indicates revenue collected by Mufindi District Council from 2002/03 to 2007/08 as a 5% cess (levy) on forest royalty from Sao Hill Forest Plantation (SHFP). The district sees SHFP not only as a source of revenue for the district council, but also as a potential employer of people living in villages around the forest plantation.

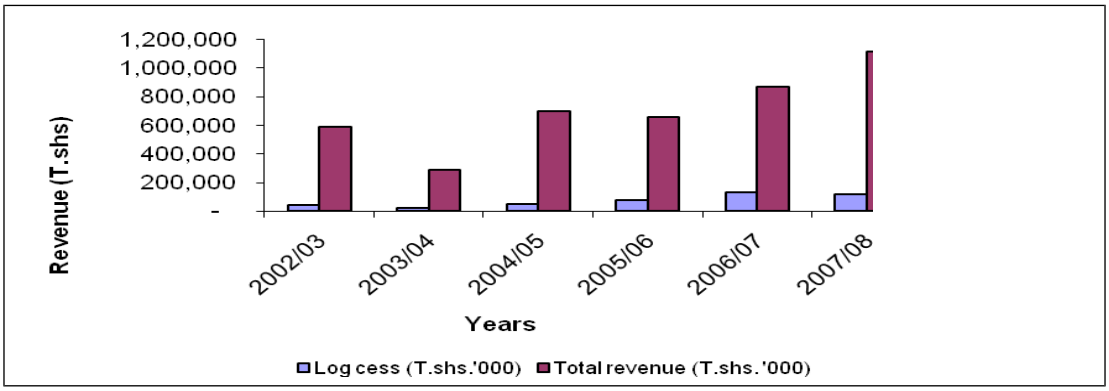


Figure 6: Revenue collected by MDC as 5 % cess on forestry royalty from SHFP (MDC, 2008)

Based on the data from District Abstract of Accounts and Statements for four consecutive financial years (2004/2005 to 2007/2008) presented in Table 15, the proportion of contribution of forestry products through log cess (fee from the harvested logs) was very high compared to other sources. The trend shows an increase in the proportion of revenues collected from log cess from 29% (2004/2005) to 35%

(2006/2007) (Table 15). This case study is in line with Cunningham (2008) who noted that, forestry contributes up to 54% of the total gross income in COMESA region compared to crops and livestock production, which contribute 25% and 6% of household income, respectively.

Table 15: Sources of revenue (TAS) in Mufindi District Council

	Years			
Sources of revenue	**2004/2005**	**2005/2006**	**2006/2007**	**2007/08**
Log cess	42,592,360(29)	77,195,157(37)	131,362,382(35)	119,208,113(27)
Tea cess	24,509,489(17)	21,757,758(10)	48,647,819(13)	177,692,997(40)
Contract fee	18,223,214(13)	19,543,866(9)	23,040,453(6)	36,283,794(8)
Market fee	10,949,500(8)	22,088,492(11)	36,302,500(10)	19,527,600(4)
Property tax	10,676,044(7)	14,672,142(7)	20,412,747(5)	13,457,150(3)
Bus stand fee	6,903,200(5)	8,285,300(4)	8,635,500(2)	8,318,900(2)
House rent	4,706,963(3)	6,059,839(3)	10,121,639(3)	8,693,830(2)
Auction fee	1,829,000(1)	3,425,450(2)	6,266,855(2)	6,138,820(1)
Service levy	1,744,669(1)	8,276,471(4)	13,529,652(4)	31,186,226(7)
Others	23,337,471(16)	28,520,477(14)	79,063,688(21)	28,469,772(6)
TOTAL (TAS)	**145,471,910**	**209,824,951**	**377,383,235**	**448,977,202**

Source: Mufindi District Council, 2008.

Note: Open figures are revenues in TAS and numbers in parentheses are percentages along the table

Data in Table 15 further shows abrupt significance contribution of tea cess to district revenue during 2007/08 period and decrease of timber cess. The situation was contributed by increase of tea out-growers who raised production. Decline in log cess during 2007/08 period was according to the key informants contributed to high costs of acquiring log plot (licences) for harvesting timber charged by the government. This resulted to some timber traders opting to trade in the neighbouring country (Malawi) where terms of business were said to be favourable. As a result, the quantity of logs bought by timber traders for harvesting was reduced and hence reduced the log cess paid to the district council. The average district revenue in Table 15 indicates that more than 32% of the district own sources revenues for four consecutive years from 2004/2005 to 2007/08 were contributed

by log cess. This depicts the significant contribution of timber through log cess to district revenue compared to other sources.

The information from district key informants illustrated that, the amount of money collected by the district council through log cess, was accounted as revenue and then spent in various development programmes. They further added that, expenditure of this revenue is directed to implement various pro-poor development activities, like SMEs run by and/or employing poor people and large enterprises.

In addition to its trade value, the information from key informants added that, the collected revenue provides critical support functions to rural livelihoods. Although many policymakers consider crops and livestock production to be a major contributor to district revenue and livelihoods in the study area, this is not always the case to specific areas such as my study area.

Besides commercial timber which provides important revenue to the district council, Mattsson and Li (1994) argued that, forests also provide natural environments for various leisure activities. On-site enjoyment of the forest environment is offered to all individuals, no matter who owns the forest. They further included that, the off-site visual experience of the forest enriches the landscape scenery. However, how people appreciate a specific forest environment depends on the actual forest attributes. Any forestry operation that alters these attributes will thus change the environmental quality.

4.11 Challenges facing Timber Trading

Although the potential of timber trading to improve people's livelihood in Mufindi district is evident, timber traders sometimes faced a number of constraints in the process of timber

trading. Early identification of these hindrances can potentially help in the development of deployment strategies to increase the rate of doing such a business. Table 16 presents the most important constraints facing timber trading industry as identified during this study.

The study revealed that high log prices (24%) and high transport costs (22%) were the most challenging constraints facing timber trading in the study area (Table 16). Information from FGD and key informants depicted reasons for such problems to be due to increase in cost of buying tree plots set by the government. Costs of buying tree plots are stipulated in the URT (2007). The increase in the prices of fuel also tremendously increased the cost of timber production especially the cost of log harvesting due to the use of machines which use fuel for operation. Also distance from the timber harvesting points to the markets sites has increased the transportation costs of logs and sawn timber.

The study revealed that, 13% of the respondents pointed out that, lack of market for timber was another challenge for timber trading in the study area (Table 16). This was supported by the information from FGD and key informants who also noted some of the reasons to timber trading as poor infrastructure especially feeder roads to and from the harvesting sites. About 16% of the respondents pointed out lack of capital for timber to be another challenge for timber trading in the study area (Table 16). The information from key informants pointed that timber traders and local communities were frequently limited by lack of capital to invest for higher or delayed returns. Besides that the respondents did not point out the inaccessibility of the financial services to be a challenge, the researcher through the cross analysis of the data found this to be another challenge facing timber trading. This was ascertained by the study which revealed that, only 27% of the respondents had access to financial credit as source of income for their business as shown in (Table 11).

Such findings are in line with that of Cunningham *et al*. (2008) who found some of the factors that limit the marketability of forestry products and the economic returns from any given area. These include lack of access to capital and micro credit; poor transport and storage facilities and limited access to low cost technologies for extraction and processing. Inefficient extraction and processing of timber can be both unsustainable and wasteful.

The authors also argued that capital investment requirements can present a barrier to small-scale producers with limited access to credit and collateral, paving the way for elite capture by those who can afford high up-front investments. The study further revealed that 16% of the respondents pointed out that fire occurrence as another challenge for timber trading especially in private woodlots and other forest reserves (Table 16). These occurrences normally occur during the dry seasons, they demoralise timber traders to plant more trees for future use. Hassan, (2007) discovered that the occurrences of fire to the environment can be quantified but the outcomes are generally complex depending on the nature of the fire regime, primarily the frequency and timing of the fire events.

Table 16: Identified constraints of timber traders in Mufindi District

Category of label	Counts*	Responses	Cases
High log prices	98	24.5	98
High transport costs	91	22.8	91
Fire	65	16.3	65
Lack of capital	65	16.3	65
Lack of markets	52	13	52
Theft	20	5	20
I do not know	9	2.3	9

*Multiple answers were allowed

Key informants also reported that, lack of extension services was another challenge facing not only farmers but also forestry related activities including timber trading. In Tanzania the extension services are commonly less than adequate. For instance crop cultivation skills are based on the farmers' indigenous or traditional knowledge. This is knowledge used at the local level by communities as the basis for making decisions pertaining to human health, education, natural resources management and other vital activities. It is a key element of the social capital of the poor and constitutes their main asset in their efforts to achieve control of their own lives. The National Forest Policy of Tanzania of 1998 proposes strengthening of the extension services, but they are lacking resources and fragmented among different sectors (MNRT, 1998). Forestry and agricultural extension workers are working separately, which is a considerable constraint for the agro-forestry extension. The question remains, who should provide extension services in forestry. Forestry activities in local communities would be enabled not through indigenous knowledge but through extension services, technical assistance and establishment of appropriate financial incentives (MNRT, 1998).

Generally, there are challenges faced by the district council towards meeting the maximum collection of log cess revenue. For instance the expected maximum collection of log cess for the years 2007/2008 was TAS 260 million but the actual collection was about TAS 119 million (46%) (MDC, 2008). One of the challenges is the lack of by-laws to enhance collection of revenue from processed logs (timber) from traders. Officials from district authority assert during key informants' interview that, normally timber traders were not charged any fee when transporting timber away from Mufindi district. They further added that, by-laws could help to put road barriers and check points from all roads used for

transporting timbers so as each timber meant for export could be charged some fee. This fee could increase the council's revenue.

Besides, the key informants added that, high costs of acquiring log plot (licences) for harvesting timber charged by the government to timber traders was another challenge to the district revenue. This resulted to some timber traders to look other timber sources elsewhere in countries like Malawi where according to FGD with timber traders has favourable cost for producing timber. As a result, the quantity of logs bought by timber traders for harvesting has been declining and hence reduced the log cess paid to the district council as shown in Table 15.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The focus of this study was to examine the influence of timber trading on poverty reduction in Mufindi district through determining the households' income and other livelihood assets accrued form timber trading compared to other sources. Also, the study focused on comparing district revenues from timber trading and that from other sources. Further, the study identified the challenges which hinder timber trading and opportunities for improving timber trading in the study areas and district as a whole. The findings from this study aim to assist timber trading stakeholders like the government, timber traders and the community to come up with strategies and areas of improvement which will increase the influence of timber trading on poverty reduction in Mufindi district.

Several findings emerged from the analyses with respect to the study objectives. The first objective was to determine households' income and other livelihood assets accrued from timber trading compared to other sources. To address this, the cost of each asset and source of income to buy such asset was ascertained. This was achieved by using a computer programme SPSS version 12. Cross tabulation between asset values, types of household assets and source of income was done to obtain percentages of contribution of each source. The results revealed that, for most household assets, timber trading contributed to about 73% as compared to other sources of household income such as agriculture and other businesses. It was also shown that, the percentage of timber traders who use financial institutions as source of financial credit was only 27% compared to those using their own cash savings.

The average annual income of the respondents (59%) were greater than TAS 500 000. Also the study revealed that, the household income (61%) was contributed by timber trading. These were significantly contributed by timber related activities and still justifies the influence of timber trading on poverty reduction to those who directly do timber business as well as those under multiplier effect of the enterprise.

The second objective of the study was to compare district revenue from timber trading versus other sources. To ascertain this objective, ten major district revenue sources were analysed to check its percentage of contribution for four consecutive years. The study found that, log cess had significant contribution to district revenue compared to other sources of revenues.

The final objective of this study was to identify the challenges and opportunities faced in timber trading. A number of important limitations facing timber trading were identified. However, high log prices and transport costs were the most challenges in the timber business (Table 16). These challenges have the negative influence on the profit of the business and hence reduce its contribution to poverty reduction. On the other hand, timber traders still have land opportunity for further tree planting. Good timber quality leads to high prices which will depend on subsequent descriptive forest management schedules. Availability of training programmes on tree planting and management was another opportunity the MDC and the government putting in place to encourage timber traders.

5.2 Recommendations

Improved access to financial services, extension services, and low cost but efficient technologies for timber extraction and processing will probably increase timber traders' incomes, thus creating wealth and escaping the vicious cycle of poverty.

Strengthening of groups/associations and market information systems through the use of available ICT assets would enhance the capacity of timber traders to do their business efficiently. Programs aiming at capacity building on SMEs business skills and developing business plans would have important positive outcome to timber traders. Equally important is the interventions on regulating the log prices and cost of tree plots through reducing the costs of buying the tree plots. Making of wide and clear firebreaks can resolve the carnage of forest fires and its associated impacts.

Moreover, the work done should be viewed as preliminary and has been grounded on small area that is only four villages in the district. Even though this work is preliminary, I hope it has made a significant contribution in understanding the influence of timber trading in integrating knowledge that affects competitive advantage. However, much work still needs to be done to further the knowledge in the area of forestry. Such as relating forestry related activities like timber trading into agriculture.

Basing on the findings the following recommendations are made;

- The government should establish marketing extension department that is devoted to carry out production and marketing information to timber traders. This is apparent that the activities of this department linked to improve livelihoods of the people.
- Rural transport infrastructures should be harnessed with improvement of seasonal roads to be passable throughout the year to enhance businessmen and farmers to access district and distant markets.
- The government with other development partners should develop and provide package of business support programs, extension services and technological support to timber traders in the district to accelerate the meeting of national strategy for growth and reduction of poverty (NSGRP) and realisation of Millennium Development Goals (MDGs).

- The government should look upon solving the problems facing timber traders like regulating the log prices through reducing the costs of buying the tree plots.
- For timber traders to maximize their profit there is a need also to make use of modern sawmilling technology in order to reduce wood waste and hence increase recovery rate.
- In order to maximize profit, small scale timber traders should be insisted to establish their own planted trees and preferably those with the ability to regenerate after harvesting.

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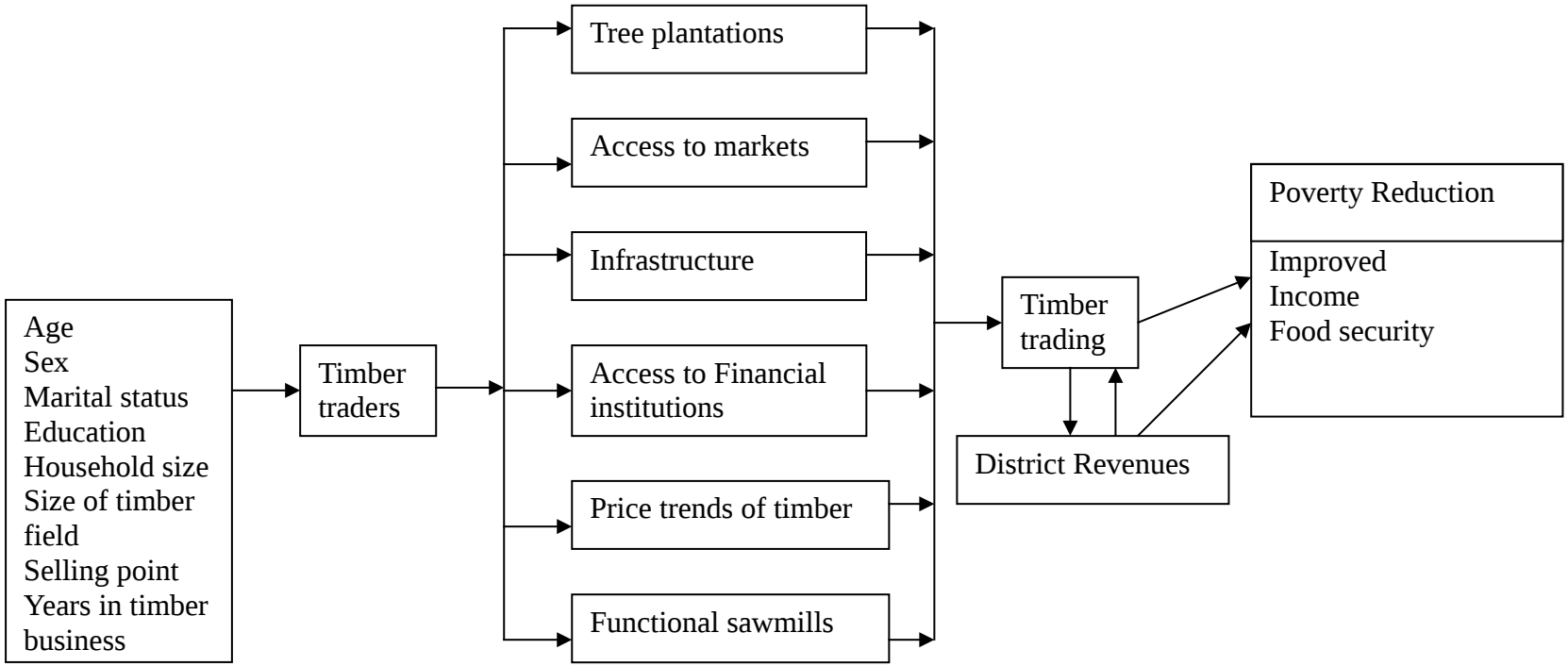
APPENDICES

Appendix 1: Conceptual Framework



Appendix 2: Household Questionnaire

HOUSEHOLD QUESTIONNAIRE FOR TIMBER TRADING PARTICIPANTS

A. General information

1. Name of the interviewer ……
2. Date of interview …….....
3. Questionnaire number …….....
4. Village name …….....
5. Ward name …….....
6. Division name ……

B. Household characteristics

8. Household number……..
9. Name of the household head ……
10. Age (in years) ……..
11. Sex Male = [1] female = [2]
12. Marital status Married =[1] Single =[2] Divorced =[3] Widowed =[4] Separated=[5]
13. Level of education of the respondent. No formal education =[1] adult education=[2] Primary education=[3] Secondary education=[4] Tertiary education=[5]
14. How many years of schooling as in question 14 above? .....
15. Respondent's name (if different from head) …….
16. Please provide the information on household demographics

Household member	**ID code**	**Sex** Male =**1** Female=**2**	**Age** (Years)	**Relationship to the household head** ***Head=1*** Spouse=**2** Son/Daughter=**3** Relative=**4** Un-related=**5**	**Schooling** Attended before=**1** Attending now=**2** Young to attend=**3** Never attended=**4**	**Number of years of schooling** (if attended or is attending school)
	01					
	02					
	03					
	04					
	05					
	06					
	07					
	08					
	09					
	10					

17. What are you main household (or household head?) economic activities among the following (rank them according to their importance); (1 is the most important economic activity)

- Agriculture [……]
- Livestock [……..]
- Small timber trader […….]
- Timber Saw miller [……..]
- Employed in public sector […….]
- Employed in private sector like timber activities [……..]
- Others (specify) ……

18. Household composition and economic activities

Sex	Age groups composition		Description of economic activities done by household member				
	Age group	Number	1	2	3	4	5
Men	<18 years old						
	18–55 years old						
	>55 years old						
Women	<18 years old						
	18–55 years old						
	>55 years old						

Key: Agriculture and livestock= [1] Small timber trader= [2] Timber Saw miller= [3] Employed in public sector= [4] Employed in private sector like timber activities= [5] Others (specify) …….....

C. HOUSEHOLD CAPITAL ASSETS

19. What is the size of land (ha) under forestry? .....

20. Land – Total acreage owned =[1]

- Total acreage rented = [2]

21. Does your household own the following physical assets?

	Asset	Number	Value (TAS)	Source(s) of fund
1	Radio.....			
2	Telephone • Landline ……. • Mobile			
3	Iron.....			
4	Wheel barrow.....			
5	Plough..... Livestock Oxen Chicken, goats, cows (local or hybrid)			
6	Bicycle			
7	Furniture • Coach sets with cushion • Coach sets without cushion • Bed • Mattress			
8	Television set.....			
9	House thatched by corrugated iron sheet or grass etc House floor (cement or mud House wall (cement, mud etc House roof, windows Other (specify).....			

Financial capital

22. Do you have financial capital in your surrounding? Yes=[1] No=[2]

23. If Yes, please indicate the types of your financial capital and rank them in order of importance (1 is highly ranked).

Financial capital	**Access** **Yes=1** **No=2**	**Rank**
Cash saving		
Formal credit	*	
Informal credit	*	
Remittances from relatives		

*** The question needs to be addressed as whether the household can get formal /informal credit when needed.**

24. If you have access to a type of credit, have you borrowed in the last two years? Please give details of the credit transaction(s).

Type	**Have you borrowed?** **Yes=1** **No=2**	**If borrowed**		
		Amount borrowed (TAS)	**Interest rate (%)**	**Amount repaid (TAS)**
Formal				
Informal				

Social Capital

25. If you are a member of any local association/group, please provide the following information.

Association/group	**A member?** Yes=1 No=2	**Position in Association/ group** Leader=1 Member=2	**If Yes since when?**	**Benefits derived** Cash donations=1 Credit for inputs=2 Credit for food=3 In-kind food credit=4 Cash for business=5 Info on new technology=6 Output marketing=7 Input acquisition=8 Others=10
Community development				
Cooperative				
Religious group				
Credit and Savings group				
Informal insurance (safety net)				
Women's group				
HIV/AIDS group				

26. Do you involve yourself in any forestry activity? ———a) Yes= [1] b) No =[2]

27. If the answer is Yes in 26 above, which one among the following activities?

a. Tree planting and replanting= [1]

b. Log harvesting=[2]

c. Timber trading =[3]

d. Log loading and offloading=[4]

e. Log cutting =[5]

f. Forest management activities=[6]

28. What is the average annual income in 2007 gained from each of the following category in the table below?

No.	Activity	Amount in TAS
1.	Tree planting and replanting	
2.	Log harvesting	
3.	Timber trading	
4.	Log loading	
5.	Log unloading	
6.	Log cutting	

29. What is the main source of labour for your forestry activities?

a. Family members

b. Hired labour

c. Both a & b above

d. Others (Specify) ……

30. How many people from your family participate fully in forestry activities? (……) Male (……), Female (……..)

Source of household income

31. What are the main sources of income for your family? (Rank according to their importance, 1 being highly ranked score)

a. Farm activities
b. Forestry activities
c. Salary/ wages
d. Others (Specify) ……

32. What is the average annual income category from your forestry activities do you belong? (TAS/annual)
    a. Less than 200 000
    b. 200 000 – 500 000
    c. Above 500 000
33. Is it satisfactory to cover your household expenses? a) Yes= [1] b) No = [2]
34. If the answer is No in 33 above, how do you supplement your income? ....
35. How much money did you get from the following sources below?

Source of income	Amount obtained (,000 TAS)
Sale of tree products	
Sale of livestock	
Sale of crops	
Sale of household properties	
Remittances	
Others (specify)	

36. How do you mostly spend the income accrued from forestry activities? (Rank them according to their importance, 1 being highly ranked)
    a. Meeting basic needs (clothes, foods or shelter) and health services
    b. Pay school fees
    c. Building house
    d. Purchase of household assets e.g radio, TV, coaches
    e. Buying livestock.
    f. Hire labour
    g. Purchase of farm inputs
    h. Others (Specify) ……
37. Do you think the income obtained from your timber trading activities is satisfactory to meet of your household’s basic needs?

a. Yes, very satisfactory
b. Yes, to some extent
c. Not satisfactory

38. If not satisfactory in 37 above, what are the reasons and your suggestions for improvement

	Reason(s)	**Solution(s)**

Supporting Sector

39. Are the following services available in the village?
    a. Extension officers -
        - Forest Yes = [1] No = [2]
        - Agriculture Yes = [1] No = [2]
        - Livestock Yes = [1] No = [2]
        - Trade officers Yes = [1] No = [2]
40. If any extension officer is not available, how do you solve the related problems? (mention)
    (i) ……
    (ii) ……
41. How many times does the extension officer visit you per quarter? (……..)
42. Is the village accessible all the year round? Yes =[1] No = [2]
43. Is the village accessible by earth road, gravel road, tarmac road?
44. Which month(s) of the year do traders sell their timber? …….
45. Is the village accessible during the period of selling timber? Yes=[1] No=[2]
46. How do you make communications with the outside traders during selling of tree products (list)
    (i) ……
    (ii) …….
47. Does the village have the market place for timber selling? Yes =[1] or No =[2]

C. LAND USE AND FARM SIZE CHARACTERISTICS

48. What is the total land size the household own? ……acres
49. What is the proportion of tree farm in relation to the total farm size? ……
50. Is your tree farm size enough for timber production? Yes=[1] No=[2]
51. What is the use of those trees in the farm? (Mention) ……
52. What can you say about the trend of timber trading activities for the past five years?
    a. Increasing
    b. Decreasing
    c. Uniform trend
    d. Others (specify) ……
53. What problem(s) do you face regarding timber trading activities in your locality? ....
54. On the problem(s) you have just mentioned, which ones do you consider to be the most three critical problems in the area and how do you go about them?

CRITICAL PROBLEM	SOLUTION

D. PERSONAL OPINIONS

55. What exactly has forced you to engage in timber trading activities? .....
56. Considering the presence of tree plantations and timber trading activities in your locality, do you think they provide you with enough income for your family? If NOT, then, what is your future plans?.....
57. Do you think timber-trading activities have improved your well being?
    Yes=[1] No=[2]
58. Give reasons for your response in question 57
    a) .....
    b) .....
    c) .....

59. Do you consider timber-trading activities have successfully enabled you to reduce poverty in your household? Yes=[1] No=[2] I do not know=[3]
60. If Yes/NO, in question 59 give reason(s)
    a) .....
    b) .....
    c) .....

THANK YOU FOR YOUR USEFUL INFORMATION AND TIME

Appendix 3: Checklist for Key Informants

1) How much money is paid by Sao Hill Forest to support Local Government Authorities for development projects?
2) Do timber traders pay taxes to Local Government Authorities?
3) If yes, how much? .....
4) If not, why? .....
5) In which ways do timber traders contribute to district income?
6) What are the notable socio-economic gains or benefits brought by presence of timber trading activities in the area?
7) What are the notable socio-economic problems associated by existence of timber trading activities in the area?
8) In your opinion, do you think timber trading activities contribute to alleviate household poverty?
9) Give reasons for your opinion in 8 above?

....
.....

10) What are the effects of establishment of timber trading activities to the surrounding communities?
11) How do you support timber trading in the District? .....
12) What are the positive impacts brought about by timber trading in the District? .....
.....
13) What are the negative impacts brought about by timber trading in the District? .....
.....
.....
14) How do you address them? .....

THANK YOU FOR YOUR USEFUL INFORMATION AND TIME

Appendix 4: Education levels by villages

	Education level			
Village name	Primary education	Secondary education	Tertiary education	Total
Igowole	20(30.3)	3(10.3)	2(40)	25
Nzivi	16(24.2)	8(27.6)	1(20.0)	25
Wambi	13(19.7)	12(41.4)	0(0.0)	25
Kinyanambo	17(25.8)	6(20.7)	2(40.0)	25
Total	66	29	5	100

Appendix 5: Education levels by ownership of land under forestry

	Size of land under forestry				
Education level	Below 5 Ha	5-9 Ha	10-14 Ha	Above 19 Ha	Total
Primary education	51(66.2)	4(80)	4(80)	7(53.8)	66
Secondary education	21(27.3)	1(20)	1(20)	6(46.2)	29
Tertiary education	5(6.5)	0(0.0)	0(0.0)	0(0.0)	5
Total	77	5	5	13	100

Appendix 6: Education levels by Average annual income category TAS (‘000)

	Average annual income category TAS (‘000)			
Education level	**Below 200**	**200-500**	**Above 500**	**Total**
Primary education	9(100)	15(46.9)	42(71.2)	66
Secondary education	0(0)	17(53.1)	12(20.3)	29
Tertiary education	0(0)	0(0)	5(8.5)	5
Total	**9(100)**	**32(100)**	**59(100)**	**100**

Appendix 7: Average annual income category by Villages in TAS (‘000)

	Average annual income category TAS (‘000)			
Village name	**Below 200**	**200-500**	**Above 500**	**Total**
Igowole	3(33.3)	7(21.9)	15(25.4)	25
Nzivi	2(22.2)	9(28.1)	14(23.7)	25
Wambi	4(44.4)	11(34.4)	10(16.9)	25
Kinyanambo	0(0.0)	5(15.6)	20(33.9)	25
Total	**9(100)**	**32(100)**	**59(100)**	**100**

Appendix 8: Household essential physical assets and asset values

	Types of household assets										
Asset value (TAS'000)	Housing	Radio	Cell-phone	Electric Iron	Wheel barrow	Ox-plough	Oxen	Livestock	Bicycles	Furniture	Tv set
<60	0(0)	40(40)	20(20)	98(100)	5(26)	0(0)	0(0)	35(35)	0(0)	3(3)	0(0)
60-90	0(0)	9(9)	32(32)	0(0)	8(42)	2(33)	0(0)	46(46)	36(38)	18(18)	6(7)
91-150	0(0)	34(34)	34(34)	0(0)	0(0)	0(0)	0(0)	12(12)	44(47)	34(34)	30(37)
151-210	0(0)	12(12)	10(10)	0(0)	6(32)	4(67)	0(0)	5(5)	8(9)	21(21)	25(31)
>210	100(100)	5(5)	4(4)	0(0)	0(0)	0(0)	5(100)	2(2)	6(6)	24(24)	20(25)

Numbers in parenthesis along the table are the percentages of respondents