

THE GUIDELINE FOR INTEGRATED AND PARTICIPATORY VILLAGE LAND USE PLANNING, MANAGEMENT AND ADMINISTRATION IN TANZANIA

Third Edition

National Land Use Planning Commission
P.O. Box 2139, DODOMA

Ministry of Lands, Housing and Human Settlements Development

DECEMBER, 2025

Published by:

The National Land Use Planning Commission
P.O. Box 2139, Dodoma, Tanzania
E-mail: dg@nlupc.go.tz
Website: www.nlupc.go.tz

Notes on the Third Edition

This edition is based on the Second Edition (2013) of PLUM Guidelines, policies and legal frameworks in Tanzania including; The National Land Policy 1995 (edition 2023); The National Human Settlements Policy (2000); The National Environmental Policy 1997 (2021 edition); The Land Act Cap. 113; the Village Land Act Cap. 114; the Environmental Management Act, Cap. 191 and the Land Use Planning Act, Cap. 116.

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 IPVLUPMA guidelines for the benefit of Tanzania or elsewhere. Copies of these guidelines are available at NLUPC offices and website.

LIST OF ABBREVIATIONS

AA	Authorized Association	LAT	Livestock Association of Tanzania
ACL	Assistant Commissioner for Lands	LGAs	Local Government Authorities
ASDP	Agricultural Sector Development Programme	LTSP	Land Tenure Support Programme
CAP	Community Action Plan	M & E	Monitoring and Evaluation
CBFM	Community Based Forest Management	MDAs	Ministries, Departments and Agencies
CBOs	Community Based Organizations	MLHSD	Ministry of Lands, Housing and Human Settlements Development
CCRO	Certificate of Customary Rights of Occupancy	MPs	Members of Parliament
CORDS	Community Research and Development Services	MVIWATA	Mtandao wa Vikundi vya Wakulima Tanzania
CVL	Certificate of Village Land	NGOs	Non-Government Organization
DAS	District Administrative Secretary	NLUPC	National Land Use Planning Commission
DC	District Council	PAICODEO	Parakuiyo Pastoralists Indigenous Community Development Organization
DCRA	Data Collection and Resource Assessment	PELUM	Participatory Ecological Land Use management
DED	District Executive Director	PFP	Private Forest Programme
DHQ	District Headquarters	PFM	Participatory Forest Management
DLDO	District Land Development Office	PLUM	Participatory Land Use Management
DLO	District Land Office	PMO-RALG	President's Office Regional Administration and Local Government
DLUPA	District Land Use Planning Authority	PRA	Participatory Rural Appraisal
FAO	Food and Agricultural Organization	RALG	Regional Administration and Local Government
FMU	Forest Management Unit	RAS	Regional Administrative Secretary
GEF	Global Environmental Facility	REA	Rural Energy Agency
GIS	Geographical Information System	RZMP	Resources Zone Management Plan
GMP	General Management Plan	RUWASA	Rural Water Supply and Sanitation
GoT	Government of Tanzania	SACCOS	Savings and Credit Co- Operative Society
GPS	Geographical Positioning System	SWOC	Strengths, Weaknesses, Opportunities and Challenges
HoDs	Head of Departments	SWOT	Strengths, Weaknesses, Opportunities and Threats
IPVLUPMA	Integrated and Participatory Land Use Management	TALA	Tanzania Land Alliance
IUCN	International Union for Conservation of Nature		
JFM	Joint Forest Management		
PJVLUP	Participatory Joint Village Land Use Planning		

TANESCO	Tanzania Electric Supply Company
TARURA	Tanzania Rural and Urban Roads Agency
TAWA	Tanzania Wildlife Authority
TNC	The Nature Conservancy
TNRF	Tanzania Natural Resources Forum
TPDC	Tanzania Petroleum Development Corporation
TRC	Tanzania Railways Corporation
UCRT	Ujamaa Community Resource Team
VA	Village Assemblies
VAC	Village Adjudication Committee
VC	Village Council
VEO	Village Executive Officer
VLC	Village Land Council
VLFRs	Village Land Forest Reserves
VLUMC	Village Land Use Management Committee
VLUP	Village Land Use Plan
WDC	Ward Development Committee
WEO	Ward Executive Officer
WMAs	Wildlife Management Areas
WSDP	Water Sector Development Programme
WWF	World Wildlife Fund

TABLE OF CONTENTS

LIST OF ABBREVIATIONS.....	iii	PART B.....	22
FOREWORD.....	ix	STEPS FOR INTERGRATED AND PARTICIPATORY VILLAGE LAND USE PLANNING, MANAGEMENT AND ADMINISTRATION	22
PREFACE	xii	STEP 1.....	23
ACKNOWLEDGEMENTS	xiv	PREPARATIONS FOR VILLAGE LAND USE PLANNING.....	23
EXECUTIVE SUMMARY	xvi	1.1 OBJECTIVES.....	23
PART A	1	1.2 ACTIVITIES	23
1.1 INTRODUCTION	2	1.2.1 <i>Organise and Conduct a District PLUM Workshop</i>	23
1.2 VILLAGE LAND USE PLANNING, MANAGEMENT AND ADMINISTRATION AND ITS ROLE IN RURAL DEVELOPMENT.....	2	1.2.2 <i>Establish a District PLUM team</i>	25
1.3 VILLAGE LAND USE PLANNING AND MANAGEMENT APPROACHES.....	4	1.2.3 <i>Capacity building to PLUM team</i>	26
1.3.1 <i>Conventional Approach</i>	4	1.2.4 <i>Prepare a Village Base Map</i>	27
1.3.2 <i>Participatory Approaches</i>	5	1.2.5 <i>Completing Plan of Operation in Priority villages and registering in the NLUIS</i> 27	
1.3.3 <i>Integrated and Participatory Approaches</i>	6	1.2.6 <i>Mapping of Village Boundaries</i>	29
<i>Integration and Participation of Stakeholders</i>	7	1.2.7 <i>Prepare an Action Plan for Intervention in Villages</i>	30
1.4 CONSIDERING GENDER, YOUTH AND MINORITY GROUPS	8	1.3 REQUIRED INPUTS AND QUANTITY	32
1.4.1 <i>Gender Consideration</i>	8	1.4 MONITORING AND EVALUATION (M&E)	36
1.4.2 <i>Youth Involvement</i>	9	STEP 2.....	37
1.4.3 <i>Considering Minority and Vulnerable Groups</i>	10	DATA COLLECTION AND RESOURCE ASSESSMENT FOR LAND USE PLANNING AND MANAGEMENT	37
1.5 A STEP-BY-STEP PLANNING AND IMPLEMENTATION.....	10	2.1 OBJECTIVES.....	37
1.6 LOCAL LEVEL INSTITUTIONAL DEVELOPMENTERROR! NO BOOKMARK NAME GIVEN. 11		2.2 CONDITIONS TO START	37
1.7 VILLAGE LEVEL INSTITUTIONS AND MANDATES.....	13	2.3 ACTIVITIES	38
1.7.1 <i>Communication between the Village Council, the District Council, Commissioner for Lands, the NLUPC and Other Stakeholders</i>	14	2.3.1 <i>Conduct Introductory Meetings with Village Council and Village Assembly</i> ...	38
1.8 LAND TENURE SECURITY ENHANCEMENTERROR! NO BOOKMARK NAME GIVEN. 15		2.3.2 <i>Data Collection and Land Resource Assessment</i>	39
1.9 LEVELS OF LAND USE PLANNING AND NATURAL RESOURCE MANAGEMENTERROR! NO BOOKMARK NAME GIVEN.	16	2.3.3 <i>Preparation of a Village Resource Map</i>	40
1.10 LAND USE MANAGEMENT ACCORDING TO BIO-PHYSICAL AND SOCIO- ECONOMIC ENVIRONMENT	18	2.3.4 <i>Analysis of PLUM Challenges, Opportunities and Obstacles</i>	41
1.11 LAND USE PLANNING, ENVIRONMENTAL MANAGEMENT AND CLIMATE CHANGE 20		2.3.5 <i>Preparation of a Community Action Plan</i>	43
1.12 RESOURCES MOBILISATION AND FUNDING FOR IPVLUPMA	21	2.3.6 <i>Initiate Preparation of VLUP Sign boards</i>	43
		2.4 REQUIRED INPUTS AND EXPECTED OUTPUTS/OUTCOMES.....	43
		2.5 MONITORING AND EVALUATION (M & E)	44
		STEP 3.....	47
		MAPPING OF THE EXISTING VILLAGE LAND USES	47
		3.1 OBJECTIVES	47
		3.2 CONDITIONS TO START	47

3.3 ACTIVITIES	48	5.3.2 District PLUM Team Preparations for Detailed Land Use Management Planning.....	65
3.3.1 Prepare the Existing Village Land Use Map.....	48	5.3.3 Conduct a Preparatory Meeting with the Village Council and VLUMC.....	66
3.3.2 Conducting a Bio-Physical Survey.....	51	5.3.4 Conduct Village Land Use Management Appraisal.....	66
3.4 Required Inputs and Expected Outputs.....	51	5.3.5 Detailed Land Use Management Planning.....	67
3.5 MONITORING AND EVALUATION (M & E).....	51	5.3.6 Completing the Village Land Use Management Plan.....	74
STEP 4.....	52	5.3 JOINT RESOURCE MANAGEMENT PLANNING.....	75
PREPARATION OF VILLAGE LAND USE PLAN AND BY-LAWS.....	52	5.4 COORDINATION AND PLAN IMPLEMENTATION.....	76
4.1 OBJECTIVES.....	52	5.5 MONITORING AND EVALUATION (M&E).....	77
4.2 CONDITIONS TO START.....	52	STEP 6.....	79
4.3 ACTIVITIES.....	53	VILLAGE LAND ADMINISTRATION AND TENURE SECURITY.....	79
4.3.1 Prepare a Proposed Village Land Use Plan.....	53	6.1 OBJECTIVES.....	79
A. COMMUNITY FACILITIES AND INFRASTRUCTURES.....	53	6.2 CONDITIONS TO START.....	79
B. SETTLEMENTS AREAS.....	54	6.3 ACTIVITIES.....	80
C. AGRICULTURAL LAND.....	54	6.3.1 Public Education on Village Land Administration.....	80
D. LIVESTOCK KEEPING AND GRAZING AREAS.....	55	6.3.2 Strengthening District Land Registry.....	80
E. FORESTRY AREAS.....	56	6.3.2 Establishment of Village Land Registry.....	81
F. WATER RESOURCES, CATCHMENTS AND WETLANDS.....	57	6.3.3 Adjudication of Land Parcels.....	81
G. WILDLIFE CONSERVATION AREAS.....	57	6.3.4 Processing, Registration and Issuance of CCROs.....	82
H. INDUSTRIAL AREAS.....	57	6.3.5 Monitoring and Evaluation (M&E).....	82
I. OTHER LAND USES.....	58	PART C.....	84
4.3.2 Drafting Village Land Use Management By-laws.....	58	LAND USE PLAN MONITORING, EVALUATION AND REVIEW.....	84
4.3.3 Surveying of the Proposed Land Uses and Compilation of Data.....	59	7.1 LAND USE PLAN MONITORING, EVALUATION.....	84
4.3.4 Presentation of the Village Land Use Plan and By-laws to the Village Assembly.....	60	7.1.1 Monitoring of village land use plans.....	84
4.3.5 Erect VLUP Sign boards.....	60	7.1.2 Evaluation of Village Land Use Plans.....	84
4.4 PARTICIPATORY JOINT VILLAGE LAND USE PLANNING AND MANAGEMENT.....	61	7.2 LAND USE PLAN REVIEW.....	92
4.5 MONITORING, EVALUATION (M & E) AND LAND USE COMPLIANCE.....	62	PART D.....	94
STEP 5.....	64	APPENDICES.....	94
DETAILED VILLAGE LAND USE MANAGEMENT PLANNING.....	64	2.2 D2: SOIL SURVEY.....	117
5.1 OBJECTIVES.....	64	(I) SOIL ANALYSIS.....	117
5.2 CONDITIONS TO START.....	64	2.3 1.1 TEXTURE.....	118
5.3 ACTIVITIES.....	65	2.3.1 1.2 Soil Depth.....	118
5.3.1 MONITOR IMPLEMENTATION AND ENSURE COMPLIANCE WITH APPROVED VILLAGE LAND USE PLAN.....	65	2.3.2 1.3 Ironstones and other hard pans.....	118
		2.3.3 1.4 Stoniness.....	118
		(II) SLOPE.....	118
		(III) SOIL EROSION.....	119

(IV)	PERMEABILITY - INTERNAL DRAINAGE.....	120
(V)	SOIL REACTION (PH).....	120
(VI)	SALINITY.....	120
(VII)	STRUCTURE AND COLOUR	121
2.4	D3: PARAMETERS TO BE USED IN DETERMINING CARRYING CAPACITY OF A GIVEN AREA.....	121

LIST OF FIGURES

Figure 1:	Steps of the IPVLUPMA Process-----	26
Figure 2:	Organization Set-up for IPVLUPMA-----	28
Figure 3:	An Example of a Matrix and Sketch for Recording Field Data-----	46

LIST OF TABLES

Table 1:	Land suitability classes-----	33
Table 2:	Land Capability Classes-----	34
Table 3:	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.	27
Table 4:	Action Plan for Preparations and Interventions in Villages--	28
Table 5:	Required Inputs and Quantities for Budget of PLUM-----	30
Table 6:	Example of Challenges, Opportunities and Obstacles-----	40
Table 7:	Example of a Community Action Plan based on Problems Exemplified In Table 5-----	43
Table 8:	Vulnerability and GHG Emission Potentials on Planned Land Uses-----	55
Table 10:	Monitoring and evaluation of village land use plans SLR Project-----	80

LIST OF PLATES

Plate 1:	Natural resources at the village level, such as soils, water, plants and sunlight.....	2
Plate 2:	Common Land Use Conflicts	3
Plate 3:	Integration and Participation of Stakeholders.....	8
Plate 4:	Villagers during data collection and resource assessment process	40
Plate 5:	Villagers Sketching Village Resource Map Using Satellite Images	40
Plate 6:	Example of a Village Resource Map of Amei, Loolera and Lembapuli Villages in Kiteto District.....	41
Plate 7:	Preparation of the Existing Village Land Use Map Using Satellite Images	50
Plate 8:	An Example of Signboard for Planned Land Use	60
Plate 9:	Cultivation on steep slopes.....	68
Plate 10:	Rill erosion in a maize farm	68
Plate 11:	Ultimate severe gully erosion.....	68
Plate 12:	Contour farming.....	69
Plate 13 :	Check dam to control gully erosion	69
Plate 14:	Bench terraces planted with elephant grass and agroforestry in a farm	69
Plate 15:	Land degradation due to Overgrazing	71
Plate 16:	Grazing land with improved pastures i.e. Rhodes grass mixed with legumes e.g. tropical kudzu and channel terraces planted with elephant grass.....	71
Plate 17:	A farmer practising zero grazing.....	71

LIST OF MAPS

Map 1: Detail of the Manyali village land-use plan, 1988 (Dodoma Rural District), which has been prepared in a conventional way. Land has been divided into rectangular plots without considering the existing land uses and rights. The plan has not been implemented. 19

Map 2: *Detail of the Iloilo village land-use plan (Dodoma Rural District) whereby planning and implementation have been done*

concurrently with assistance of DLUMP in 1995. 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, the existing land uses have been respected, plot boundaries determined and land allocated for community facilities.----- 20

Map 3: Existing Land Use Map for Kyaitoke Village, Bukoba District, 2019. 47

Map 4: Kyaitoke Village Land Use Plan, Bukoba----- 57

Map 5: An example of Joint Village Land Use map of OLENGAPA in Kiteto District, 2014----- 59

Map 6:Detailed Land Use Plan of Idukilo Village, Kishapu District Council----- 71

FOREWORD

Land is among the basic resources for livelihood of the majority of the Tanzanians. Given the importance of land, appropriate strategies are required more than ever to counteract the consequences of the increasing pressure on land resources, such as increased land conflicts and degradation which hamper rural development and may further marginalise the rural population.

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

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

However, the Guideline for Participatory Village Land Use Planning and Management of 1998 came into operation even before the enactment of the Land Act, Cap. 113 and the Village Land Act, Cap. 114 among many other Laws which are the basis of Land Administration and Management. Also, the Government of Tanzania has put in place two legislations namely the Environmental Management Act, Cap. 191 and the Land Use Planning Act Cap. 116 both of which acknowledge the critical role

for a harmonised strategy for effective planning and management of land and its natural resources.

Henceforth, there was a need to revise the 1998 PLUM guideline in order to effect implementation of legislations and the emanating regulations concerned with rural land use planning, administration and management. The experience accrued from different actors at various levels on opportunities and challenges of using the 1st Edition of PLUM Guideline (1998), was addressed in the Second Edition of 2013.

The 2013 revised guideline outlined six steps to be followed during the participatory village land use planning and management process. In the process of reviewing this guideline, significant changes entailed addressing the sectoral land management statutory requirements in agriculture, livestock keeping, forestry, wildlife, settlement, water resources, fisheries, community and infrastructure facilities etc. Also, the reporting format for a Village Land Use Plan Report, based on practical application of those Guidelines, is included.

However, the implementation of the 2nd Edition of the PLUM Guideline (2013) has experienced different challenges including change of technology, inclusiveness, increasing impacts of climate change and the on-going amendment of sectoral laws and policies. These changes have triggered the need of revising the PLUM Guideline to integrate and take into consideration changes and challenges experienced during the implementation of the integrated participatory village land use planning, management and administration in Tanzania.

Therefore, the revised IPVLUPMA guideline though comprehensive, provide different guides and allow flexibility in the application of

different innovations and technologies in undertaking the IPVLUPMA process. These guidelines are aimed to be used by facilitators/practitioners and all stakeholders to establish and institutionalise the integrated and participatory land use planning, management and administration process in villages. The application of these IPVLUPMA guideline will enable facilitators to assist communities to use their land and other natural resources for improved and sustainable production, thus leading to socio-economic development and better living conditions for rural communities.

Considering the need for rural communities to improve their livelihoods through sustainable use of land resources, the new guideline (Third Edition) of 2024 has interchanged the 5th and 6th steps of the land use planning and management process. Thus, the implementation of village land use administration for enhancement of security of land tenure will be preceded with the detailed village land use management.

Sustainable land management requires an effective system of involving communities in preparation and implementation of the village land use plans whereby villagers and their institutions gradually build their capacity to manage their 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 the opportunities are provided whereby stakeholders come to an agreement which reflects their interests in a balanced way. Meetings of the Village Assembly, Village Council and land user groups, are platforms 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 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 provides flexibility which has to be applied according to the local agro-ecological, socio-economic and cultural contexts. The guideline contents may be revised when necessary to incorporate new experiences and changing needs of the rural communities and other emerging economies.

I extend my sincere appreciation to all who have put efforts in developing and improving this guideline including the Board and the land use stakeholders meeting held on 24-26th April, 2024. Their contributions and dedicated efforts are highly appreciated.

I urge all stakeholders involved in the rural development process; including Sectoral Ministries, NGOs, CBOs and Private Sector; to apply this guideline, which gives an avenue for both men and women to democratically participate in bringing changes to the social wellbeing and natural resource utilisation for sustainable development.

APPROVAL

I, **Hon. Dr. Leonard D. Akwilapo** (MP),

Minister for Lands, Housing and Human Settlements Development by virtual of powers vested to me under section 28(2) of the Land Use Planning Act [CAP 116].

DO HEREBY Approve:

The Guideline for Integrated and Participatory Village Land Use Planning, Management and Administration in Tanzania.



.....
Signature

Date: 06th of February, 2026.

PREFACE

The revision of the guideline for integrated and participatory village land use planning, management and administration, has come at a time when the Government is promoting industrial development with major emphasis on transforming the agricultural sector (crops, livestock & fisheries) towards higher productivity, commercialisation, increased income to smallholder farmers for improved livelihood and guarantee of food and nutrition security. Special attention is paid to rural areas in recognition of the fact that most 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, also through integration of sectoral efforts in resources management.

This IPVLUPMA guideline has considered the existing sectoral policies which enable participation of the stakeholders in natural resources (land, forest, wildlife) use, management and conservation. Such policies include:

- (i) National Land Policy of 1995 (2023 edition) which states inter alia, that land use planning should be done in a participatory manner to involve beneficiaries.
- (ii) National Environmental Policy of 1997 (2021 edition) with the overall objective of community participation in environmental management and raising public awareness of the essential linkages between environment and development.

- (iii) Tanzania Forest Policy of 1998 aimed at enabling participation of all the stakeholders in forest use, management and conservation.
- (iv) The Wildlife Policy of Tanzania of 1998 (2007 edition) which emphasises on involving rural communities and other stakeholders in sustainable management of wildlife and other natural resources.
- (v) The National Policy on NGOs of 1998 (2001 edition) which calls for establishment of NGOs to promote people's participation in the development process of the country.
- (vi) 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.
- (vii) The Tanzania Development Vision 2050 (Dira 2050), which promote effective Land Management.
- (viii) Also, this revised IPVLUPMA Guideline has incorporated recent changes made in some policies, laws and regulations such as;
- (ix) The National Agriculture Policy of 2013 which promotes integrated and sustainable use and management of natural resources, such as land, soil, water and vegetation.
- (x) National Bee-Keeping Policy of 2012 which promotes appropriate beekeeping practices for sustainable development of Tanzania and the conservation and management of her natural resources.
- (xi) National Energy Policy of 2015 which promotes sustainable development and utilisation of energy

resources to ensure optimal benefits to Tanzanians and contribute towards transformation of the national economy.

- (xii) Rangeland and Animal Feed Act of 2010 which provides for the management and control of grazing lands, animal feed resources and trade.
- (xiii) The National Climate Change Strategy with the objectives of enhancing public awareness on climate change, disaster management and promoting sectoral measures for adaptation in the wake of climate change hazards and mitigating climate change impacts in Tanzania.
- (xiv) Wildlife Conservation (Wildlife Management Areas) Regulations of 2012 which provides guidance for establishment and management of WMAs.
- (xv) Guidelines for Detailed Management Planning and Regulations for Urban Planning and Space Standards, 2018 which provide guidelines for detailed settlement planning considering housing and its environs such as infrastructure and community facilities.
- (xvi) Community Based Forest Management Guidelines of 2013 which provides guidance for establishment and management of community-based forest.
- (xvii) Joint Forest Management Guidelines, 2013 which provide guidance for the establishment and management of joint forest.

Generally, all major policies and their related laws, regulations and guidelines of our country, are hinged on involving people in the decisions affecting their daily lives.

This document charts out practical directions 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 the 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 I strongly recommend them for the widest possible use.

Eng. Anthony Sanga
Permanent Secretary

Ministry of Lands, Housing and Human Settlement Development
December, 2025

ACKNOWLEDGEMENTS

Development and publication of the Integrated and Participatory Village Land Use Planning, Management and Administration (Third Edition) of the 2024 guideline, is the result of comprehensive work undertaken by NLUPC, under the auspicious of the Ministry of Lands, Housing and Human Settlements Development in collaboration with various stakeholders such as the Land Tenure Support Programme (LTSP) 2016-2019, CARE International in Tanzania, Tanzania Natural Resources Forum (TNRF), International Livestock Research Institute (ILRI), KINNAPA Development Programme, Jane Goodall Institute (JGI), Ujamaa Community Resource Team (UCRT), USAID Tuhifadhi Maliasili, Oxfam Tanzania, PELUM Tanzania, The Nature Conservancy (TNC)-Tanzania, Legal and Research Land Rights Institute (HAKIARDHI), International Union for Conservation of Nature (IUCN), World Wide Fund for Nature (WWF) – Tanzania, African Wildlife Foundation (AWF) and Community Research and Development Services (CORDS) – Arusha.

The NLUPC staff together with the representatives from the above-mentioned stakeholders as well as representatives from public and non-public sectors, held a series of meetings from 2017 to 2024 in order to review the 2nd Edition of PLUM Guideline by incorporating issues of inclusiveness, climate change and advancement of technology as related to land use planning, administration and management in Tanzania.

Other representatives involved (from public and non-public sectors) were from the President's Office – Regional

Administration and Local Government, Ministry of Finance and Economic Planning, Ministry of Agriculture, Ministry of Livestock and Fisheries, Ministry of Natural Resources and Tourism. Other stakeholders involved came from Tanzania Wildlife Authority (TAWA), Sokoine University of Agriculture, SOLIDARIDAD, Singida Regional Secretariat, Kilombero District Council, Mvomero District Council, MVIWATA, LANDESA, Tanzania Land Alliance (TALA), PAICODEO and Livestock Association of Tanzania (LAT). Therefore, on behalf of the National Land Use Planning Commission, I wish to acknowledge with gratitude all the stakeholders who have contributed to the development of this 3rd Edition of the IPVLUPMA Guideline.

Special gratitude is extended to technical staff of the NLUPC who have been engaged as facilitators in application and dissemination of the PLUM Guidelines. Their experience has been of great resource in coordinating the revision and publication of the 3rd Edition of the IPVLUPMA Guidelines. I also acknowledge the contribution of District PLUM teams of which, in their districts, the PLUM Guideline has been applied to prepare and implement the village land use plans.

I am also thankful to the Village Councils and Village Land Use Management Committees (VLUMC) who have been applying PLUM guidelines to prepare and implement village land use plans. Their accrued knowledge and experience have attributed invaluable in the revision of the Guidelines.

I wish to acknowledge the Technical Committee of the NLUPC Board that deliberated upon this Guideline and recommended their approval to the Commission. I extend sincere gratitude to the Chairman of the National Land Use Planning Commission who

accepted this guideline and approved its publication and application.

Continued support and cooperation of all stakeholders is vital for replication and application of IPVLUPMA Guideline to enhance and foster sustainable rural development in our country.

Joseph C. Mafuru
Director General
National Land Use Planning Commission
December, 2025

EXECUTIVE SUMMARY

Participatory village land use planning, administration and management can be achieved in an integrated manner by involving key stakeholders and their institutions. The increasing demand to regulate use of land resources is raising awareness that land use management and administration challenges are well addressed through participatory and integrated approaches. This guideline presents methods and approaches that amend the second edition of the guideline for participatory village land use planning, administration and management (2013) in Tanzania.

The IPVLUPMA Guideline is presented in three parts:

Part A introduces the guideline and presents the basic elements of the methodology. It outlines the concept of the methodology, its relevance for rural development and the need to integrate varied technical know-how to the existing participatory village land use processes.

Basic elements of the methodology are prescribed on the principles of efficiency, equitability and sustainability. These include: 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 the ongoing development efforts.

Part B details on how these basics are used and combined for implementation through six steps. In each step, packages of activities are identified to obtain the desired results. Where applicable, more options are given to deal with specific land issues.

The guideline is presented in a way in which it can be adapted to the local context.

Part C explains on Monitoring, Evaluation and Review. Monitoring and evaluation on the implementation of the village land use plans are crucial processes that help to ensure effective implementation and sustainability of the land use practices within a community. This part outlines the grounds to review land use plans.

Part D contains appendices that provide reference to procedures, structures and standards during the planning process to ease the application at local levels so as to facilitate sectoral integration and coordination of PLUM field interventions.

Expected outcomes of this IPVLUPMA at the village level include:

- (i) Change of perceptions of communities and their institutions, improved capacity to plan and manage land resources by considering interests and strengths of all stakeholders; resolving land conflicts; allocating land; maintaining land security; up-dating land-use plans; and relations with the district;
- (ii) Sound land use plan which reflects interests of all parties involved at the village and higher levels in a balanced manner and well respected;
- (iii) Natural resources are managed in a more efficient, equitable and sustainable way, leading to higher productivity and improved standards of living.

The IPVLUPMA Guideline is written primarily for experts, administrators, and politicians working at the district to village levels; to help them in empowering villagers and their institutions to manage land resources optimally. The guideline will also be of interest to training institutions, private sector, NGOs and development agencies.

PART A

INTRODUCTION TO INTEGRATED AND PARTICIPATORY VILLAGE LAND-USE PLANNING, MANAGEMENT AND ADMINISTRATION



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

1.1 Introduction

1.2 Village Land Use Planning, Management and Administration 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, sunlight and plants (Plate 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.



Plate 1: Natural resources at the village level, such as soils, water, plant and sunlight

Majority of Tanzanians depend on land resources for agriculture, livestock keeping and forestry. Therefore, these resources are under enormous pressure due to the fast-growing population (which has increased from about 7.5 million to about 45 million people between 1948 and 2012), climate change, land degradation and increase in socio-economic activities (i.e. agriculture, industries). This has led to the expansion of settlements, agricultural areas, livestock grazing, tree cutting for fuel wood, water demand, etc. The increasing pressure on land coupled with diminishing per capita share of land for different uses has resulted in:

- (i) Growing number of conflicts among different land users;
- (ii) Insecurity of land use and tenure;
- (iii) Poor development of land markets;
- (iv) Degradation of soil and water resources;
- (v) Deforestation;
- (vi) 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 lands and vice versa due to population increase and land degradation, forces land users to move into areas with other uses, thus creating new land conflicts in these areas. Other common land and land use conflicts include: administrative boundaries between contiguous villages, districts and regions; agriculture/livestock keeping vs forestry; agriculture/livestock keeping vs wildlife; agriculture/livestock vs land-based investors and the proliferation of unplanned settlements particularly township expansions into farm land, wildlife corridors and grazing land. Also, other land conflicts among different socio-economic groups (gender), families and individuals claiming user rights on the same land resources.

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 when it is realised that there is no land security.



Plate 2: Common Land Use Conflicts

Crop producers are often more willing to invest in their land for higher sustainable production when they are secure to use and benefit from their investment. Village land use planning and management attempts to regulate the use of land resources such as sorting out land conflicts, enhancing security of land tenure and use of improved land husbandry measures according to the priorities and capacities of the stakeholders. Therefore, land use planning 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.

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 (FAO).

This definition provides the following basic elements:

Assumptions

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

Approach

- (ii) 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

- (iii) 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**.

Village land use management is the process of designing and implementing measures for the management of land demarcated/zoned for different uses in the village. This process is

more effective when it is carried out in an integrated and participatory way, which means that the principal users of land, the villagers and other stakeholders, are fully involved. To ensure full participation, it is important to consider different socio-economic groups in a village (including gender) which have different interests and expectations.

1.3 Village Land Use Planning and Management Approaches

1.3.1 Conventional Approach

Most of the village land use planning and management approaches which have been applied since the colonial period up to late 1980s were sectoral and 'top-down' oriented and therefore hardly consulted communities which are among the key stakeholders. These approaches are referred to as conventional and some of the guidebooks prepared during the period include:

- (i) The *Model Village Layout Planning Handbook* prepared in 1975 which mainly dealt with the residential part of the village.
- (ii) The *Land Use Planning Handbook* 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.
- (iii) The *Village Land Use Planning and Implementation Guidelines for Tanzania* prepared by the NLUPC in 1993 encouraged a multi-sectoral approach but overemphasises on plan making by experts rather than guiding local decision-making.

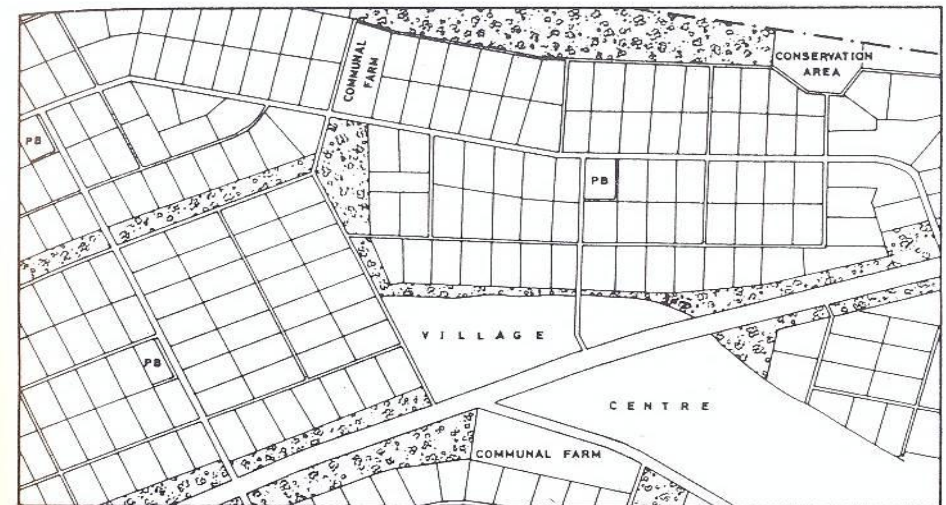
Typical characteristics of these conventional approaches are:

- (i) Outsiders define the villager's needs and local knowledge is seldom used;
- (ii) Local decision-making is often constrained rather than improved;

- (iii) The methods applied are often rigid, require a lot of data and are expensive;
- (iv) 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:

- (i) Most of the plans did not reflect the priorities of villagers (Fig. 3);
- (ii) Most of the plans have not been implemented due to lack of local participation and high dependence on external inputs.
- (iii) There has been a tendency to focus solely on land allocation, neglecting the other aspects of land use administration and management.



Map 1: *Detail of the Manyali village land-use plan, 1988 (Dodoma Rural District), which has been prepared in a conventional way. Land has been divided into rectangular plots without considering the existing land uses and rights. The plan has not been implemented.*

1.3.2 Participatory Approaches

Weakness observed in the conventional approaches has resulted to adaption of participatory approaches which have become widely spread and accepted in many countries including Tanzania. Participatory land use planning and management approaches have the following outstanding characteristics:

- (v) The needs for land use planning and management are identified by the land users themselves who are directly affected by land conflicts and land degradation, and who are likely to benefit from improved resource management;
- (vi) Community participation 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;
- (vii) The process of information gathering and analysis, priority setting, preparation of community action plan and village land use plan is local-people-centred, flexible and fosters collaboration between disciplines and sectors;
- (viii) The major role of the district staff (outsiders) is introducing, guiding and facilitating the idea of participatory land use planning and resource management rather than making the plans themselves.

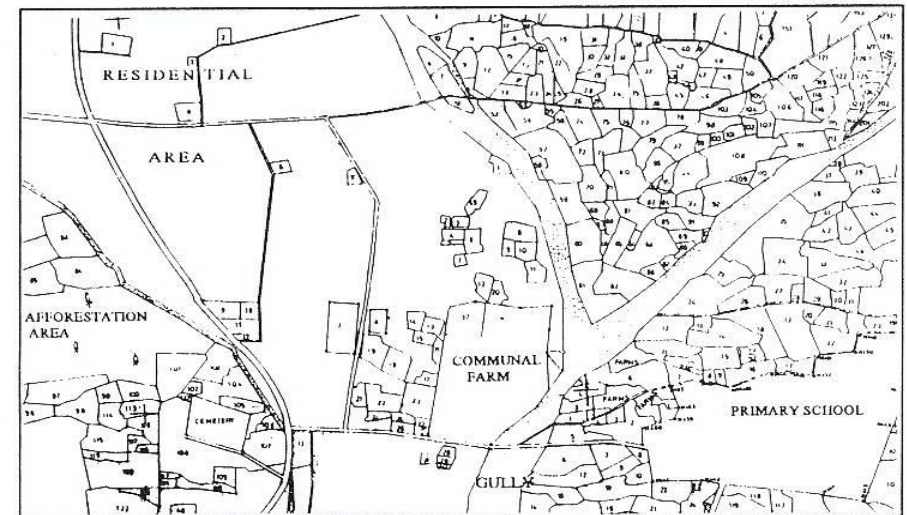
Expected results of this approach are as follows:

- (i) Village land use plans are implemented and, since they are created by the village communities themselves, they reflect their needs and are better adapted to local conditions (Figure 2);
- (ii) Land disputes are minimised and interests of various stakeholders (social groups, crop producers, pastoralists, etc.) are likely to be balanced and respected, since the plans have been created through dialogue;

- (iii) Land productivity will increase and benefit various stakeholders since the plans reflect their interests and are really implemented;
- (iv) 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: use of legal and institutional tools to regulate the use of land resources; survey and mapping techniques to document property boundaries, land use agreements; and techniques to assess soils, land suitability and socio-economic conditions.

Likewise, the participatory village land use planning approach remains relevant approach which allows communities and other stakeholders to decide on village land use plans, prepare action plan and developing of bylaws.



Map 2: *Detail of the Ilolo village land-use plan (Dodoma Rural District) whereby planning and implementation were done concurrently with the assistance of DLUMP in 1995. In this Ujamaa village, priority was given to the demarcation of individual farms in order to improve land security and to sort out land conflicts. Through dialogue, the existing land uses have been respected, plot boundaries determined and land allocated for community facilities.*

1.3.3 Integrated and Participatory Approaches

Since most villages accommodate various land uses which influence each other, coordinated efforts from different and 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. Therefore, it is high time, to combine the two approaches both conventional and participatory so as to come up with a two-way communication approach (Integrated and participatory approach).

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.

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

- (i) The needs for land use planning and management are, in the first place, identified by the land users themselves who

are directly affected by land conflicts and land degradation, and who are likely to benefit from improved resource management in collaboration with the technical personnel such as settlement planners, foresters, community development workers, agriculturists, livestock and wildlife specialists.

- (ii) Villagers participate fully in agenda setting, resource allocation and controlling of the planning process. The capacity of local decision-making is built through mobilisation of local institutions and knowledge basing on technical knowledge from sectoral and legal framework.
- (iii) The process of information gathering and analysis, priority setting and formulation of village plans, are local-people-centred, flexible and foster collaboration between disciplines and sectors;
- (iv) 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 while ensuring that the technical standards are adhered to.
- (v) The needs of other stakeholders who are engaged in sectoral implementation are fully taken into consideration in collaboration with both the villagers and government sectors
- (vi) The planning and decision-making process considers other existing projects in the village.
- (vii) The planning and decision-making process considers integration of land use issues such as biodiversity conservation, common resources and climate change.

Integration and Participation of Stakeholders

The integration and participatory approach, refers to the direct involvement of the stakeholders in various steps of the development activities, and has become a common and widely accepted method for meeting the needs of the rural population. This approach allows involvement of stakeholders in both planning and decision making.

In this guidebook, the integrated and participatory approach is a central issue throughout the whole process of IPVLUPMA whereby villagers are fully involved in the preparation, implementation and management of village land use plans in collaboration with the relevant sectors. In order to ensure involvement of all stakeholders, it is important to consider different socio-economic groups in a village with their various interests, expectations and powers. Various stakeholders involved can be grouped according to their sex (men, women), age (elders, middle-aged, youth and 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). 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:

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

The integration and 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 while ensuring the technical aspect from relevant sectors are considered. The Integration and participatory approach, also attempts to change the attitudes of experts and development agencies. Extension workers have to be prepared to listen and learn while imposing sectoral (i.e. land, forestry, agriculture, livestock etc) technical ideas/interest which are important for community development. Outsiders, in the first place, facilitate the planning and implementation process rather than making decisions.

Integration and 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 villagers. The aim of integration and participation is to enable or empower the people, sectoral agency and other stakeholders so that they may obtain greater control over the planning process, resources and their lives. Through integration and participation, rural communities, local institutions, sectoral departments and government agency/ministries may agree on ways to sustainable development, based on their real needs, skills and strengths.

Unlike conventional top-down oriented planning methods, data collection through integrated and participatory techniques concentrates on the data which are most relevant. The integrated and participatory planning process requires more time than conventional planning because of the consultation and negotiation process by the stakeholders involved including technical personnel. However, this assures that stakeholders will feel the plans are their own, and that they are ready to implement and maintain them. Likewise, sectoral agency will feel the technical requirements and legal requirements are considered in the plans.



Plate 3: Integration and Participation of Stakeholders

1.4 Considering Gender, Youth and Minority Groups

1.4.1 Gender Consideration

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. It refers to relations that exist between women and men and the roles they play in society. It also analyses 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 refers to the roles men and women play in a community that is, the differences in tasks, responsibilities, constraints and opportunities between both groups. These roles are deeply fixed in people's 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 considered.

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 (usufructuary right), while men own, control and inherit land. Some practical consequences of this are:

- (i) The husband (or clan leader) usually decides on the management of the land the women cultivate, and on the use of its products;
- (ii) In case of divorce, the woman is often forced to return to her parents' family, leaving behind most of the property, including the land she cultivated;
- (iii) 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;
- (iv) Since women lack control over land, and since they have a high workload compared to their husbands, often times, they have limited opportunities 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. Due to of these changes, many women have become dissatisfied and have begun demanding equal rights.

The rationale of considering gender in development activities is:

- (i) According to the Constitution of the United Republic of Tanzania of 1977 and National Land Policy of 1995, women

have equal rights like men do in access to and control over land and other natural resources, as well as the benefits from development;

- (ii) Most conventional development projects are unconsciously biased towards men against women;
- (iii) Insufficient involvement of women in the planning process leads to enormous under-utilisation of a development potential, since their knowledge and roles are 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 analysis should look at three key areas:

- (i) *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?
- (ii) *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 any taboos? How should they be dealt with?
- (iii) *The participation in decision-making.* How do women and men participate in decision-making at the family, community and other levels?

1.4.2 Youth Involvement

According to National Population Census of 2022, the population of the youth was about two-thirds of the total population. This implies

that, youths are the primary productive human resource of socio-economic development, and thus, any development strategy should involve and recognise the roles of the youth and enable them to participate in the planning and decision-making process. It is also important to facilitate the involvement of youth in the IPVLUPMA process so that their potential to contribute to development is better utilised.

1.4.3 Considering Minority and Vulnerable Groups

Minority and vulnerable groups may include elders, children, ethnic groups, persons with mental disorders, drug abusers and persons with disabilities. It is very important to consider these groups so as to allow their participation in planning and decision-making process. The Disability Act of 2010, provides for the realisation of the Rights of People with Disabilities. It empowers the Minister responsible for Social Welfare, the Commissioner for Social Welfare and Social Welfare Officers to carry out activities for the realisation of the rights of people with disabilities. The Act provides legal requirement of ensuring that people with disabilities should be involved in decision making.

Unlike in the conventional approach, the IPVLUPMA approach provides opportunity to include and consider minority groups in planning and decision making.

The rationale of considering minority groups in decision making is:

- (i) To ensure their access to and control over resources. How much access and control do minority groups have over land, information, education, health care, time, labour, income,

agricultural products, etc.? Are there taboos? How should they be dealt with?

- (ii) The participation in decision-making: How are vulnerable groups involved in decision-making at the family, community and other levels?

Therefore, it is very important to ensure the involvement of minority groups in the IPVLUPMA process so as to safeguard their interest.

1.5 A Step-By-Step Planning and Implementation

The establishment of IPVLUPMA in a village requires a number of activities which should be carried out in the right sequence considering the following elements:

- (i) A proper preparation is required at the district level before entering the villages. This involves: establishment of importance and need for IPVLUPMA team; 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.
- (ii) Introduction of IPVLUPMA to relevant villages which includes conducting PRA focused on land use planning, management and administration.
- (iii) 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.

- (iv) Towards the end of the intervention, emphasis should be put to consolidate IPVLUPMA in the village, in order to ensure the village community is able to proceed with the planning and implementation process afterwards.
- (v) Monitoring and evaluation should be integrated in all steps of the process to allow identification of problems and taking of corrective measures in the early stages; ensure participation of village council, village land use management committee, women, special groups (i.e. youths, elder, disabled etc.) and villagers in the planning process; and ensure compliance with problem management including disasters and impacts of climate change and variability. IPVLUPMA teams are responsible for conducting M&E in each step to ensure that IPVLUPMA activities and related outputs as prescribed in action plan are achieved. Also, the NLUPC should ensure that M&E (ex-post-ante) is undertaken to assess the impact of the IPVLUPMA process (land use plans) to the environment and rural livelihoods.

The aforementioned considerations have led to a methodology of six steps which have been worked out into detailed guidelines in Part B of this guidebook.

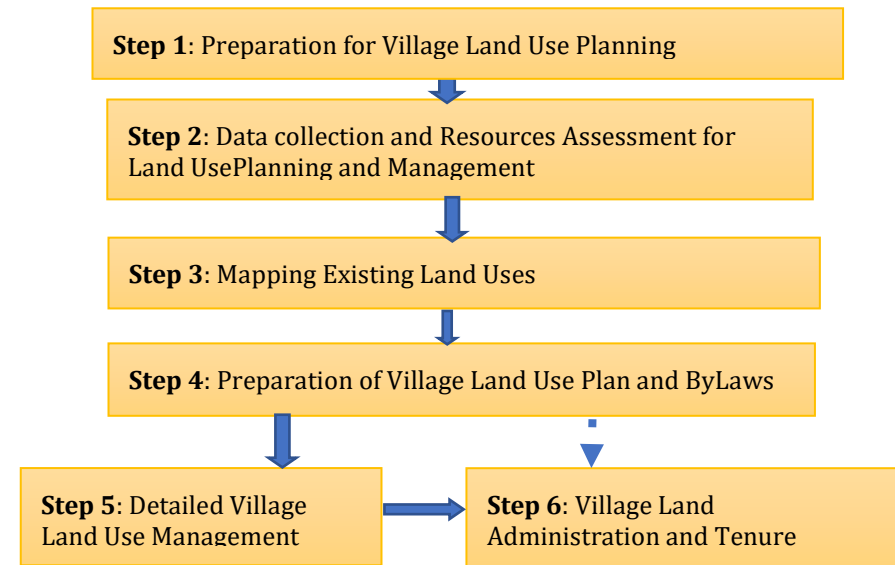


Figure 1: Steps of the IPVLUPMA Process

1.6 Local Level Institutional Development

Error! No bookmark name given.

Tanzania has created a decentralised framework organised in districts and urban councils, wards and villages. These represent the local government system in the country. 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 *Cap* 116, which in Section 21-22 mandates the District and Village Councils as 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 to coordinate preparation and implementation of land use plans by the district councils in the respective region.

Also, the Ministry responsible for Regional Administration and Local Government (RALG) is vested with responsibility of coordinating local authorities which are also responsible in planning and management of land in their areas of jurisdiction. Therefore, NLUPC should continue to use this opportunity to bridge the existing gap by building capacity and establishing strong linkage with RALG in terms of coordination, providing relevant information for land use planning and budgeting with district authorities. However, it has been observed that the capacity at local levels to effectively implement programmes is closely tied to the availability of resources (financial, human, materials and technology).

Development partners, National and International NGOs, Land Resources Projects and Programmes, Financial institutions, Private Sectors and Media Institutions, are implementing agencies which should collaborate with Planning Authorities to implement land use

planning, administration and management. NLUPC should identify and coordinate interventions of these stakeholders by collaborating with local level institutions. Experience, knowledge, and innovations from different interventions can thus be linked and adopted in other areas through sensitisation, awareness raising, research and documentation.

Integrated and 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 IPVLUPMA teams, it is the duty of the IPVLUPMA 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 integrated and participatory land use planning process at the village level, it is important to form and establish a District IPVLUPMA Team consisting of 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 IPVLUPMA team is to initiate and facilitate the participatory planning exercise in villages

The IPVLUPMA team needs to involve technical staff from different disciplines in the district when undertaking its task and it should as much as possible, delegate tasks to the extension staff so as to provide technical support for the IPVLUPMA process at the district, Ward and village level. The respective District Council Committee

maintains a supervisory role and may occasionally provide technical as well as administrative support to the IPVLUPMA team.

1.7 Village Level Institutions and Mandates

- (i) 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.
- (ii) 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.
- (iii) The **VLUM Committee** works together with the IPVLUPMA 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 of the Village Land Act). They can also receive on-the-job training during implementation of IPVLUPMA, particularly in carrying out improved land use management measures and act as Village para-professionals running class farms (Shamba Darasa). The role of the Village para-professionals is to assist their fellow villagers in applying the proposed techniques such as soil conservation measures, managing forest resources, managing pastoral lands, development control within the residential area and land registration.

The Village Land Act Cap 114 provides for a Certificate of Village Land (CVL) to be issued by the Commissioner for Lands and giving the respective Village Council the mandate to manage the village land. An important tool to manage village land is preparation and implementation of a village land use plan. The Act also provides for a Village Council to register and issue a certificate of customary right of occupancy to land owners and to maintain a village land register.

Section 168 of the Local Government Act (Cap. 287 R.E. 2023) empowers the Village Council to prepare village land use management by-laws for ensuring compliance with land use agreements as well as implementation of plans. After a village land use management by-law has been approved by the Village Assembly, it should be forwarded to the respective Ward Development Committee where the respective Councillor should be informed about the contents of the by-laws. Subsequently, it should be forwarded to the respective District Council for endorsement before the by-law can be applied. The NLUPC, upon scrutinisation of the land use plan submitted by the planning authorities, shall satisfy it under Regulation 18 of the Land Use Planning Regulation, 2020.

The IPVLUPMA team should ensure that the village land use plans and by-laws are presented to WDC. The presentation should compose land use zoned, by-laws and requirements for management of land uses. The IPVLUPMA team should forward the minutes of WDC meeting to NLUPC, Regional Secretariat and NLUPC. Section 60 of the Village Land Act Cap 114 provides for a Village Council to establish a Village Land Council (*Baraza la Ardhi la Kijiji*) to mediate between and assist disputing parties to arrive at a

mutually acceptable solution on any matter concerning village land. In so doing, a Village Land Council acts rather independently from the Village Council, as a court instrument.

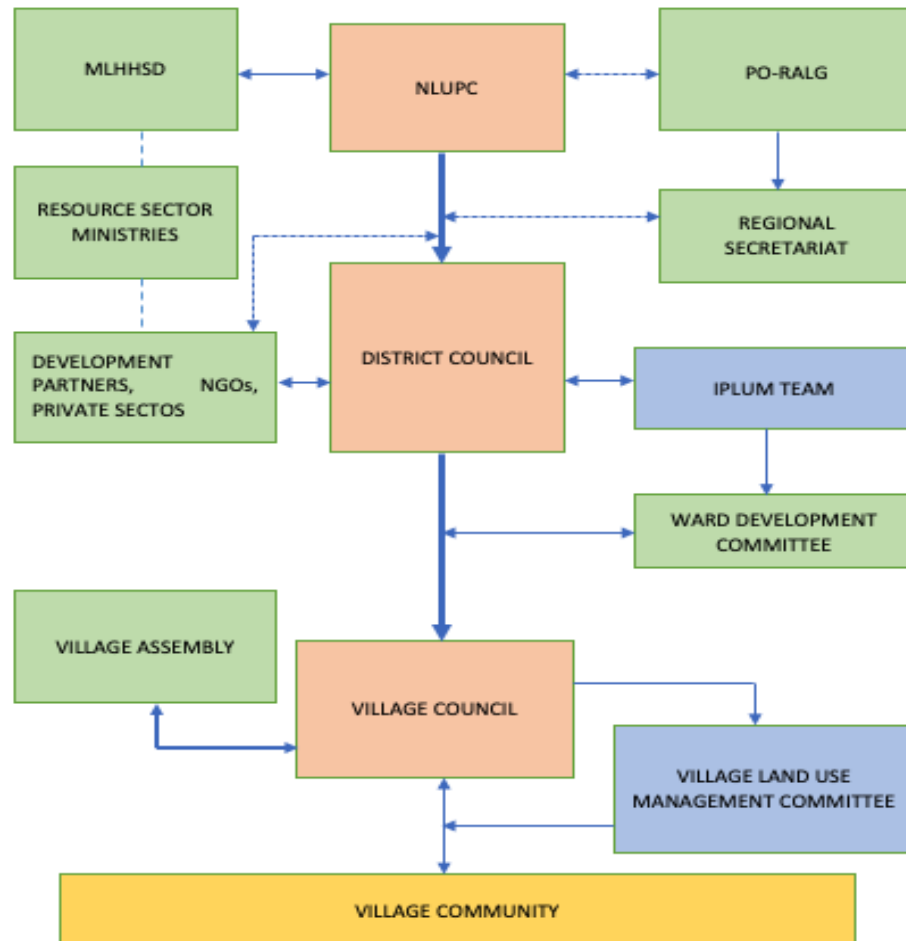


Figure 2: Organisation Set-up for IPVLUPMA

1.7.1 Communication between the Village Council, the District Council, Commissioner for Lands, the NLUPC and Other Stakeholders

The Village Council is supposed to brief the respective District Council on its decisions regarding land use planning and land management at least once every two months. On the other hand, District Councils are supposed to give advice and guidance to Village Councils on matters of land use planning, administration and management. That requirement provides a legal mandate for the District Council to introduce integrated and participatory land use planning, administration and management; and to facilitate its implementation in respective villages, while giving the powers to Village Councils to prepare, implement and revise village land use plans.

The Commissioner for Lands may give advice and directives to Village Councils on the administration and management of village land, and may intervene when the Village Council does not manage the land according to relevant laws and their regulations. The Commissioner for Lands may, for instance, give directives regarding the premium and rent for Customary Rights of Occupancy, application of Customary Rights of Occupancy made by non-village organisations, administration of Granted Rights of Occupancy, and granting a lease over a piece of village land which is more than 30 hectares.

The NLUPC has the mandate to give advice and guidance to District Councils and Village Councils concerning village land use planning, administration and management.

These modes of communication assist Village Councils to plan and manage village land, and reduce the risk that village level decisions contravene District and National level interests.

1.8 Land Tenure Security Enhancement Error! No bookmark name given.

Land security is usually a precondition for land 'owners' or users to invest in land for an increased and sustainable production. However, land security in rural Tanzania is under threat for reasons such as: increased population pressure on land; climate change; commercialisation of land use; land degradation; governmental procedures for acquiring land which are not adapted to the conditions of most smallholders; and insufficient awareness among land users about their legal rights over the land use.



Plate 4: Registration of Land and Issuing Land Titles (CCROs)

The Village Land Act Cap 114 provides procedures for registration and issuance of Certificates of Customary Rights of Occupancy (CCROs) as a measure of land security enhancement in rural Tanzania. One of the important procedures is adjudication of parcels of land of applicants. The Law gives methods of adjudication namely Spot or Sporadic adjudication and Village or Systematic Adjudication. Systematic Adjudication is viewed internationally as a simple, more enabling, appropriate and sustainable regulatory tool for socio-economic and ecological development in rural Tanzania. In order to come up with a comprehensive Systematic Adjudication, the MLHSD prepared a manual to be used as a guideline in the process, providing a methodology for more effective and expeditious mean of formalising land rights in rural areas.

Village Adjudication (Systematic Approach in Adjudication) is provided for under Section 51 of the Village Land Act. Under this section, the Village Council may, on its own motion, or shall, if requested by at least 50 villagers, recommend to the Village Assembly that a process of village Adjudication be applied to the whole or a defined portion of village land available for grants of Certificate of Customary Rights of Occupancy. If the Village Assembly agrees, then the Village Council shall begin the process of Adjudication as soon as possible. If the Village Assembly does not agree, this does not prevent individuals and groups from requesting Spot Adjudication.

Systematic Adjudication is a community-oriented process whereby the existing land rights in parcels in a defined administrative area are authoritatively ascertained, delineated and recorded. It implies methodological and orderly sequence in which all parcels are brought into the register area by area. The process involves;

- (i) Mobilisation and sensitisation of the communities to be involved in the exercise,
- (ii) Establishing and authoritatively ascertaining the existing land rights, limitations, owners and rights of other interested parties,
- (iii) Marking the established boundaries,
- (iv) Systematic Recording of the particulars of land parcels in a village or any other area chosen for Systematic Adjudication,
- (v) After adjudication is completed and accepted a CCRO is prepared, registered and issued to the individual land users who have made application for it.

International experience from Thailand, Cambodia, India and Ethiopia demonstrates that Systematic Adjudication is a more effective and expeditious means of formalising land rights. The economies of scale result in lower overall costs when measured in cost per title, while the involvement of the whole community gives rise to a more open and transparent process.

1.9 Levels of Land Use Planning and Natural Resource

Management Error! No bookmark name given.

There are different levels of land use planning (Section 29 – 34 of Land Use Planning Act Cap 116: national level; zonal and regional level; district level; joint village level; village level; sub-village (sectoral management plan) level; and plot and farm level. Each level deals with different types of decisions and has its own institutions, ways to involve stakeholders and set of planning tools.

(i) National Level Land Use Planning

National Level Land Use Planning (Section 29: Land Use Planning Act, Cap 116) is concerned with policies, legislation, directives,

guidelines, training and awareness creation as well as the provision for an institutional and administrative set-up to regulate land and natural resources management at the national to the grass-roots levels.

Land use planning at this level may comprise land uses of national concern (national parks, reserves, etc.), and the division of the country into planning or recommendation zones, based on the prevailing agro-ecological and socio-economic conditions. The recommended land-use systems (e.g. farming systems) and related land use management practices provide guidance for planning at the lower levels. The NLUPC has completed preparation of the National Land Use Framework Plan (2013 – 2033) and its implementation programmes (National Land Use Planning Programmes). The framework provides guidance for the determination of land uses of national concerns such as protected areas; wetlands; agricultural, grazing, urban and rural settlements and socio-economic infrastructure.

(ii) Zonal and Regional Level Land-Use Planning

Zonal and Regional Level Land-Use Planning (Sections 30 - 31 and Second Schedule: Land Use Planning Act) is undertaken when the planning area is located in two or more districts within the same region or a combination of regions. The NLUPC and respective regional authorities are responsible for preparing and coordinating implementation of these land use frame work plans.

(iii) District Level Land-Use Planning

District Level Land-Use Planning (Section 32 and Second Schedule: Land Use Planning Act) concerns land issues within the district boundaries which cannot be regulated at the village

and joint village levels because of its geographic extension or importance for the district in general.

Land-use planning and management issues at this level are for instance: the distribution of roads and social services, protection of major water sources, planning of grazing, forest and water catchment areas which cover various villages. District land use framework plans may distinguish planning zones whereby recommendations on land uses are formulated for each zone. These recommendations support decision-making at the lower levels.

(iv) **Participatory Joint Village Land Use Planning**

Joint village land use planning (Section 33 (1)(b) of the Land Use Planning Act) is undertaken when resources (such as micro-catchments, grazing land, water points, cattle tracks and forest) are used by people living in more than one village are shared with other villages. In such a way, these resources have to be planned and agreed upon by concerned village communities. Therefore, Village Councils of the respective villages enter into joint village land use agreements on the use and management of such resources.

(v) **Village Level Land Use Planning**

Village level land use planning (Section 33 of the Land Use Planning Act) is carried out at the village level whereby the whole village community is involved. Village community members designate various land uses of the village that will best meet their needs while safeguarding resources for the future. At this level, agreements and by-laws are formulated to regulate better management of village land.

(vi) **Sub-Village Level**

Sub-village level (or sectoral management) activities cannot be planned at the plot level because of their effect on neighbouring plots. This level is an intermediate between the farm/plot and the village level. Sub-village planning areas can be defined in various ways:

- i. Geographically, by physical features such as hills and gullies, resulting in *micro catchments*, comprising of farms which are hydrologically interdependent;
- ii. Administratively, whereby a village is sub-divided in Hamlets (neighbour-hoods) and/or Village Satellites;
- iii. By dominant land use type, such as farming, grazing, forestry, residential and irrigated areas.

Soil and water conservation measures planned at this level are those which protect several farms at the same time, such as: check dams, cut off drains, contour bunds, infiltration ditches and wind breaks.

(vii) **Plot and Farm Level**

Plot and farm level activities refer to activities carried out on individual plots and farms that do not interfere much with those of the neighbouring plots. This can involve the plot owner dividing the farm into several land uses (residential, crops, horticulture, forest, livestock keeping and grazing, fish farm etc.) and management measures for each land use. Decisions at this level are usually made by the owner(s) of the land, e.g. individual, family or clan elder.

Land management activities at this level are, for instance, those related to crop production such as land preparation, planting, irrigation, fertiliser application, weeding and harvesting. Typical soil and water conservation measures planned at this level are: cut off drains, contour ridges, mulching and green manures.

1.10 Land Use Management According to Bio-Physical and Socio-Economic Environment

Planning goals are more easily met when stakeholders are fully aware of the effects of the identified land use management options. It is the responsibility of the IPVLUPMA team and other technical staff involved to ensure that the identified land use management options are viable so that decision-making by villagers is based on sufficient knowledge, resulting in village land-use plans which are technically sound. This requires a systematic assessment of bio-physical and socio-economic conditions of the area concerned and sufficient knowledge about the implications of the identified land use management options.

Bio-physical environment refers mainly to the conditions related to natural resources such as climate (rainfall, temperature, wind and sunshine), landform (highland, lowland and slope), soils (fertility, texture and erosion), hydrology (drainage, flooding), land use/cover (vegetation, bare lands, water bodies and built-up) and fauna.

Socio-economic environment refers to conditions related to living standard, sources of income, expenditure pattern, market for inputs and products, housing, education, health, local institutions, land tenure, land conflicts, agricultural systems etc.

During the IPVLUPMA process, technical staffs from various sectors use their knowledge and experience to advise and provide technical information to villagers to support decision-making process on the use of land. These include socio-economic surveys and bio-physical

surveys such as land evaluation; land capability classification; and determination of the carrying capacity. Soil surveys may be carried out as part of land evaluation.

Land evaluation method assesses the suitability of the land in an area for different land uses. It is a method whereby the planning area is subdivided in land units based on the results of a soil survey. Each land unit is defined by a set of characteristics (soil fertility, climate, slope, drainage, etc.) important for various land uses. Various land utilisation types are defined (cultivation, grazing, irrigation, forestry, etc.) whereby each utilisation type has a number of land use requirements.

Characteristics of various defined land units in a planning area are compared with the requirements of all desired land utilisation types. When the characteristics of a land unit do not meet the minimum requirements of a specific land utilisation type, that land unit is considered unsuitable for that use. For instance, wetlands in valleys may be suitable for paddy but moderately suitable for maize which needs well drained land. Hilly land can be suitable for extensive grazing and forest, but moderately suitable for maize because of erosion risks, while it is unsuitable for paddy because of water limitations. Various levels of suitability can be distinguished, and expected economic returns calculated for the different land units in an area and land utilisation types (options) considered. This method supports decision-making on how to use different land units in an area for different uses.

Land Suitability Analysis

In summary, land suitability is the fitness of a land mapping unit for a defined use. The rating of classification of the suitability of a particular land mapping unit, depends on the extent to which its qualities satisfy the land use.

The tracts of land being used for the suitability assessment are the mapping units. Matching leads to a suitability classification which recognises four classes (Table 1).

Table 1: Land suitability classes

Class	Suitability	Description
S1	Highly suitable	Land having no significant limitation, to sustained application of a given use, or only minor limitations that will not significantly reduce productivity or benefits and will not raise inputs above an acceptable level.
S2	Moderately suitable land	Land having limitations which in aggregate are moderately severe for sustained application of a given use, the limitation will reduce productivity or benefits and increase required inputs to the extent that the overall advantage to be gained from the use, although still attractive, will be appreciably inferior to that expected on class S1 land.
S3	Marginally suitable	Land having limitations which in aggregate are severe for sustained application of a given use and will reduce productivity of benefits, or increase the required inputs, that this expenditure will be only marginally justified.
N	Not suitable	For the purpose of this study, this class refers to land having limitations which appear currently severe as to preclude any possibilities of successful sustained use of the land in the given manner. In the final classification, the most

		limiting factor(s) for the given kind of land use are indicated as letter suffixes of the final suitability class.
--	--	--

Land capability classification. In this method, land is often classified in eight classes according to its degree of limitation for a number of general land-use categories. These categories may be: annual crops (maize, sorghum, sweet potatoes, etc.); semi-perennial and perennial crops (banana and coffee respectively, etc.); pasture; forestry; and reserved (no significant utilisation recommended). Limitations may refer to: topography (slope and erosion); soils (soil depth, texture, stoniness, nutrient contents, toxicity (alkalinity or acidity), drainage, flooding risks, climate (rainfall, temperature and humidity) as exemplified in Table 2.

Table 2: Land Capability Classes

Land capability class	Degree of limitations (not worked out)	Capability	Example
I	Few Limitations	For all land uses, with normal land management practices	Nearly level, deep, well-drained, and productive
II	Little Limitation	For all land uses, but moderate conservation practices in case of annual crops	Slightly sloped, moderate erosion hazard, occasionally flooding
III	Severe Limitations	For all land uses, but intensive conservation practices in case of annual crops	Steeper slopes, greater erosion hazards, wetness
IV	Very Severe	For all land uses, but	Steeper slopes,

	Limitations	annual crops on occasional basis only and with intensive conservation practices	severe erosion hazards, wetness
V	Other Limitations	Best used for pasture,	Frequently wet, stony
VI	Severe Limitation	For pasture and (semi-) perennial crops with moderate conservation practices and forestry	Steep slopes, severe erosion, shallow depth,
VII	Very severe Limitations	For forestry only	Very steep slopes, severe erosion,
VIII	Extremely severe	Very extensive utilisation only (reserve/wildlife)	Very fragile lands

Therefore, Section 27 of the land use planning act cap 116 requires all land use planning authorities in respect of the planning area or zone, prepare a land suitability assessment consisting among other things, a description and analysis of the current use and general condition of the land and the suitability of the land for the proposed land use plan.

1.11 Land Use Planning, Environmental Management and Climate Change

Land use planning, management and administration process involves identification of key environmental challenges related to different land uses in the village. These problems must be addressed so that the ecosystem is balanced and the community lives in a

harmonised way in line with regulatory frameworks. Major national and sectoral policies and legislations which are relevant to environmental and social issues pertaining to land use include National Environmental Policy (2021), The National Land Policy 1995 (edition 2023), National Water Policy (2002), National Human Settlements Policy (2000), The Land Act Cap 113, The Environment Management Act Cap 191, The Village Land Act Cap.114 and The Land Use Planning Act Cap.116, National Climate Change Strategy, National Environmental Action Plan III (2020-2025), Guideline for Integrating Climate Change Adaptation into National Sectorial Policies, Plans and Programmes of Tanzania of 2012, and National Climate-Smart Agriculture Programme (2015 – 2025).

At the village level, environmental and climate change issues should be identified and documented during land use planning process. Adaptation and mitigation measures for such issues should be reflected in the Community Action Plan (CAP) for implementation and management of the village land use plan. Environmental and climate change issues can vary depending on the nature of the village and various factors such as: -

- (i) Natural resources
- (ii) Contiguous to protected areas (wild life, forestry etc.)
- (iii) Contiguous to urban development
- (iv) Mining activities
- (v) Commercial investment (large and medium scale farming, ranching, industrial development etc.)
- (vi) Coastal and marine resources
- (vii) Socio-economic infrastructures
- (viii) Land management measures and practices.
- (ix) Climate
- (x) Landform
- (xi) Customs and traditions

- (xii) Proximity to hazardous areas
- (xiii) Livelihood activities

Also, during village land use planning process, occurrences of climatic hazards (such as floods, drought, strong winds and outbreak of pests and diseases) in terms of frequency (in a decade), intensity and coverage area, should be identified together with their related impacts to the environment. Villagers should be assisted and equipped to identify, document, plan and implement practical adaptation and mitigation measures for such climatic hazards. For better planning, it is recommended that, data of at least 30 years back, should be collected and documented specifying month(s) of occurrences of such climatic hazards.

1.12 Resources Mobilisation and Funding for IPVLUPMA

Recognising the importance of integrated and participatory land use planning, management and administration in promoting sustainability of the environment and improvement of rural livelihoods, adequate funding of village land use planning is needed. Thus, stakeholders from the Government (MDAs and LGAs), private sectors and civil society organisations, should prioritise and allocate adequate funds for land use planning as an important component in socio-economic development as well as environmental and natural resources management. That is, land use planning and management should be integrated into sectorial development plans and programmes being implemented across the country and any investment on land should be preceded with land use planning. The socio-economic value of land use could well be understood if the following three aspects are strategically integrated:

- (i) **Land use planning** mitigates land use conflicts, and brings peace and harmony through participatory land categorisation, identification and demarcation of sectoral

land (agriculture, livestock, forestry, wildlife, settlement, infrastructure etc. Provides security and confidence for long term investment for the allocated land use.

- (ii) **Land administration** enhances security of tenure, through registration and titling in which user conditions are adopted from the land use plan. The title deeds can be used as collateral for mortgaging and securing capital investment for production implements and land management infrastructure.
- (iii) **Land use management** through coordinated sectoral management practices, to improve sustainable optimal production and use of land through extension services, innovations, and appropriate land husbandry. Sustainable optimal production and use of land, provides bases for economic development and livelihood, and empowerment for communities to improve socio facilities and infrastructure.

PART B

STEPS FOR INTERGRATED AND PARTICIPATORY VILLAGE LAND USE PLANNING, MANAGEMENT AND ADMINISTRATION



STEP 1

PREPARATIONS FOR VILLAGE LAND USE PLANNING



The Land Use Planning Act Cap. 116 mandates the District Council as a Land Use Planning Authority in its area of jurisdiction to establish inter-sectoral coordination that facilitates Village Land Use Planning, Management and Administration as well as ensuring establishment of a District PLUM team (As explained in 1.2 of this Step)

1.1 Objectives

To enhance the role and responsibility of the Regional Secretariat in land use planning, management and administration.

To affect the District Land Use Planning Authority.

To establish and build capacity of the District IPLUM team.

To enhance coordination and co-operation among sectors and institutions within and outside the district.

To update or establish village boundaries.

To prepare a base map.

To carry out reconnaissance survey.

To prepare an action plan for IPLUM

To prepare and agree on a plan of operation priority villages

1.2 Activities

1.2.1 Organise and Conduct a District PLUM Workshop

The initial step should be to build capacity at the regional level to realize its role as per Section 20 of Cap 116 in relation to co-ordination of the preparation and implementation of land use plans by the district councils in the respective region. The NLUPC in collaboration with the Regional Secretariat should prepare education, information and communication programmes to sensitise the public on land use planning activities.

The NLUPC with the respective Regional Secretariat should organise and conduct a District PLUM workshop in order to sensitise the District Council to effect its mandate as a District Land Use Planning Authority. The workshop should involve District leaders i.e. Councillors, DC, Council Management Team, Technical staff and NGOs, CBOs, Projects dealing with land resources. In this workshop, facilitators should be able to assess and determine the perceptions, willingness and commitment of the district council to participate in planning and implementation of the plans.

District Land Use Planning Authority (DLUPA): The NLUPC should sensitise 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 Cap 116 which among other things, mandates the District Council to:

- (i) Prepare a district land use framework plan
- (ii) Ensure co-ordination and systematic physical development at the district level;
- (iii) Ensure inter-sectoral co-ordination; and
- (iv) Co-ordinate village land use plans.

Budgeting and Funding for Land Use Planning and Management: In conducting this workshop, the District Land Use Planning Authority should be facilitated to realise the need of using integrated and participatory land use planning as a tool for designating land for sectoral uses so that respective sectors can embark on land management with assurance. It should guide sectoral projects and programmes in the district [such as Wildlife Management Areas (Wildlife), Participatory Forest Management (Forestry), Agricultural Sector Development Programme

(Agriculture, livestock and Fisheries), Water Sector Development Programme (Water), Global Environment Facility, and mining] to budget and fund for integrated participatory land use planning and management as entry point for natural resources management and sustainable socio-economic development (Ref. Part A - Section 1.11).

Similar engagement must be made with the private sector, NGOs and CBOs on the increasingly dynamic role of land use planning on socio-economic development. Through these sources, the district can budget for and prepare a District Land Use Framework Plan, showing environmental and socio-economic profiles of the district to be considered during preparation and implementation of village land use plans.

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 that covers all stages (1 to 6) covering all villages in the district; and henceforth prepare an intervention action plan. If there are many villages (>10) prioritised by different sectors and programmes, the District PLUM team should be assigned to develop selection criteria and plan of operation in the selected villages; and present these later to DLUPA for approval as shown in Table 3 of Part B.

Before commencement of fieldwork, the GIS team should acquire relevant data (standard topographical sheets, satellite imageries if available, boundary maps, demographic data/maps,

infrastructure maps, district vegetation and land form maps if available) for preparation of base maps (Refer to Section 1.2.3 of part B).

At District level, the NLUPC should continue to facilitate and build capacity for districts to establish and maintain District Land Use Management Teams (Ref. Section 1.6 of Part A), which are integrated working instruments for assisting and facilitating districts in preparing district land use framework plans, village land use plans, monitoring and evaluating their implementation.

1.2.2 Establish a District PLUM team

During the IPVLUPMA 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 IPVLUPMA team and ensures that the required support in terms of funds, materials and manpower is available throughout implementation. The IPVLUPMA team shall consist of 8-10 members of different disciplines and various professionals will be temporarily involved when their skills are required depending on the nature of work and budget. For each village, the minimum of one member and maximum of two PLUM members are allowed to be involved in the execution of village land use plan assignment. Rotation of the professionals in the PLUM team for each is allowed depending on specific issues in the village and the extent of work. This interdisciplinary working method improves the efficiency of the available human resources. The profile of the IPVLUPMA team should be composed of the following qualifications:

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

IPVLUPMA Team members should be technical officers from land use related and other cross-cutting sectors i.e. Lands, Agriculture, Livestock, Forestry, Infrastructure (roads), Wildlife, Water resources, Environment, Community Development, Fisheries, Bee-keeping, Finance and Planning and Legal. At least two members should be conversant with GIS applications to support the team with map preparations. The IPVLUPMA team selection should consider gender representation and addressing gender inclusiveness at the village level. A village extension officer or ward level experts residing in the village or nearby, can be included in the PLUM team and/or join the VLUM committee as an advisor (Refer to Section 2.3.1 of Step 2). Such a person can easily follow-up after PLUM has been introduced in the village.

The aim of establishing a District IPVLUPMA team is to enable integration and coordination of sectors to facilitate land use related interventions in villages. This IPVLUPMA team is not a separate and independent unit.

Land use planning, administration and management activities will be under the department responsible for land in the District Council. The District Town Planning Officer (DTPO) will lead and coordinate the IPVLUPMA team and be a contact person to the Regional Secretariat and the NLUPC by giving feedback on the status of implementation of land use planning activities in the District. In the absence of the DTPO, any IPVLUPMA team member with skills and adequate experience can lead and coordinate IPVLUPMA process and activities. Also, depending on the availability of professionals and a need to implement multiple programmes in the district, then multiple IPVLUPMA teams can be formed. Also, if the district does not have all the required professionals for establishing an IPVLUPMA team, such district can borrow staff from neighbouring districts to take part in the facilitation of the IPVLUPMA process in such district.

The roles and responsibilities of the PLUM team will be as per Section 21 and 27 of Cap 116, which are;

- (i) To prepare district land use framework plans,
- (ii) To prepare land suitability assessment,
- (iii) To ensure coordination and systematic physical development at the district level,
- (iv) To ensure inter-sectoral coordination of land use planning activities, and
- (v) To coordinate preparation of village land use plans.

After the members for the PLUM team have been selected, the NLUPC and Region Secretariat facilitators should familiarise them with PLUM tasks ahead for interventions in the villages. This can be accomplished through 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.

1.2.3 Capacity building to PLUM team

The facilitators should train the District PLUM team to be able to use the National Land Use Information System (NLUIS), conduct public awareness to the Village Council and the Village Assembly on the following themes:

- (i) Land and natural resources policies, legislation and guidelines, Management and administration of village land,
- (ii) Sustainable economic development, environmental conservation, disaster management and managing climate change (issues related to climate smart agriculture and livestock keeping),
- (iii) Production system adjudication of interests in land (spot and systematic adjudication),
- (iv) Issuance and management of CCROs,
- (v) Land disputes settlement mechanisms,
- (vi) Gender inclusiveness in land use planning, administration and management,
- (vii) Importance and process of village land use planning and management,
- (viii) Land use rights versus mineral, oil and gas prospecting activities.

N.B. PLUM facilitators should refer and use the Villagers PLUM Guidebook (Kiongozi cha Mwanakijiji), the Education Guide of the Village Land Act and other relevant Sector guidelines.

1.2.4 Prepare a Village Base Map

A village base map is a result of combining the village boundary 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. Physical features details can be obtained by either using Topographical Standard Sheets or Satellite Images. These topographical standard sheet (1:50,000 or 1:250,000) can be obtained from relevant authorities (Surveys and Mapping Division or Geological Survey of Tanzania) with sheet index number for respective villages. The Village Base Map should be prepared using appropriate scale depending on the paper size and size of the village land. (This can range from Scale of 1: 10,000 to 1: 100,000).

N.B. The village base map 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.

1.2.5 Completing Plan of Operation in Priority villages and registering in the NLUIS

Before commencement of fieldwork, one facilitator (if required) and at least two PLUM members should carry out a reconnaissance survey to the selected/targeted and neighbouring villages. The main objective of this survey is to ascertain if there exists village boundary conflicts and availability of village council members to take part in the village land use planning. Thereafter, the selected villages (project) should be registered in the NLUIS.

<p><i>Checklist for reconnaissance survey</i></p> <p><i>Assess the presence of Village Government</i></p> <p><i>Status of village land use plan</i></p> <p><i>Status of village boundary</i></p> <p><i>Identify the existence of land use conflicts</i></p> <p><i>Presence of Village Base Map</i></p> <p><i>Identify categories of land in the village</i></p> <p><i>Identify major economic activities in the village</i></p> <p><i>Identify shared ecological resources and infrastructures between villages</i></p> <p><i>Willingness of the villagers to participate in planning and implementation of the plan</i></p> <p><i>Purpose of village land use plan</i></p>

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

- (i) The urgency of integrated and participatory land use management in a village. Specific criteria include:
 - (i) Pilot implementation of sectoral projects and land-based investments;
 - (ii) 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);
 - (iii) Occurrence and intensity of environmental degradation (such as soil erosion, soil mining, and destruction of

woodland and depletion of water resources), pollution, disasters and climate change impacts.

- (ii) Presence of factors that limit or facilitate a successful implementation of PLUM in a village. Specific criteria include;
 - (i) Efficiency of the leadership in a village (conflicts or laxity on the leadership level can frustrate the implementation of PLUM);
 - (ii) Activities of other projects in a village (which can be a facilitating as well as limiting factor);
 - (iii) Presence of village extension staff residing in or in a nearby village and who can become a member of the PLUM team;
 - (iv) Accessibility of the village throughout the year, travel distances and/or possibility for the PLUM team and associated members to stay in or nearby the village;
- (iii) The impact of successful establishment of PLUM system and practice in a village for the district in general.
 - (i) Additional considerations include: Population, land area, its administrative function (as ward or divisional headquarters), its economic significance (its importance as a producer of crops or livestock, etc.) and its environmental significance (as important water catchment).

The way the criterion 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 that 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 Cap 114 provides procedures for joint land use management agreements between villages if they use and share land resources such as forest, grazing land, basin and irrigation infrastructures. One could think about the conservation of a micro-catchment area or the communal use of woodland in hills and grazing areas or water points. 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 3.

Table 3: 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 that have scored highest can be considered as priority villages mean while other villages will be assisted later. This ranking is only a tool to facilitate the prioritisation and is not necessarily decisive.

After selecting the intervention villages, the Action Plan should be prepared (Table 4) 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 (such as roads, contours and water bodies) digitised to get the village base map ready for use in Step 3.

1.2.6 Mapping of 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 surveyed by District Council and the Ministry of Lands. 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 DLDO or such activity can be incorporated in the action plan for interventions in such villages. A village boundaries map (Survey Plan) is obtained from the DLDO, ACL or MLHSD 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 make it be used in a computer.

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 Local Government (District Authorities) Act, 1982 RE 2005; 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 was 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 of representatives from each village, selected by the respective Village Council. The team and a surveyor visit 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/MLHSD can be involved in surveying the village boundaries

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 do not reach an

agreement, the Ministry of Lands should be consulted for procedures prescribed in Section 7(2) of the Village Land Act.

1.2.7 Prepare an Action Plan for Intervention in Villages

In the first 5 days, sensitisation at the district level should be undertaken to build awareness to the district leaders and relevant stakeholders on IPVLUPMA activities. Also, the District PLUM team should be facilitated to prepare a work plan, which at this stage, will cover fieldwork activities 3 – 10 (Refer to Table 4).

For a District undertaking land use planning for the first time, 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 2 villages at one time. This means that, the District PLUM team should form 2 groups with each group consisting of at least 1 GIS expert.

Furthermore, to start drafting the village land use plan, it requires that the existing village land use map (including acreage for each land use), should be completed and available as a basis of discussion for changes and suggestions. However, the 3 days' time allocated for this activity is usually enough for the Data Collection and Resource Assessment (DCRA) team to complete details data picking, and usually not enough for the GIS team to complete the village's existing land use map. Again, for effective and efficient use of resources, it is recommended for the DCRA teams to start undertaking activity No. 6 (Refer to Table 4) 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.

Table 4: Action Plan for Preparations and Interventions in Villages

No.	Activity	No. of Days	Responsible	Output
(i)	Conduct District PLUM Workshop and form District PLUM Team	1	District leaders (DC, DED), DAS, MPs, Councillors, HoDs, District Technical Staff, NGOs, CBOs, NLUPC Facilitator, RAS Facilitator	Awareness created and District PLUM team in place
(ii)	(i) Conduct training to PLUM Team, (ii) Prepare base maps and conduct reconnaissance survey (iii) Preparation of field action plan	4	PLUM team, NLUPC Facilitators, Ass RAS Facilitator	PLUM Team trained, Base map prepared, reconnaissance survey done and action plan prepared
(iii)	Conduct public awareness and capacity building to Village Council and VLUMC and initiate preparation of signboards	3	PLUM team, NLUPC Facilitator, Villagers, WEO, Village Land Council, VC and VLUM	Village Sensitisation meetings conducted and VLUMC formulated
(iv)	Data collection and resources assessment (gathering and	4	PLUM team, NLUPC Facilitator, VC and VLUM	Primary data collected and compiled. CAP and SWOT in place.

	compiling primary data for analysis, conducting SWOT analysis and preparation of the CAP)			Village resource map prepared
(v)	Detailed data picking for preparation of maps (existing land use, bio-physical, hazardous areas and land form maps) analysis of data collected and preparation of draft VLUP report	3	PLUM team, NLUPC Facilitator and VLUM,	First draft of VLUP report in place with all relevant maps (location map, administrative setup map, drainage map, land cover map, population distribution map, human settlements distribution map, population density map, hazardous areas map, resource map, existing land uses and landform, livestock distribution map and livestock population density maps)
(vi)	Preparation of proposed Land Use Plans and proposing (enacting) village land use by-laws	2	PLUM team, NLUPC Facilitator, WEO, VC and VLUM	A draft of proposed land use plan and by-laws in place
(vii)	Surveying of the proposed land uses and preparation of proposed land use plan maps	2	PLUM team, NLUPC Facilitator and VLUM	Proposed land use plan map in place

(viii)	Compilation of data, information and maps for preparation of a 2 nd draft of Village Land Use Plan report	1	PLUM team, NLUPC Facilitator,	Second draft of VLUP report in place,
(ix)	Presentation and approval of Village LU Plan & By-laws by Village Assembly	1	PLUM team, NLUPC Facilitator, Villagers, WEO, Village land Council, VC and VLUM	Approved village land use plan and By-laws
(x)	Erection of VLUP Sign boards and submission of Draft VLUP reports to VEO	1	NLUPC Facilitator, PLUM team, VLUM	Land use signboards erected
(xi)	Submission of VLUP and by laws to the Ward Development Committee (WDC) and District Council		PLUM team, WEO,	Approved VLUP and by laws by the WDC and District Council
(xii)	Monitoring and Evaluation of Steps 1 – 4.		District PLUM team, NLUPC Facilitator,	Final field work report reflecting performance or execution of the action plan (Step 1 – 4). Way forward or roadmap for undertaking step 5 and 6

Note: Activity 1 in Table 3 above is undertaken only once in a district

Activity 2(a) in Table 4 above requires only 2 days but it can be skipped if the PLUM Team has the capacity to undertake PLUM activities.

1.3 Required Inputs and Quantity

From the above action plan, it is expected that resources required for implementation of Step 1 – 4 should be planned for and made available during this Step. This is because; Steps 2 – 4 are implemented concurrently in fieldwork, as shown in the action plan. Table 5 gives the required inputs (human, materials and equipment's) and quantities for budgeting in Step 1 – 4.

Table 5: Required Inputs and Quantities for Budget of PLUM

No.	Activity	Inputs Required	Quantity	Days
(i)	Conduct District PLUM Workshop	1.1 Subsistence allowances		
		NLUPC Facilitators	2	3
		Driver for NLUPC Facilitators	1	3
		Councillors	All	2
		CMT	All	1
		NGOs & CBOs – land use based	4	2
		DC & DAS	2	1
		Driver for DC & DAS	2	1
		RAS	1	2
		Driver for RAS	1	2
		Assistant Commissioner for Lands	3	2
		Driver for ACL	1	2
		1.2 Conference services		
		Food and refreshments for all participants	All	1

No.	Activity	Inputs Required	Quantity	Days		
		Stationeries	Lumpsum			
		Workshop materials (PLUM Guidelines, Kiongozi cha Mwanakijiji, Policies and Legislations)	Lumpsum			
		1.3 Transport and Vehicle Maintenance				
		Fuel for NLUPC Facilitators vehicle (to and from the DHQ – 1 litre for 6 Km	Depending on distance to the DHQ	2		
		Fuel for RAS vehicle (to and from the DHQ – 1 litre for 6 Km	Depending on distance to the DHQ	2		
		Transport fare (As per GoT transport rates)	Councillors , ACL, NGOs and CBOs	2		
		Vehicle maintenance (depending on distance and vehicle's condition)	Lumpsum			
		1.4 Mass media programmes				
		Programme preparation	Lumpsum			
		Airtime on Tv (3 Tv station)	1	1		
		Awareness campaigns on radio stations (3 radio stations)	2	4		
		(ii)	Capacity building to the District PLUM team	2.1 Subsistence allowances		
				NLUPC Facilitators	2	4
Driver for NLUPC Facilitators	1			4		
2.2 Conference services						

No.	Activity	Inputs Required	Quantity	Days
		Food and refreshments for all participants	15	4
		Stationeries (notebooks and pen)	13	1
		Workshop materials (PLUM Guidelines, Kiongozi cha Mwanakijiji, Policies and Legislations)	10	1
		3.3 Transport and Vehicle Maintenance		
		Fuel for NLUPC Facilitators vehicle (round trips- 1 litre for 6 Km)		4
(iii)	Conduct reconnaissance survey	3.1 Per-diems		
		NLUPC Facilitators	2	2
		PLUM Team members	2	2
		Driver	1	2
		3.2 Stationeries		
		Stationeries	Lumpsum	
		3.3 Transport and Vehicle Maintenance		
		Fuel for 1 vehicle (litres per day)	40	2
(iv)	Conduct public awareness and capacity building to Village Council, village assembly, VLC and VLUMC and	4.1 Subsistence allowances		
		NLUPC Facilitators	2	2
		PLUM Team	8 to 10	2
		Driver	2	2
		Councillor (s)	2	1
		WEO	1	1
		VLUM team	9	1
		Village Council	26	2
		Village land council	7	1

No.	Activity	Inputs Required	Quantity	Days
	initiate preparation of signboards	4.2 Stationeries		
		Stationeries (masking tape, flip charts, maker pen, ream paper, carbon paper, notebooks and pen)	Lumpsum	
		4.3 Fuel for field work		
		2 Vehicles – 1 litre for 6 Km	Depending on distance from the DHQ to the village	2
(v)	Data collection and resource assessment, compiling primary data for analysis, conducting SWOT analysis and preparation of the CAP) and initiate VLUP report writing	5.1 Subsistence allowances		
		NLUPC Facilitators	2	4
		PLUM Team	8 to 10	4
		Driver	2	4
		VLUM team	9	4
		VEO & Village Chairperson	2	4
		Hamlet chairpersons	Depending on the number of hamlets	4
		5.2 Fuel for field work		
	2 Vehicles – 1 litre for 6 Km	Depending on distance from the DHQ to the village	3	
(vi)	Detailed data picking for preparation	6.1 Per-diems and Allowances		
		NLUPC Facilitators	2	2

No.	Activity	Inputs Required	Quantity	Days	
	of maps (existing land use, bio-physical, hazardous areas and land form maps) analysis of data collected and initiate VLUP report writing	PLUM Team	8 to 10	2	
		Driver	2	2	
		VEO & Chairperson	2	2	
		Hamlet Chairpersons	Depending on hamlet number		
		VLUM team	9	2	
		6.2 Fuel for field Trips			
		2 Vehicles – 1 litre for 6 Km	Depending on distance from the DHQ to the village	2	
	Fuel for field work	25-30 litres per vehicle	2		
(vii)	Preparation of Proposed Land Use Plans and Proposing (enacting) village land use by-laws	7.1 Subsistence allowances			
		NLUPC Facilitators	2	2	
		PLUM Team	9	2	
		Driver	2	2	
		VLUM team	9	2	
		WEO	1	2	
		Councillor(s)	2	2	
		Stakeholders	2	2	
		Village Council	26	2	
		7.2 Fuel for field Trips			

No.	Activity	Inputs Required	Quantity	Days
		2 Vehicles – 1 litre for 7 Km	Depending on distance from the DHQ to the village	2
		Fuel for field work	25-30 litres per vehicle	2
(viii)	Picking of the proposed land uses and preparation of proposed land use plan maps	8.1 Subsistence allowances		
		NLUPC Facilitators	2	2
		PLUM Team	9	2
		Driver	2	2
		VEO & Village Chairperson	2	2
		Hamlet Chairpersons	Depends on hamlet number	
		VLUM team	9	2
		8.2 Fuel for field Trips		
		2 Vehicles – 1 litre for 7 Km	Depending on distance from the DHQ to the village	2
		Fuel for field work	25-30 litres per vehicle	2

No.	Activity	Inputs Required	Quantity	Days
(ix)	Compilation of data, information and maps for preparation of the 2 nd draft of Village Land Use Plan report	9.1 Subsistence allowances		
		NLUPC Facilitators	2	1
		PLUM Team	9	1
		Drivers	2	1
(x)	Presentation and approval of Village LU Plan & By-laws by Village Assembly	10.1 Subsistence allowances		
		NLUPC Facilitators	2	1
		PLUM Team	9	1
		Driver	2	1
		WEO	1	1
		Councillor (s)	2	1
		Village Council	26	1
		VLUM team	9	1
		10.2 Fuel for field Trips		
2 Vehicles – 1 litre for 6 Km	Depending on distance from the DHQ to the village	1		
(xi)	Erection of VLUP Sign boards and submission of Draft VLUP reports to	11.1 Subsistence allowances		
		NLUPC Facilitators	2	2
		PLUM Team	9	2
		Drivers	2	2
		VLUM team	9	2
		VEO & Village Chairperson	2	2
		1.2 Fuel for field Trips		

No.	Activity	Inputs Required	Quantity	Days
	VEO	2 Vehicles – 1 litre for 6 Km	Depending on distance from the DHQ to the village	2
		Fuel for field work	25-30 litres per vehicle	2

Note:

- (i) Estimated number of days for undertaking different activities can vary depending on the application of different tools and approaches for village land use planning.
- (ii) Planning authorities should consider involvement of other community members such as traditional leaders and other social groups (other than those specified in Table 4) who have enough knowledge of the village and can be useful in providing inputs during village land use planning process. Also, institutional experts other than those from the district council (such as TFS, TAWIRI etc.) can be involved to offer more expertise in the planning process.

Major outputs of this step are:

- (i) Effective District Land Use Planning Authority;
- (ii) An increased awareness among the District Council staff and other stakeholders regarding the benefits of participatory and integrated approaches in land use planning and management;

- (iii) Efficient District PLUM team;
- (iv) A realistic plan of operation and intervention in priority villages that is supported by the district authorities and related institutions;
- (v) Funds and human resources are allocated as envisaged in the action plan and the plan of operation;
- (vi) Village boundary and village base maps are in place and ready for use in Step 3.

1.4 Monitoring and Evaluation (M&E)

M & E is done in each step to assess whether activities are carried out according to the action plan, objectives are reached and if corrective measures have to be taken (also see Section 1.5 of Part A). However, since the action plan outlined in this Section combines conducting activities of Step 1-4 simultaneously, it is recommended to conduct M&E during and at the end of each step (on-the-field monitoring) as well as at the end of step 4 as indicated In Table 3.

STEP 2

DATA COLLECTION AND RESOURCE ASSESSMENT FOR LAND USE PLANNING AND MANAGEMENT



After completion of activities in Step 1, the IPVLUPMA team will visit the selected villages in order to undertake data collection and resource assessment focusing on land use management plans. This should be preceded by sensitisation on IPVLUPMA concept and raising awareness of villagers on land, natural resources and environmental policies and legislations.

2.1 Objectives

- To introduce and raise awareness of villagers on land, natural resources and environmental policies and legislations
- To introduce PLUM concept and activities to the villagers
- To form a village land-use management (VLUM) committee with gender inclusiveness
- To facilitate villagers to analyse and evaluate land uses and environment problems and opportunities
- To facilitate villagers to prepare a community action plan for land-use planning and management
- To facilitate villagers to obtain baseline data about the village and its environment
- Establishment and verification of village boundaries

2.2 Conditions to Start

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

- (i) A formed, efficient, and operational multi-sectoral District PLUM team.
- (ii) Resources allocated and plan of operation prepared for implementing Step 2-4 in the selected villages.
- (iii) The Village Council should be officially informed. Date and time set and agreed for Village Council and Village Assembly's introductory meetings.

2.3 Activities

2.3.1 Conduct Introductory Meetings with Village Council and Village Assembly

The District PLUM team should meet with the Village Council and Village Assembly to introduce PLUM concept and activities to the villagers. Also, the PLUM Team introduces and raises awareness of villagers on land, natural resources and environmental policies and legislations. By following the action plan prepared in Step 1 (Table 3), Village Land Council members, elected and functioning according to the Village Land Act Cap 114 and The Courts (Land Disputes Settlements) Act Cap 216, should be invited in these meetings to build their capacity.

2.3.1.1 Introductory Meeting with the Village Council

Themes of this meeting include:

- (i) Introduction of the PLUM team;
- (ii) Understanding the Concepts of the Participatory land use and management;
- (iii) Awareness creation on Land Policies and Legislations;
- (iv) Understanding the importance and process of village land use planning and management including data collection and resource assessment process;
- (v) Land use rights and other natural resources
- (vi) Sensitisation of community on socio-economic development, environmental conservation, disaster management and climate change adaptation and mitigation;

- (vii) Establishment of Village Land Use Management Committee (VLUMC).
- (viii) Gender inclusiveness in village land use planning process
- (ix) identification and establishment of key and influential stakeholders (e.g. traditional leaders, religious leaders) basing on burning issues .

Establishment of VLUM Committee

Section 111 of the Local Government Act (Cap. 287 R.E. 2023) empowers the Village Council to establish committees as it deems necessary. For the success of IPVLUPMA, it is important to form an efficient and well balanced VLUM committee of 6-9 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:

- (i) Living in the village, energetic, motivated and responsible;
- (ii) Having good relationship with the village community, knowledge of different land uses in the village;
- (iii) Some members should have knowledge of village boundaries;
- (iv) Able to speak Kiswahili and the local language;
- (v) Ability to read, write and make simple calculations is an added advantage;
- (vi) Village Land Council members should not be appointed in this committee

The PLUM team should build capacity to the VLUM committee, Village land Council and Village Council about PLUM, the PRA exercise and the role which they will play to facilitate the whole PLUM process (Appendix C). During land registration, the VLUMC can be appointed to assume the role of the Village Adjudication Committee.

2.3.1.2 Introductory meeting with the Village Assembly

Themes of this meeting include:

- (i) Introduction of the PLUM team;
- (ii) Understanding the Concepts of Participatory land use and management;
- (iii) Understanding the importance and process of village land use planning and management including data collection and resource assessment process;
- (iv) Sensitisation of the community on socio-economic development, environmental conservation, disaster management and climate change adaptation and mitigation;
- (v) Introduction and approval of the Village Land Use Management Committee (VLUMC).
- (vi) Introducing influential stakeholders

2.3.2 Data Collection and Land Resource Assessment

After conducting the introductory meetings and capacity building to VC and VLUM committee, the DCRA/PLUM team will convene with the Village Council and VLUMC, collect data and assess the available resources within and surrounding the village. It is recommended to work into groups depending on the number and neighbourliness 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 (PLUM team) should also divide themselves to join these groups.

Working in two groups is more convenient and provides an opportunity for each group to report and present its report using the 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. Working in more than two groups is discouraged as it will take more time in presentations, thus resulting into delaying the process.

The main task in these groups is to collect, analyse and document village land uses and resources data, trends and variables using questionnaires (Refer to Appendix A of which a soft copy should be available to the PLUM team). Participatory data collection tools such as dialogue, group work, learning café, river of life, focus group discussion and timeline, can be used to collect and document data.

Filling and editing of the questionnaire are the basis for the Village Land Use Plan report; thus, the preparation of the questionnaires should focus and include aspects of the village land use plan as shown in Appendix A of this Guideline and Part A of Third Schedule of the Land Use Planning Act Cap 116. Gathered data should be presented onto flip-charts or any other available materials during presentations.



Plate 4: Villagers during data collection and resource assessment process

2.3.3 Preparation of a Village Resource Map

During data collection, analysis and assessment of village resources, villagers are guided by the PLUM Team to prepare a village land resource map indicating resources they have identified; to come up with the Village Resource Map within and outside the village boundary. Participatory Landscape resource mapping is a valuable process for better understanding and developing sustainable landscape management within village land use planning. It is a good starting point for discussing important resource and land-based issues and it provides space for communities to more strongly contribute to planning and decision-making processes. It also helps to introduce and explore the concepts of mapping to communities, thus enabling them to display

resource distribution (including shared resources across villages) and identifying key and important features.



Plate 5: Villagers Sketching Village Resource Map Using Satellite Images

The resource map provides a visual record of the area and its resources. It can thus be used to identify and understand diverse landscape resource uses, locations, access and resource seasonality including information on market infrastructure, land use boundaries, wildlife and livestock routes. Focused discussions that take place during and after the mapping exercise can identify landscape management problems, challenges and options for

solutions for the better and more sustainable management of landscape resources.

Villagers will be assisted to sketch and draw specialised resource maps such as the livestock mobility routes and village hazard map depicting different hazardous areas in the village such as steep slopes, wetlands and eroded areas (Refer to Plate 7). If there is a Village Resource Map drawn from another programme or project, it can be adopted or updated for use.

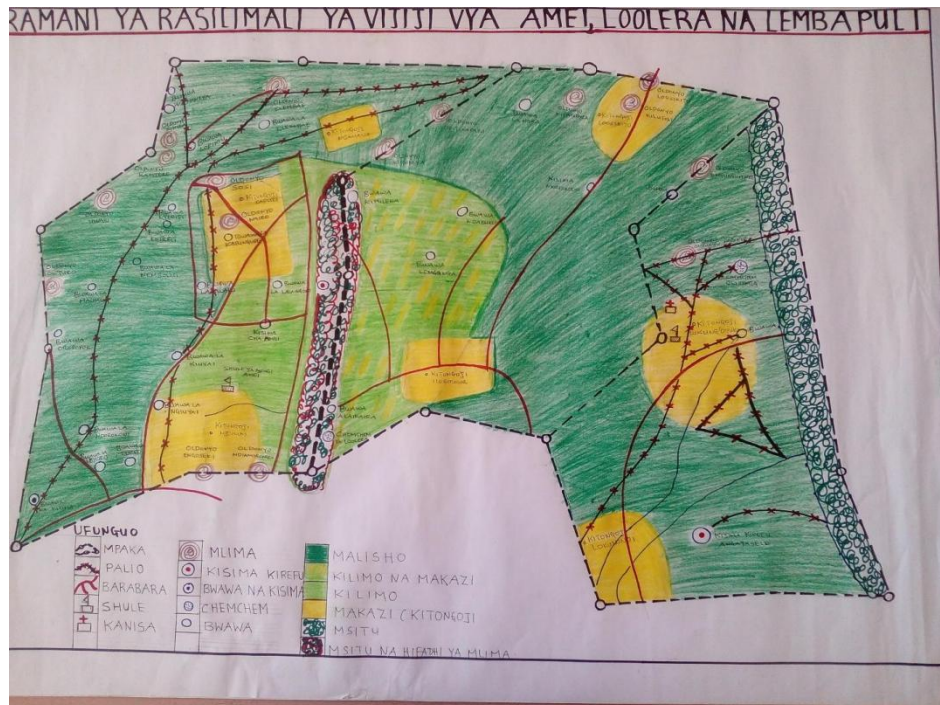


Plate 6: Example of a Village Resource Map of Amei, Loolera and Lembapuli Villages in Kiteto District

NB: For more details on participatory tools for data collection and resource assessment/mapping, refer to ‘Tools and Spatial Technologies for Village Land Use Planning: A Practitioner’s Manual for Active Community Engagement, 2019’

2.3.4 Analysis of PLUM Challenges, 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 on land use and environmental related challenges/problems that affect the livelihoods and prosperity of villagers. They should be able to relate the existing data/situation they have documented with a problem as exemplified in Table 6.

Also, villagers should be facilitated to analyse problems/challenges, opportunities and weaknesses/obstacles (SWOC Analysis). For example; famine and drought can be a result of deforestation and land degradation. Problems can be analysed by relating them with the opportunities available within and outside the village to solve the problem and remove the obstacles which are limiting the village from using those opportunities. For example, opportunities to solve low crop production problem can be availability of land, ward extension officer, farm implements fund; whereas obstacles that prevent the villagers from using 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 flip chart or any

available material for presentation during plenary in a matrix format as exemplified in Table 6.

Table 6: Example of Challenges, Opportunities and Obstacles

No.	Challenges	Opportunities	Obstacles
(i)	Low crop and livestock production	Availability of land, Presence of Ward Extension Officer and Farm Implements fund	Land use conflicts, Lack of transport, Low knowledge of improved production Lack of collaterals
(ii)	Land use conflicts between farmers and Pastoralists	Availability of land, Availability of land laws, Presence of District Council and Village Governments	Lack of knowledge on land laws Lack of land use plan Lack of village by-laws
(iii)	Environmental and water sources destruction	Availability of water sources, forests, Presence of Environment Management Law and Water sources management law, Presence of District Council and Village Governments	Lack of knowledge on laws Lack of land use plan Lack of village by-laws
(iv)	Poor markets for agriculture and livestock products	Availability of agriculture and livestock products, Urban centres	Poor accessibility
(v)	Lack of capital for production implements	Availability of land, Presence of farmers and livestock keepers, Presence of financial institutions	Lack of collaterals Lack of SACCOS Lack of communication with banks
(vi)	Low participation of women and other disadvantaged	Availability of land laws, Availability of land and regulations governing	Traditional beliefs and norms in the society

	groups	land ownership	
(vii)	Disasters and climate change hazards (landslides, drought, floods and diseases outbreak)	Indigenous knowledge, improved crop and livestock varieties and technology	Lack of knowledge on adaptation strategies. Lack of data

After each group has completed compiling land uses data, trends and variables; and problem, opportunities and obstacles; they should convene in plenary for presentation and discussion to ultimately come up with a combined report of the village's 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 that 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 improvements for the service sector are generated in the productive manner. The PLUM 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 ensure that the appraisal can focus on land issues without affecting the basic principles of the participatory approach.

2.3.5 Preparation of a Community Action Plan

The most concrete output of the SWOC analysis is a Community Action Plan (CAP) focused on land use management for ten years. 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.

CAP includes 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:

- (i) Development priorities, proposed actions and requirements;
- (ii) Duties and responsibilities for individuals and groups;
- (iii) Work schedules;
- (iv) Areas where the community needs external assistance.

Generally, the CAP must reflect priorities of different socio-economic groups in the village in a balanced way. Also, it should present short, medium- and long-term needs and land use matters of the village without contradicting with district, regional and national plans and policies.

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. Activities can be derived for removing obstacles that are deterring villagers from using the available opportunities to eradicate the problem, and or contributing factors to the main problem as exemplified in Table 5. These are coupled with required time and resources for implementation, responsible actors within and outside the village, and the progressive results during the 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 flip charts or any available materials and presented in a matrix as exemplified below in Table 7.

2.3.6 Initiate Preparation of VLUP Sign boards

At this stage, the major land uses in the village will have been known. A carpenter/sign writer from the village/district headquarters can be engaged to prepare signboards that will be erected at the end of Step 4 after the approval of the VLUP by the Village Assembly. It is recommended that these signed boards be prepared using durable materials and written by painting. **If preparation of signboards is delayed, it will be difficult to prepare and erect them at the end of Step 4.**

2.4 Required Inputs and Expected Outputs/Outcomes

Tables 4 and 5 (Section 1.2 and 1.3 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 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 and outcomes from this step (used as indicators for evaluation) are:

- (i) Villagers are aware of the need for PLUM and are mobilised to implement it;
- (ii) The village has a well-balanced and efficient VLUM committee dealing with land issues;
- (iii) Villagers have increased awareness regarding land related matters;
- (iv) Villagers have a better understanding about their problems and opportunities;
- (v) The community action plan has been prepared
- (vi) The PLUM team has an understanding about the village which is sufficient to facilitate the next steps towards PLUM;
- (vii) The DCRA team has collected sufficient baseline data (including village resource map) 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 assess whether the activities are carried out according to the action plan, objectives are reached and if corrective measures have to be taken (See Section 1.5 of part A). However, since the action plan in Section 1.2 combines conducting simultaneously the activities of Step 1-4, it is recommended to conduct M&E during and at the end of each step (on-the-field monitoring) as well as at the end of step 4 as indicated in Table 3.

Table 7: Example of a Community Action Plan based on Problems Exemplified in Table 6

No.	Objective	Activities	Time of Implementation	Responsible in The Village	Actors Outside the Village	Required Resources	Expected Results
1.	To maximise crop and livestock production per acreage	(i) Conduct Education to farmers, livestock keepers and extension workers on improved modern methods (ii) Establish class farms (mashamba darasa) of various crops in each hamlet (iii) Build the capacity of farmers in livestock and pastures management practices	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
2.	To eradicate land use conflicts in the village	(i) Prepare and implement a participatory village land use plan and by-laws (ii) Sensitise villagers on land resource policies and legislations (iii) Surveying, granting and registration of land titles (CCROs) (iv) Establish Village Land Registry	-do-	-Village Council -VLUMC -Village Land Council -Village Assembly -Villagers	-District Council -DLUPA -District PLUM team -MLHSD -NLUPC -NGOs & CBOs	-Transport -Stationary -Funds -Land -Computers & GPSs -Maps -Village Land Registry Equipment	- 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	(i) Prepare and implement a participatory village land use plan and by-laws (ii) Sensitise villagers on land resources policies and legislations (iii) Identify, demarcate and	-do-	-Village Council -VLUMC -Village Land Council	-District Council -DLUPA -District PLUM team -Extension	-Transport -Stationary -Funds -Land	- A participatory village land use plan and by-laws prepared and implemented -Villagers aware of land resources policies and legislations

		manage forest areas (iv) Identify, demarcate and manage water sources (v) Establish soil and water conservation measures in farms		-Village Assembly -Villagers	Workers -Water, Environment & Natural Resources Sectors -NLUPC -NGOs & CBOs	- Implements	-Forest areas identified, demarcated (sign boards erected) and managed -Water sources identified, demarcated (sign boards erected) and managed -Soil and water conservation measures in farms implemented
4.	To improve participation of women and other disadvantaged groups in land use planning and management	(i) Conduct awareness on traditions and customs denying tenure rights to women and other disadvantaged groups in the community (ii) Support specific group led activities –example women and people with disability (iii) Sensitisation of social groups participation on land use planning and management	-do-	-Village Council -VLUMC -Village Assembly -Villagers	-District Council -District PLUM team -Extension Workers -MLHSD -NLUPC -NGOs & CBOs	-Transport -Stationary -Funds -Land -Computers & GPSs -Maps -Village Land Registry Equipment	-Increased ownership and participation in land use planning, administration and management
5.	To improve community resilience to climate change impacts and disaster management	(i) Sensitise the community on disaster management, climate change impacts and adaptation strategies (ii) Identify and promote indigenous knowledge for disaster management and adaptation to climate change within the community (iii) Obtain and share climate data and information.	-do-	-Village Council -VLUMC -Village Assembly -Villagers	-District Council -District PLUM team -Extension Workers -MLHSD -NLUPC -NGOs & CBOs	-Transport -Stationary -Funds -Land -Computers & GPSs -Maps -Village Land Registry Equipment	(i) Improved community awareness on climate change impacts and adaptation (ii) Indigenous knowledge for disaster management and adaptation to climate change identified and promoted within the community (iii) Climate data/information is available and utilised

STEP 3

MAPPING OF THE 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 Step 2. 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) are used to produce different maps including the existing village land use map. During field work, the PLUM and VLUMCs. should discuss proposals for expansion of areas required for different land uses.

3.1 Objectives

To map the existing land use and management problems including impacts of climate change and variability.

To collect and map additional bio-physical information.

To prepare socio-economic, bio-physical maps

Development of Suitability analysis

3.2 Conditions to Start

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

- (i) Resources allocated and plan of operation prepared for implementing Step 2-4 in the selected villages;
- (ii) Awareness and training have been done to VC, VLUMC and villagers;
- (iii) Village boundaries have been established, demarcated and surveyed;
- (iv) Materials required to prepare the existing land use map (in terms of manpower, expertise, equipment, software) acquired.
- (v) A Community Action Plan for land use management prepared by the village community;
- (vi) Efficient VLUMC formed with good understanding of the village land uses/users, land resources, bio-physical features and village boundaries.

3.3 Activities

3.3.1 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 Step 2 with actual observation and details on the ground using available and appropriate technology.

3.3.1.1 Using NLUIS to Prepare the Existing Village Land Use Map

This fieldwork activity involves the PLUM team and VLUMC that divide into groups each having a GPS or Android Device (depending on the size of the village/task, available resources i.e. Tablets, GPS, Vehicles etc). 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, hazard prone 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, farms around residential areas, social services and economic infrastructures.

The GIS team within the PLUM team should use recorded data from the field to update the village base map that will be used to prepare the existing village land use map and other relevant maps such as bio-physical and socio-economic maps. These maps should be prepared in accordance with the Land Use Planning Regulations (Standard Colours and Shadings) for different land uses, as shown in Appendix B. A first draft of the village existing land use map is printed and presented to the whole team (PLUM team and VLUMC) for sharing, comments and thereafter finalised. It is recommended

for field work groups to save data in GPS and record features using a matrix format (land uses and resources) coordinates data, supported by sketch maps as shown in Plate 7.

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.

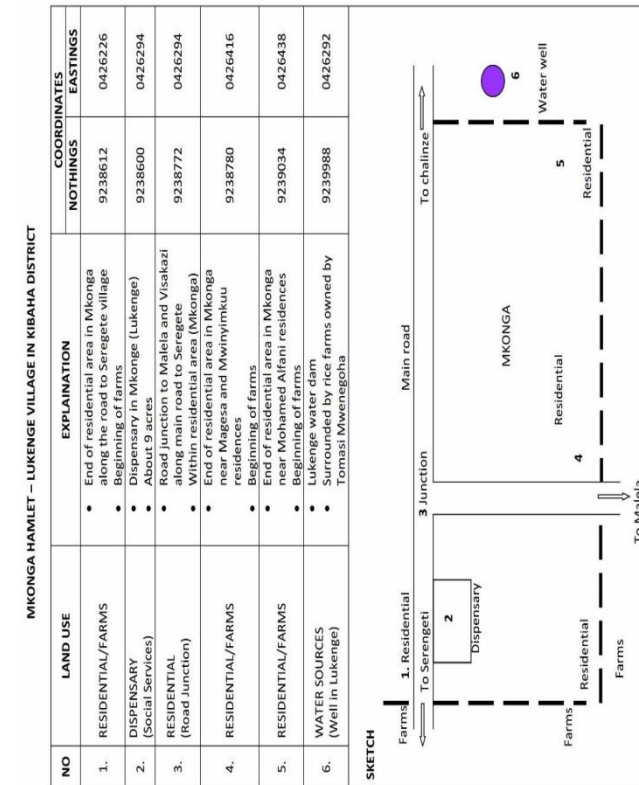
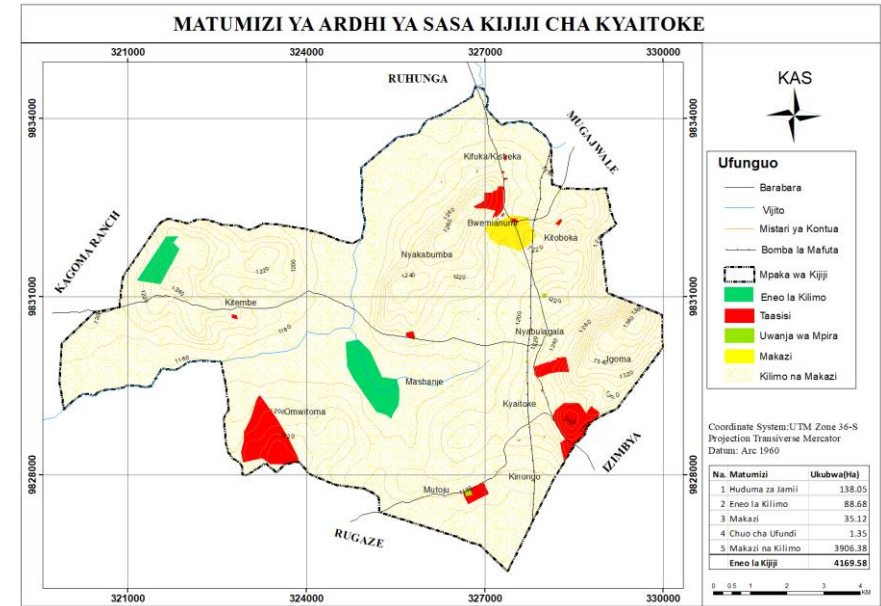


Figure 3: Example of a Matrix and Sketch for Recording Field Data

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

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



Map 3: Existing Land Use Map for Kyaitoke Village, Bukoba District, 2019.

3.3.1.2 Using Satellite Images to Prepare the Existing Village Land Use Map

Before commencing fieldwork activities, GIS experts should acquire recent high-resolution satellite image (below 5 metres) covering respective village. The acquired satellite image should be processed (including overlaying the village boundary map and contours) and printed in a scale of smaller than 1:7500 for clear visibility.

Using the Printed Satellite Images in the Village

- (i) Familiarise the villagers with the satellite image by training them on how the image is produced and how different features on the satellite image are interpreted.
- (ii) Villagers guided by PLUM team traces boundary of land uses basing on features of the satellite image.
- (iii) GPS or Android devices which have been installed with NLUIS can be used to confirm the observed feature on the satellite image and other features or boundary of land uses that cannot be clearly identified on satellite image e.g. social services (Dispensary, schools, cemetery, village office, churches/mosques etc.)
- (iv) The GIS Expert working with villagers should then put marks on the image with coordinates to guide during geo-referencing.
- (v) The GIS expert should scan or take a picture of the mapped satellite image using a high-resolution camera for geo-referencing.
- (vi) GIS Expert digitises features and land uses according to the mapped image by the villagers.
Requirements for the above steps are the transparent plastic paper, transparent tape, whiteboard maker pen, camera, rubber etc.

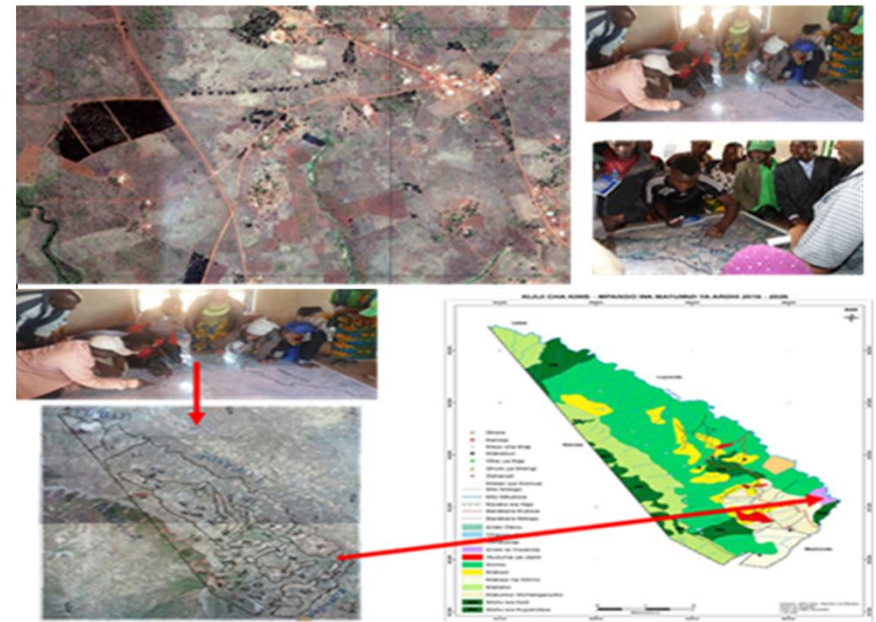


Plate 7: Preparation of the Existing Village Land Use Map Using Satellite Images

Note

- (i) For more details on the use of satellite images, refer to 'Tools and Spatial Technologies for Village Land Use Planning: A Practitioner's Manual for Active Community Engagement, 2019'
- (ii) Aerial images can also be used to prepare the existing village land use map and similar procedures as described in this section (3.3.1.2), can be followed

3.3.2 Conducting a Bio-Physical Survey

This activity should be carried out together with data collection and resource assessment to generate enough data to deal properly with important land related problems. The survey should be justifiable in terms of input compared with the expected output (land productivity). The survey should only deal with knowledge gaps that need to be filled for a proper planning. An appropriate technology should be applied to conduct a Bio-physical surveys.

The PLUM team and VLUM committee in consultation with relevant institutions, should engage and capacitate the needed expertise for this survey. This survey should be carried out according to the PLUM Action Plan. A bio-physical 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 that 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 study are:

- (i) Assessment of the land suitability/capability for different uses, i.e. types of agricultural, livestock and forestry use;
- (ii) Options to improve land productivity;
- (iii) Availability of water and its quality
- (iv) Trends /series of climate data such as rainfall, wind, temperature and humidity.

NB. More details on the parameters for bio-physical survey can be referred to in Appendix D.

3.4 Required Inputs and Expected Outputs

Tables 3 and 4 give indication of activities, expected outputs and a general indication of the required inputs and quantities for budgeting of each activity and sub-activity of Steps 1-4. Expected outputs from this step are:

- (i) Existing village land use map has been prepared indicating different land uses and resources;
- (ii) A first draft of village land use plan report with different maps such as locational, hamlet boundary, land form, vegetation, soil, drainage pattern, hazardous areas, population distribution and density, livestock distribution and density, settlement pattern, social and infrastructure services maps.
- (iii) Bio-physical data are gathered, analysed and available to improve the immediate and long-term planning activities.

3.5 Monitoring and Evaluation (M & E)

M & E is done in each step to assess whether the activities are carried out according to the action plan, objectives are reached and if corrective measures have to be taken (See Section 1.5 of Part A). However, since the action plan in Section 1.2 combines conducting simultaneously the activities of Step 1-4, it is recommended to conduct M&E during and at the end of each step (on-the-field monitoring) as well as at the end of step 4 as indicated In Table 3.

STEP 4

PREPARATION OF VILLAGE LAND USE PLAN AND BY-LAWS



The community action plan for land use management is further implemented in this step and worked out in detail. Data collection, resource assessment and mapping of different land uses as undertaken in the previous steps, enable the planning team to understand better the prevailing village land use problems and possible solutions; including resolving land use conflicts, land reallocation, land use management and land security enhancement. The PLUM team assists the village community to select the most appropriate options for village land uses in consideration of the present and future land requirements.

4.1 Objectives

To address land use challenges

To prepare and approve a village land use plan with villagers by considering the national, community as well as individual interests

To prepare and approve village land use management by-laws for enforcing the land use plan

To enhance environmental conservation, disaster management and climate change adaptation and mitigation measures

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:

- (i) A CAP for land use management which reflects interests of stakeholders in a balanced way;
- (ii) Village boundaries established;
- (iii) An up-to-date and informative map in place
- (iv) Potential land uses are identified
- (v) Shared resources are identified
- (vi) Villagers are aware of the need for IPVLUPMA and well mobilised;
- (vii) The required resources for this step are made available.
- (viii) Existence of Village Council .

4.3 Activities

4.3.1 Prepare a Proposed Village Land Use Plan

After completing Step 3 and all relevant maps are in place, the PLUM Team facilitates the VLUMC and Village Council to prepare the proposed land use plan (Activity No. 6 in Table 3) in consideration of land use management issues earmarked in the Community Action Plan and field work.

Proposals of a village land use plan prepared by the VLUMC with the assistance of the District PLUM team are presented to the Village Council for adoption. At this stage, the VLUMC should be prepared to make the presentations while the PLUM team should play the supporting and facilitating roles. If there are any changes made by the Village Council, they should be incorporated in the draft of land use plan report.

At each meeting, the facilitator has to ensure that each member of the VLUMC and Village Council has equal opportunity of contributing to the proposals of the village land use plan to reflect the interest of all land users. During the Village Assembly meeting, the PLUM team should provide more clarifications on raised issues during presentation.

4.3.1.1 Proposals for Different Land Uses

During detailed data picking, field work groups are supposed to have made observations and notes on:

- (i) Emerging environmental problems such as deforestation, encroachment of the protected areas and catchment areas, land degradation and management proposals.

- (ii) Identifying and resolving multisectoral conflict of interest (e.g. wildlife corridors, catchment areas)
- (iii) Proposals for possibilities and direction of allocation, expansion and protection of particular land use (residential, social services, agriculture, grazing, forestry, wild life etc.)

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

A. Community Facilities and Infrastructures

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

- (i) Existing community facilities;
- (ii) Present and future requirements for community facilities.
- (iii) Attracting investment in community facilities and infrastructures (i.e. NGOs, religious institutions, private).
- (iv) Potential areas for investment;
- (v) Nearness to the existing community facilities (electricity, water, transport, security etc.).
- (vi) Accessibility;
- (vii) Village centre;
- (viii) Space standards for community facilities;
- (ix) Compensations (cash, in kind, alternative land) if applicable.

B. Settlements Areas

Human Settlements are a living phenomenon that 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. This should be based on population and number of households (homesteads) in each hamlet. The projected number of households in the planning period of 10 years multiplied by the average size 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 other land uses particularly agricultural farms, wildlife corridors, protected and grazing areas,
- (vi) Agreeing on the required average settlement area per household,
- (vii) Culture and tradition of the community,
- (viii) Modalities for acquiring settlement land for new households.
- (ix) Management of settlements and community facilities areas as provided for in Step 5,
- (x) Presence of hazardous areas such as flood prone areas.

Note: Further reference on the space standards for human settlements, community facilities and infrastructures can be referred to from the Urban Planning (Planning Space Standards) Regulations of 2018.

C. Agricultural 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 land for production of food and cash crops; or perennial or semi-perennial crops (coffee, fruit trees, vine etc.), annual crops (maize, sorghum, beans, sweet potato, horticultural crops etc.), irrigated crops (paddy and horticultural crops such as tomatoes, cabbage, cucumbers etc.).

To get planning proposals, fieldwork groups combine notes on the requirements and directions for expansion of agricultural areas. Requirements for agricultural land for food and cash crops can be calculated using two basic methods:

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

The Carrying Capacity Method is preferably used when establishing a new Village/Hamlet as it was the case during the Villagisation Programme. It is not ideal for the existing village, and due to its technical requirements and calculations (e.g. calories requirements) it is not easy for villagers to understand and participate. Moreover, for most villagers, agriculture and livestock production are the means of livelihood and development i.e. food, education, health, better housing, transport, 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

The average farm size for all crops per household in each hamlet/village is used as a baseline. If areas for expansion of farms are available (refer to field notes from Step 3), it should be deliberated upon suitable planned average farm size taking into consideration of the following:

- (i) Development of households for better living conditions (livelihood) and poverty eradication i.e. decent housing, food sufficiency, health care costs, education costs, transport, energy, water etc;
- (ii) Availability and use of better farming technologies/equipment e.g. power tillers, tractors, ploughs etc.;
- (iii) Availability, ability and use of other agriculture implements e.g. fertilisers, pesticides etc.;
- (iv) Availability of land for other land uses;
- (v) Ability of the household to manage the planned average farm size and other required activities i.e. planting in time, weeding, harvesting etc.

The planned average farm size is multiplied with the projected household numbers in the planning period of 10 years to get the required total acreage for agriculture in the village/hamlet.

For example, 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	Projected total household s in 2020	Total land requirements for residential (acres) 0.5 acres @ household	Total land requirements for agriculture (acres) 5.0 acres @ household
(i)	Mzizima	134	67.0	670
(ii)	Mkonga	196	98.0	980

(iii)	Muyombo (3 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 the main agricultural land from settlements, wildlife corridor, livestock routes, protected and grazing areas,
- (vi) Optimising utilisation of the village irrigation potential areas,
- (vii) To avoid encroachment to water sources, grazing, reserved and protected areas.
- (viii) Modalities for acquiring agricultural land for new households,
- (ix) Livestock keeping systems,
- (x) Farming systems,
- (iii) Allocating land for large and medium scale farming investment depending on the availability of land,
- (iv) Improving and optimising crop production and management of agriculture land as provided in Step 5.

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 routes, charcoal dams, cattle dips, livestock markets etc. To get planning proposals, fieldwork groups combine notes on the requirements and areas used for grazing and

movements. To calculate the area (acreage) required for livestock grazing in the hamlet/village, livestock data collected are converted into Livestock Units (LU).

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 3% body weight, then it means forage requirement of 7.5 kg per day or 2737.5 kg per annum. In most Tanzania areas (savannah grasslands), this amount of forage (biomass) can be obtained from 2.5 hectares (4.5 acres) annually, which is a planning unit requirement for 1LU. However, this depends on variation of agro-ecological zones and breeds.

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)
Mkongga	1,550	25	-	1,556.25	3,112.5
Mzizima	-	-	-	-	-
Muyomb o	8,000	3,000	2,500	9375	18,750.0
Total	9,550	3,025	2,500	-	-
LU	9,550	756.2 5	625	10,931.2 5	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) Existence of 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 areas,
- (iv) Separating grazing areas from settlements and farms,
- (v) Establishing and maintaining livestock infrastructure, cattle routes to water points, pasture and cattle holding grounds,
- (vi) Farming systems in the village,
- (vii) Livestock keeping systems in the village,
- (viii) Existing and projected livestock units kept in the hamlet/village to match with carrying capacity of the allocated grazing land (*Note: Facilitators should consult respective district council to obtain standard LU data*).
- (ix) Allocating land for grazing areas should consider environmental conservation, disaster management and control of climate change impacts
- (x) If land is available, it should be allocated for large, medium and small-scale ranching investment.
- (xi) Improving pastures in grazing lands/ranches; and management of livestock keeping and grazing land as provided in Step 5.

E. Forestry Areas

The village government may set aside, own and manage 'Village Land Forest Reserves' within the village boundaries. Also, individuals (households) and institutions can develop and own woodlots or within farms through agro forestry. 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 protection of natural vegetation, animals and water sources. Fieldwork 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,
- (ii) Present and future requirements for forestry,
- (iii) Direction and extent of expansion/reduction of forest areas,
- (iv) Identification of village forest reserves and open forests for use (energy source, wood, building materials, medicine etc.),
- (v) Management of water sources, steep slopes and hilly areas,
- (vi) Environmental conservation, disaster management and control of climate change impacts,
- (vii) Allocating land for large and medium scale forestry investment depending on the availability of land,
- (viii) Management of forestry areas as provided in Step 5.

Note: Villages neighbouring national/districts forest reserve should consider allocating land with compatible uses.

F. Water Resources, Catchments and Wetlands

The Environment Management Act Cap 191 (Section 57) and the Water Resources Management Act (Section 34) provides for all potential water sources such as rivers, ocean, lakes and dams to be protected. Also, the Environmental Management Act provides for identification of environmental sensitive areas to be protected and managed such as wetlands (swamps, marshes, bogs, and fen), catchment areas, highly eroded areas and landslides prone areas. These areas should be identified, demarcated and conserved. This also applies for water sources in private land i.e. farms and forests; whereby owners should be administered to conserve water sources by growing trees, grasses 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 5. However, further reference on the types of uses in environmental sensitive areas can be referred to from relevant guidelines for management of such areas as provided by relevant authorities.

G. Wildlife Conservation Areas

Villages that are contiguous neighbours to wildlife protected areas (National Parks, Game Reserves, Ngorongoro Conservation Area and Game Controlled Areas) should demarcate 500 metres as buffer zone or 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. Villagers should participate in management of the WMA in collaboration with the wildlife sector as elaborated in Step 5. Also, villages with wildlife migration routes, corridor and dispersal areas, should consider allocating land for such uses.

H. Industrial Areas

Allocating land for industrial uses should consider the following:

- (i) Existing industrial areas in the village,
- (ii) Present and future requirement for industrial use,
- (iii) Separating industrial areas from settlements, conservation areas and other incompatible land uses,
- (iv) Agreeing on the required size for small and medium industries,
- (v) Adherence to Environmental Management Act and other relevant legislations,
- (vi) Established criteria for acquiring industrial areas

I. Other Land Uses

There are other land uses which are unique in some villages such as mining, quarrying, fish farming and bee keeping. Such land uses are identified in Step 2 (data collection and resource assessment) and mapped in the Step 3. At this stage, their planning proposals are also considered and included in the village land use plan.

4.3.1.1 Assessing Climate Change Vulnerability and Green House Gases Emission Potentials on Planned Land Uses

All land use proposals are analysed to assess the level of vulnerability to climate change impacts and GHG emission potentials as shown in Table 8.

Table 8: Vulnerability and GHG Emission Potentials on Planned Land Uses

Land use type	Vulnerability levels (High, Medium, Low)	GHG emission potential (High, Medium, Low)	Recommendations (No action, re-locate, climate proof (adopt adaptation and mitigation strategies in the management plan))
Agriculture			
Livestock			
Grazing areas			
Community facilities			
Other			

Note: Other limitations that are not linked to climate change (such as gullies, hard rocks and hazardous areas as identified in Step 2) should be assessed and appropriate management measures recommended for action. Other matters to be considered in village

land-use planning should include the use of vulnerability information, such as vulnerability maps prepared by the Tanzania Meteorological Authority.

4.3.2 Drafting 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 cannot 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.

After, the draft land use plan is accepted and adopted by the Village Council, the PLUM Team, in the presence of the VLUMC, should facilitate the Village Council to prepare by-laws (Activity No. 6 in Table 3) for enforcing the prepared land use plan. Minutes (with signed attendance by each participant) of the Village Council meeting prepared by 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.

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:

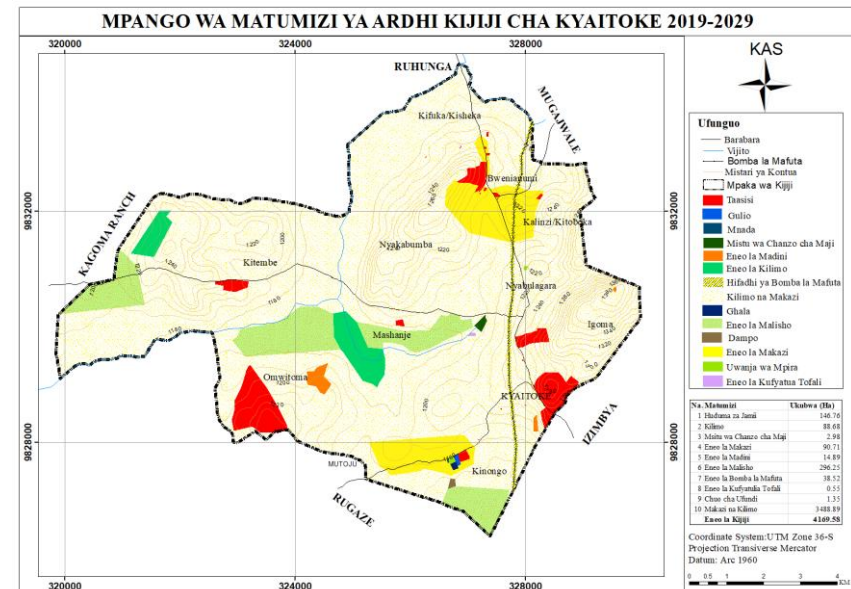
- (i) Village Council makes draft proposals and contents of by-laws to effect implementation of the Village Land Use Plan.
- (ii) Village Council convene a meeting of the Village Assembly and presents the proposed village by-laws for approval with or without amendments.
- (iii) Village Council submits by-laws together with the minutes of the meeting of the Village Assembly that deliberated upon approved by-laws to the respective District Council for adoption.
- (iv) Adopted Village by-laws shall come into operation on a date signed by the District Authorities.

- (i) 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;
- (ii) Interpretations;
- (iii) Powers and responsibilities of institutions/organs to be involved in executing the by-laws;
- (iv) Description and management measures of land uses as provided for in the Village Land Use Plan;
- (v) Adjudication, demarcation, indication and registration of land uses and land parcels;
- (vi) Revision and changes in the Village Land Use Plan;
- (vii) Penalties for breach of the village bylaws
- (viii) Approval and operation of the by-laws;

At the end, agreements are made on when the village council will call for village assembly meeting, date, time and presentation modalities. **An example of Village Land Use Management By-Laws is attached as Appendix E.**

4.3.3 Surveying of the Proposed Land Uses and Compilation of Data

After completing activity No. 6 in Table 3 as explained in Section 4.3.1, the PLUM Team and VLUMC convene surveying of the proposed land uses as agreed by the Village Council. It is expected that, the second draft of village land use plan with all the required and relevant maps will be in place before presentation to the Village Assembly.



Map 4: Kyaitoke Village Land Use Plan, Bukoba

4.3.4 Presentation of the Village Land Use Plan and By-laws to the Village Assembly

A Village Assembly meeting 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 bylaws) are presented, discussed, and explained to reach agreements. If there are any changes made, they should be done on both texts and maps resulting into the final version of the Village Land Use Plan and By-laws, and approved by this meeting. The approved Village Land Use Plan will last for ten years.

Minutes (with signed attendance by each participant) of the Village Assembly that 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. Presentation to the Village Assembly meeting should cover the following items:

- (i) Introduction and an overview of importance, process and outcome of a village land use plan and by-laws. **(PLUM team)**
- (ii) Major existing situation report data; analysed land use problems and the existing village land use map. **(VLUMC or VC)**
- (iii) Community Action Plan. **(VLUMC or VC)**
- (iv) Village Land Use Plan (Text and Map). **(VLUMC or VC)**
- (v) Village Land Use Management by-laws. **(VLUMC or VC)**.

The PLUM team should discuss with the Village Council on possible ways of making the Village Assembly meeting a success in terms of attendance, communication, timing, and participation of different community groups. 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 and reasonable time for community to be aware of the village assembly. While this is being done, PLUM team will be working with subsequent villages. The PLUM team should also initiate M&E (See 4.5)

4.3.5 Erect VLUP Sign boards

After approval of village land use plan and by-laws, the District PLUM team should facilitate the VLUMC, to erect VLUP sign boards (preparations started during Step 2), by reading coordinates of boundaries of the planned land uses from the map and translating them on the ground using a GPS. Signboards (showing the type of land use and management measures identified in the By-laws) are usually erected on the ground. Land use signboards are meant to show/translate on ground the boundaries of agreed land uses as documented in the village land plan. These signboards help to show and inform villagers on the permitted and restricted uses (See Plate 9) in that area. Thus, they should be erected near roads/tracks/ways or at any point that can be easily seen by villagers.



Plate 8: An Example of Signboard for Planned Land Use

The size of the Sign board should be 1X1 m with a stand of 1metre and should be erected on the ground. The background of the signboard should be white while words should be in black with solid line fonts. The minimum number should be two signboards per one type of land use)

4.4 Participatory Joint Village Land Use Planning and Management

Joint Village land Use Planning (JVLUP) process can be applied where two or more villages' sharing of resources across the village boundaries is significant. In this process, villages known to share resources are facilitated to identify the shared resources and enter into an agreement (JVLUA) for joint use and management of the shared resources. Joint village land use planning provides an opportunity for formalising and protecting the shared resources across village boundaries.

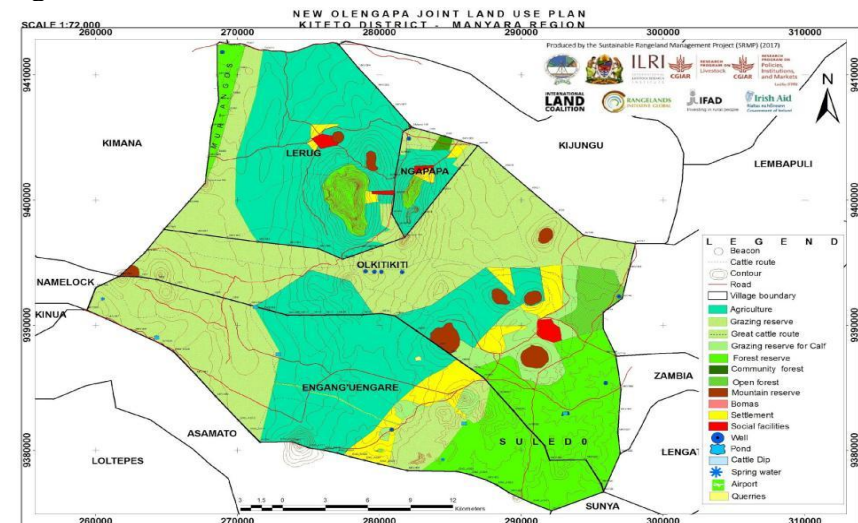
Shared resources include grazing areas, forests, water resources and wildlife. Section 11 of the Village Land Act Cap.114 and Regulations 26-35 of the Village Land Act Regulations of 2002 empowers the village council to enter into a joint village land use agreement with other villages for the land resources traditionally so used by any of those groups and land that is partly under one village jurisdiction and partly within the other village jurisdiction.

The Land Use Planning Act Cap.116 section 18 provides for the formation of the joint village land use planning authority and in section 33 (1) (b), it provides for preparation of the joint resource management sector plan where resources are shared between villages.

The process follows the normal steps indicated in these guidelines, but with modification to suit the need for developing and

approving joint land use agreements and joint resource sector Management plans and related by laws as stipulated and elaborated in the Guideline for Participatory Joint Village Land Use Planning of 2024 (First Edition)

The JVLUP approach has been used in the rangelands since 2014 under the Sustainable Rangeland Management Project (SRMP), Participatory Rangeland Management Project (PRM) and the Livestock Climate Systems Resilience Project (LCSR) implemented in Kiteto and Chalinze District Councils where the process has made it possible to formalise sharing arrangements of grazing land, water sources, livestock routes and salt licks across the village boundaries in clusters of villages including Orkitikiti, Lerug, Enguangare, and Ngapapa villages popularly known as OLENGAPA. Conflicts over resource use (pasture, and water) have been resolved by all villages agreeing to a Joint Land use Agreement.



Map 5: Example of Joint Village Land Use map of OLENGAPA in Kiteto District, 2014

4.4 Required Inputs and Expected Outputs

Table 3 and 4 indicate activities, expected outputs and a general indication of the required inputs and quantities for budgeting of each activity and sub-activity of Steps 1-4. The expected outputs from this step are as follows:

- (i) A village land use plan map
- (ii) Approved village land use management by-laws;
- (iii) Final report of a village land use plan which includes; management strategies for various land uses; and recommendations for disaster and climate change adaptation and mitigation strategies for planned land uses;
- (iv) Signboards depicting various land uses prepared and erected;
- (v) Structures for joint management of resources are in place.
- (vi) Agreement for management of shared resources in place.

4.5 Monitoring, Evaluation (M & E) and Land use Compliance

At the end of this step, the PLUM team, Village Council and VLUMC should discuss and evaluate activities accomplished based on the action plan using expected outputs and results as indicators. Also, they should discuss and plan for the way forward for implementing other activities in the Community Action Plan which essentially form the forthcoming Steps (5 and 6) of this Guidelines

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

- (i) The PLUM team ensures follow-up of the action plan (Section 1.2) on a daily basis; i.e. if work proceeds according to planning in terms of time, materials and budget leads to the desired results;
- (ii) 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.;
- (iii) The PLUM team coordinator monitors the cooperation among the district staff and villagers. The attendance and performance of the staff and villagers concerned during the various activities are important indicators;
- (iv) 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;
- (v) Expected outputs of these steps (1-4) summarised in each step are key indicators for monitoring and evaluation;
- (vi) 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, and reports) prepared during these steps.

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

- (i) Submission of VLUP (report & shapefiles) to NLUPC through National Land use Information System (NLUIS)

- (ii) Completing, printing and submission of VLUP reports and shape files (To NLUPC, District Council and respective Village Councils),
- (iii) Adoption and effecting of land use management by-laws,
- (iv) Inform the District and Village Councils to be prepared for land use compliance auditing to all steps of land use planning process
- (v) Planning for implementation of Step 5 & 6 (Management measures & Land Administration).

land productivity and improve living conditions. Planning and implementation of appropriate land use management measures is a lifetime exercise that depends on evolvement of challenges and management approaches (technologies and innovations).

STEP 5

DETAILED VILLAGE LAND USE MANAGEMENT PLANNING



In previous steps, land use management challenges, their related mitigation measures and opportunities have been identified and appropriate land uses demarcated. In this step, villagers are facilitated to adopt and implement the recommended land use management measures in order to mitigate those challenges, optimise

5.1 Objectives

To build the capacity of villagers for planning and implementation of the selected land use management measures.

To implement measures for improved land use management in allocated land uses

To implement measures for climate change adaptation and mitigation

To promote sustainable utilisation of natural resources for socio-economic development.

To assess the impact of the initiated PLUM process in the village, and implementation of CAP.

To assess sectorial integration in implementation of planned land uses.

To make arrangement for communal land parcel compensations for sustainable management of VLU plans

5.2 Conditions to Start

Important conditions to be met before starting this step are:

- (i) Approved village land use plan which should be in place.
- (ii) Bio-physical surveys for different parameters are undertaken
- (iii) Land-use conflicts are resolved/minimised.
- (iv) Resource sector management planning and implementation guidelines and regulations are in place.
- (v) Resource sector work plan and budgets for implementation in prioritised villages are in place.
- (vi) Management committees for different land use are in place.
- (vii) Uploaded and Approved VLUP in the NLUIS

It is not a pre-condition to start Step 5 before implementing Step 6. However, given its importance in improving community livelihoods and promoting sustainability of the environment, it is highly recommended to implement Step 5 before implementing Step 6 for land uses that involve or provide livelihood options for majority of people (e.g. farming, livestock keeping etc.).

5.3 Activities

5.3.1 Monitor Implementation and Ensure Compliance with Approved Village Land Use Plan

Before embarking on preparation and implementation of land use management plans, monitoring and evaluation should be conducted to ensure compliance of the approved village land use plan. This should be done at least within 3 months, after approval of the VLUP by the Village Assembly. This is an external auditing process to evaluate villagers' participation and VLUP ownership, VLUP reports and maps versus actual situation on the ground; and

to monitor implementation and ensure compliance with approved Village Land Use Plan. This auditing process can be done by the NLUPC or any stakeholder other than the district council.

During this exercise, the team should ensure the Village Council has the approved Village Land Use report and conversant with planned land uses. If VLUP Sign boards were not prepared and erected in Step 4, they should also be prepared and erected.

5.3.2 District PLUM Team Preparations for Detailed 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 Cap.283, The Community-Based Forest Management Guidelines (2007) etc.

The 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 particular villages. For a district starting to prepare and implement land use management plans, it

is recommended to consult experienced personnel e.g. NLUPC, Academic institutions, Private sector, NGOs etc. Thereafter, PLUM team should consult respective village(s) and arrange a meeting with the Village Council and VLUMC.

5.3.3 Conduct a Preparatory Meeting with the Village Council and VLUMC

Issues to consider in this meeting are:

- (i) To discuss briefly the achievements of the previous steps, implementation of the Community Action Plan and challenges.
- (ii) To discuss objectives and set activities of this step;
- (iii) To evaluate performance of the VLUM committee, and prepare it for the forthcoming tasks (as village para professionals) in planning and implementation of detailed land use management plans;
- (iv) To identify 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 the detailed land use management plans;
- (v) To identify other villagers e.g. prominent farmers, livestock keepers, environmentalists etc; to be involved in planning and implementation of detailed land use management plans;
- (vi) To identify the needs of special groups which will be incorporated in the detailed land use management plan;
- (vii) To familiarise with the impacts and effects of climate change and variability as identified in the previous steps.

5.3.4 Conduct Village Land Use Management Appraisal

After the preparatory meeting with the village council, the PLUM team should meet the village level resource sector land management committees, VLUMC and other villagers identified in 5.3.3 for training and awareness creation on sustainable land management and procedures for preparation and implementation of the resource sector management plans. During this training, a general land use management appraisal will also be conducted through review of the existing data and literature (collected in step 2 and 3) related to the planning area.

The aim is to ensure that awareness on land management is undertaken through a holistic approach so as to appraise problems, review opportunities and activities for improved land use management which were identified during data collection and resource assessment, and presented in the CAP. This applies to all prominent land use categories in the village (See example in Box 5.1). The prioritised problems will be further analysed and possible solutions will be worked out for each particular land use.

Box 5.1: Examples of land management measures which can be applied in step 5 for the different categories of land uses

<p>Farming areas</p> <p>(i) Improved land preparation, seed planting, fertiliser use and crop protection measures</p> <p>(ii) Soil & water conservation measures</p> <p>(iii) Mulching, composting</p> <p>(iv) Agroforestry: planting trees, grasses, etc.</p> <p>(v) Improved irrigation measures</p>	<p>Grazing areas</p> <p>(i) Measures to improve grass production</p> <p>(ii) Conservation of water points and cattle tracks</p> <p>(iii) Soil & water conservation measures</p>	<p>Residential areas & areas for community facilities</p> <p>(i) Improved housing, pit latrines, waste pits, drainage, access paths, roads and other infrastructures according to need and affordability</p> <p>(ii) Spacing of houses, pit latrines, access paths, etc.</p> <p>(iii) Tree nurseries, planting shade & fruit trees, etc.</p> <p>(iv) Improved sheds for zero grazing</p> <p>(v) Techniques for water harvesting, bio-gas, etc.</p> <p>(vi) Use of wood saving & solar cookers, etc.</p> <p>(vii) Improved storage of harvest products</p>
<p>Wildlife areas</p> <p>(i) Protection of water points</p> <p>(ii) Establishment and maintenance of viewpoints, camp sites, etc.</p> <p>(iii) Acceptable measures to minimise wildlife passing into other village areas</p>	<p>Forest & fragile areas</p> <p>(i) Tree planting</p> <p>(ii) Soil & water conservation measures</p> <p>(iii) Selective tree cutting, pruning, etc.</p>	

5.3.5 Detailed Land Use Management Planning

After executing the above general activities, the PLUM team will be responsible for coordinating and communicating with responsible sector (Forestry, Wildlife, Livestock, Agriculture, Settlements etc) within the district to carry out specific detailed land use management planning of their respective sector. Moreover, the District Council as Planning Authority should allocate funds for undertaking detailed management planning. It may also collaborate or seek assistance from other stakeholders (Sector

Ministries, Development Partners or Non-Governmental Organisations) to support preparation and implementation of land use management plans. Time taken for each sector to come out with draft land use management proposals, will differ from one sector to another depending on the availability of resources (both financial and personnel) technology and nature of the work. The following are procedures for preparing detailed land use management plans for different land uses:

A. Detailed Management Planning for Agricultural Land

- (i) Determine farming status and factors limiting crop production e.g. low fertility, weather variability, invasive species, poor farming technology, primitive farm implements, insufficient use of improved seeds and fertilizers, inadequate extension services, low crop prices and informal market systems.
- (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 landscape;(Map at scale of 1:5,000-1:10,000; mapable units >20 hectares). It is preferable, land use management units to be established basing on crops grown, terrain, soil and water conservation measures etc. Soil survey and land capability assessment should be done based on established land use management units.

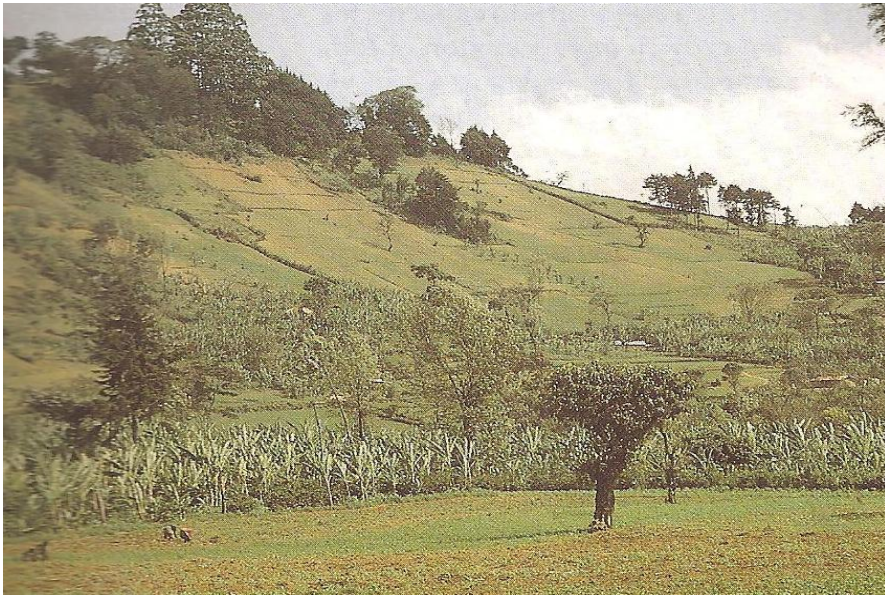


Plate 9: Cultivation on steep slopes



Plate 10: Rill erosion in a maize farm

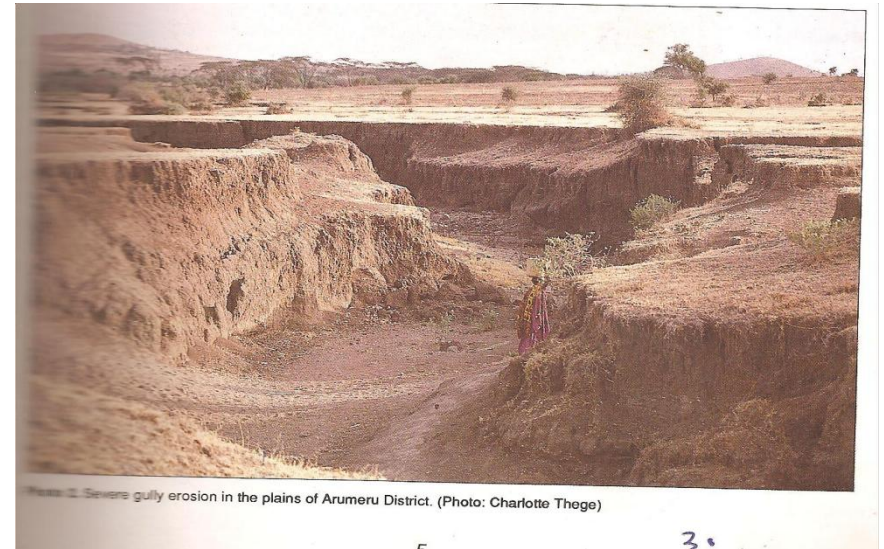


Plate 11: Ultimate severe gully erosion

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

- Recommend agronomical practices and modalities for extension services.
- Undertake soil surveys to determine soil nutrient and water requirements/shortage for preferred crops.
- Recommend soil and water conservation measures and make cost estimates. Common measures include:
 - * Biological measure e.g. crop rotation, mixed cropping, strip cropping, intercropping, 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);

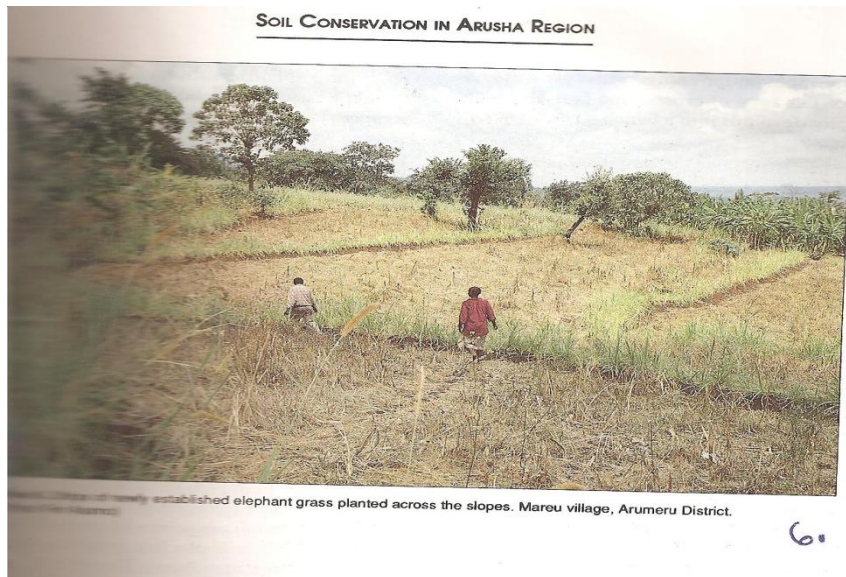


Plate 12: Contour farming

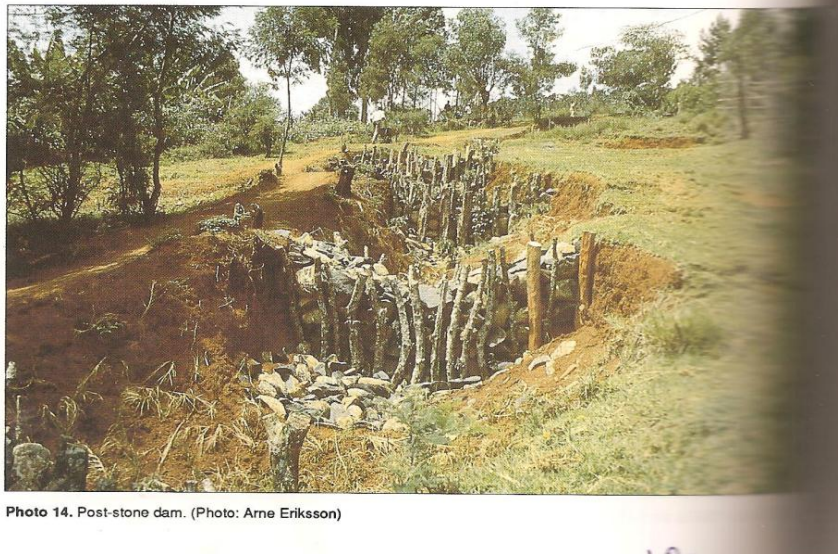


Plate 13 : Check dam to control gully erosion



Plate 14: Bench terraces planted with elephant grass and agroforestry in a farm

- (iv) 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 livestock), fallowing (fallow requirements, periods);
 - (v) Identify required on farm water harvesting methods e.g. ridging and tie-ridging, Matengo pits, conservation bench terraces, contour bunds;
 - (vi) Identify water sources in agricultural 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 and estimate its cost.
- (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)
- (x) Propose climate resilience management practices for agricultural land. (Refer to Climate Smart Agriculture Strategy)
- (xi) Identify and map land for special groups.

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

NB: For more details, refer to relevant sector guidelines

B. Detailed Management Planning for Rangelands

- (i) Establish 'land use management units' in the grazing land and map them. Prepare suitability maps based on the resource qualities and quantity;
- (ii) Describe rangeland management unit to include a resource map and information collected through the participatory rangeland resource assessment;
- (iii) Identify areas with special conservation features, vegetations and attraction sites that need special measures within the area designated for grazing;
- (iv) Identify rangeland management actions including rangeland resources and uses; rights of access and management responsibilities; improvement and development; and rangeland health and condition monitoring;
- (v) Prepare and map land use requirements for grazing based on carrying capacities and possible grazing systems;
- (vi) Prepare Rangeland Management Plan showing areas needing the following:
 - (i) Seeding or reseeded: type of seed, rates and manner of which shall be subscribed by the range officer;
 - (ii) Fertilizers (type, rate)
 - (iii) Weed, bush and pest control methods – to be prescribed by rangeland management expert;
 - (iv) Soil erosion control measures (contouring, terracing, tree/vegetation planting);
 - (v) Invasive species (weed, bushes, grasses and thickets) control methods
 - (vi) Special conservation measures (soil, water, wetlands);
 - (vii) Provision of facilities and infrastructures (water points, livestock handling, fencing, cattle dips, livestock markets, livestock routes);
- (v) Identify and map the remaining land set aside for grazing land for medium and large-scale investment (land bank)
- (vi) Identify modalities for extension services for livestock keepers

- (vii) Plans for monitoring and evaluation (M&E) and methods for revision of the plan as part of the adaptive management process
- (viii) Establish/develop intensive livestock production system within household farm/plot



Plate 15: Land degradation due to Overgrazing

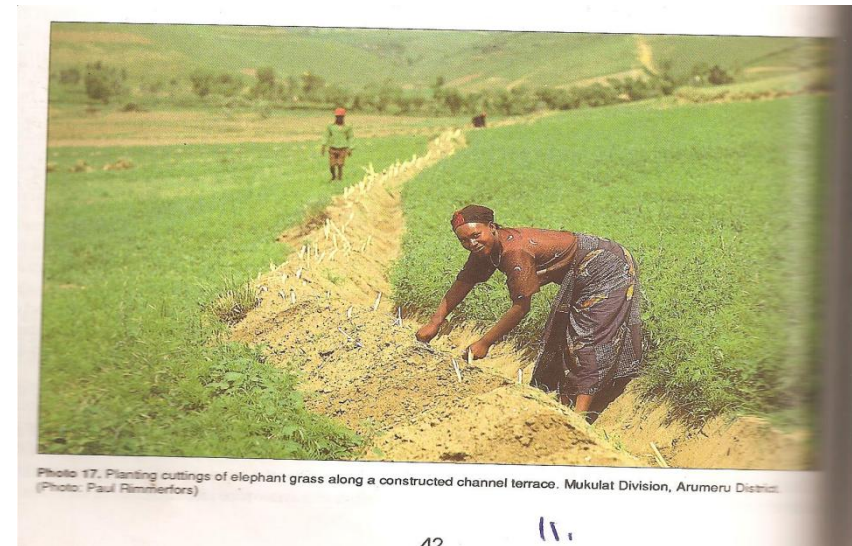


Photo 17. Planting cuttings of elephant grass along a constructed channel terrace. Mukulat Division, Arumeru District. (Photo: Paul Rimmerfors)

Plate 16: Grazing land with improved pastures i.e. Rhodes grass mixed with legumes e.g. tropical kudzu and channel terraces planted with elephant grass

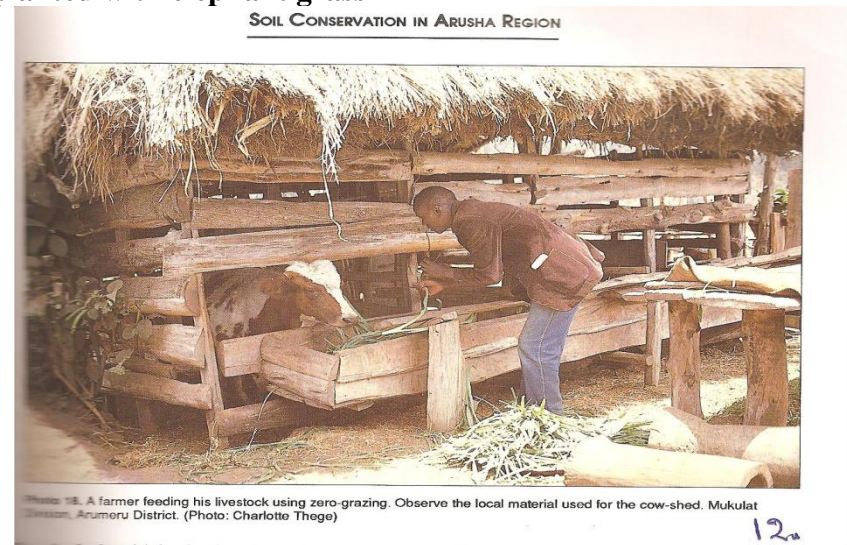


Photo 18. A farmer feeding his livestock using zero-grazing. Observe the local material used for the cow-shed. Mukulat Division, Arumeru District. (Photo: Charlotte Thege)

Plate 17: A farmer practising zero grazing

NB: For more details refer to relevant sector guidelines and piloted project such as Sustainable Rangeland Management Project, 2017

C. Detailed Management Planning for Settlement Area

- (i) Use population distribution and density maps and community facility maps to prepare a detailed base map of the settlement area
- (ii) Prepare a detailed base map of the settlement area, showing major settlement blocks and community facilities at a scale of 1:1000 or 1:2,500
- (iii) Prepare land use requirements table for various uses basing on population projections and standards and thereafter, prepare a conceptual plan;
- (iv) Prepare corresponding infrastructure layout proposals in collaboration with respective agencies; (TARURA, RUWASA, REA, TANESCO, TPDC, TRC) set aside areas showing roads and road reserves, livestock routes, solid waste collection and disposal sites where applicable;
- (v) Prepare detailed village settlement management plan at a scale of 1:1000 or 1:2,500
- (vi) Negotiate with landowners to acquire land for infrastructure and community facilities and agree on and demarcate property boundaries where necessary;
- (vii) Assess compensation bills/schedules/in-kind/alternatives for settling third party interests and identify area for resettlement of those to be displaced where applicable;

- (viii) Finalise detailed settlement plan and its subsequent work plan and budgets; to be reflected and implemented through annual Village and District Council Budget.
- (ix) Upload the Detailed Plan in the NLUIS

NB: For more details refer to relevant sector guidelines.

D. Village Natural Resources Management Planning

D 1: Participatory Forest Management (PFM) in rural areas

The Forest Act of 2002 incorporates Participatory Forest Management (PFM) as an approach for communities, groups or individuals across mainland Tanzania to own, manage or co-manage forests under a wide range of conditions. The law recognises two different types of PFM which are Joint forest management (JFM) whereas the co-management is done between Government or Private forest with local communities and Community Based Forest Management (CBFM) whereby management of forest is done by local communities. These two forest management practices should consider establishment of alternative income generating activities such as beekeeping, tree planting, mushroom farming, horticulture and fish farming.

Steps which are involved in establishing village land forest reserve (CBFM)

Steps involved in establishing village land forest reserves (VLFs) include the following:

- (i) Awareness raising through Village council and Village assembly meetings;
- (ii) The village assembly elects the Village Natural Resources Committee (VNRC);

- (iii) The VNRC together with forest and other technicians, undertake data collection and agreed on VLFR boundaries
- (iv) Carry out Participatory Forest Resources Assessment (PFRA) to determine forest resources at the proposed VLFR;
- (v) Develop management and utilisation measures for each Forest Management Unit (FMU) based on Forest and Beekeeping Guideline of 2007 and CBFM Regulations of 2004;
- (vi) Data analysis and preparation of management plan to be reflected and implemented through village and district council budget, and any other stakeholders;
- (vii) Presentation of management plan to the village council and village assembly;
- (viii) Presentation of management plan to Ward Development Committee (WDC);
- (ix) Presentation of management plan to District Council for approval;
- (x) Registration of the VLFR into District Forests register;
- (xi) Implementation of management plan (Community Action Plan);
- (xii) Review of management plan after 3 years;

NB: For more details refer to relevant sector guidelines.

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 the main utilisation of the water sources e.g. watering points, sites for wells that supply water for

domestic use, gardening sites, irrigation etc. Map these sites and their sizes;

- (iii) Determine adequacy of water sources (sufficiency); permanent or seasonal, and location of alternative sources of water during dry season;
- (iv) Zone water sources area into various management units e.g. Zone A for domestic uses; Zone B for livestock water points; Zone C for construction of fish ponds; Zone D for irrigation; Zone E for conservation etc;
- (v) Map appropriate buffer zone for all water sources;
- (vi) Develop conservation measures for each water zone; e.g. Zone B conservation measures should aim at reducing trampling, construction of watering troughs, fencing the tracts to the watering points etc
- (vii) Identify land use management measures for water sources buffer zones e.g. Conserving/planting environmentally friendly tree species, reseeding requirements, soil conservation measures;
- (viii) Initiate water supply for communities within the village basing on National Water Policy 2002 and Water Resource Management Act 2 Cap331.
- (ix) Develop measures for management of coastlines, beaches and small islands.

NB: For more details refer to relevant sector guidelines.

D3: Wildlife Conservation Area Management Planning

Wildlife Management Area may be formed within an area of more than one village. In this case, respective villages shall enter a joint village land use management agreement prepared in accordance

with the procedures provided for in the WMA regulations 2018. The following are procedures to be followed:

- (i) Undertake participatory Wildlife Management Areas Planning as per Wildlife Conservation (Wildlife Management Areas) Regulations 2018
- (ii) Wildlife resources assessment of the WMA, including the following:
 - (i) Wildlife distribution and density;
 - (ii) Wildlife migratory routes;
 - (iii) Area(s) suitable for establishment of wildlife watering point and wildlife facilities and infrastructure required;
 - (iv) Risk of wildlife being susceptible to wild disease, e.g. presence of tsetse fly, ticks etc and propose mitigation measures;
 - (v) Determine and identify wildlife facilities and infrastructure required.
- (iii) Prepare WMA management plan showing areas suitable for animal darting, mobilisation, hunting, tourism etc
- (iv) Conduct a technical workshop comprising of planning team and the Authorised Association (AA) which shall:
 - (i) Analyse the information data sheet of the prospective Wildlife Management Area;
 - (ii) Undertake technical decisions on zoning, based on the Information data sheet;
 - (iii) Describe permitted and restricted uses in each zone;
 - (iv) Set limits of acceptable use or change in each zone;
 - (v) Describe rationale and management of resources in each zone;

- (vi) Undertake environmental appraisal for proposed actions in each zone.
- (v) Prepare a draft report of WMA General Management Plan or Resources Zone Management Plan and submit to relevant wildlife management authorities for approval;

Note:

For Management of WMA, villagers may prepare General Management Planning (GMP) or Resources Zone Management Plan (RZMP) of 5 years as an interim measure for the management of WMA. Also, for more details on the preparation of GMP and RZMP, refer to Wildlife Conservation (Wildlife Management Areas) Regulations of 2018.

5.3.6 Completing the Village Land Use Management Plan

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

(i) **Planning Team Plenary Meeting**

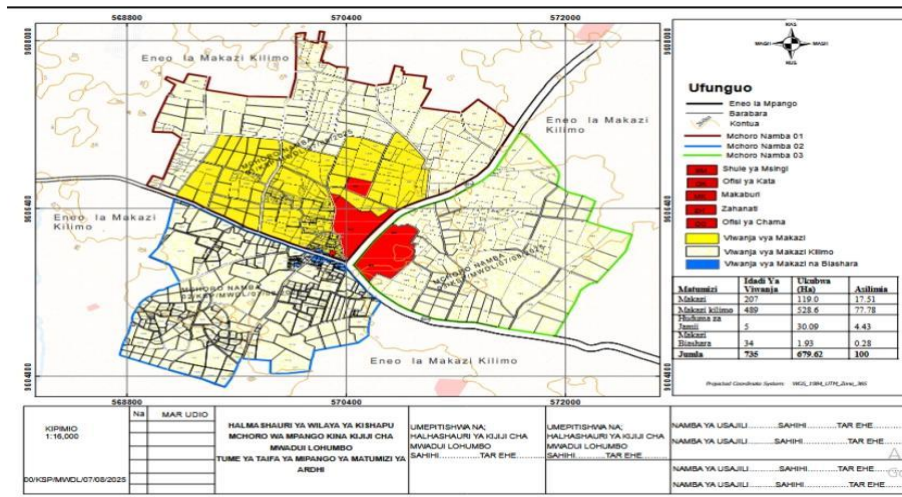
Sector land use management proposals are presented for discussions and adoption by the team. If two or more plans are prepared at a time, they should be combined into a Draft Village Land Use Management Plan. If necessary, the detailed land use management plan may require revision of the village land use management by-laws to be more focused on 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.

(ii) Presentation of the Draft Village Land Use Management Plan to the Village Council

The Draft Village Land Use Management Plan is presented to the Village Council for discussion and adoption. If there are changes suggested in the Village Land Use Management By-laws, they are also discussed. At the end of the session, a meeting with the Village Assembly is arranged for presentation and approval of the Village Land Use Management Plan and By-laws.

(iii) Presentation of the Draft Village Land Use Management Plan to the Village Assembly

The Village Council presents the Village Land Use Management Plan to the Village Assembly meeting for approval. Following approval by the village assembly meeting, the village land use management plan is ready for implementation.



Map 6: Detailed Land Use Plan of Idukilo Village, Kishapu District Council

Follow-up for IPVLUPMA implementation

The District PLUM team should maintain communication between the village and district level institutions concerned with 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 emerging issues about changes in land use and land rights occurring land related problems, the initiated improved land management measures in the village etc. The officer can give advice and if necessary, forward the issue to the district authority.

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

5.3 Joint Resource Management Planning

The Land Use Planning Act Cap 116 Section 33 (1)(b) requires that in respect of resources shared with other villages, the villages concerned should jointly prepare a resource sector management plan. The need for such plans was raised in step 2—4 where shared resources with other villages were identified and entered in the joint land use plans.

Once adjudication of land in respect of the shared resources (e.g. grazing land, wildlife, community forest) and Certificates of Customary Right of Occupancy (CCROs) for these parcels of land falling within individual villages have been issued, the group (owners, association, CBOs) is responsible for developing a management plan for that land. This can be one with technical and financial support from relevant District Council, MDAs, NGOs and Donors. Procedures for preparation of joint resource sector management plans will follow the guidelines stipulated in Section 5.3.5. However, participants are taken from all villages concerned and decisions are made jointly. The management plan will be presented and submitted to the concerned village councils in a joint meeting and later to the Village Assemblies (VAs) in a joint meeting for their approval. For grazing area (rangelands), WMA and Village Land Forest Reserve, the approved plan will be submitted to the respective Ministries for gazettelement.

Expected outputs of this step are:

- (i) Appropriate land use management measures will have been adopted as identified and prioritised by the village for the different land uses.
- (ii) Capacity will have been built through VLUMC in planning and implementing the identified land use management measures.
- (iii) The Village Land Use Management Plan is reflected in the District Council annual planning and budgeting for implementation.
- (iv) The impact of the introducing PLUM in the village is known in terms of,

1. The change in natural resource use and management leading to better living conditions,
 2. The capacity of the village community to continue with PLUM more independently.
- (v) Villagers and their institutions are mobilised and able to proceed with the initiated PLUM activities whereby tasks of the parties involved, are well understood and agreed upon.

5.4 Coordination and Plan Implementation

Section 19 (2) (f) and (g) of Cap 116 requires the NLUPC to establish machinery for inter-sectoral coordination among land use agencies and coordinate land use management activities undertaken by them. That is, sector ministries, local government authorities, agencies and institutions whose activities are directly linked to investments, economic development and exploitation of resources have the responsibility of integrating into their plans, programmes and projects land use management activities aimed at achieving sustainable and optimal production and use of land for economic development and improving livelihood.

Also, as per Section 21 (2) (b), (c) and (d) of Cap 116, the District Councils as Planning Authorities have the responsibility of ensuring inter-sectoral coordination, systematic physical development, preparation and implementation of land use and management plans at the district level. It is therefore mandatory for District Councils to allocate budget and implement detailed village land use management plans in their areas of jurisdiction.

To ensure proper utilisation of land parcel, there is a need to identify stakeholders including district authority for each land use allocated to enforce its implementation.

All Planning Authorities, in accordance with Section 45 (2) and 46 (c) of Cap 116, shall ensure proper execution and implementation of approved plans and make sure that no development takes place on land unless it is in conformity with the approved land use plan.

NB: Sector Ministries are required to undertake policy, technical and legal responsibilities in the process of preparation, implementation and management of land use plans.

5.5 Monitoring and Evaluation (M&E)

M&E should be a continuous process and most important part in the implementation of LUP to ensure sustainable land uses that meets diverse society needs and conserves fragile ecosystems in the village. Important aspects of M & E in this step are to assess impacts of PLUM activities carried out in previous steps, and required support from the district, region and national levels. For activities of this step and whole PLUM process, M & E interventions are recommended as follows:

- (i) Each sector to prepare a matrix or logic framework for monitoring and evaluation (fisheries, agriculture, livestock, WMA, forest) as a guide to the PLUM team
- (ii) Each sector to educate and train the M&E team on data collection, storage and analysis
- (iii) PLUM and VLUM team should monitor and report implementation of land use plans.

- (iv) Each sector to set and allocate fund for preparation of regulations and details management plans in their respective areas to ease M&E of LUP.
- (v) 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;
- (vi) The PLUM team members and associated staff make notes during all activities which will be used for discussion, evaluation and reporting purposes;
- (vii) 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;
- (viii) 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;
- (ix) 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;
- (x) 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;

- (xi) The DLUPA, through the District PLUM team, maintains communication with NLUPC to monitor progress in PLUM application villages, and seeks support if required.

STEP 6

VILLAGE LAND ADMINISTRATION AND TENURE SECURITY



Community action plan which was prepared by villagers in step 3 is further implemented in this step and worked out in detail by enhancing security of tenure through land adjudication, registration and issuance of Certificates of Customary Right of Occupancy (CCRO).

6.1 Objectives

- To monitor implementation and ensure compliance with approved Village Land Use Plan;
- To build capacity to village council, village land council and village adjudication committee to administer the village land;
- To strengthen District Land Registry;
- To establish Village Land Registry;
- To establish and authoritatively ascertain the existing land rights, boundaries, owners and rights of other interested parties;
- To adjudicate land parcels and record particulars of land parcels in a village;
- To prepare, register and issue Certificates of Customary Right of Occupancy (CCRO) to land owners in the village;

6.2 Conditions to Start

Important conditions to be met before starting this step are:

- (i) Established village boundaries
- (ii) Certificate of village land is in place
- (iii) Approved Village Land Use Plan
- (iv) Approved detailed management plan
- (v) District and Village land registry established and or strengthened;

- (vi) Approved Village Land Use Management By-laws
- (vii) Village Land Council and Village Adjudication Committee (VAC) established
- (viii) Villagers are aware of the process, need and use of CCRO and well mobilised
- (ix) An efficient and motivated PLUM team and VAC
- (x) Availability of resources to facilitate VLUMC and PLUM team on management and implementation of VLU plans.

6.3 Activities

6.3.1 Public Education on Village Land Administration

It is expected that; sufficient public education has been conducted in steps 1-5. However, before implementation of step 6, it is suggested that public education be undertaken for the purpose of building the capacity of villagers and their leaders on Village Land Administration and Security of Land Tenure. This can be achieved through meetings, mass media (such as television, radio, newspapers etc.) and publications (such as brochures, banners, poster and leaflets).

Education and public awareness programmes should be continuous putting emphasis on the following areas;

- (i) Joint land ownerships, their importance and benefits (WMAs, grazing land, agriculture etc.).
- (ii) Types of land ownerships in the village (private, institutions, groups, communal etc.).
- (iii) Sensitisation of land ownership considering gender, youth, minority and vulnerable groups.

- (iv) Procedures for application, adjudication and issuance of CCROs.
- (v) Conflict management and procedures for resolving land conflicts.
- (vi) Awareness on the use and compliance to the approved village land use plan (agriculture, grazing, water catchment, WMAs etc.).
- (vii) Investment opportunities, benefits and challenges in their land.
- (viii) Policies and legislations governing or related to land use planning, management and administration in Tanzania.
- (ix) Legal requirement and importance of establishing district and village land registries in registration and issuance of land titles.
- (x) Capacity building on NLUIS application in villages and districts planning authorities.

Note: Education and public awareness programmes should ensure participation of all stakeholders at all levels. For village land adjudication purposes, awareness programmes should include stakeholders living in and outside the village.

6.3.2 Strengthening District Land Registry

The Village Land Act Cap 114 *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 equipment and staff; under supervision of an Authorized Land Officer, who also works as a District Land Registrar.

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 database to facilitate issuing of title deeds or any other type of documents, and to play its role if land disputes cannot be resolved at the village level only.

Districts which are equipped with computers and having conducive environment (including well trained staff) for smooth operation of computers, may use a computerised cadastral database to supplement the conventional filing system. A computerised database 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.

6.3.2 Establishment of Village Land Registry

The presence of Village Land Registry is necessary for registering CCROs and resulting transactions at the village level. Register of the village land is kept by Village Executive Officer as per section 21 of the Village Land Act. This requires an office which should be of permanent building standard.

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. If possible, depending on the capacity of the village or facilitating agencies, it is advised that the use of computer is vital for storage, backup and retrieval of information once needed. The village land registry should be periodically up-dated to accommodate changes in land use and rights (through inheritance, selling, etc.). This requires good communication between village and district level registries involving:

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

6.3.3 Adjudication of Land Parcels

Adjudication of land parcels is a field-based process, with wide publicity and done in the presence of all stakeholders according to well defined rules. More often than not, land parcels adjudication is conducted in privately owned land parcels, leaving communal land parcels in the process. This practice has made such land parcels vulnerable to encroachment and misuse. Adjudication of communal land parcels (grazing areas, Community facilities, communal and forest reserves, WMAs, water sources, roads and livestock routes) should also be conducted and boundaries marked with concrete beacons immediately after the land use plan is approved. The district councils and other actors of land use plans should facilitate and coordinate this process. Adjudication of land

parcels should consider allocating access roads to ensure connectivity to each adjudicated land parcel.

The Village Land Act Cap 114 provides for two types of village land adjudication as follows:

(i) **Spot Adjudication**

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**

Adjudication and survey for CCROs is undertaken covering massive landholdings in a village (whole or part of the village).

6.3.4 Processing, Registration and Issuance of CCROs

The Village Land Act requires applications for CCRO to be made by any person claiming an interest in land in an adjudicated area. These applications are processed simultaneously with the adjudication exercise. After completing adjudication of land parcels, three copies of CCROs are prepared and registered. These copies should be signed by owners, Village Chairperson, Village Executive Officer and Authorised District Land Officer before issuing them to land owners.

Note: Detailed requirements and procedures for adjudication of land parcels, processing, registration and issuance of CCROs should be referred from the Village Land Act Cap 114 (Section

51-55) and relevant regulation and guidelines issued by the ministry responsible for lands.

Expected Outputs of this step are:

- (i) Strengthened District Land Registry;
- (ii) Village Land Registries established;
- (iii) Land parcels adjudicated and documented in the District and Village Land Registries(database);
- (iv) CCROs are processed, registered and issued to land owners;
- (v) Land tenure security enhanced;

6.3.5 Monitoring and Evaluation (M&E)

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

- (i) 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 systematic adjudication team (PLUM and VAC), 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;
- (ii) Assess work progress based on expected outputs of this step;
- (iii) The PLUM team should prepare monthly and quarterly reports, and present them to DLUPA, through routine

meetings of the District Council (Council Management Team, Standing Committees and Full Council).

PART C

LAND USE PLAN MONITORING, EVALUATION AND REVIEW

7.1 Land Use Plan Monitoring, Evaluation

Monitoring and evaluation on the implementation of the village land use plans are crucial processes that help to ensure effective implementation and sustainability of land use practices within a community. These processes involve systematically tracking and assessing the progress, impact, and outcomes of the land use plan to determine its effectiveness in achieving the desired goals and objectives. By conducting monitoring and evaluation activities, local authorities, stakeholders, and community members can identify strengths, weaknesses, opportunities, and threats related to the implementation of village land use plans, thus enabling them to make informed decisions for future planning and development initiatives.

7.1.1 Monitoring of village land use plans

The monitoring process involves systematically observing, evaluating, and documenting the implementation of the land use plan to assess its effectiveness and identify any necessary

adjustments. Monitoring will be done in each step to assess whether activities are carried out according to the community action plan, objectives are reached and if corrective measures needs to be taken through the following list of steps:

- (i) Creating monthly activity implementation plan or outline
- (ii) Setting of activity expected output
- (iii) Deciding how to monitor activities
- (iv) Activity monitoring and documentation on the progress
- (v) Making necessary improvements

7.1.2 Evaluation of Village Land Use Plans

The evaluation of village land use plan is crucial process which is aimed to assess the effectiveness, sustainability, and alignment of the plan with the community's needs and goals of the SLR Project. Thus, it will require a comprehensive analysis of various factors, including environmental impact, social implications, economic considerations, and legal compliance. Evaluation of a village land use plans is carried out to ensure that they meet the current and future needs of the community while promoting sustainable development and responsible land and natural resources management practices. In general, the process, as it aims for the

success of the implementation of VLUP in the SLR Project areas, will include the following steps on the respective villages:

- (i) Defining the purpose and goals of the VLUP
 - (ii) Assessing the current status of the VLUP
 - (iii) Analysing the results achieved by the VLUP so far
 - (iv) Identifying any risks associated with the VLUP
 - (v) Establishing KPIs (key performance indicators) to measure success
 - (vi) Monitoring these KPIs over time to gauge performance
- by promoting transparency, accountability, and engagement from stakeholders throughout the village land use plans implementation in the SLR Project Areas the key actors, their roles and indicators to monitor are articulated in Table 9

Table 9: Monitoring and evaluation of village land use plans SLR Project

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
1	Village Land Use Management	(i) To monitor the implementation of activities stipulated in CAP (ii) Recording	(i) Number of land use plan defaulters (ii) Number of activities executed as	Monthly

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
	(VLUM)	and filing the land use breaches with the village council (iii) Keep records of fines collected from land use plan breaches. (iv) Prepare a monthly activity implementation plan. (v) Do and supervise the monthly plan implementation. (vi) Request resources from the village council for activity implementation. (vii) Advice on the proper land use as per village land use plans (viii) Presenting activities implementation to	per CAP (iii) Amount of fund collected from land use defaulters (iv) List of success and failures of activities implemented (v) Resources used for activities implementation (vi) Monthly implementation report (vii) Erected signboards (viii) Developed land uses as per land use plan (ix) Developed cattle routes	

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
		<p>the village council on a monthly basis</p> <p>(ix) Prepare a monthly implementation report.</p> <p>(x) Motivate the community to contribute funds for the compensation of communal land designated in the land use plan.</p>	<p>(x) Number of management plans prepared</p> <p>(xi) Number of trees planted along water bodies</p> <p>(xii) Number of land related resources conserved</p>				<p>(iv) To request technical assistance from the district council</p> <p>(v) Supervising the monthly implementation report</p> <p>(vi) To present revenue from land use plan breaches and expenditures</p> <p>(vii) To settle and records land use related conflicts among land users through village land council</p> <p>(viii) To mobilise resource for land use plan implementation</p>	<p>activities implemented</p> <p>(v) Resources allocated and used for activities implementation</p> <p>(vi) List of land use defaulters</p> <p>(vii) Number of land use conflict settled</p> <p>(viii) Monthly implementation report</p> <p>(ix) Erected signboards</p> <p>(x) Developed land uses as per land use plan</p> <p>(xi) Developed cattle routes</p> <p>(xii) Number of</p>	
	Village Council (VC)	<p>(i) To monitor the implementation of the land use plan</p> <p>(ii) Collect and keep records of fines for land use plan breaches.</p> <p>(iii) Prepare and present a quarterly land use plan implementation report to the village assembly.</p>	<p>(i) Number of land use plan defaulters</p> <p>(ii) Number of activities executed as per CAP</p> <p>(iii) Amount of fund collected from land use defaulters</p> <p>(iv) List of success and failures of</p>	<p>Quarterly</p> <p>Annually</p>					

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
			management plans prepared (xiii) Number of trees planted along water bodies (xiv) Number of land related resources conserved				implementation strategies.		
	Village Assembly (VA)	(i) To receive a land use plan implementation progress report (ii) To receive a revenue and expenditure report on land use plan implementation (iii) To receive a land use change proposal and approval or rejection (iv) Provide directives on the village land use plan	Minutes of village Assembly	Quarterly		District Council	(i) To monitor and evaluate the implementation of the village land use plan (ii) To receive and document the land use plan implementation progress report (iii) To provide technical assistance and capacity building on the implementation activities stipulated in CAP (iv) Prepare a quarterly, semiannual, and annual village land use implementation report.	(i) Number of land use plan defaulters (ii) Number of activities executed as per CAP (iii) Number of trainings made (iv) Quarterly, Semi Annual and Annual report implementation report (v) Financial report (vi) Erected signboards (vii) Developed land uses as per land use plan (viii) Developed cattle routes	Quarterly Semi-Annually Annually

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
		(v) Provide financial support.	(ix) Number of management plans prepared (x) Number of trees planted along water bodies (xi) Number of land related resources conserved (xii) Number of sensitised village officials and community members (xiii) Number of the key stakeholders who participated (xiv) Existing and approved land use plan map in place					(xv) Approved and signed village land use management by laws (xvi) Number of signboard and beacons prepared and installed (xvii) Land registry established in each project village (xviii) Number of communal CCROs prepared and issuance (xix) Number of CCROs prepared and issuance in 42 project villages (xx) Number of District	

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
			PLUM Team VLUM trained (xxi) Number of villages with village boundary verified and demarcated (xxii) Number of village land uses gazetted (xxiii) Number of women who participated in land use planning process				capacity for PLUM, VC, and VLUM on the monitoring and evaluation strategies (iv) Provide financial support.	(xxviii) Developed land uses as per land use plan (xxix) Developed cattle routes (xxx) Number of management plans prepared (xxxi) Number of trees planted along water bodies (xxxii) Number of land related resources conserved (xxxiii) Number of sensitized of village official and community members (xxxiv) Number of key stakeholders	
	NLUPC	(i) To evaluate the village land use plan implementation (ii) To receive and document annual land use plan implementation reports (iii) To build	(xxiv) M&E reports (xxv) Number of trainings made (xxvi) Financial report (xxvii) Number of personnel trained	Annually					

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
			<p>participated (xxxv) Existing and approved land use plan map in place</p> <p>(xxxvi) Approved and signed village land use management by laws</p> <p>(xxxvii) Number of signboard and beacons prepared and installed</p> <p>(xxxviii) Land registry established in each project village</p> <p>(xxxix) Number of communal CCROs prepared and issued</p> <p>(xl) Number</p>					<p>er of CCROs prepared and issued in 42 project villages</p> <p>(xli) Number of District PLUM Team VLUM trained</p> <p>(xlii) Number of villages with village boundary verified and demarcated</p> <p>(xliii) Gender inclusion in the land use planning in place</p> <p>(xliv) Number of women participated in land use planning process</p>	
						Stakeholder(S)/ Donor(S)	(i) To build capacity to PLUM, VC and VLUM on the monitoring and	(xlv) M&E reports (xlvi) Number of trainings	Not limited

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
	J	evaluation strategies (ii) To monitor and evaluate the village land use plan implementation (iii) To provide financial support	made (xlvii) Financial report (xlviii) Number of personnel trained (xlix) Developed land uses as per land use plan (l) Developed cattle routes (li) Number of management plans prepared (lii) Number of trees planted along water bodies (liii) Number of land related resources conserved (liv) Number of sensitized of village					official and community members (lv) Number of key stakeholders participated (lvi) Existing and approved land use plan map in place (lvii) Approved and signed village land use management by laws (lviii) Number of signboard and beacons prepared and installed (lix) Land registry established in each project village (lx) Numb	

No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting	No	Actor(s)	Role(s)/responsibility	Indicator to monitor	Reporting
			er of communal CCROs prepared and issuance (lxi) Number of CCROs prepared and issuance in 42 project villages (lxii) Number of District PLUM Team VLUM trained (lxiii) Number of villages with village boundary verified and demarcated (lxiv) Number of village land uses gazetted (lxv) Gender inclusion in the land use planning in place					(lxvi) Number of women who participated in land use planning process	

7.2 Land Use Plan Review

A review of village land use plans (VLUPs) in Tanzania involves examining the process and effectiveness of these plans in managing land resources, promoting sustainable development, and addressing issues related to land tenure and use. VLUPs can be revised when the need arises under the following grounds:

- (i) Approved VLUP may be reviewed after ten years as per section 31 of the land use planning act Cap.116 after consultation with the District Council and obtaining consent from the National Land Use Commission.
- (ii) Approved VLUP may be reviewed after five years when the need arises after consultation with the District Council

and obtaining consent from the National Land Use Commission

- (iii) Gazette VLUP may be reviewed after consulting with the District Council and the National Land Use Planning Commission, and upon obtaining permission from the Minister responsible for land, in accordance with section 38 of the Land Use Planning Act, Cap. 116.

- (iv) Approved VLUP may be reviewed at any time after one year of its approval when the need arises for public interest.

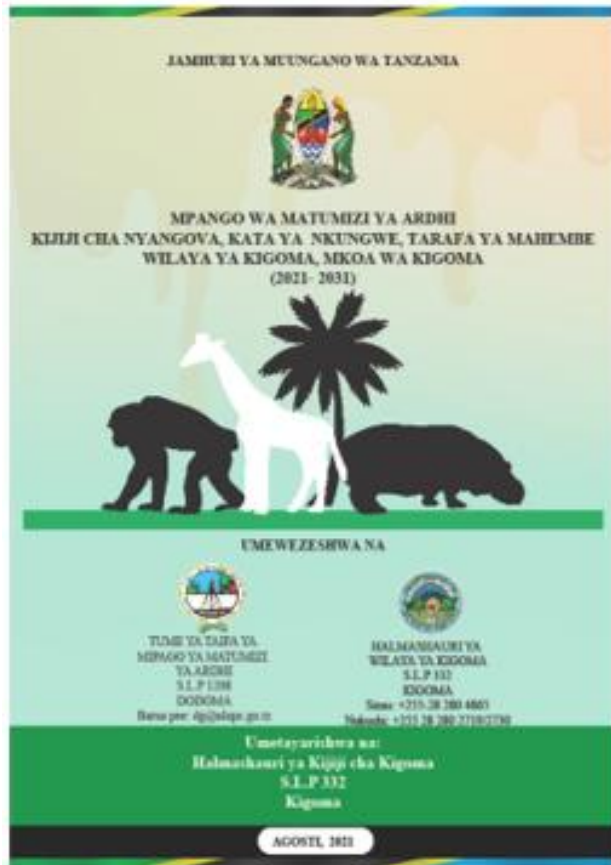
The process and report format for reviewed plans will be described in the Guidelines for Reviews of land use plans.

PART D
APPENDICES

APPENDIX 1: VILLAGE LAND USE REPORT FORMAT

Note: (Standard font type-Times New Roman, Font size-12, line spacing 1.5)

FRONT PAGE (Example)



ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY (*Summary of the report not more than 2 pages*)

ABBREVIATIONS AND ACRONYMS

TABLE OF CONTENTS

LIST OF MAPS

LIST OF FIGURES

LIST OF PICTURES

LIST OF ATTACHMENTS

CHAPTER ONE

INTRODUCTION

1.1 Preliminary Information

1.2 Background

The Land Use Planning Act Cap 116 and implementation of the Village Land Act Cap 114 require all villages in Tanzania mainland to prepare and implement Village Land Use Plans

1.3 Objectives of preparing a land use plan

1.3.1 General Objective

1.3.2 Specific Objective

1.4 Methods and tools used to prepare the village land use plan

CHAPTER TWO
VILLAGE BASELINE INFORMATION

2.1 Village Location and Historical Background

2.1.1 Village Geographical Location

Its Name, Ward, Division, District and Region.

The total number of villages in the district

Contiguous Neighbours or boundaries

Distance and bearing of the village from District Headquarters

Location coordinates and standard sheet number

Total area of the village (ha)

Insert district map showing location of the village (*National setting, regional setting and District setting*)

Insert Hamlet boundary map (*should be supported by words at the beginning*)

2.1.2 Historical Background

Meaning of the village name, date of establishment and registration (number)

Its origin, tribes

Norms and culture

Historical events related to land use

Table displaying Historical events related to land use

No.	Year	Event	Course	Approaches taken

Source.....

Table showing Leadership Term

No.	Name of Chairperson	Gender	Leadership term	
			From	To

Source...

2.2 Climate Condition

2.2.1 Climate condition (Rainfall in mm/year, rainfall calendar, Temperature – average Temperature, cold and warm months)

Also insert the following Tables to show further details on climate condition a) Decadal changes in rainfall and temperature

parameters	observed climate change			
	Increasing	Decreasing	Fluctuating	Stable
temperature				
Rainfall				
Extreme events (floods, drought etc)				

b. Changes in Rainfall onset and cessation (indicate month)		
Rainfall Parameters	Past Decade	Recent Decade
Onset		
Cessation		

c. Changes in wet and dry spells (tick appropriate)			
Rainfall Parameters	Expanding	Shrinking	Fluctuating
Wet spells			
Dry Spell			

d. frequency and intensity of climate hazards (tick appropriate)					
climate hazard	frequency		intensity		
	more frequent	Somewhat frequency	High	Medium	Low
Drought					
Flood					
Other					

e. vulnerability to climate change (tick vulnerable community groups, sectors and ecosystems)		
Climatic Hazard	Community Groups	Social economic sectors
Drought		
Floods		
Other		

f. climatic changes impact and greenhouse gas emission		
climatic changes impact		
S/N	Sector	Climatic Changes Impact

g. Sources of Climatic Vulnerability		
S/N	Sectors	Sources Climatic Vulnerability

h. Climatic Change Adaptation and Mitigation Strategies		
Hazard	Impact Important adaptation strategies	Important Mitigation Strategies

i. insert all relevant maps (drainage, landforms etc)				
s/n	type	hamlet	effect	measures/mitigation to environmental effect

Also insert any available graphs or charts

2.3 Bio-Physical Features

2.3.1 Physiography

Physiographic appearance e.g., mountains/uplands, valleys, wetlands

Insert all relevant maps (drainage, landforms, etc.)

S / N	Type	Hamlet	Activities conducted	Effect	Measures/Mitigation to overcome effect

2.3.2 Drainage System

Existing rivers (seasonal or annual). Sources of such rivers and where do they drain their water?

2.3.3 Geology and Soil

2.3.3.1 Geology

Type of geology and its location, distribution, management, uses and challenges

2.3.3.2 Soil Type and Condition

Dominant soil types, their distribution and fertility status (by field observations with VLUMC, literature and other technology related to soil analysis)

Table No. 1: Type of Soil

Soil type	Location in the village (hamlet and landscape)	Fertility status	Uses

Source: Village Government; Month, Year

Picture No. 6: Type of Soil

Source: Village Government; Month, Year

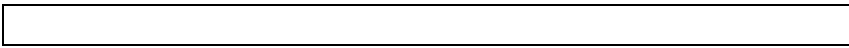
Insert map showing soil classification and distribution.

2.3.4 Vegetation Cover

Types of vegetation, distribution, use (e.g., forests, savanna, miombo, grassland etc.)

Picture No. 7: Type of vegetation cover

Source: Village Government; Month, Year



Insert map to show vegetation cover and distribution.

2.3.5 Hazardous areas in the village

Explanations of hazardous areas in the village

Insert map to show hazardous areas in the village.

2.4 Demography and Administration

2.4.1 Population

Total number of people

Population distribution by hamlets in terms of men and women, page etc.

Household size, age and sex ratio and dependency ratio

(Use matrix as exemplified below)

Table No. Population by Hamlets

No	Hamlet	M	F	Total	Household	Average household size
						=Hamlet total population per household
Total						=Village total population /Total number of households

Source: Village Government; Month, Year

Insert chart of population distribution by gender

Insert population distribution map

Dependency ratio

Population classification by age and sex in percentage

Table No.1: Population classification by age and sex

No	Hamlet	Children (0-17)		Year (18-60)		Year (>60)		Dependents	Working group (18-60)	Dependency ratio
		Me	Ke	Me	Ke	Me	Ke			
								=Total number of children (0-17)	= Total no, of working group (18-60)	=Dependents/Working group*100 per hamlet
	Total									Dependents/Working group*100 per village

Source: Village Government; Month, Year

Also, insert graphs or charts

Insert map of population density and distribution

2.4.2 Population Density

Table No. Population Density per hamlet

No.	Hamlet	Total population	Area of hamlet (per SQM)	Population density
			=Hectare * 0.01	=Total population/Hamlet area (SQM)
	Total		Village total area	= Village total population/village total area

Source: Village Government; Month, Year

Analysis of population Density based on the table above

2.4.3 Population Projection for the Planning Period of 10 years

Use District annual growth rate e.g., 3.4%, from national population census. Use projection formula $P_f = P_n [1.034]^{10}$

Use matrix as exemplified below

Table No. 2: Population Projections (10 years from the Base year)

No.	Hamlet Name	Population (Current Year eg 2017)	Population (Projected Year eg. 2027)	Households 2017	Households 2027
1					
2					
	Total				

Source: Village Government; Month, Year

Insert graph or charts

2.4.4 Migration and Immigration (*Trends*)

Table No. Migration and Immigration

No.	Hamlet	Migration						Immigration		
		Year 0-17		Year 18-60		Year 60+		Year 0-17	Year 18-60	Year 60+
1.		M	F	M	M	F	M	M	F	M
	<i>Total</i>									

Source: Village Government; Village name, Month, Year

Insert Chart to show Migration and Immigration

2.5 Village Administration

Village Administration: Village Assembly, Village Council, Village Committees, Village Land Councils status (structure, composition, existence, roles and deliverance. Status of the Village Government Office. Its suitability to accommodate the Village Land Registry

2.6 Village Office

Status of the village office, accommodation (registry, office rooms, lockup rooms

Picture No. Village office building

Source: Village Government; Month, Year

2.7 Land Tenure and Its access

2.7.1 Categories of Land

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.

Map of land categories

2.7.2 Land Ownership and Administration

Use matrix as exemplified below

Table No. 3: Land ownership

Table No. Access to land per household

Na.	Hamlet	Total household	With CCROs	With CROs	Neither CCROs nor CROs
	<i>Total</i>				

Source: Village Government; Village name, Month, Year

Insert Chart of land ownership by percentage

Source: Village Government; Month, Year

Note: This Table should be supported by text to show relevance of the data to the land use planning process (shortage of land, land accessibility vs main economic activities e.g. farming).

2.7.3 Access to Land

Available means for accessing land in the village/hamlets (buying, inheritance etc.) Use matrix as exemplified below ;

Table No. 4: Access to land

Sn.	Hamlet	Allocation	Inheritance	Buying	Others e.g. lending, invading	Total
	Total					

Source: Village Government; Month, Year

Insert graph or pie chart to show land access by percentage

2.8 Main economic activities

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

Use matrix as exemplified below

Table No.5: Main economic activities

Insert graph or pie chart to show Economic activities by percentage

CHAPTER THREE
EXISTING LANDUSES AND LAND RESOURCES

3.1 Overview of the chapter**3.2 Settlement and Housing****3.2.1 Main settlement Areas**

- Location of acreage
- Village settlement centre
- Settlement in hamlets
- Settlement pattern
- Average settlement area

Access of land (plots) for new households/settlements

Source: Village Government; Month, Year

Insert graph or charts

3.2.2 Housing

Construction materials and availability

Toilet facilities

Types of houses

3.2.2.1 Types of houses

Table No. Type of House

Type of House	Hamlet 1	Hamlet 2	Hamlet 3	Hamlet4	Hamlet 5	Total
Houses made of sand cement block/Iron sheet						
House made of Burnt bricks/Iron sheet						
House made of mud bricks/Iron sheet						
House made of mud bricks/grass						
House made of mud /Iron sheet						

Type of House	Hamlet 1	Hamlet 2	Hamlet 3	Hamlet4	Hamlet 5	Total
House made of mud/grass						
Tembe						
Total						

Source: Village Government; Month, Year

Insert chart and picture

3.2.2.2 Construction materials and availability

Table No. Construction materials and availability

No.	Material	Accessibility	Cost	
			Material	Transport

Source: Village Government; Month, Year

3.2.2.3 Toilet facilities

Table No. Toilet facilities per household

No.	Hamlet	Improved Toilet	Pit latrine (Local)
	Total		

Source: Village Government; Month, Year

Insert picture and chart

3.3 Community Facilities and Infrastructure

3.3.1 Education

3.3.1.1 Nursery and primary

3.3.1.2 Secondary schools

3.3.1.3 Vocation

Table No. Number of students registered and attending (nursery and primary, and secondary)

Class	Registered			Attendees		
	Boys	Girls	Total	Boys	Girls	Total
Kindegaten						
I						
II						
III						
IV						
V						
VI						
VII						
Total						

Insert picture (nursery and primary, and secondary)

Table No. Education requirements and Availability

Source: Village Government; Month, Year

Insert graph on requirements and Availability

Table 9: Number of pass candidates at school (nursery and primary, secondary schools and vocational)

Year	Candidates			Pass			Failed		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total

Insert graph Number of pass candidates at school

3.3.2 Dispensary, clinics, health center

Location, Acreage and Level of services

Major diseases, status of HIV/AIDS

Table No. Health facilities and infrastructure

No.	Staff	Demand	Available	Deficit /Excess
1.	Doctors			
2.	Nurse			
3.	Pharmacist			
4.	Laboratory assistant			
5.	Medical attendant			
6.	Community health workers and social welfare assistant			
7.	Beds			
8.	Energy service			
9.	Waste facilities			
10.	Water services			
11.	Guard			
12.	Mortuary			
13.	Laboratory			
14.	Staff chair			
18.	Pharmacy (dispensing window)			
19.	Health Insurance Service (Mf. NHIF)			

20	Incinerator			
21	Kitchen			
22	Ward			
23	Delivery room			
24	Staff houses			
25	Toilet			

Source: Village Dispensary; Month, Year
Picture showing village Dispensary

3.3.3 Communication and Transportation

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

Table No. Type and condition of infrastructure
Insert picture showing type of infrastructure and means of transportation

3.3.4 Other Community Facilities

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

Table No 11: Community facilities at the Village

No.	Hamlet	Community facilities

Source: Village Government; Month, Year

Insert picture of health facilities

Insert map and graph or charts for community facilities

3.4 Energy

Energy sources e.g. wood, charcoal, gas, electricity, bio gas, solar etc.

Accessibility and costs (affordability)

Table No. Energy for lightening and Cooking

Village	Type of energy	Use	Cost
Village Name			

Source: Village Government; Month, Year
Insert picture of energy types available in the village

3.5 Water Services

Management measures of water sources

Water supply and distribution

(Comparison to National

Standards) Water sources (Permanent or seasonal)

Location and Use, capacities and ownership

Table Distribution of water sources in the village

No.	Hamlet	Community DP	Private DP	Institution DP	Deep well	Shallow well	Rivers
1.							
2.							
3.							
	Jumla						

Source: Village Government; Month, Year
Insert picture showing water sources

3.6 Agriculture and Extension services

3.6.1 Main Agriculture Crops

List main agricultural crops in the village (food and cash crops)

Average farm size per household

Insert picture of crops in the village

3.6.2 Agriculture Areas and Acreage Estimates

Location, names and areas for agriculture (under cultivation cycle)

Identify them during data picking in step 3 3.3.3

Table No. Average agricultural crop area per household

No.	Crop	Average agricultural crop area per household
1.		
2.		
3.		

Source: Village Government; Month, Year

3.6.3 Farming System

Mixed cropping (e.g maize/mtama)

Types of crops that are mixed and not mixed (Refer to “Mwongozo wa Uzalishaji Mazao Kulingana na Kanda za Kilimo za Kiikolojia)

Technology used

3.6.4 Agricultural Calendar

Which and when agriculture seasons and crops are grown in each season

Use matrix as exemplified below

Table No.12: Agricultural Calendar - Major crops per Village

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

NB: Refer to “Mwongozo wa Uzalishaji Mazao Kulingana na Kanda za Kilimo za Kiikolojia

3.6.5 Use of Agricultural Inputs

Type of agricultural inputs (fertilizers – organic and inorganic, crop seeds, pesticides) - average rate used per acre (rates used)

Price and availability for agricultural inputs

Insert picture of agricultural inputs

3.6.6 Farm Implements and Technology

Extent of use of hand hoe, draught animals, tractors, power tillers and other modern farm implements.

Percentage 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)

Table 13: Agricultural inputs and services (**Refer from ARDS (Agricultural Routine Data Systems)**)

Table No. Agricultural services

Crop	Type of crop 1	Type of crop 2	Type of crop 3	Type of crop 4	Type of crop 5
Farming preparation					
Ploughing					
Planting					
Weeding					
Controlling vermin animals					
Harvesting					
Extension services					
Crops storage					
Usage and selling					

Source: Village Government; Month, Year

3.6.7 Extension Services

Availability of Extension Officers

(Comparison to National Standards
Access to and availability of Agricultural Learning Centre

3.6.8 Agriculture Crops Production

Use matrix as exemplified below

Table No.14: Agriculture crops production (**Refer from ARDS (Agricultural Routine Data Systems)**)

Hamlet	Crops	Acreage/ household	Crops yields/ acre	No. of households	Total acreage	Total Crops yields
Magindu	Maize	2	Sacks 5	255	510	Sacks
	Millet	1	Sacks 7	180	180	2550
Mjini	Casava	1	Sacks	10	10	Sacks
	Simsim	1	25	150	150	1260
	Rice	½	Sacks 1	10	2.5	Sacks
	Cow peas	½	Sacks 1	255	127.5	250
				Kilo 40		
						Sacks 2.5 Kilo
						5100

Source: Village Government; Month, Year

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

Also, the analysis should consider production of cash crops

3.6.9 Agricultural infrastructure

Storage facilities for farm produce/ type of storage facility

Irrigation facilities, access roads

Insert picture of crops storage facilities

3.6.10 Crops pest and diseases

Pest control in crops from farming to storage

Type of pest in each crop, pesticides used, extent, access and cost

3.6.11 Market and Marketing system

Main buyers (for every crop)

Internal and external markets

Use of ICT in marketing

Presence of Farmers Cooperatives

Table No. Crops price

No.	Type of crop	Crop price in the village	Crop price in other areas
1			
2			

Source: Village Government; Month, Year

Insert picture of main crops in the market

3.7 Livestock Keeping

3.7.1 Types and Number of Livestock

(L. Us) present in the village

Indigenous and Exotic breeds

Use matrix as exemplified below

Table No. 15: Types and number of Livestocks

No.	Hamlet	Cattle	Goats	Sheep	Donkey	L.U
1		0	0	0		= (number of cattle *0.8) + No. of goats*0.15)

						+(No. Sheep*0.15) +(No. Donkey*0.8)
	Total					

Source: Village Government; Month, Year

Insert chart showing the number of livestock per hamlet

Insert maps to show livestock distribution according to hamlets

3.7.2 Livestock keeping System

Existing grazing system

During rainy and dry season

Insert picture showing livestock keeping system in the village

3.7.3 Grazing areas and Source of water for livestock and its areas

Grazing area in the village and the reasons for using such areas

Insert picture showing grazing areas

3.7.4 Livestock Infrastructure and diseases

Common Livestock diseases and treatment

Seasonal Livestock diseases and treatment

Availability of livestock treatments

Dips and troughs etc

Livestock routes Cattle

3.7.5 Livestock products

Explanations on livestock products (such as meat, milk, skin, hide etc.), their rate of production per animal

3.7.6 Livestock products and markets

Available livestock market and prices for animal products

Table No. livestock market and price in the village

Na.	Type of Livestock	Price
1.	Cattle	
2.	Goat	
4.	Sheep	
5	Pigs	
6	Hen	

Source: Village Government; Month, Year

3.7.7 Livestock Extension Services

Availability of Veterinary shops and medicine prices

Availability of livestock extension workers/advisors in the village

Challenges facing livestock keepers in relation to Extension Services

3.7.8 Livestock density

Livestock density per hamlet

Table No. Livestock density per hamlet

No.	Hamlet	Livestock Unit (L.U)	Hamlet area (KM ²)	Livestock Density (KM ²)
1.			=Area (Hactare) x 0.01	=Number of livestock (L.U)/Area
2.				
3.				
Total				

Source: Village Government; Month, Year

NB: (Add supportive words)

Insert map of livestock density per hamlet

3.7.9 Livestock Projections

Project the number of livestock after ten years (*consider conversión factor*)

3.8 Forestry

3.8.1 Types of Forests

Natural forest and their acreage (Species and names)

Planted forests and their acreage (Species and names)

Reserved Forests (Species and names)

Insert picture of forests

N.B. Indicate Location and distribution

3.8.2 Ownership and Uses of Forests

Village government or individual ownership etc.

Beekeeping

Wood, lumbering

Firewood, Charcoal

Building materials

Conservation,

Rituals

3.8.3 Harvesting of Forest Products

Types of forest products (timber and non-timber products)

Harvestors from within (households) the village

Harvestors from outside the village

Amount of forest products (firewood, timber, charcoal etc.)

harvested Forest production capacity

(potentiality/survival/adaptation to climatic change and challenges)

Market and prices for forest products

3.9 Beekeeping

Number and location of bee-hives, beekeeping and harvesting methods, challenges, markets

(If applicable)

3.10 Fishing and Aquaculture

(N.B. If applicable)

- Fishing and fish processing areas
- Location and acreage (Map them on existing land use)
- 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
- Challenges

Insert picture showing fishing areas

3.11 Mining

(N.B. If applicable)

- Mineral types and areas/sites (Map them on the existing land use) 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)
- Challenges

3.12 Wildlife

(N.B. If applicable)

These may include WMA'S, Wildlife corridors, migrating routes and dispersal areas as may be identified during the process of land use planning.

- Types and species
- Distribution of animals
- Wildlife management
- Challenges

Insert picture showing main wildlife animals

3.13 Tourism (N.B. If applicable)

- Tourism attraction sites within the village
- Business related to tourism
- Revenue from tourism activities
- Environmental, social and cultural effects due to tourism

Insert picture showing tourism attraction sites

3.14 Joint Land Use Resource

(N.B. If applicable)

- E.g. grazing, agriculture, water resources, mining, forest, wildlife

3.15 Summary of the Existing Land Uses

Summary of the existing land uses in matrix format and map

Table No. 16: Summary of existing land uses

No.	Type of land use	Area (ha)	% of total village land area	Spatial description
1.	Residential			
2.	Community facilities			
3.	Agriculture			

Source: Village Government; Month, Year

Insert Existing Land Use Map

CHAPTER FOUR CLIMATE CHANGE AND ENVIRONMENT CONSERVATION

4.1 Overview of the chapter

Laws and policies governing climate change and environment

Challenge related to climate change and environment.

4.2 Indicators of environmental degradation and climate change

Indicators of climate change for each sector such as agriculture, forests, water sources,

Fishing- reduction of fish species and availability

Wildlife- Increase of wildlife incidence in crops destruction

Insert map showing changes in vegetation cover

4.3 Causes of climate change Environmental degradation

Show causes of climate change and environmental degradation e.g. Population increase, lack of alternative sources of energy for cooking, agriculture and human habitat in wildlife conservation areas, lack of irrigation infrastructure.

Insert picture of the causes of climate change

4.4 Social, Economic and environmental Impact of climate change

Impact of climate change on agriculture and livestock for the past three years (Drop of agriculture production and food shortage, decrease of pasture,

Insert map showing land use/cover change of the village (ten years' time interval)

4.5 Mitigation and Adaptation to Climate change

4.5.1 Agriculture (Mitigation and Adaptation e.g. Drought resistant crops, education on good agriculture practices

4.5.2 Livestock ((Mitigation and Adaptation)

4.5.2 Residential areas

4.5.3 Forests

4.5.4 Water sources

4.5.5 Land bank

4.6 Issues to be considered in environmental conservation and land resources

4.6.1 Environmentally friendly land uses,

4.6.2 Bylaws

4.6.3 Environmental education

4.6.4 Conservation of natural planting of trees

**CHAPTER FIVE
VILLAGE LAND USE CHALLENGE AND COMMUNITY ACTION
PLAN**

5.1 Overview of the chapter

5.2 Village land use challenges

Describe all major land use challenges

Table No. Problems, opportunities and obstacles

No.	Problem	causes	Opportunities available	Obstacles	Strategies

Source: Village Government; Month, Year

5.3 Village Community Action Plan

Table No. Village Community Action Plan

No.	Objective	Activity	Time frame	Responsible persons		Resources required	Expected output
				In the village	Outside the village		

Source: Village Government; Month, Year

**CHAPTER SIX
VILLAGE LAND USE PLAN**

6.1 Introduction

Explain briefly the step reached within the PLUM guidelines.

Village land use plan as a tool of implementation of CAP

Formation of Village Land Use Management Committee

6.2 Land Use Requirements (Planning Proposals)

6.2.1 Community Facilities and Infrastructures

6.2.2 Settlement Areas

6.2.3 Agriculture Land

6.2.4 Livestock keeping and Grazing Areas

6.2.5 Forestry Areas

6.2.6 Water Sources

6.2.7 Wildlife

6.2.8 Other Land Uses

6.3 The Land Use Plan

6.3.1 Summary of Allocated Land Uses

(As deliberated upon by the Village Council and approved by the Village Assembly)

Table No. Distribution for proposed land use plans

No.	Type of land use	Proposal land use (Ha)	% proposed village land use	Spatial Description
1	Residential			
2	Community facilities			
	Total			

Source: Village Government; Month, Year

N.B. Coordinates of all use should be annexed

Insert Village Land Use Plan Map

Table No. Comparison of planned area and required land

No.	Uses	Area (hectare)	Required land (Ha)	Surplus/Deficit	Technical recommendation for efficient use
	Total				

Source: Village Government; Month, Year

Insert map showing proposed land use

6.4 Approval of proposed village land use plan

Describe all the process of approving the plan (village council meetings and village assembly)

6.5 Demarcation of different land uses and installation of signboards

Insert picture of signboard showing land uses

CHAPTER SEVEN

MANAGEMENT AND IMPLEMENTATION OF LAND USE PLAN

7.1 Overview of the chapter

7.2 Responsibilities of different stakeholders on land use management and implementation

NB: Land uses as indicated in the land use plan

Showing all important stakeholders in implementation of land use plan

Table No. Stakeholders in implementation of land use plan

No.	Uses	Responsible persons (stakeholders)	Roles
1	Residential		
2	Agriculture		

Source: Village Government; Month, Year

7.3 Village Land use plan Bylaws

7.4 Monitoring and Evaluation and Land use compliance

- Monitoring and Evaluation Plan**

7.5 Way forward

CHAPTER EIGHT
EMERGING ISSUES AND CONCLUSION










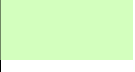
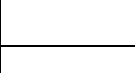
- 8.1 Emerging Issues
- 8.2 Recommendations
- 8.3 Proposed projects by the community
- 8.4 Conclusion

NOTE: If a village forms a part of PJVLUP additional chapter on Participatory joint village land use Planning process.

ATTACHMENTS

- Appendix 1 – Village Land use management by – Laws
- Appendix 2 – Minutes of Village Council and Village Assembly to Introduce Plan (2)
- Appendix 3 – Minutes of Village Council and Village Assembly to Approve Plan (2)
- Appendix 4 - Minutes of arrangement of Boundary (If Applicable).
- Appendix 5- Coordinates of Existing and Planned Land Uses in the Village
- Appendix 6 - Work plan of the Project.

APPENDIX B: STANDARD COLOURS AND LEGEND FOR LAND USE MAPS

Type of Map	Colour	Colour Name/Code and Uses/Type
(i) Soil Map		Loam Soil - Orange Bright
		Sandy Soil (i) Foreground R-230, G-152, B-0 (ii) Background R-255, G-211, B-127
		Clay soil - Gray 20%
		Sandy loam soil - Brown Light to Dark (Display 50%)
(ii) Vegetation map		Scattered Trees
		Grasslands
		Grassland (Background R-114, G-137, B-68)
		Bushes and Shrubs - (R-112, G-168, B-0)-
		(R-0, G-117, B-37)-Msitu
		Cropland (i) Foreground R-76 G-115 B-0, (ii) Background R-211, G-255, B-190)
(iii) Population/Livestock distribution map		Brown Light to Dark

(iv) Population/Livestock density map		Red Light to Dark
(v) Village hamlets map		(i) Beige (R-255, G-234, B-190) (ii) Green (R-211, G-255, B-190) (iii) Rose (R-255, G-190, B-190) (iv) Tan (R-239, G-228, B-190)

(vi) Land use maps (Existing or Planned)

LANDUSE LEGEND SYMBOLS/COLOURS	
	Community Facilities(R255,G0,B0)
	Settlement(R255,G243,B20)
	Agriculture(R0,G214,B104)
	Agriculture and Settlement(Scrub1,R255,G243,B20)
	Agric.Irrigation(Scrub1 R23,G168,B32)
	Mixed Use(10%cross hatch,R250,G222,B17)
	Grazing(Open Pasture,R227,G158,B0)
	Forest Reserve(R0,G117,B37)
	Forest(R0,G117,B37)
	Plantation
	Mangrove Forest(Mangrove,R109,G187,B67)
	National Park(R144,G238,B144)
	Game Controlled Area(R144,G238,B144)
	Game Reserve(R144,G238B144)
	Wildlife Management Area(R144,G238,B144)
	Land Bank(R250,G200,B200)
	Industrial(R215,G160,B250)
	Mining(R255,G125,B0)
	Quarry(602 Grave1,Closed R0,G0,B0)
	Historic Site(Historic Site,R104,G52,B13)
	Water Bodies(R151,G219,B242)
	Swamp(Wetland,R151G219,242)
	Water Source(Water Intermittent,R64,G101,B235)
	Sand Beach(R255,G200,B10)
	Cliff(504PerigalacialR0,G0,B255)
	Petrol Station(Circle10,R255,G0,B0)
	Vocational Centre (Square 11,R255,G170,B0)
	Harbour (Ferry, R92,G71,B245)
	Cattle Dip (Deer)
	Godown (Circle 12, R255,G0,B0)
	Hotel (Triangle3,R205,G46,B49)
	Fish hand site (Tank Farm)
	Saw mill(Square 7, R230,G76,B0)
	Salt Works(Square 6)
	Primary School (R145,G115,B15)
	Secondary School(R230,G152,B5)
	Post Office (Triangle3 R255,G54,B23)
	Village Centre (RndSquare7,R255,G0,B0)
	Village Office (Hexagon3)
	Ward Office(Octagon7)
	Bank (Square12, R230,G76,B0)
	Police Post
	Dispensary(Hospital/First Aid)
	Church(Cross2,R255,G0,B0)
	Mosque (Star 2, R255,G0,B0)
	Cemetery
	Hospital (Hospital2)
	Court House (Asterick2)
	Prison (Circle9)
	Open Market(Square3)
	Playing Ground
	Bridge(Municipal139)
	Community Centre(Circle 21, R170,G255,B0)
	Bank(Asterick3)
	Cattle Market(Cattle Crossing)
	Airstrip(Airplain)
	Cattle Holding Ground(Square9)
	Dam(Interstate(HWY1)
	Water Hole (Water well)
	Bore Hole (Circle19)
	Spring(Reservoir)
	Water Tank (water Tank)

APPENDIX C: ESTABLISHMENT AND DUTIES OF THE VILLAGE LAND USE MANAGEMENT COMMITTEE

Introduction

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

Qualifications of VLUM Committee Members

- (i) Living in the village, energetic, motivated and responsible;
- (ii) Having good relationship with the village community, knowledge of different land uses in the village;
- (iii) Some members should have knowledge of village boundaries;
- (iv) Able to speak Kiswahili and the local language;
- (v) Ability to read, write and make simple calculations is an added advantage;
- (vi) Village Land Council members should not be appointed in this committee

Composition of the VLUM Committee

- (i) The VLUM committee should have 6-9 members representing different socio-economic groups in the village with at least 3 women as members. It is therefore essential to have a balanced committee in terms of gender (males and females), age (young, middle age and

respectable/influential elders), sub-village areas (hamlets) and land use (such as crop producers and pastoralists).

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

Responsibilities of VLUM Committee Members

- (i) To assist in mapping and preparation of VLUP, land use management by-laws and if the need arises, their revisions.
- (ii) 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.
- (iii) To ensure that the land allocated for communal use is not encroached by individual users.
- (iv) To ensure that rights and interests of women and other vulnerable groups are respected in land-use management, particularly land rights.
- (v) To keep record of all major land management issues, such as changes in user rights and application of land-use management measures.
- (vi) The committee should meet once a month with all of its members. If necessary, the village chairperson and village executive officer, 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.

- (vii) To identify and report to the Village Council, 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.
- (viii) VLUM committee members can become also Village Land Adjudication Committee members during Step 5 (implementation of land administration measures).

Working Conditions of VLUM Committee Members

- (i) 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.
- (ii) The VLUM committee will receive assistance from the district whenever required.
- (iii) The VLUM committee receives these terms of reference as guidelines to facilitate continuity of their activities.

APPENDIX D: PARAMETERS FOR BIO-PHYSICAL SURVEY

D1: 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 are restricted to piped water schemes. Distribution of tapes for such schemes depends 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 250 people and the maximum distance should not exceed 400 metres. If shallow wells are to be used the criteria should be based on:

- (i) The number of villagers, at present and in future.
- (ii) The distance between the houses and the well-distance should not exceed 2 kms.
- (iii) 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 substances can occur in large quantity so as to cause an acute health problem. This can only happen if there is a massive dose of that particular substance in the water supply system.

The following Table shows the standard of **chemical limits for the selected elements that applies in Tanzania compared to the WHO guideline values. Based on the Table, the measured values can be compared with the standard limits to ascertain health effects for human health. If for example, the difference is higher than the standard limits necessary, corrective measures must be taken to improve the quality of water in this respect.**

Table-- The Standards of the Chemical Limits for the Selected Elements

(i) Substances which may be toxic	Unit	Tanzania's 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	
(ii) Substances which affect human health		Tanzania Temporary limit	WHO guideline value
Fluoride Nitrate	mg/1	0.8	1.5
Nitrate	mg/1	100	10
(iii) Substances which may affect palatability of drinking water		Tanzania's Temporary limit	WHO guideline value

Total hardness	mg/1	600	500
Sulphate	mg/1	600	400
Chlorite	mg/1	800	250
Colour	mgp t/1	50	15 true color units (TCU) 5NTU
Turbidity		30 mg SIO/2	no offensive to most consumer
Taste		no objection	
Odor		no objection	
Iron	mg/1	1.0	0.3
Manganese	mg/1	0.5	0.1
Copper	mg/1	3.0	1.0
Zinc	mg/1	15.0	5.0

2.2 D2: SOIL SURVEY

(i) Soil Analysis

Most of the major soil types in the country in terms of their spatial distribution, their physical, chemical and biological properties, as well as their respective management requirements, have been analysed and documented by the Agricultural Research Institutes whose locations are tailored to address specific parameters for each of the major agro-ecological zone. Details of the documented soil reports are available/at the disposal of the public domain/users or as may be determined by application of the appropriate technology.

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. Likewise, the following are some of the key soil properties which must be considered in order to achieve optimal productivity

of the land. These include soil structure, soil texture, soil depth, permeability, water holding capacity and parent material (stoniness).

2.3 1.1 Texture

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

1. Coarse texture soils (S): These include sand, loamy sand, sandy loam (with less than 18% clay, more than 65% sand).
2. Medium Texture Soils (M): These include Sandy loam, Sandy clay loam, Silt loam, Silt, Silty clay loam and Clay loam (with more than 35% clay)
3. Fine Textured (Heavy soils) (H): These classes include Clay, Silty clay, Clay loam and Silty clay loam (with more than 35% clay)

2.3.1 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 - 60cm 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.

2.3.2 1.3 Ironstones and other hard pans

Special attention has to be paid to the occurrence of ironstones. These are impermeable layers of iron oxides which may be situated on the soil surface or at a depth of 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 recognisable infiltration. Ironstones are very difficult to reclaim and, in most cases, should not be considered for crop production.

2.3.3 1.4 Stoniness

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 than 25 cm Rock outcrop, the rocky material on the soil surface. Stoniness 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 than 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 than 50% rock outcrop on the surface could be used for forest.
5	More than 90% bedrock wasteland.

(ii) **Slope**

Slope has a major implication on land use as it influences the productive potential of the land and also the choice of land use operations aimed at optimizing production and sustainability. For instance, a fairly level or slightly undulating soils tend to be located mostly in low lying areas and generally have deep and medium to heavy soils which pose less limitation for cultivation 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 cultivation is 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, levelling 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	-%
Level and Lowland	L 0 - 2	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	UV1	25-55	
		UV2	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.

(iii) **Soil Erosion**

Soil erosion can be described as a process involving detachment, transportation and deposition of soil particles. Detachment occurs through the splash of raindrop impact or spinning wind currents on the ground and transported through the rainwater/surface runoff or wind to the point of deposition. Soil erosion is a major limiting factor in both crop and livestock production.

Soil erosion which appears in three major types (sheet, rill and gully) is caused mainly by erosive forces of rainwater/runoff, wind and irresponsible human-related activities such as inappropriate tillage, overgrazing and deforestation. There is coding system for soil erosion appraisal in the field as follows:

Code	Indications
0	No exposure of tree roots, no surface crusting, no splash pedestals: over 70% plant cover ground and canopy.
1/2	Slight exposure of tree roots, slight crusting of surface, no splash pedestals: 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 pedestals 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 course. Material, rills up to depths of eight cm deep: bare soil
5	Gullies, rills over 8 cm deep: blowouts and dunes: bare soil.

(iv) 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 has low permeability. The soil pH influences crop types to be grown as well as management requirements on agrochemicals to be applied for optimal growth and performance of cultivated plants. Some plants are very sensitive to pH and this fact must be kept in mind in the selection of crops to be grown.

The major groupings of soil pH values and their descriptions are as follows:

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

The standard permeability classes for soil are as follows:

Class	Code	Percolation rate in mm p/ hour through saturated undisturbed overs 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

(v) 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 1- 8.2	Slightly to medium alkalinic
8.2 - 9.0	Strongly alkalinic
Greater than 9.0	Very strongly alkalinic

(vi) 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 which is caused by the absorption of condensed water by the highly hygroscopic salt during cool night. The following classes of salinity are recognized as follows: -

Code	Class	Conductivity of Saturation extract mm per cm
1	No salinity	0 - 2
2	Very slightly	2 - 4
3	Slightly Saline	4 - 8
4	Moderately saline	8 - 15
5	Strong salinity	More than 15

(vii) **Structure and Colour**

These are also important in determining the type of soil and its capability and how the soil would behave when subjected to different uses.

2.4 D3: PARAMETERS TO BE USED IN DETERMINING CARRYING CAPACITY OF A GIVEN AREA

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

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).

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 in turn is used in a formula to calculate biomass production of a given area. A soil map (or any other available knowledge, literature or technology,) can be used in this respect.

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.

4. Computation of Total Dry Matter (TDM):

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

Step one

Calculate the effective 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 et al, 1981). This allows for transpiration and direct evaporation.

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.

Step three

Calculation of actual evapotranspiration (AE). This is derived from step one and two above.

$$AE = R - RO \text{ (mm)}$$

Step four

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

If $AE \leq 29$ mm: then $TDM = 0$

If $29\text{mm} \leq AE \leq 263$ mm, then

$$TDM = (3.32 (AE - 29) (1.613 + 0.613) \frac{(F - 1)^{0.5}}{125})$$

If $AE > 263$ mm: then

$$TDM = (777 + 6.26 (AE - 263 + 0.613) \frac{(F - 1)^{0.5}}{125})$$

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 utilisation, (the former can result in competition for water and sunlight, hence have a large effect on pasture production. The latter considers propagation materials which should be left by the grazing animal so that there is a continued growth in subsequent years). This assertion is treated further by another assumption below.

Livestock Unit (LU): LU 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 6.25kg/day, or 2281.25kg per annum (2.3tonne/year). To achieve a sustainable carrying capacity, potential biomass production is equated to livestock units.

Biomass production (Kg)

Livestock Units (Kg)

In livestock production planning, where there are 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 considered age differences of the stocks in question.

NB: 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

(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	Compositio n (%)	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. (**Note:** 1bag = 100Kg)

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

$$2500 + 3000 + (2000 \times 2) = 9500 \text{ cal/day per household.}$$

Annual calorific requirement per household will be
 $9500 \text{ cal/day/HH} \times 365 \text{ days} = 3467500 \text{ cal/HH.}$

(i) Land required for Maize

Annual Amount of Maize required for food per HH = $\frac{\text{Annual calories required per HH} \times \% \text{ composition}}{\text{Calories per Kg (calories of Maize/kg)}}$

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

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 = $577.9 \text{ kg} \times 30\% = 173.4 \text{ kg}$

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 $577.9 \text{ kg} \times 1\% = 5.8 \text{ kg}$.

Amount of seeds required is 5.8kg

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

$$577.9 + 173.4 + 5.8 = 757.1 \text{ kg/HH}$$

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

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

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

$$\text{Amount of land for Maize required} = \frac{751 \text{ kg/HH}}{300 \text{ kg/acre}} = 2.5 \text{ Acre/HH}$$

(ii) Land required for Millet

Amount of Millet required for food per HH = $\frac{3467500 \text{ HH} \times 20\%}{3500 \text{ cal/kg}}$
 Storage loss = $198.1 \text{ kg} \times 30\% = 59.4 \text{ kg}$

Seed requirement per household = $198.1 \text{ kg} \times 1\% = 1.9 \text{ kg}$

Total annual amount of Millet required per HH = $198.1 + 59.4 + 1.9 = 259.4 \text{ kg}$

Actual yield of Millet = 4bags/acre = 400kg/acre (Source: Field survey, January 2005)

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

Therefore, the total land required for food crops = land for Maize + land for Millet

$$= 2.5 + 0.6 = 3.1\text{acres/HH}$$

Then whole village,

$$604\text{HH} \times 3.1\text{acre/HH} = 1872.4\text{acres} = 758.1\text{ha.}$$

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.

(iii) Land required for Simsim (per household)

Annual amount of Simsim required per HH = Annual target income required per HH x Composition

$$\text{Annual amount of Simsim required per HH} = \frac{\text{Produce price in TShs/bag} \times 60\%}{3000 \text{ Tshs/bag}} = 14.6\text{bags}$$

But 1 bag of Simsim has 100kg

$$\text{Hence } 14.6\text{bag} \times 100\text{kg/bag} = 1460\text{kg}$$

Annual amount of land required for Simsim per HH = Annual amount of Simsim in kg

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

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

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 households

$$= 4.9\text{acre/HH} \times 604\text{HH} = 2959.6\text{acres} (1198.2\text{ha})$$

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 (E.g. 20 years)

The estimated number of households in 20 years' time will be 974 households, these will require

$$\text{Land for cash crops } (4.9\text{acres/HH} \times 974\text{HH}) = 4772.6\text{acres} (1932.23\text{ha})$$

$$\text{Land for food crops } (3.1\text{acres} \times 974\text{HH}) = 3019.4\text{acres} (1222.43\text{ha})$$

$$\text{Total land } 1932.32\text{ha} + 1222.43\text{ha} = 3155\text{ha}$$

(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

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

By applying the above assumptions, production will 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 $577.9\text{kg} \times 5\% = 28.9\text{kg}$, for Millet is $198.1\text{kg} \times 5\% = 9.9\text{kg}$.

Land required for food crops**(i) Land required for Maize**

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

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 $577.9\text{kg} + 28.9\text{kg} + 5.8\text{kg} = 612.6\text{kg}$

Therefore, amount of land required to produce 612.6kg of Maize will be;

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

(ii) Land required for Millet

Total amount of Millet required per HH ($198.1\text{kg} + 9.9\text{kg} + 1.9\text{kg} = 209.9\text{kg}$)

Actual yield of Millet is 15bags/acre, which is 1500kg/acre (Source: WAEO, January, 2005).

Amount of land required to produce 209.9kg of Millet will be;

$$\frac{209.9 \text{ kg}}{1500 \text{ kg/acre}} = 0.14 \text{ acre/HH}$$

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 $974\text{HH} \times 0.5\text{acres} = 487\text{acres}$ (197.2ha)

Land required for cash crops**(iii) Land required for Simsim**

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

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

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

Land required for simsim is 1.5acre/HH.

Land required for cash crops is $1.5\text{acres} \times 974\text{HH} = 1461\text{acres}$ (591.5ha)

APPENDIX E: AN EXAMPLE OF VILLAGE LAND USE MANAGEMENT BY-LAWS

**LOCAL GOVERNMENT (DISTRICT AUTHORITIES) ACT
CAP 287 (R.E.2023)**

VILLAGE BY- LAWS

(Made under sections 170 - 174)

VILLAGE LAND USE MANAGEMENT BYLAWS

FOR..... VILLAGE..... DISTRICT

No.	Marginal Notes	Provision
1.	Citation	These By- laws may be cited as the By-laws for Village for the Management of the Village land use plan of the year 2018 and shall come into operation after being approved by the District Council.
2.	Application	These By-laws shall apply throughout the area of jurisdiction of village, as being registered under the Village Registration Act of 1975 with registration No.
3.	Interpretation	<p>In these By-laws, unless the context otherwise requires:</p> <p>Cap.287</p> <p>“Agriculture (farms)” Means an area where production of commercial and food crops is practised. In this area, there are no residential houses, public or cemetery. An average area of a farm per household is two (2) acres.</p> <p>“Cemetery” Means an area set for burial purposes.</p> <p>“Committee of natural resources and environment” Means a Committee made under the</p>

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.

“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.

“Fishing area” Means an area in the dams and rivers where fishing activities are conducted.

“Forest” Means an area with a collection of grasses, thickets, naturally grown and planted trees; and may be reserved for environmental conservation.

“Government” meansVillage government.

“Grazing area” Means an area with trees and grasses where livestock such as cows, goats, sheep and donkeys feed for pastures and water.

“Settlement” Means the area inhabited by people. In this area, there may be few crop plants, trees, livestock sheds and zero grazing may be practised.

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

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

- “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.
- “Water sources” Means rivers, springs, streams, wells and water points.
- “Worship and sacrificial area” Means an area set especially for traditional worshipping and conducting customary offerings.
4. Liaison between Village Assembly, Village Council and other different Committees. Cap.287
- Village Assembly and Village Council are enacted and operate according to sections 24-26, 55-62 and section 105 -107 of the Local Government (District Authorities) Act.
- Sections 107 - 110 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 deems 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 for the Village Council and Village Council is responsible to Village Assembly.
5. Allocated and demarcated areas with their land uses.
- There shall be areas which have been planned, demarcated and identified with different land uses with maps to be attached in the land use plan of the village to form a village land use plan.
6. Erection of sign boards.
- There shall be sign boards which will be erected at the field, to show the beginning and the end of each demarcated land use.
- (i) Each sign board will be made with specified standards and material as may be directed by the PLUM Guidelines.
- (ii) The village council shall ensure that such boards are always in place to fulfil the purpose they are made for.
- It is prohibited for any person to remove or destroy such boards in whichever way.
7. Management of different allocated land uses.
- Management of areas with allocated land uses in a village shall be through the enforcement of By-laws made according to demarcated land uses.
8. Settlement area
- Settlement (Residential) areas shall be demarcated, registered, developed according to health regulations among of which are;
- (i) To build a permanent and durable house with a toilet.
- (ii) 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 arises.
- (iii) Landholders must be emphasised and encouraged to register their parcels of land to obtain customary right of occupancy.
- (iv) Village Land Use Planning Committee (VLUMC) and
- The Healthy committee will supervise and manage these areas on behalf of the village council.
9. Agricultural area (farms)
- Agricultural area (farms) shall be demarcated, registered, developed as follows;
- (i) Development of this area should consider better farming regulations with adherence to water and land protection.
- (ii) 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.
- (iii) 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.
10. Community facilities Areas demarcated as Community facilities shall be allocated according to the needs of the Community. Those areas shall be according to the standards set in the PLUM Guidelines and shall be registered, developed and conserved as follows
- (i) 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.
 - (ii) When this area is developed, there will not be any compensation for any person, except the village council which 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.
11. Village forest reserve Forest areas allocated as Village Forest Reserve shall be demarcated, registered, developed and conserved as follows:
- (i) It is prohibited to mow, set fire and graze in these areas.
 - (ii) Harvesting of forestry crops must obtain an authorisation or written permit from the village council.
- Natural Resources and Environmental Committee will supervise this area on behalf of the village council.
12. Water sources reserve. Areas allocated as water sources should be demarcated, registered, managed and reserved as follows:
- (i) It is unlawful to mow, set fire, burn charcoal,
 - (ii) Manage these areas on behalf of the Village Council cultivate or graze livestock in these areas without a written permit from the village council.
- Natural Resources and Environmental Committee
13. Grazing land. will supervise this area on behalf of the village council.
- Bush and areas allocated for livestock grazing should be demarcated, registered and managed as grazing and drinking area for livestock. The following shall be observed
- (i) it is prohibited to mow, set fire, burn charcoal, cultivate in those areas.
 - (ii) 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.
 - (iii) Village council under technical advice from the District livestock department will maintain a number of livestock which need to be kept in the area.
 - (iv) Excess number of livestock shall be harvested and sold for development of pastoralists and the village as a whole.
 - (v) 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.
 - (vi) It is unlawful to graze and water livestock out of an area set for grazing purposes.
 - (vii) 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.
14. Ritual area. An area allocated for traditional sacrifices will be demarcated and used for tradition and customary purposes.
- (i) It is unlawful to cultivate, set fire, graze livestock, walk randomly, and build residential

- houses in this area.
This area will be supervised by the village council.
15. Fishing area. Fishing activities will be conducted in the allocated rivers, swamps, lakes in adherence to the following
(i) These areas will be supervised by the District fishing department.
(ii) 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.
16. Community Wildlife Management Area (WMAs). Areas allocated for Community Wildlife Management shall be demarcated, registered and managed as areas of block hunting and tourism in adherence to the following
(i) It is unlawful to cultivate, mow, and set fires in this area.
(ii) This area shall be protected and used according to wildlife conservation rules and guidelines.
(iii) 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.
17. Cemetery Where it is allocated as Cemetery it shall be prohibited and unlawful to conduct any other activity apart from burial.
18. 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 with the approval from the village Assembly.
19. 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

20. Approval and Signature. or compensate the wrong done by the person concerned to its original state or situation for the offensive act concerned.
(1) These By-laws shall be approved by the village Assembly and duly signed by the Village Chairman and the Village Executive Officer on the date, month and year when the Village Assembly was held.
(2) Upon approval by the Village Assembly, the village land use planning By-laws shall be presented before the District Council for endorsement with signature by the District Chairman and the District Executive Director.

These by-laws have been enacted by the..... Village Council onday of 20..... and been approved byVillage Assembly onday of, 20.....

Has been signed

Signature:

Signature:

Name:

Name:

VILLAGE EXECUTIVE OFFICER

VILLAGE

COUNCIL

CHAIRPERSON

Has been stamped by the official stamp of Village Council. These Bylaws have been endorsed and signed by the..... District Council onday of.....year.

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

Signature:	Signature:
Name:	Name:
DISTRICT EXECUTIVE DIRECTOR	CHAIRMAN OF THE DISTRICT COUNCIL

..... **DISTRICT COUNCIL**

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

This Village Land Use Plan report was submitted for scrutiny and technical verification as per Regulation 18 of Land Use Regulation 2020.

I, The Director General for National Land Use Planning Commission

DO HEREBY satisfy this Village Land Use Plan as an official document

.....

Signature

Dateof20.....

APPENDIX F: CLIMATE CHANGE ADAPTATION AND MITIGATION STRATEGIES

(Extract from National Climate Change Strategy 2021-2026)

(i) Climate Change Adaptation Strategies by Sector

No.	Sector	Strategic interventions
(i)	Agriculture and food security	(i) Assessing crop vulnerability and suitability (cropping pattern) for different Agro-ecological zones (ii) Assess trade comparative advantage on traditional export crops with changing climate (iii) Promoting appropriate irrigation systems (iv) Promoting use of appropriate for production, processing, storage and distribution (v) Strengthening weather forecast information sharing for farmers (vi) Strengthening postharvest processes and promote value addition (vii) Addressing soil and land degradation by promoting improved soil and land management practices/ techniques. (viii) Strengthening integrated pest management techniques (ix) Promoting use of pest/disease tolerant varieties (x) Strengthening early warning systems for pest surveillance
(ii)	Livestock	(i) Promoting climate change resilient traditional and modern knowledge on

		<p>sustainable pasture and range management systems.</p> <p>(ii) Promoting development and implementation of land use plans countrywide.</p> <p>(iii) Enhancing development of livestock infrastructure and services.</p> <p>(iv) Promoting development of livestock insurance strategy.</p> <p>(v) Strengthening weather forecast information sharing for pastoralist</p> <p>(vi) Promoting livelihood diversification of livestock keepers.</p> <p>(vii) g) Promoting improved traditional livestock keeping system.</p>
(iii)	Fisheries	<p>(i) Enhancing monitoring of fisheries habitat and species.</p> <p>(ii) Facilitating enhancement and/ or development of integrated data management system in the fisheries sector in line with the CEIS.</p> <p>(iii) Promoting aquaculture.</p> <p>(iv) Enhancing protection and conservation of aquatic ecosystems</p> <p>(v) Supporting alternative livelihood initiatives for fisheries community</p>
(iv)	Forestry	<p>(i) Enhancing control of forest fire, disease and pest breakout.</p> <p>(ii) Enhancing conservation of forests biodiversity and control of invasive species.</p> <p>(iii) Supporting alternative livelihood initiatives for forest dependent communities.</p> <p>(iv) Promoting establishment of woodlots.</p> <p>(v) Establishing comprehensive</p>

		<p>monitoring system for forest resources and ecosystem conditions</p> <p>(vi) Strengthening and up scaling</p> <p>(vii) of community-based forest management best practices</p> <p>(viii) Promoting use of non-wood construction materials.</p> <p>(ix) Promoting energy efficient technologies.</p> <p>(x) Enhancing decentralization of forest management</p>
(v)	Energy	<p>(i) Promoting diversification of energy sources including non –traditional.</p> <p>(ii) Supporting development and utilization of community based off-grids/mini-grids</p> <p>(iii) Promoting clean coal for energy generation.</p> <p>(iv) Promoting development and use of energy efficient technologies.</p> <p>(v) Promoting application of cogeneration in industrial sector.</p> <p>(vi) Promoting energy plantations to reduce pressure on catchment natural forests.</p>
(vi)	Water Resource	<p>(i) Protecting and conserving water catchments</p> <p>(ii) Enhancing exploration and extraction of underground and other water sources</p> <p>(iii) Facilitating and promoting water recycling and reuse</p> <p>(iv) Promoting rain water harvesting</p> <p>(v) Enhancing coordination of water abstraction and use</p>

		<p>(vi) Promoting efficiency in water supply and use to ensure adequate and sustainable water supplies to all sectors.</p> <p>(vii) Facilitating access to water resources</p> <p>(viii) Enhancing management of water sources to improve sanitation and hygiene</p> <p>(ix) Promoting water treatment and storage.</p> <p>(x) Enhancing decentralisation of water sources management.</p> <p>(xi) Conducting vulnerability assessment in water resources</p>
(vii)	Wildlife	<p>(i) Enhancing protection and conservation of wildlife habitats</p> <p>(ii) Strengthening wildlife information database and management systems</p> <p>(iii) Enhancing management of emerging human-wildlife conflicts</p> <p>(iv) Promoting appropriate methods for conservation of climate change threatened species.</p> <p>(v) Enhancing involvement of local communities in wildlife conservation through Wildlife Management Areas (WMA)</p> <p>(vi) Conducting vulnerability assessment of wildlife</p> <p>(vii) Enhancing controlled fire management system in wildlife habitats</p>
(viii)	Tourism	<p>(i) Promoting alternative tourist attractions.</p> <p>(ii) Restoring the degraded tourist sites.</p> <p>(iii) Sensitising and enhancing adaptive tourism infrastructural development.</p>

(ix)	Infrastru cture	<p>(i) Promoting and enhancing use of building codes and standards adaptive to climate change.</p> <p>(ii) Promoting integrated planning in infrastructure designing, development and use of appropriate technologies</p> <p>(iii) Promoting construction and rehabilitation of relevant infrastructure.</p> <p>(iv) Promoting insurance system for infrastructures</p>
(x)	Human settleme nts	<p>(i) Promoting building standards to accommodate impacts of climate change.</p> <p>(ii) Enhancing land use planning.</p> <p>(iii) Improving settlements of communities in climate change risk prone areas.</p> <p>(iv) Relocating settlements from high-risk areas.</p> <p>(v) Promoting sustainable housing schemes.</p> <p>(vi) Promoting insurance schemes for human settlements</p>
(xi)	Land use	<p>(i) Reviewing and enforcing land use master plans.</p> <p>(ii) Exploring and promoting sustainable land management technologies.</p> <p>(iii) Promoting and supporting effective land use planning at all levels</p>

(ii) **Climate Change Mitigation Strategies by Sector**

No.	Sector	Strategic interventions
(i)	Agriculture	(i) Promoting agro-forestry systems. (ii) Enhancing management of agricultural wastes. (iii) Promoting efficient fertilizer utilisation. (iv) Promoting best agronomic practices technologies.
(ii)	Livestock	(i) Promoting manure management practices (ii) Promoting appropriate technology for animal feed stuff production (iii) Promoting waste management in abattoir (iv) Improving rangelands productivity and complementary activities
(iii)	Forestry	(i) Promoting afforestation and reforestation (ii) Supporting household energy plantations to reduce pressure on natural forests (iii) Supporting capacity building for community-based forest carbon assessment (iv) Promoting reduction of emission from deforestation (v) Promoting reduction of emission from forest degradation (vi) Promoting sustainable management of forest (vii) Enhancing and conservation of carbon stocks (viii) Developing NAMAs in forest management
(iv)	Energy	(i) Enhancing use of renewable energy share in the national grid and off-grid. (ii) Enhancing off – grid power supply to rural areas. (iii) Promoting diversification of energy sources. (iv) Supporting exploitation of geothermal, clean coal and safe nuclear energy. (v) Promoting energy efficient technologies and practices. (vi) Developing NAMAs focusing on energy generation and conservation. (vii) Promoting green energy related technologies

REFERENCES

- URT, 1994. *Report of the Presidential Commission of Inquiry into Land Matters. Volume I*. Dar es Salaam: MLHSD in cooperation with SIAS Stockholm.
- URT, 2022. *Population Census Books*. Nat. Bureau of Statistics. Dar es Salaam.
- De Pauw, E. 1995. *Development of Land Use Planning and Land Tenure in Tanzania. Main report*. FAO Rome & NLUPC Dar es Salaam.
- Bakema, R.J. 1984. *Land Tenure and Sustainable Land Use*. Bulletin 332. Royal Tropical Institute, Amsterdam.
- FAO, 1993. *Guidelines for Land-use Planning*. FAO Development Series 1, FAO, Rome.
- MLHSD, 1975. *Model Village Layout Planning Handbook*. Dar es Salaam
- Mango, G.K. 1997. *From Conventional to Participatory Land Use Planning in Tanzania*. pp. 10-17. In: *Proceedings of the National Workshop on the Institutionalisation of Participatory Village Land Use Management in Tanzania*. DLUMP-NLUPC, Dodoma, 30-31 October 1997.
- Kauzeni, A.S. et. al, 1993. *Land Use Planning and Resource Assessment in Tanzania: A Case Study*. IIED Environmental Planning Issues No. 3 & IRA Research Paper No. 35. Institute of Resource Assessment - Dar es Salaam & International Institute for Environment and Development - London.
- NLUPC et. al, 1996. *Proceedings of the Workshop on Development of Land Use Planning and Land Tenure System in Tanzania*. Morogoro, 12-14 March 1996.
- MLHSD, 1988. *Land-use Plan of Manyali Village in Dodoma Rural District*. Prepared by the Dodoma Regional Lands Development office and approved at the Department for Urban Development of the Ministry of Lands in Dar es Salaam.
- Koda, B. 1994. *Women, Agriculture and Rural Development - Final Report*. National Report Prepared for FAO/AIDOS, Rome. UDSM - Institute of Development Studies, Dar es Salaam.
- Agarwal, B. 1994. *A field of one's own. Gender and Land Rights in South Asia*. South Asian Studies 58. Cambridge University Press.
- Bashagi, W. 1997. *Gender Considerations in Participatory Land Use Management*. pp. 45-49. In: *Proceedings of the National Workshop on the Institutionalisation of Participatory Village Land Use Management in Tanzania*. DLUMP-NLUPC, Dodoma, 30-31 October 1997.

Land, a basic resource for our livelihood, is becoming more and more a scarce commodity in Tanzania. Attributed to the fast-growing population, land pressure is on the increase, leading to well-known problems such as land degradation and land use conflicts.

As a result, there is an increasing demand to regulate the use of the land resources for the direct benefit of the majority of the Tanzanian population living in rural areas, and for future generations.

The participatory village land -use management methodology, as presented in this guidebook, attempts to enhance the capacity of local communities to plan and manage natural resources in an efficient, equitable and sustainable way, leading to improved production and standards of living for both men and women. The guidelines are mainly formulated for district staff to establish and facilitate the process of participatory village land -use management through integration of the concerned sector and building capacity village level institutions.

The development of these guidelines is based on experience from various institutions and project dealing with land -use planning and natural resource management working at the local levels in different parts of the country.

The institutionalisation of these guidelines, is based on the ongoing governmental decentralisation and democratisation process, and land reforms. This guideline was developed to replace the conventional, top-down and sectoral oriented methods of land – use planning and management which not yielded the expected results.

Copies of the guidebook in Swahili and English, as well as support for application of the guidelines, can be requested from the National Land Use Planning Commission (NLUPC), which is the principal coordinator organ of the Tanzania Government and other stakeholders on all matters related to land use.

'I extend my sincere appreciation to all who have made efforts in developing and reviewing the guideline. I urge all stakeholders involved in the rural development process to apply this guideline. This is because, it offers an avenue whereby both men and women can democratically participate in bringing about rural development in an environmentally friendly manner'

(Hon. Dr. Leonard D. Akwilapo)

Minister for Lands, Housing and Human Settlements Development
(2025)

The participatory approach, which implies strengthening of local institutions, is fully in line with the current Government reforms, whereby local institutions are empowered, and given more mandate to play their role in rural development. The guideline, as presented in this document, is therefore in place and I strongly recommend it for the widest possible use'

(Hon. Kaspar K. Mmuya)

Deputy Minister for Lands, Housing and Human Settlements
Development (2025)

'In response to experiences with top – down land – use planning approaches, this participatory guideline has been developed and reviewed through careful consideration of numerous details. Districts will find it beneficial to apply this guideline in accordance with their own circumstances'

(Eng. Anthony Sanga)

Permanent Secretary (2025)

'The participatory approach empowers people to utilise their resources better and for the purpose of poverty alleviation. It is my hope that the guideline will serve as a catalyst for rural development'.

Joseph C. Mafuru

General Director of National Land Use Planning Commission
NLUPC – (2025)