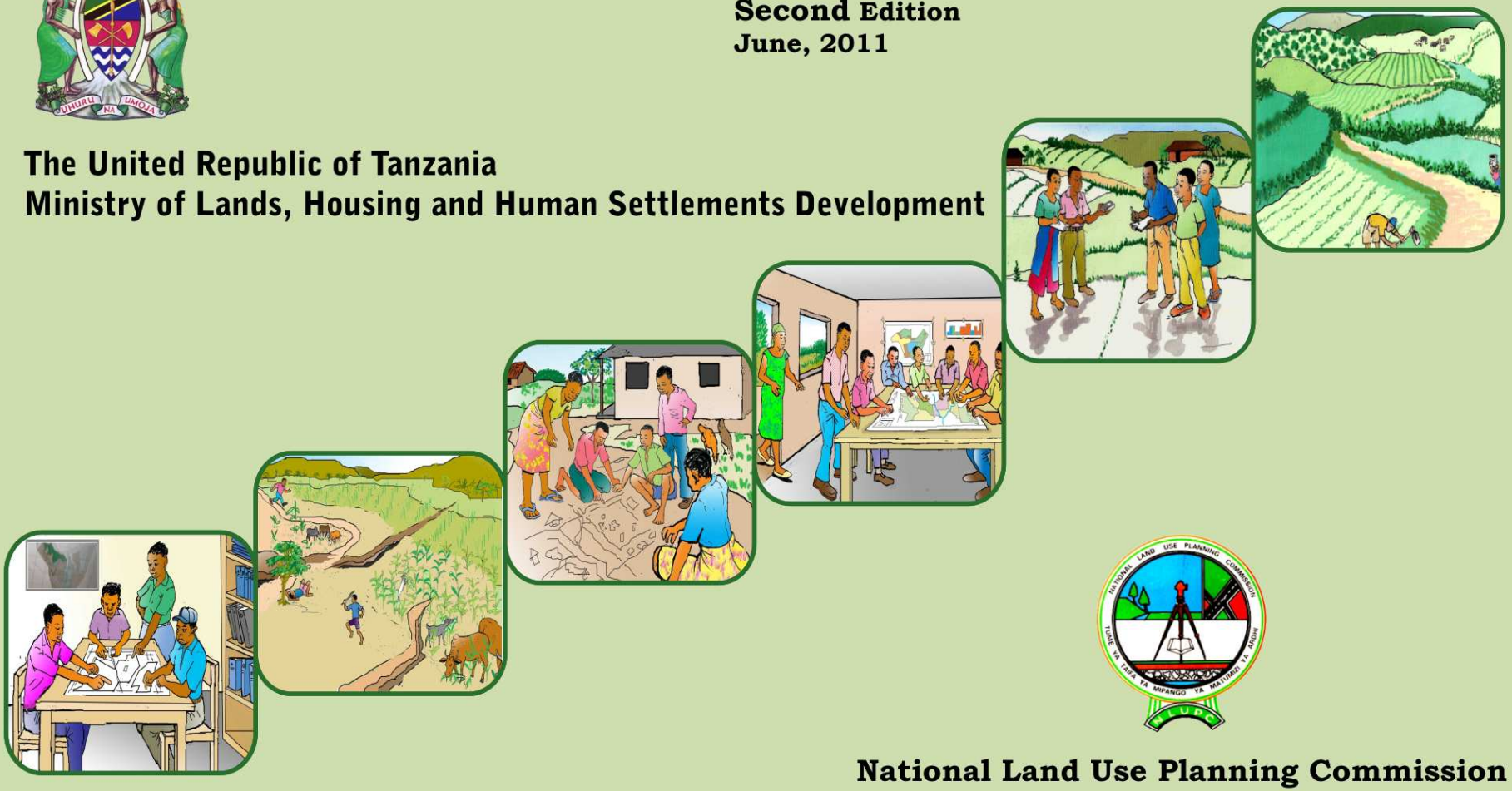
GUIDELINES FOR PARTICIPATORY VILLAGE LAND USE PLANNING, ADMINISTRATION AND MANAGEMENT IN TANZANIA

Second Edition
June, 2011



The United Republic of Tanzania
Ministry of Lands, Housing and Human Settlements Development

National Land Use Planning Commission

GUIDELINES FOR PARTICIPATORY VILLAGE LAND USE PLANNING, ADMINISTRATION AND MANAGEMENT IN TANZANIA

Second Edition

National Land Use Planning Commission
P.O. Box 76550, Dar es Salaam

Ministry of Lands, Housing and Human Settlements Development

June, 2012

Published by:
The National Land Use Planning Commission
P.O. Box 76550, Dar Es Salaam, Tanzania
Phone: 255-22-2115573
Fax: 255-22-2128057
E-mail: dg@nlupc.org
Website: www.nlupc.org

Notes on the second edition

This edition is based on the current (2011) policies and legal context in Tanzania; in particular The National Land Policy (1995); The National Human Settlements Policy (2000); The National Environmental Policy (1997); The Land Act Cap113 (1999); The Village Land Act Cap 114 (1999), The Environmental Management Act Cap 191 (2004) and The Land Use Planning Act Cap 116 (2007)

It is also aimed at improving the guidelines on a regular basis to keep pace with new experiences and the ever changing conditions, including policies and legislation.

Anybody or institutions should feel free to use and apply this document if it serves the purpose of disseminating and applying the PLUM guidelines for the benefit of Tanzania or elsewhere. Copies of these guidelines books are available at NLUPC offices and website.

The publisher

FOREWORD

Land is the basic resource for the livelihood of the vast majority of the Tanzanians living in rural areas. Appropriate strategies are presently required more than ever to counteract the consequences of the increasing pressure on land resources, such as the increase of land conflicts and degradation, which hamper rural development and even may further marginalise the majority of the rural population.

As a result, village land use planning, administration and management is an important tool for natural resource management and sustainable rural development. There is an increasing evidence that the use and management of land resources are better addressed through a participatory and integrated approach.

The Guidelines for Participatory Village Land Use Planning, Administration and Management in Tanzania were prepared in 1998 by the National Land Use Planning Commission (NLUPC) which is a government organ functioning under the auspices of the Ministry of Lands, Housing and Human Settlements Development.

However, the Guidelines for Participatory Village Land Use Planning and Management of 1998 came into operation even before the enactment of the Land Act Cap 113 (1999) and the Village Land Act Cap 114 (1999) among many other Laws which are the basis of Land Administration and Management. Also to date the Government of Tanzania has put in place two pieces of legislation namely the Environmental Management Act Cap 191 (2004) and the Land Use Planning Act, No. 6 of 2007 both of which acknowledge the critical role for a harmonized strategy for effective planning and management of land and its natural resources.

Henceforth the need to revise the 1998 PLUM guidelines in order to effect implementation provisions of these legislation and emanating regulations, which concern rural land use planning, administration and management. Also in the past 12 years (1998 – 2010) more than 900 Village Land Use Plans have been prepared based on PLUM guidelines. The experience accrued from different actors at various levels on opportunities and constraints of using the guidelines are being addressed in this revision.

The proceeding revised guidelines book is presented in a former layout of six steps that are to be followed in the process of carrying out Participatory Village Land Use Planning and Management process. Significant changes are aimed to address sectoral land management statutory requirements in agriculture, livestock keeping, forestry, wildlife, settlement, water resources, fisheries, community and infrastructure facilities. Also a reporting format for a Village Land Use Plan Report is included, based on practical application of these Guidelines.

The revised PLUM guidelines though comprehensive, are simplified to be more user friendly to stakeholders, especially at grass root levels. They are meant for District PLUM teams and other facilitators (including private sector) to establish and institutionalise participatory land use planning, administration and management in villages, so that villagers can use their land and other natural resources for improved and sustainable production, leading to socio-economic development and better living conditions for rural communities.

Good land management requires an effective system of involving people in preparation and implementation of village land use plans whereby villagers and their institutions gradually build their capacity to manage village land. The desired results are obtained when: development efforts of all relevant sectors are well integrated; technical and political roles of the institutions concerned are well defined; and opportunities are provided whereby stakeholders come to agreements which reflect their interests in a balanced way. Meetings of the Village Assembly, Village Council, land user groups, are examples of opportunities whereby stakeholders at the village and sub-village levels may forward their interests, negotiate and ultimately come to a compromise. Agreements can be formalised through minutes or other written documents, leading to land use plans, by-laws, certificates of occupancy, etc. attributing to improved land security and a more efficient use and development of land resources.

This document should not be considered as a blue print; it is providing guidelines which have to be applied according to the local agro-ecologic, socio-economic and cultural context. The guidelines contained may be revised as it necessitates, to incorporate new experiences and changing needs of rural communities.

I extend my sincere appreciation to all who have taken efforts in developing these guidelines. I urge all stakeholders involved in the rural development process; including NGOs, CBOs and Private Sector; to apply these guidelines, which offer an avenue for both men and women to democratically participate in bringing about rural development in an environmental friendly manner.

Professor Anna Tibaijuka (MP)
Minister for Lands, Housing and Human Settlements Development
June, 2012

PREFACE

The revision of guidelines for participatory village land use planning, administration and management have come at a time when the Government is carrying out major reforms aimed at strengthening local government authorities. Special attention is paid to village governments in recognition of the fact that most of our people live in rural areas. There is also a growing consensus that problems affecting villagers are better addressed through encouraging their involvement in planning and decision making, and through integration of sectoral efforts in natural resource management.

Emerging policies and legislation, the ongoing reforms and projects, clearly reflect this trend as exemplified by the following National Policies:-

- Agricultural Policy of 1997 which promote integrated and sustainable use and management of natural resources, such as land, soil, water and vegetation.
- National Land Policy of 1995 which states inter alia, that land use planning should be done in a participatory manner to involve beneficiaries.
- Tanzania Forest Policy of 1998 aimed at enabling participation of all stakeholders in forest use, management and conservation.
- The Wildlife Policy of Tanzania of 1998 which emphasises on involving rural communities and other stakeholders in sustainable management of wildlife and other natural resources.
- National Environmental Policy of 1997 with the overall objective of community participation in environmental management and raising public awareness of the essential linkages between environment and development.
- The National Policy on NGOs of 1998 which calls for establishment of NGOs to promote peoples participation in the development process of the country.
- The Local Government Reform Agenda of 2000 which states in particular that the local governments will facilitate the participation of people and foster partnerships with civic groups in planning and executing development programmes.
- The Development Vision 2025 for Tanzania, which promote empowering people in determining their lives and managing their own development, and to promote broad-based grass-root participation in order to build upon the reserves of knowledge and experience at grass-root level and unleash initiatives and creativity.

In short, all the major policies of our country are hinged on involving people in the decisions affecting their daily lives.

This document charts out practical guidelines for rural development facilitators (including NGOs and Private Sector) on how to involve stakeholders in the planning and implementation process and to integrate sectoral development efforts for better management of natural resources at district and village levels.

In the participatory approach, local institutions are empowered and given more mandate to play their role in rural development. The guidelines, as presented in this document, are therefore in place and strongly recommend them for the widest possible use.

Abubakar Rajabu
Chairman – National Land Use Planning Commission
January, 2012

ACKNOWLEDGEMENT

On behalf of the National Land Use Planning Commission I wish to acknowledge with gratitude to various stakeholders who have contributed to the development and revision of these Guidelines. The historical development of these guidelines is summarized in Appendix Q.

In particular 1 extend my appreciation to the initial work done by DLUMP staff in Dodoma with assistance of NLUPC and SNV – Netherlands to develop the First Edition of PLUM Guidelines which was published in 1998. I wish to convey gratitudes to Mr. Paul Van Enckevort from SNV who was a technical advisor of PLUM project. Also, I acknowledge Mr. Jayson M. Kami of NLUPC who coordinated the publication of the First Edition (1998) and now the revision and publication of the Second Edition of PLUM Guidelines (2011).

I wish to thank, the technical staff of NLUPC who have been engaged as facilitators in application and dissemination of PLUM Guidelines. Their experience has been a great resource in the revision and publication of the Second Edition. I acknowledge the contribution of District PLUM teams of which in their districts the PLUM Guidelines have been applied to prepare and implement Village Land Use Plans. I am thankfull to Village Councils and VLUMC who have been applying PLUM guidelines to prepare and implement village land use plans. Their accrued knowledge and experience has attributed invaluably in the revision of the Guidelines.

I extend appreciations to the consultants Arch plan International Ltd. who were engaged to prepare the first draft of the Second Edition of these Guidelines; in particular Mr. Antidious Mutayoberwa. Also, I am grateful to Dr. Ali Namangaya of Ardhi University who did the final editing of these guidelines.

I wish to acknowledge the Technical Committee of the NLUPC under the Chairmanship of Mr. Paul Tarimo who deliberated upon these Guidelines and recommended their approval to the Commission. I extend sincere gratitudes to the National Land Use Planning Commission under the Chairmanship of Mr. Abubakar S. Rajabu, who have accepted these guidelines and approved their publication and application.

I am thankfull to Sectoral Ministries, especially those engaged in use and management of land resources for their comments and contributions in reviewing and publication of the guidelines. Their continued support and cooperation, will provide a platform for replication and application of PLUM Guidelines to enhance and foster rural development in our country.

Gerald K. Mango
Director General
National Land Use Planning Commission
June, 2012.

TABLE OF CONTENTS

- Part A -

An introduction to participatory village land-use planning, administration and management

- Part B -

Application of participatory village land-use planning, administration and management

LIST OF FIGURES

LIST OF TABLES

LIST OF BOXES

Executive Summary

Participatory village land use planning, administration and management can be achieved in an integrated manner, through full involvement and benefit of stakeholders (villagers) and their institutions.

The increasing demand to regulate use of land resources, is raising awareness that land-use management problems are better addressed through a participatory and integrated approach; based on experience from various institutions and projects dealing with land-use planning and natural resource management, working at the local levels in different parts of the country. This has replaced the conventional, top-down and sectoral oriented land-use planning methods.

The guidebook is presented in three parts:

Part A gives an introduction to the guidelines and presents the basic elements of the methodology. It outlines the concept of the methodology, its relevance for rural development, and the need to change from conventional top down to participatory.

The basic elements of the methodology are presented based on principles of efficiency, equitability and sustainability. These are: stakeholder involvement; gender sensitivity; step-by-step planning and implementation; local level institutional development; land security enhancement; planning according to the bio-physical and socio-economic conditions; systematic planning, monitoring, evaluation and documentation; and integration of the methodology in ongoing development efforts.

Part B details how these basics are used and combined for implementation through six steps. In each step a package of activities is identified to get the desired results; which facilitate carrying out the following steps. Where applicable, more options are given to deal with specific land issues. The guidelines are presented in a way in which they can be adapted to the local context.

Part C are appendices providing background information such as: VLUP report structure, standards used in VLUP; and Extracts of Sectoral Regulations and Guidelines to be used in Detailed Village Land Use Management Planning in Step6 of Part B. The Sectoral Regulations and Guidelines have been collected together in these Guidelines to ease their availability and application at local levels so as to facilitate sectoral intergration and PLUM field intervention coordination.

Output at the village level that are expected from applying the guidelines are categorised as follows:

- Perceptions of villagers have changed and their institutions have improved capacity to plan and manage land matters, through: considering the interests and strengths of all stakeholders; resolving land conflicts; allocating land; maintaining land security; up-dating land-use plans; and communication with the district;
- The village has a sound land-use plan which reflects the interests of all parties involved at the village and higher levels in a balanced manner and which is well respected;
- Natural resources are managed in a more efficient, equitable and sustainable way, leading to higher production, and improved standards of living, particularly for those whose positions are most at risk, such as pastoralists, women and youth.

The guidebook is written primarily for experts, administrators and politicians working at the district to village levels, to help them play their role as facilitators in empowering villagers and their institutions to manage land resources optimally. The guidelines will also be of interest to training institutions and development agencies at both the regional and national levels.

Part A

An introduction to participatory village land-use planning, administration and management

"Land is not given to us by our ancestors; it is lent to us by our children (African proverb)"

1 Introduction

1.1 Village land use planning, administration and management and its role in rural development

Land is the platform for our living and we make use of it for crop production, livestock keeping, forestry, housing, etc. Important natural resources at the village level are soils, water, sunshine and plants (figure 1.1). The optimal use of these natural resources depends mainly on: the potential of people to utilise and manage them; their priorities; the socio-economic conditions and; the carrying capacity of the natural resources.

Natural resources at the village level, such as soils, water, plants and sunshine

Village land-use management is the process of designing, implementing and revising village land-use plans. This process is more effective when it is carried out in a participatory way, which means that the principal users of land, the villagers, are fully involved. To ensure full participation it is important to consider the different socio-economic groups in a village (including gender) which have different interests and expectations.

The Food and Agricultural Organisation (FAO) of the United Nations has defined land use planning as follows[1]:

> *Land use planning is the systematic assessment of land and water potential, alternatives for land use and economic and social conditions, in order to select and adopt the best land-use options. Its purpose*
> *is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future. The driving force in planning is the need for change, the need for improved management or the need for a quite different pattern of land use dictated by changing circumstances.*

This definition provides the following basic elements:

Assumptions

- Land use planning is necessary because of the need for change, and through planning the utilisation of land resources can be improved.

Approach

- The approach emphasises systematic assessment of the physical, ecological and socio-economic conditions with respect to peoples' need now and in future, through stakeholder involvement and integration of the relevant sectors.

Principles

- The basic principles are: efficiency (available land resources are used in such a way that they produce maximum benefits), equitability (provide benefits to all socio-economic categories of land users including women and youth) and sustainability (do not result to degradation of the resource base and are viable in the socio-economic context). Additionally, land-use planning should improve rather than constrain local decision-making.

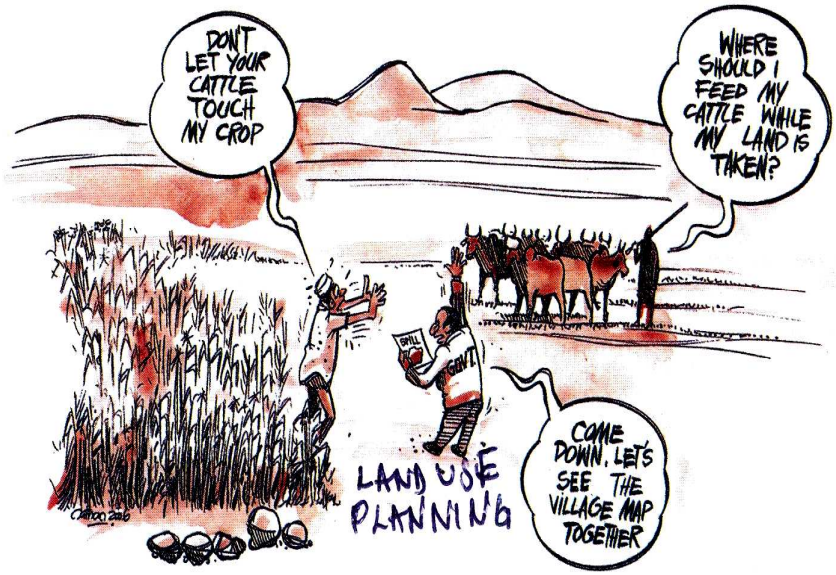
The vast majority of the Tanzanian population, mainly small holder farmers living in about 11,000 registered villages[2], depending almost entirely on land resources through agriculture, livestock and forestry. These resources are under enormous pressure due to the fast growing population (which has increased from about 7.5 million to 33 million people between 1948 and 2002)[3] in combination with declining land productivity. This has lead to the expansion of settlements, agricultural areas, livestock grazing, tree cutting for fuel wood, water demand, etc.

The increasing pressure on land for different uses has resulted in[4]:

- a growing number of conflicts between different land users;
- insecurity of land use and tenure;
- poor development of land markets;
- degradation of soil and water resources;
- deforestation;
- increasing migrations of people and livestock.

The most recognised land conflict on macro scale is between crop producers and pastoralists. The expansion of agricultural land into grazing land, due to population increase and land degradation, forces pastoralists to overgraze their remaining areas or to move with their cattle into areas with formerly low livestock densities, creating new land conflicts in these areas.

Land uses, which have become conflicting as well are between agriculture and forestry; agriculture and wildlife; and the uncontrolled expansion of settlements into farming land (particularly township expansions). Other common, and often more hidden land conflicts are those between and within villages, different socio-economic groups (gender), families and individuals claiming user rights on the same land resources.



Common land use conflicts

These conflicts, whose extent and character differ between various areas of Tanzania, constrain sustainable land use and may undermine rural development. Experience shows that attempts to mobilise small holder farmers to invest in sustainable land use often fail when land conflicts are not sorted out well, and when there is no feeling of land

security[5]. Crop producers are often more willing to invest in their land for higher and sustainable production when they are sure to use it for a long period and hence benefit from their investment.

Village land-use management attempts to regulate the use of land resources such as sorting out land conflicts, enhancing security of land tenure and use and improvement of land husbandry measures according to the priorities and capacities of the stakeholders. Therefore, it plays a vital role in rural socio-economic development and can be considered one of the most important tools for natural resource management in Tanzania.

1.2 Village land-use planning and management approaches

Most development approaches, which have been applied since the colonial period, are sectoral and 'top-down' oriented and therefore hardly consult villagers, who are the major stakeholders. These approaches are referred to as conventional. Major guidebooks prepared on rural land-use planning are:

- The *Model Village Layout Planning Handbook*[6] prepared in 1975 deals mainly with the residential part of the village.
- The *Land Use Planning Handbook*[7] prepared by the Tabora Rural Integrated Development Project in 1983 pays more attention to agricultural development, but little to villagers' involvement in the planning process.
- The *Village Land Use Planning and Implementation Guidelines for Tanzania*[8] (See Appendix F) prepared by the NLUPC in 1993 encourages a multi-sectoral approach but overemphasises on plan making by experts rather than guiding local decision-making.

Typical characteristics of these conventional approaches are:

- Outsiders define the villager's needs and local knowledge is seldom used;
- Local decision-making is often constrained rather than improved;
- The methods applied are often rigid, require a lot of data and are expensive;
- The results (reports and maps) often cannot be used at the local level, or are not available and known to the villagers.

These approaches have not yielded the expected results because[9]:

- Most of the plans did not well reflect the priorities of villagers (fig. 1.2);
- Most of the plans have not been implemented due to lack of local participation and high dependence on external inputs.
- There has been a tendency to focus solely on land allocation, neglecting the other aspects of land use administration and management.

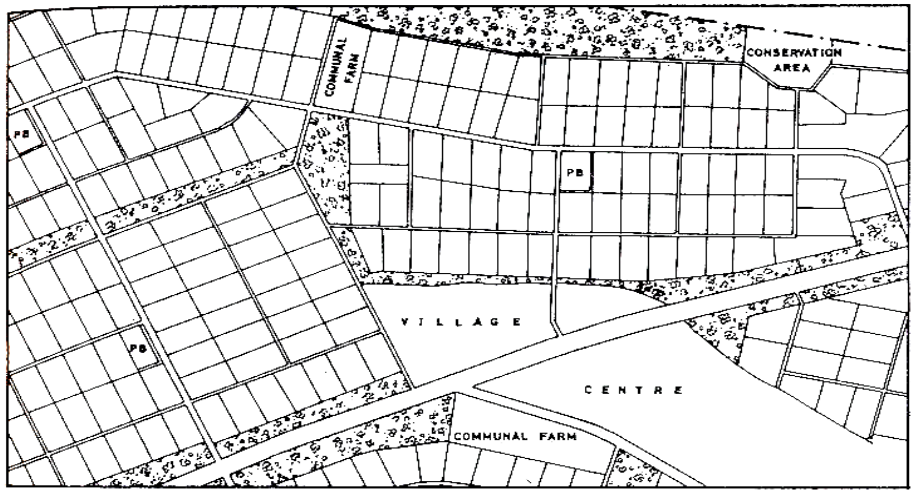


Figure 1.1. Detail of the Manyali village land-use plan (Dodoma Rural District), which has been prepared in a conventional way[10]. Land has been divided into rectangular plots without considering existing land uses and rights. The plan has not been implemented.

This has resulted in the participatory development approach, which is becoming a widely spread and accepted alternative for the conventional approaches in many countries, including the land-use planning sector of Tanzania.

The participatory land-use management approach has the following outstanding characteristics:

- The needs for land-use planning and management are, in the first place, identified by the land users themselves, who are directly affected by the land conflicts and land degradation, and who are likely to benefit from improved resource management;
- The villagers participate fully in agenda setting, resource allocation and controlling the planning process. The capacity of local decision-making is built through mobilisation of local institutions and knowledge;
- The process of information gathering and analysis, priority setting and the formulation of village plans is local-people-centred, flexible and fosters collaboration between disciplines and sectors;
- The major role of district staff (outsiders) is introducing, guiding and facilitating the idea of participatory land-use planning and resource management rather than making the plans themselves.

The expectations of this approach are as follows:

- Village land-use plans are implemented and, since they are created by the village communities themselves, reflect their needs and are better adapted to local conditions (figure 1.3);
- Land disputes are minimised and the interests of the various stakeholders (men, women, youth, crop producers, pastoralists, etc.) are likely to be balanced and respected, since the plans have been created through dialogue;
- Land productivity will increase and benefit the various stakeholders since the plans reflect the stakeholder's interests and are really implemented;
- The plans can be adjusted and maintained with less inputs from outside since the local institutions have been enabled to deal with most of the land-use management issues themselves.

The methodology accommodates elements and techniques of the conventional planning approach, which remain relevant, such as: the use of the legal and institutional tools to regulate the use of land resources; survey and mapping techniques to document property boundaries and land-use agreements; and, techniques to assess soils, land suitability and socio-economic conditions.

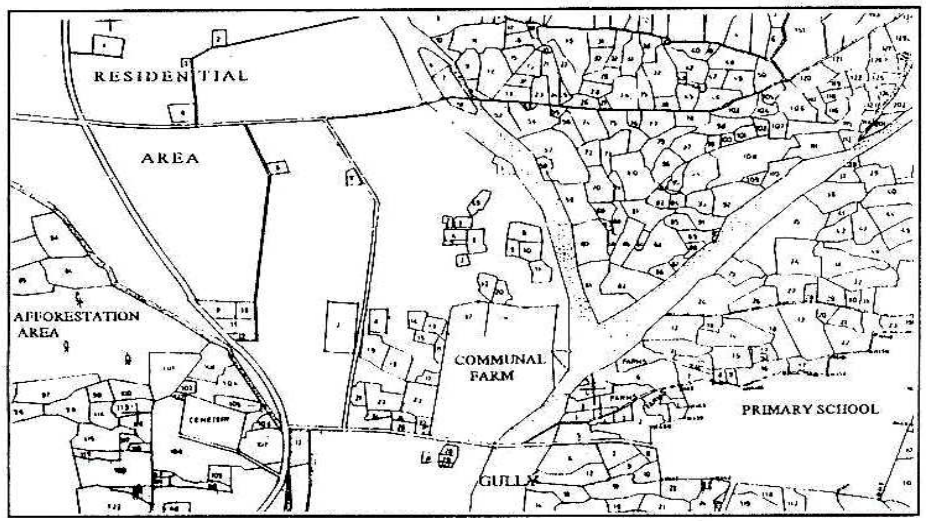


Figure 1.2. Detail of the Ilolo village land-use plan (Dodoma Rural District) whereby planning and implementation have been done concurrently with assistance of DLUMP in 1995[11]. In this Ujamaa village priority was given to demarcation of individual farms in order to improve land security and to sort out land conflicts. Through dialogue, existing land uses have been respected, plot boundaries determined and land allocated for community facilities.

A two-way communication is essential to assure that village land-use plans tune with higher level plans, interests and policies, and that planners and decision makers at the District to National level are sufficiently informed about the priorities identified by villagers.

Since most villages accommodate various land uses, which influence each other, coordinated efforts from the different, relevant sectors may have a higher efficacy than when employed autonomously. Settlement planners, foresters, community development workers, agriculturists, livestock and wildlife specialists should therefore not only change their efforts from top-down to participatory, but should also look beyond their professional boundaries and realise the advantages of the integrated concept of natural resource management.

1.3 Villagers participation

The participatory approach refers to the direct involvement of the stakeholders in the various steps of the development activities, and has become a common and widely accepted method to meet the needs of rural population[12].

In this guidebook the participatory approach is a central issue throughout the whole process of PLUM whereby villagers are fully involved in the creation, implementation and revision of village land-use plans. In order to ensure the involvement of all stakeholders, it is important to consider the different socio-economic groups in a village with their various interests, expectations and powers. The various stakeholders involved can be grouped according to their sex (men, women), age (elders, middle-aged, youth, children), land use (pastoralists, crop producers), wealth, etc.

Resource management issues can be investigated, development activities planned and resources mobilised with full stakeholder involvement through a Participatory Rural Appraisal (PRA)[13]. This method generates relevant information showing the real conditions of villagers, resulting in development activities which can be easily adopted by local communities. Villagers supply and analyse most of the information for development planning and subsequently prepare a Community Action Plan to address immediate problems and long term issues in a balanced way. PRA enables a community to become directly involved in and responsible for assessing their own problems and to agree on future actions (see step 2 of part B).

Sustainable development is more possible if community action plans and village land-use plans are:

- Built on the priorities and capacities of all stakeholders involved;
- A result of a dialogue between the various stakeholders, i.e. groups and subgroups depending on the land resources concerned;
- Considering local cultural values, institutions and knowledge systems;
- Based on developing and empowerment of a household economy and livelihood as a unit of measure.

The participatory approach creates awareness, ensures commitment as people feel the project plan is theirs, and it enables villagers to deal with local problems themselves with less dependency from outside.

The participatory approach also attempts to change the attitudes of experts and development agencies. Extension workers have to be prepared to listen and learn without imposing their own ideas. Outsiders, in the first place, facilitate the planning and implementation process rather than taking decisions.

Participation should not become a 'means' to persuade the intended 'beneficiaries' to take part in activities from which the basic contents have already been decided by outsiders. The aim of participation is to enable or empower the people so that they may obtain greater control over the planning process, resources and their lives. Through participation, rural communities and local institutions may search their own ways to sustainable development, based on their real needs, skills and strengths.

Villagers participation including gender consideration

Unlike conventional, top-down oriented planning methods, data collection through participatory techniques concentrates on the data which are most relevant, and therefore cheaper and faster. The participatory planning process requires more time than conventional planning because of the consultation and negotiation process by the stakeholders involved. However, this assures that the stakeholders will feel the plans are their own, and that they are ready to implement and maintain them.

1.4 Considering gender

According to the National Strategy for Gender Development of 2005 the term gender refers to the culturally and socially determined characteristics, values, norms, roles, attitudes, and beliefs attributed to women and men through constructed identity in a society. The relations that exist between women and men and the roles they play in society. It also analyse the differences in division of gender roles which are influenced by socialisation, cultural and traditional practices, and their impact in income and resource allocation, opportunities to participate in politics and leadership etc. Henceforth Gender[14] refers to the roles men and women play in a community, i.e. the differences in tasks, responsibilities, constraints and opportunities between both groups. These roles are deeply fixed in peoples minds and hearts but can be changed and actually do change over time.

Gender mainstreaming involves the integration of gender concerns into policies, programmes, projects, monitoring and evaluation processes with the objective of reducing inequalities between women and men. Considering gender or applying a gender sensitive development approach in a village, as part of the participatory approach, means that the different roles, interests and expectations of men and women are taken into account.

Traditionally, women are mainly involved in activities such as fetching water, collecting firewood, production of food crops, preparing food and taking care of the children. Meanwhile, men are mainly involved in commercial activities such as cultivating cash crops, livestock herding and charcoal production.

Women in subsistence farming produce between 70% and 80% of their families' food supply. Yet, they usually only have *access* to land (usefructuary right), while men own, control and inherit land[15]. Some practical consequences of this are:

- The husband (or clan leader) usually decides on the management of the land the women cultivate, and on the use of its products;
- In case of divorce, the woman is often forced to return to her parents' family, leaving behind most property, including the land she cultivated;
- In case a woman becomes a widow the property is inherited by the male children or other male relatives who should take care of her;
- Since women lack control over land, and since they have a high workload compared to their husbands, often times women show little interest to invest in sustainable land use.

Cultural practices, which were once sufficient in the traditional African society in safeguarding the interest of women and their children, have become insufficient and are abused due to the rapid socio-economic changes taking place. As a result to these changes, many women have become dissatisfied and have begun demanding equal rights.

The rationale of considering gender in development activities is[16]:

- According to the National Constitution and National Land Policy, women have equal rights as men in access and control over land and other natural resources, as well as the benefits from development;
- Most conventional development projects are unconsciously biased towards men against women;
- Insufficient involvement of women in the planning process leads to an enormous under-utilisation of a development potential, since their knowledge and role is ignored.

Development strategies should therefore consider gender and include:
Gender analysis to get a better understanding of the relations between men and women, which are required, to identify opportunities that will improve the position of women for the benefit of both sexes. Such an analysis should look at three key areas:

1. *The division of labour between men and women.* What are their activities and responsibilities in the reproductive, productive and community management sphere? How are their time and energy divided? What are their respective workloads?
2. *The access to and control over resources.* How much access and control do women and men have over land, information, technology, education, health care, time, labour, income, agricultural products, etc.? Are there taboos? How should they be dealt with?
3. *The participation in decision-making.* How do women and men participate in decision-making at the family, community and other levels?

It is also important to facilitate the involvement of youth in the PLUM process so that their potential to contribute to development is better utilised.

1.5 A step-by-step planning and implementation

The establishment of PLUM in a village requires a number of activities, which should be carried out in the right sequence, in order get the desired results as follows:-

1. A proper preparation is required at the district level before entering the villages. This involves: establishment of importance and need for PLUM; specifying the goals; ensuring institutional support; mobilisation and allocation of human resources, materials and funds, and; the preparation of a plan of operation with priority villages. The last requires a preliminary assessment to allow a planning which is based on rational criteria.

2. Introduction of PLUM to intervention Village Community. Conducting PRA focused on land use planning, administration and management.
3. The planning process requires local institutional building and may involve many issues such as: land allocation for different communal and private uses; settling land disputes; formulation of by-laws; land registration; and, improvement of land husbandry practices. Therefore, it is not practical to deal with these activities all at the same time. Better results can be expected when planning and implementation are completed in steps. For instance, it is better to solve land conflicts and improve land security before planning for improved land husbandry measures.
4. Towards the end of the intervention, emphasis should be made to consolidate PLUM in the village, in order to assure the village community is able to proceed with the planning and implementation process afterwards.
5. Monitoring and evaluation should be integrated in all steps of the process in order to allow the identification of problems and taking of corrective measures in the early stages.

The considerations indicated above have led to a methodology of six steps, which have been worked out into detailed guidelines in part B of this manual.

1.6 Local level institutional development

Tanzania has created a decentralised framework organised in districts and urban councils, wards and villages. These represent local government system in the country. The measures were taken to strengthen districts and enable them to better perform their functions including development planning and implementation. This is a significant step in the operationalisation of the decentralisation policy.

While it is acknowledged that local authorities (districts/municipal, villages) are the primary institutions for integration of land use planning and implementation, their roles were not yet legally stipulated until the enactment of the Land Use Planning Act No.6 of 2007, which in Section 21-22 mandates District and Village Councils as Land use planning authorities in their areas of jurisdiction. An effective and functioning structural link between national institutions, districts and villages in land use planning has to be put in place through The Regional Secretariats, which is mandated through Section 20 of the Land Use Planning Act No.6 of 2007 to coordinate preparation and implementation of land use plans by the district councils in the respective region. Capacity should be put in place to effectively use this linkage between NLUPC and local levels in instituting land use planning, administration and management. Also, the Prime Minister's Office (PMO) – Regional Administration and Local Government (RALG) has recently established a land use planning portfolio which is vested with responsibility of coordination with local authorities.

Land use planning is now being appreciated and valued at upper echelons of government. NLUPC should use this opportunity to bridge the existing gap by establishing strong linkage with PMO-RA&LG in terms of coordination, providing relevant information for land use planning and budgeting with district authorities.

It has however, been observed that the capacity at local levels to implement effective programmes is closely tied to the availability of funds, manpower and capacity building. Districts which had externally funded operations tend to be relatively active in land use planning and management.

Donor agencies, National and International NGOs, Land Resources Projects and Programmes, Financial institutions, Private firms, and Media institutions, are implementing agencies which should collaborate with NLUPC to implement land use planning activities at local levels. NLUPC should identify and coordinate interventions of these development partners, to complement and collaborate them with local level institutions. Experience, knowledge, and innovations in different interventions can thus be linked and adopted in other areas through sensitization, awareness raising, research, documentation etc.

Participatory land-use management implies strengthening of local level decision-making through building the capacity of district and village level institutions. After improving the capacity of District Councils, through creation and training of respective PLUM teams, it is the duty of the PLUM teams to improve the capacity of village level institutions, enable them to take responsibility, and become better organised to manage land and deal with land-use problems which directly affect their lives.

In order to initiate the participatory land-use planning process at the village level, it is important to form and establish a District PLUM Team consisting multi-sectoral technical personnel from land resource sectors (lands, agriculture, forestry, livestock, wildlife, community development, legal) and/or from the extension staff at the ward or village level. The main task of the PLUM team is to initiate and facilitate the participatory planning exercise in villages. The respective district council committee, maintains a supervisory role and may occasionally provide technical, as well as administrative support, to the PLUM team.

The PLUM team initiates and guides the process of participatory planning and implementation in the village. The PLUM team co-ordinates the involvement of technical staff from different disciplines in the district as needed. It delegates tasks as much as possible to the extension staff and enhances sustained support for the PLUM process at the district level.

Village level institutions and mandate

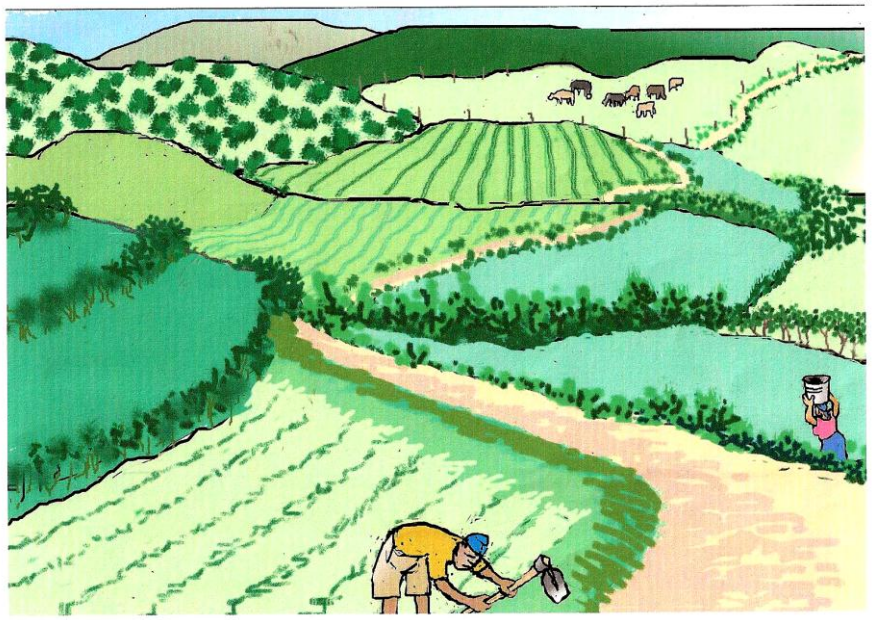
(a)The Village Assembly is the main decision-making and approval institution at the village level and identifies, through participatory ways, issues and problems which are of priority for the village community.

(b)The Village Council has the executive powers and responsibilities for land-use planning and may have to delegate some of its tasks concerning land matters to the Village Land Use Management (VLUM) committee.

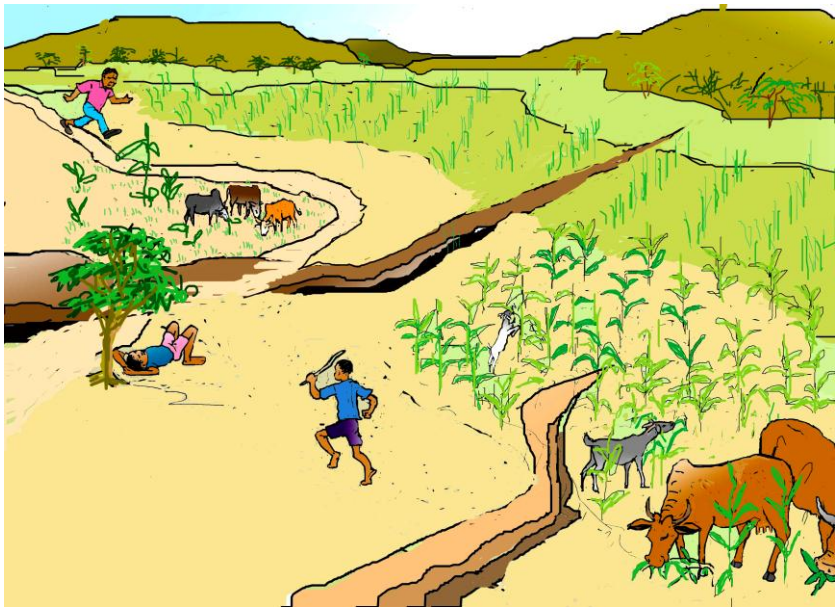
(c) The VLUM committee works together with the PLUM team and receives on-the-job training to become sufficiently experienced to carry out the required tasks during and after the presence of the PLUM team members in the village. The VLUM committee can also be assigned to become the Village Adjudication Committee (Section 53 Village Land Act).

They can also receive on-the-job training during implementation of PLUM, particularly in carrying out improved land-use management measures and act as Village Technicians running class farms *(shamba darasa)* The role of the Village Technicians is to assist their fellow villagers in applying proposed techniques such as soil conservation measures, managing forest resources, managing pastoral lands, development control within the residential area, land registration, etc.

Part B



Application of



Participatory village land use planning, administration and management

STEP 1

PREPARATIONS AT DISTRICT LEVEL

The Land Use Planning Act No, 6 of 2007 mandates a District Council as a Land Use Planning Authority in its area of jurisdiction; including coordination and facilitation of Village Land Use Planning, Administration and Management. In order to ensure inter-sectoral coordination, it is necessary to establish a District PLUM team (explained in 1.2). This step presents guidelines for such preparations. Before starting to implement PLUM it is strongly recommended to study part A, which goes into the basics of PLUM methodology.

1.1 Objectives

OBJECTIVES

- **A.** To effect the District Land Use Planning Authority
- **B.** To establish a District PLUM team
- **C.** To establish co-operation within and between sectors in the district and with other institutions
- **D.** To prepare an action plan for PLUM
- **E.** To prepare and agree on a plan of operation with priority villages

1.2 Activities

1.2.1 Organise and Conduct a District PLUM Workshop

The NLUPC in collaboration with the respective Regional Secretariat should organise and conduct a District PLUM workshop in order to sensitize the District Council to effect its mandate as a District Land Use Planning Authority. The workshop should involve District leaders i.e. Councillors (Economic affairs, works and environment committee), DC, DED, HoDs (land resources), Technical staff (land resources) and NGOs, CBOs, Projects dealing with land resources.

The strategy should be to build capacity of the Regional Secretariat to realize its role as per Section 20 of the Land Use Planning Act No.6 of 2007 in relation to co-ordination of the preparation and implementation of land use plans by the district councils in the respective region. The NLUPC should enhance the role of the Regional Secretariat by institutionalising its intra and inter district land use planning responsibility.

District Land Use Planning Authority (DLUPA): The NLUPC should sensitize and facilitate District Councils to effect their mandatory roles as District Land Use Planning Authorities as per Section 21 of the Land Use Planning Act No.6 of 2007; which among other things mandates the District Council to:

- ⇒ prepare a district land use framework plan
- ⇒ ensure co-ordination and systematic physical development at the district level;
- ⇒ ensure inter-sectoral co-ordination; and co-ordinate village land use plans.

Budgeting and Funding for Land Use Planning and Management: Also in this workshop, the District Land Use Planning Authority should be facilitated to realise the need of using integrated participatory land use planning as a tool for land allocation for sectoral uses, so that respective sector can embark on land management with confidence. It should guide sectoral projects and programmes in the district such as WMAs (Wildlife), PFM (Forestry), MACEMP (Environment), DADPs (Agriculture and Livestock), DASIP/CAADP (Agriculture/Irrigation), Mining etc. budget and fund for integrated participatory land use planning and management as entry point for natural resources management and sustainable socio-economic development (Ref. 1.12).

Similar strides must be made with private sector, NGOs and CBOs on the increasingly dynamic role of land use planning on socio-economic development. The would-be investors should budget and fund for land use planning, as a tool for determining availability of land in areas they want to invest. Also from these sources the District can budget for and prepare a District Land Use Framework Plan, showing environmental profiles of the district to be considered during preparation and implementation of village land use plans.

At the National level, the NLUPC usually has an annual budget to facilitate for at least 2 pilot village land use plans in selected districts, to be used as on job training for replication in the district.

Plan of operation with priority villages: Plans of operation for sectoral, NGOs, and private sector projects and programmes in villages, should be tabled, to enable the District PLUM team in consultation with DLUPA to draw an overall plan of operation indicating the villages that will be approached first and giving a long term vision for covering all villages in the district; and henceforth prepare an intervention action plan. If there are many villages (>10) prioritized by different sectors and programmes, the District PLUM team can be assigned to develop selection criteria and plan of operation in selected villages; and present it later to DLUPA for approval as shown in Section 1.2.3 of Part B.

At this level, the NLUPC should continue to facilitate and build capacity for districts to establish and maintain District Participatory Land Use Management (PLUM) teams (Ref. 1.6), which are integrated working instruments for:

- ❖ The role of NLUPC of assisting and facilitating districts in preparing district land use framework plans, village land use plans, monitoring and evaluating their implementation.
- ❖ Collaboration with NLUPC in identifying suitable land for investment particularly in villages where land use plans are not yet in place. This means land use planning should be undertaken to guide deciding if land is available for investment.

1.2.2 Establish a District PLUM team

During the PLUM workshop, the DLUPA forms a District PLUM team responsible for carrying out the proposed activities for participatory village land-use planning, administration and management. The DLUPA guides the PLUM team and ensures that the required support in terms of funds, materials and manpower is available throughout implementation. A PLUM team consists of 6 – 8 members of different disciplines, and various professionals are temporarily involved when their skills are required. This interdisciplinary working method improves the efficiency of the available human resources.

The profile of a PLUM team member should be:

- Knowledge of and experience with land-use planning and management;
- Knowledge of and some experience with participatory approaches;
- Good communication skills both oral and written;
- Ability to gather various information, analyse it and present results in a comprehensive manner;
- Gender aware and sensitive;
- Used and prepared to be in the field for most of the time;
- Innovative.

PLUM members should be technical officers from land resource based sectors i.e. Lands, Agriculture, Livestock, Forestry, Wildlife, Water resources, Environment, Community Development and Legal. At least two members should be conversant with GIS applications to support the team with map preparations using GPSs, satellite images and computers. The PLUM team should, if possible, consider gender to facilitate addressing gender issues at the village level. A village extension officer, who is residing in the village or nearby, can be included in the PLUM team and/or join the VLUM committee as an advisor (see section 2.3.1). Such a person can easily follow-up after PLUM has been introduced in the village.

After the candidates for the PLUM team have been selected, NLUPC and Region Secretariat facilitators should acquaint them with PLUM tasks ahead; for interventions in the villages. This can be accomplished through a 1-2 days working session in which also a Plan of Operation in priority villages should be completed, and an Action Plan prepared for PLUM activities interventions in villages.

The facilitators should train the District PLUM team to be able to conduct public awareness to the Village Council and the Village Assembly on the following themes:-

The aim of establishing a District PLUM team is to enable integration and coordination of sectors in their interventions in villages to facilitate issues dealing with land resources. It is not, establishing a separate unit (sector) with its own budget. The members remain working with their sectors, and join the team when there are PLUM activities for intervention in villages.

- National Land Policy and Classification of Land
- Management and Administration of Village Land
- Grant and Management of CCROs
- Adjudication of Interests in Land (Spot and Village Adjudication)
- Land Disputes Settlement Mechanism
  N.B. Refer and use the Education Guide of The Village Land Act
- Importance and Process of Village Land Use Planning and Management
- Land use rights v/s mineral prospecting/mining (***Appendix P***)
- Economic development, environment conservation and managing climatic change.
  N.B. Refer and use the Villagers PLUM Guidebook (Kiongozi cha Mwanakijiji)

1.2.3 Completing Plan of Operation in priority villages

For a proper prioritisation of villages, selection criteria should be formulated. For that purpose, the following guidelines are important:

A. The urgency of PLUM in a village (pilot/implementation of sectoral projects e.g. WMA, PFM, MACEMP, DADP, DASIP, CAADP, Land for Large/Medium Scale Investment);
B. Presence of factors that will limit or facilitate a successful implementation of PLUM in a village;
C. The impact of successful establishment of PLUM system and practice in a village for the district in general.

These general guidelines can be subdivided in the following specific criteria:

A1. The extent of land-use conflicts (such as conflicts between pastoralists and crop producers; conflict over property boundaries; conflicts over access and utilisation of natural resources like woodland and water resources);
A2. Occurrence and seriousness of environmental degradation (such as soil erosion, soil mining[1], destruction of woodland and depletion of water resources);
B1. Efficiency of the leadership in a village (conflicts or laxity on the leadership level can frustrate the implementation of PLUM);
B2. Activities of other projects in a village (which can be a facilitating as well as limiting factor);
B3. Presence of village extension staff residing in or in a nearby village and who can become a member of the PLUM team;
B4. Accessibility of the village throughout the year, travel distances and/or opportunities for the PLUM team and associated members to stay in or nearby the village;
C. Additional considerations include: village size (population and land area), its administrative function (as ward or divisional head quarters), its economic function (its importance as a producer of crops or livestock, etc.), its environmental function (as important water catchment), etc.

The way the criteria is formulated, depends on the strategy employed. For instance, a strategy could start with pilot villages, which will be used as a source of experience and examples to facilitate the expansion of PLUM to neighbouring villages. In such a case, the selected villages should have characteristics which are typical for a larger area (catchment area, planning zone or division).

The possibility of selecting a group of neighbouring villages with common land use management problems should also be considered. The Village Land Act (1999) provides procedures for joint land-use management agreements between villages if they use and share land resources e.g. forest, grazing land, basin, irrigation infrastructures etc. One could think about the conservation of a micro-catchment area, or the communal use of woodland in hills, grazing areas or water points (see box 4.1 of part B).

During this selection process, it may be important to consider political factors, such as the wish of district councillors to involve one or more priority villages in their respective area of constituency; which may facilitate approval of the plan by the DLUPA. However, the final plan should meet the required standards based on the selection criteria, so that resources are used most effectively.

The prioritisation process involves matching of the selection criteria with the characteristics of each village; which result into ranking of villages in a systematised way as outlined in Table 1.1 below.

TABLE 2.1: *A system for village ranking* by matching the identified selection criteria with the characteristics of each village. The classes for matching are in this example: 0: not favourable, 1: neutral,2: favourable.*

SELECTION	VILLAGE								
CRITERIA	V1	V2	V3	V4	V5	V6	V7	V8	ETC. …
A1	1	0	2	0	2	1	1	1	
A2	2	1	1	0	1	0	0	1	
B1	0	1	2	0	2	1	2	2	
B2	2	2	2	1	2	1	2	2	
B3	2	1	1	1	1	2	1	1	
B4	1	1	2	1	2	1	2	1	
C1	1	2	1	0	2	0	2	2	
C2	1	1	1	0	1	1	1	0	
SCORE	**10**	**9**	**12**	**3**	**13**	**7**	**11**	**10**	

* Villages which have scored highest can be considered as priority villages meanwhile other villages will be assisted later. This ranking is only a tool to facilitate the prioritisation and is not necessarily decisive.

The plan of operation is finally presented to the DLUPA for approval, and will be used as a reference during further application of PLUM in the district. After selecting the intervention villages, the Action Plan should be prepared as indicated below, and the respective Village Councils should be officially (official letter) informed, date and time set and agreed for Village Council and Village Assembly introductory meetings.

Also, the respective Villages land boundary maps should be acquired, scanned and physical features (roads, contours, water bodies etc.) digitized to get the village base map ready for use in Step 3.

1.2.4 Prepare an Action Plan for Intervention in Villages

During the 1-2 days working session, the District PLUM team should be facilitated to prepare an action plan which at this stage will cover field work activities of Step 2 – 4 (PRA-4days, Details data peaking and preparation of the Village Existing Land Use Map-3days, and Drafting the Village Land Use Plan and By-Laws-3days). For a District initiating establishment of PLUM activities, it is recommended for the District PLUM team to work under the guidance of experienced PLUM Facilitators (from NLUPC and or RS). For effective and efficient use of resources including time, it is strongly recommended for the PLUM team to be working in at least 2 villages at one time. This means the District PLUM team should form 3 groups (2 PRA teams and 1 GIS team). Each PRA team will work in one village, while the GIS will be stationed at a strategic centre (preferably with electricity) to receive and process field data into maps.

Furthermore, to start drafting the village land use plan, requires that the village existing land use map (including acreage for each land use) should be completed and available as a basis for negotiations of changes and suggestions. However the 3 days time allocated for this activity is usually enough for the PRA team to complete details data picking, and usually not enough for the GIS team to complete the village existing land use map. Again, for effective and efficient use of resources, it is recommended for the PLUM-PRA teams to start working in the next two villages while the GIS team is completing the existing land use maps. This can further be applied into the next villages leading into the following Action Plan for intervention in villages.

N.B. If more than 2 PRA teams are formed to work in more than 2 villages at a time, it can result into overloading the GIS team. Otherwise the GIS team should also be expanded, including equipments such as computers.

If the PLUM team is not well acquainted and trained in conducting PLUM activities, it has far-reaching long time damaging consequences on the costs, essence and implications of PLUM and its implementation.

Table 2.2: Action Plan for Preparations and Interventions in Villages

Date	Activity	Actors	Responsible
Day 1	Conduct District PLUM Workshop	District Leaders (MPs, DC, DED), Councillors, Heads of Departments, District Technical Staff, NGOs, CBOs NLUPC Facilitators, RAS Facilitators	DED NLUPC Facilitators, RAS Facilitator
Day 2	District PLUM team working session + Preparation of Action Plan	District PLUM team, NLUPC Facilitators, RAS Facilitators	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 3 – 6 (4 days)	Conduct public awareness and PRA in 2 villages (Villages 1 & 2) Form Village Land Use Management Committee (VLUMC)	Village Council, Village Assembly, Village Land Council, VLUMC (Villages 1 & 2) 2PLUM/ PRA Teams GIS Team (Preparation of Existing LU maps and CVLs)	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 7 – 9 (3 days)	Details data picking, Preparations of existing LU maps and CVLs	VLUMC (Villages 1 & 2) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 10 – 13 (4 days)	Conduct public awareness and PRA in 2 villages (Village 3 & 4) Form Village Land Use Management Committee (VLUMC)	Village Councils, Village Assemblies, Village Land Council, VLUMC (Villages 3 & 4) 2PLUM / PRA Teams GIS Team (Preparation of Existing LU maps and CVLs)	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 14 – 16 (3 days)	Details data picking, Preparations of existing LU maps and CVLs	VLUMC (Villages 2&3) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 17	Preparing 1st draft of Village LU Plan & By-laws (Villages 1 & 2)	VLUMC (Villages 1 & 2) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 18	Preparing 2nd Draft of Village LU Plan & By-laws (Villages 1 & 2)	Village Council, VLUMC (Villages 1 & 2) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 19	Preparing 1st draft of Village LU Plan & By-laws (Villages 3 & 4)	VLUMC (Villages 3 & 4) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 20	Preparing 2nd Draft of Village LU Plan & By-laws (Villages 3 & 4)	Village Council, VLUMC (Villages 3 & 4) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 21	Presentation and approval of Village LU Plan & By-laws by Village Assembly (Villages 1 & 2)	Village Council, VLUMC, Village Assembly (Villages 1 & 2) 2PLUM/ PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 22	Presentation and approval of Village LU Plan & By-laws by Village Assembly (Villages 3 & 4)	Village Council, VLUMC, Village Assembly (Villages 3 & 4) 2PLUM – PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitator
Day 23	Erection of VLUP Sign boards and submission of Draft VLUP reports to	VLUMC (Villages 1 &2) 2PLUM – PRA Teams	PLUM team Coordinator, NLUPC Facilitators,

	VEO	GIS Team	
Day 25	Erection of VLUP Sign boards and submission of Draft VLUP reports to VEO	VLUMC (Villages 3 &4) 2PLUM – PRA Teams GIS Team	PLUM team Coordinator, NLUPC Facilitators,
Day 25	Monitoring and Evaluation of Steps 1 – 4. Drafting road map for: - Completing, printing and submission of reports and maps -Approval and effecting land use by-laws -Planning for Implementation of Step 5 & 6 (Land Administration & Management measures	District PLUM Team	PLUM team Coordinator, NLUPC Facilitators, RAS Facilitators

This Action plan is partly implemented in this Step 1 during preparations, and essentially implemented in the forthcoming 3 Steps (2, 3 & 4) . Also, the above action plan indicates that actual field work days for each village is 11 days, including preparation and erection of VLUP Sign boards.

1.3 Required inputs and expected outputs

From the above action plan, it is expected that resources required for implementation of Steps 1 – 4, should be planned for and made available during this Step. This is because, Steps 2 – 4 are implemented concurrently in field work, as shown in the above action plan. Table 1.3 gives an indicative budget and required inputs (human, materials and equipments) for Steps 1 – 4.

Table 2.3: Indicative Budget for PLUM (Steps 1 – 4)

No.	Activity	Inputs and Budget	Total
1.	District PLUM Workshop + PLUM working session	**1.1 Per diems** (i) 8 Councillors 2 days @ 65,000/=	1,040,000/=
		(ii) 10 HoDs 1 day @ 45,000/=	450,000/=
		(iii) 15Tech. staff 1 day @ 20,000/=	300,000/=
		(iv) 4 NGOs rep. 1 day @ 20,000/=	80,000/=
		(v) 3 Facilitators 4 days @ 65,000/=	780,000/=
		(vi) 1 Driver 4 days @ 45,000/=	180,000/=
		Sub total	2,830,000/=
		1.2 Workshop facility package (tea, lunch, stationery) 1 day @ 500,000/=	500,000/=
		1.3 Transport (i) Fuel (DSM-RHQ-DHQ return) 400 litres @ 2000/=	800,000/=
		(ii) Vehicle maintenance 200,000/=	200,000/=
		(iii) Transport fare 12 persons @ 20,000/=	240,000/=
		Sub total	1,240,000/=
		Total Activity 1 (Step 1)	**4,570,000/=**
2.	**Land use planning (4 villages)** -Conduct public awareness and PRA in 4 villages -Details data picking -	**2.1 Per diems** (i) 6 PLUM team 22 days @ 35,000/=	4,620,000/=
		(ii) 3 Facilitators 26 days @ 65,000/=	5,070,000/=
		(iii) 1 NLUPC driver 26 days @ 45,000/=	1,170,000/=
		(iv) 1 district driver 22 days @ 25,000/=	550,000/=
		Sub-total	11,410,000/=
		2.2 Honorarium Village Leaders (i) 4VCs 26 for 5 days @ 5,000/=	2,600,000/=
		(ii) 4 VLCs 7 for 1 day @ 5,000/=	140,000/=
		(iii) 4 VLUMCs 8 for 9 days @ 5,000/=	1,440,000/=
		Sub-total	4,180,000/=

	Preparations of existing LU maps and CVLs -Village LU Plans (Maps and reports) & By-laws -Preparation and erection of VLUP sign boards	**2.3 Maps, stationery, reports and VLUP sign boards** (i) 4 Villages @ 500,000/=	2,000,000/=
		2.4 Transport (i)Fuel 2 vehicles 22 days @ 30 litres @ 2000/=	2,640,000/=
		(ii) 2 vehicles maintenance @ 200,000/=	400,000/=
		Sub-total	3,040,000/=
		Total - Land use planning 4Villages (Steps 2 – 4)	**20,630,000/=**
		VLUP unit cost for 1 village	**5,157,500/=**

Allowance types and rates for District PLUM workshop are discretional depending on policy and regulations governing paying institution.
Based on table 1.4 above, field work total cost for land use planning in 4 villages is TSHs 20,630,000/= (an average of TSHs 5,157,500/= per village). However this unit cost can be further reduced in the proceeding villages because after completing practical PLUM training, the District PLUM team can continue with 2 villages at a time without services of NLUPC and RAS facilitators. This will reduce total cost (for 2 villages) to TSHs 7,470,000/= making an average unit cost per village to be TSHs 3,735,000/= as shown below.
N.B. The whole District PLUM team working in one village, one after another, will tremendously raise the unit cost, and is not advisable.

N.B. The PLUM team should prepare and use Payment Forms for Village Leaders Honorarium payments which are acceptable within Accounts Procedures.

Table 2.4: Required resources for VLUP in 2 villages consecutively

Land use planning (3 villages) -Conduct public awareness and PRA in 4 villages -Details data picking -Preparations of existing LU maps and CVLs -Village LU Plans (Maps and reports) & By-laws	**Per diems** (i)6 PLUM team 11 days @ 35,000/=	2,310,000/=
	(iv) 2 drivers 11 days @ 25,000/=	550,000/=
	Sub-total	2,860,000/=
	Honorarium Village Leaders (ii) 2VCs 26 for 5 days @ 5,000/=	1,300,000/=
	(ii) 2 VLCs 7 for 1 day @ 5,000/=	70,000/=
	(iii) 2 VLUMCs 8 for 9 days @ 5,000/=	720,000/=
	Sub-total	2,090,000/=
	Maps, stationery, sign boards and reports (ii) 2 Villages @ 500,000/=	1,000,000/=
	2.5 Transport (i)Fuel 2 vehicles 11 days @ 30 litres @ 2000/=	1,320,000/=
	(ii) 2 vehicles maintenance @ 100,000/=	200,000/=
	Total - Land use planning 2Villages (Steps 2 – 4)	**7,470,000/=**
	VLUP unit cost for 1 village	**3,735,000/=**

Major outputs of this step are:

- Effective District Land Use Planning Authority
- An increased awareness among the District Council, staff and other stake holders regarding the benefits of participatory and integrated approaches in land-use planning and management;

- Efficient District PLUM team;
- A realistic plan of operation and intervention with priority villages that is supported by the district authorities and related institutions;
- Funds and human resources are allocated as envisaged in the general action plan and the plan of operation;
- Village land boundary map should be acquired, scanned and physical features (roads, contours, water bodies etc.) digitized to get the village base map ready for use in Step 3.

1.4 Monitoring and Evaluation (M&E)

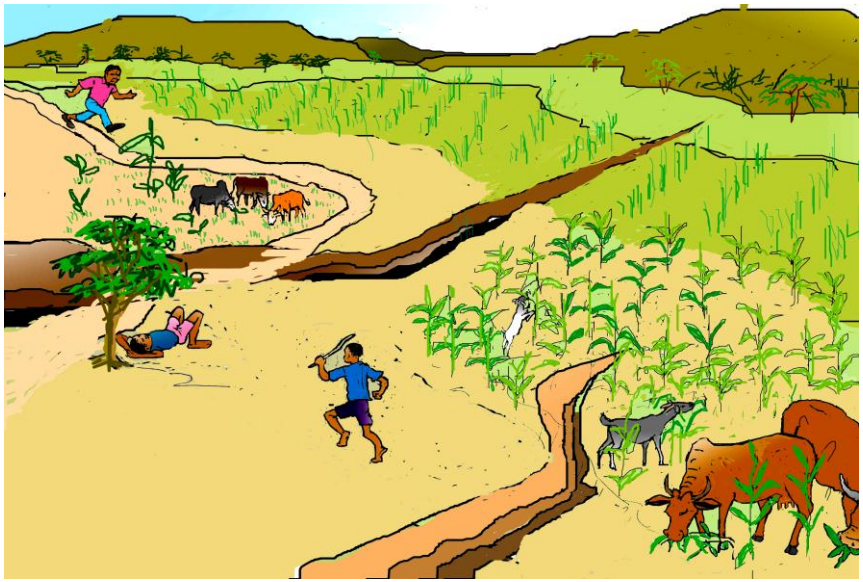
M & E is done in each step to see whether the activities are carried out according to the work-plan, the objectives are reached and if corrective measures have to be taken (see also section 1.5 of part A).

However, since the Action Plan outlined in this Section combines conducting simultaneously activities of Step 1-4, it is recommended to conduct M&E for these steps at the end of Step 4 as indicated in Table 1.3.

STEP 2

PARTICIPATORY RURAL APPRAISAL

FOR LAND-USE MANAGEMENT



After the activities required for a proper preparation have been completed in the previous step, the PLUM team will visit the selected villages in order to conduct a Participatory Rural Appraisal (PRA); focusing on land-use management. This should be preceded by sensitization on PLUM concept and raising awareness of villagers on land, natural resources and environment policies and legislations.

2.1 Objectives

OBJECTIVES

A. To introduce and raise awareness of villagers on land, natural resources and environmental policies and legislations
B. To introduce PLUM concept and activities to the villagers
C. To form a village land-use management (VLUM) committee
D. To assist villagers in analysing and evaluating land use and environment problems and opportunities (conduct PRA)
E. To assist villagers in the preparation of a community action plan for land-use management
F. To obtain baseline data about the village and its environment

2.2 Conditions to start

Important conditions which should be met before starting this step are:

⇒ An efficient multi-sectoral District PLUM team formed and operational

⇒ Resources allocated and plan of operation prepared for implementing Step 2-4 in selected villages.

⇒ The Village Council should be officially (through official letter) informed. Date and time set and agreed for Village Council and Village Assembly introductory meetings.

2.3 Activities

2.3.1 Conduct introductory meetings with Village Council and Village Assembly

The District PLUM team meet with the Village Council and Village Assembly to introduce PLUM concept and activities to the villagers. Also to introduce and raise awareness of villagers on land, natural resources and environment policies and legislations. By following the Action Plan prepared in Step 1 (Table 1.3), and in order to save time and resources, it is advised to conduct the two meetings on the same day (District PLUM team with the Village Council meeting in the morning and District PLUM team with the Village Assembly meeting in the afternoon/evening). The Village Land Council members should be invited in these meeting, to build their capacity and make sure they are elected and functioning according to the Village Land Act.

Introductory meeting with the Village Council

Issues of this meeting are:

A. To introduce the VC to PRA/PLUM team;
B. To introduce the PRA/PLUM team;
C. To introduce the idea of PLUM;
D. To conduct awareness on Land Policies and Legislations;
E. To introduce importance and process of village land use planning and management; the PRA process and required data;
F. Land use rights v/s mineral prospecting/mining (***Appendix P***)
G. To sensitise on economic development, environment conservation and managing climatic change;
H. To form the Village Land Use Management Committee (VLUMC). These should be informed to join the PRA process the next day.

N.B. Section 33 of the Land Use Planning Act (2007), requires for every Village Council to prepare its Village Land Use Plan.

Establishing the VLUM Committee

Section 107 of the Local Government Act (Cap. 287 R.E. 2002) empowers the Village Council to establish committees as it deems necessary.

For success of PLUM it is important to form an efficient and well balanced VLUM committee of 6-8 members with representation considering gender, hamlets, age groups, land users groups (farmers, livestock keepers etc.).

To be efficient, the VLUM committee members need the following qualifications:

- Living in the village, energetic, motivated and responsible;
- Having good relationship with the village community, knowledge of the villagers' residences and farms in the different village areas;
- Some members should have knowledge of village boundaries;
- Some can also be members of the Village Council;
- Able to speak Kiswahili and the local language fluently;
- Ability to read, write and make simple calculations is an advantage;
- Village Land Council members should not be appointed in this committee

The PLUM team should explain to the VLUM committee about PLUM, the PRA exercise and the role which they will play to facilitate the whole PLUM process. ***Refer ToR of VLUMC in Appendix D.***

N.B. During land registration the VLUMC can be appointed to assume the role of the Village Adjudication Committee

Introductory meeting with the Village Assembly

Issues of this meeting are:

A. To introduce the PRA/PLUM team;
B. To introduce the idea of PLUM;
C. To conduct awareness on Land Policies and Legislations;
D. To introduce importance and process of village land use planning and management;
E. To sensitise villagers on economic development, environment conservation and managing climatic change;
F. To introduce the Village Land Use Management Committee (VLUMC).

2.3.2 Conduct PRA with members of the VC and VLUMC

After the introductory meetings, the second day (Day 2 of Step 2), the PRA/PLUM team convene with the Village Council and VLUMC to start the PRA exercise; at an agreed convenient venue. It is recommended to work into two groups depending on the number and neighbour ness of hamlets (vitongoji), in the village. For example, if the village has 6 hamlets A,B,C,D,E,F; representatives of hamlets A,B,C should form one group; and representatives of hamlets D,E,F the second group. Facilitators (PRA/PLUM team) should also divide themselves to join these groups.

Working in two groups is more convenient and provide an opportunity for each group to report and present its report using selected villagers to the plenary (whole group). This enhances participation and ownership of the planning process, and prepares the Village Council for reporting and presentation of the land use plan to the Village Assembly.

N.B. Working in more than two groups, will take more time in presentations resulting into delaying the process.

Collect, analyse and document data

The main task in these groups is to collect, analyse and document village land uses data, trends and variables using structured questionnaire hereby attached as Appendix B, of which a soft copy should be available to the PRA/PLUM team. Filling and editing this questionnaire is the basis for the Village Land Use Plan report (*See Appendix B: VLUP Report Format*). The venue should be convenient to enable displaying gathered data onto flip-charts using marker pens, which should be used during presentations.

The questionnaires are worked upon by each group, under the facilitation of the PRA/PLUM team on the following issues:-

⇒ Location of the village
⇒ Short history of the village
⇒ Population (sex-age groups by hamlet)
⇒ Main economic activities
⇒ Land ownership/tenure
⇒ Land access
⇒ State of village government office v/s village land registry
⇒ Existing land uses
  - Agriculture (main crops and production, agriculture system, inputs and implements, irrigation)
  - Livestock keeping (type and number, keeping and grazing system, livestock services and infrastructure)

- Water sources and services
- Forestry (types, status and management)
- Wildlife and Tourism (types, areas, management) and
- Fishery (if applicable)
- Mining (if applicable)
- Socio services and infrastructure (education, health, roads, transport, communication, commercial, water supply, energy sources and services)
- Residential (areas, housing)

N.B. For villages with unique features e.g. discriminated land users, minority groups, prominent land use conflicts, miss-communication etc; it may be necessary to conduct Focused Group Discussion (FGD) with such groups.

Sketch and Draw the Resource Map of the Village

The villagers are guided to sketch and draw the different features, land uses and resources they have identified; to come up with the Village Resource Map within the village boundary as they understand them. If there is a Village Resource Map drawn from another programme e.g. O&OD exercise it can be copied and used. Below is an example of a Village Resource Map drawn by VLUMC in Msinune village, Bagamoyo district.

Start preparations of VLUP Sign boards

At this juncture major land uses in the village will have been known. A carpenter/sign writer from the village/district head quarter can be engaged to prepare and write VLUP sign boards which will be erected at the end of Step 4, after the approval of the VLUP by the Village Assembly. These are prepared using locally available wood or hard tin, and written by painting. Writings of different land use sign boards are exemplified in Appendix G.

N.B. If preparation of sign boards is delayed, it will be difficult to prepare and erect them at the end of Step 4.

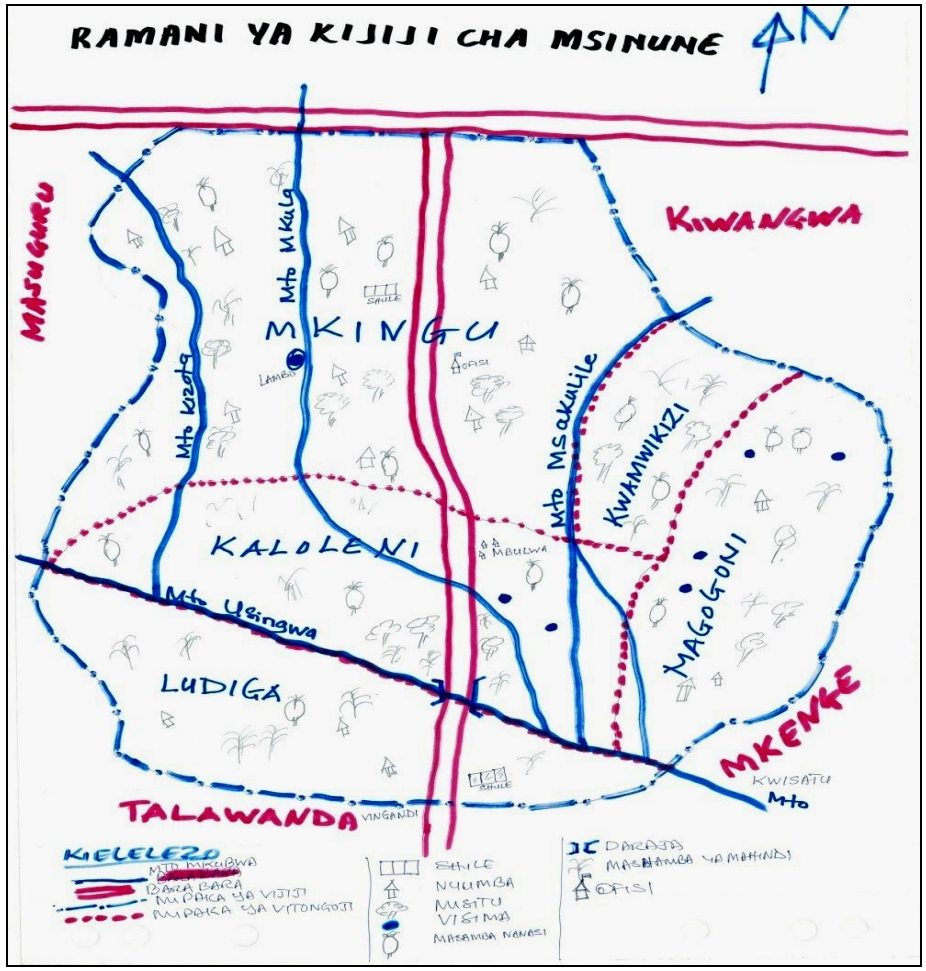


Figure 2.1: Village Resource Map, Msinune village, Bagamoyo district, October 2007

Analyse PLUM Problems, Opportunities and Obstacles

Most villages have gone through Obstacles and Opportunities to Development (O&OD) exercise. However, in most cases the resulting list is to deal with social and economic infrastructures and services in health, education, water and transport sectors. In this case, villagers should be facilitated to focus to bottle necks problems on land use production and environment, which are the backbone for the village's survival, prosperity and development. They should be able to relate the existing data/situation they have documented with a problem as exemplified in the box below.

Box 2.1 Examples of typical PLUM problems

- ***Low production with land degradation, extension services and deforestation;***
- ***Conflicts of livestock damaging farmers fields;***
- ***Boundary conflicts between neighbouring villages or farms;***
- ***Unavailability of water points for pastoralists;***
- ***Insufficient access to district extension services for improving agriculture, livestock and forestry;***
- ***Non availability of land for community facilities in the village centre, such as a playground, market and cemetery.***

Also villagers should be facilitated to analyse between route/cause problems; and result/symptom problems. For example; Famine and draught can be a result of deforestation and land degradation. The problems can be analysed by relating them with the opportunities available within and outside the village to solve out the problem; and obstacles which are limiting the village to use those opportunities. For example opportunities to solve low crop production can be availability of land, ward extension officer, farm implements fund; whereas obstacles to use these opportunities can be land use conflicts, lack of transport for the extension officer, lack of access, collateral and knowledge to use the farm implements fund. These are analysed by each group and displayed on a flipchart for presentation during plenary in a matrix format as exemplified below.

Table 2.5: Example of Problems, Opportunities and Obstacles

S/N	PROBLEMS	OPPORTUNITIES	OBSTACLES
1.	Low crop and livestock production	Land Ward Extension Officer Farm Implements fund	Land use conflicts Lack of transport Low knowledge of improved production Lack of collaterals
2.	Land use conflicts between farmers and pastoralists	Land Land laws District Council Village Government	Lack of knowledge on land laws Lack of land use plan Lack of village bylaws
3.	Environmental and water sources destruction	Water sources, forests Environment Law Water sources management law District Council Village Government	Lack of knowledge on laws Lack of land use plan Lack of village bylaws
4.	Poor markets for agriculture and livestock products	Agriculture and livestock products Urban centres	Poor accessibility Lack of societies
5.	Lack of capital for production implements	Land Farmers and livestock keepers Financial institutions	Lack of collaterals Lack of SACCOS Lack of communication with banks

After each group has completed compiling land uses data, trends and variables; and problem, opportunities and obstacles; they convene in plenary for presentation and discussion ultimately to come up with a combined report of the village existing situation. Problems which are related to each other should be combined into one key problem e.g. Deforestation, bush fires, water sources encroachment: into ***Environmental and water sources destruction***; Famine, poor farming methods, livestock diseases: into ***Low crop and livestock production.***

During problem analysis and priority setting, it is important to give enough attention to the cause-effect relations involved. For instance, the cause of low production can be land degradation, which can be a result of land mismanagement. This can be enhanced by land insecurity and conflicts. This sort of analysis is very important and helps villagers to balance between coping with immediate problems and those which require a medium or long term planning. The last ones are often located in the productive sector and involve land-use management. The immediate needs often refer to the service sector, such as schools, dispensaries and water supply. It is important for villagers to be aware that the required investments for the service sector are generated in the productive sector. The PRA team should facilitate this kind of analysis and awareness creation, but should also be careful to avoid influencing the participants in priority setting in order to assure that the appraisal can focus on land issues without affecting the basic principles of the participatory approach.

This PRA exercise in groups and plenary discussion for combination to come up with the village report is estimated to take two days (Day 2&3 of Step 2. Thereafter, the fourth day is used in plenary whereas the Village Council together with the Committee are facilitated to work on identified land use problems to come up with the Community Action Plan.

Villagers during a PRA process

2.3.3 Prepare a Community Action Plan

The most concrete output of the entire PRA exercise is a Community Action Plan focused on land-use management. It should become part of the village development plan and the basis for the detailed village land-use planning and management activities in the succeeding steps of PLUM. The CAP is a road map for implementation of the Village Land Use Management Plan, which should be displayed on the notice board of the Village Government Office for self assessment.

The community action plan for land-use management (CAP) is in the first place a work-plan, rather than a land-use plan. A CAP includes the required activities to improve the prioritised natural resource management components, to be worked out in the following steps of PLUM. The CAP should be as specific as possible and cover the following issues:

- Development priorities; proposed actions and requirements;
- Duties & responsibilities for individuals and groups;
- Work schedules;
- Areas where the community needs external assistance.

Basically for each identified problem a ***goal/objective*** is developed aiming at eradicating the problem. In order to attain the goal, villagers are facilitated to suggest ***actions/activities*** which should be done to attain the goal. The activities can be derived form solving out the obstacles which are deterring the villagers from using the available opportunities to eradicate the problem, and or contributing factors to the main problem as indicated in Section 2.3.2. These are coupled with required ***time*** and ***resources*** for implementation, responsible actors within and outside the village, and the progressive ***results*** during implementation of activities to attain the goal. Actually the progressive results become the performance ***indicators*** during Monitoring and Evaluation. This is worked out and displayed on flipcharts, and presented in a matrix as exemplified below in Table 2.2.

Completion of CAP in Day 4 of Step 2, marks the end of the PRA exercise, but it is the starting point for Step 3 (Mapping the village existing land uses); which starts immediately the next day for about 3 days consecutively depending on the size, types and details of land uses. This will involve the PRA/PLUM team and the VLUMC assisted by VEO. The PLUM team and the Village Council should decide on the day to convene to draft the Village Land Use Plan and By-Laws using the Existing Land Use Map. Also preparations for presentation of the Village Land Use Plan and By-Laws to the Village Assembly for approval should start.

2.4 Required inputs and expected outputs

Tables 1.2&1.3 (Section 1.4 of Step 1) give a general indication of the required input from the different parties involved for each activity and sub-activity of Steps 1-4. During the whole process, both the district as well as the villagers involved, commit themselves to reaching the agreed targets. Both parties are expected to keep their promises and to remind each other about their responsibilities.

Expected outputs from this step (used as indicators for evaluation) are:

- Villagers have a better understanding about their problems and opportunities;
- Villagers are aware of the need for PLUM and are mobilised to implement it;
- The village has a well balanced and efficient VLUM committee dealing with land issues;
- The villagers have increased awareness regarding land related matters;
- The village community has created a community action plan focused on land-use management which fits within the overall village development plan and meets the following conditions:
    a) It reflects the priorities of the different socio-economic groups in the village in a balanced way;
    b) It deals with short and medium to long term needs and land-use matters in a balanced way;
    c) It does not contradict district, regional and national plans and policies, and is supported by the district authorities.
- The PLUM team has an understanding about the village which is sufficient to facilitate the following steps towards PLUM;
- The PRA team has collected sufficient baseline data about the village to enable an assessment of the impact of PLUM at the later stages.

2.5 Monitoring and Evaluation (M & E)

- M & E is done in each step to see whether the activities are carried out according to the work-plan, objectives are reached and if corrective measures have to be taken (see section 1.5 of part A).
- However, since the Action Plan outlined in Section 1.5 combines conducting simultaneously activities of Step 1-4, it is recommended to conduct M&E for these steps at the end of Step 4 as indicated in Table 1.2.

TABLE 2.6 Example of a Community Action Plan based on problems exemplified in Table 2.1

S/N	GOAL	ACTIVITIES	TIME OF IMPLEMENTATION	RESPONSIBLE IN THE VILLAGE	ACTORS OUTSIDE THE VILLAGE	REQUIRED RESOURCES	EXPECTED RESULTS
1.	To maximize crop and livestock production per acreage	-To conduct Education to farmers, livestock keepers and extension workers on improved modern methods -To make study tour in areas implementing improved modern methods of agriculture and livestock keeping -To establish class farms (mashamba darasa) of various crops in each hamlet -To establish land titles (CCROs) to be used as collaterals to acquire capital for production implements -To acquire required agriculture and livestock implements	To be specified in the village for each activity (e.g. Aug-Dec 2010)	-Village Council -VLUMC -Farmers -Livestock keepers	-District Council -District PLUM team -Extension workers -DADPs & DLDPs (ASDP & LSDP) -NGOs & CBOs	-Transport -Stationary -Funds -Land -Implements	-Farmers, livestock keepers and extension workers with knowledge on improved modern methods -Class farms (mashamba darasa) of various crops established in each hamlet -Villagers having land titles (CCROs) and using them as collaterals to acquire capital for production implements -Required agriculture and livestock implements available
2.	To eradicate land use conflicts in the village	-To prepare and implement a participatory village land use plan and by-laws -To sensitize villagers on land resources policies and legislations -To enhance security of land tenure by granting and registration of land titles (CCROs) -To establish Village Land Registry	-do-	-Village Council -VLUMC -Village Land Council -Village Assembly -Villagers	-District Council -DLUPA -District PLUM team -MLHHSD -NLUPC -NGOs & CBOs	-Transport -Stationary -Funds -Land -Computers & GPSs -Maps -Village Land Registry Equipments	- A participatory village land use plan and by-laws prepared and implemented -Villagers aware of land resources policies and legislations -Security of land tenure enhanced by granting and registration of land titles (CCROs) -Village Land Registry established
3.	To conserve and manage Environmental and Water sources	-To prepare and implement a participatory village land use plan and by-laws -To sensitize villagers on land resources policies and legislations -To identify, demarcate and manage forest areas -To identify, demarcate and manage water sources	-do-	-Village Council -VLUMC -Village Land Council -Village Assembly -Villagers	-District Council -DLUPA -District PLUM team -Extension Workers -Water, Environment &	-Transport -Stationary -Funds -Land -Implements	- A participatory village land use plan and by-laws prepared and implemented -Villagers aware of land resources policies and legislations -Forest areas identified, demarcated (sign boards erected) and managed -Water sources identified, demarcated (sign boards erected) and

		-To establish soil and water conservation measures in farms -To promote and implement afforestation and agroforestry			Natural Resources Sectors -NLUPC -NGOs & CBOs		managed -Soil and water conservation measures in farms implemented -Afforestation and agroforestry promoted and implemented
4.	To have reliable markets for agriculture and livestock products	-To establish farmers and livestock keepers societies -To establish crops and livestock markets ***'minada'*** -To establish selling crops using government receipt system -To improve accessibility, transportation and communication	-do-	-Village Council -VLUMC -Farmers -Livestock keepers	-District Council -District PLUM team -Extension workers -DADPs & DLDPs (ASDP & LSDP) -NGOs & CBOs	-Transport -Stationary -Funds -Implements	-Farmers and livestock keepers societies established -Crops and livestock markets ***'minada'*** Established -Selling crops using government receipt system established -Accessibility, transportation and communication system improved
5.	To enable acquiring of capital for production implements	-To establish SACCOs -To establish communication with financial institutions to access capital loans -To conduct awareness and use of loan funds opportunities (e.g. women, youths, empowerment funds) --To establish land titles (CCROs) to be used as collaterals to acquire capital for production implements	-do-	-Village Council -VLUMC -Village Assembly -Villagers	-District Council -District PLUM team -Extension Workers -MLHHSD -NLUPC -NGOs & CBOs	-Transport -Stationary -Funds -Land -Computers & GPSs -Maps -Village Land Registry Equipments	-SACCOs established -Villagers accessing capital loans from financial institutions -Villagers using loan funds opportunities (e.g. women, youths, empowerment funds) to access capital for production implements --Villagers having and using land titles (CCROs) as collaterals to acquire capital for production implements

STEP 3

MAPPING EXISTING VILLAGE LAND USES

The PLUM team and the VLUMC divide into groups to do field work (on site) using GPS to map boundaries and points of the identified land uses in 2.3.2. The main land uses include residential areas, social and economic services and infrastructures, agriculture, grazing areas, forestry, water sources, wildlife areas, fishery etc. Collected data (coordinates of points) are computerized mapped using GIS software and expertise to produce the village existing land use map. During field work the PLUM and VLUMC should discuss proposals for expansion of areas required for different land uses.

3.1 Objectives

OBJECTIVES

A. To establish village boundaries.

B. To map the existing land use and management problems.

C. If required, to collect and map additional bio-physical information.

D. To prepare the Village Existing Land Use Map.

3.2 Conditions to start

Important conditions which should be met before starting this step are:

⇒ Resources allocated and plan of operation prepared for implementing Step 2-4 in selected villages;

⇒ The village boundaries have been established, demarcated and surveyed;

⇒ Materials required to prepare the existing land use map (in terms of manpower, expertise, equipments, software) acquired.

⇒ A Community Action Plan for land-use management created by the village community;

⇒ An efficient VLUMC formed with good understanding of the village land uses/users, land resources, features and village boundaries.

3.3 Activities

3.3.1 Map village boundaries

Before proceeding with PLUM, the planning area has to be well agreed upon with neighbouring villages and properly documented. In most cases the village boundaries are demarcated and surveyed by the Land Survey Department (DLO & MLHHSD). It is recommended to initiate VLUP in villages of which their boundaries have been already established, demarcated and surveyed (use this as one of the selection criteria). If not, and it is necessary to continue with VLUP & PLUM, the procedures for establishing village boundaries should be first carried out through DLO as shown in Box 3.1 below.

A village boundaries map (Survey Plan) is obtained from the DLO or MLHHSD as a hard copy and or a soft copy. If it is only a hard copy, it should be scanned to get a soft copy to enable being used in a computer.

N.B. Where a village claiming or occupying and using land as village land is unable to agree and resolve boundary dispute with contiguous neighbours they should involve the respective District Council. AND if they still don't reach an agreement, the Ministry of Lands should be consulted for procedures prescribed in Section 7.2 of The Village Land Act.

Box2.2: Determination, Demarcation and Surveying of Village Boundaries

Section 7.1 of The Village Land Act provides that Village land shall consist of:- land with the boundaries of a village in accordance with the provisions of section 22 of the Government (District Authorities) Act, 1982; land designated as village land under the Land Tenure (Village Settlements) Act, 1965; land, the boundaries of which have been demarcated as village land under any law or administrative procedure in force at any time before the Village Land Act came into operation whether that administrative procedure based on or conducted in accordance with any statute law or general principles of either received or customary law applying in Tanzania and whether that demarcation has been formally approved or gazetted or not; land, the boundaries of which have been agreed upon between the village council claiming jurisdiction over that land with contiguous neighbours (villages, general land, reserved land).

Agreeing about the village boundaries with contiguous neighbours

The 'village boundary negotiation team' is made up representatives from each village, selected by the respective Village Council. The team and a surveyor visits all corners of the village boundary. Negotiations and agreements are made on the exact location of each corner, whereby the corners are temporarily marked. The agreements are recorded as minutes, indicating a description of the location of the corner points and bearing the names and signatures of the team. Thereafter the DLO/MLHHSD can be involved in surveying the village boundaries.

3.3.2 Prepare a village base map

A village base map is a result of combining the village boundaries map with physical features details in the village such as roads, contours, rivers, lakes, oceans, mountains, forests, built up areas (residential, social services, commercial) etc. The physical features details can be obtained by either using Topographical Standard Sheets or Satellite Images.

A. **Using Topographical Standard Sheets**

i. Acquire a topographical standard most recent sheet map (1:50,000) from Surveys and Mapping Division (MLHHSD), with sheet index number for respective villages.
ii. Scan the map of the village area to get a soft copy of the village physical features map and georeference it.
iii. Superimpose the village boundary map with the scanned village physical features map.
iv. Digitize features such as roads, contours, rivers, lakes, oceans, mountains within the village boundary map to get the Village Base Map (Scale 1: 50,000 – 100,000).

B. Using Satellite Images

i. Acquire a recent high resolution (2-5 meters) satellite image covering the respective villages.
ii. Acquire and scan a topographical standard sheet map as in **A** above.
iii. Superimpose the village boundary map and contours from a topographical standard sheet map with the satellite image of the village physical features.
v. Digitize features such as roads, contours, rivers, lakes, oceans, mountains within the village boundary map to get the Village Base Map (Scale 1: 50,000 – 100,000).
iv. Use a topographical standard sheet map to differentiate features such as roads and rivers from the satellite image.

N.B. The two maps explained above, though essentially used in Step 3, they should be acquired and prepared in Step 1 (during preparations) by the GIS unit as indicated in 1.2 & 1.3.

3.3.3 Prepare the existing village land use map

An existing land-use map is a combination of the village base map, with land uses and resources identified in 2.3.2 with actual observation and details data picking on the ground using GPSs. This is a field work activity in the village involving the PRA/PLUM team and the VLUMC conducted in about 3 days (depending on the size of the village and number/distance of the hamlets) consecutively; immediately after completing the PRA exercise in Step 2. The Field Work Team (PRA/PLUM team and the VLUMC) divides into two groups, each having a GPS. One group can use the vehicle to pick and record data of land uses away from the village/hamlet centre such as forestry, grazing areas, wildlife areas and water sources; and the second group can walk to pick and record data of land uses around the village/hamlet centre such as residential, social services and economic infrastructures, and farms around residential areas.

The GIS team within the PRA/PLUM team should use the first day of detail data picking to orient itself with the village features by joining the field work teams, and to georeference the village base map prepared from topo-sheets and satellite images with actual features in the village. Thereafter the GIS should concentrate on computerizing data from field work groups to prepare the Village Existing Land Use Map. In so doing, the GIS team work through the following processes:-

I. GPS readings (features coordinates) are extrapolated and features are drawn through computer based GIS software such as Arc View, Arc Map or MapInfo basing on the nature of the (linear, point or polygon form).

II. If recent Satellite images are available, field GPS data, will only be needed to confirm the observed image features, georeferencing, and to differentiate some features such as roads and rivers; farms, grasslands and grazing areas; built up areas etc.

III. Existing features in the resulting map are labelled and coloured in accordance to Land Use Planning Regulations (Standard Colours and Shadings) for different land uses.

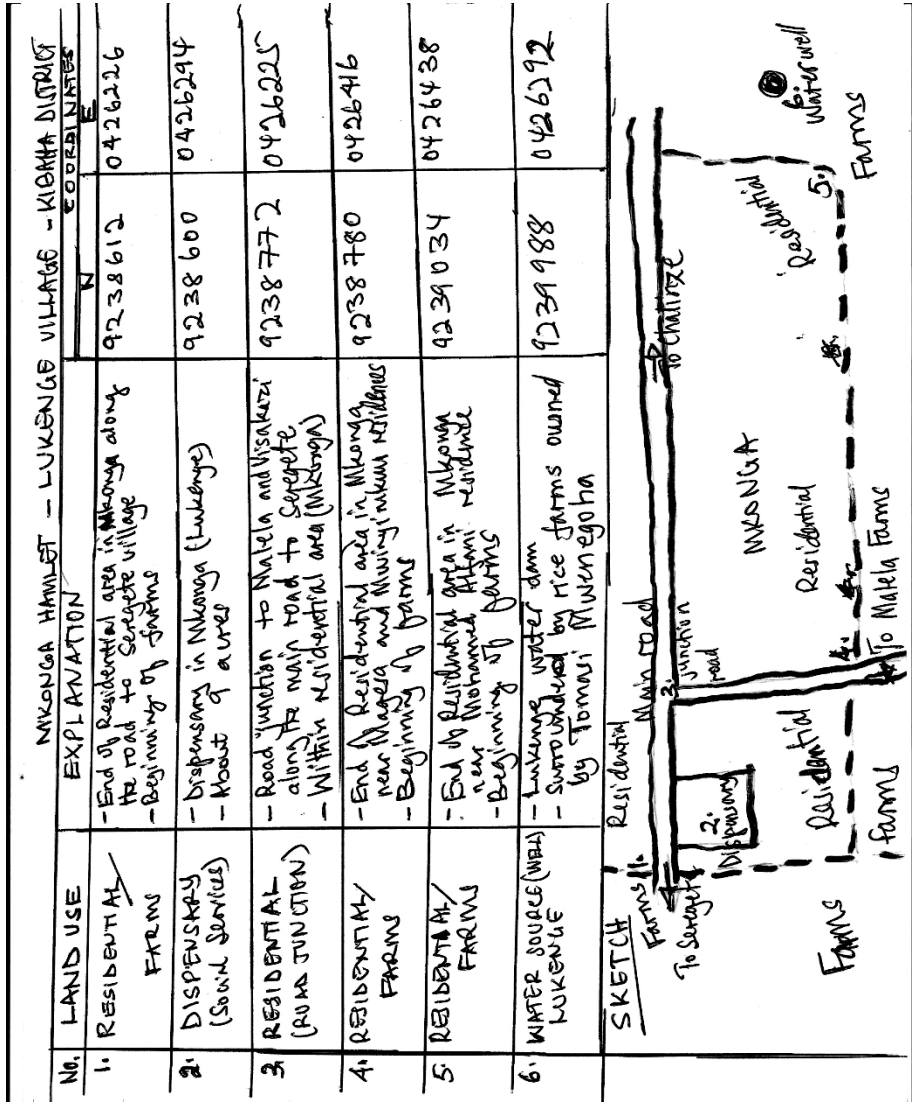
IV. Areas (acreage), length and percentage of various land uses and resources such as agriculture, grazing land, social facilities, forestry, water bodies and residential are calculated by using computer based GIS software and recorded.

V. A first draft of the village existing land use map is printed and presented to the PRA/PLUM team and VLUMC for sharing, comments and thereafter finalized as exemplified in Map 3.1 below. It is recommended for field work groups to use a matrix format in recording features (land uses and resources) coordinates data, supported by sketch maps as shown in Figure 3.1 below:-

PRA/PLUM members with knowledge and experience of using GPSs should train all team members including VLUMC on using and recording data from GPS. All the GPSs should be checked and verified if they are within the same range acceptable accuracy, reading and UTM. The GPSs should be equipped with functioning batteries and spare batteries available.

Enough points should be picked to enable accurate drawing of boundary polygons of areas like residential, agriculture, forestry, grazing; linear and corners of roads, rivers, railway; and points for features like water wells, services etc.

Figure 2.1: An example of a matrix and sketch for recording field data



MKONGA HAMLET – LUKENGE VILLAGE – KIOMHA DISTRICT

No.	LAND USE	EXPLANATION	COORDINATES N	COORDINATES E
1.	RESIDENTIAL/ FARMS	-End of Residential area in Mkonga along the road to Sengete village -Beginning of farms	9238612	0426226
2.	DISPENSARY (Social Services)	-Dispensary in Mkonga (Lukenge) -Roof is rusted	9238600	0426294
3.	RESIDENTIAL (RURAL JUNCTION)	-Road junction to Matola and Visakazi along the main road to Sengete -Within residential area (Mkonga)	9238772	0426225
4.	RESIDENTIAL/ FARMS	-End of Residential area in Mkonga near Magera and Muinyi'nkuni Villages -Beginning of farms	9238780	0426416
5.	RESIDENTIAL/ FARMS	-End of Residential area in Mkonga near Mohamed Alani residence -Beginning of farms	9239034	0426438
6.	WATER SOURCE (WELL) LUKENGE	-Lukenge water dam -Surrounded by rice farms owned by Tomasi Mwenegoha	9239188	0426692

SKETCH

PLUM and VLUMC, picking land use details with GPS

During detail data picking field work, the field work groups should also make observations, discuss and take notes of the following issues:-

- Type, names and extent of vegetation (trees, grass) in different areas.
- Geology and soil types in different areas.
- Topology and land terrain.
- Emerging problems such as deforestation, encroachment of water sources, land degradation and proposals for management.
- Proposals for possibilities, and direction of allocation and expansion of particular land uses (residential, social services, agriculture, irrigation potential areas, grazing areas, dam site potential areas, forestry, etc.)

N.B. The District PLUM Coordinator should make sure that field work teams convene at the end of each day to evaluate the progress, combine data for submission to the GIS team and report writers, and plan tasks for the proceeding day. The District PLUM Coordinator should also consult the GIS team, and report writers to assess progress.

With improvement in technology, it is now possible to acquire GPSs (mobile computers) e.g. Trimble GPS; which record point coordinates automatically; and at the same time drawing land use polygons requiring only entry of legend to produce and download land use maps.

N. B. For final production of maps (Existing land use map & Land use plan), use standard colours, legend, and format as specified in Appendix C.

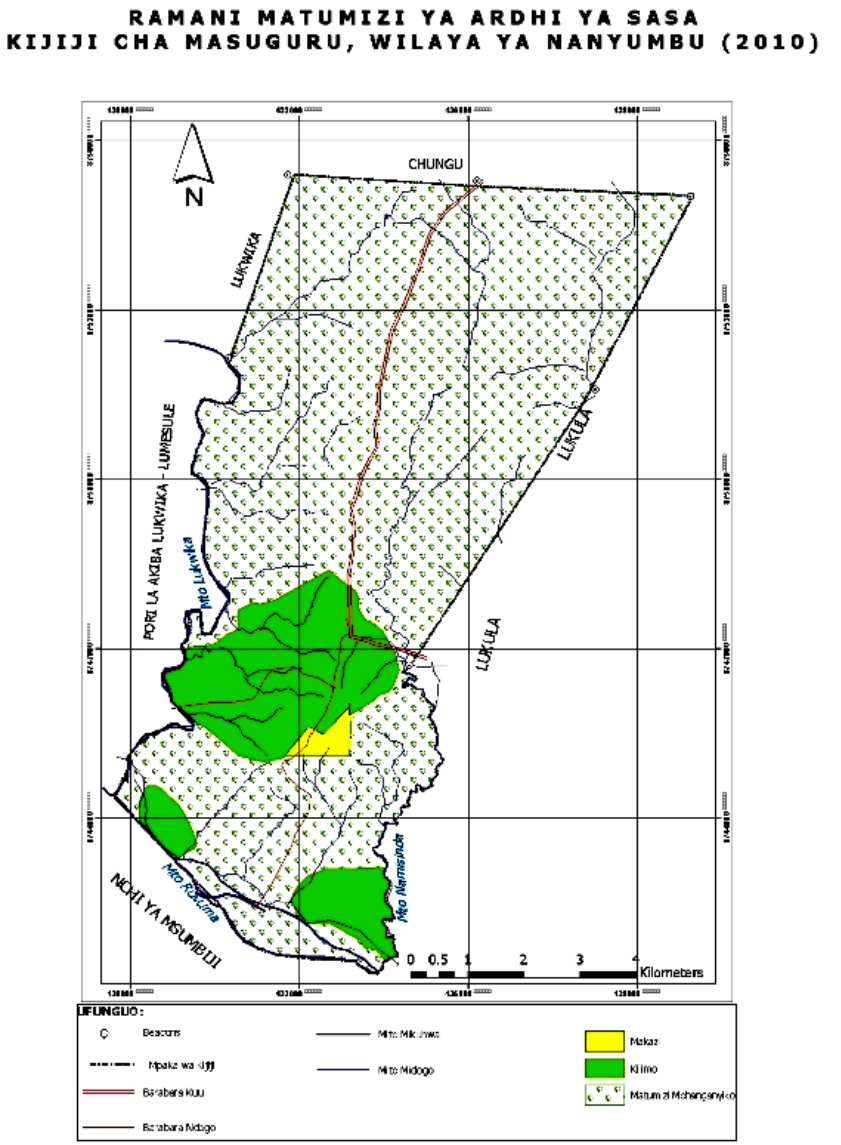


Figure 2.2: Masuguru Village Existing Land Use Map, 2010

3.3.4 Conducting a bio-physical survey

This activity is optional and only carried out if the PRA did not generate enough data to deal properly with important land related problems. The survey should be justifiable in terms of input (funds, materials, manpower and time) compared with the expected output (land productivity). The survey should only deal with knowledge gaps which need to be filled for a proper planning.

The PLUM team, in consultation with the DLUPA and VLUM committee, prepares terms of reference and recruits the needed expertise for this survey. The PLUM team and the VLUM committee should be involved in this survey in order to assure that it is carried out according to the PLUM strategy.

A bio-physical (or agro-ecologic) survey within the setting of PLUM combines the investigation on soil, climate and other land resources, resulting in an assessment of the capacity and potential of the land to fulfil the needs of the village community. It should also result in recommendations which are in accordance with the capacity of villagers to deal with the identified constraints, such as land degradation and other causes of low production. Typical issues in such a study are:

- Assessment of the land suitability/capability for the different uses, i.e. types of agricultural, livestock and forestry uses;
- Options to improve land productivity;
- Availability of water.

N.B. For details see Appendix F.

3.4 Required inputs and expected outputs

Tables 1.2&1.3 (Section 1.4 of Step 1) give a general indication of the required input from the different parties involved for each activity and sub-activity of Steps 1-4.

Expected outputs from this step are:

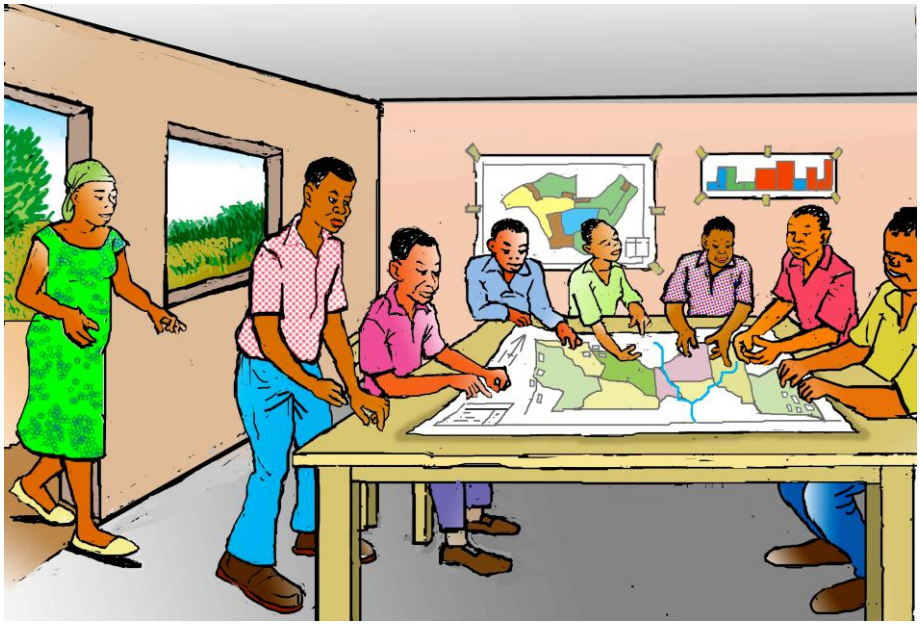
- Village boundaries are established;
- An existing village land-use map has been drawn indicating major physical features, contours, land uses and resources;
- A Draft report of the PRA data, including field notes observations and planning proposals;
- If applicable, bio-physical data are gathered, analysed and available to improve the immediate and long-term planning activities.

3.5 Monitoring and Evaluation (M & E)

Since the Action Plan outlined in Section 1.5 combines conducting simultaneously activities of Step 1-4, it is recommended to conduct M&E for these steps at the end of Step 4 as indicated in Table 1.2

STEP 4

PARTICIPATORY VILLAGE LAND-USE PLANNING



The community action plan for land use management is further implemented in this step and worked out in detail. The PRA exercise, detail data picking and existing land use map preparation in the previous steps enable the planning team to understand better the prevailing village land use problems land possible solutions; including resolving land use conflicts, land reallocation, land use management and land security enhancement. The PLUM team assist the village community to select the most appropriate options for the village land uses, in consideration of present and future land requirements.

4.1 Objectives

OBJECTIVES

A. To solve land-use conflicts in community and private lands

B. To prepare and approve a village land-use plan with villagers considering community as well as individual interests

C. To prepare and approve village land use management by-laws to enforce implementation of the land use plan

D. To enhance environmental conservation and mitigate adverse climatic changes

E. To initiate preparation and implementation of village land use management measures

4.2 Conditions to start

Important conditions to be met before starting this step are:

⇒ A CAP for land use management which reflects the interests of the stakeholders in a balanced way;
⇒ Village boundaries established;
⇒ An up-to-date existing land-use map, and existing situation report;
⇒ Villagers are aware of the need for PLUM and well mobilised;
⇒ An efficient and motivated PLUM team and VLUM committee;
⇒ The required resources for this step are made available.

4.3 Activities

4.3.1 Prepare a First Draft of the Village Land Use Plan and By-Laws

After completing Step 3, when the existing land use map and existing situation report is ready; the PLUM team and the VLUMC meet for one day (8th day of PLUM team in the village) to discuss and draft proposals for the village land use plan and village land use management by-laws, in consideration of land-use management issues earmarked in the Community Action Plan (2.3.3) and field work (3.3.3).

In 3.3.3, during detail data picking field work, the field work groups are supposed to have made observations and notes on:

- Emerging problems such as deforestation, encroachment of water sources, land degradation and management proposals.
- Proposals for possibilities and direction of allocation and expansion of particular land use (residential, social services, agriculture, grazing, forestry, wild life etc.)

These proposals are systematically combined together in consideration of existing land uses, and sectoral expertise and standards. Proposals are made in terms of text and sketched on the map.

Planning proposals for different land uses

A. Community facilities and infrastructures

This should be considered first, due to its nature of being owned by the whole community, under the guardian of the Village Council. It is easier and less expensive to allocate land for community facilities at present times than in the future when land pressure will have increased. Allocating land for village community facilities should consider the following:-

i. Existing community facilities.
ii. Present and future requirements for community facilities.
iii. Attracting investors in community facilities and infrastructures (i.e. NGOs, religious institutions, private).
iv. Attracting investors in agro-processing industries.
v. Nearness to the existing community facilities (complementarities in terms of infrastructure provision i.e. electricity, water, transport, security etc.).
vi. Accessibility.
vii. Village centre.
viii. Services in different hamlets if distanced.
ix. Space standards for community facilities (See Appendix D).
x. Compensations (cash, in kind, alternative land) if applicable.

N.B. Typical community facilities at the village level are dispensary/clinic (2.0 acres), nursery schools (1.0 acres), primary school (10.0 acres), secondary school (12.5 acres), market (5.0 acres), religious sites (5.0 acres), cemetery (5.0 acres), public buildings (3.0 acres), industrial/commercial/financial (4.0 acres), access roads (2.5 acres); with a total of 50 acres = 22.5 hectares.
See Appendix E.

B. Settlements areas

Human Settlements are a living phenomenon which grows with time. Usually it combines a homestead, garden and livestock sheds. Field groups should combine notes on requirements, and directions for expansion of settlements (refer to field notes from 3.3.3). This should be based on population and number of households (homesteads) in each hamlet. The forecasted number of households in the planning period of 10 years (Section 2.3.2), multiplied by the average size (acreage) of settlement area for each homestead, gives the required

settlement area for the hamlet/village. Allocating land for settlements areas should consider the following:-

i. Existing settlement areas.
ii. Present and future requirements for settlement areas.
iii. Direction and extent of growth of settlement areas.
iv. Accessibility to community facilities and infrastructure to land users groups.
v. Separating settlements from main agriculture farms and grazing areas.
vi. Agreeing on the required average settlement area per household.
vii. Modalities for acquiring settlement land for new households.
viii. Management of settlements and community facilities areas as provided for in Step 6.

C. Agriculture land

These are areas often privately owned for each household, mainly used or designated for crop production. During land allocation they can be differentiated into food and cash crops; OR perennial or semi-perennial crops i.e. coffee, fruit trees, vine etc.; annual crops i.e. maize, sorghum, beans, sweet potato, horticultural crops, etc.; irrigated crops: i.e. paddy and horticultural crops such as tomatoes, cabbage, cucumbers, etc.

To get planning proposals, field work groups combine notes on requirements, and directions for expansion of agriculture areas. Requirements for agriculture land area for food and cash crops can be calculated using two basic methods:-

- The Carrying Capacity method (See Appendix F)
- The Sustainable Optimal Development of Agriculture Production method based on the existing situation and projected future requirements.

The Carrying Capacity Method explained in details in Appendix G, is preferably used when establishing a new Village/Hamlet as was the case during the Villagization Programme. It is not ideal for an on going village, and due to its technical requirement calculations (e.g. calories requirements) it is not easy for villagers to understand and participate. Moreover, for most villagers, agriculture and livestock production is means of livelihood and development i.e. food, education, health, better housing, transport means, communication, leisure etc.; AND not only meant for food sufficiency and cash for basic needs. Henceforth, for most villages in Tanzania, the Sustainable Optimal Development of Agriculture Production Method is recommended.

Sustainable Optimal Development of Agriculture Production based on the existing situation

The average farm size for all crops per household in each hamlet/village is used as a base line. If areas for expansion of farms are available (refer to field notes from 3.3.3), it should be deliberated upon on the suitable planned average farm size taking into consideration of the following:-

* Development of households to better living conditions (livelihood), and poverty eradication i.e. decent housing, food sufficiency, health care costs, education costs, transport, energy, water etc;

- Availability and use of better farming technologies/equipments e.g. power tillers, tractors, ploughs etc.;
- Availability, ability and use of other agriculture implements e.g. fertilizers, insecticides etc.;
- Ability of the household to manage the planned average farm size in other required activities i.e. planting in time, weeding, harvesting etc.;
- Availability of land for other land uses.

The planned average farm size is multiplied with the forecasted households numbers in the planning period of 10 years (Section 2.3.2), to get the required total acreage for agriculture in the village/hamlet.

For example, in May 2010 in Lukenge village (Kibaha district); it was planned to expand the average household farm size from 3 to 5 acres in Mzizima and Mkonga hamlets; and in Muyombo (pastoralists) from 1 to 3 acres as shown below:-

No.	Hamlet	Forecasted total households in 2020	Total land requirements for residential (acres) 0.5 acres @ household	Total land requirements for agriculture (acres) 5.0 acres @ household
1	Mzizima	134	67.0	670
2	Mkonga	196	98.0	980
3	Muyombo (3.0 acres/household)	363	181.5	1,084
	Total	**693**	**346.5**	**2,734 acres**

Allocating land for agriculture should consider the following:-

i. Existing agriculture areas.
ii. Present and future requirements for agriculture areas.
iii. Agreeing on the required average farm size per household.
iv. Direction and extent of growth/reduction of agriculture areas.
v. Separating main agriculture farms from settlements and grazing areas.
vi. Optimizing utilization of the village irrigation potential areas.
vii. To avoid encroachment of water sources and land allocated for forestry.
viii. Establishing zero grazing livestock keeping among farmers, to improve their earnings and supplement fertilizers requirements.
ix. Establishing agro-forestry within farms to support zero grazing, supplement fertilizers requirements, and sustain climatic change.
ix. Modalities for acquiring agriculture land for new households.
x. If land is available, to allocate land for large and medium scale farming investment.
xi. Improving and optimizing crop production; and management of agriculture land as provided in Step 6.

D. Livestock keeping and grazing areas

These are areas used or designated for livestock grazing, of which pasture can be improved. Also they need to be facilitated with infrastructures such as cattle tracks, water dams, cattle dips, livestock markets etc.

To get planning proposals, field work groups combine notes on requirements, and areas used for grazing and movements. To calculate the area (acreage) required for livestock grazing in the hamlet/village, the livestock data collected as indicated in Section 2.3.2 are converted into Livestock Units (L.U.).

In this context, 1LU is an equivalent of one mature Tanzanian short horn zebu cattle, with live body weight of 250 kg. If daily dry matter intake is assumed to be 2.5% body weight, then it means forage requirement of 6.25 kg per day or 2280 kg per annum. In most Tanzania areas (savannah grasslands) this amount of forage (biomass) can be obtained from 2.0 hectares (4.5 acres) annually, which is a planning unit requirement for 1LU.

1LU is equivalent to 1 cattle, 2 donkeys, 4 goats, 4 sheep. The total number of livestock units in the hamlet/village is multiplied by the annual grazing unit requirement to get the total required grazing area in the hamlet/village.

For example, in Lukenge village (Kibaha district, requirements for grazing land was calculated as shown below:-

Hamlet	Cattle	Goats	Sheep	LU	Grazing area (ha)
Mkonga	1,550	25	-	1,556.25	3,112.5
Mzizima	-	-	-	-	-
Muyombo	8,000	3,000	2,500	9375	18,750.0
Total	**9,550**	**3,025**	**2,500**	**-**	**-**
LU	**9,550**	**756.25**	**625**	**10,931.25**	**21,862.5**

However, the total village land area is 16,195.8 ha; and the land allocated for grazing is 3494 ha (21.5% of the village land) which is enough for 1747 LU. Henceforth, the rest 9184.25 LU have to be removed from the village or harvested.

Allocating land for livestock keeping and grazing should consider the following:-

i. Existing livestock keeping and grazing areas.
ii. Present and future requirements for livestock keeping and grazing.
iii. Direction and extent of growth/reduction for livestock keeping and grazing areas.
iv. Separating grazing areas from settlements and farms.
v. Establishing and maintaining cattle routes, infrastructures and cattle markets.
vi. Establishing zero grazing livestock keeping among farmers, to improve their earnings and supplement fertilizers requirements.
vii. Establishing agro-forestry within farms to support zero grazing,
viii. Livestock units kept in the hamlet/village to match with carrying capacity of allocated grazing land.
ix. If land is available, to allocate land for large, medium and small scale ranching investment.
x. Improving pastures in grazing lands/ranches; and management of livestock keeping and grazing land as provided in Step 6.

E. Forestry areas

The village government may set aside, own and manage 'Village Forest Reserves' in order to maintain the functions of the forest areas within the village boundaries. Also, individuals (households) and institutions can develop and own forest lots or within farms through agro forestry. Nationally, about 30% of whole land area is reserved land (forestry and wildlife). Henceforth to maintain this and control climatic changes, it is recommended for any given administrative area i.e. village, district etc. 20-30% of its area to be developed and covered by forests.

These are areas covered with natural vegetation dominated by trees. Forest areas in villages can be subdivided according to its management related to: production and use of timber, fuel wood, charcoal, honey, herbs, etc.; and the protection of natural vegetation, animals and water sources.

Field work groups should combine notes and make proposals for forestry areas in the village. Allocating land for forestry areas should consider the following:-

i. Existing forestry areas (Section 2.3.2).
ii. Present and future requirements for forestry.
iii. Direction and extent of expansion/reduction of forest areas.
iv. Identification of village forest reserve, and open forests for use (energy source, wood, building materials, medicine etc.).
v. Establishment of trees nurseries to support afforestation.
vi. Management of water sources, steep slopes and hilly areas.
vii. Establishing agro-forestry within farms to support zero grazing, fertilization and controlling climatic change.
viii. Environmental conservation and control of climatic changes.
ix. If land is available, to allocate land for large and medium scale forestry investment.
x. Management of forestry areas as provided in Step 6.

F. Water sources

The Environment Management Act (Section 57) and The Water Sources Management Act (Section34); provides for all potential water sources to be protected by a 60 meters (30 meters on both sides of a river) buffer zone. These areas should be identified, demarcated and conserved by planting/natural trees and other vegetation with friendly properties of conserving water sources. This also applies for water sources in private land i.e. farms, forests; whereby owners should be administered to conserve water sources by growing trees and crops with friendly properties of conserving water sources such as bananas, sugar canes, livestock pastures etc. Management of water sources areas is provided for in Step 6.

G. Wildlife Management Areas

Villages which are contiguous neighbours to protected wildlife areas (National Parks, Wildlife Conservation Areas, Game Reserves) should identify and demarcate community wildlife management areas (WMAs) within village boundaries. This area is supposed to be a buffer zone of other village land uses with wildlife so as to mitigate destruction to villagers and their activities/assets by wildlife animals; and also destruction to wildlife animals and their environment by human activities. Also to maintain the national proportionate of reserved land and control climatic changes, it is recommended for WMA to cover 20-30% of village land; which can also be used as a village forest reserve for villages with scarcity of land.

The villagers participate in management of the WMA in collaboration with the wildlife sector as elaborated in Step 6.

H. Other land uses

There are other land uses, which are unique in particular villages such as mining e.g. stone and quarry, sand, lime etc.; fishery and processing etc. Such land uses are identified during the PRA exercise and mapped; and at this stage their planning proposals are also considered and included in the Village Land Use Plan.

Complete the First Draft of the Village Land Use Plan

All the land use proposals are combined in terms of text and sketch map which is superimposed over the existing land use map.

Draft the Village Land Use Management By-Laws

By-laws refer to regulations which are made by a local authority, which are binding in a particular area, and which can not be covered easily by national legislations. By-laws can be created for the district and the village levels and should not contradict with national legislations. For PLUM, by-laws provide the legal basis and are considered as powerful tools to enforce specific local level agreements concerning natural resource management and village land-use plans. They can be created to allocate land for different uses and to give restrictions and directives for the management of the different defined uses, in order to protect various land resources such as water, soil and vegetation (forest). Village by-laws are necessary in areas with serious land conflicts whereby agreements approved by the village assembly are expected to be insufficient to make them respected by all members of the community.

Procedures for preparing and executing Village by-laws are provided for in The Local Government Act (District Authorities) R.E. 2002 Sections 163-167; which essentially involves:-

I. The Village Council of the respective village making proposals and contents (draft) of by-laws for carrying into effect any of its functions I.e. execution and implementation of the Village Land Use Plan.

II. The Village Council convene a meeting of the Village Assembly and present the proposed village by-laws. The Village Assembly pass them with or without amendments.

III. The Village Council submits the by-laws together with the minutes of the meeting of the Village Assembly which deliberated upon the by-laws to the respective District Council for consideration and approval.

IV. If approved by the respective District Council, the village by-laws shall thereby be made and shall come into operation on a date agreed upon by the District Council upon the recommendation of the Village Council concerned.

Village Land Use Management By-Laws are composed of the following main features:-

- Introduction and reference to the main Act (Sections) which provides for their making;
- Interpretations;
- Powers and responsibilities of institutions/organs to be involved in exucuting the by-laws;
- Description and management measures of land uses as provided for in the Village Land Use Plan;
- Demarcation, indication and registration of land uses and land parcels;
- Revision and changes in the Village Land Use Plan;
- Penalties for breach of the villaje by-laws
- Approval and operational of the by-laws;
- Village Council and Village Assembly meeting minutes which considered and passed the by-laws.

N.B. An example of Village Land Use Management By-Laws is attached as Appendix G.

4.3.2 Prepare a Second Draft of the Village Land Use Plan and By-Laws

A one day (9th day of PLUM team in the village) meeting is arranged with the Village Council, whereby the VLUMC and the District PLUM team presents the proposed village land use plan and by-laws. At this stage the VLUMC should be prepared to be making the major presentations, with the PLUM team playing the supporting and facilitating role. All items (proposed land uses and by-laws) are presented, discussed, and explained to reach agreements. If there are any changes made they should be done on both text and map;

resulting into the Second Draft of the Village Land Use Plan and By-Laws. This is a version which the Village Council should present to the Village Assembly. The Minutes (with signed attendance by each participant) of the Village Council which prepared the Village Land Use Plan and By-Laws should be part (appendix) of the report. These minutes should be signed by the Chairperson and Secretary (VEO), and stamped with the Village Council stamp.

At the end of the day, agreements are made on the date, time and presentation modalities to The Village Assembly of the following items:-

1. Introduction and an overview of importance, process and outcome of a village land use plan and by laws. ***(PLUM team member)***
2. Major existing situation report data; analysed land use problems and existing village land use map. ***(VLUMC or VC member)***
3. Community Action Plan. ***(VLUMC or VC member)***
4. Village Land Use Plan (Text and Map). ***(VLUMC or VC member)***
5. Village Land Use Management By-Laws. ***(VLUMC or VC member).***

N.B. The PLUM team should contemplate with the Village Council on best possible ways of making the Village Assembly meeting a success in terms of attendance, communication, timing, and participation of different community groups i.e. land users, gender, age etc. The date set for the Village Assembly meeting should give enough time (about 2 days) for the GIS and report teams to complete and print the land use plan map and report. While this is being done, PLUM team will be working with subsequent villages. The PLUM team should also initiate M&E (See 4.5)

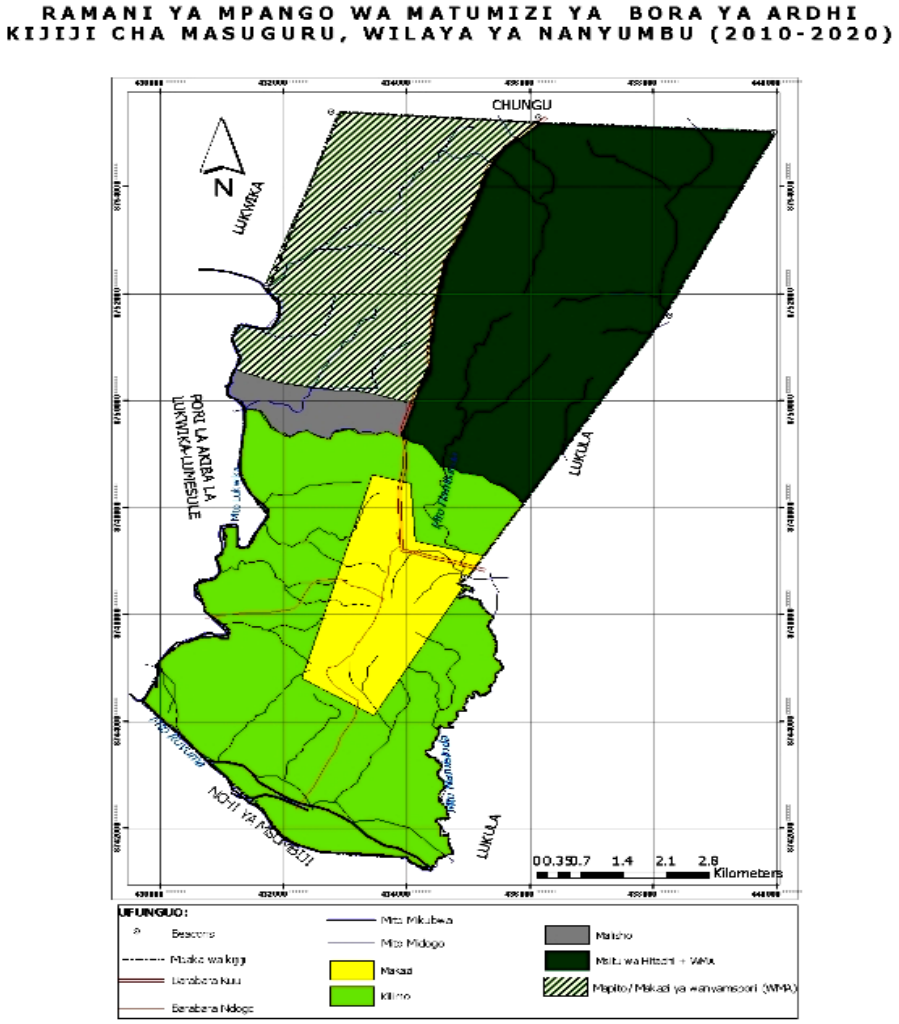


Figure 4.1 An example of Masuguru Village Land Use Plan, Nanyumbu district

4.3.3 Completing the Village Land Use Plan and By-Laws

A Village Assembly meeting (10th day of PLUM team in the village) is conducted whereby the Village Council with support of VLUMC and the District PLUM team presents the proposed village land use plan and by-laws. All items (proposed land uses and by-laws) are presented, discussed, and explained to reach agreements. If there are any changes made they should be done on both text and map; resulting into the final version of the Village Land Use Plan and By-Laws, and approved by this meeting. The Minutes (with signed attendance by each participant) of the Village Assembly which approved the Village Land Use Plan and By-Laws should be part (appendix) of the report. These minutes should be signed by the Chairperson and Secretary (VEO), and stamped with the Village Council stamp.

4.3.4 Erect VLUP Sign boards

The District PLUM team facilitate the VLUMC, to erect VLUP sign boards (preparations started during Step 2), by reading coordinates of boundaries of planned land uses from the map (plan), and translating them on the ground using a GPS. The sign boards (showing the type of land use and management measures identified in CAP) are usually affixed with nails on big trees. This is planned to take one day in each village (11th day of the PLUM team in the village).

Land use sign boards, are meant to show/translate on ground the boundaries of agreed land uses, as documented in the village land plan. These serve to eliminate ignorance to violation of land use agreements by some villagers, thereby enforcing implementation of the land use plan and by-laws. They are preferably made using local materials e.g. wood, iron/tin bars by local carpenters/sign writers.
N.B. See examples of VLUP sign boards in Appendix H.

After being made and written, sign boards prescribing different land uses and regulations (Section 4.3.3), are erected on grounds by using poles, iron bars or on big trees. The points to erect them are determined by reading the land use plan map, and the related coordinates on the ground using a GPS. The sign boards should be erected near roads/tracks/ways where they are easily seen by villagers. The sign boards also help during land adjudication and registration, to determine which land use type is allowed in a given area as prescribed in the village land use plan. That particular land use will also be prescribed as a use condition in the title deed.

4.4 Required inputs and expected outputs

Tables 1.2&1.3 (Section 1.4 of Step 1) give a general indication of the required input from the different parties involved for each activity and sub-activity of Steps 1-4.

The output, which can be expected from this step, depend on the priorities and the selected activities. General outputs are:

- A village land-use plan which,
  - reflects the stakeholder's capacities and interests in a balanced way,
  - has the required technical quality, and desired level of detail and accuracy for improved land use,
  - serves as a long term frame to support short and long term decision making on land management and development within the overall village and district development plan;
  - is respected by the community, approved by the Village Assembly and confirmed by the District Council,
- Land conflicts are minimised;
- Security of land use and ownership is established;
- Control over land resources is more gender balanced.

Depending on the selected activities, the village land-use plan comprises or is linked with:

- By-laws;
- General management strategies for the various land uses.

4.5 Monitoring and Evaluation (M & E)

As indicated in 1.5, Steps 1-4 activities are carried on concurrently; and evaluated at the end of Step 4. After completing the draft land use plan and by-laws in 4.3.2, the PLUM team should discuss with the Village Council and VLUMC on the activities accomplished so far, based on the Community Action Plan, using expected outputs and results as indicators. Also they should discuss and plan for the indicative way forward for implementing the other activities in the Community Action Plan, which essentially form the forthcoming Steps 5-6 of these guidelines.

For the activities of Steps 1-4, the following proposals for M & E are made:

A. The PLUM team ensures follow-up of the action plan (Section 1.2.4) on a daily basis; i.e. if work proceeds according to planning in terms of time, materials, budget, and leads to the desired results;

B. The PLUM team members and VLUMC make notes during all activities, to be used for discussion, evaluation and preparation of the required reports, maps, etc.;

C. The PLUM team coordinator monitors the cooperation among the district staff and with the villagers. The attendance and performance of the staff and villagers concerned during the various activities are important indicators;

D. The PLUM team monitors if decision making at the village level is carried out in a participatory manner, and if the village land use plan and other products of these step have the required quality;

E. The expected outputs of these steps (1-4) summarized in each step, are the key indicators for monitoring and evaluation;

F. After completing field work of Steps 1-4 in the first batch of selected villages, the District PLUM team should meet to review the progress of activities in these steps, based on the action plan and other documentation (CAP, maps, reports) prepared during these step.

   During this meeting the PLUM team should draw a road map for completing the following:-

   - Completing, printing and submission of VLUP reports and maps (To NLUPC, District Council and respective Village Councils)
   -Approval and effecting land use by-laws
   -Planning for Implementation of Step 5 & 6 (Land Administration & Management measures).

STEP 5

IMPLEMENTATION OF VILLAGE LAND ADMINISTRATION:
ENHANCEMENT OF SECURITY OF LAND TENURE

The community action plan for land use management which was created by villagers at the end of the PRA, is further implemented in this step and worked out in detail. Land security is enhanced through land adjudication, registration and issuance of Certificates of Customary Right of Occupancies (CCROs).

5.1 Objectives

OBJECTIVES

A. To monitor implementation and ensure compliance with approved Village Land Use Plan

B. To establish a District Land Registry

C. To establish respective Village Land Registries

D. To establish and authoritatively ascertain the existing land rights, boundaries, owners and rights of other interested parties

E. To mark the established boundaries, erect planned land uses sign boards and record particulars of land parcels in a village

F. To prepare, register and issue Certificates of Customary Right of Occupancies (CCROs) to land owners in the village

5.2 Conditions to start

Important conditions to be met before starting this step are:

⇒ Village boundaries established;
⇒ An approved Village Land Use Plan;
⇒ Approved Village Land Use Management By-Laws;
⇒ Villagers are aware of the process, need and use of CCROs and well mobilised;
⇒ An efficient and motivated PLUM team and VLUM committee;
⇒ The required resources for this step are made available.

5.3 Activities

5.3.1 Establish a District Land Registry

The Village Land Act (1999) Section 21(3) provides for each District Council to establish a District Land Registry which should be under jurisdiction, supervision and direction of the Registrar of Land Titles. Essentially this requires office space, registry equipments and staff; under supervision of an Authorized Land Officer, who also work as a District Land Registrar. On 18 December, 2004; the Commissioner for Lands issued a Circular for Districts to establish District and Village Land Registries, from which requirements and indicative costs are attached as Appendix I. The District Land Registry is particularly important to register CCROs and resulting transactions.

The PLUM team should ensure that the (cadastral) data generated from PLUM activities, in the respective villages should form part of the data for the village land registry as well as for the district land registry. Maps and land registration forms used in the process of establishing and demarcating property boundaries should be structured in such a way that the data can be used in building up the district land registry.

This ensures that, the generated cadastral information is stored, managed and updated by the district land office. This enables to use the cadastral data-base to facilitate issuing title deeds or any other type of documents, and to play its role if land disputes can not be solved at the village level only.

Districts which are equipped with computers and having a conducive environment (including well trained staff) for smooth operation of computers may use a computerised cadastral data-base to supplement the conventional filing system. A computerised data-base facilitates the compilation, storage, analysis and reporting of cadastral data and herewith facilitates issuing of land registration documents during and after the introduction of PLUM in a village.

5.3.2 Establish a Village Land Registry

The Village Land Registry is necessary to register CCROs and resulting transactions at the village level, and it is a branch of the District Land Registry; kept by the Village Executive Officer (Section 21 of the Village Land Act). This requires office of a room adjacent to the VEO's office, which should be of permanent building standard. ***See Appendix I.***

This will enable the cadastral data generated during PLUM activities, to be stored in a safe and easily manageable way in the village, in order to facilitate the process of issuing land registration documents. The village land registry should remain up-dated to keep pace with future changes in land use and rights (through inheritance, selling, etc.). This requires good communication between village and district level registries involving:-

- Keeping record of all changes in land tenure and use;
- Reporting of the changes to the District Council in order to enable updating of the district land register;
- To avail information on land use and tenure in case of land disputes, etc.

5.3.3 Conduct land parcels adjudication

Adjudication of private and communal land parcels would is a field-based process, with wide publicity and the presence of all stakeholders according to well defined rules. The Village Land Act (1999) provides for two types of village land adjudication:-

(i) Spot adjudication (Section 49)

Adjudication and survey of land for Certificates of Customary Right of Occupancy (CCRO) is undertaken in response to demand from an individual CCRO applicant. The adjudication team, together with the CCRO applicant and contiguous neighbours, will visit the applicant land parcel and make record of coordinates (corners of plot boundary).

(ii) Systematic (Village) adjudication (Sections 51-55)

Adjudication and survey for CCROs is undertaken covering massive landholdings in a village (whole village or part of). The Ministry of Lands, Housing and Human Settlements Development (MLHHSD) has issued a manual for systematic village land adjudication based on application in pilot areas of Babati and Bariadi districts; which is hereby summarized.

Before field work the following actions have to be taken;

- the Village Council should make a recommendation for Systematic Adjudication, sends a copy to the Commissioner for Lands and posts publicly in the village, the recommendation for 14 days before the Village Assembly approval.
- The Village Assembly should consider application/recommendation of Systematic Adjudication done by the Village Council. It should make decision on whether to approve or reject the recommendation for Systematic Adjudication process. If the Village Assembly approves the recommendation, Village Council should appoint the Village Adjudication Adviser and Village Adjudication Committee of not more than 9 members. In Babati and Bariadi pilot district, the VLUMC together with the chair person of the respective hamlet, where appointed to constitute the Adjudication Committee; which is recommendable.

Note: if the village Assembly refuses to conduct systematic adjudication, individuals may apply for spot adjudication.

There after, the District PLUM team should establish at least two Systematic Adjudication Teams (SAT) each comprising of the following members;

i) 1 Adjudicator (PLUM team)

ii) 1 Recorder (PLUM team)

iii) 2 Villagers (VLUMC/Adjudication Committee)

vi) Hamlet chair person.

These adjudication teams are essentially field work teams, each working in a designated area e.g. hamlet, and supported by:-

a) **Village level:** Village Executive Officer (Maintaining the Village Land Registry + logistics and arrangements); Village Land Council (Dealing with land disputes which are not easily resolved in the field).

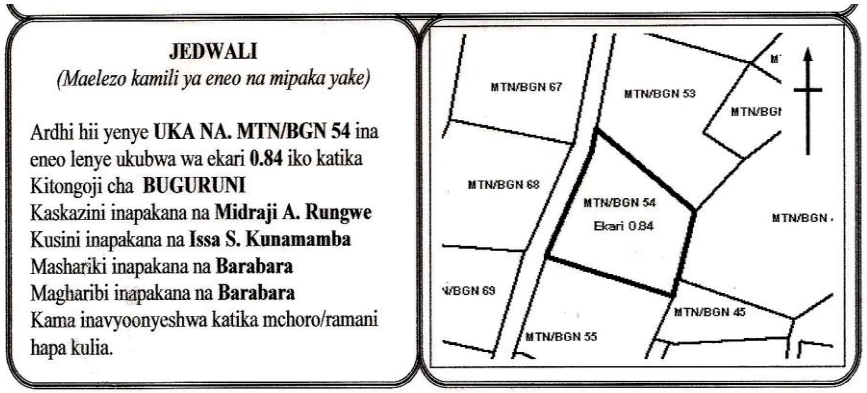
b) **District level:** 2 GIS experts(PLUM team) + Authorized Land Officer

The Systematic Adjudication Team should consult the village authority and prepare for systematic adjudication. The following steps are recommended to be followed in the field work;

- Refer to basic data of the village in the village land use plan e.g. number of hamlets (sub-villages) in a village and consequently number of households in each hamlet;
- Using the above data to prepare a schedule for field work, including allocation of the work among the teams;
- Land owners should register with the VEO and obtain Parcel Identification Numbers (PIN) for their land parcels;
- On the appointed day, SAT, land owners and adjoining neighbours should go to the field to identify and record land parcels boundaries;
- If a satellite image/ortho-photo is available, and the plot boundary features are seen on both ground and image the Adjudicator should trace the agreed boundaries of the land parcel on the ortho-photo and add the PIN.
- If the satellite image/ortho-photo is not available, or boundary features cannot be identified on the image due to cloud, shadow, or lack of clarity, a GPS should be used to acquire co-ordinates of the corner points or trace the boundaries of the land parcels;
- Meanwhile the Recorder should record the parcels details (parcel number, name of owner/owners, land use type, area and locality) on a Systematic Adjudication Record Form (SARF: *attached as Appendix J*) and take digital photo of the land owner/owners (all those who are supposed to appear on the CCRO);
- The land parcel owner/owners and adjoining land owner neighbours should sign a consensus on their boundaries on a Systematic Adjudication Record Form (SARF);
- The above process should go on for all land parcels planned to be covered for the day (approximately 30 land parcels per each SAT).

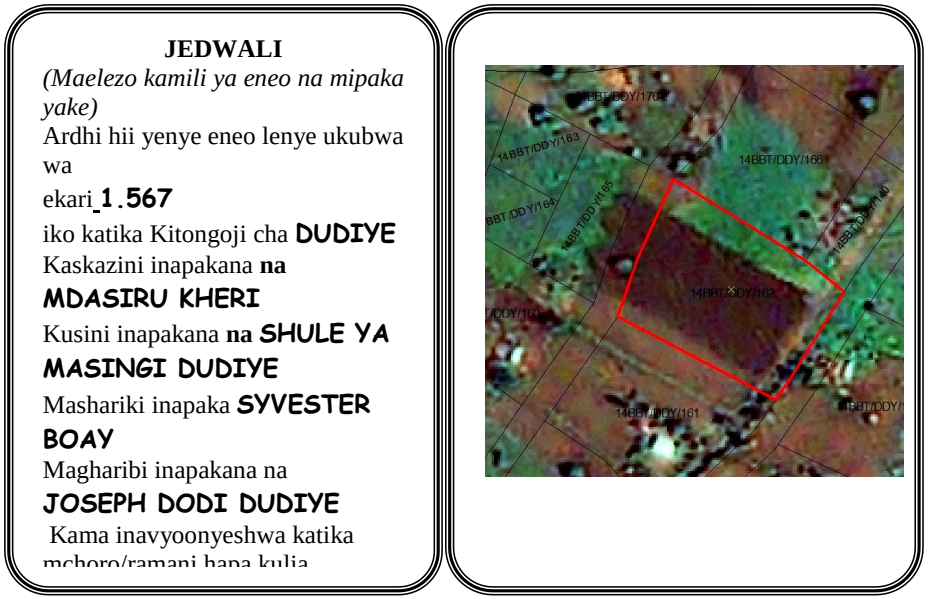
At the end of each day, the PLUM team members in the SAT should submit the acquired information (the hard copy ortho-photo, Systematic Adjudication Record Form and the digital photographs) to the GIS team where the following steps should be taken:

- Screen digitize/map coordinates the identified land parcels and enter the parcel details in the attribute table and load the digital photos. Each digitized land parcel should be linked to the corresponding parcel details and owner's photo,
- The digitized parcels are used to create a digital cadastral map and areas of the parcels are computed and entered in the attribute table,
- Copies of the digital maps and lists of land parcel details are lodged in the District Land Registry and hard copies in the Village Land Registry.



Plot boundaries map, using GPS coordinates in Mtakanini village, Namtumbo district, Ruvuma region

Plot boundaries map, using satellite image and GPS coordinates in Gajal village, Babati district, Manyara region



Plot boundaries map, using satellite image and observed boundary features in Managha village, Babati district, Manyara region

Figures 5.1-3 Examples of Plot boundaries maps using a combination of methods

A map of land parcels boundaries of a given area, together with a corresponding details attribute table, should then be publicly displayed as a provisional adjudication record in a prominent place in the village for a period of 30 days in the village to allow individuals to ensure that the record appropriately reflects land owners existing rights. If there any complaints/appeals they should be lodged within this period (Sections 54-55 of the Village Land Act).

A provisional adjudication record becomes a final adjudication record 30 days after its publication, and become a part of the village land register, unless an appeal is lodged. When the records are considered to be accepted, CCROs are processed and issued to applicants land owners.

5.3.4 Processing, registration and issuance of CCROs

The Village Land Act requires that application be made for CCRO by any person claiming an interest in land in an adjudicated area (Form 18 of the Village Land Regulations). This form has been modified and incorporated as a Systematic Adjudication Records Form (See Appendix I); whereby applications are made and processed simultaneously with the adjudication exercise as follows:-

- The Systematic Adjudication Records Form (SARF) is used to open a file for preparation of CCRO in the District Land Office;
- The District Land Officer prepare a CCRO in triplicate and send them to Village Executive Officer;
- The land owners sign the CCRO before VEO and pay requisite fees;

- Village Chairperson and Village Executive Officer sign and seal/stamp the CCRO;
- The Village Executive Officer send the signed CCROs to the District Land Officer;
- The Authorized District Land Officer sign, seal, register and laminate one copy of CCRO;
- The District Land Officer file one copy of the CCRO in the District Land Registry; and send to the respective Village Executive Officer two copies of the CCRO (including the laminated copy);
- The Village Executive Officer make record and file one copy of the CCRO in the Village Land Register; and issue one copy of laminated CCRO to the applicant (land owner/owners).

N.B. The required fees for a CCRO (Regulation 81 of Village Land (2002) are Application (500/=); Registration (750/=); Adjudication (1500/=), making a total of TShs. 2750/=. However, Section 28 of the Village Land Act provides for instances where the Village Council may require and determine payment of annual land rent.

5.4 Required inputs and expected outputs

Table 5.1 gives a general indication of the required inputs for adjudication, processing, registering and issuance of CCROs for an average of 1200 land parcels per village. Requirements for establishing District and Village Land Registries are indicated in Appendix H. It is assumed, if each SAT adjudicates 30 land parcels per day, the 2 SATs will take 20 days to cover 1200 land parcels. An extra 5 days, can be required for field work preparations, publications and processing documents.

Table 5.1: Indicative Budget for Preparation and Issuance of CCROs (PLUM Step 5)

ITEMS	COSTING	TOTAL Tshs
Land administration -Conduct 1,200 land parcels adjudication -Prepare land parcel cadastral digital maps and hard copies -Prepare and produce 1,200 CCROs -Register CCROs at District and Village Land Registries -Issue 1,200 CCROs to land owners	**1.1 Per diems and extra duties** (i)8 PLUM team 25 days @ 35,000/=	7,000,000/=
	(ii) 2 Facilitators 25 days @ 65,000/=	3,250,000/=
	(iii) 3 Land officers 25 days @ 10,000/=	750,000/=
	(iv) 2 Drivers 25 days @ 25,000/=	1,250,000/=
	Sub-total	**12,250,000/=**
	1.2 Honorarium Village Leaders (i) Adjudication Committee 9 for 25 days @ 5,000/=	1,125,000/=
	(ii) VC 26 for 3 days @ 5,000/=	390,000/=
	(iii) VLC 7 for 2 days @ 5,000/=	70,000/=
	(iii) VEO for 30 days @ 10,000/=	300,000/=
	Sub-total	**1,885,000/=**
	a. Maps, stationery and reports (i) Maps processing	1,500,000/=
	(ii) Stationery	1,500,000/=
	Sub-total	**3,000,000/=**
	b. Transport (i)Fuel 2 vehicles 25 days @ 30 litres @ 1800/=	2,700,,000/=
	(ii) 2 vehicles maintenance @ 100,000/=	200,000/=
	Sub-total	**2,900,,000/=**
	Total - Land administration (Step 5)	**20,035,000/=**

N.B. For 1,200 land parcels, this is an average cost of Tshs 16,700/= per CCRO.

Expected outputs of this step are:

- A District Land Registry established;
- Village Land Registries established;
- Sign boards prescribing different land uses and regulations erected in various areas of the village;
- Private and communal land parcels adjudicated, documented and mapped in the District (data base) and Village Land Registries;
- CCROs are processed, registered and issued to land owners;
- Land tenure security enhanced;
- Land owners are able to use title deeds as collaterals to access capital for improved land use production (implementation of land management measures) and livelihood.

5.5 Monitoring and Evaluation (M & E)

For the activities of this step, the following proposals for M & E are made:

A. The PLUM team ensures the preparation and follow-up of the work-plans on a daily and weekly basis, i.e. if work proceeds according to planning in terms of time, materials, budget, and leads to the desired results. This includes the activities and performance of SAT (PLUM & VLUMC), GIS team, and other experts involved in this step. The PLUM team members and associated staff involved make notes during all activities which are used for discussion, evaluation and reporting purposes;

B. The PLUM team monitors the cooperation among the district staff and with the villagers. The attendance and performance of the staff and villagers concerned during the various activities are important indicators;

C. The key indicators which are used to measure progress are the quantifiable expected outputs of this step which are;

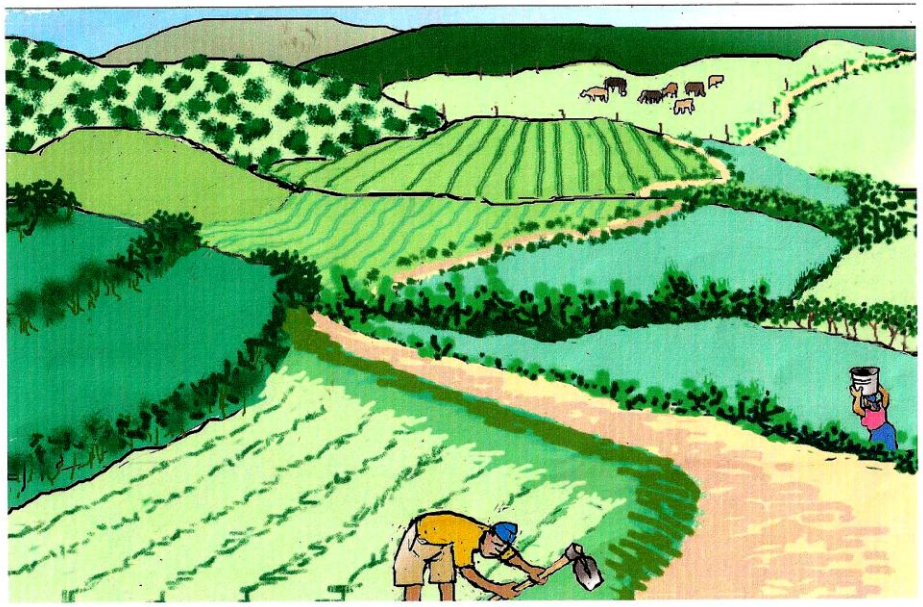
   i. District Land Registry performance (office space, equipments, registers, filing and record keeping, staff etc.);
   ii. Village Land Registries performance (office space, equipments, registers, filing and record keeping, staff etc.);
   iii. Number and coverage of sign boards prescribing different land uses and regulations erected in various areas of the village;
   iv. Number of private and communal land parcels adjudicated by each SAT (daily, weekly)
   v. Number of land parcels documented and mapped in the District (data base) and Village Land Registries;
   vi. Number of CCROs processed, registered and issued to land owners;
   vii. Number of occurrences and resolved land conflicts;
   viii. Number of Land owners using title deeds as collaterals to access capital for improved land use production (implementation of land management measures) and livelihood.

D. During M&E reference should be made to the Community Action Plan, to identify the activities which have been implemented so far against the expected results versus time frame in the CAP.

E. The PLUM team should prepare monthly and quarterly reports, and present them to DLUPA, through routine meetings of the District Council (Council Management Team 'CMT', Standing Committees, and Full Council).

STEP 6

DETAILED VILLAGE LAND USE MANAGEMENT PLANNING



After the most important limitations for improved land-use management have been minimised in the previous steps, villagers are more motivated to adopt land management measures in order to mitigate land degradation, to optimise land production and to improve living conditions. Appropriate measures can be identified for each land use, such as: improved cropping practices in farm land, improved irrigation practices, conservation of the village forest and water sources, infra-structural arrangements to improve the conditions in settlement areas, etc. Planning and implementation of appropriate land use management measures is a life time exercise, to meet new challenges with new technologies and innovations.

6.1 Objectives

OBJECTIVES

A. To identify and formulate measures for improved land use management in areas allocated for crop production, irrigation, livestock keeping, residential, community facilities, forestry, water sources, wildlife etc.
B. To facilitate implementation of the selected appropriate land use management measures.
C. To build the capacity of villagers for planning and implementation of the selected land use management measures.
D. To promote sustainable utilization of natural resources for the socio-economic advancement for the rural communities.
E. To prepare villagers to continue with PLUM more independently, whereby it becomes clear which tasks can be accomplished by the village institutions on their own and which tasks require support from outsiders.
F. To identify and demarcate areas for medium and large scale investment.
G. To ensure good communication between the village and district level institutions concerning land use management *after* the regular presence of the PLUM team in the village.
H. To assess the impact of the initiated PLUM process in the village, and implementation of CAP.

6.2 Conditions to start

Important conditions to be met before starting this step are:

⇒ Land-use conflicts are minimised and security of land use and ownership established;
⇒ A village land use plan is prepared, considering public as well as individual interests;
⇒ Approved Village Land Use Management By-Laws;
⇒ Villagers are mobilised to implement appropriate land management measures;
⇒ An efficient and motivated District PLUM team and VLUM committee;
⇒ The required resources for this step are made available.

N.B. It is not a pre-condition to start Step 5, before implementing Step 6, although security of land tenure is an important aspect before embarking in land management investments. On the other hand, in some cases, it is necessary to start with detailed management plan before issuing title deeds e.g. allocating land for access roads and other infrastructures in a settlement area.

6.3 Activities

6.3.1Monitor implementation and ensure compliance with approved Village Land Use Plan

Before embarking on preparation and implementation of land use management plans, a monitoring and evaluation mission should be conducted to ensure standards and procedures used during the village land use planning process. This should be done at least within 3 months, after approval of the VLUP by the Village Assembly. This is an external auditing instrument to evaluate villagers' participation and VLUP ownership, VLUP reports and maps visas actual situation on the ground; and to monitor implementation and ensure compliance with approved Village Land Use Plan. This is conducted by the M & E Department of the NLUPC, incorporating some members of the PLUM team, using the M & E Manual.

During this exercise, the mission should ensure the Village Council has the final version of the VLUP (Report, maps and by-laws). If VLUP Sign boards were not prepared and erected in Step 4, they should also be prepared and erected.

6.3.2 District PLUM team preparations for land use management planning

The activities involved in the planning and implementation stages of land use management fall into two major categories; general and specific activities. The general activities include all cross-cutting activities which lay foundation for the execution of the planning process for any land use management plan e.g. creating awareness; formation of the planning team; preparatory meetings to mobilise land users, the village government and relevant stake holders.

Specific activities deal with technical aspects of a particular land use; and sector legislations, regulations and guidelines which stipulate procedures for preparing and implementing management plans e.g. The Forest Act (2002), The Wildlife Conservation Act (2009), The Community-Based Forest Management Guidelines (2007) etc.

The District PLUM team should arrange a preparatory meeting to work out a work plan and required resources for preparations of detailed land use management plans in intervention villages. For a starting district in preparing and implementing land use management plans, it is recommended to out source facilitation from experienced personnel e.g. Private sector, NGOs, NLUPC etc. Thereafter, the District PLUM team should consult the intervention villages and arrange a meeting with the Village Council and VLUMC.

6.3.3 Conduct a preparatory meeting with the Village Council and VLUMC

Issues of this meeting are:

A. To discuss briefly the achievements of the previous steps, and implementation of the Community Action Plan, so far;
B. To discuss and to agree about the objectives and activities of this step;
C. To evaluate performance of the VLUM committee, and prepare it for the forth-coming tasks (as village technicians) in planning and implementation of land use management plans;
D. To identify which other village institutions e.g. Village Game Scouts, Water Committee, Natural Resources and Environment Committee, Livestock keepers Committee, CBOs, Extension workers etc; to be involved in planning and implementation of land use management plans;
E. To identify which other villagers e.g. prominent farmers, prominent livestock keepers, prominent environmentalist etc; to be involved in planning and implementation of land use management plans;

N.B. Emphasis should be put on the efficiency of the village leadership and villagers to take initiatives and organise themselves to plan and implement PLUM. This refers to: individual, sub-village and village level activities; run meetings which arrive at agreements in a participatory way; enforcement of agreements; utilisation of networks to apply for support from outsiders, etc.

6.3.4 Conduct village land use management appraisal

After the preparatory meeting, the District PLUM team meet for 1 day with VLUMC, village institutions and villagers identified in 6.3.2 to conduct a general land use management appraisal. They review existing data and literatures related to the planning area, collected during PRA.

The aim is to appraise problems and further work out opportunities and activities for improved land use management, identified during PRA and CAP, but not yet dealt with. This applies to all prominent land-use categories in the village (See example in Box 6.1). The prioritised problems will be further analysed and possible solutions will be worked out for each particular land use.

Box 6.1: Examples of land management measures which can be applied in step 6 for the different categories of land use

Farming areas
- Improved land prepara-tion, seed planting, fertiliser use and crop protection measures
- Soil & water conservation measures
- Mulching, composting
- Agroforestry: planting trees, grasses, etc.
- Improved irrigation measures

Grazing areas
- Measures to improve grass production
- Conservation of water points and cattle tracks
- Soil & water conservation measures

Forest & fragile areas
- Tree planting
- Soil & water conservation measures
- Selective tree cutting, pruning, etc.

Wildlife areas
- Protection of water points
- Establishment and maintenance of view points, camp sides, etc.
- Acceptable measures to minimise wildlife passing into the other village areas

Residential areas & areas for community facilities
- Improved housing,, pit latrines, waste pits, drainage, access paths, roads and other infra-structures according to need and affordability
- Spacing of houses, pit latrines, access paths,etc.
- Tree nurseries, planting shade & fruit trees, etc.
- Improved sheds for zero grazing
- Techniques for water harvesting , bio-gas, etc.
- Use of wood saving & solar cookers, etc.
- Improved storage of harvest products

Identify areas for medium and large scale investment

6.3.5 Detailed land use management planning

After executing the above general activities, the planning team form 4 sub-groups which will be responsible to carry out specific detailed land use management plan for 4 major land use types i.e. 1. Settlements and community facilities; 2. Agriculture; 3. Grazing land (range lands); 4. Natural resources (applicable) i.e. Forestry, Water sources, Wild life, Fishery, Mining etc. Each sub-group will be coordinated by the Subject Matter Specialist (SMS) in 4 major land use fields e.g. the Agricultural Land Use Planner will lead the team responsible to carry out Detailed Agricultural Land Management Planning, The Town Planner will lead the preparation of Village Settlements Management Plan etc. Like in Step 3, the GIS group will remain centrally, to receive field data from the 4 sub-groups and process maps.

These activities in each sub-group will take up to 4 days i.e. 2 days for mapping land units, and 2 days for drafting land use management proposals.

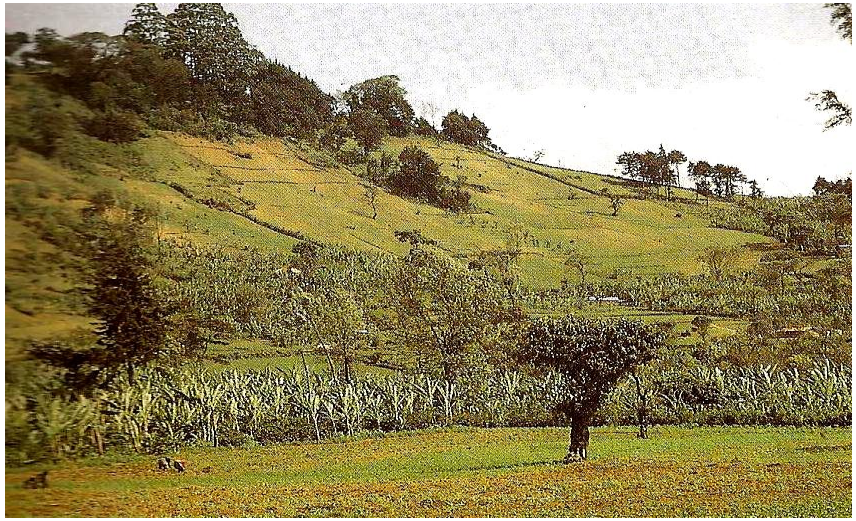
A. Detailed Village Agricultural Land Management Planning;

(i) Determine farming status and factors limiting crop production e.g. low fertility, insufficient rainfall, inferior farm technology, primitive farm implements, lack of improved seeds and fertilizers, lack of extension services, low crop prices, informal markets system etc;

(ii) Establish 'land use management units'; homogeneous units of land which require similar management measures/techniques; they are more or less alike in physical characteristics based on soil type and land scape; (Map at scale 1:5,000 - 10,000; mappable units >20 hectares).

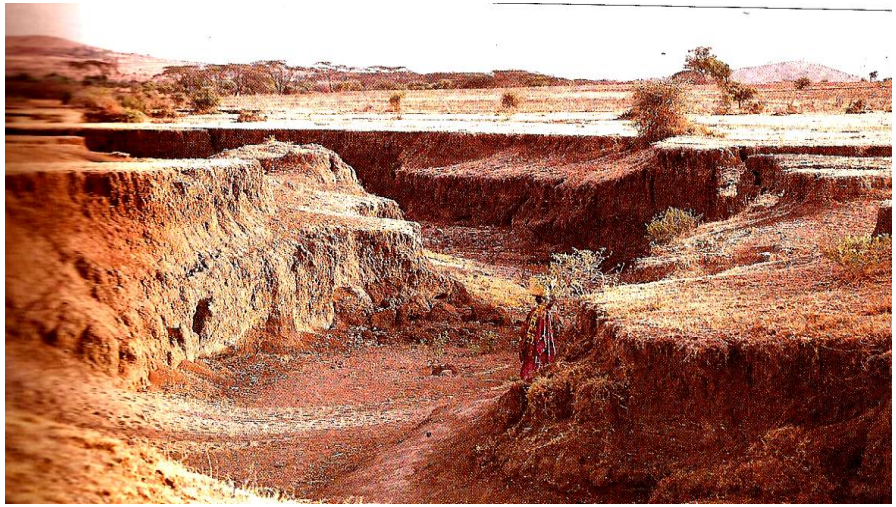
Since the current main extension technique is Farmers Field School methodology through establishment of class farms (mashamba darasa), it is preferable, if the land use management units can be established based on required types of class farms i.e. different crops, hamlets, terrain, agroforestry, soil and water conservation measures etc. For extensive homogenous farmland, class farms are recommended to be established at least for each 500 acres i.e. 100 farmers (households) each with an average of 5 acres farm size. Soil survey and land capability assessment should be done based on class farms.

N.B. The Farmers Field School methodology (Class farm concept) is explained in detail in Appendix L.



Deforestation and cultivation on steep slopes

Starting of rill erosion in a maize farm



Ultimate severe gully erosion

(iii) Prepare specific management proposals for each delineated land management unit such as the following:

- Recommend agronomical practices and modalities for extension services based on Farmers Field School methodology ***(Mashamba Darasa);***
- Identify areas of class farms/farmers and make soil surveys to determine soil nutrient and water requirements/shortage for preferred crops.
- Recommended soil and water conservation measures and make cost estimates. Common measures include:

* Biological measure e.g. crop rotation, mixed cropping, strip cropping, inter cropping, trash lines, grass strips;
* Traditional measures e.g. contour farming, early planting, tillage practices, ridging, mulching, organic fertilizers;
* Physical measures e.g. terraces (graded terrace, level terrace, bench terrace, stone terrace, ridge terrace, permeable cross slope barrier;

Establishing contours planted with elephant grass across slope

Bench terraces planted with elephant grass and agroforestry in a farm

Check dam to control gully erosion

- Outline fertility status and fertility restoration proposals, manure application rates, use of leguminous plants(species, availability, timing), agro forestry(tree species, planting methods, supply of tree seedlings-introducing seed farms (use species palatable to livestocks), fallowing (fallow requirements, periods);
- Identify required on farm water harvesting methods e.g. ridging and tie-ridging, Matengo pits, conservation bench terraces, contour bunds;
- Identify water sources in agriculture land, and determine their management measures.

(iv) Prepare other general management proposals for the agricultural land e.g. weed control methods, vermin, pests and diseases control methods (indicate type of chemicals to control pests, weeds and diseases, rate of application);

(v) Select sites for farm buildings, farm roads (mainly to be located on crests);
(vi) Identify potential areas for irrigation and infrastructures required for irrigation. Determine cost estimates.
(vii) Determine the amount of land required to meet family needs in terms of food and cash income; at least for 10 years; carrying capacity of the area set aside for agriculture(farmland);
(viii) Propose other feasible alternative source of supplementary income to farmers;
(ix) Identify and map the remaining land set aside for agriculture(farmland), for medium and large scale investment (land bank);

N.B. Compile the draft report and maps of detailed agriculture land use management plan and its subsequent annual work plan and budgets. The annual work plan and budget will be reflected and implemented through the annual Village and District Council plan and budget i.e. DADP-ASDP.

B. Detailed Village Rangeland Management Planning

(i) Establish 'land use management units' in the grazing land and map them. Prepare suitability maps based on the resource qualities and quantity;
(ii) Identify areas with special conservation features and attraction sites that need special measures within the area designated for grazing;

Over grazing resulting into land degradation

(iii) Prepare and map land use requirements for grazing by villagers based on carrying capacities and possible grazing systems;
(iv) Prepare management proposals showing areas needing the following:
  (a) Seeding or reseeding: type of seed, rates and manner of which shall be subscribed by the range officer;
  (b) Fertilizers (type, rate)
  (c) Weed, bush and pest control methods – to be subscribed by the range officer;
  (d) Prescribed burning for eradication of undesirable plants, pests and animal species;
  (e) Soil erosion control measures; (contouring, terracing, tree/vegetation planting)
  (f) Special conservation measures(soil, water, wetlands);

Grazing land with improved pastures i.e. rhodes grass mixed with legumes e.g. tropical kudu and channel terraces planted with elephant grass

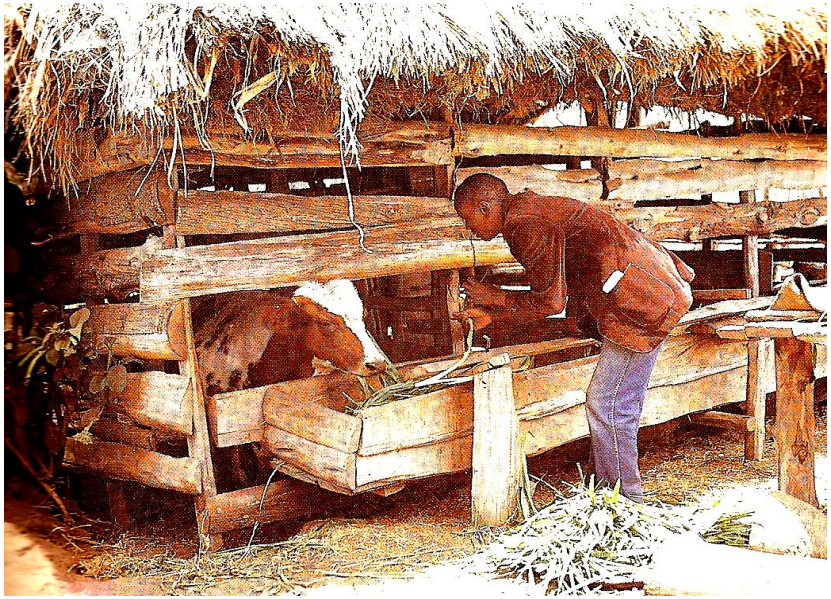
(v) Provision of facilities and infrastructures (water points, livestock handling, fencing, cattle dips, livestock markets, livestock routes);

(vi) Identify and map the remaining land set aside for grazing land for medium and large scale investment (land bank);

(vii) Identify modalities for extension services for livestock keepers based on Farmers Field School methodology ***(Mashamba Darasa)*** as exemplified in Appendix L***;***

N.B. Compile the draft report and maps of detailed range land use management plan and its subsequent annual work plan and budgets. The annual work plan and budget will be reflected and implemented through the annual Village and District Council plan and budget i.e. DADP-LSDP.

(vii) Establish/develop zero grazing system within household farm/plot



A farmer practicing zero grazing

C. Detailed Village Settlement Area Management Planning

N.B. For details see Appendix K

(i) Prepare a detailed base map of the settlement area, showing major settlement blocks and community facilities;

(ii) Prepare land use requirements for various uses basing on population projections and standards and there after prepare a conceptual plan;

(iii) Prepare corresponding infrastructure layout proposals in collaboration with utility agencies; set aside solid waste collection and disposal sites where applicable;

(iv) Negotiate with land owners to acquire land for infrastructure way leaves and community facilities and agree on and demarcate property boundaries where applicable;
(v) Assess compensation bills/schedules/in-kind/alternatives for settling third party interests and identify area for resettlement of those to be displaced where applicable;
(vi) Prepare draft detailed planning scheme and its subsequent work plan and budgets; to be reflected and implemented through annual Village and District Council Budget.

D. Village Natural Resources Management Planning

D 1: Village Forestry and Bee keeping Management Planning

N.B. For details see Appendix N & O

(i) Undertake a participatory forest resource assessment. Zone and map the forests into ''Forest Management Units" (FMU) based on proposed management objectives i.e. utilization (e.g. areas for commercial logging, areas for collecting fuel woods); protection (e.g. water sources); and improvement (e.g. areas for restoring degraded forest).

Some criteria for deciding how to divide the forest into FMUs include:

- Forest type (different forest type e.g. miombo, mangrove, evergreen montane forest etc)
- Forest condition (Highly degraded forest, dense forest etc);
- Forest uses e.g. beekeeping, grazing, timber harvesting areas, sacred areas;
- Natural features (e.g. Sections of the forest divided by roads or rivers);
- Area (if possible keep FMUs into equal sizes);
- Number (avoid having too many FMUs).

(ii) Develop management and utilization measures for each FMU based on Forestry and Bee keeping guidelines and regulations i.e. Community Based Forest Management Guidelines (2007).
(iii) Prepare the draft village forest management plan and its subsequent work plan and budgets; to be reflected and implemented through annual Village and District Council Budget.

D 2: Village Water Sources Management Planning

(i) Identify and map all water sources in the village with reference to the existing land use map;
(ii) Determine main utilisation of the water sources e.g. watering points, sites for wells which supply water for domestic use, gardening sites, washing, irrigation. Map these sites and their sizes;
(iii) Determine adequacy of the water sources (sufficiency); are they used the year round or dry up? at what time of the year; location of alternative source of water during dry season;
(iv) Zone the water sources area into various management units e.g. Zone A for domestic use; Zone B for livestock water points; Zone C for construction of fish ponds; Zone D for irrigation; Zone E for conservation etc;
(v) Map 60 meters conservation buffer zones for all major water sources;
(vi) Devise conservation measure for each water zone; e.g. Zone B conservation measures should aim at reducing trampling hence erosion, construction of watering troughs, fencing the tracts to the watering points;

(vii) Identify land use management measures for water sources buffer zones e.g. conserving/planting environment friendly tree species, reseeding requirements, soil conservation measures;

D3: WMA management planning

(i) Undertake participatory WMA management planning with reference to WMA Regulations of 2005 (***See Appendix M***);
(ii) Undertake wildlife resources assessment of the WMA, including the following:
   - Carry out wildlife census,
   - Assess the migratory routes for wildlife,
   - Determine area suitable for establishment of wildlife watering point,
   - Assess the risk of wildlife being susceptible to wild disease, e.g. presence of tsetse fly, ticks etc and propose mitigation measures,
   - Determine and identify wildlife facilities and infrastructure required.

(iii) Prepare a management proposal showing the areas suitable for animal darting, mobilization, hunting, tourism etc.
(iv) Identify implementation approach including required resources.
(v) Prepare draft report of a detailed land use management plan and communicate with relevant wildlife stakeholders e.g. MNRT, WWF.

6.3.6 Completing the Village Land Use Management Plan

The Village Land Use Management Plan is compiled and completed through 3 main stages:-

⇒ **Stage 1: Planning Team Plenary Meeting**

The 4 sub-groups, convene for 1 day coordinated by the District PLUM Coordinator, in which each group present its sector land use management proposals for discussion, adaptation and combined into a Draft Village Land Use Management Plan (text and maps). If necessary, the detailed land use management plan can require revision of the Village Land Use Management By-Laws to be more focused into specific issues.

At the end of the session, a meeting with the Village Council is arranged for presentation of the Draft Village Land Use Management Plan.

⇒ **Stage 2: Presentation of the Draft Village Land Use Management Plan to the Village Council**

The Draft Village Land Use Management Plan (text and maps) is presented to the Village Council for discussion and adaptation. If there are changes suggested in the Village Land Use Management By-Laws, they are also discussed and made.
At the end of the session, a meeting with the Village Assembly is arranged for presentation of the Final Draft Village Land Use Management Plan and By-Laws.

⇒ **Stage 3: Presentation of the Draft Village Land Use Management Plan to the Village Assembly**

The Village Land Use Management Plan (text and maps) is presented to the Village Council for discussion, finalized, and approved ready for implementation.

6.4 Maintain follow-up for PLUM implementation

The District PLUM team should maintain communication between the village and district level institutions concerned, on the implementation of the Village land use management plan.

This task is carried out by sectoral PLUM-team members or extension officers involved. A village agricultural, forestry or other extension officer, who is residing in the village or nearby and being involved in the PLUM process, can conduct this task more cost effectively and frequently.

In order to make follow-up visits more efficient it is important to inform the Village Council, VLUM committee well in advance. During such a visit, the officer discusses the spoken or written reports of the Village Council, VLUM committee about changes in land use and land rights, occurring land related problems, the initiated improved land management measures, etc. The officer can give advice and if necessary forward the issue to the district.

Mostly important, the District PLUM team and Village Councils, should make sure the Village Land Use Management Plans are reflected in the Village and District Council annual planning and budgeting for implementation.

6.5 Required inputs and expected outputs

Table 6.1 gives a general indication of the required inputs for land use management planning.

Table 6.1: Indicative Budget for PLUM (Step 6)

ITEMS	COSTING	TOTAL Tshs
Land use management planning	**1.1 Per diems**	
	(i)8 PLUM team members 9 days @ 35,000/=	2,520,000/=
	(ii)1 Facilitator 12 days @ 65,000/=	780,000/=
	(iii)1 Driver NLUPC 12 days @ 45,000/=	540,000/=
	(iii) 1 Driver 9 days @ 25,000/=	225,000/=
	Sub-total	**4,065,000/=**
	1.3 Honorarium Village Leaders	
	(i)VLUMC 8 for 8 days @ 5,000/=	320,000/=
	(ii) VC 26 for 2 days @ 5,000/=	260,000/=
	(iii) Prominent land users 8 for 7 days @ 5,000/=	280,000/=
	Sub-total	**860,000/=**
	c. **Maps, stationery and reports**	250,000/=
	d. Transport (i)Fuel 2 vehicles 9 days @ 30 litres @ 2,000/=	1.080,,000/=
	(ii) 2 vehicles maintenance @ 50,000/=	100,000/=
	Sub-total	**1,180,,000/=**
	Total - Land use management planning (Step 6)	**6,355,000/=**

N.B. When the District PLUM have acquired experience, and continue working without a Facilitator, the cost per village will be reduced to 5,260,000/=.

Expected outputs of this step are:

- Appropriate land use management measures have been adopted as identified and prioritised by the village for the different land uses.
- Capacity has been built through VLUMC in planning and implementing the identified land use management measures.
- The adopted land use management measures are technically sound and have resulted in improved resource use and higher living standards for all village groups and sub-groups.
- The Village Land Use Management Plan is reflected in the District Council annual planning and budgeting for implementation.
- The impact of the introducing PLUM in the village is known in terms of,
  - the change in natural resource use and management leading to better living conditions,
  - the capacity of the village community to continue with PLUM more independently.
- Villagers and their institutions are mobilised and able to proceed with the initiated PLUM activities whereby the tasks of the parties involved are well understood and agreed upon.

Targeted major outputs of the whole PLUM process at the village level are:

1. Villagers and their institutions have improved their capacity to plan and manage their lands, whereby:
   a) villagers are more able to run meetings at the village and sub-village levels, arriving at agreements in a more transparent and participatory way. Minutes of the meetings are made and available for all stakeholders,
   b) land conflicts are minimised and most new land disputes are resolved at the village level and according to recognised procedures,
   c) a village land registry is established and maintained according to the required standards and with respect to changes in land use and rights, leading to an improved feeling of land security,
   d) networks between the village institutions (Village Council, VLUM committee, Village Technicians, etc.) and higher levels (District Council, extension workers, programmes, Regional Secretariat, National) are improved and maintained, leading to a better utilisation of expertise at the villager level and recognition of land-use agreements;
2. A village land-use plan has been prepared, and if required, enforced with by-laws;
   a) that reflects the capacity and interests of all stakeholders and their institutions in a balanced way,
   b) which implications are known and respected by all stakeholders,
   c) which meets the technical, administrative and legal requirements;
3. More efficient, equitable and sustainable use of land resources, leading to a higher production in agriculture and other land use, and improved living standards for all stakeholders, in particular for those whose positions are most at risk, such as pastoralists, women and youths.

6.6 Monitoring and Evaluation (M & E)

Important aspects of M & E in this step are to find out:

- The impact of the PLUM activities carried out during the various steps;
- The expected and required support from the district, region and national levels.

For the activities of this step and whole PLUM process, M & E interventions are recommended as follows:

A. The PLUM team ensures the preparation and follow-up of the work-plans on a monthly and quarterly basis, i.e. if work proceeds according to planning in terms of time, materials, budget, and leads to the desired results. This includes the activities of the PLUM team members, associated extension workers, VLUMC, VC, and villagers. This M & E activity is preferably carried out by the PLUM team, together with the VLUM committee;
B. The PLUM team members and associated staff make notes during all activities which will be used for discussion, evaluation and reporting purposes;
C. The PLUM team monitors the cooperation with the villagers, whereby the attendance and performance of the parties involved during the various activities are important indicators;
D. The PLUM team monitors if decision making at the village level is carried out in a participatory manner, and if the roles to be played by the village and district institutions in future are realistic;
E. The DLUPA (see section 1.2 of Step 1) follows the progress of the activities in this step, based on the work-plans and other documentation (minutes, field progress reports) prepared during this step;
F. The DLUPA ensures that in future the PLUM team or other assigned staff keeps record of all communication between the village and district institutions concerning land issues, including the follow-up visits;
G. The DLUPA through the District PLUM team maintains communication with NLUPC to monitor progress in PLUM application villages, and seek support if required.

Part C

Appendices

APPENDIX A: ABBREVIATIONS

AESA	Agro-ecological System Analysis
ASDP	Agriculture Sector Development Programme
AU	Ardhi University
AWC	Available Water Capacity
CAADP	Comprehensive African Agriculture Development Programme
CAP	Community Action Plan
CBO	Community Based Organisation
CCRO	Certificate of Customary Right of Occupancy
CVL	Certificate of Village Land
DADP	District Agriculture Development Plan
DASIP	District Agriculture Sector Investment Programme
DC	District Commissioner
DCMT	District Council Management Team
DED	District Executive Director
DGIS	Directorate of International Cooperation, The Netherlands
DHQ	District Headquarters
DLDO	District Lands Development Office(r)
DLDP	District Livestock Development Plan
DLUMP	Dodoma Land Use Management Project
DLUPA	District Land Use Planning Authority
DPLO	District Planning Office(r)
DSM	Dar es Salaam
EAF	Environment Assessment Framework
FAO	Food and Agricultural Organisation
FFS	Farmers Field School (Shamba Darasa)
FGD	Focused Group Discussion
FMU	Forest Management Unit
FRMP	Forestry Resources & Management Plan
GPS	Global Positioning System
GTZ	German Technical Cooperation
Ha.	Hactre
HADO	Hifadhi Ardhi (soil conservation) project Dodoma
HH	Household
HIAP	Handeni Integrated Agro-forestry Project
HIMA	Hifadhi ya Mazingira (environmental conservation) Project – Iringa
HIV/AIDS	Acquired Immune Deficiency Syndrome
HoDs	Heads of Departments
IDS	Institute for Development Studies - UDSM
IIED	International Institute for Environment and Development
IRA	Institute of Resource Assessment - UDSM
IRDP	Institute of Rural Development Planning - Dodoma
JAPC	Joint Area Planning committee
LAMP	Land Management Programme - Singida, Kiteto, Babati, Simanjiro
LSDP	Livestock Sector Development Programme
LU	Land Use
L.U.	Livestock Unit
LMU	Land use Management Unit
MACEMP	Marine and Coastal Environment Management Programme
MDP	Monduli District Programme
M&E	Monitoring and Evaluation
MLHHSD	Ministry of Lands, Housing and Human Settlements Development
MNRT	Ministry of Natural Resources and Tourism
MOAFS	Ministry of Agriculture and Food Security
MP	Member of Parliament
NEMC	National Environment Management Council
NGO	Non Governmental Organisation
NLUPC	National Land Use Planning Commission
NRBZ	Natural Resources Management and Buffer Zone Development Programme
NSGRP	National Strategy for Economic Growth and Poverty Reduction (MKUKUTA)
ODA	Overseas Development Administration
O&OD	Obstacles and Opportunities Development
PFM	Participatory Forest Management
PLUM	Participatory Land Use Management
PMO	Prime Minister's Office
PRA	Participatory Rural Appraisal
RALG	Regional Administration and Local Governments
RAS	Region Administrative Secretary
RHQ	Regional Head Quarters
RPF	Resettlement Policy Framework

SARF	Systematic Adjudication Records Form
SAT	Systematic Adjudication Team
SD	Shamba Darasa (Class Farm)
SECAP	Soil Erosion Control & Agro-forestry Project – Lushoto
SMS	Subject Matter Specialist
SNV	Netherlands Development Organisation
SSIPDO	Small Scale Irrigation Project Dodoma
TDM	Total Dry Matter
TFAP - NP	Tanzania Forestry Action Plan - North Pare Project Mwanga District
TGNP	Tanzania Gender Network Programme
TIP	Traditional Irrigation Project - Arumeru, Lushoto, Mwanga, Same, Kilosa, Iringa
ToR	Terms of Reference
Tshs	Tanzanian Shillings
VLUMC	Village Land Use Management committee
VT	Village Technician (para-technician)
UCLAS	University College of Lands & Architectural Studies - UDSM
UDSM	University of Dar Es Salaam
UNDP	United Nations Development Programme
REDDS	Reducing Emissions from Deforestation and Forest Degradation
UTM	Universal Transversal Mercator
VLUP	Village Land Use Plan
URT	United Republic of Tanzania
VC	Village Council
VEO	Village Executive Officer
VLC	Village Land Council
VLUP	Village Land Use Plan
VPO	Vice President's Office
WDC	Ward Development Committee
WEO	Ward Executive Officer
WMA	Wildlife Management Area

APPENDIX B: VLUP Report Format

TITLE PAGE

TABLE OF CONTENTS
ABBREVIATIONS
LIST OF TABLES
LIST OF MAPS
Acknowledgement
Executive Summary
(Summary of the report)

CHAPTER ONE
1.0 INTRODUCTION
1.1 Justification and Objective
The Land use Planning Act No. 6 of 2007 and implementation of The Village Land Act No. 5 of 1999 require all villages in Tanzania mainland to prepare and implement Village Land Use Plans
1.2 Methodology
Procedures used to prepare the village land use plan

CHAPTER TWO
2.0 VILLAGE BASELINE INFORMATION

2.1 LOCATION AND HISTORICAL BACKGROUND
2.1.1 Geographical Location
Its name, ward, division, district and region
The total number of villages in the district
Contiguous Neighbours/boundaries
Distance and bearing of the village from District Headquarters
Location coordinates and standard sheet number
Total area of the village (ha)
District map showing location of the village

2.1.2 Historical Background
Meaning of the village name, date of establishment and registration (number)
Its origin, tribes
Norms and culture

2.2 TOPOGRAPHY AND CLIMATIC CONDITION
2.2.1 Village Physiography and Drainage System
Physiographic appearance e.g. mountains/uplands, valleys, wetlands
Drainage
Existing rivers (seasonal or annual)
Where do they drain their water

2.2.2 Atmospheric Condition
Rainfall in mm/year, rainfall calendar
Temperature – average temperature
Cold and warm months
2.2.3 Soil and Geology
Dominant soil types and its distribution (by field observations with VLUMC)
2.2.4 Vegetation Cover
Types of vegetation and distribution (e.g. forests, savanna, miombo, grassland, wetland etc)

2.3 DEMOGRAPHY AND ADMINISTRATION
2.3.1 Population
Total number of people
Population distribution by hamlets in terms of men and women, age etc
Use matrix as exemplified below

Table No.1: Population classification by age and sex

No.	Hamlet	Year 0- 17		Year 18 - 60		Above 60		Total		Total	Hoseholds
		F	M	F	M	F	M	F	M		
Total											

Source: Village Government; May, 2010

2.3.2 Migration and Immigration (*Trends)*
2.3.3 Population Projection for the Planning Period of 10 years
Use average anual growth rate e.g. 3.4%, from census. Use projection formula

Pf= Pn [1.034]^{10}

Use matrix as exemplified below

Table No. 2 : Population Projections (2020)

No.	Hamlet	Poulation 2010	Population 2020	Households 2010	Households 2020
1	Magindu	878	1227	255	356
2	Mnyonge	343	479	86	120
3	Lukalasi	382	534	98	137
	Total	**1,603**	**2,240**	**439**	**613**

Source: Village Government; May, 2010

2.3.4 Administration

Village committees, members, community based organizations (e.g VLUMC, environment, village land council etc)

Status of the Village Government Office. Its suitability to accommodate the Village Land Registry

2.4 LAND TENURE

Existing land categories in the village (village land, general land and reserved land)

Existence of general land within village boundary e.g individual farms with title deeds, investors, estates, national forest etc

2.4.1 Land Ownership and Administration

Use matrix as exemplified below

Table No. 3 : Land ownership

Hamlet	Land owners %	Renters %	Others e.g. lenders, invadors, %	Total %
Magindu	90.0	0.0	10.0	**100.00**
Mnyonge	98.0	0.0	2.0	**100.00**
Lukalasi	97.0	0.0	3.0	**100.00**
Total	**95.0**	**0.0**	**5.0**	**100.00**

Source: Village Goverment; May, 2010

2.4.2 Access to Land

How to access land in the village/hamlets

Use matrix as exemplified below

Table No. 4 : Access to land

Hamlet	Allocation %	Inheritence %	Buying %	Others e.g. lending, invading %	Total %
Magindu	15.0	80.0	5.0	0.0	**100.00**
Mnyonge	60.0	40.0	0.0	0.0	**100.00**
Lukalasi	20.0	80.0	0.0	0.0	**100.00**
Total	**31.67**	**66.67**	**1.66**	**0.0**	**100.00**

Source: Village Government; May, 2010

2.4 MAIN ECONOMIC ACTIVITIES

Main economic activities in the village and distribution per hamlet e.g. agriculture, livestock keeping, fishery, forestry, mining, commerce etc.

Use matrix as exemplified below

Table No.5: Main economic activities

Hamlet	Agriculture %	Livestock keeping %	Forestry (charcoal, lumbering) %	Others (Commercial, Employees etc.) %	Total %
Magindu	75.0	0.0	0.0	25.0	**100.0**
Mnyonge	60.0	20.0	10.0	10.0	**100.0**
Lukalasi	55.0	30.0	15.0	-	**100.0**
Total	**63.33**	**16.67**	**8.33**	**11.67**	**100.0**

Source: Village Government; May, 2010

CHAPTER THREE

3.0 EXISTING LANDUSES AND LAND RESOURCES

3.1 SETTLEMENTS

3.1.1 Main Settlement Areas

Location and acreage
Village settlement centre
Settlements in hamlets
Average settlement area (plot) per household
Access of settlement land (plots) for new households

3.1.2 Housing

Types of houses
Construction materials
Toilet facilities

3.2 COMMUNITY FACILITIES AND INFRASTRUCTURE

3.2.1 Education

Nursery, Primary, Secondary schools etc.
Location, acreage and level of service

3.2.2 Health

Dispensary, Clinics, Health centre
Location, acreage and level of service
Major diseases, Status of HIV/AIDS

3.2.3 Communication and Transportation

Type and condition e.g. road, railway, water etc.
Availability of telephone services and networks
Location and level of service

3.2.4 Energy

Energy sources e.g. wood, charcoal, gas, electricity, fuel etc.
Accessibility and costs (affordability)

3.2.5 Other Community Facilities

Religious, Play grounds, Recreation, Cemetery, Commercial, Industrial, Judiciary etc.
Location, acreage and level of service

3.3 AGRICULTURE

3.3.1 Main Agriculture Crops

List main agriculture crops in the village (food and cash crops)
+ average farm size per household

3.3.2 Agriculture Areas and Acreage Estimates

Location, names and areas for agriculture (under cultivation cycle)
Map them (during data picking)

3.3.3 Farming System

Mixed cropping (e.g maize/mtama)
Types of crops that are mixed and not mixed
Technology used

3.3.4 Agricultural Calendar

Which and when agriculture seasons and crops grown in each season
Use matrix as exemplified below

Table No.6 : Agricultural Calendar

No	ACTIVITY	Months											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Farm preparation	√								√			√
2	Ploughing	√	√							√			
3	Planting		√	√							√	√	
4	Weeding			√	√							√	
5	Controlling vermin animals		√	√	√	√	√					√	√
6	Harvesting	√	√					√	√	√			
7	Crops storage		√					√	√	√			
8	Usage and selling	√	√	√	√	√	√	√	√	√	√	√	√

Source: Village Government; May, 2010

3.3.5 Use of Agricultural Inputs

Type of agricultural inputs (artificial fertilizers, farm yard manure, compost manures, crop seeds, pesticides for controlling plant diseases and pest attack)
Avarege rate used per acre (rates used)
Price and availability for agricultural inputs

3.3.6 Farm Implements and Technology

Extent of use of hand hoe, draught animals, tractors, and other modern farm implements
Use of big tractors and small tractors “power tillers”
Rate/percentage of number of households that use farm implements
Which farm activities are done using different types of farm implements? (e.g tractors used for tilling only, hand hoe used for all farm activities)
Price and accessibility of farm implements (hand hoes and modern farm implements)
Farming (production) cost estimates per acre (major crops)

3.3.7 Extension Services

Availability of Extension Officers
Establishment of Farmers Field School – Class Farms (Mashamba Darasa)

3.3.8Agriculture Crops Production

Use matrix as exemplified below

Table No.7 : Agriclture crops production

Hamlet	Crops	Acreage/ household	Crops yields/ acre	Crops yields/ house holds	Total acreage	Total Crops yields
MAGINDU MJINI	Maize Millet Casava Simsim Rice Cow peas	2 1 1 1 ½ ½	Sacks 5 Sacks 7 Sacks 25 Sacks 1 Sacks 1 Kilo 40	255 180 10 150 10 255	510 180 10 150 2.5 127.5	Sacks 2550 Sacks 1260 Sacks 250 Sacks 150 Sacks 2.5 Kilo 5100
MNYONGE	Maize Millet Casava Simsim Rice Cow peas Pigeon peas	2 1 1 1 ½ ½ ½	Sacks 3 Sacks 4 Sacks 7 Sacks 1 Sacks 6 Sacks 1 Sacks 1	86 86 50 60 5 86 60	172 86 50 60 2.5 43 30	Sacks 516 Sacks 364 Sacks 350 Sacks 60 Sacks 15 Sacks 43 Sacks 30
LUKALASI	Maize Millet Casava Simsim Rice Cow peas Pigeon peas	2 1 1 1 ½ ½ ½	Sacks 3 Sacks 4 Sacks 7 Sacks 1 Sacks 6 Sacks 1 Sacks 1	98 96 45 50 6 98 55	196 96 45 50 3 49 27.5	Sacks 588 Sacks 384 Sacks 315 Sacks 50 Sacks 18 Sacks 49 Sacks 27.5

Source: Village Government; May, 2010

N.B. Total crops production for the whole village can be summed up for each crop

3.3.9 Crops Storage

Storage facilities for farm produce/ type of storage facility

Pest control for stored crops

3.3.10 Market and crop prices

Main buyers (for every crop)

Internal market

Market outside the village, region and country side

Establishment of Government Receipt Advance System

3.4 LIVESTOCK KEEPING

3.4.1 Types and Number of Livestocks

(L.Us) present in the village

Indigenous breeds

Exotic breeds

Use matrix as exemplified below

Table No. 8: Types and number of Livestocks

Hamlet	Cattle	Goats	Sheep	LU
Magindu	0	0	0	-
Mnyonge	2819	400	420	3014
Lukalasi	1588	682	428	1875.5
Total	**4,407**	**1,082**	**848**	
LU	**4,407**	**270.5**	**212**	**4889.5**

Source: Village Government; May, 2010

3.4.2 Grazing Areas and Livestock Water Points

Grazing areas

During rainy and dry season

Source of water for livestock and its areas in terms of acres/hactors

3.4.3 Livestock Keeping Systems

- Zero grazing
- Extensive grazing
- Small ranching

Type (breed) and total number for each for every system mentioned above

3.4.4 Livestock diseases

Common animal diseases

Seasonal animal diseases

3.4.5 Livestock Extension Services and Infrastructure

Availability of Veterinary shops and medicine prices
Livestock extension workers/advisors
Livestock routes
Dipping troughs
Livestock market/auction
Availability of livestock treatments

3.4.6 Livestock products and Markets

Meat
Milk and rate of production per animal
Skin and hide
Prices for animal products

3.5 FORESTRY

3.5.1 Types of Forests

Natural forest and their acreage (Species and names)
Planted forests and their acreage (Species and names)
Reserved Forests (Species and names)
N.B.Location (Map them)

3.5.2 Ownership and Uses of Forests

Hunting, WMA, (companies, CBOs etc)
Beekeeping
Wood, lumbering
Firewood, Charcoal
Building materials
Conservation, Sacrifices

3.5.3 Harvesting of Forest Products

Harvestors from within (households) the village
Harvestors from outside the village
Rate of forest products (firewood, timber, charcoal etc.) harvested
Forest production capacity (potentiality/survival/adaptation to climatic change)
Market and prices for forest products

3.6 WATER SOURCES AND SUPPLY

Water sources and bore holes
Rivers and other water bodies (permanent/seasonal)
Location and acreage (Map them)
Use, capacities and ownership
Management measures of water sources
Water supply and distribution

3.7 FISHING *(N.B. If applicable)*

Fishing and fish processing areas
Location and acreage (Map them)
Type of fishing (fishing gear)
e.g.fishing nets, fish hook (net size and type of fish hooks)
Types and harvest size of fishes
Number of households engaged in fishing
Fish markets and prices

3.8 MINING *(N.B. If applicable)*

Mineral types and areas/sites (Map them)
e.g. Sands, stone quarries , pebbles/gravel, gold etc
Number of households engaged in mining activities
Ownership and management of mining blocks
Market and prices
Use of minerals (within and outside the village)

3.9 WILDLIFE *(N.B. If applicable)*

Wild life areas
Types and species
Wildlife protected areas neighbouring the village
Use and management of wild life animals

3.10 TOURISM *(N.B. If applicable)*

Tourism sites within the village
Business related to tourism
Revenue from tourism activities
Social and cultural effects due to tourism

3.11 SUMMARY OF EXISTING LAND USES

Village Resource Map Sketch ***(See Part B: Section 2.3.2)***
Summary of existing land uses in matrix format and map

Table No.9 : Summary of existing land uses

No.	Type of land use	Area (ha)	% of total village land area	Location (Coordinates)	Spatial Description
1.	Residential				
2.	Community facilities				
3.	Agriculture				
4.	Grazing areas				
5.	etc.				
	Total				

Existing Land Use Map *(See Part B: Section 3.3.3)*

CHAPTER FOUR

4.0 VILLAGE LAND USE PROBLEMS AND COMMUNITY ACTION PLAN

4.1 PROBLEMS, OPPORTUNITIES AND OBSTACLES

Present in a matrix format

Table No.10: Problems, Opportunities and Obstacles

(N.B. See Part B: Section 2.3.2 & Table 2.1)

4.2 COMMUNITY ACTION PLAN (CAP)

Present in a matrix format

Table No. 11: Community Action Plan

(N.B. See Part B: Section 2.3.3 & Table 2.2)

CHAPTER FIVE

5.0 VILLAGE LAND USE PLAN

5.1 INTRODUCTION

Explain briefly step reached within the PLUM guidelines

Village land use plan as a tool of implementation of CAP

Formation of Village Land Use Management Committee

(N.B. See Part B: Section 2.3.1)

5.2 LAND USE REQUIREMENTS (PLANNING PROPOSALS)

(N.B. Refer to Part B: Section 4.3.1)

5.2.1 Community Facilities and Infrastructures

5.2.2 Settlement Areas

5.2.3 Agriculture Land

5.2.4 Livestock keeping and Grazing Areas

5.2.5 Forestry Areas

5.2.6 Water Sources

5.2.7 Wild life Management Areas

5.2.8 Other Land Uses

5.3 THE LAND USE PLAN

5.3.1 Summary of Allocated Land Uses

(As deliberated upon by the Village Council and approved by the Village Assembly. Refer to attached Minutes Appendices 2 & 3 of the report)

N.B. Present in a Matrix as shown below

Table No.12 : Summary of planned land uses

No.	Type of land use	Area (ha)	% of total village land area	Location (Coordinates)	Spatial Description	Technical recommendation for efficient use
1.	Residential					
2.	Community facilities					
3.	Agriculture					
4.	Grazing areas					
5.	etc.					
	Total					

Land Use Plan Map *(See Part B: Section 4.3.2)*

5.3.2 Village Land Use Management By-Laws

(N.B. Refer to Part B: Section 4.3 and Example in Appendix H)

Attached in the report as Appendix 1

5.3.3 Demarcation of Planned Land Uses

Following coordinates in the Land Use Plan use GPS to demarcate and erect planned land uses sign boards on the ground.

(N.B. Refer to Part B: Section 4.3.4 and Example in Appendix E)

6.0 MONITORING, EVALUATION AND CONCLUSION

6.1 MONITORING AND EVALUATION

Emerging issues

(N.B. Refer to Part B: Section 4.5)

6.2 THE WAY FORWARD

(N.B. Refer to Part B: Section 4.5)

6.3 CONCLUSION

APPENDIX 1: VILLAGE LAND USE MANAGEMENT BY-LAWS

(N.B. Refer to Part B: Section 4.3 and Example in Appendix H)

APPENDIX 2: MINUTES OF VILLAGE COUNCIL MEETING

(N.B. Refer to Part B: Section 4.3.2)

APPENDIX 3: MINUTES OF VILLAGE ASSEMBLY MEETING

(N.B. Refer to Part B: Section 4.3.3)

APPENDIX C: STANDARD COLOURS AND LEGEND FOR LAND USE MAPS

LANDUSE LEGEND SYMBOLS/COLOURS

- International Boundary(Railway,AbandonedR0,G0,B0)
- Regional Boundary(Boundary City R0,G0,B0)
- District bondary(Boundary,Military Installation,R0,G0,B0)
- Village Boundary(Boundary Neighborhood R0,G0, B0)
- Railway (Railroad R255,G0,B0)
- Tarmac Road(Highway R250,G52,B17)
- Gravel Road (Highway Ramp R255,G0,B0)
- Access Road (Major Road R0,G0,B0)
- Motorable Tracts (Dashed 6.6,R0,G0,B0)
- Perenial River (River,Size width 2,R10,G147,B252)
- Stream (River width 1,R10,G147,B252)
- Seasonal River (River width 1, R158,G187,B215)
- 2000 Contour(Topographic Contour Intermidiate R221,G168,B64)
- Stock Route (Triple Plain R0,G0,B0)

APPENDIX D:ToR for Village Land Use Management Committee

Introduction

The Village Land Use Management (VLUM) committee members are appointed by the Village Council (VC) in Step 2 (Section 2.3.1). The committee subsequently work closely with the District PLUM team throughout the various steps of planning and implementation.

Qualifications of VLUM committee members

- Living in the village as a land user e.g. farmer, livestock keeper etc.
- Be energetic and motivated
- Having a good relation with the village community
- Knowledge of the villagers' residences, farms, grazing areas, forests, village boundaries
- Able to speak Kiswahili and the local language fluently
- Able to understand and accept innovations rapidly
- Able to explain, plan and negotiate with land users and the Village Council
- Ability to read, write and make simple calculations is an advantage

Composition of the VLUM committee

a) The VLUM committee should have 6-8 members representing the different socio-economic groups in the village. It is therefore essential to have a balanced committee in terms of gender (males and females), age (young, middle age and old ones), sub-village areas (hamlets) and land use (such as crop producers and pastoralists).

b) To facilitate good coordination and communication, it is recommended that about two VLUMC members are also members of the Village Council.

c) The VLUM committee should have a chairperson and a secretary to organise their tasks efficiently.

Tasks of VLUM committee members

1. To assist in mapping and preparation of VLUP, land use management by-laws and if need arises, their revisions.
2. To identify and report to the District Lands Office (through a PLUM team member or the village extension officer) all significant changes: in land use, land rights (due to selling, heritage, etc.), plot boundaries and requests for improvement of land security.
3. To identify and assist in solving occurring land related problems (such as land conflicts and land degradation) through communication and negotiation with the villagers involved and the Village Council, Ward, Division and District concerned authorities.
4. To ensure that the land allocated for communal use is *not* encroached by individual farmers.
5. To ensure that women's rights and interests are respected in land-use management, particularly land rights.
6. To request assistance from the concerned authorities for land-use management issues, whenever required.
7. To assist the concerned authorities in any additional surveys related to land use management.
8. To keep record of all major land management issues, such as changes in user rights and application of land-use management measures.
9. The committee should meet once a month with all of its members. If necessary, the village chairperson and village secretary, a PLUM-team member and/or the village extension worker can be invited. The meeting aims at discussing issues concerning the above mentioned land management tasks. Minutes should be prepared, and a copy should be forwarded to the District Lands Office.

Working conditions of VLUM committee members

a) The VLUM committee members can receive stationery from the district up to step 6 of PLUM (consolidation) in order to facilitate their work. Replenishment of the stationery will then be the responsibility of the VLUM committee and the Village Council.

b) The VLUM committee will receive assistance from the district whenever required.

c) The VLUM committee receives these terms of reference as guidelines to facilitate continuity of their activities.

Recognition of VLUM committee members

a) VLUMC members should be introduced to the Village Assembly during a meeting just after their election in step 2 (Participatory Rural Appraisal). Herewith they became officially recognised to perform the tasks in cooperation with the PLUM team as required during the different steps of PLUM.

b) VLUM committee members can become also Village Land Adjudication Committee members during Step 5 (implementation of land administration measures); and also pioneers of class farms during Step 6 (land management measures).

APPENDIX E: Space Standards for Community Facilities

These space standards were developed by the Ministry of Lands, Housing and Human Settlements Development to reduce negative interference between different land uses in densely populated areas. These standards are in the first place developed for urban areas, but their importance increases when villages grow, become service centres and get urban qualities. Considering such standards, during planning in the centre of fast growing villages, will avoid unnecessary inconveniences and costs of destructing houses, buildings and infrastructure in a later stage when the need arises. Provision of services in rural areas, such as a dispensary, may consider other factors than population, such as the distance and accessibility to alternative service.

1. *Standards for residential areas (housing)*

Type	Plot size
High density	400 - 800 m^2
Medium density	801 - 1600 m^2
Low density	1601 - 4000 m^2

2. *Minimum building lines and set backs (distance from plot boundaries)*

Plot size	Front	Sides	Rear
High density	3.0 m	1.5 m	5.0 m
Medium density	3.0 m	3.0 m	5.0 m
Low density	5.0 m	4.0 m	10.0 m

3. *Minimum plot coverage and plot ratio for detached houses*

Plot size	Plot coverage by house	Plot ratio
High density	40%	0.40
Medium density	25%	0.25
Low density	15%	0.15

4. *Health facilities*

Type (unit)	Beds / unit	Population/unit	Gross area/person	Plot size
Dispensary/clinic	---	7,000 - 10,000	0.5 m^2	3500 - 5000 m^2
Health centre/MCH	20 - 40	10,000 - 25,000	250 m^2	0.5 - 1.0 ha
Hospital	100 - 400	100,000 - 120,000	250 m^2	2.5 - 10.0 ha
Referral Hospital	400 - 1000	> 150,000	250 m^2	10.0 - 40.0 ha

5. *Education facilities*

Type	Planning unit	Number / unit	Gross area/person	Plot size
Nursery school	Neighbourhood	40 - 60 pupils	30 m^2	1200 - 1800 m^2
Primary school	Neighbourhood	280 - 1120 pupils	40 m^2	1.5 - 4.5 ha
Secondary school	District	320 - 640 students	40 m^2	2.5 - 5.0 ha

6. *Recreational facilities*

Type	Gross area / 1000 persons	Neighbourhood level (hamlet)	Community level (village)	District level
Children play area	0.2 - 0.4 ha	1.0 - 2.0 ha	4.0 - 8.0 ha	> 20.0 ha
Play fields	0.5 - 1.0 ha	2.5 - 5.0 ha	10.0 - 20.0 ha	> 50.0 ha
Sports fields	1.0 - 1.5 ha	5.0 - 8.0 ha	20.0 - 30.0 ha	> 100.0 ha
Open spaces	0.5 - 1.0 ha	500 - 1500 m^2	--	--

7. *Public facilities by planning levels*

Type	**Gross area / person**	**Neighbourhood level (hamlet)**	**Community level (village)**	**District level**
Market	0.4 - 0.5 m^2	1200 - 2500m^2	0.5 - 1.5 ha	> 4.0 ha
Shops	0.8 - 1.0 m^2	250 - 500 m^2	1.0 - 2.0 ha	> 8.0 ha
Public buildings	0.25 - 0.5 m^2	800 - 2500 m^2	0.32 - 1.5 ha	> 2.5 ha
Service trade	0.4 - 1.0 m^2	2000 - 5000m^2	0.16 - 0.5 ha	> 3.0 ha
Religious sites	0.3 - 0.4 m^2	--	2000 - 4000m^2	0.8 - 1.6 ha
Library	0.15 - 0.2 m^2	--	1500 - 2000m^2	0.6 - 1.2 ha
Community hall	0.2 - 0.4 m^2	--	2000 - 8000m^2	> 2.0 ha
Post/telecom.	0.1 m^2	--	2000 m^2	> 1.0 ha
Cemetery	--	0.5 - 1.2 ha	2.0 ha	> 12.0 ha

8.1 *Parking requirements*

Land use	Offices	Commercial	Hospital	Hotel
Parking space (units)	5 per 500 m^2 gross floor area	5 per 1000 m^2 gross floor area	5 per 50 beds	5 per 50 beds

8.2 Parking lots

Type of vehicle	**in line parking**	**45 degrees parking**	**90 degrees parking**
Busses and coaches	40 - 50 m^2	--	--
Cars	25 - 30 m^2	20 - 30 m^2	20 - 25 m^2
Lorries	--	135 - 145 m^2	90 - 120 m^2

APPENDIX F: Parameters for Bio-physical Survey

(*N.B. Extracted from Village Land Use Planning and Implementation Guidelines – NLUPC 1993*)

E1: Water Requirements

Domestic water supply:

The preliminary surveys for domestic water supply include among other things counting the inhabitants and their domestic animals like cattle, goats, pigs etc. and the annual growth rate for both people and livestock.

The current design standards for the required daily consumption for the water schemes is 30 litres per person per day and 22.5 litres per livestock unit (Livestock Unit - 1 cow, four sheep - four goats or four pigs). The needed design capacity of the scheme is calculated for human and livestock population in 20 years time. The design criteria is restricted to piped water schemes. Distribution of tapes for such schemes depend on the maximum number of people that can be served by one tape and the distance of the tape from the furthest person served. Currently one tape should serve about 2000 people and the maximum distance should not exceed 400 meters.

If shallow wells are to be used the criteria should be based on:-

(a) The number of villagers, at present and in future.
(b) The distance between the houses and the well-distance should not exceed 2 kms.
(c) The maximum number of people that can be served per well (Approx. 250 persons/per well).

Chemical and Physical Standards:

Water intended for drinking purposes should not contain toxic chemicals exceeding the limits which were set. It is unlikely that any one of the substance can occur in large quantity so as to cause an acute health problem. This can only happen if here is a massive dose of that particulars substance in the water supply system.

The Physical and chemical limits of water can be divided as follows:-

- Those substances which may be toxic.
- Those substances which may affect human health.
- Those substances which may affect the palatability of drinking water.

The table below shows the standard of the three elements of chemical limits.

From the table below, if one compares the few parameters which have been put forward, it can be observed that there is not a big difference between parameters for the temporary standards and the WHO guideline value. But for the substances which affect human health, the difference is very big. Here it can be noted that there is a need of looking into the ways on how to improve the quality of water in this respect.

Substances which may be toxic	Unit	Tanzania Temporary limit	WHO guideline value
Lead	mg/1	0.10	0.05
Cadmium	mg/1	0.05	0.005
Arsenic	mg/1	0.05	0.05
Chromium IV	mg/1	0.05	0.05
Cyanide	mg/1	0.02	
Silver	mg/1	Non mentioned	
2. Substances which affect human health		Tanzania Temporary limit	WHO guideline value
Fluoride	mg/1	0.8	1.5
Nitrate	mg/1	100	10
3. Substances which may affect palatability of drinking water		Tanzania Temporary limit	WHO guideline value
Total hardness	mg/1	600	500
Sulphate	mg/1	600	400
Chlorite	mg/1	800	250

Colour		50 mg pt/1	15 true color units (TCU) 5NTU
Turbidity		30 mg SIO/2	no offensive to
Taste		no objection	most
Odor		no objection	consumer
			0.3
Iron	mg/1	1.0	0.1
Manganese	mg/1	0.5	1.0
Copper	mg/1	3.0	5.0
Zinc	mg/1	15.0	

E2: Soil Survey

1.0 Soil Analysis

Most of the major soil types in the country have been analysed, therefore it is appropriate here to mention that in case of detailed chemical and mechanical analysis required, these can be obtained from the Agricultural Research Institutes. In particular the Southern Highlands Region (Rukwa, Mbeya, Iringa and Ruvuma) such information may be available from Uyole Agricultural Centre. For the Western and Lake Zone, such information could be obtained from Ukiriguru Agricultural Research Institute in Mwanza, Tumbi in Tabora and Maruku in Kagera Region. For the Northern Zone such information can be obtained from Mlingano Tanga, at Saliani in Arusha, Lyamungu in Kilimanjaro and possibly at Tengeru. For Mtwara and Lindi Regions counsultation should be with Naliendele Agricultural Research Institure. For the rest of the country such information can be obtained from Mlingano National Soil Services who are co-ordinators on Soil Research Programmes including soil survey for the whole country. In the absence of analysis for the soils required, the same Research Centres could be contacted for that purpose.

However to enable some people who are doing field work, a guideline on survey is given. It must be mentioned that **geology**, **hydrology**, **climate**, **Vegetation** and **topography** do affect soils productivity very much and determine the kind of land use in that particular area. Therefore, they are usually included in any soil survey.

1.1 Texture

It is recommended that 3 main classes of soil texture be used in the survey.

(i) Coarse texture soils (s)

This includes sand, loamy sand, sandy loam (with less that 18% clay, more than 65% sand).

(ii) Medium Texture Soils: (M)

This includes:
Sandy loam
Sandy clay loam
Silt loam
Silt
Silty clay loam
Clay loam
(with more than 35% clay)

(iii) Fine Textured (Heavy soils) (H)

This class includes:
Clay
Silty clay
Clay loam
Silty clay loam
(with more than 35% clay)

1.2 Soil Depth

The depth of the soil has a major influence on the land suitability, classification and selection of **related crop groups**. In planning for improved and sustained field a minimum of **50 - 60 cm should** be the **limit for available short term seasonal crops**. For tree crops not less than 80 - 100 cm deep soils should be selected. Shallow soils may however be used for grazing lands, under good management and with a dense and permanent plant cover.

1.3 Ironstones and other Hard pans

Special attention has to be paid to the occurrence of ironstones. These are impermeable levers of iron oxides which may be situated on the soil surface or at a depth or 0.5 m and more below the surface. They may be patchy small areas or large continuous stretches.

They can be observed by the sudden change in vegetation to low grasses and generally without, or very few low woody plants.

After rains, water accumulates on the surface without any recognizable infiltration. Ironstones are very difficult to reclaim and in most cases should not be considered for crop production.

1.4 Stoneness

The amount of gravel, stone and rocks can be assessed by visual inspection of gravel consisting of 7.5 cm diameter. Stones are fragments of 7.5 cm - 25 cm diameter. Boulders are fragments of larger that 25 cm Rock outcrop is the rocky material on the soil surface.

Stoneness and rockiness can be described as follows:-

Code	Description:
1.	Less than 20% gravel, few stones, less than 2% rock outcrop, not interfering with cultivation.
2.	20 - 30% gravel and stones, less than 10% rock outcrop, not suitable for cultivation, could be used for reseeded improved pastures.
3.	Less that 50% gravel and stones or 25% rock outcrop on surface, could be used for improved range grazing land.
4.	More than 50% gravel and stones of less that 50% rock outcrop on the surface, could be used for forest.
5.	More than 90% bedrock wasteland.

2.0 Slope

Slope has a major implication on land use. Fairly level or slightly undulating soils tend to be located mostly in low lying areas and generally have deep and medium to heavy soils. They have less limitation for cultivations and are generally easy to irrigate, but may have a drainage problem. On the other hand, steep slopes generally tend to be well drained, but cultivations are more restricted. The degree of slope sets limits on land use on annual crops, plantations, and even land reclamation depending on soil depth, stones etc. on steep slopes soils tend to be shallow and erosion becomes more severe.

Slopes can be divided into 5 major groups:

Flat to almost flat	0 - 2%
Undulating	2 - 6%
Undulating to rolling slope	6 - 25%
Steep	25 - 55%
Very steep	over - 55%

However, these major groups may often be too wide for decisions on soil conservation practices, leveling for surface irrigation, land reclamations, bench terracing or for classification of suitability.

Considering the major impact of slope on land use the following groups and subgroups are established.

Land	**Code major slope group**	**Subgroups cods -% Slope**	
Level And Lowland	L O - 2, 0	L 1	L 0.25
		L 2	0.25 - 0.5
		L3	0.5 - 1.0
		L4	1.0 - 1.5
		L5	1.5 - 2.0
Uplands	U 2 - 25	U1	2 - 6
		U2	6 - 10
		U3	10 - 15
		U4	15 - 20
		U5	20 - 25
Very Steep Lands	UV 25 - 55	UV 1	25 - 55
		UV 2	55

It has to be clearly understood that slope is not connected with altitude. Fairly level land can often be found at high elevations where slopes of less than 2% cover wide areas. The selection of land suitability and crop groups adapted to such conditions are mainly influenced by the agro-ecological zones relevant to the altitude of the area.

3.0 Erosion

Erosion hazards are some of the most serious limiting factors in crop production and land use capabilities. There are essentially three stages in erosion, these are: wash erosion, hills and gullies. Poor farming practices, deforestation seem to be the major causes of erosion. At the centre raindrops impact is the one which detaches soil particles.

There are coding system fro soil erosion appraisal in the field as follows:-

Code	Indications
0	No exposure of tree roots, no surface crusting, no splash deposals: over 70% plant cover ground and canopy.
1/2	Slight exposure of tree roots, slight crusting of surface, no splash depestals: soil level slightly higher on upslope or windward sides of plants and boulders: 30-70% plant cover.
1	Exposure of tree roots: formation of splash pedestals: soil mounds protected by vegetation, all to depths 1 - 10 mm: slight surface crusting: 30 - 70% plant cover.
2	Tree root exposure: splash depestals and soil mounds to depths of 1 - 5 cm: crusting of surface: 30 - 70% plant cover
3	Tree root exposure: splash pedestals and soil mounds to depths of 5 - 10 cm: 2 - 5 mm thickness of surface crust: grass muddied by wash and turned downslope: splays of coarse material due to wash or wind, less than 30% plant cover.
4	Tree root exposure, splash pedestals and soil mounds depths of 5 - 10 cm: splays of coarse. Material, rills up to depths of eight cm deep: bare soil
5	Gullies, rills over 8 cm deep: blowouts and dunes: bare soil.

4.0 Permeability - Internal Drainage

Permeability is conditioned to a large extent by the texture of the soil. Coarse texture soils may exhibit excessive permeability which may be important for decision on possibilities of irrigation systems. Fine texture heavy soils generally have low permeability. There are however exceptions, e.g.. heavy clay soils may have to be carefully noted. The groupings recommended for internal drainage are:-

Code	Description
0	Very poor
1	Poorly drained
2	Imperfectly drained
3	Moderately well drained
4	Well drained
5	Somewhat excessively drained
6	Excessive drained

The standard permeability classes for soil are as follows:-

Class	Code	Percolation rate in mm p/ hour through saturated undisturbed covers under 12.5 mm. head of water
Very slow	1	Less than 1.25
Slow	2	1.25 - 5.0
Moderately slow	3	5.0 - 20.0
Moderate	4	20.0 - 62.5
Moderate rapid	5	62.5 - 125.0
Rapid	6	125.0 - 250.0

5.0 Soil Reaction (pH)

Soil acidity -alkalinity is expressed in pH. The pH values vary between 0 to 14

pH Values	Description:
Less than 4.5	Extremely acidic
4.6 - 5.2	Very strongly acidic
5.2 - 6.0	Strong to medium acidic
6.0 - 6.5	Slightly acidic
6.5 - 7.5	Neutral
7.5 - 8.2	Slightly to medium alkalinic
8.2 - 9.0	Strongly alkalinic
Greater than 9.0	Very strongly alkalinic

Some plants are very sensitive to pH and this fact must be kept in mind in the selection to their climatic and soil requirements.

6.0 Salinity

Salty soils can be detected by the vegetation or by thin white layer on the soil surface during the day and dark muddy spots early in the morning caused by the absorption of condensed water by the highly hygroscopic salt during cool night. The following classes of salinity are recognized:-

Code	Class	Conductivity of Saturation extract mm per cm
1.		0.2
2.	Very slightly	2 - 4
3.	Slightly Saline	4 - 0
4.	Moderately saline	8 - 15
5.	Strong salinity	More than 15

7.0 Structure and Colour

These are also important in determining the type of soil and its capability and how the soil would behave when exposed to rain and manipulation.

E 4: PARAMETERS TO BE USED IN DETERMING "SUSTAINABLE" CARRYING CAPACITY OF A GIVEN AREA:

1. In order to arrive at an equitable capacity that will be sustainable, some basic factors ought to be looked into, quite carefully. The factors in question are those which are directly related to biomass production in a given locality as follows:-

1.1. Rainfall - This is the most important factor in pasture production. Any change to its amount significantly affects the amount of biomass produced in given time and space. It is important therefore, to have reliable rainfall data of a given place in terms of amount and seasonal distribution. (Extrapolated data can be employed in case of missing data of the target area).

1.2. **Available water capacity (AWC):**
This is derived from soil texture. A given land unit's soil texture should be known in order to calculate its amount of AWC, which is in turn is used in a formula to calculate biomass production of a given area. A soil map can be used in this respect.

1.3. **Potential evaporation - (monthly/annually)**
This is calculated from the mean monthly/annual rainfall; as it will be shown in the steps followed to compute Total Dry Matter production (TDM) per hectare of land. It estimates the amount of water stored in the soil, that is available for transpiration.

Briefly these are the climatic factors which will affect pasture production in Rangelands.

2. **Computation of Total Dry Matter (TDM):**

There are series of steps to be followed in the computation of TDM in a given area.

2.1. **Step one:**

Calculate the affective mean (monthly/annual) rainfall. This is calculated from the equation:-

$$R' = \frac{R \times 1600}{PE}$$

Where:

R = Mean (monthly/annual) rainfall (mm)
R' = Effective Rainfall (monthly /annual) (mm)
PE = Annual Potential Evaporation (mm)

N.B. 100 mm - Mean annual PE for dry tropics in higher altitudes (Virman etal, 1981)
This allows for interruption and direct evaporation.

2.2. **Step two:**

Calculation of water loss (surface run-off and deep drainage). This is calculated from monthly/annual effective rainfall and available water capacity of the soil as:-

RO = (15. 2482/k 0.8) R'/100 3 mm)
RO = Water Loss
K= Available water Capacity
R' = Effective Rainfall (monthly/annual) from step one above.

2.3. **Step three:**

Calculation of actual evapotranspiration (AE).
This is derived from step one and two above.
AE = R – RO (mm)

2.4. **Step four:**

Calculation of TDM is calculated using the Actual Evapotranspiration values from step three above. TDM therefore can be expressed as a function of actual Evapotranspiration as:-

IF AE ≤ 29 mm: then TDM = O
IF 29mm ≤ AE ≤ 263 mm:
then $TDM = (3.32 (AE – 29) (1.613 + 0.613) (\frac{F – 1}{125})^{0.5}$

IF AE > 263 mm: then
$TDM = (777 + 6.26 (AE – 263 + 0.613 (\frac{F – 1}{125}))^{05}$

3. The above equation converts actual available water into dry matter production.

Having deliberated on the above calculations (assumed to be the total dry matter production of a kg/ha/year) then the figure obtained is multiplied by the number of hectares found within the range areas.

The above TDM production is not wholly available to livestock consumption, it has got to be reduced in respect of density of bush cover (%) and percentage of utilization, (the former can result in competition for water and sun light, hence have a large effect on pasture production. The latter takes into account of propagation materials which should be left by the grazing animal so that there is a continued growth in subsequent years).

4. The above assertation is treated further by another assumption below.
Livestock Unit (L.U)
L. U. as applied in this context means the equivalent of one mature Tanzania short Horn Zebu (TSZ), With live body weight of 250 kg. If dry matter intake is assumed to be 2.5% of its body weight daily, then this translates into forage requirement of 6.25/day, or 2281.25kg per annum 2.3t/year. To achieve a sustainable carrying capacity, potential biomass production is equated to livestock units.

$$\frac{\text{Biomass production (Kg)}}{\text{Livestock Units (Kg)}}$$

In livestock production planning, where there is special differences in prices, there is always the problem of metabolic weights, which give close estimate of feed requirements as follows:-

(i) Cattle and donkeys = 0.8 L.U.
(ii) Sheep and goats = 0.15 L.U.
The units taken into account age differences of the stocks in question.

N.B. In assessing Biomass production levels, factors such as soils slope, soil nutrient availability should also be included in such studies. The limitation here could be the availability of such data to work with. This outline has ignored it as being beyond the intended scope.

5. Calculating Land required for farming using Carrying Capacity Method

N.B. An example from Kaloleni Village Land Use Plan, Bagamoyo District.

i) Land required for farming before improvements

Land requirements for food crops

The main food crops in the village are Maize and Millet. These crops provide calorific requirements needed per person and used to determine a piece of land in which the crops can be grown.

Food compositions and calorific values

Crops	Composition (%)	Calorific value (cal/kg)	Present Yield per acre (bags)
Maize	60	3600	3
Millet	20	3500	4

Source: Field survey, January 2005 and Tanzania Food and Nutrition commission (TFNC) 1999.

Household calorific requirement

Household member	Calorific requirement per day (calories)
Father	2500
Mother	3000
Children	2000

Source: Tanzania Food Nutrition and Commission 1999.

Daily calories required per household
The village average household size 4 i.e. 2 adults and 2 children
The total calorific per household per day at the village is thus

2500 + 3000 + (2000×2) = 9500cal/day per household.

Annual calorific requirement per household will be 9500cal/day/HH ×365days = 3467500cal/HH.

- **Land required for Maize**

$$\left[Annual\ \ amount\ of\ Maize\ required\ for\ food\ per\ HH = \frac{Annual\ calories\ required\ per\ HH \times \%\ composition}{Calories\ per\ kg\ \ (calories\ of\ Maize/kg)} \right]$$

$$Annual\ \ amount\ of\ Maize\ required\ \ for\ \ food\ \ per\ HH = \frac{3467500Cal \times 60\%}{3600Cal/kg} \approx 577.9kg/HH$$

Storage loss

Due to poor storage of food crops facing most of villagers in Tanzania, storage loss of crops is taken to be 30% of the required amount.

Therefore, storage loss = 577.9kg×30% = 173.4kg
The lost Maize on storage = 173.4kg

Seeds required

Amount of seed required after that season is taken as 1% of the annual amount of Maize required, hence seeds required 577.9kg × 1% = 5.8kg

Amount of seeds required is 5.8kg

Annual amount of Maize required per HH is = Maize for food + storage loss + seeds

577.9 + 173.4+ 5.8 = 757.1kg/HH

Therefore, amount of land required to produce 757.1kg of Maize, will be

$$Amount\ of\ land\ \ required\ \ for\ Maize = \frac{Amount\ of\ \ Maize\ required\ \ in\ kg}{Actual\ \ yield\ \ in\ kg/acre}$$

Actual yield for Maize is 300kg/acre i.e. 3bags/acre (Source: Field survey, January 2005)

$$Amount\ of\ land\ \ required\ \ for\ Maize = \frac{757.1kg/HH}{300kg/acre} \approx 2.5acre/HH$$

- **Land required for Millet**

$$Amount\ of\ \ Millet\ required\ \ for\ \ food\ \ per\ HH = \frac{3467500cal/HH \times 20\%}{3500cal/kg} \approx 198.1kg/HH$$

Storage loss = 198.1kg × 30% = 59.4kg
Seed requirement per household = 198.1kg × 1% = 1.9kg

Total annual amount of Millet required per HH = 198.1 + 59.4 + 1.9 = 259.4kg
Actual yield of Millet = 4bags/acre = 400kg/ace (Source: Field survey, January 2005)

$$Amount\ of\ land\ required\ for\ Millet = \frac{259.4kg/HH}{400kg/acre} \approx 0.6acre/HH$$

Therefore the total land required for food crops = land for Maize + land for Millet
= 2.5 + 0.6 = 3.1acres/HH

Then whole village,

604HH × 3.1acre/HH = 1872.4acres = 758.1ha.

Land required for cash crop production

Land required for cash crop production is calculated basing on cash crop grown in the village, which is Simsim and target income. The target income is the income that the household requires to meet their basic needs such as clothing, medicine and domestic requirement. Hence, the target income is 727,765Tshs. (Source: Field survey, January 2005).

Cash crop prices

Crop	Composition %	Price (TShs per kg)	Actual yield (kg/acre)
Simsim	60	300	300

Source: Field survey, January 2005.

- **Land required for Simsim (per household)**

$$Annual\ \ amount\ of\ Simsim\ required\ per\ HH = \frac{Annual\ \ target\ \ income\ \ required\ \ per\ \ HH \times \%\ composition}{Produce\ \ price\ \ in\ TShs/bag}$$

$$Annual\ \ amount of\ Simsim required\ per\ HH = \frac{727765TShs \times 60\%}{30000\ TShs/bag} \approx 14.6bags$$

But 1 bag of Simsim has 100kg
Hence 14.6bag × 100kg/bag = 1460kg

$$Annual\ \ amount\ of\ \ land\ required\ \ for\ Simsim\ per\ \ HH = \frac{Annual\ amount\ of\ \ Simsim\ in\ kg}{Production\ per\ \ acre}$$

$$Annual\ \ amount of\ land\ required\ for\ Simsim per\ HH = \frac{1460kg}{300kg/acre} = 4.9acres$$

Land required for Simsim = 4.9 acres/HH

Total land required for cash crops

Total land required for cash crop in the village
= Total land required per household × total number of household
= 4.9acre/HH × 604HH = 2959.6acres (1198.2ha)

Land required for farming at present

Land required for food crops plus cash crops production (758.1ha + 1198.2ha) = 1956.3ha

Land required for farming for future (20 years)

The estimated number of household in 20 years time will be 974 households, these will require,
Land for cash crops (4.9acres/HH × 974HH) = 4772.6acres (1932.23ha)

Land for food crops (3.1acres × 974HH) = 3019.4acres (1222.43ha)
Total land 1932.32ha + 1222.43ha = 3155ha

ii) The future land required after improvements

If the following assumptions will be applied in farming sector in the village, the product will change from low to high production.

Assumptions

- The hand hoe is replaced by modern agriculture tools such as tractors and plough.
- Agro chemicals such as pesticides, insecticides and fertilizers are used.
- Improved seeds are used.
- Rate of storage loss reduced from 30% to 5%.
- Farms being prepared and weeding done at right time

By applying the above assumptions production will be increase from 300kg to 1500kg per acre, 400kg to 1500kg per acre, 300kg to 1000kg per acre for Maize, Millet and Simsim respectively (Source: WAEO, January 2005).

Therefore the storage loss for Maize is 577.9kg x 5% = 28.9kg, for Millet is 198.1kg x 5% = 9.9kg.

Land required for food crops

- **Land required for Maize**

$$Amount\ of\ land\ required\ for\ Maize = \frac{Amount\ of\ Maize\ required\ in\ kg}{Actual\ yield\ in\ kg/acre}$$

Actual yield in kg/bag is 15bags, which is 1500kg. (Source: WAEO, January 2005)
Annual amount of Maize required in kg is 577.9kg + 28.9kg + 5.8kg = 612.6kg
Therefore amount of land required to produce 612.6kg of Maize will be

$$\frac{612.6\ kg}{1500\ kg/acre} = 0.4 acre/HH$$

- **Land required for Millet**

Total amount of Millet required per HH (198.1kg + 9.9kg + 1.9kg = 209.9kg)
Actual yield of Millet is 15bags/acre, which is1500kg/acre (Source: WAEO, January 2005)
Amount of land required to produce 209.9kg of Millet will be

$$\frac{209.9\ kg}{1500\ kg/acre} = 0.1 acre/HH$$

Therefore total future land required for food crops per HH is 0.4acres + 0.1acres = 0.5acre /HH. The village will have 974HH, hence the amount of land required for food crops will be 974HH x 0.5acres = 487acres (197.2ha)

Land required for cash crops

- **Land required for Simsim**

$$Annual\ amount\ of\ land\ required\ for\ Simsim\ per\ HH = \frac{Annual\ amount\ of\ Simsim\ in\ kg}{\text{Pr}oduction\ per\ acre}$$

NB. Production per acre is 1000kg/acre. (Source: WAEO, January 2005)

$$Annual\ amount\ of\ land\ required\ for\ Simsim\ per\ HH = \frac{1460\ kg}{1000 kg/acre} = 1.5 acre$$

Land required for simsim is 1.5acre/HH.
Land required for cash crops is 1.5acres x 974HH = 1461acres (591.5ha)

Therefore, land required for farming in 20 years time will be 197.2ha + 591.5ha = 788.7ha.

APPENDIX G: An Example of Village Land Use Management By-Laws

LOCAL GOVERNMENT (DISTRICT AUTHORITIES) ACT. No. 7 (1982)
CAP 287 (R.E.2002)

VILLAGE BY- LAWS

(Enacted under sections 163 - 167)

VILLAGE LAND USE MANAGEMENT BY- LAWS FOR SIGNALI VILLAGE, KILOMBERO DISTRICT

1. These By- laws may be cited as the By-laws for Signali Village for the Management of the Signali village land use plan of the year 2008 and shall come into operation after being approved by the Kilombero District Council.

2. These By- laws shall apply throughout the area of jurisdiction of SIGNALI village, as being registered under the Village Registration Act of 1975 with registration No. **MG/KIJ/6.**

3. **In these By- laws, unless the context otherwise requires:**

"Government" means Signali Village government.

"Village Council" means Village Council of Signali made under Local Government (District Authority) Act, No.287 [R.E.2002]

"Village Assembly" means the meeting of residents of Signali Village a meeting convened according to Local Government (District Authority) Act, No. 287 [R.E.2002]

"Committee of natural resources and environment" means a Committee made under the Village Council to assist in the supervision of forests, natural reserves and water sources of the Village.

"Committee of Pastoralists" means committee made under the Village Council to assist in the supervision of livestock management, grazing areas, and other activities concerning livestock keeping.

"Village Land Use Planning Committee" means a Committee made under the Village Council to assist in the functions of supervising Village Land Use planning activities.

5. **Liaison between Village Assembly, Village Council and other different Committees.**

Village Assembly and Village Council are enacted and operate according to sections 24-26, 55-62 and section 105 -108 of the Local Government (District Authority) Act, No.287 [R.E.2002].

Sections 108 - 111 of the Law give authority for the Village Council to appoint and establish such Committees to assist in the proper functioning of their responsibility as it deem necessary. In fulfilling their responsibilities the committee must be responsible to give information and get approval from the Village Council.

In that respect the Committee is responsible to the Village Council and Village Council is responsible to Village Assembly.

6.

(i) **Settlement: -** Means the area inhabited by people. In this area there may be few crop plants, trees, livestock sheds and zero grazing may be practiced.

(ii) **Agriculture (farms):-** Means an area where production of commercial and food crops is practiced. In this area there are no residential houses, public or cemetery. An average area of a farm per household is two (2) acres.

(iii) **Community services: -** Means an area where social services which are offered to the public are located such as Educational, health, religious, roads and other social services that are available.

(iv) **Forest: -** Means an area with a collection of grasses, thickets, naturally grown and planted trees; and may be reserved for environmental conservation.

(v) **Water sources: -** Means rivers, springs, streams, wells and water points.

(vi) **Grazing area: -** Means an area with trees and grasses where livestock such as cows, goats, sheep and donkeys feed for pastures and water.

(vii) **Worship and sacrificial area: -** an area set especially for traditional worshiping and conducting customary offerings.

(viii) **Fishing area: -** Means an area in the dams and rivers where fishing activities are conducted.

(ix) **Cemetery: -** Means an area set for burial purposes.

7. Allocated and demarcated areas with their land uses.

Area with planned land uses have been demarcated and identified by using maps which has been attached in the land use plan of the village. At the field, sign boards will be erected to show the beginning and the end of each land use demarcated. The village council shall ensure that such boards are always in place to fulfill the purpose they are made for. It is prohibited for any person to remove or destroy such boards in whichever way.

8. Management of the allocated areas.

Management of the planned areas will be as follows: -

I. Settlement area.

Building in residential area should follow health regulations among of which are to build a permanent and durable house with a toilet. Expansion of residential area will proceed towards the agricultural area with an agreement of purchasing an area from the farm owner where a need to do so arise. Landholders must be emphasized and encouraged to register their parcels of land to obtain customary right of occupancy. Village Land Use Planning Committee (VLUMC) and the Healthy committee will supervise and manage these areas on behalf of the village council.

II. Agricultural area (farms).

Development of this area should consider better farming regulations with adherence to water and land protection. Village council should ensure the class farms of various crops are established at every hamlet, whereby the villagers can learn from them to improve production of crops per acreage. Farm owners should be emphasized to register their farms and obtain customary rights of occupancy. Village Land Use Planning Committee (VLUMC) will supervise this area on behalf of the village council.

III. Community facility area.

Several community facilities will be demarcated in one area according to the needs. While those facilities in this area are not yet developed it is prohibited for individual persons to plant or cultivate any permanent crops or erect permanent houses in this area. Either when this area is developed, there will not be any compensation for any person, except the village council may permit those persons with temporary crops to harvest them. Village Land Use Planning Committee (VLUMC) will supervise the progress of this area on behalf of the village council.

IV. Village Forest Reserve.

Forest areas to be demarcated, registered, developed and conserved. It is prohibited to mow, set fire and graze in these areas. Harvesting of forestry crops must obtain an authorization or written permit from the village council. Natural Resources and Environmental Committee will supervise this area on behalf of the village council.

V. Water sources reserve.

Areas allocated as water sources should be demarcated, registered, managed and reserved as water sources. It is unlawful to mow, set fire, burn charcoal, cultivate or graze livestock in these areas without a written permit from the village council. Natural resources and Environment committee shall manage these areas on behalf of the Village Council.

VI. Grazing Land.

Bush and areas allocated for livestock grazing should be demarcated, registered and managed as grazing and drinking area for livestock. It is prohibited to mow, set fire, burn charcoal, cultivate in those areas. Pastoralists will build their residential homes and livestock sheds beside the farms under agreement of purchasing pieces of land with an average of half acreage (0.5) per household from the farm owners. Village council under technical advice from the District livestock department will maintain a number of livestock which need to be kept in the area. Excess number of livestock shall be harvested and sold for development of pastoralists and the village as a whole. Pastoralists should form a committee which will supervise to ensure sustainable pastoralism and keep the records of livestock in order on behalf of the village council.

It is unlawful to graze and water livestock out of an area set for grazing purposes. It is unlawful to burn manure produced from the livestock instead it should be used for agriculture as fertilizer.

Until the pastoralists committee is formed the Village Land Use Management Committee (VLUMC) will supervise this area on behalf of the village council.

VII. **Sacrificial area.**
An area allocated for traditional sacrifices will be demarcated and used for tradition and customary purposes. It is unlawful to cultivate, set fire, graze livestock, walk randomly, and build residential houses in thisarea. This area will be supervised by the village council.

VIII. **Fishing area.**
Fishing activities will be conducted in the allocated rivers. These areas will be supervised by the District fishing department. Fishing activities will be conducted according to the available Fishery rules and regulations. It is unlawful to conduct any form of illegal fishing such as trawling and netting method, dynamite method and poisonous fishing.

IX. **Community Wildlife Management Area (WMAS).**
Areas allocated for Community Wildlife Management shall be demarcated, registered and managed as areas of block hunting and tourism.

It is unlawful to cultivate, mow, and set fires in this area. This area shall be protected and used according to wildlife conservation rules and guidelines. The Village Council will appoint a committee to supervise this area. While this committee is not in place the VLUMC will supervise on behalf of the Village Council.

X. **Cemetery.**
It is prohibited to conduct burial activities in an area apart from an area set for such purposes. It is unlawful to conduct any other such activity apart from burial.

9. Change of land uses.

Any changes of land uses in an allocated area will only be done after the village council has reviewed and made corrections to the village land use plan and obtain the approval from the village Assembly.

10. Penalty.
Any person who is found guilty of violating any of these By-laws will be prosecuted in court of law and if found guilty be punished to a penalty of fine not exceeding fifty thousand shillings (50,000/=) for each offence and be ordered to restore, redress or compesate the wrong done by the person concerned to its original state or situation for the offensive act concerned.

11. Approval and Signature.
These by-laws have been enacted by the Signali Village Council on **11th** day of **September, 2008** and been approved by Signali Village Assembly on **11th** day of **September, 2008.**

Has been signed

Signature:…….. Signature:……

Name:…… Name:……..
VILLAGE EXECUTIVE OFFICER. **VILLAGE COUNCIL CHAIRMAN.**

Has been stamped by the official stamp of SIGNALI Village Council.

These By- Laws have been approved and signed by the KILOMBERO District Council on ……day of……year.

To start operating on: ……day of…….year.

Signature: …… Signature:……..

Name: …… Name:……..
DISTRICT EXECUTIVE DIRECTOR **CHAIRMAN**

KILOMBERO DISTRICT COUNCIL. **KILOMBERO DISTRICT COUNCIL**

Has been stamped by the official Stamp of the Kilombero District Council.

APPENDIX H: Examples of Writings of VLUPs Sign Boards

AGRICULTURE LAND AREA
OBSERVE MORDEN FARMING TECHNOLOGY
PLANT AGRICULTURAL FRIENDLY TREES
PROTECT WATER SOURCES FOUND IN AGRICULTURE LAND
LIVESTOCK GRAZING IS PROHIBITED
OBTAIN CERTIFICATE OF CUSTOMARY RIGHT OF OCCUPANCY
DO NOT TEMPER/REMOVE THIS SIGNBOARD

BY ORDER
VILLAGE GOVERMENT

SETTLEMENT AREA
BUILD ORDERLY PERMANENT HOUSE
LEAVE RIGHT OF WAY/ACCESS ROAD
ABIDE TO REGULATIONS FOR GOOD HEALTH (PERMANENT TOILET)
ZERO GRAZING SHOULD BE OBSERVED
OBTAIN CUSTOMARY RIGHT OF OCCUPANCY FOR YOUR PLOT
DO NOT TEMPER/REMOVE THIS SIGNBOARD

BY ORDER
VILLAGE GOVERMENT

FOREST AREA
CONSERVE TREES, GRASS AND WATER SOURCES AREAS
DO NOT GRAZE LIVESTOCKS WITHOUT PERMISSION
FARMING ACTIVITIES ARE PROHIBITED
DO NOT FELL DOWN TREES NOR START FIRE
IN ORDER TO HARVEST PLANTS YOU SHOULD GET A PERMIT
DO NOT TEMPER/REMOVE THIS SIGNBOARD

BY ORDER
VILLAGE GOVERMENT

WATER SOURCES AREA
CONSERVE TREES, GRASS AND WATER SOURCES AREAS
DO NOT GRAZE LIVESTOCKS, CULTIVATE AND BUILD WITHIN 60 METRES
PLANT WATER SOURCES FRIENDLY TREES
DO NOT CUT DOWN TREES NOR START FIRE
DO NOT TEMPER/REMOVE THIS SIGNBOARD

BY ORDER
VILLAGE GOVERMENT

COMMUNITY SERVICES AREA
GET PERMISSION TO MAKE ANY DEVELOPMENT
DO NOT PLANT PERMANET CROPS
DO NOT BUILD RESIDENTIAL HOUSES
DO NOT GRAZE LIVESTOCKS

BY ORDER
VILLAGE GOVERMENT

GRAZING AREA
DEVELOP BY PLANTING BETTER PASTURE FODDER
DO NOT CULTIVATE AGRICULTURE CROPS
DO NOT FELL DOWN TREES AND START FIRE
ESTABLISH COMMUNITY RANCHING
DO NOT TEMPER/REMOVE THIS SIGNBOARD

BY ORDER
VILLAGE GOVERMENT

APPENDIX I: Requirements and Indicative Costs for Establishment of District and Village Land Registries

N.B. Extracted from CIRCULAR FOR IMPLEMENTATION OF VILLAGE LAND ACT

DISTRICT LAND REGISTRY

S/N	TYPE OF ITEM	PRICE
1.	Register of District Land (Certificate of Village Land)	Tshs 250,000/=
2.	Register of District Land (Customary Right of Occupancy)	Tshs 250,000/=
3.	Acceptance register book (Certificate of Village Land and Customary Right of Occupancy and various documents (Counter Book)	Tshs 2,500/=
4.	Dispatch book of Certificate of Village Land and Customary Right of Occupancy which have been registered.	Tshs 2,500/=
5.	File cabinet for keeping Customary Right of Occupancy and Certificate of Village Land.	Tshs 220,000/=
6.	Stamp to be stamped during registration of Certificate of Village Land and Customary Right of Occupancy.	Tshs 15,000/=
7.	Sealing wax of the District to be stamped during registration of Customary Right of Occupancy.	Tshs 250,000/=
8.	Special pens for registration.	Tshs 1,500/=
9.	Lamination machine of customary right of occupancy.	Tshs 500,000/=
10.	Lamination porch A4 size (1 packet).	Tshs 18,000/=
11.	GPS for boundary survey	Tshs 600,000/=

VILLAGE LAND REGISTRY

S/N	TYPES OF PROPERTIES	PRICE
1.	Register of Village Land	Tshs 250,000/=
2.	Acceptance Register book	Tshs 2,500/=
3.	Dispatch book of Customary Rights of Occupancy and various forms (Counter Book)	Tshs 2,500/=
4.	File cabinet for keeping copies of Customary Right of Occupancy and other records concerning Customary Right of Occupancy.	Tshs 220,000/=
5.	Stamp/ sealing wax of village for press/ stamping on customary right of occupancy.	Tshs 250,000/=
6.	Special pens for registration.	Tshs 1,500/=
7.	Register of letter of offer of customary right of occupancy.	Tshs 7,500/=
8.	Forms to be filled by applicant/applicants of customary right of occupancy.	Tshs 200/=

	TYPES OF PROPERTIES	PRICE

APPENDIX J: Systematic Adjudication Record Form

Villlage Land Form No. 18 & 47

THE UNITED REPUBLIC OF TANZANIA.

VILLAGE LAND ACT, 1999

SYSTEMATIC ADJUDICATION AND GRANT OF CUSTOMARY RIGHT OF OCCUPANCY FORM.

(Under section 54 & 25)

Name of village	**Names of referees and signature** (for non villagers)	**End of occupancy**
Name of hamlet	**1.**	**Date of application**
No. of Registered Peace of Land	**2.**	**Village Assembly ……. /…… /20….**

Type of occupancy(individual/common/group/Coorperate etc.)	**Climatic conditions** (high land/ mountains/ valley/ plains)…….....	Present Land Uses…….. Planned…….

First name	**Second name**	**Clan name**	Gender	Age	Marriage	Nationality	Address	Resident	Telephone number	Photograph number	Special marks on the photograph

Neighbours	**Name**	**Signature**
North		
South		
East		
West		

Adjudication Committee	Position	Signature
1		
2		
3		
4		

Drawing/Map

Interested parties

Land owner/owners Name …… Signature …… Date……..

Name …… Signature ……

Date……

Adjudicators name …… …… Signature…… Date …….

Official use

Opinion and decision of the Village Council ……

Names and signatures of Village Council members (Chairperson) …..……...Signature…… ……Date……..

(Village Executive officer) ……..… Signature ……..… Date……..

Acre(s)……..
North
East

APPENDIX K: Extracts from Detailed Village Settlement Management Planning

by MLHSD

1. PLAN PREPARATION

Detailed Village Settlement Planning involves physical arrangement of the settlement part of the Village which includes various land uses such as residential, infrastructure and community facilities. The preparation and implementation of the plan involves different actors and processes as illustrated below:

i. The PLUM team shall sensitize and educate the Village Council on the need and significance of having a Settlement Plan.

ii. The Village Council shall present and justify to the Village Assembly the need for a detailed village settlement planning scheme for consent.

iii. The Village Council shall pass a resolution of intention to prepare a detailed village settlement planning scheme.

iv. The Village Council shall with assistance of the District Council publish intent to commence preparation of a scheme by a notice in local news papers circulating in the local area or put a notice in a local government sub village and Ward offices.

v. The Planning Authority (Village Council), shall convene a meeting of key stakeholders in the area to be affected by the scheme to participate in its preparation. Landholders are allowed to submit their proposals.

vi. The recommendations from stakeholders shall be taken on board and the Village Council shall endorse the ideas.

vii. The Village Council shall appoint a planning team comprising of twelve members of whom six shall form a quorum of which Town Planner must be included.

viii. The planning team shall undertake the following:

   a. Review existing data and literature concerning the planning area and make necessary consultation,
   b. Make reconnaissance surveys of the planning area,
   c. Conduct social and economic Surveys or Interviews on population and housing,
   d. Collect sectors data and information inventory,
   e. Conduct physical surveys and prepare a base map,
   f. Collect transport data,
   g. Collect any other relevant data and
   h. Prepare a detailed existing land use map of the settlement area.

ix. The planning team shall make analysis and synthesis of the collected data and information to determine potentials, constraints and opportunities for detailed settlement scheme.

x. The Planning Team shall prepare land use requirement for various uses basing on population projections and standards and thereafter prepare a conceptual plan.

xi. The Planning Team shall prepare corresponding infrastructure layout proposals in collaboration with utility agencies; set aside suitable solid waste collection and disposal sites where applicable.

xii. The planning Team shall with assistance of a competent Valuer negotiate with land owners to acquire land for infrastructure, way leaves and community facilities and agree on and demarcate property boundaries where applicable.

xiii. The Planning Team shall assess compensation bills/schedules for settling third party interests and identify areas for resettlement of those to be displaced where applicable.

xiv. The Planning Team shall prepare and present the 1st draft detailed planning scheme and its subsequent action plan and budgets to the Village Council.

xv. The Planning Team shall present the 2nd draft detailed planning scheme to key stakeholders for comments and recommendations.

xvi. The Planning Team shall submit the draft scheme to the Village Council for endorsement and ownership.

xvii. The Planning Authority (Village Council) shall present the final draft scheme to the Village Assembly for approval.

xviii. The Village Council shall send copies of approved scheme to the Director General of National Land Use Planning Commission for custody.

xix. The Village Council shall present approved scheme to Ward Development Committee (WDC) and avail copies for custody and display in public areas.

xx. The approved scheme shall be submitted to the District Planning Authority for rationalization and incorporation into the District Land Use Framework Plan.

xxi. The District Council shall submit the approved scheme to the Minister for publication.

2. PLAN OUTPUTS

2.1 The outputs of a detailed village settlement planning process shall include:

A report of existing and proposed land use plan consisting of:

a. Location map in appropriate scale,
b. Existing land use map preferably in 1:2500 or 1:5000 scale,
c. Conceptual plan,
d. Proposed land use map,
e. Infrastructure plans preferably in 1:2500 or 1:5000 scale,
f. Action plan and budget (implementation schedule/plan.

2.2 Contents of the outputs:

i. The existing situation report shall contain an analysis of land terrain, soils, climate, vegetation, exiting land uses, land tenure, existing development, surveyed plots/farms, pattern of all development within and surrounding areas.

ii. The proposed land use plan report shall consist of land requirements for various uses including utility services, community facilities and solid waste collection and disposal methods needed by a targeted population within a given planning period.

iii. The report shall also contain:

a. Identified authorities/actors responsible for providing services and/or developing the various land uses and their plans including any other commitments for the area,
b. Summary of possible strategies for clearing third party interests in the area.
c. Land use plan (drawings) providing for reservation of areas, zones and sites for dwelling units, shopping facilities, community facilities, landscaping, conservation and preservation areas, gardening and other purposes,
d. Layouts of physical infrastructure and public services,
e. Village Assembly Plan approval minutes.

3. PLAN IMPLEMENTATION

i. The Village Council shall convene a consultation meeting with actors and stakeholders to forge partnerships on implementation, operation and maintenance modalities to include sharing of roles and responsibilities, timeframe and commitment.

ii. In collaboration with the District Authority, the Village Council shall establish an implementation committee comprising of stakeholders' representatives to mobilize resources needed for implementation. The implementation committee shall report to Village Council,

iii. The implementation committee in collaboration with the District Authority shall mobilize resources for effecting cadastral survey/demarcation and infrastructure provision.

iv. The implementing committee in collaboration with VLUM shall coordinate the carrying out of cadastral surveying or demarcation by the District Authority or private surveyor.

v. In the case of cadastral survey, the Village Council shall cause the survey plan to be approved by the Director for Surveys.

vi. The implementation committee in collaboration with VLUM shall collaborate with the District Authority, basic utility agencies, NGOs, CBOs and FBOs to ensure provision of infrastructure and community facilities,

vii. The Village Council shall allocate plots to prospective developers and facilitate processing and issuance of certificates of occupancy,

viii. The Village Council shall formulate by-laws to govern building and housing construction and ensure adherence to development conditions.

ix. The District Council in collaboration with Ward Development Committee (WDC) shall ensure that development conforms to development conditions as stipulated in the village by-laws.

4. MONITORING AND EVALUATION

A systematic monitoring and evaluation of plan implementation by the Village Council should adhere to the following procedure:

i. The Village Planning Team in collaboration with Ward Development Committee (WDC) shall monitor and evaluate implementation of the approved detailed scheme annually and prepare reports indicating achievements of targets, constraints and recommendations.

ii. The Village Planning Team shall submit the report to the Village Council for onward forwarding to Village Assembly and District Authority.

5. REVIEW OF THE PLAN

The Planning Authority (Village Council) shall review a detailed village settlement scheme within five years or as may be necessary. The review report shall be presented to the Village Assembly for approval.

APPENDIX L: Farmers Field School Methodology (Class farms – *Shamba Darasa*)

N.B. Extracted from Nachingwea District Agriculture Officer (Mr.R.V. Mbomela) training notes; who attended FFS training course at Uyole, Mbeya; and now making actual practice with farmers groups in Nachingwea District.

FARMERS FIELD SCHOOL (FFS)

Foreword

The FFS (Shamba Darasa) approach was developed in the late 1980's by FAO in the south East Asia as a way for small-scale rice farmers to investigate and learn for themselves the skills required for and the benefits to be obtained from adopting Integrated Pest Management (IPM) practices in rice fields. Since then the approach has been extended to other continents and several countries. At the same time there has been a shift from IPM for rice-based systems towards other crops, vegetables, integrated soil fertility, nutrient management and extended to Livestock keeping.

In the East African sub-regional, pilot project for farmers field school on integrated production and pest management (IPPM) has been operational in Kenya since 1999 and has been working with farmers on a variety of issues among them local chicken rearing. The curriculum for local chicken production has therefore been designed as a guide and source of reference materials for use by FFS facilitators in the region.

1.0 Introduction

Farmers field school (FFS) are platforms and "school without walls" for improving decision making capacity of farming communities and stimulating local innovation for sustainable agriculture. FFS offers community-based, non-formal education to groups of 25-30 farmers through self-discovery and participatory learning principles. The school brings together farmers who live in the same village/catchment and thus, are sharing the same ecological settings and socio-economic and political situations. The FFS provides opportunity for learning by doing.

The concept of the FFS is based on the premise that the participating farmers become researchers who test the various technological options available, during which process they are able to decide the best alternative for their particular circumstance. The principles that guide the farmers field school learning process are:

- The field is the primary learning resource. All learning activities take place in the field and are based on what is happening in the field.
- All learning is based on the farmer's observations in the field. The observations form the basis for discussion and analysis by farmers who arrive at concepts, which they test and improve upon through further field activities.
- Training by technical personnel to farmers is focused on the analysis of the agro-ecosystem of the relevant farming system. This analysis helps farmers gain insight into the ecological interactions in the field. The combination of analytical methods, ecological insight and basic integrated management principles, provide farmers with wider alternatives to choose from.
- Training lasts the entire cycle (from land preparation to harvesting), so that farmers acquires a firm understanding of the relevant concepts for each stage.
- The training curriculum is based on local conditions, problems and the needs of the participating farmers.

There are two main **approaches used in the FFS** to disseminate information in a holistic and participatory way, which are described below:

Agro-ecological system analysis (AESA)

The AESA methodology is designed to improve observation skills and to develop decision-making skills, through analysis of the field situation. It is the establishment of an understanding of the interaction between crop/livestock and other biotic and abiotic factors co-existing in the field through observation. Practically, farmers are divided in small groups and observe the crop/animal from a study field.

Observations are guided by a checklist including general information, parameters and observations. The group analyse the information collected and draws up a list of recommendations for decision making by the group, based on their own experiences and knowledge and that of the facilitator. Each group presents their results in a standardized format to the rest of the school, where the findings are discussed allowing farmer to farmer information dissemination.

Participatory technology development

Participatory Technology Development (PTD) is a process of collective and collaborative inquiry using comparative studies with the purpose of initiating community action on solving local problems. PTDs in farmer field schools are being implemented to empower participants (both farmers and facilitators) with analytical skills to investigate cause and effect relationship of problems in farming practices and thereby stimulate them to design a set of actions for lessons for the future field school programmes implementation strategies. In addition, the participants develop analytical skills and attitudes in planning, organizing and evaluating development activities through working within a participatory framework.

2.0 GUIDING PRINCIPLES OF INTEGRATED PEST MANAGEMENT (IPM)

(i) Grow a healthy crop adherence to proper/good management practices for optimum yield

(ii) Conserve natural enemies – encouraging biological pest control methods instead of the use of chemicals

(iii) Observe crop regularly – regular monitoring of the crop performance enhance sound decision on the management actions to be taken e.g. pests, diseases, weeds, soil moisture content, vermin etc.

(iv) Farmers become experts – farmers understand their circumstances and have basic knowledge on crop/livestock requirements; practical training enables early adoption of techniques.

3.0 OBJECTIVES OF FFS TRAINING

Major objectives of FFS include:

(i) To increase production per unit area hence raising gross margins;

(ii) To minimize the cost of production through the use of recommended application rates of farm inputs;

(iii) To build capacity among farmers/livestock keepers to attend farm challenges/operations hence reduced dependence to trained extension workers;

(iv) Training farmers to carry out timely field operations;

(v) To promote participatory democratic approach during the learning process;

(vi) To create sound working relationship among farmers, extension workers and researchers.

4.0 LAUNCHING THE FFS

4.1 A trained Facilitator on FFS briefing District Council (leaders) on FFS approach.
N.B. In this case, the District PLUM team should understand the FFS approach.

4.2 Meeting ward, village(s) leaders

- Briefing the leaders on the concept of FFS (Shamba Darasa - SD); approach, and its objectives

4.3 Facilitator conduct Village Assembly

- Introducing FFS ideas, concept of FFS (Shamba Darasa - SD); approach, and its objectives
- Outlining qualities of the FFS members and formation of FFS groups.

4.4 Formation of FFS group (25 members)

Qualities of FFS group members include:

- Members must be residents of the village
- Members should be readily available for SD activities throughout the growing season
- Members should be able to disseminate knowledge obtained during SD sessions
- The member should be able to share costs wherever necessary
- The member should be well disciplined
- High integrity in the society

Qualities of FFS (SD) group:

- Gender balanced (women & men)
- Mixed age groups (youths, adults, elders)
- Shared needs and interests among group members

FFS group sustainability indicators:

- Dissemination of knowledge
- Reliable alternative sources of income
- Joining financial institutions e.g. SACCOS
- Follow up and monitoring of SD graduates to record their performance.

N.B. After formation of FSS group, decide on the day/date, time and venue to meet the group members (25)

4.5 Meeting group (25) members

Agenda:

- Recap (Introduction and objectives of SD)
- Election of group leaders i.e. chairperson, secretary, treasurer, disciplinary committee comprising 5 members
- Select, among members, a small group to formulate group rules/regulations
- Decide on group identity (i.e. name and slogan)
- Select SD crop

Criteria for crop selection

- Marketable and economically viable
- Socially acceptable
- Ecologically suitable
- Underutilized potential

Criteria for selecting SD field

- Field size not less than 1000m2 (0.25 acres)
- SD should be within the respective village
- SD should be where it can be easily accessible and seen by other villagers

SD can be obtained through:

- Voluntary offering
- Allocation by village government
- Hire

Factors to consider when selecting SD field

- Soil type
- Soil depth
- Fertility status
- Type of weeds in the area
- Soil moisture retention status

4.6 Other issues for the facilitator

(i) Facilitate the agreement and memorandum of understanding with group members on the following:

- Cost and benefit sharing modalities
- Time table for training (days, time – for starting and finishing)
- Expectations after completion of SD training

(ii) Conduct gap analysis in crop/livestock production to determine what farmers know and what they wish to know. The significance of the exercise include:

- Enables both the facilitator and farmers to know the gaps between improved (modern technology) crop/livestock production and unimproved farming system
- Gap analysis is an important tool to guide decision on type of management techniques to be employed after monitoring crop growth and development over a number of weeks
- Enables both the facilitator and farmers to evaluate the performance of SD on regular basis, even after completing the training.

An example of gap analysis in bean production in Iwindi village(Mbeya Rural district) season 2005/2006

S/N	ACTIVITY (UNIMPROVED TECHNOLOGY)	S/N	ACTIVITY (IMPROVED TECHNOLOGY PRACTICES)
1.	Selection of farming field (1 month before sowing)	1.	Selection of SD field (1 month before sowing)
2.	Land preparation – 2 weeks before sowing	2.	Land preparation – 3 weeks before sowing
3.	Enlist all activities to be involved, in a logical order, from sowing to storage of produce; and identify gaps for each activity.	3.	Enlist all activities to be involved, in a logical order, from sowing to storage of produce; and identify gaps for each activity.

5.0 FFS IMPLEMENTATION

The formation of SD group is followed by the following activities:

i. SD group members visits the designated SD field and make observations on soil type, soil depth, fertility status, type of weeds, soil moisture retention potential,
ii. The SD group prepare the budget for implementing SD
iii. Purchase and distribution of farm inputs
iv. Land preparation/construction of 'livestock huts'; make partition/sub divide the field/the 'hut'. The aim of sub dividing the SD is to allow the comparison of performance under unimproved system with improved management practices and determine the difference in terms of costs and returns and eventually work out the gross margins for both systems. Record keeping is crucial during the whole period of the project (training) to provide data base for the performance assessment. The costing (monetary terms) of all activities should be done even if some activities are performed by the SD group members.
v. Planting /introducing livestock in 'huts'

6.0 FFS CONTENTS

6.1 FFS MEETINGS/SESSIONS

During SD training, the following activities are carried out on each meeting day:

(a) Opening energiser e.g. song

SONG: SD TARGETS
Shamba Darasa targets – please observe X2
To attain optimum sustainable production
To use recommended land use management measures
To learn by doing
Farmer become expert X2

We all know IPM guiding principles are four X2
Grow a healthy crop
Conserve friendly pests
Observe crop regularly
Farmer become expert X2

(b) Members registration and working out the programme for the day activities (see the example in the table below)

Time	Activity	Responsible
8.00 – 8.30	Opening energiser e.g. song	Scheduled members
	Registration	All /scheduled members
	Day activity briefing	Facilitator/scheduled members
8.30 – 9.30	Agro-ecosystem analysis; data collection	Small group of selected members
9.30 – 10.15	Data processing; computing data ; and poster drawing	Small group
10.15 – 10.20	Energiser	All members
10.20 – 11.20	Presentation of the day's field findings Discussion on each finding	Small groups
11.20 – 12.00	Special presentation	Resource person
12.00 – 12.10	Short break	All
12.10 – 12.20	Work out programme for the next session	All
12.20 – 12.30	Closing the day session e.g. song	All/chairperson

(c) Recap from the last session and briefing on the day activities;
(d) Investigations on crop/livestock and its surroundings (agro-ecosystem analysis (AESA)). Collect and analyze data, present findings to SD group members for discussion and decision making on actions to be taken;
(e) Participatory Action Research (PAR) or Participatory Technology Development (PTD);
(f) Group dynamics/ice breakers e.g. songs;
(g) Special topic presentation by resource person
(h) Evaluation of the day's activities
(i) Work out programme for the next session, announcements, and closing the day session

6.2 AGRO-ECOSYSTEM ANALYSIS (AESA)

Agro-ecosystem analysis refers to systematic monitoring of crops in the field/livestock and its surroundings. For crops, monitoring begins during field preparations, planting/sowing throughout the growing period up to the storage of produce. Findings are immediately analyzed and decision made accordingly to improve crop/livestock growth and development in order to optimize yields.

6.2.1 Importance of AESA

- Decision making tool during SD training
- Learning through monitoring the crop/livestock growth and development
- Facilitate practical learning
- Easy determination of what to do, why and how
- Record keeping for future utilization
- Easier learning methodology even for illiterates
- Exchange of ideas among SD group members
- Provide opportunities to both the farmers and facilitator to learn in the field and work out innovations.

6.2.2 Timing of AESA

- Morning hours (8.00 – 11.00 am) are appropriate since most of the pests are usually active in crop fields; also based on experience, these hours seems to be convenient for most SD group members.
- Time for SD training should be fixed throughout the growing season e.g. once a week for early maturing varieties and two weeks for varieties that take longer time to mature.

6.2.3 Size of AESA group

The SD group of 25 people is subdivided into 5 sub-groups of 5 members. Each sub group conducts AESA study. The main advantage of using small group is that each member get an adequate opportunity to participate in the field investigation as well as discussions of the findings i.e. encourages active participation. Also provide opportunity of a variety of SD fields (5 fields), and better chances of multiplier effect.

6.2.4 Materials for AESA

Required materials for AESA include note books, pens, tape measure, marker pens, flip chart, net (like mosquito net - for trapping pests), plastic bags, crayons, office pins, lens etc.

6.2.5 Checklist for AESA investigations

(i) Decide on data/information to be collected during AESA

(ii) Number of trees/stand or number of livestock to be selected for investigations; sampling method;

(iii) Pests: decide on how to investigate pests
- Symptoms of attack
- Eggs
- Caterpillars
- Pests inside and outside the crop stand
- Filling record forms and kind of data to be collected

(iv) Diseases: Decide on;
- How to conduct the investigations on diseases - attack and symptoms
- How to fill record forms
- Pictorial presentation of disease attack

(v) Morphology of the crop and its growth and development stages

Select parameters that compliment yield i.e. yield component

e.g. - Crop height
- Number of leaves, branches, flowers
- Basal area
- Leaf colour
- Size of fruit
- Number of suckers etc.

For livestock, parameters to be used include:
- Weight (kg)
- Size of egg
- Number of animals
- Mortality rates (%)

6.2.6 Execution of AESA in the field

A. Selection of representative sample – crop/livestock
- Number of selected plants depends on the type of the crop, spacing and the size of the farm plot. In the case of livestock, selected numbers depend on the type of breed and the available number of livestock.
- There are various sampling techniques for obtaining representative plants e.g. diagonals, U-shaped, S-shaped and

Zigzag. However the diagonal method is the simplest hence widely used in the SD trainings.
- Representative plants are tagged throughout the growing season/training period.

B. Major steps for the completion of AESA

(i) Data collection in the Field
- Representative samples are investigated and data filled on the AESA sheet/form or scouting form/sheet
- Investigations are carried out by small groups of 5 members each
- Investigation is based on: climate, growth and development of the crop, pests (both destructive, friendly(harmless) and insignificant pests)), diseases, weeds, soil moisture content, and general performance (healthy) of the crop
- Collection of data is done to both fields; one under improved management (IPPM) and the other under unimproved system (FP/CP). In both cases, filling AESA forms is mandatory
- Gather data as much as possible; it increases understanding when presenting findings

(ii) Data processing and poster drawing
- Field statistics are compiled by computing averages
- Computations are done by small groups (sub groups) of 5 SD members in the SD field, under the tree or nearby house
- Draw the picture of a sample crop/tree or animal. The drawing must depict the real situation e.g. healthier, disease or pest attack, number of leaves etc.
- Use natural colours of plants and animals
- Use collected samples to draw pictures of destructive pests on the left side of the picture of plant/animal
- Use arrows to indicate the sites where pests were collected on the drawing with plants
- Name the pests and indicate amount/numbers on the drawing of pest under investigation; use both local and scientific names
- Again, on the right side of the picture with plant(crop), draw pictures of friendly/harmless pests
- Follow same procedures for naming and labelling as indicated for destructive pests
- For other insignificant pests, draw their pictures just below the plant/animal, at the bottom centre of the poster
- On the poster, show pictorial representation of the weather condition just above the plant/animal to cover the top parts of the poster e.g. sun, clouds, rainfall, windy condition etc. It is necessary to indicate weather condition because before decisions are made when planning activities, the consideration of the weather condition is necessary.
- At the bottom of the poster, list all important findings in the field and make suggestions/recommendations.

(iii) AESA presentation, discussions and decision making
- Each sub group make its presentation with a poster
- The current situation (on poster) is compared to previous week poster
- Presentations are done for both scenarios; improved and unimproved practices. This helps to determine difference in growth and general performance of the plant/animal
- During presentations and discussions to reach consensus; the facilitator asks leading questions and refrain from providing direct answers to allow open discussions among group members.

Example leading question that may be asked; Don't you see the increase in the number of leaves this week?

During ASEA observe the following:
- Management decisions on private farm plot, depend on farmers experience and the cropping calendar
- Management decisions on IPM plots depend primarily on what is happening in the field which is revealed through close monitoring by SD group members. The decision is basically plant/crop specific.
- The SD group members have to decide who should execute its decisions, how and when
- AESA is done for two fields concurrently; improved and unimproved management. Decision making is not based on data from plots under unimproved management; such data only provide a base for comparison of the two systems. Thus, such unimproved plots represent the real situation of the majority of the farming communities not under SD training.

7.0 STUDY VISITS/EXCHANGE VISITS

Study visits refers to training programmes whereby farmers are facilitated to visit fellow farmers in distant locations in order to learn/see achievements and challenges experienced in that area.

7.1 AIM OF STUDY VISITS

- Farmers to share experience, knowledge and techniques
- To enable farmers to apply acquired knowledge and techniques

7.2 DURATION OF STUDY VISITS

For study visits related to crop production, tours can be conducted more than once to allow farmers to learn crop growth and development at different stages i.e. land preparation, sowing, flowering, maturity, harvesting. However, it all depends on the availability of resources and areas to visit.

7.3 VISITING PLACES

Study visits/exchange visits can be between villages, wards, district, regions or national level.

7.4 OBSERVATIONS

Important observations include: target group, aim of visits, travelling costs, subsistence allowances, accommodation, meals, entertainments, time (appropriate time is from 8.00 to 13.00hrs)

8.0 FARMER FIELD DAY

Is a special exhibition day when SD members show its achievements to invited guests and the general public.

8.1 AIM OF FARMER FIELD DAY

- To show activities involved in SD training, achievements and challenges;
- To facilitate adoption of appropriate technology by the community;
- To motivate other farmers/livestock keepers to join SD training.

8.2 PARTICIPANTS

- Farmers, extension workers at various levels, government leaders, political leaders, and other stakeholders.

8.3 TIMING OF FARMERS FIELD DAY

The exhibition can be done at any time however; it is advisable to be conducted when crops approach maturity stage.

8.4 REQUIREMENTS FOR FARMER FIELD DAY

- SD fields, money, time table, posters, stationeries, photographer, food, entertainments such as: dancing groups, songs, etc;
- Time: from 8.00 a.m. to 4.00 p.m.

9.0 GRADUATION CEREMONY

It is a celebration to mark successful completion of SD training. The graduation ceremony is organized by farmers, facilitators and SD coordinators.

9.1 SIGNIFICANCE OF GRADUATION CEREMONY

- Provide an opportunity to discuss general activities performed during SD training;
- It motivates other farmers/livestock keepers to join SD training;

9.2 TIMING OF GRADUATION CEREMONY

Usually done at the end of SD training; however; depending on the financial position, it can be done the same day with farmer field day.

9.3 MAIN FEATURES/ACTIVITIES DURING THE GRADUATION CEREMONY

- Exhibition of yields and other tangible benefits from SD training
- Entertainments e.g. dancing, singing, comedy, drama etc.
- Statement by SD trainees
- Speech by the guest of honour;
- Presentation of certificates of attendance to SD graduates
- Attendance should be more than 80%

10.0 ECONOMIC ANALYSIS

Cost-benefit analysis is usually done after the graduation ceremony. It is done for both fields – with and without improved management. The aim is to determine the extent of profit or loss realized.

11.0 PLANNING FOR NEXT SEASON

The preparation of programme for the next season is done by the SD participants and the facilitator.

APPENDIX M: Extracts from WMAs Regulations

Extracted from:- WILDLIFE CONSERVATION (WILDLIFE MANAGEMENT AREAS) REGULATIONS, 2005.

N.B. Extraction based on important provisions (sections) mandated for application by District and Village authorities

1. (1) These regulation may be cited as Wildlife Conservation (Wildlife Management Areas) Regulation, 2005 and shall be deemed to have come into force on 24th January, 2003.

(2) The Minister shall have power to designate Wildlife Management Areas upon consultation with the Director of Wildlife.

4. – (1) Any village intending to designate part of its land to become a Wildlife Management Area shall form a Community- Based Organization in accordance to the Societies Ordinance; CAP. 333.

(2) The Community- Based Organization established for the purpose of managing a Wildlife Management Area shall have a Constitution in the form prescribed in the first schedule to these Regulations.

5. – (1) All application for Authorized Association status shall be lodged to the Director of Wildlife.

(2) An application for Authorized Association status shall only be made by a duly registered Community-Based Organisation that has fulfilled all the requirements provided for in these Regulations.

(3) A Community-Based Organisation aspiring to become an Authorized Association shall ascribe to these Regulations.

6. An application for an Authorized Association status shall be lodge to the Director of Wildlife in writing, copied to the District Council and shall be accompanied by the following:-

(a) Minutes of the Village assembly meeting approving the formation of a Wildlife Management Area;

(b) A completed Wildlife Management Areas information data sheet in format provided for in second schedule of these regulations.

(c) A certified copy of the certificate of registration of the Community-Based Organization.

(d) A copy of the constitution of a Community-Based Organization.

(e) A Land Use Plan of the Village as approved by a respective village assembly of the proposed Wildlife Management Area

(f) A sketch map of the proposed Wildlife Management Area in relation to the Village land use plan;

(g) Boundary description of the proposed Wildlife Management its size and name,

(h) A draft of General Management plan or a draft of Resource management zone Plan.

PROCEDURES FOR THE DESIGNATION OF WILDLIFE MANAGEMENT AREAS;

12. – (1) Subject to section 11 and 13 of the Village Land Act, 1999; the Village Council shall recommend to Village Assembly a Wildlife Management Area (Village Land which shall be established a Wildlife Management Area)

(2) An application to designate Wildlife Management Area shall be made by any Village to the Director of Wildlife.

(3). The Director may designate Wildlife Management Area for Tradition Communities use in accordance with the guidelines issued under these regulations.

(4).A Wildlife Management Area shall be gazetted in accordance with these regulations.

13. Each application for designating a Wildlife Management Area and shall accompanied by the following; -

a. A certified copy of minutes of village assembly meeting endorsing the designation of a Wildlife Management Area;

b. A dully completed information data sheet;

c. A certified copy of certificate of Registration of a community-based Organisation;

d. A land use plan approved by the Village Assembly;

ADMINISTRATION OF WILDLIFE CONSERVATION (MANAGEMENT AREAS.)

21. Any Village Council shall have the following responsibilities in the management of Wildlife Management Area.

a. Providing land for designation of Wildlife Management Area;

b. Coordinating natural resources at village level;

c. Preparing a land use plan;

d. Formulating natural resource management by-laws;

e. Approving mechanism among villages which form the Wildlife Management Area, developed by the Authorized Association;

f. Monitoring the activities of the Authorized Association and report to the Village Assembly and the District Council;

g. Ensuring that there exist a secure and favorable business environment in a Wildlife Management Area; and,

h. Ensuring that Authorized Association implements sector policies while entering into agreement of a Wildlife Management Area;

22. Authorizes association shall be accountable to the village council and shall perform such functions which shall include but not limited to the following:-

a. Acquiring user rights;
b. Entering into agreement with village council on the management of a wild life management areas;

c. Managing a wild life management areas in accordance with an existing general management plan or resources management zone plan under these regulations;

d. Cooperating with the Director and the authorities of Tanzania National Parks and the Ngorongoro conservation area authority in the Management of a Wildlife Management Area;

e. Reviewing general management plan or resources management zonal plan of Wildlife Management Area;

f. Recruiting village Game Scouts in accordance with these regulations;

g. Lobbying and providing a supportive role in the making of wildlife conservation by-Laws;

h. Negotiating and entering in to contractual agreement regarding the utilization of resources and investment in the Wildlife Management Area;

i. Developing and implementing mechanism for equitable sharing of benefit between the authorized association and any village forming Wildlife Management Areas;

j. Seeking authorization of investment from the village assembly and reporting investment activities to the assembly;

k. Overseeing investment and development activities;

l. Engaging competent experts in any task assigned by the Authorized Association with the approval of the Director previously sought and obtained as and when required;

m. Protecting biodiversity resources;

n. Supporting control of problem animals;

o. Keeping governments' trophies;

p. Managing finances according to laid down procedures;

q. Maintaining proper records and provide quarterly, semiannual and annual reports to the Village Assembly meeting;

r. Issuing permit for utilizing resource in Wildlife Management Areas;

s. Collection and remitting fees to relevant authorities;

t. Recruiting training some of the authorized association staffs;

u. Liaising with other institutions for information and technological exchange;

v. Training village game scout in recognized institutions;

w. Acquiring and disposing of the associations property;

x. Undertaking resource monitoring; and

y. To propose wild animals hunting quota to District Natural Resources Advisory Board.

26. Mandate of the District Council

(a) To facilitate and enable request of the Village Council to establish an Authorized Association and a Wildlife Management Area.

(b) To establish a District Natural Resources Advisory Board, and enable to perform its duties.

(c) To enable communication between the Authorized Association and Director of Wildlife.

(d) To approve village natural resources management by-laws.

(e) To facilitate preparation and implementation of a village land use plan.

(f) To monitor implementation of The Wildlife Management Act.

(g) To monitor investment within the Wildlife Management Area.

(h) To assist the Authorized Association to control disastrous wild animals.

(i) To issue to residents hunting licenses in the Wildlife Management Area.

MANAGEMENT OF WILDLIFE MANAGEMENT AREAS.

34. The management of wildlife management areas shall guarantee sustainable conservation of wildlife resources, safeguard the interests of traditional communities and comply with the followings:-

(a) Land Use Plan,

(b) General management plan or resources management zone;

(c) Any other tools that may be recommended from time to time;

35. The Village council shall prepare land use plans in accordance with the procedure provided for in sixth schedule to these regulations.

36. – (1) An Authorized Association shall prepare a general management plan in accordance with the provisions of seventh schedule to these regulations

(2)An Authorized Association may prepare resources management zone plan as an interim measure before the general management plan is in place.

(3)The resource management zone plan shall be prepared in accordance with the eighth schedules to these regulations and shall operate for a period of five years from the date of approval.

37. An Authorized Association submit a management plan or resources management zonal plan to the director for approval.

38. An Authorised Association shall undertake basic resource monitoring in accordance with the provisions of ninth schedule to these regulation, and submit the data to wildlife management authorities.

55.The allocation of hunting blocks shall be in accordance with tourists hunting regulations and the following shall be considered.

(a) A dully registered hunting company shall submit to the director of wildlife an application for allocation of hunting block between 1st September and 30th November.

(b) A consortium of associations shall set procedures for electing representatives of the block allocation advisory committee.

(c) Two members of consortium authorized association shall represent the Authorized Association in the block allocation advisory committee.

56. (1) Capture of live Animals in a Wildlife Management Area shall be in accordance with the Wildlife Conservation Captured GN. (Capture of Animals) Regulations, 1974 NO.278, 1974.

APPENDIX N: Extracts from Forest Management Guidelines

Extracted from:- **COMMUNITY BASED FOREST MANAGEMENT GUIDELINES, 2007**

N.B. Extraction based on important provisions (sections) mandated for application by District and Village authorities

Step 1: Introduction to the Village Community

PLUM team meet with Village Council and the Village Assembly to introduce the basic concepts of Community Based Forest Management (CBFM) and establish a functional Village Natural Resource Committee (VNRC) in consideration of the following:-

- Elect their Chairperson, Secretary, Treasurer and Head of Patrol Team
- Agree on the roles of each of the above, making sure to include steps to keep them active and transparent
- Decide meeting times, and when the Committee will report to the Village Council

Step 2: Identify and agree the boundaries of the village forests

The village may wish to establish CBFM on forest land that has well established trees, where trees have been over-harvested and need to be conserved or where the forest has been cleared and need complete restoration. Walk around the boundary of the proposed village forest and agree with people who have farms, houses near the forest where the boundary will pass. Make any notes of features that mark the boundaries like roads, large trees, or streams. Make sure that this step is done with as much involvement as possible to avoid displacing people or causing conflicts later.

External boundary of the forest is measured and recorded accurately using a Global Position System (GPS). When the forest is shared between two or more villages, make sure that each village agrees where the internal boundary passes within the forest, to divide the forest into different village forests. Once the boundary has been measured, mark the forest boundary with paint on trees or some other way that makes it clear. Use the GPS to produce a forest map by printing it out on the computer. If a GPS and computer are not available, draw an accurate sketch map. Use the map to calculate the area of the forest (where possible). Also, add in local features such as roads, rivers, and other distinguishing marks such as sacred or cultural sites, and any local names. One the map has been produced, photocopy the map to a larger scale (such as A3 size) for use in the next exercises.

Step 3: Undertake participatory forest resource assessment (PFRA)

It involve training of the VNRC in order to identify forest uses and users, zone the forest into "Forest Management Units" based on proposed management objectives, undertake assessment of the trees and forest within each zone, analyse the results and present the findings to the Village Council and Village Assembly for discussion and approval. Based on these discussions, forest management objectives, zonation and use levels are finalized.

The VNRC identify which FMUs require sample plot assessment, and then set out sample transect lines and plots. Specific forest data is gathered along each transect line and for each sample plot, such as species, diameter etc. At this stage, all the information collected for each FMU is compiled, summarized and analysed using simple tools. For each FMU Area, Number of sample plots, dbh/size classes, important species, other species, total number of trees recorded for each class size and the total number of trees for the FMU.

Using this information, a histogram (bar chart) is developed by the planning team, showing for each FMU, the number of trees per hectare for each dbh class. This can be used for assessing sustainable off take. By comparing the actual histogram with an "ideal" histogram the "tree utilization potential matrix" is developed, which can tell you the surplus or deficit of trees for harvesting and the annual harvest over the next 5 years on a sustainable basis. Finally, having assessed the potential supply from each FMU, this needs to be compared with the demand from villagers. The output of this step is – for each important forest product, an estimate of whether it can be harvested and if so in what quantity, from where and how.

Step 4: Develop draft management plan

Based on the outputs of the forest resource assessment, the VNRC now prepares a draft management plan for the Village Land Forest Reserve. During this step the VNRC need to decide and get final agreement on:

- □ Where should the Boundaries of the village forest lie;
- □ Who will be responsible for managing and protecting the forest
- □ How should the forest be protected?

□ How should the forest be used and not be used?
□ How should those who break the use rules be dealt with?
□ What other actions will be needed to secure the forest and make it useful?
□ How should the progress of the community in managing the forest be monitored?

Step 5: Implementation

1. ***Raising awareness among the whole village on the management plan.***
It is necessary to ensure that all the villagers are aware of the new management approaches, the new rules and how the rules will be enforced. This can be done through village or group meetings, but you should also think about using plays, songs and music, as they can be an important way to communicate messages in ways that both entertain and educate.

2. ***Making the VNRC effective.*** It is at this stage that the VNRC will start managing the forest for the first time. As facilitator, you will need to assist the elected members of the Committee to meet for the time and to train them on the various aspects of forest management such as:
   - holding meetings
   - undertaking patrols in the forest and dealing with offenders
   - keeping records and submitting them to the district on regular basis
   - issuing licenses, permits, and making sure that receipts are given
   - keeping good records of money received, and spent by using a simple income and expenditure book
   - making sure that they report regularly to their village council and to the village assembly

3. ***Starting forest protection.*** Advise and help the VNRC to call the Patrol Team together and discuss with them on the patrol work: Advise and help the VNRC to call the Patrol Team together and discuss with them on the patrol work:
   - where they are to patrol
   - how often they are to patrol
   - in what kind of groups
   - who they are to report to and how they will make their reports
   - to whom they are to bring offenders
   - fines or punishments they will suffer if they are found breaking the rules themselves

   It is useful for the Committee to accompany the Patrol Team into the forest to agree on their respective patrol areas. It is important that the VNRC try as much as possible to involve the wide community at this stage. It may be necessary to involve the Village Council where support is needed.

   If **fire** is a risk to this forest, then the Committee and Patrol Team should agree a system for keeping watch during the risky season and for calling people to fight fires. It is the duty of the Committee to ensure that every village member **knows the forest use rules** – and the punishments. Every villager should also be made aware that they should not pay a fine or a fee without getting a proper receipt.

   A list of the rules and punishments should also be provided to Village Councils of neighbouring villages to inform their own people.

4. ***Beginning essential record-keeping and supporting monitoring.*** Assist the Secretary of the Committee to buy and maintain the following:

   □ Receipt Book: Get the District Council Treasurer to issue, or endorse, formal receipt books, which must have at least one carbon copy. The Receipt Book may also be used to receipt payments made to Patrol Team when they have been 'rewarded' with part of the fine levied on an offender.
   □ Offences and Fines Book: This records each offence, the offender, the fine payable, the date of the fine paid.
   □ Permit Book: This records exactly who has been given permission to harvest which forest product, how much of it, between which dates, and from which area of the forest.
   □ Income and Expenditure Book: This states what money has been received form fines and fees and expenditures made.
   □ Minutes Book: Recording the meetings of the Committee and its decisions. This will include progress reports made by the committee regarding key activities done as part of the management plan (tree planting, economic activities etc)

- □ Patrol Book: This will record the activities of the patrol team (date, duration, path taken and names of patrol members), what they saw, any unauthorized activities and any action taken.
- □ Quarterly report form: This is a form that captures and summarises the main information regarding forest management at the village level. This form is compiled from information taken from the record books above and is submitted to the DFO.

5. ***Deal with forest encroachment.*** This could be of two kinds:
   - □ Boundary encroachment: Assist the VNRC and Patrol Team by going with them to visit the farmers who share boundaries with the forest, agreeing where the boundary is (often the Sub-Village Chairperson is needed here) and what kind of marking the farmer will undertake and the deadline by which time s/he must have removed his or her crops beyond that line. If you can, help with sisal or tree seedlings for boundary planting.
   - □ In-forest settlement or farming: Implementing action here will depend upo the decisions made by the VC with the Committee as to how to handle the problem – and will usually need your active support to be implemented. Go with the Village Chairperson and the Committee Chairperson to meet with the forest dwellers. Make sure any agreements made and recorded for some in-forest dwellers may dispute the decision.
6. ***Begin the most urgent rehabilitation tasks.*** This involves you as technical adviser. Common problems that need early action include:
   - □ replanting around a spring area which is degraded and is to be closed to livestock;
   - □ barricading stock trails in the forest which are decided to be closed and/or reduced;
   - □ shoring up the selected stock-watering points in the forest;
   - □ filling deep gullies.
7. ***Managing VLFRs that cover more than one village.*** The Forest Act allows for a number of villages to own and manage a Village Land forest Reserve (Section 32(3)). In such cases, villages may chose to establish a "joint village forest management committee" (Section 38(3)), comprising not more than five persons elected from each village council, which then assumes overall management responsibility for the forest area.

   This joint committee does not need to be registered as an association or co-operative – but can be a "Union" (*muungano*) which is defined under the Local Government Act to be made up of government staff from different administrative units who come together to form a higher level committee for issues of shared interest.
8. ***Facilitator's role.*** Try not to do the Committee's job for it. Encourage their self-reliance. Every time the Committee makes a decision and acts on it, will find it easier to decide and act on the next issue. Remember that each village in the future will have some needs, and you may not be able to meet all their costs. Some small starter costs may however be justified, like costs for record books, oil paint for boundary marking and whistles for patrolmen. However, villagers should also be encouraged to cover their own costs for routine activities from their forest revenues. This way their activities will become sustainable and they will achieve self reliance.

Step 6: Revising and Gazetting

1. ***Review Management.*** This is best undertaken when community-based management has been running for at least two to three years after the forest reserve has been declared and implementation has started. Two tasks are required:
   - ■ Assessing management operations
   - ■ Assessing the effect of community-based management on the forest

   The general monitoring indicators of positive CBFM are:
   - ♦ *Uncontrolled activities (charcoal making, illegal logging etc) reported by the patrol team is decreasing*
   - ♦ *The condition of the forest is improving (signs of regeneration, rare or valuable species appearing)*
   - ♦ *Uncontrolled fires are less frequent*
   - ♦ *Water sources are protected*
   - ♦ *Wildlife numbers are increasing*
   - ♦ *Encroachment of farmland into the forest is decreasing or has stopped*
   - ♦ *Support for the forest is increasing within the village as a whole*

2. ***Amend the regime and the Forest Management Plan.*** There will be findings that suggest the regime needs altering in some way. Changes should be presented to the Village Council and Village Assembly for their approval. It is best for the revised Plan to be read out in its entirety. Its contents will mean much more to community members this time, as they will have seen CBFM operating. Some possible changes that communities may propose may include:
   - □ *Personnel change:* changes in members in the Committee and Patrol Team who have proved unenthusiastic or are suspected of dishonesty;
   - □ *Changes in the composition of the Committee* For example, giving more representation to people living close to the VLFR or increasing the number of women members or setting the date for the election of a new Committee;
   - □ *Reduction in the number of patrols,* if offences have declined by this point;
   - □ *Introduction of Identity Cards for the Patrol Team* to strengthen their identity in forest patrol;
   - □ *Commitment to purchase working gear for Patrol Team* (boots, uniforms, id cards and maybe bicycles);
   - □ *Steps to improve transparency in money handling,* such as audit procedures and money transaction; and creation of a Village Forest Management Account with signatories, separate from the Village Council Account;
   - □ *Review of fees charged for permits* e.g. to herbalists, beekeepers, major fuel wood users (beer brewers, brick burners) and cattle owners using the forest;
   - □ *Introduction of steps to use the forest more fully:* e.g. harvesting of timber, firewood, charcoal etc
   - □ *Introduction or review of harvesting quotas,* such as how many branches may be cut for poles or how many bundles of grass that may be collected per household;
   - □ *Introduction of steps to extend* CBFM to other resources in the village area: other forest areas, grazing lands, swamplands, streams.

3. ***Gazette the Village Land Forest Reserve.*** If after three years, the villagers have been successful in following the management plan, they can request (through the district forest officer) "gazettement" of a Village Land Forest Reserve. The Forest Act provides the requirements for gazettement applications in Section 35. In real terms it does not give any more or less powers or security of tenure, but many villagers like it as it is signed by central government. If villagers wish to apply for gazettement of their Village Land Forest Reserve (which is an optional step) they must submit to the Director of Forestry:
   a. A copy of the resolution by the village council
   b. List of names of the members of the village council committee allocated the responsibility of managing the forest
   c. An official map or documents describing the village land, the boundaries of the VLFR and the names of other villages surrounding.
   d. Management plan
   e. Statement of the reasons for application
   f. Financial management arrangements

APPENDIX O: Guidance for Developing Private Forest Lots

Extracted from:- **FOREST ESTABLISHMENT AND MANAGEMENT GUIDELINES**

By Benson L. Kaduvage

(Forestry Development, Management & Conservation Consultant)

1. IMPORTANCE OF TREE PLANTING

In order to achieve maximum benefits from the forests and forest lands, proper forest establishment and management practices (tree-planting, tending and protection techniques) need to be adopted and practiced by the farmers. It is common practice that at village level, tree planting is usually undertaken on small scale on 'household tree-farm' basis. At this level, purposes for which trees are planted include production of timber for general construction (house building), domestic furniture making, energy use (fuel-wood & charcoal), food supplement, soil protection/conservation, shade provision in homesteads, medicinal use as well as for ritual and cultural observance.

However, where tree growing conditions are more favourable, (high precipitation, cool climate and fertile soils) trees are planted for financial and economic gain. In such cases trees are planted for the production of timber as an industrial raw material (e.g. saw logs, pulpwood) and transmission poles. This land use requires bigger parcels of land and practiced where pressure on land is limited or where tree planting has proved to be a comparatively more lucrative investment. Sometimes trees are planted to restore degraded areas or beautify landscapes.

2. PLANNING OF TREE PLANTING

The first step required in preparing for tree planting is to ensure that the farmer knows and understands the various activities, why, how and when they should be carried out. Knowledge on tree planting activities, how and when they should be carried out will equip the farmer to budget for resources and time needed in achieving planting targets all aimed at attaining the intended goals.

The planning of tree planting activities will nevertheless differ slightly depending on whether the activity is being done in reserved forests for conservation purposes or in woodlots and/or plantations for production and consumption purposes.
In any case, in this phase the following activities will be defined:

- ***Activities to be planned for***
  - Land/site survey
  - Species selection (seeds/seedlings purchase, nursery preparation, seed sowing, nursery maintenance)
  - Land/planting site clearing
  - Lining out
  - Pitting
  - Pre-planting weed control
  - Planting
  - Post-planting weed control
  - Woodlot maintenance
  - Woodlot protection

These activities shall be charted out in an annual tree farming calendar that spells out when during the year the activities will be carried out.

- ***Timing of tree planting activities***

Since early tree growth is dependent on adequate moisture in the soil, tree planting activities are generally timed according to the main rainy seasons. Field planting is best planned for at the on-set of the long rains season. This is intended to ensure maximum survival of the young seedlings during the first year in the farm and/or wilderness. Thus, the timing of tree planting activities will be adapted to the weather regime of the area, especially the annual rainfall pattern.

- ***Budgeting of resources***

This phase of planning will be concluded by preparation of a budget that considers all the necessary inputs required to undertake the planned activities. The budget should for example include the following costs:

  - Equipment and tools
  - Materials
  - Indirect labour (labour input by family members)
  - Direct labour (hired labour force)
  - Travel and transportation
  - Training
  - Contingency for unforeseen expenses

3. LAND PREPARATION FOR SUCCESSFUL TREE PLANTING

After completing the planning phase and securing the necessary resources, the next phase is to translate the plan into action. This phase is achieved by undertaking the following activities:

- ***Site survey***

This activity involves the identification and demarcation of the area to be planted with trees. This activity should achieve the following:

- Determine the total area (ha) available for tree planting
- Determine the woodlot/plantation layout
- Divide the woodlot/plantation into small units that are conveniently manageable (especially for fire fighting and protection)
- Mark out access/service roads and fire breaks
- Where appropriate mark out areas that require conservation and/or protection.

Each planting site should be considered on its peculiar merits and planting plans made accordingly. For example natural forest stands should be prioritized for conservation rather than clearing them for forest plantations. For such an area, reservation and conservation enhanced with enrichment planting and selective harvesting should be considered to be a more appropriate land use.

- ***Tree species selection***

The selection of the tree species for planting in a specific area can be determined by different factors. It may be based on the type of end product, for example the production of fire wood, building pole, saw logs or transmission poles. However, since the growth of trees is influenced by numerous natural factors including the duration of the rainy season, amount of moisture in the soil, soil fertility and nature of terrain of the area, the selection of tree species appropriate for the area should be made with advice from competent authorities. The Tanzania National Seed Agency- TTSA with its headquarters in Morogoro, is the most competent body to give advice on the appropriate tree species that are matched between site factors and species relevant for the area under consideration. The most critical factors considered in the matching process include the following:

- Climate
- Soil factors
- End product & market intended to serve
- Terrain/land characteristics
- Pests & vermin
- Diseases

The need for Quality seeds

Quality seeds refer to improved seeds that have superior genetic composition which when planted in the field grow up to yield timber of high quality accepted by the market. Such seeds are produced in orchards in which trees of good and superior phenotype are groomed and raised.

An orchard is a plantation (albeit small in size) of genetically superior trees, isolated to reduce contamination by pollination form genetically inferior trees. Production seed orchards are intensively managed to produce abundant but easily harvested seeds. Production as opposed to research seed orchards in Tanzania started in 1964, and up to 1996 there were 10 such 'plantations' throughout the country. Seed production from these orchards has concentrated on exotic softwood species including pines and cypress. Hardwood seeds of indigenous origin are not readily obtainable.

Thus, quality seeds should essentially have the following characteristics:

- The seed stock have high germination rate
- Have high resistance to diseases
- Have high survival rate when planted in the field
- Have good stem quality
- Respond well to prescribed silvicultural treatments
- Yield quality timber and the expected volume from thinning and final harvest

- ***Sourcing of Quality seeds and/or seedlings***

The type of seeds/seedlings used for woodlot establishment will determine the success or failure of tree planting activities. The use of quality seeds or seedlings will ensure the success of tree planting activities which will hopefully encourage farmers to take up tree planting more seriously and convince more farmers in the village to join the league.

Hitherto, before the creation of the national seed agency the Forest & Beekeeping Division through a number of its tree orchards was the major source seed for most planting purposes in Tanzania. However, following the formation of the Tanzania Tree Seed Agency-TTSA, the agency is now the main source of tree seeds. Alternative sources could be considered including seed imports from sources like Kenya, South Africa and others. This approach will however be curtailed by high costs as well as the need for hard currency.

Nursery Activities & Soil Mixtures

Once the site for nursery location has been made, the basic nursery activities are summarized in the table below.

S/N	Activity	Description	Comments/Remarks
1	Nursery site preparation	Site clearing, fencing and complete cultivation	Necessary for site protection against fires, roaming animals,
2	Seed beds preparation & soil mixing	Making seed beds and preparing soil mixtures	Necessary for proper seedlings growth
3	Seeds sowing/ broadcasting	Sowing or broadcasting seeds into the seedbeds	Initiate seeds germination
4	Polythene tubes making and soil filling	Making pots/tubes, filing them with pre-mixed soil	Required for proper growth of individual seedlings
5	Seedlings transplanting	Transplanting seedlings from seedbeds into pots/tubes	Minimize completion among seedlings and facilitate tending
6	Nursery tending	i) Shade provision	Protect seedlings from damage by hash weather
		ii) Watering	Necessary for seedlings proper growth
		iii) Weed control	Remove completion for water and nutrients
		iv) Root pruning	- Remove roots that grow beyond pot base - harden seedlings for field planting conditions
		v) Pest/disease control	Protect seedlings from attack and damage

- ***Planting spacing determination***

Planting spacing is the actual distance between stems in a line and between rows of trees. It is determined by factors such as:

- Tree species
- Silvicutural regime intended for application to the plantation
- Intended end product
- Markets for thinned stems

Planting spacing is necessary in determining the amount of seeds/number of seedlings to produce or procure. It should be noted that planting spacing is generally applicable for the establishment and management of woodlots and plantations and not for enrichment planting in natural forests.

In essence, planting spacing plays an important role in tree growth, influences the quantity and quality of timber produced, as well as influencing costs of various tending operations. For example, wide spacing in woodlots/plantations gives less trees per ha that create less competition between trees. This leads to wide-boled stems especially suitable as saw logs. Narrow spacing on the other hand gives more stems per ha which create competition between trees. It leads to thin-boled straight stems suitable for transmission poles. Woodlot/plantation maintenance costs increase with higher numbers of trees per ha.

The Forest and Beekeeping Division periodically issues plantation silvicutural regimes specifications that include spacing requirements appropriate for the timber species and the intended end product. The specifications are regularly reviewed to accommodate new changes and feedbacks from field.
The guidelines document will give the spacing specifications appropriate for each tree species to be planted under the conditions specific for the area and corresponding end-product.

- ***Land preparation***

It is important to undertake land preparation before the young trees (seedlings) are planted in the field. This is necessary to ensure that the seedlings can achieve fast early growth after being planted. This is achievable due to easy root penetration into the loose soil as well as less competition for food and water from undesirable weeds and other plants. A well prepared planting site will be clear of any growing vegetation which will in turn provide a well cultivated pit in which the young plant will grow with vigour. This will lead to higher survival rate of the young plants in the field.

Land preparation includes the following sub-activities:

- Land clearing
- Lining out (marking spots for pit digging)
- Pitting (actual digging of plating pits)
- Pre-planting weed control (necessary where weeds and undesirable plants have grown in the dug-out pit before planting)

The guidelines should recommend how best and when these activities should be done according to the prevailing local conditions.

➢ ***Seedlings Handling & transportation***

Seedlings handling and transportation from the nursery site to the planting site is one of the most critical activities in the chain of tree farming process. An in-appropriate transportation mode or facility will end up stressing the seedlings thereby rendering them unsuitable for field planting or seriously reduce their ability and chances to survive in the field. Stressed seedlings should be given time to recover before planting them.

After assessing the conditions (handling facilities & transportation means) prevailing in the local situation, the guidelines shall recommend the most appropriate mode of transporting the seedlings that will cause minimum damage to the seedlings on delivery to the planting site(s).

➢ ***Field planting***

This is the process in which the seedlings (young plants) are placed into the already dug-out pits and the roots and lower part of the stem carefully covered with soil.

The Guideline shall provide field planting information and on such aspects as:

- Where and how to place holes in the planting pit
- How to remove the container (e.g. polythene tubing) from the soil surrounding the roots
- How to place the seedling into the planting hole
- How deep the seedling should be placed into the soil
- How high the soil should be covered on the root collar
- How to firm up the soil around the seedling after panting.

➢ ***Beating up***

This is the process in which trees that have died or show signs of dying are replaced. Normally beating up should be done during the same planting season, therefore early planting in the season shall work to the advantage of this process.

The guidelines should give recommendations on the need to carry out beating-up based on such factors as:

- Tree species involved
- Overall rate of seedling survival
- Availability of an adequate stock of quality seedlings

The need for beating up can be minimized or avoided by use of quality seedlings, proper handling and transportation of the seedlings, proper land preparation, properly planting the seedlings in the field. Early planting of the seedlings at the on-set of the planting season is also important.

4. TREE FARM/WOODLOT MAINTENANCE

Once established in the field the trees need to be tended through early weeding and post-establishment weeding so that they continue to grow well to reach maturity and be harvested at the pre-determined age. The major activities in tree farm maintenance include the following:

➢ ***Early Weeding and Post Establishment Weeding***

Early weeding is an activity regularly carried out during the first 2-3 years when the trees are still too young to compete with weeds and other plants. Regular and consistent weeding will enable the young trees to grow faster and mature early. This also facilitates the production of quality trees that eventually yield high quality timber. This is critical especially if the trees are being grown for the production of saw logs and/or transmission poles.

After the first 2-3 years the tree will have grown well above most weeds, and weeding is done with less intensity. The woodlot at this stage has entered the post-establishment weeding phase.

Depending on local conditions, the Guidelines will recommend weeding regimes appropriate for the species and area to be adopted by the tree farmers.

➢ ***Pruning***

This is a process that involves the removal of lower branches from stems of trees. It is primarily done with the purpose of improving the timber quality by producing knot-free wood. But it is also done to create easy access of into the stands, as well as limiting the rate of fire spread should the forest catch fire. Depending on age and site factors, pruning is usually carried out during the initial 2 years. This is especially true for pine and cypress stands which have specific ***pruning schedules*** prescribed by FBD. All standing trees must be pruned.

Trees grown for such purposes as fuel-wood, withies and small poles hardly require any pruning because they are harvested early and they also undergo self pruning.
Where appropriate the guidelines shall make recommendations according to species, site classes and product end-use.

- ***Thinning***

This is a process carried out by selective removal of trees from the tree stands at subsequent ages of the woodlot. The purpose is to improve the quality of the trees and that of the final product by reducing competition between trees. The removal may follow a pattern that leaves the best tree to continue to grow. In such cases specific ***thinning schedules*** are prescribed by FBD based on age, site factors and the intended end product.

At other times, thinning can be carried out by removing the better trees if there is a ready market for them and economic calculations indicate a positive gain on return of the corresponding investment. Whatever the approach is followed, dead tree must be removed allowing live tees to continue growing unhindered.

The Guidelines will recommend the appropriate thinning schedules giving due consideration to tree species, intended end product, site factors and the projected yield from the woodlot.

5. TREE FARM/WOODLOT PROTECTION

In addition to woodlot maintenance activities, the trees also need protection against a number of threats. In view of the fact that the woodlots are economic investments, their protection against agents of destruction are justified until harvesting time. Woodlot protection activities include protection against the following agents:

- ***Fire hazards***

Experience has shown that fire hazards (including wild fires, arson) are the most dangerous enemies of forests and forest lands. It is therefore imperative that preparations for preventing fire occurrences in the woodlots are given utmost attention. The provision of fire breaks to woodlots and forest plantation, play very crucial roles in the prevention of fire occurrences. Should a fire episode erupt, the presence of fire breaks will make fire control much easier, faster and less costly.

Where practical, woodlots/plantations should be surrounded by an 8 to 10 meters wide fire-break. This can be increased to 15 meters where severe fire outbreaks are normally experienced. Access and feeder roads within the plantations can be utilized as fire-breaks especially if a fire case occurs. Ideally, these roads should have a minimum width of 5 meters.

Fire fighting and control measures shall be provided for in the Guidelines.
Unfortunately, when a fire episode erupts, total loss of the forest property is normally experienced. Natural forests that are normally reserved and managed on conservation basis are prone to regular fire destructions.

- ***Vermin, pests and insect attacks***

These pose problems to the management of forests because they attack, feed on and destroy trees. The threat, attack and damage caused by rodents, worms, termites, and aphids are well known in the forest management practices. The problems posed and experienced vary from one area to another. Appropriate control recommendations specific for the problem and area shall be made in the Guidelines.

- ***Diseases***

Trees are sometimes attacked by diseases that cause serious damage to the trees and loss to the farmer. Although the guidelines will provide general disease control recommendations, the tree farmer will be required to report any noticeable disease occurrence to appropriate authorities. These may include for example the District Forest Office, the National Forest Service, and the Forest Research Institute/Agency.

- ***Animals***

Wild animals as well as livestock cause damages to planted trees. In the case of damages caused by wild animals, help should be sought from the Wildlife Department. On the other hand, tree damage caused by livestock can be contained by the enactment of appropriate punishment by-laws by the local governments.

- ***Thefts***

Thefts of seedlings and trees in the farm can sometimes occur. Such cases are criminal in nature, and therefore should be dealt with as such whereby the culprits will be prosecuted and punished accordingly.

6. TREE HARVESTING

Trees should ideally be harvested when they have attained maturity age. The normal practice is to prescribe final tree harvesting based on species type, site factors and expected yield. These are usually given in the appropriate Guidelines to guide the tree farmer. However, sometimes trees can be harvested when they reach market size and not necessarily maturity age. This can happen when a market opportunity arises, and profitability estimates indicate favourable gain.

7. TREE REPLANTING

Replanting of harvested areas should be done the next tree planting season following the harvesting. This is done to reduce competition from weeds which until then can be easily controlled.

Replanting practice vary with tree species and the intended end product. It can for example be by:

- Coppice *(appropriate for fuel wood and small poles production)*
- New seedlings

The guidelines will recommend the appropriate replanting method based on the species involved and the end-product intended for production.

8. TREE FARMING UNDER TAUNGYA SYSTEM

This is a system when trees/woodlots are established by intercropping food crops with trees during the first 2-3 years. It is practiced in circumstances of land scarcity or where land/soil is fertile enough to support both trees and food crops.

The system has advantages and disadvantages that should critically be considered for adoption by each case independently. Its adoption and practice will call **for** advice from agricultural as well as forestry experts. Nevertheless, Guidelines relevant for the system if required for the area will be provided for adoption.

9. TREE FARM/WOODLOT RECORD KEEPIMG

Appropriate tree farming records should be kept for future reference and accounting purposes. Records of costs incurred by the farmer in the tree farming activities are important for assessing and determining product selling price and the investment's profitability. This is an essential factor especially when tree planting is being undertaken on commercial basis.

The tree farmers will be educated on the need for records keeping. The Guidelines will also provide ways on how records on tree farming activities should be kept.

10. SUPPORT FOR TREE FARMING ACTIVITIES

The National Forest Policy (1998) *recognizes the role that can be played by* **Private and Community Forestry** under ***section 4.1.3.*** *While* Policy statement No.6 states that … ***village forests will be managed for production and/or protection based on sustainable management objectives …,*** Policy statement No. 7 states that ***… private and community forestry activities will be supported through harmonized extension services and financial incentives …***

Forest management Guidelines given to tree farmers highlights on potential support from various (government, business & non-governmental) stakeholders. This will enlighten local governments as well as individual farmers where to turn for advice and assistance when the need arises.

APPENDIX P: Restrictions on Mineral Prospecting/Mining over Existing Land Use Rights

Extracted from:- **MINING ACT, 2010**

N.B. Extraction based on important provisions (sections) on land use rights

95. – (1) The holder of a mineral right shall not exercise any of his rights under his/her licence or under this act-

(a) except with the written consent of the responsible Minister, in respect of:

(i) any land dedicated or set apart for any public purpose other that mining;
(ii) any land dedicated as a place of burial;
(iii) any land which is the site of or is within 100 metres of any building, reservoir or dam owned by the Government;
(iv) any land forming part of a licensed or Government aerodrome or of any Government landing ground, or which is within 1,000 metres of the boundaries thereof;
(v) any land on which there is a military installation, or on land which is within 100 metres of the boundaries thereof; or
(vi) any reserved area, or any protected monument declared under the Antiquities Act;

(b) except with through consultation with the relevant Local Government Authority, including the Village Council, and thereafter, the written consent of the lawful occupier, in respect of:

(i) any land which is the site of, or which is within 200 metres of, any inhabited, occupied or temporarily unoccupied house or building;

(ii) any land within 100 metres of land which has been cleared or ploughed or otherwise prepared in good faith for the growing of agricultural crops or upon which agricultural crops are growing;

(iii) any land from which, during the year immediately preceding, agricultural crops have been reaped;

(iv) any land forming part of an aerodrome, other than an aerodrome referred to in paragraph (a) (iv); or

(v) land use plan, compensation, relocation and resettlement matters involved,

where any consent so required is, in the opinion of the Minister and on the advice of the Board being unreasonably withheld, the Minister may, on such conditions if any as he may impose, direct that the need for the consent shall be dispensed with, and in that event this paragraph shall not have effect in so far as it required the consent of the lawful occupier to be given;

(c) in respect of land in a national park declared under the National Parks Act, in any forest reserve declared under the Forests Act, in any game reserve declared under the Wildlife Conservation Act, in a range development area declared under the Range Development and Management Act or in the Ngorongoro Conservation Area Act, except with the written consent of the authority having control over the park, reserve or area;

(d) in respect of any land reserved for the purpose of any railway, or which is within 100 metres of the boundaries of any land so reserved, except with the written consent of the responsible railway authority;

(e) in respect of any land within any city, municipality, township registered villages or demarcated settlement, except with the written consent of holders of surface rights and of the responsible Minister or the authority having control over the city, municipality, township registered villages or demarcated settlement;

(f) in respect of any street, road or highway, and any land within 100 metres of any bridge, public ferry, culvert or drift in any street, road or highway, pipeline o power line, except with the written consent of the responsible Minister or of the authority having the control of the street, road, highway, bridge, ferry, culvert, draft, pipeline or power line;

(g) in respect of any land within 100 metres of every point which has been notified to the Commissioner by a licensee under the Petroleum (Exploration and Production) Act, as a site for the drilling of a well in connection with exploring for petroleum, except with the written consent of the Minister;

(h) in respect of any land over which an exploration licence or a development and production licence has been granted under the Petroleum (Exploration and Production) Act, except with the written consent of the Minister;

(i) in respect of any land occupied by any installations or works used in the course of prospecting operations by the holder of a prospecting licence who has prospecting rights over the same area of land as the holder of the first mentioned mineral right.

(2) Any consent by the Minister or the responsible Minister under this section may be given unconditionally or subject to such conditions as are specified in the instrument of consent.

(3) In this section, "the responsible Minister", in relation to any matter, means the Minister for the time being having responsibility for that matter.

96. (1) The rights conferred by a mineral right shall be exercised reasonably and shall not be exercised so as to affect injuriously the interest of any owner or occupier of the land over which those rights extend.

(2) The lawful occupier of land in a mining area shall not erect any building or structure in the area without the consent of the registered holder of the mineral rights concerned but if the Minister considers that the consent is being unreasonably withheld, he may give his consent to the lawful occupier to do so.

(3) Where, in the course of prospecting or mining operations, any disturbance of the rights of the lawful occupier of any land or damage to any crops, trees, buildings, stock or works thereon is caused, the registered holder of the mineral right by virtue of which the operations are carried on, is liable to pay the lawful occupier fair and reasonable compensation.

(4) Where the amount of compensation to be paid pursuant to subsection (3) in any particular case is in dispute, either party may refer the matter to the Commissioner who shall, subject to section 102, deal with the matter in accordance with Part VIII.

97. (1) Where the rights conferred by a mineral right cannot reasonably be exercised without affecting injuriously the interest of any owner or occupier of the land over which those rights extend as required under section 96, the mineral right holder shall -

(a) advise the owner or occupier of the land to vacate the area, and consult the relevant local government authority on amendment of the land use plan;

(b) submit a proposed plan on compensation, relocation and resettlement of the owner or occupier of the land as per the Land Act.

(2) The procedures established under the Land Act and the Village Land Act with regard to establishing the market value of land shall apply in determining fair and reasonable compensation of land referred in this section and section 96.

APPENDIX Q: Development of PLUM Guidelines

1. Introduction

Optimal use of land and effective management of natural resources should be among priority issues for the Tanzanian community. Various approaches to facilitate community goals in land development have been attempted. By 1993 it was reported by the Director for Town Planning that, for the period from 1985 to 1993 the government spent at least Tshs 80 million, in financing preparation of village land-use plans. Within the same period, about 303 village land-use plans were approved, while the total number of registered villages was estimated at 8174.

A study conducted in 1993, shows that most of the approved plans were not available in the respective districts and villages. The plans could not be used by the local councils. In the absence of (available) plans, land use and land development decisions are made by villagers and village leaders on the basis of their own perception and local knowledge. There was therefore little or no influence from the government in ensuring proper use of land and effective management of natural resources.

The poor performance of the conventional village land-use planning practice is one of the reasons for the current changes. The ongoing reforms advocate for a participatory land-use planning and management approach which combines both plan making and implementation.

2 Strengths and weaknesses of the conventional village land-use planning practice

2.1 Strengths

The fact that the conventional approach is expert-dominated may be a strength and a weakness at the same time. On one side, experts who have been practising within that approach have acquired technical skills such as, mapping, land-use registration, data collection and assessment of land suitability. These skills may be applied in various steps within the participatory approach. The experts' style of planning may be a constraint to the participatory method. This is because in the conventional approach planners are used to 'prescribing' as opposed to 'facilitating' and 'negotiating' which is the main technique for participation.

2.2 Weaknesses

The following weaknesses can be identified:

a) The rate at which central government experts can produce village land-use plans was very low, mainly because they rely on central government funds and experts. As a consequence, very few registered villages had approved land-use plans.

b) The planning process was mainly top-down with the Ministry of Lands setting priorities and budgets, which in most cases ignored other sources of funding and manpower. As a result, issues of local significance as well as other potential sources of funding and manpower were not recognised.

c) The approach was based on the assumption that the state has sufficient powers, resources and capacity to make plans, as well as to guide and control land-use changes in all villages of Tanzania. The government is not able to carry out such tasks.

d) The conventional approach did not appreciate, nor did it utilise villagers resources which include their local knowledge, resources and other capacities in land-use planning and management.

e) The approach paid very little attention to plan implementation. Because of poor involvement of both District and Village Councils in the plan formulation process, implementation has to rely on resources from the central government. Since such resources were decreasing, plan implementation was hardly financed.

3. Participatory Land Use Planning Approach

Once aware of the poor results of the conventional, top-down and sectoral oriented village land-use planning approaches in Tanzania, the need arose to look for alternative methods to address the needs of the rural people. Currently, the participatory planning approach is officially recognised and incorporated into the laws of land. Efforts to replace the top-down, centrally determined and sectoral village layout planning practice, with a method of stakeholders oriented land-use planning agreements, are increasingly appreciated by government institutions and decision makers. The national guidelines for participatory village land-use management are an important product of this appreciation.

In 1992, the Lands Development Office in Dodoma Region took the initiative to start the Dodoma Land Use Management Project (DLUMP) with support of SNV and NLUPC. The project aimed to develop a methodology for preparing and implementing village land-use plans by involving the stakeholders. The approach is built on improving the capacity of villagers and their institutions to manage their land, and other natural resources, in a sustainable manner, leading to improved land use production and living conditions.

For the development of the guidelines, four sources of information were used:

A. Findings of action oriented research that was conducted by DLUMP in Mzula & Ilolo villages of Dodoma Rural District for five years from 1992 onwards. The concerned villages are typical Ujamaa villages, located in a semi-arid zone with originally agro-pastoral farming systems. The area was destocked in 1986 by the government due to severe land degradation as a result of overgrazing and other destructive land management practices. The project has developed and tested the methodology first in Mzula village and subsequently further improved in Ilolo village.

B. To improve and widen the applicability of the methodology for other parts of Tanzania, experiences from other projects and institutions dealing with land management were used. Major projects and institutions consulted are: HIAP in Handeni, HIMA in Iringa, agroforestry programmes in Songea and Mbinga District, LAMP in Babati, TFAP North Pare Project in Mwanga, TIP in Lushoto, Arumeru & Mwanga, SSIPDO in Mpwapwa, SECAP in Lushoto, FRMP; NRBZ around Selous, Ruaha and Serengeti; and integrated rural development programmes in Monduli, Kilosa, Kondoa and Songea Rural Districts.

Experiences from NLUPC and UCLAS - UDSM were intensively utilised as well as those from IRA - UDSM, IDS - UDSM, TGNP. In addition, this applies to the concerned departments of various ministries dealing with land management: Land Use Planning and Soil Conservation Department (MOA); Livestock Division (MOA); Forestry Division (MNRT); Wildlife Division (MNRT); Local Governments (PMO); NEMC (VPO); Land Commissioners Office (MLHSD); and Department of Human Settlements (MLHSD).

In order to assure that all procedures of the proposed methodology fit well within the legal and administrative framework, various relevant legislation were used as source for the methodology as well. The most important ones are: The bills of the Land Act (1998) and Village Land Act (1998); The Local Government Act (1982); The National Land Use Planning Commission Act (1984); Town and Country Planning Ordinance (1956); The Land Survey Ordinance (1956; as revised in 1961, 1964 & 1991); The Land Registration Act (1969) and the Regional Administration Act, no. 2 (1997). *N.B. Some of these legislations have now been repealed, revised or enacted as new laws.*

To anticipate ongoing governmental reforms and changing views on natural resource utilisation the following policies were taken into consideration: Agricultural Policy of 1997; National Land Policy of 1995; Forest Policy of 1998; Wildlife Policy of 1998; National Environmental Policy of 1997; and The National Policy on NGOs. Other important sources are: The Local Governmental Reform Agenda 1996 - 2000; The Development Vision 2025 for Tanzania; and NSGRP (MKUKUTA).

C. International literature on land-use planning and natural resource management was another source for the guidelines. Reference is made to experiences from West African countries such as Mali, Cameroon, Burkina Fasso & Niger, with local level institutions and integrated natural resource management. Experiences, in particular with land tenure issues, were taken into account from Kenya, Uganda; Botswana and Zimbabwe. Experiences and research findings in these countries confirm the value of major components of the guidelines, such as the use of participatory techniques, strengthening of local institutions, and the way of adapting land tenure systems to the changing environment.

The process of developing these guidelines has gone through a number of stages, where drafts have been presented to practitioners, research workers and politicians involved in natural resource management, for further improvement. In October 1997, a draft of this guidebook was presented in the National Workshop on the Institutionalisation of PLUM in Tanzania (organised by DLUMP and NLUPC in Dodoma). Participants from the various concerned sectors and levels resolved that the guidelines provide a sound basis for implementing PLUM in rural Tanzania. A National and multi-sectoral task force on PLUM was formed, with its secretariat at the NLUPC and mainly composed of representatives from ministerial departments dealing with natural resource management (see item C). The task force was given the assignment to improve the guidelines further by incorporating the workshop recommendations to facilitate nation wide dissemination and implementation of the guidelines. This work resulted into the first editions in Kiswahili and English which were published in 1998, and applied country wide since then.

4. Second Edition of PLUM Guidelines

The PLUM guidelines were inaugurated in 1998, and have been applied in many districts in about 1000 villages country wide. The significant changes and challenges has been on the following:-

- Building capacity of district councils to establish and use effectively District PLUM teams
- Participation of Village Institutions in Partipatory Rural Appraisal and Land use planning
- Preparing village base maps using modern technologies i.e. GIS, GPS, satellite images
- Detailed sectoral land use management plans

Understanding and effective application of these aspects lays the future and road map of rural land use planning and management (rural livelihood).

During this period several legislations concerned with land use have been enacted including The Land Act (1999), The Village Land Act (1999), The Environmental Management Act (2004), The Mining Act (2006), The Land Use Planning Act (2007), The Water Sources Management Act (2009), The Wildlife Act (2009). Application of these Legislations need to be streamlined in preparations and implementation of village land use plans, such as determination, allocation and management of wildlife management areas (WMAs), wetlands (Ramsar sites), marine management areas, large scale and medium investment areas etc.

This edition of the PLUM guidelines has been prepared in consideration of these aspects. The experience accrued and emerging challenges since 1998 have led to reviewing these guidelines. The revision involved a consultant who made literature review, consultation with stakeholders and field studies to come up with a draft of revised PLUM Guidelines. The draft was reviewed by a multi-sectoral team from different sectoral ministries involved in land use and edited by a team of experts of the Management of the NLUPC. The final draft was presented to and reviewed by the Technical Committee of the NLUPC, and after which presented to and approved by the Commission (NLUPC).