

**THE ROLE OF LAND USE PLANNING AND INSTITUTIONS IN LAND
MANAGEMENT IN TANZANIA: A CASE OF VIANZI VILLAGE IN MVOMERO
DISTRICT**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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ABSTRACT

This study assessed the role of land use planning and institutions in land management in Tanzania using Vianzi Village in Mvomero District, Morogoro as a case study. Specifically, the study examined the implementation of land use planning, described land management practices adopted and determined the influence of land use planning and institutions on land management. The study had a sample of 126 respondents. The study employed descriptive survey research design and adopted quantitative and qualitative approaches. Data were collected using questionnaires survey, key informant interview and documentary review. The quantitative data were analysed using the IBM (SPSS statistics) software whereas qualitative data were analysed using content analysis. The research findings revealed that, only few farmers in Vianzi village were applying recommended land management practices. Adoption of any land management practice was based on individual and/or family decision rather than village plans. Adopted land management practices include farmyard manure application, mixed cropping, crop rotation and mulching.

The reasons for not applying land management practices by the majority include lack of enough money and lack of direct benefits from the practices. Land use planning which has been in use since 2010 in Vianzi village has helped people to formalize their land rights as they have obtained Customary Certificate of Right of Occupancy (CCRO). However, the land use plan has not enhanced the adoption of land management practices in Vianzi Village. Finally, it was found that Vianzi village has one organization called Sustainable Agriculture (SAT), which has been involved in promoting the recommended land management practices. Group approach is seen by most of the respondents as proper in enhancing land management. Finally, the Government Extension Officers should visit farmers regularly and offer the much needed extension services to enhance adoption of the recommended land management practices.

DECLARATION

I, Leimba O. Kashuma, do hereby declare to the Senate of Sokoine University of Agriculture that, this dissertation is my own original work that was done within the period of registration; and that it has been neither submitted nor being concurrently submitted in any other academic institution

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The above declaration is confirmed by:

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DEDICATION

This dissertation is dedicated to my father, the late Kashuma Mbambile and my family that took responsibility of my previous education levels that became the motivation to pursue the Master of Arts in Project Management and Evaluation.

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LIST OF ABBREVIATIONS AND ACRONYMS

CCRO	Customary Certificate of Right of Occupancy
LUP	Land Use Plan
FGD	Focused Group Discussion
LHRC	Legal and Human Rights Centre
MKURABITA	<i>Mpango wa Kurasimisha Rasilimali na Biashara Tanzania</i>
PAICODEO	Parakuyo Pastoralists Indigenous community Development Organization
SAT	Sustainable Agriculture Tanzania
SLM	Sustainable Land Management
VC	Village Council
VLUM	Village Land Use Management
VLUP	Village Land Use Plan
JVLUP	Joint Village Land Use Plan
URT	United Republic of Tanzania
UCRT	Ujamaa Community Resource Team
WCED	World Commission on Environment and Development

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

The pressure exerted on land today to support rapid population growth has led to degradation (Wang and Dong, 2019). Land degradation includes all processes that diminish or eliminate the capacity of land resources to provide ecosystem services (MA, 2005; Bai *et al.*, 2008; Hurni *et al.*, 2010; Bajocco *et al.*, 2018). Poor and inappropriate land management practices result in rapid land degradation, massive soil loss, falling yields, deforestation, the disruption of water resources and the destruction of natural pastures (Nabhan *et al.*, 1999; Mulinge *et al.*, 2016).

Land degradation is a potential precursor to widespread desertification and is linked to various human induced factors because of poor land use and management practices. These factors include; inappropriate development models, unsustainable farming practices, reduced livestock mobility and over-exploitation of available pastures, high population growth encroaching on wet-season grazing areas for pastoralists as well as encroachment of agriculture into marginal land (Nabhan *et al.*, 1999; Shittu *et al.*, 2018). The increasing demand for fuel wood charcoal and timber has led to loss of forest cover aggravating land degradation. According to Barbara and Kimathi (2015), man-made crisis coupled with the devastating impacts of climate change has undermined the lives and livelihood of pastoral and agro-pastoral communities rendering them perpetual dependents on famine relief.

In Tanzania, the National Land use Planning Commission has been supporting communities to prepare village land use plans for quite some time now. The first

guidelines adopting the top down approaches were prepared in 1989 and continued to be used in the 1990s. Towards the end of the 1990s participatory approaches in land use planning (LUP) were developed and as a result in 1998, the first edition of participatory village land use management in Tanzania was issued (National Land Use Plan Commission Guidelines, 1998). LUP is a key instrument for reconciling competing interests in land, as well as preventing and/or resolving land use conflicts. According to the National Land Use Planning Commission Guidelines (1998), the objective of the LUP programme is to minimize environmental conflicts resulting from sectoral land use, by means of appropriate and balanced LUP. Participatory village land use plans are policy instruments for the sustainable management of communal lands. In Tanzania, a Joint Village Land Use Plan (JVLUP) and the supporting natural resource management sector plans provide a formal framework for the sharing of resources (UCRT, 2010; Metternicht, 2018). This type of LUP strengthens land governance by legitimizing the use of shared resources, and in tandem reducing potential land use conflicts.

Comprehensive land use planning is an instrument for sustainable land management, concurrently advancing sustainable development. It creates the preconditions required to achieve a type of land use that is environmentally sustainable, socially just and desirable, as well as economically sound (Mwamfupe, 2015). Land use planning is centred around a participatory definition of future land uses. It is, therefore, a useful approach whenever natural resources and biodiversity are to be protected and rehabilitated. Land-use and land management reconcile land use with environmental concerns and resolve potential conflicts between sectoral interests and potential uses, increase land tenure security and clarify customary land tenure of communal lands (Mwamfupe, 2015). Policy responses to coordinate human activities with environmental conservation alongside suitable financial, legal and technical support is needed to guide land use planning to support sustainable

land management, and to help resolve conflicting land use demands (Metternicht, 2018; Sulle and Mkama, 2019).

1.2 Problem Statement

The most common conflicts in Tanzania are the fighting between crop farmers and pastoralists over arable land, water and pasture (HAKI-ARDHI, 2009). One of the major reasons is high demand for land, which is limited while people and other living organisms that depend on it keep on increasing. This inconsistent ratio between land as a basic resource for livelihoods and its users has been leading to outbreak of land use conflicts (HAKI-ARDHI, 2009). At the same time the management of land and natural resources is one of the most critical challenges today facing developing countries including Tanzania, where great efforts are being made to attract large- scale investors in the agricultural sector thus, leading to increased land conflicts among land users (UN-HABITAT, 2012).

Mvomero District is one of the areas in Tanzania where land conflicts among land users have been reported frequently (TALA, 2012). In response to the conflicts, some efforts have been made by the government and other stakeholders such as HAKI-ARDHI, Legal and Human Rights Centre and PAICODEO to solve the land conflicts among land users in Mvomero District by establishing land use planning and other conflict resolution mechanisms. However, the problems persist, and have even more advanced to a stage of using firearms (LHRC, 2013).

Planning of sustainable land management (SLM) is an urgent necessity if we are to satisfy the growing and conflicting human needs over land resource (Giger *et al.*, 2018). However, as Christian (1997) argues, there is a need to move from a prescriptive approach towards an integrated approach to the physical land use planning and the social

and institutional dimensions of land management. Land use planning approach which refers to spatial planning of physical land resources in a top-down setting, is no longer appropriate or adequate to address the issue of optimizing land management for the satisfaction of conflicting human needs, including maximum sustainable production and the preservation of a safe and healthy environment. Based on a long series of trials and errors, it is well recognized that the most serious problems to achieving the integration of land use planning and land management are not technical, but related to the human factor (Christian, 1997). It is also acknowledged that this integration should be developed at the lowest possible level (following the principle of “subsidiarity”), using demand-based approaches and involving all stakeholders in decision making. For example, in rural areas individual farmers, men and women, and herders groups should be the engine of this integration.

To achieve SLM at local, national and global levels in the broader context of sustainable rural development will require a major effort to truly integrate the physical, social and institutional dimensions of land use planning and land management (Bloomfield *et al.*, 2018; Eekhout and de Vente, 2019).

There has been a number of researches conducted and reports issued in connection with land conflicts in Mvomero District, land use planning, land management and the role of institutions. Studies by Myenzi (2006) and Kushoka (2011); and reports by PAICODEO (2013), LHRC (2013) and Sustainable Agriculture Tanzania (SAT) (2019) are cases in point. However, they mainly focused on conflicts, implication of large-scale investment, food security as well as social insecurity and the situation of pastoralists and farmers. This calls for a need to evaluate the adopted land use planning practice in terms of extent of stakeholder involvement and integration with land management, and the extent to which social and institutional dimension of land use planning and land management have been addressed in the course of promoting SLM. Therefore, this study assessed the role of

land use planning and institutions in land management. It evaluated the land use planning process adopted in Mvomero District, explored the land management practices existing in Vianzi and examined the influence of land use planning and institutions on land management.

1.3 Objectives of the Study

1.3.1 Overall objective

The overall objective of this study was to assess the role of land use planning and institutions on land management in Vianzi Village.

1.3.2 Specific objectives

The specific objectives of the study were:

- i. To evaluate the land use planning adopted in Vianzi Village
- ii. To identify land management practices existing in Vianzi Village.
- iii. To determine the influence of land use planning and institutions on land management.

1.4 Research Questions

The study has tried to answer the following questions:

- i. How was land use planning implemented in Vianzi Village?
- ii. How are different types of land management practices implemented in Vianzi village?
- iii. How land use planning and institutions influence adoption of land management practices?

1.5 Significance of the Study

The results of the study provide input in the academic arena and in national development. Conflicts are an obstacle to the development of any society. Therefore, the findings from the study will be instrumental in formulating appropriate guidelines for immediate and permanent solutions to frequent land conflicts among smallholder communities in Mvomero District. In addition, the findings will be applicable to other areas in Tanzania that are facing similar problems. In addition, the findings will be useful to academicians to supplement the existing body of literature as well as being used as reference for further knowledge.

Furthermore, the study will be useful in the implementation of Tanzania Development Vision 2025 which states that peace, stability, national unity and good governance on natural resources (including land) are significant elements for sustainable development in the country (URT, 2000). According to Khalif *et al.* (2014), nearly all our needs wood for fuel and shelter, food, water and other products come from the land and renewable resources on it. Poor applications of land use planning which not influence sustainable lands management signify the importance of this study.

This study was crucial because it contributes to the efforts to achieve sustainable land management (SLM) at local and national levels in the broader context of sustainable rural development. This requires a major effort to truly integrate the physical, social and institutional dimensions of land use planning and land management in order to contribute significantly to resolve the farmer's needs for short-term productivity/income gains and longer-term environmental protection (Christian, 1997). It is clear that land use planning without proper land management practices may end up not enhancing farmers and pastoralists' productivity in the long run.

An understanding of the links between land use, land management practice and resource condition supports on-ground decisions to change land management practice, and to support sustainable land use policies and programs (ACLUMP, 2017). This study aimed at showing the importance of linking land use planning, institutions and land management practices. It evaluates the association of land use planning and institutions toward sustainable land management. It is emphasized that SLM is predominantly a conflict resolution issue among the major stakeholders (Christian, 1997).

1.6 The Scope of the Study

This study was limited to small-scale crop farmers and pastoralists in Vianzi Village in Mvomero District. It focused only on those who were the members of the Village. The farming practices and livestock keeping practices were assessed relative to the influence of the land use planning and institutions. The farmers, pastoralists, Village Chairperson as well as Land Use Management Committee chairperson and SAT official were used as the units of inquiry. The land management practices includes; mulching, soil erosion control practices, terracing as well as application of manure and fertilizers and the likes. Zero tillage was not considered as land management practice.

1.7 Limitations of the Study

The study was done in the midst of challenges. There was the challenge of meeting with respondents at the time of appointment and their emotional behaviour was not friendly in data collection process. Others demanded money as there was a notion that the researcher received funds from SAT for allowance of respondents during the research period. The field visit was made during rainy season. This made the data collection process a bit challenging. In addition, most of respondents had little understanding on land use

planning and land management issues; this made the researcher to make a great work of explaining for them.

1.8 Organization of the Dissertation

This dissertation is organized in five chapters. Chapter one provides an introduction, the background information, the problem statement, the justification of the study, objectives of research and their corresponding research questions. Chapter Two gives the review of theoretical and empirical literatures on land use planning and institutions as linked with land management. From these literatures, the research gap filled by this study was established. Chapter Three, describes the research methodology used in the study. It provides the description of study area, the study design, sampling design, sampling frame, sample size. Chapter Four gives the research findings and their discussion. Finally, the summary, conclusions and the recommendations are presented in Chapter five.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Institutions

Institutions, defined here as “the formal and informal rules governing economic production and exchange” (North, 1990), play a mediating role between the society and socio-economic and environmental drivers of land degradation and land improvement (Voigt, 2018). Organisations are the groups of people bound by a common purpose to achieve objectives. They include political bodies such as city councils or ministries, economic bodies such as firms or trade unions, and social bodies such as associations or churches (North, 1990). However, these organizations or bodies also influence the institutional structure, for example by issuing laws or regulation (political bodies), community rules (social bodies) or contractual arrangements between business partners (economic bodies).

Formal institutions are represented by legal rules and sanctions (e.g. Land Policy, Land Use Planning Guidelines). Informal institutions include social norms and social networks devised and nurtured by members of the communities (Bajracharya, 2008; Voigt, 2018). Institutions differ depending on the situation and place (Ostrom, 2005) and play key roles in governing resources by formulating rules and incentives for people to act in a certain manner (Bajracharya, 2008; Carey *et al.*, 2018).

According to Hodgson (2006), institutions are linked to natural resources simply because people have been abiding to some rules that regulate actions. Bruce and Mearns (2004) identified the importance of addressing the underlying incentive framework in ways that

match the complexity and diversity of local livelihood systems rather than out of concern for sustainability that it is not shared, or is defined very differently, by the resource users themselves. Very often, external change agents must understand what else is needed to foster an enabling environment for sustainable land management.

2.2 Land Use Planning

Land use planning is the systematic assessment of land potential and alternatives for optimal land uses and improved economic and social conditions through participatory processes that are multisectoral, multistakeholder and scale-dependent (FAO, 2010). The purpose of land-use planning (LUP) is to support decision-makers and land users in selecting and putting into practice those land uses that will best meet the needs of people while safeguarding natural resources and ecosystem services for current and future generations (FAO, 2010; Shih and Mabon, 2018).

2.3 Sustainable Land Management

Sustainable land management may be defined as the use of land resources such as soil, water, animals, and plants for the production of goods to meet changing human needs in a way that assures the long-term productive potential of these resources and the maintenance of their environmental functions (Herweg *et al.*, 1999; Basupi *et al.*, 2019). Also, sustainable land management (SLM) is defined as the adoption of land use systems that through appropriate management practices can enable pastoralists, farmers and other land users to have maximum economic and social benefits from the land while maintaining or enhancing the ecological functions of the land resources (Khalif *et al.*, 2014).

2.4 Factors Influencing Sustainable Land Management

2.4.1 Individual and group agency

Sustainable land management (SLM) combines technologies, policies and activities aimed at integrating socio-economic principles with environmental concerns so as to simultaneously maintain or enhance production/services (productivity) reduce the level of production risk (security), protect the potential of natural resources and prevent degradation of soil and water quality where protection ought to be economically viable (viability) and socially acceptable (FESLM, 1991). These five objectives of productivity, security, protection, viability and acceptability are seen to be the basic pillars on which the SLM edifice must be constructed and against which its findings must be tested and monitored. Today, discussions about how to implement sustainable land management focus on people's actions both as individuals and as social groups, institutions, countries, and groups of countries within the United Nations. In this context, the concept of agency – defined for example by McLaughlin and Dietz (2008) as “the capacity of individual and corporate actors, with the diverse cultural meanings that they espouse, to play an independent causal role in history” is increasingly being used. Individual and group agency can be viewed as determined by the five dimensions of knowledge, aptitude, commitment, means of production, and legitimating (Hurni *et al.*, 1993).

2.4.2 Knowledge and aptitude

Knowledge is generally considered a key factor for sustainable development and thus also for sustainable land management. According to the World Bank (2011), “a country's ability to build and mobilise knowledge capital is just as important for sustainable

management as the availability of physical and financial capital. The basic component of any country's knowledge system is its indigenous knowledge. It encompasses the skills, experiences, and insights" that people apply to maintain or improve their livelihoods thus, improving their aptitude for sustainable land management. Experience shows that efforts to create better knowledge of sustainable land management cannot rely solely on scientific knowledge; the knowledge of local actors and other stakeholders must also be incorporated. The call for incorporating local knowledge is based, on the one hand, on the fact that actions and strategies relevant to land resources are influenced by numerous factors, including (local) perceptions, attitudes, and overall societal conditions such as economics, politics and power structures (Hurni, 1997).

2.4.3 Means and commitment

While farmers' decisions regarding sustainable land management are undoubtedly influenced by economic considerations and means such as costs or financial returns based on productivity losses or gains influenced by the physical characteristics of available land resources other types of considerations are at least equally important. Among the further determinants also shaping land users' willingness and commitment to adopt sustainable land management practices are: associated risks, effectiveness, the time and effort it takes to implement sustainable land management measures, labour availability, prestige and social acceptability, availability of investment opportunities, and incentives.

It is commonly assumed that land management practices that simultaneously meet economic, social, and ecological requirements will be assessed most favourably (Stocking and Murnaghan, 2001). Various studies have shown that when it comes to analysing adoption of sustainable land management practices, farmers' attitudes cannot be reduced

to an imaginary homo economics ideal: they do not decide for or against certain land use practices based solely on rational choices oriented towards economic optimisation of their farm. Above all farmers involved in small-scale subsistence farming are often primarily concerned with the daily struggle for survival and securing a livelihood. Thus, they often do not perceive sustainable land management practices – such as soil and water conservation – as a high priority, concluding that they cannot afford to make the initial investment in sustainable land management and wait for conservation measures to pay off (Hurni *et al.*, 1996). As a result, lack of investment in sustainable land management leads to further land degradation and, eventually, to more poverty. The consequences of this downward spiral include low crop yields, lack of food security, and little surplus to sell on the open market, all of which combine to reinforce land users' poverty and decrease their social stability (Stocking and Murnaghan, 2001).

2.5 Land Use Planning as an Instrument for Sustainable Land Management

Sustainable land management (SLM) encompasses the ecological, economic and socio-cultural dimensions of sustainable development as a process, it comprises land use planning, land use design and land development (Metternicht, 2018; Basupi *et al.*, 2019). The challenges in developing rural areas lie in increasing productivity in all sectors. Expanding human population and economic activities are placing ever-increasing pressures on land, creating competition and conflicts to access and to use this finite life-supporting resource. As underlined by Hurni (2007), “sustainable land management must become the basis of agricultural activity on all land. Policies addressing rural–urban linkages, land tenure issues, and the question of demographic transition, as well as issues of education and health, can be particularly supportive in accelerating this change. Based on a long series of trials and errors, it is well recognized that the most serious problems to

achieving the integration of land use planning and land management are not technical, but related to the human factor (Basupi *et al.*, 2019; Christian, 1997). It is also acknowledged that this integration should be developed at the lowest possible level (following the principle of “subsidiarity”), using demand-based approaches and involving all stakeholders in decision making. For example, in rural areas individual farmers, men and women, and herders groups should be the engine of this integration.

To achieve SLM at the local, national and global levels in the broader context of sustainable rural development will require a major effort to truly integrate the physical, social and institutional dimensions of land use planning and land management. Improved information dissemination among all the stakeholders has the potential to contribute significantly to resolve the farmer’s conflicting needs for short-term productivity/income gains and longer-term environmental protection (Christian, 1997).

2.6 The Influence of Institutions on Sustainable Land Management

The institutional factors influencing adoption of the sustainable land management include; contact with extension agents, access to credit and membership in a farmers’ group (Ouma *et al.*, 2002; Basupi *et al.*, 2019). Generally, extension services are a major source of technical information for farmers. For example Enyong (1999) revealed that, contact with extension agents was one of the most important factors that determined adoption of the sustainable land management practices as this allowed them greater access to information on the technology and provided them greater opportunity to participate in demonstration tests. Further to the above, a study by Ouma *et al.* (2002) showed that, farmers who had access to credit had more options to acquire costly new technologies such as improved seeds or fertilized. The lack of cash and access to credit

was important in farmer's decision making to adopt the viable land management practices at household level and central to a farmer's use of a technology. In Africa, rural women had less access to credit than men, which limited their ability to purchase inputs and adopt sustainable land management practices that required hired labour (Mapiye *et al.*, 2006). Furthermore, Tenge *et al.* (2004) notes that membership in farmer's groups was found to be positively influencing the adoption of sustainable land management practices in West Africa. It was noted that sustainable management practices innovation had higher success rates in adoption when soil fertility management projects worked through farmers' groups (Adesina and Chianu, 2002).

2.7 Theories and Models of Sustainable Land Management

Two theoretical models namely; the Environmental Possibilism and the Sustainable Development Model will guide this study.

2.7.1 The environmental possibilism theory

The theory of Environmental Possibilism by Strabo asserts that nature does not determine in whole the activities of human beings, but rather it creates the possibilities from which man can make choices (Singh & Dhillon, 1984; Portugali, 2018). Generally, man is never entirely free from the influence of environment, but there is a room for one to put efforts which enable him or her to influence the physical environment (Fedaku, 2014). The efforts such as the application of technologies, habits and values of human provide the necessary opportunity to overcome the challenges posed by the environment. According to Willam (2016), the Environmental Possibilism Model inspires the attainment of food security. The act of a man over his/her environmental challenges generally helps in creating favourable conditions for enhanced agricultural productivity

through identifying the main drivers for the adoption of sustainable land management practices (Oteng-Ababio *et al.*, 2017; York and Besek, 2019). This theory is relevant to this study as it enhances the applicability of sustainable land practices on the environmental problems such as land degradation.

2.7.2 The sustainable development model

The model was coined and propagated by the World Commission on Environment and Development (WCED) in 1987. The sustainable development, as Harris (2000) notes, refers to the development which meets the needs of the present without compromising the ability of future generations to meet their needs. The sustainable development model addresses three elements of sustainability which are; economic, environmental and social aspects (Obersteiner *et al.*, 2016; William, 2016). According to Belyaeva *et al.* (2016), the economic element implicates the optimum utilization of scanty resources, while social component is focused on preserving social stability and cultural diversity at a global scale. The interrelations between economic and social aspects, as Yurina (2010) notes, results in the problem of equitable distribution of incomings within one generation. This brings in the effects on environment which requires actions to address the problem. The environmental effects require such actions as developing agricultural sector on the basis of progressive and environmentally friendly agrotechnology adapted to local conditions. This should consider the economic capacity of local systems and social considerations (Belyaeva *et al.*, 2016). Thus, the application of sustainable land management practices is tailored towards making land use by local communities environmentally, socially and economically viable for both the present and future generations.

2.8 Summary of Literature Review

Based on the literature review above it can be summarized that, the comprehensive land use plan which incorporates land management policy programme will sustain land management. Viable institutions will minimize land conflicts and sustain land management. Most of the studies (Myenzi 2005; Kushoka 2011; LHRC, 2013; PAICODEO, 2013; SAT, 2019) focused on conflicts implication of large-scale investment, food security as well as social insecurity and the situation of pastoralists and farmers. This calls for a study to evaluate the adopted land use planning practice in terms of extent of stakeholder involvement and integration with land management, and the extent to which social and institutional dimension of land use planning and land management have been addressed in the cause of promoting SLM. Therefore, this study was done with that purpose.

2.9 Conceptual Framework

According to FAO (2010) and UN-HABITAT (2012), land use plans that largely depend on existing land tenure systems indicate clearly the demarcation and utilization of every piece of land. However, demarcation alone without managing a particular piece of land will not be a solution. Studies by HAKI-ARDHI (2009; 2010) indicated the prevalence of various weaknesses such as poor participation of communities in land administration, lack of awareness on legal matters pertaining to land rights and weak institutions to deal with land issues as challenges based on land tenure systems hence influencing land conflicts. Existence of viable institutions on land management, land use planning which incorporates early land management policy framework will minimize land conflicts and sustain land management. Other factors that are likely to influence land management include income and age of the individuals, size of land per person, presence of

educational institutions, average livestock per unit area and number of different plots owned.

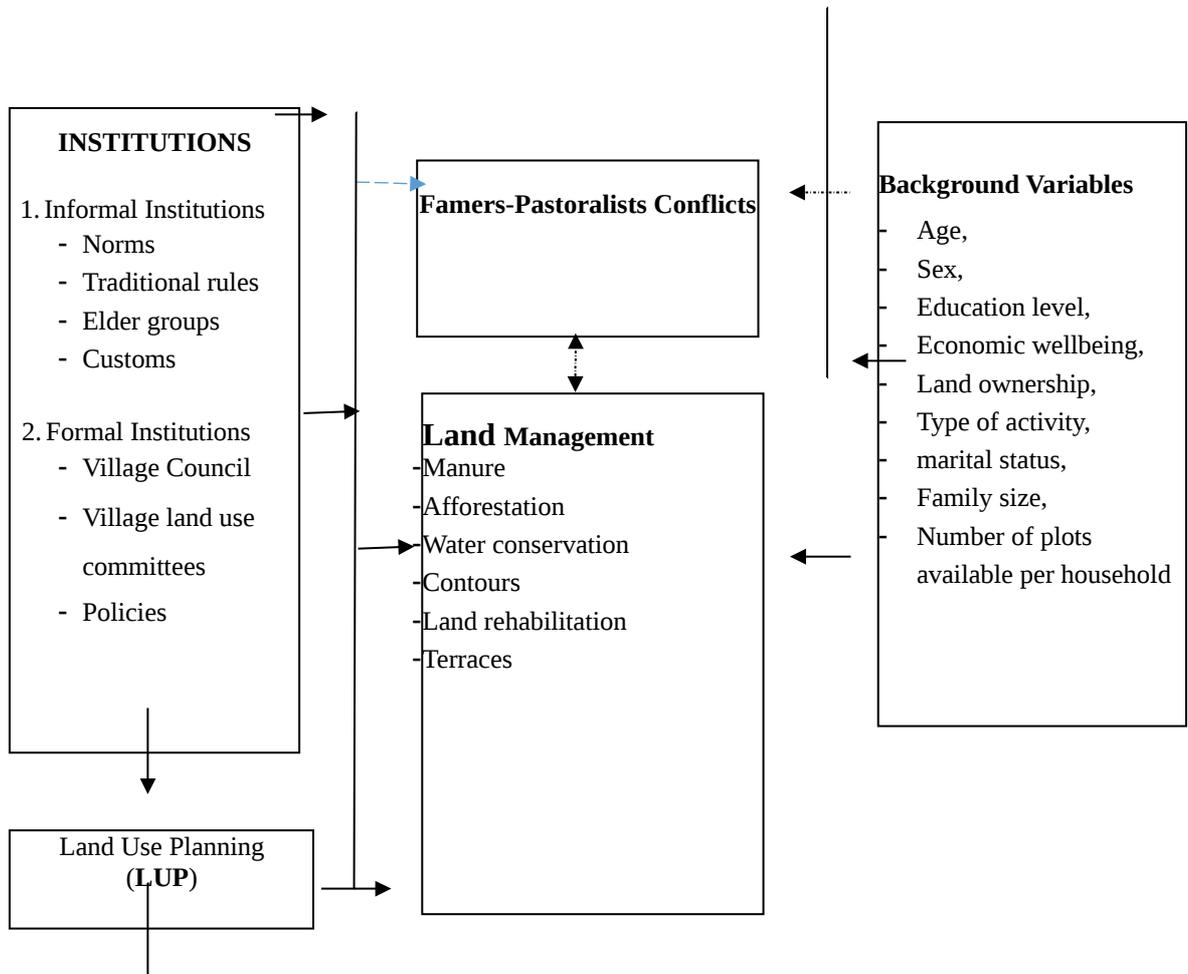


Figure 1: Conceptual framework illustrating relationship between land use planning, institutions and land management

Key
 ▼ = Out of scope of the study

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Description of the Study Area

This study took place in Vianzi Village with the aim to generate lessons that can be up scaled to other areas with farmer and pastoralist communities. Vianzi village is located in Mlali Division, Mvomero District and Morogoro Region. Mvomero District is moderately populated and has a population density of 37.9 people per sq. kilometre. There are 100 villages in the district, each of which has an average population of 2805 (NBS, 2013). Vianzi village, which is located in Lubungo ward, was selected due to a number of factors including having a land use plan and having a mixture of farmers and pastoralists.

3.2 Research Design

The study employed a descriptive survey design and both quantitative and qualitative approaches. The rationale behind the adoption of this approach is because it best explores the variables involved in the study. Mugenda and Mugenda (1999), support descriptive survey design by pointing out that, description depicts the present position of a given situation and that it goes beyond mere collection and tabulation of data. It involves elements of comparison and of relationship of one kind or another. Mugenda and Mugenda (1999), further, states that description is ideal as it involves a certain amount of interpretation of the meaning or significance of what is being described. The combination of both qualitative and quantitative approaches allows for flexibility while examining multiple factors in attempting obtaining pertinent information (Kent, 1999).

3.3 Study Population and Sample Size

3.3.1 Study population

The study's population included all villagers who are involved in crop production and livestock keeping or both in Vianzi village.

3.3.2 The sample size

A sample is defined as part of the study population, which is drawn to represent the whole population (Kombo and Orotho, 2013). The information obtained from the sample is used to characterize the population. Thus, the sample is supposed to be a representative of the entire population. According to Best and Kahn (1998), there is no the sample size which is the best over the others. Any sample can be acceptable depending on the intention of the study. The sample size depends on such factors as the purpose of the study, research design, data collection methods and the nature of the study population available for the particular research problem (Leady, 1980). Sampling is important as it helps to reduce costs of the study, time management as well as simplifying research process logistical issues. This study used a sample size of 126 which included 1 Vianzi Village chairperson, 1 SAT officer, one Land Use Committee chairperson and 123 crop farmers and pastoralists.

3.4 Sampling Procedures

The study used purposive and systematic random sampling techniques. Purposive sampling entails the method in which a respondent is selected deliberately basing on specific qualities one holds. As revealed by Kothari (2009), systematic random sampling involves selecting the i^{th} item from the given list. This method provides the chance for

evenly distribution of elements/respondents to be included in a sample from the given population. In this study, systematic random sampling was used to select crop farmers and pastoralists.

The researcher obtained a list of 520 who either owned a plot of farm, involve in livestock keeping or both in Vianzi Village. Every 4th name was selected to be included in a sample. This helped to obtain 130 respondents who were subjected to research process. At the end of the data collection, it was found that only 123 (94.6%) respondents fulfilled their responsibilities in filling questionnaires well. The purposive sampling was used to sample the village chairperson, SAT officer and the Land Use Committee Chairperson.

The selection of these was based on their role as leaders in Vianzi village, and was considered to have more detailed information on land use planning, institutions and land management in Vianzi village.

3.5 Data Collection Techniques

The study employed a combination of techniques, which include: questionnaire, interview, observation, focussed group discussion and documentary review techniques.

3.5.1 Primary data

The collection of primary data involved the following tools:

Questionnaire

This is the quantitative data collection method which was used to collect primary data from farmers and pastoralists in Vianzi village. According to White (1999), questionnaire is most suitable as it can be used to collect huge information in a reasonable time. The instrument, which contained both closed and open-ended questions, removes ambiguities

and exerts less pressure on the respondents such that one does not become tired or bored easily. Questionnaire responses are easy to analyze.

Interview

The qualitative data collection method used to collect primary data from the Village chairperson, SAT officer and the Land Use Committee chairperson; and was done via face-to-face modes in a structured manner. The major advantages of interview method is that the interviewer can clarify questions which seem to be unclear as well as asking respondents to give more details on answers to the questions that are particularly important (Frankel and Wallen, 1993). However, interviews have a disadvantage of being researcher biased and time consuming. In addition, the method may produce different responses that may be difficult to make comparisons between responses and may be difficult to interpret the data collected especially if the interview is unstructured.

Observation

This method was used to collect qualitative primary data that were later used to verify information that could be biased from other instruments. For example, the nature of the farm land, the sustainable land management practices applied by farmers and the effects thereof. According to Kothari (2004), observation method uses researcher's own direct investigation without asking the respondents. The researcher visited several farms in Vianzi village to ascertain on the types and nature of the soils and the land management practices employed. The advantage of this method is that, it eliminates unnecessary subjective biases when done accurately. However, the method has some limitations such

as to be costly, limited information may be obtained and that, sometimes-unforeseen factors may interfere with the observational tasks.

Focused Group Discussion

A Focus Group Discussion (FGD) is defined by Nyumba *et al.* (2018) as a qualitative research method and data collection technique in which a selected group of people discusses a given topic or issue in-depth, facilitated by a professional, external moderator. FGD is frequently used as a qualitative approach to gain an in-depth understanding of social issues. It serves as a means of observing participants' attitudes and perceptions, knowledge and experiences, and practices, shared in the course of interaction with different people. In FGD, as Miles and Huberman (1994) reveals, researchers adopt the role of a facilitator or a moderator. The researcher facilitates or moderates a group discussion between participants and not between the researcher and the participants. The research method is based upon the assumption that the group processes activated during an FGD help to identify and clarify shared knowledge among groups and communities, which would otherwise be difficult to obtain with a series of individual interviews (Morgan, 1988).

3.5.2 Secondary data

The secondary data were obtained through documentary analysis. It involves the perusal of the important documents to collect data (Best and Kahn, 1998). The study reviewed documents such as village registers and files, journals, SAT groups records and other relevant documents and literatures. The data obtained from this method were used to supplement the information obtained from other instruments.

3.6 Data Analysis

The data collected by the instruments were both qualitative and quantitative in nature. The quantitative data were categorized, coded and analyzed according to the research specific objectives and research questions so that the frequencies and percentages of respondents could be calculated using the SPSS software and tabulated for easy interpretation. Chi-square test was used to test opinions of farmers and pastoralists on the influence of land use plan and institutions on land management. The qualitative data were analyzed using content analysis based on research objectives.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Respondents Demographic Characteristics

The study involved 123 questionnaire respondents among them, 54 (44.3%) were female respondents and 68 (55.7%) were male respondents. The study used respondents' of differing ages. In case of villagers, 39 (31.7%) had age ranging from 21 – 30, 27 (22.0%) respondents had age range between 31 and 40 inclusive whereas 29 (23.6%) of them had age range 41-50 and 28 (22.8%) were of age ranging from 51 years and above (Table 1). The data shows that most of villagers who engaged in agriculture and other economic activities were youths.

In case of education level, the study findings show that the majority of respondents had either basic primary education or none. Whereby 123 villagers respondents 65 (53.3%) had primary level of education, 46 (37.7%) had never attended any formal education, while 10(8.2%) of them had secondary level of education and only 01 (0.8%) of the respondents had university level of education. According to Kirui (2017), education level

influences the adoption of hand management practices. In addition, an increase of one year of formal learning increases the probability of the adoption of land management practices other things remaining constant (ibid). This indicates that there are difficulties in deciding to adopt land management practices in Vianzi Village, as the majority of them had either no formal education or just primary level of education.

Accordingly, of all the respondents, 101 (82.8%) were married, 5 (4.1%) were single and the same number were widowed, while 11 (9.0%) were divorced. The study by Kassie *et al.* (2013) shows that, the existing cultural and social set ups dictate access and control over farm resources and other external inputs. This implies that, the adoption of the sustainable land management practices depends much on family set ups that are based on cultural beliefs. The decision either to apply or not to apply the land management practices and the types thereof depends on the nature of the family.

In case of respondents' families, the number of household members differs from one to the other. The research findings show that for 86 (70.5%) of the respondents families, the number of households members ranged from 1 to 5 members, whereas 28 (23.0%) had family members between 6 to 10 members and 8 (06.6%) of respondents' families had members above 10. According to Kirui (2017), the increase in family size by 1 adult increases the probability of adoption of sustainable land management practices. The lager household members' size implies that the family has higher labour endowment and is more likely to adopt sustainable land management practices.

It was further, revealed that the occupants of Vianzi Village were mainly crop farmers followed by the pastoralists. The research findings show that a primary occupation of the total respondents, 80 (65.6%) claimed to be crop farmers whereas 39 (32.0%) stated that they were pastoralists and 3 (2.5%) indicated that they were dealing with business.

Moreover, it was noted that some of villagers who were crop farmers were engaged to some extent with livestock keeping as well as pastoralists were involved in crop cultivation. Few of them were purely engaged in either crop cultivation or livestock keeping. In either cases, each of the villager is obliged to be involved in one way or the other in land management to enhance sustainable livelihoods.

The farmers and livestock keepers in Vianzi Village were mainly immigrants from various areas of the country. This was revealed when they were responding to the question that wanted to know whether they were immigrating or not. The data show that 104 (85.2%) of respondent were immigrant whereas only 18 (14.8%) claimed of not being immigrants. This shows that most people in this Village come in for the purpose of farming or livestock keeping or both, as the two are the main economic activities done in the village.

The villagers who dwell in Vianzi Village occupy plots of different sizes. The study findings show that only 4 (3.3%) of the total respondents had no any plot of land 96 (78%) had 1 plot whereas 19 (15.4%) of them had 2 plots and only 3 (2.4%) had 3 plots of varying sizes (Table 1). Although the number of plots may mean costs are to be incurred in applying land management practices, the nature of the plot level may have impact on the decision to adapt the land management practices. Here it means that, the slope of the plot and soil type dictates the applicability of the land management practices.

Table 1: Respondents demographic characteristics (n=123)

Demographic	Categories	Frequency	% of Total
Respondent's sex	Male	68	55.7
	Female	54	44.3
Respondent's age	21-30	39	31.7
	31-40	27	22.0
	41-50	29	23.6
	51 and above	28	22.8
Respondent's education level	None	46	37.7
	Primary	65	53.3
	Secondary	10	8.2

Respondent's marital status	University	1	0.8
	Single	5	4.1
	Married	101	82.8
	Widow/Widower	5	4.1
	Divorced	11	9.0
Number of household members	1 – 5	86	70.5
	6 – 10	28	23.0
	Above 10	8	6.6
Respondent's occupation	Farmer	80	65.6
	Pastoralists	39	32.0
	Business	3	2.5
Respondent's migration status	Migrated	104	85.2
	Not Migrated	18	14.8
Respondent's number of plots occupied	0.00	4	3.3
	1.00	96	78.7
	2.00	19	15.6
	3.00	3	2.5

4.2 Adoption Status of Land Use Planning in Vianzi Village

The first specific objective was to evaluate land use planning in Vianzi Village. Findings from the study show that, Vianzi Village had a village land use plan (VLUP) since 2010. The plan has helped people to formalize land rights through attaining the Customary Certificate of Right of Occupancy (CCRO), which was the primary motivation of MKURABITA. Thus, the study found that 17.9% of the respondents possessed CCROs. The percent of households that possessed CCROs was small because of the factors which hindered acquisition of CCROs including monetary costs and low understanding of the importance of obtaining CCROs.

Table 2: The responses on possession of CCROs

	Frequency	Percent
Yes	22	17.9
No	101	82.1
Total	123	100.0

According to the Vianzi Village chairperson and the Land Use Planning Committee chairperson, the land use plan in the Village (Figure 2) indicated the areas for farming,

grazing and forest for conservation as well as for public amenities such as schools, churches, mosques and hospitals. As commented by Village Chairperson:

“...The land use plan for Vianzi Village was established in 2010. This helped to raise the value of the land in the Village. During the process, crop farmers and pastoralists struggled to make sure each obtains the right of occupancy of his/her plot. This was done by both crop farmers and pastoralists” (Vianzi, 7.2.2019).

Like many other Villages that have developed a land use plan, Vianzi’s land use plan aims primarily at addressing conflicts that may arise in the village, particularly between crop farmers and pastoralists. According to Hart *et al.* (2014), apart from the primary motivation for MKURABITA that was to formalize land rights and local businesses through granting the Customary Certificates of Right of Occupancy (CCRO) the land use planning was used as a means to address the land conflicts among different land users. However, according to Mwinuka (2018), Village land use plan alone cannot solve land conflict without integrating other land management practices.

Furthermore, observations from the focus group discussions (FGD) that took place in Vianzi Village show that Mvomero District Council initiated the process. The FGD participants pointed out that the proposal from Mvomero District Council was a reaction to clashes between crop farmers and livestock keepers, who were carrying out their activities without borders. The process entailed discussion of the proposal at the Village Assembly to seek consent from the community. On this, one FGD participant said:

“...The Village Assembly had to pass through the district’s proposal so as to agree in terms of the advantages of the land use planning and how the planning process would be undertaken”. (FGD participant, Vianzi, 8.2.2019).

The activity explained by the FGD above was meant to fulfil one of the obligations of the village as a responsible organ to initiate plans as the supreme authority on all matters of general policy and other functions conferred upon it by the 1982 Local Government Act No. 7, Section 141 (Mwinuka, 2018).

The FGD revealed further that, although there were some few people who had doubted on the proposed plan, the Village Assembly accepted it followed by formation of the Village Land Use Committee that comprised of eight members, including crop farmers and pastoralists. The committee members were trained to undertake the process of land use planning. At the end of the training period, two of the committee members were found incompetent for the exercise, and therefore were dropped.

Formation of the committee was followed by actual allocation of the village land to various uses, from 2 May 2010. The process considered the following:

- Plots borders and village borders which were about six meters between plots
- Water resources conservation, and
- Environmental conservation through planting trees in their plots

Explaining their observations regarding the land use planning process, the FGD participants indicated that some Vianzi Villagers failed to formalize their land initially due to costs associated with the CCRO acquisition process. However, the exercise was continuous and therefore, once a person had settled the required payments, he/she was served accordingly. The costs (in Tshs¹) included registration and tax (35 000/=), cost of

¹ 1 Tsh = 2 240 USD by the time of data collection for this study

planning per acre (10 000/=), village registration fee (5000/=) and bus fare to and from Mvomero District Council offices (60 Km away from the village) to make follow up of the certificates (20 000/=). From this, it can be seen that, for a person to acquire a CCRO he/she must have at least Tshs. 70 000/=. According to one FGD participant, the above-mentioned amount was a hindrance to some villagers as regards acquisition of CCRO as shown in the quote bellow:

“...some of us could not afford to formalize our lands initially because we had no money to pay for the service. Others were too old to overcome the travel and follow up challenges to and from the district’s office as the certificate took long time to be ready. The good thing was that, the process was continuous and people went on planning their plots, when they are done paying the required fees each person who applied and paid for the planning process obtained his/her CCRO” (FGD participant, Vianzi, 8.2.2019)

Findings from direct observation indicate that there are no sign boards that indicate various land uses in the area. The only demarcation used was the borders between different plots owned by different land users. However, the land users honoured the borders despite absence of sign boards. Elaborating the land use planning process, the Land Officer in Mvomero District, who by the time of land use planning exercise in Vianzi Village was yet to be in the office, stated that, the standards of the exercise depends on the need to be addressed. On this, he said:

“...what was done in Vianzi Village was to address a special issue diagnosed by the District Authority, that is, the anticipated conflicts between crop farmers and livestock keepers. Already people were living in the area, their Village is registered except that its land was not planned. The village authority was, at the

very beginning, involved in the discussion, then the entire community was involved through the Village Council and Village Assembly. Villagers were actually the planners of different uses of their land. The six metres boarder from one plot to the other is more than enough for a person to note. The public lands were set aside by the villagers themselves, and in principle, any person in need of land in Vianzi Village needs to go to Village office first. This implies that no public land will be acquired in a dubious way”(Land officer, Mvomero, 14.2.2019).

Based on the study findings, the land use planning implemented in Vianzi Village has been useful in a number of ways. According to Kauzen *et al.* (1993), the land use planning has four main goals. These are:

- i. To set up village boundary
- ii. To allocate pieces of village land to various uses such as agriculture, grazing, residential purposes and forests.
- iii. To give land titles to villages, households and individuals
- iv. To increase agricultural production

Accordingly, the study findings, though some shortfalls were observed in relation to Vianzi Village’s land use planning, the Village has attained the first three goals mentioned above. The fourth objective, to increase agricultural production, has not been attained. This is because recommended land management practices, which involve application of viable farming and livestock keeping practices, were not considered in the first place. It was left to individual farmers and pastoralists. On this, the VLUP Committee Chairperson said:

“...our land use plan aimed at making sure each land user in Vianzi Village has legal right over the land he/she owns, thus marking the boundaries from one plot to the other was emphasized. The plan, therefore, focused on indicating different plots of lands and their uses, and did not deal with how each land user should use his/her land”(VLUP committee chairperson, Vianzi, 7.2.2019).

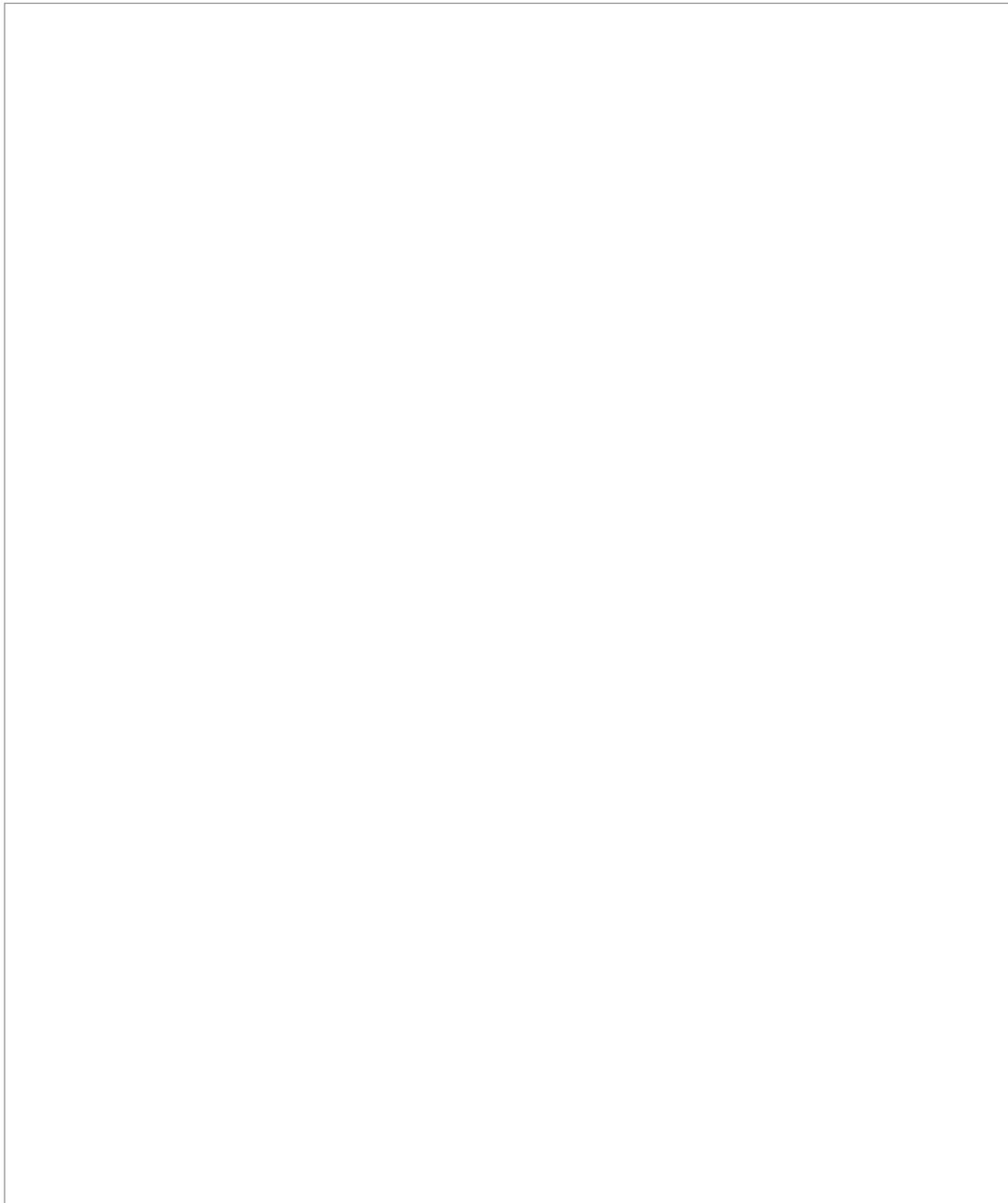


Figure 2: The land use plan of Vianzi (Kimambila) Village

Source: Field data (2019)

4.3 Land Management Practices in Vianzi Village

The second objective was to identify land management practices existing in Vianzi Village. Study findings show that a few (23.7%) of the villagers were applying the land management practices whereas 75.4% of the respondents were not applying any of the land management practices (Table 2). The practices include; use of farmyard manure, mixed cropping, crop rotation and mulching. Moreover, the study revealed that the land management practices were being applied in uncoordinated manner and depended on an individual and/or family's decisions rather than Village decision.

The results concur with the findings by Temu and Hella (2018) that the majority of farmers do not use any of the sustainable land management practices, whereas others use diversified cropping systems and a few use soil erosion control structures in mountainous or sloppy lands. The fact that Temu and Hella observed the same cannot be the reason for the majority of Vianzi people not adapting such measures.

Table 3: Land management practices applied in Vianzi Village (n=123)

Land management practices	Frequency	Percent
None	89	75.4
Bench terrace	1	0.8
Farmyard manure, Mulching, mixed cropping, crop rotation	28	23.7

However, literature indicates that the applicability of land management practices is influenced by the nature of the slope of the land and soil type. Sloppy land increases the likelihood of the applicability of land management practices (Saguye, 2017). According to Gebreselassie *et al.* (2013) and Kirui (2017), as the slope of the land increases, the possibility of applicability of land management practices increases. As Silas (2013) asserts, when a farmer notes the negative effect of soil erosion and perceives it as a

problem, they become willing to participate in conservation strategies. Study findings show that Vianzi village land is largely a gentle slope. On this, 97 respondents (82.2%) stated that their plots have gentle slope, 16.9% have moderate slopes while only 0.8% was flat lands (Table 3). Direct observations validated the findings. Therefore, the use of land management practices like terraces may not be desirable in the area. The nature of the slope of the land determines the severity of land degradation hence, type and the extent to which the land management practice may be used. According to Malisa (2010), bench terraces are most relevant for steep slope, with slope ranging from 35% to 55%.

Table 4: The nature of the slope of the land in Vianzi Village (n=123)

Slope	Frequency	Percent
Flat	1	0.8
Gentle	97	82.2
Moderate	20	16.9

Accordingly, the types of the soil influence the adoption of land management practices. Teklewold *et al.* (2013) argued that the type of the soil dictates the decision to apply a particular land management practice. It is more likely to adopt land management practices in loam soils compared to clay, for example. Based on this logic, the researcher decided to take four samples of soils from different farm plots in different parts of Vianzi Village so as to determine the existing soil types in the village. The Sokoine University of Agriculture soil laboratory findings are such that, the soil in Vianzi Village was sandy clay loam and sandy clay (Table 4). The two types do not trigger applicability of land management practices like farmyard manure. However, in an interview with farmers, they claimed that their land is still productive even when no any form of land management practices is applied.

Table 5: Soil analysis findings

Field Reference	S. Lab. No.	P.S.D % Clay	Texture % Silt	% Sand	Class
Vianzi	2624	21.4	1.64	76.96	Sandy clay loam
Mabona Menge	2625	43.4	1.64	54.96	Sandy clay
Menge	2626	47.4	5.64	46.96	Sandy Clay
Kichangani	2627	25.4	5.64	68.96	Sandy clay Loam

Source: SUA Soil Laboratory

According to Kirui (2017), the nature of the land ownership influences the adoption of land management practices. The research findings show that for about 40% of the plots, farmers who were operating them did not own them. The plots were owned by just clearing the forests, thus, no formal ownership (4.2%), under clan (0.8%) or family ownership (7.6%) and some were acquired through renting arrangement (28.0%) (Table 5). Generally, it is less likely for a farmer who does not have formal ownership to the plot he/she operates to apply land management practices (Malisa *et al.*, 2016). Thus, farmer's feelings about land ownership influence their decision to adopt land management practices. Silas (2013) asserts that the lack of title to land is one important factor affecting the adoption of land conservation practices, as lack of tenure security means that people became reluctant to invest in new land management practices on the land that they do not own formally. Thus, the sense of ownerships of the farm is important for the individual farmer to decide to apply the land management practices.

Table 6: Land ownership status in Vianzi Village (n=123)

	Frequency	Percent
Private(bought)	36	30.5
Private(Inherited from parent)	8	6.8
Private(cleared the forest)	5	4.2
Private(allocated by the Govt)	25	21.2
Clan	1	0.8
Family	9	7.6
Short rent	33	28.0

Gift	1	0.8
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The farmers were of the opinion that lack of money is one of the reason for most of them not to adopt land management practices. This was revealed when responding to the question on reasons for not adopting a land use management practices. Just above a half (50.4%) of respondents stated they lack money, whereas, a few (4.9%) stated the lack of benefits from the practices and limited land was the reason as shown in Table 6.

Table 7: Reasons for not adopting land management practices (n=123)

	Frequency	Percent
Lack of money	62	50.4
Lack of benefits from the practice	6	4.9
Limited land	6	4.9
Undecided	49	39.8

4.4 The Influence of Land Use Planning and Institutions on Improved Land Management in Vianzi Village

The third objective of the study was to determine the influence of land use planning and institutions on the adoption of land management practices. The study found that, although it was expected that the Village Land Use Plan that ensures land tenure security would be crucial for encouraging farmers to adopt sustainable crop and livestock production practices, most of respondents were not aware and remained undecided on the role of land tenure security. This was revealed when the respondents responded to the question on whether the prevailing land tenure system in Vianzi Village enhances the adoption of land management practice in which the majority of respondents (63.9%) were remained undecided, a few (9.0%) strongly disagreed and 11.5%disagreed as shown in Table 7. The study concur with the study done by Hart *et al.* (2014) in Mbarali District which found that there was lack of coherence between Village Land Use Plan and individual farmer's adoption of sustainable land management practices. This might be due to lack of

clear relevance of land security to farmers on crop and livestock arrangements at present to enhance farming practice. On contrary, the study also disapproves the results of the study made by Kirui (2017) that show that land tenure security positively influenced the number of land management practices adopted by farmers.

Table 8: Land tenure system and adoption of land management practices in Vianzi Village (n=123)

	Frequency	Percent
Strongly Disagree	11	9.0
Disagree	14	11.5
Undecided	78	63.9
Agree	17	13.9
Strongly Agree	2	1.6

It was further, revealed that the Village Land Use Management Committee has done little in enhancing the adoption of land management practices. This was revealed when answering the question that required to knowing whether the Village Land Use Management Committee enhances land management practices or not. The findings show that a reasonable number of people negatively responded to the question in which 30(24.6%) of respondents strongly disagreed, 27(22.1%) disagreed, 61(50%) remained undecided and only 04 (03.3%) agreed. However, studies by HAKI-ARDHI (2009; 2010) indicated that existence of viable institutions will sustain land management.

Table 9: Village land use management committee and adoption of land management practices in Vianzi Village (n=123)

	Frequency	Percent
Strongly Disagree	30	24.6
Disagree	27	22.1
Undecided	61	50.0
Agree	4	3.3

Consequently, the study found that a reasonable number of people in Vianzi Village had little knowledge on the role of Land Use Planning in enhancing land management practices. When responding to the question which required to knowing whether the land use planning had motivated land management or not, 24 (19.7%) of respondent strongly disagreed, 17(13.9%) disagreed, 68 (55.7%) were undecided whereas 11 (9.0%) agreed and only 1(0.8%) strongly agreed. This may be due to top down approach used in introducing issues of the like which people find themselves in the midst of being compelled to the action without proper knowledge of the advantages and disadvantages of the plan.

Table 10: The influence of land use planning and land management in Vianzi Village (n=123)

	Frequency	Percent
Strongly Disagree	24	19.7
Disagree	17	13.9
Undecided	68	55.7
Agree	11	9.0
Strongly Agree	1	0.8

Although most of the respondents do not see the importance of the land use planning on land management practices. The Village chairperson and the chairperson of the Land Use Management Committee had different views. They argued that the land use plan have helped people to attain their title deeds that could help them to secure loans. These loans can be used to buy fertilizers and other farming inputs. The views difference between villagers and their leaders are based on the lack of consensus between them as a community in general on why should there be Land Use Plan. This was supposed to be done first before the planning stage. On the contrary, if the question was to put on demarcations in plots owned by different people in the village, then it is not surprising

that people may lack knowledge on land management practices because of land use planning. Thus, it can be seen that people need to be educated on the matter if there is a need to achieve the best of land use plan.

According to Kauzen *et al.* (1993) the Village Land Act no 7 of 1982 section 147(iii) c as supported by the Village Land Act No. 5 of 1999, Cap. 114, vested the Village Council all executive powers in respect of all the affairs and business of a Village as shown in the quote bellow:

“...In addition to any function conferred upon it by /under this act or any other written law, a Village Council amongst others, shall plan and coordinate the activities of and render assistance and advice to the residence of the Village engaged in agricultural, horticultural and forestry activities” (Village Land Act No. 7 of 1982, section 147(iii) c; Village Land Act No. 5 of 1999, Cap. 114).

Despite the role of village council above, the people in Vianzi Village do not see that contribution of the village council in land management. This was revealed when the respondents answered the question that required to know whether the Village council enhances the adoption of land management practices or not. The study findings show that 30(24.4%) strongly disagreed, 34 (27.6%) disagreed, 54(43.9%) remained undecided and 4 (3.3%) agreed. Studies by HAKI-ARDHI (2009; 2010) indicated that existence of viable institutions on land management, land use planning which incorporates early land management policy framework will minimize land conflicts and sustain land management.

Table 11: Village council and land management practices in Vianzi Village (n=123)

	Frequency	Percent
Strongly Disagree	27	22.1
Disagree	40	32.8
Undecided	51	41.8
Agree	4	3.3

The study, further, noted that there is misuse of land as per plan. This was observed when the researcher visited the area and found that grazing land was also used for crop cultivation. The researcher wanted to know what made such practices to occur in such manner. The Chairperson of the Village like other livestock keepers were of the views that it came out of awareness of pastoralists attained from SAT specialists who trained them to diversify their livelihoods. Through this, pastoralists have currently started engaging in crop cultivation in their plots of lands. This has reduced the size of their grazing lands that may end up seeking other areas to satisfy their livestock needs.

“...Pastoralists are currently engaging in cop cultivation in order to feed their families in their plots. This was accelerated by the training obtained from SAT that made them to change their previous culture of dealing with livestock keeping only. It is unfortunate that this was not included in the land use plan chance provides the land adequacy challenges” he said (Vianzi, 7.2.2019).

The study findings above concur with the findings of the study made by Mwinuka (2018) who observed that pastoralists cultural change of being involved in crop cultivation in their grazing lands has made them meet land shortage challenges. This may force them to shift to other areas in search for grazing area that will satisfy their needs.

Furthermore, the research findings show that there is almost one organization, namely SAT, that is involved in helping people in Vianzi Village in various issues concerning land

management and agriculture in general. SAT is a non-profit private organization established in 2009 and registered in 2011 to operate in Tanzania. According to Mwinuka (2018), SAT operates and has branches in different regions in the country including Morogoro, Mbeya, Mtwara and Arusha. The organization trains farmers on applicability of the agro-ecological methods in their farming practices to enhance their livelihoods, conserve environment and reduce pressure on natural resources. In an interview with SAT official, it was revealed that the organization is working with groups of farmers and pastoralists in Mvomero District's villages, including Vianzi Village.

"... in Mvomero District, SAT works with 15 groups of both crop cultivators and livestock keepings in various Villages, including Vianzi Village. In this Village, in particular, we have managed to form different groups namely; mkombozi, hapa kazi tu, nanyamal, tushikamane, tumaini etc." she said (Morogoro, 11.2.2019).

According to Mwinuka (2018), SAT conducts research on sustainable agricultural technologies and market opportunities in collaboration with researchers from Sokoine University of Agriculture and farmers' groups. It organizes workshops in which the views of farmers and pastoralists as well as the challenges are heard after which the solutions are sought. Within the groups, there is a revolving fund that is used to give loans to members so that they may use the fund to finance their economic activities. Although SAT has tried to form groups, the research findings show that some of the people in the village do not engage in any of the formed groups. The research findings show that 75(61%) belong to the groups whereas 48(39%) do not belong to any group.

Table 12: Responses on whether they belong to any group (n=123)

	Frequency	Percent
Yes	75	61.0
No	48	39.0

The researcher went on trying to find out the reason behind why people do not engage in groups. When responding to the question which required to knowing why people do not belong to any group, 18 respondents (14.6%) stated lack of interest as a reason, 6(4.9%) mentioned lack of time, whereas 31(25.2%) indicated lack of proper information about the groups (Table 12). In addition, 6 respondents (4.9%) mentioned problems arising in groups causes people to be reluctant to join them. However, in the same requisition 62 respondents (50.4%) did not respond to the question. These may be those who have already joined the group and did not see any reason to respond to the question. Other studies found the same reasons as to why people do not engage in groups as found out by this study (Jeng *et al.*, 2015; Arasio *et al.*, 2018).

Table 2: Reasons for respondents not belonging to any group (n=123)

	Frequency	Percent
Lack of interest	18	14.6
Lack of time	6	4.9
Lack of information	31	25.2
Group problem	6	4.9

Despite some of Vianzi Village dwellers not engaging in any group, the SAT approach was maintained that it enhances the adoption of land management practices. The research findings show that 21 respondents (17.2%) strongly agreed that SAT approach enhances land management practices, while 39(32%) agreed on the approach and 51(41.8%) remained neutral but few of the respondents negatively responded to the question where 4(3.3%) of respondents strongly disagreed and 7(5.7%) disagreed (Table 13). According

to the study by William (2016) membership to farmers' group, provide a forum through which they learn from one another good farming practices.

Table 3: The SAT Group formation approach and land management in Vianzi Village (n=123)

	Frequency	Percent
Strongly Disagree	4	3.3
Disagree	7	5.7
Undecided	51	41.8
Agree	39	32.0
Strongly Agree	21	17.2

It was, also, found that extension services are obtained for those who engage in groups activities from SAT experts. The research findings show that 62(50.4%) stated that they receive extension services whereas 61(49.6%) showed that they do not receive extension services. According to Temu and Hella (2013), people can easily get assistance from extension officers when they are in groups or associations. The groups provide them with vital power to address their concerns than on an individual basis. Further to the above study, Silas (2014) argues that extension services have a significant positive effect on the adoption of land management practices. The extension services through agricultural officers enhance the adoption of land management practices by giving farmers knowledge that helps them to use newly introduced technologies in the land management practices. Generally, the knowledge empowers them to protect their land from soil erosion and improve soil fertility. Tesfaye (2006) adds that farmers contact with development agents such as SAT and the information obtained increases the attitude of farmers to invest in land management practices.

Table 4: Access to extension services (n=123)

	Frequency	Percent
Yes	62	50.4
No	61	49.6
Total	123	100.0

Study findings also show that, extension services put more emphasis on soil fertility, crop varieties, pest control and disease control. When responding to the question which required to know which areas of emphasize is stressed by the extension officers, 43 respondents (35%) mentioned soil fertility, 7(5.7%) mentioned crop varieties whereas 12(9.8%) stated that disease control is emphasized and 6(4.9%) mentioned pest control. In responding, 55(44.7%) respondents did not respond to the question. These may be those who stated earlier to not receive any extension service.

Table 16: Areas of emphasis by extension officers (n=123)

	Frequency	Percent
Pest control	6	4.9
Disease management	12	9.8
Crop varieties	7	5.7
Soil fertility management	43	35.0

4.4.1 Farmers' perception on the influence of land use plan and institutional factors on land management

Land management was measured by checking on whether farmers were practicing land management practices. Those who practice one or more of the management practices were grouped into one category and those not in another. Land use planning and institutions were captured using the statements on a Likert scale. Each question had five categories ranging from strongly agree to strongly disagree. Different weights were given to this categories with strongly agree taking bigger weight all the way down to strongly disagree. To obtain general perception of farmers on land use planning, total weight for

each farmer was obtained. These total weights were used to obtain the average weight and those scoring above and including the average were regarded as having favourable perception towards land use planning whereas those below the average were regarded as having unfavourable perception.

Table 5: Farmers perception on the influence of land use plan and institutional factors on land management (n=123)

Independent Variables	Land Management		Chi-square (p Value)	
	Not Practicing	Practicing		
Land Use Perception	Unfavourable Perception (%) Total (%)	41(46.1)	11(37.9)	0.587(0.443)
	Favourable Perception (%) Total (%)	48(53.9)	18(62.1)	
Institutions	Unfavourable Perception (%) Total (%)	89(100)	29(100)	0.000(0.991)
	Favourable Perception (%) Total (%)	40(44.9) 49(55.1)	13(44.8) 16(55.2)	

The findings, as shown in Table 16, show that out of the 89 respondents were not practicing land management 41(46.1%) had unfavourable perception on the influence of land use planning, whereas 48(53.9%) of them had favourable perception on land use planning. This shows that lack of knowledge on how land use planning can help the adoption of land management practices. Some of reasons of not applying land management were mentioned to include lack of money, limited land (refer to Table 6). From the table the critical factor for non-adoption was mentioned to be lack of money. It was also noted that out of 29 respondents who were applying land management practices 11(37.9%) had unfavourable perception while 18(62.1%) had favourable perception. The findings above were verified by Chi-square results at 5% critical value ($p < 0.05$) and

results show $p > 0.05$, which implying no association between the land use planning and land management.

Additionally, out of 118 respondents involved in the study, 89 (75.4%) out of these were found not practicing land management. These were engaged in farmers' groups but out of these, 40(44.9%) had unfavourable perception about the influence of institutions on land management while 49(55.1%) had favourable perception on the influence of institutions on land management. In addition, it was found that 29(24.6%) of the total respondents practised land management out of which 13(44.8%) of them had unfavourable perception whereas 16(55.2%) of them had favourable perception on the influence of institutions on land management. To be sure of compliance or non-compliance of the institutions on land management, the Chi- Square test was done at 5%($P < 0.05$) confidence interval and the results showed that the presence of institutions in Vianzi has no direct effect on land management practices adoption ($p > 0.05$). However, other studies show that presence of institutions has a direct effect on adoption of social economic activities including land management practices (Arasio *et al.*, 2018; Jeng *et al.*, 2015). The reasons why people do apply or do not apply land management remains the same as above (refer to Table 16).

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The first specific objective was to evaluate the land use planning adopted in Vianzi Village. The study concludes that although the land use planning process in Vianzi had some shortfalls, it attained the basic goals intended. Vianzi Village had village land use plan (VLUP) since 2010. The plan has helped people to formalize land rights through attaining the Customary Certificate of Right of Occupancy (CCRO), which was the primary motivation of MKURABITA. Originally, Mvomero District Council initiated the process as a reaction to clashes between crop farmers and livestock keepers, who were carrying out their activities without borders. After the Village Assembly had passed the proposal, the planning process began successfully. However, the planning process has had some limitations, as some of Vianzi Village members failed to formalize their lands on time due to costs associated with the process. The costs included: registration and tax, costs of planning per acre, village registration fee and follow up costs. Additionally, an average time from the planning to the time of obtaining the certificate was too long about six months.

It is therefore concluded further that cost implication of CCROs acquisition process is an important factor to consider if we are to ensure successful execution of VLUP.

The second objective was to describe land management practices existing in Vianzi Village. The study found that, although Vianzi Village has had land use plan, there is insignificant contribution of the plan to the adoption of land management practices. The adoption of land management practices was based on individual and/or family decision rather than village plans and were limited to farmyard manure application, mixed

cropping, crop rotation and mulching. Lack of enough money to invest in land management and lack of direct benefits from the recommended land management practices are contributing factors to the low adoption of recommended land management practices. It is therefore concluded that adoption of land management practices is largely influenced by farmers' perception regarding soil erosion as a problem which requires remedy and benefits that are likely to be gained if erosion control measures, in this case land management practices, are adopted.

The third objective of the study was to determine the influence of land use planning and institutions on the adoption of land management practices. The study found that, land use planning which has been in use since 2010 in Vianzi Village has helped people to formalize their land rights as they have obtained Customary Certificate of Right of Occupancy (CCRO). However, the land use plan has not enhanced the adoption of land management practices in Vianzi Village. The basic reason was that, land management was not among the primary motives of land use planning efforts. The land use planning in Vianzi aimed, primarily at addressing anticipated conflicts between farmers and pastoralists. It is therefore concluded that incorporation of land management practices, appropriate for the area in question, in the VLUP process is important for subsequent management of land allocated for crop and livestock production. Finally, it was found that Vianzi Village has one organization called SAT that has been involved in promoting land management.

The organization has played part in forming farmer groups through which extension services are delivered. The group formation approach by SAT is seen by most of the respondents as proper in enhancing land management. Thus, it is concluded, further, that the group approach enhances adoption of land management

practices, and that the private sector, as demonstrated by SAT in this case, has a role to play in enhancement of adoption of the recommended land management practices. SAT has demonstrated that it is possible and it works, and this calls for replication in other areas by other stakeholders for enhanced adoption of land management.

5.2 Recommendations

Based on the study findings and conclusions, the following recommendations are suggestion order to find the best ways to raise the adoption of land management practices behaviour in Tanzania in general, and in Vianzi Village in particular;

- i. The government and non – governmental organizations need to find the ways to help farmers to access the effective land management practices that can easily be accessed by farmers.
- ii. The Land Use Management committee in collaboration with Village Council needs to find the ways of reinforcing and stabilizing the land use by-laws that will be used as guidelines in farming practices.
- iii. The government should make sure agricultural officers are available and pay visits to all farmers in the village to provide extension service instead of extension officer from NGOs whose motives behind may not be clear to people.
- iv. The limitations of the process have to be worked upon in future for smooth land use planning process.
- v. The efforts to enhance land management practices compliance in Vianzi Village.

5.3 Areas for Future Research

This study assessed the role of land use planning and institutions on land management in Tanzania, with a focus on Vianzi Village in Mvomero District. It focused on small farmers and pastoralists. This study, therefore, recommends the following areas for further studies:

- i. The same study may be done in other villages in Mvomero District and other districts in Tanzania
- ii. A study on the effect of the adoption of land management practices on socio economic wellbeing of famers is hereby recommended.
- iii. The study found that land management practices application is based on individual and / or family decisions. This may be due to the nature of planning which is based on top – down process. A study is recommended on the effect of village land use planning through participatory methods on the adoption of land management practices.

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APPENDICES

Appendix 1: Questionnaire for household survey Vianzi village, Mvomero district

A. General Information

Questionnaire number.....

Name of Enumerator.....

Date of interview.....

Name of the household head.....

Name of the respondent.....

B. Background Information

No	Description/ Particulars			Required
1	Sex of the respondent (1) Male (2) Female			
2	Age of the respondent			
3	Ethnicity (i.e. Maasai, Kaguru, Sukuma,) Others (specify)			
4	Marital status (1.Single 2.Married 3.Widow/Widower 4.Divorced) of the respondent			
5	Main economic occupation (1)Farmer (2)Pastoralists (3)Business (4) Employed (5) Other (specify) of the respondent			
6	Secondary occupation (1)Farmer (2)Pastoralists (3)Business (4) Employed (5) Other (specify) of the respondent			
7	Level of education of the respondent 0.None 1.Primary 2.Secondary 3.Post sec (specify) 4.College 5.University 6.Adult education			
8	Number of years in schooling of the respondent			
9	Are you an immigrant to this village?			
10	If yes in (9) above, from which district are you?			
11	Duration of residence:years			
12	Household members :	M	F	1. Available 2. Away from home
	Age			

C. General Land Issues

1. How many plots do you have?.....
2. Is your land holding adequate? Please explain
3. If you are a pastoralist/ agro-pastoralist, what types of livestock do you keep and how many? (You may tick more than one)

Type	Number	Highest no you ever owned?	In which year did you have the highest number?	Reasons for increase or decrease in number of livestock	Feeding system
i. Cattle					
ii. Goats					
iii. Sheep					
iv. Chicken					
v. Others (specify)					

4. Where do you graze your livestock?
 - (1) Communal grazing lands ()
 - (2) Fallow lands ()
 - (3) Harvested fields ()
 - (4) Established pastures ()
 - (5) Others (specify).....

	Plot no	Plot 1	2	3	4
5	Plot identification (in which hamlet/area is it)?				
6	How far is it from your home?(minutes)				
7	How big is it (acres)				
8	Ownership (i)private (bought) (ii)private (inherited from parent) (iii)private (cleared the forest) (iv)private (allocated by the government) (v)clan (vi)family (vii)short rent (viii)long rent				

	(ix)other (specify)				
9	What institutional rights do you have ...?				
10	How is the land used?				
11	For how long have you been using the land?				
12	Crops planted in 2018?				
13	Slope(mteremko) (i)gentle (mdogo) (ii)moderate (wastani) (iii)steep (mkali) (iv)very steep(mkalisana)				
14	Land management practice (i)none (ii)bench terrace (matutayaterasi /daima) (iii)ridges (matutamadogomadogo) (iv)fanyajuu terrace (v)contour strips(kilimo cha kontua) (vi)Agroforestry (kilimomseto – including trees) (vii)other (specify)...farmyard manure, mulching, mixed cropping, crop rotation				
15	Main reason(s)for implementing the land management practice above?				
16	Reasons for not implementing any land management?				
17	How did you learn about Land management practices you are implementing? (i)elders (ii)fellow farmers (iii)NGO/government org .(specify) (iv)other (specify)				
18	Year in which land management practice was implemented?				
19	Land clearance method? (i)burning (ii)incorporation of vegetation in the soil (iii)other (specify)				
20	If burning ,please give reasons				

D. Association among Institutions, Land Use Planning and Land Management

21. I would like to have your opinion regarding the following statements. Please indicate if you strongly agree (5), agree (4), are undecided (3), disagree (2) or strongly disagree (1) with each of the following statements.

S/ N	Statements	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)	Explanatory Remarks
21	Adoption of land management practices is motivated by the fact that by-laws require us to do so						
22	The prevailing land tenure system in Vianzi enhances adoption of land management practices						
23	Village Land Use Management committee enhances adoption of land management practices						
24	Village land council enhances adoption of land management practices						
25	The Village Council enhances adoption of land management practices						
26	Religious institutions						

	(church, Islam) enhance adoption of land management practices						
27	The SAT approach enhances adoption of land management practices						
28	The land security we have is a result of the land use planning process						
29	Land security motivates investment in land management practices						
30	Land Use Planning has motivated investment in land management in this village						

E. Farmer's Group

1. (a) Do you belong to any group?
 - YES
 - NO(b) If Yes, mention the name of the group
2. How your group membership does improve your understanding of Sustainable Land Management Practices?
 - Demonstration
 - Use of sharing knowledge
 - Training by staff
 - Other (Specify).....
3. If you do not belong to any group what the reasons
 - Lack of interest
 - Lack of time
 - Lack of information
 - Group problem
 - Lack of registration fee
4. Have you increased your farm size due to application of the Sustainable Land Management Practices?
 - YES
 - NO
5. If No, what could be the reason?
 - Limited land
 - lack of money
 - lack of labour
 - lack of benefits from the practice
 - spouse decision other specify
6. (a) Has the adoption of the Sustainable Land Management Practices improved your living standards?
 - Yes
 - No(b) If Yes, how?.....
 - Able to pay school fees
 - Able to purchase domestic supplies
 - Able to purchase farm supplies
 - Able to fulfill Social commitments
7. (a) Are there any Sustainable Land Management Practice you plan to abandon?
 - Yes
 - No(b) If Yes, why?.....

F. Extension Services

1. (a) Do you receive any extension advices
 - YES
 - NO(b) If yes how often?
 - Occasionally
 - Sometimes
 - Always
2. (a) Do the extension officers have biases for whom to give information?
 - YES
 - NO(b) If Yes, who do they prefer giving advice?
 - Man
 - Woman
 - Both
3. What areas of knowledge do they emphasize on Sustainable Land Management Practices?
 - soil erosion control
 - pest control
 - diseases management
 - crop varieties
 - Soil fertility management

Appendix 2: Focus group discussion guide

Evaluating Land Use Planning Adopted in Vianzi Village

1. When was land use planning (LUP) implemented in this village? (year)
2. What triggered land use planning in Vianzi? (who come up with the idea)
3. Please explain the land use planning process
 - (i) What was done, by whom? (mention chronologically)
 - i.e. step by step presentation of the activities
 - (ii) Who was involved in the process?
 - a. Individuals
 - b. Institution
 - c. Organization
 - (iii) How were you involved?
 - (iv) How was the general community involved?
 - a. What were the issues raised in relation to previously existing land uses?
(checking for social & institutional dimensions of land management)
 - b. What changes/ improvements were suggested by community members?
4. What are the main land uses in your Land Use Plan?
5. What land management practices are prescribed by the Village Land Use Plan?
6. Do farmers and pastoralists have customary certificates of right of occupancy (CCROs)?
 - a. How were they obtained?
 - b. How easy/difficult is the process of acquiring CCROs?
7. Are there signboards indicating various land uses?

8. Are the various land uses as per Village land use plan well known to community member?
8. Explain the way land use planning is being monitored
9. What has changed as a result of the land use plan?
10. Evaluate the effectiveness of institutions, namely VLUM committee, village land council and village council

Appendix 3: Checklist for key informant interviews

Land management systems

1. What are the types of land management systems existing in your area?
.....
2. Which one is the most common? (Please give reasons)
.....
3. What efforts are being taken to improve land management systems?
.....
4. How can you rate compliance with the village land use plan by community members
 - a. Highly satisfactory
 - b. Satisfactory
 - c. Neutral
 - d. Dissatisfactory
 - e. Highly DissatisfactoryPlease explain your answer.....
5. What do you think are the major factors influencing compliance to the existing land use plan?.....
6. How do you rate the effectiveness of land use planning on land management?
 - a. Highly effective
 - b. Effective
 - c. Undecided
 - d. Less effective
 - e. IneffectivePlease explain your answer.....

7. How do you rate the involvement of community members in the process of land use planning?

- f. Highly satisfactory
- g. Satisfactory
- h. Neutral
- i. Dissatisfactory
- j. Highly Dissatisfactory

Please explain your answer.....

8. To what extent have the needs (including social and cultural) of the people been accommodated in / taken care of by the LUP?

THANK YOU FOR YOUR COOPERATION