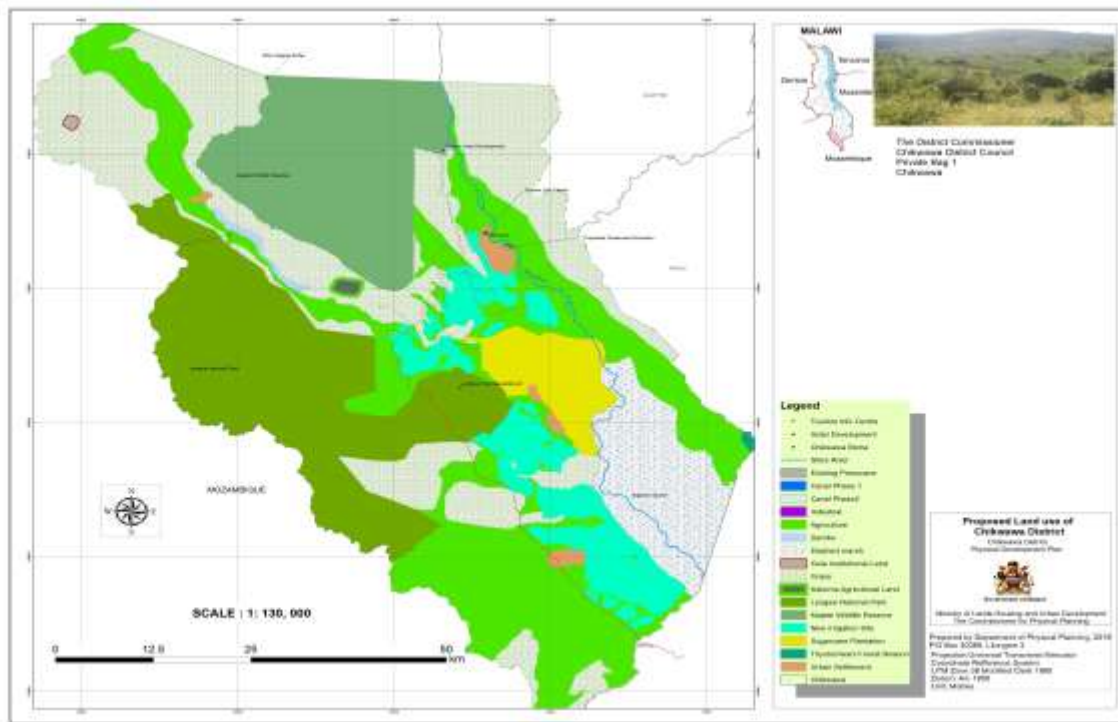


CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN



Malawi Government

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN



AUGUST 2020

Chikwawa District Council

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

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EXECUTIVE SUMMARY

The Chikwawa Physical Development Plan (CPDP) referred to as the Plan, is the first comprehensive Physical Development Plan to be prepared for Chikwawa District (the District). The Plan seeks to provide a comprehensive guide for orderly and coordinated physical development of land in the District. The Plan has been prepared under the land reform program activities which among others, intended to assist in piloting the implementation of new land laws. The content of the Plan has the following thematic topics: Introduction and background; Geography; Existing development plans, Programmes and policies; Natural resources and economic activities; Population growth and characteristics; Urbanization; Physical infrastructure; Major land uses; Institutional framework for district development; Review of the Physical Development Plan; and Recommended Policies and Actions.

The main objective of the Plan is to ensure a well spatially planned Chikwawa district for effective social and economic development. The Plan intends to provide an overall framework for promoting orderly, co-ordinated and optimum distribution of social and economic development; orderly development of service centres and inter-settlement functional linkages; regulated use of land; and guided investment decisions and implementation of programmes and projects to embrace sustainable socio-economic development.

The District lies in the southern region of Malawi and has a land size of 4,892 km² with a population of 564, 684. It has a high population growth rate of 2.5% and a population density of 116 people per square kilometres. The Plan recommends promoting access to family planning information and services, enhancing provision and access to youth-friendly Reproductive Health Services (RHS), and intensifying programmes to keep girls in school.

Policy, legal framework, international strategies and major development programmes which have a significant impact on the plan preparation process have been analysed and have provided input into the development policies, strategies and actions.

Natural resources issues have been articulated with particular emphasis on their socio-economic impact and how they can be enhanced to promote economic growth and development of the district. The Plan has further analysed existing situation in relation to forestry, agriculture, commerce and industry, mining, tourism and labour and employment. It also highlights the role of Shire Valley Transformation Project towards improving management and utilisation of natural resources in a sustainable way to increase agricultural productivity in the District.

Urban centres have been ranked in a hierarchical order according to the services they provide as outlined in National Physical Development Plan (1987) but also using the results of the central place survey carried out in 2019 in the District. The ranking of the 25 service centres was based on the influence exerted by the centres in terms of functions and relative importance as a central place. Chikwawa District Headquarters, Ngabu, and Nchalo, were identified as Main Market centres while Mkumaniza, Chapananga, Masenjere and Sorgin as Rural Market centres and the rest of the eleven have been classified as Village centres.

The Plan further provides a detailed presentation of the various types of physical infrastructure and utilities, their location and the level at which each service/facility is operating in the District. It also provides an in-depth discussion on transportation, energy, waste management, water, irrigation, health, education, tourism, posts and communication as well as security infrastructure and services in the district. The level, quality and quantity of

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

infrastructure and service provision in the District has been analysed to identify challenges and opportunities.

The Plan also provides in detail district institutional framework for implementation, monitoring and evaluation of the Plan. Key institutions involved include; Local Government Authority structures in Chikwawa District, Department of Physical Planning, Shire Valley Agricultural Development Division, Agricultural Development and Marketing Corporation, Department of Wildlife and Parks, Ministry of Industry and Trade and Department of Disaster Management Affairs and other relevant stakeholders. Key issues and recommendations have been outlined in Chapter 12.

In order to address issues and challenges highlighted in the background studies report, recommended policies and actions are prioritised to stimulate socio-economic growth and manage the environment in the district. The policies and actions are also meant to address the need for sustainable and balanced development of urban centres and guide location of various investments according to designated land uses in order to derive maximum benefits from land based investments and resources. Lastly, they are intended to provide a spatial framework for the sustainable development of human settlements to make sure that they are resilient to natural disasters.

It is important that all stakeholders operating in the District should work with Chikwawa District Council in addressing issues highlighted and implement proposals to ensure that the overall goal and objectives of the Plan are achieved.

FOREWORD

One of the fundamental national development policy objectives is that the fruits of social and economic development should be spread as evenly as possible in all parts of the country and among all sections of the people. In line with this, the Malawi Government has been endeavouring to achieve rapid socio-economic development as a pathway to improving the living standards of the people.

In an effort to achieve balanced development within the framework of the fundamental objective stated above, the Government is implementing many development programmes and projects in all parts of the country. From physical planning point of view, the geographical distribution of these development efforts is of particular importance and in this respect the Government has adopted the policy of decentralised development.

The first step in the implementation of this policy was the moving of the Capital City from Zomba to Lilongwe and the designation of Chirimba in Blantyre, Liwonde in Machinga, Kanengo in Lilongwe and Luwina in Mzuzu as industrial sites. It is in the same spirit that government implemented the Secondary Centres Development Programme in Karonga, Salima, Dedza, Mangochi, and Luchenza and Rural Growth Centres project in Mbalachanda, Likoma, Neno, Lobi, Tsangano, Chapananga, Malomo, Bolero, and Jenda.

The main objective of the Plan is therefore, inter alia, to provide comprehensive spatial development strategies for achieving balanced, sustainable, participatory and resilient socio-economic development of Chikwawa District.

I therefore, present this plan to all Government Ministries, Departments, Statutory Organisations, the Private Sector, Donors, Civil society organisations and all those that have a role to play in implementing the Plan. The Plan is as an integral part of our District Development Plan and it will assist the District Council to effectively implement development programmes and projects in the District.



Councillor Bede

CHAIRMAN

CHIKWAWA DISTRICT COUNCIL

PREFACE

In Malawi, the district is the central focus of development planning activities as it interprets the provisions in the Malawi Growth and Development Strategy and of the National Physical Development Plan. The plan has been prepared by the Department of Physical Planning in collaboration with and on behalf of Chikwawa District Council.

The basic aim of the Plan is to provide an overall framework for

- a) Promoting orderly, coordinated and optimum distribution of social and economic development in the entire district;
- b) Promoting the proper development of service centres and inter-settlement functional linkages;
- c) Regulating the use of land; and
- d) Guiding investment decisions and development.

The background studies of the Chikwawa District Physical Development Plan identified the problems in the district as:

- a) Rampant illegal developments (encroachments into road reserves, way leaves and protected areas)
- b) Chaotic/haphazard developments due to nonexistent development control mechanisms.
- c) Lack of capacity for physical planning at the Council
- d) Prone to natural disasters (floods and droughts)
- e) Settlements in hazard prone areas
- f) Shortage of land
- g) Conflict of land use mainly among settlement, conservation and agriculture
- h) High population growth against limited habitable and good arable land
- i) Inadequate all weather road network and poor inter-settlement linkages
- j) Over reliance on one source of power generation
- k) Inadequate access to portable water
- l) Industrial waste pollution
- m) Lack of established waste management system
- n) Non availability of some public services such as toilets and drainage system
- o) Inadequate health facilities
- p) Lack of/inadequate basic infrastructure and services

The policies formulated in the Plan are intended to assist in overcoming these problems. Therefore, I appeal to all those involved in the Planning, development and administration of Chikwawa District to hold hands in implementing the Plan to ensure its success and in promoting sustainable development in Chikwawa.



Ali Phiri
DISTRICT COMMISSIONER
CHIKWAWA DISTRICT COUNCIL

ACKNOWLEDGEMENTS

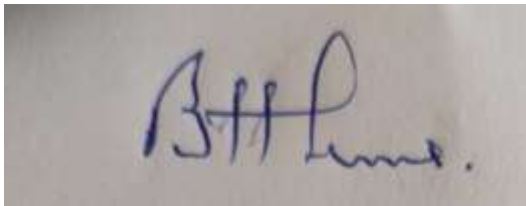
The Ministry of Lands, Housing and Urban Development would like to express its heart-felt gratitude to the Departments of Physical Planning for the tremendous effort it had made in preparing the Plan. I wish to congratulate the Commissioner for Physical Planning and his team for the hard working spirit they demonstrated during the whole exercise amid a lot of challenges. May I thank the Land Reform Implementation Unit led by its able Team Leader for providing the necessary coordination in conjunction with the Policy and Planning Section. The Department of Surveys also played a pivotal role in the whole exercise by providing the necessary geo-spatial information for the planning exercise to be successful.

The preparation of the Plan would not have been possible without the financial and logistical support from the World Bank funded Shire Valley Transformation Programme under the Ministry of Agriculture, Irrigation and Water Development. Chikwawa District Council, being the client and main beneficiary of the Plan, showed ownership and fully participated in the whole plan preparatory process.

The Ministry is indebted to various institutions including Government Ministries and Departments, statutory organisations, private sector and the general public for their valuable contributions and co-operation during the preparation of this plan.

The draft plan was circulated to all interested stakeholders and discussed in a workshop. The plan was also displayed in all major centres in the district for public input. We wish to extend our sincere gratitude to all government officials and representatives of statutory organisations, civil society organisations and the private sector, members of parliament, the chair and all members of Chikwawa District Council, including Chiefs, for their valuable contributions. Special tribute should go to the District Commissioner and his team comprising the District Executive Committee for the support the planning team got through out the planning exercise.

The team has strong conviction and hope that the maximum support and co-operation received during the preparation of the Plan will also prevail during its implementation.



.....
BERNARD H. SANDE

SECRETARY FOR LANDS

ABBREVIATIONS AND ACRONYMS

AA	Anhydrous Alcohol
AIDS	Acquired Immune-deficiency Syndrome
ACPC	Area Civil Protection Committee
ADB	African Development Bank
ADD	Agricultural Development Division
ADC	Area Development Committee
ADMARC	Agricultural Development and Marketing Corporation
ASP	Agriculture Stakeholders Panel
AU	African Union
BCC	Blantyre City Council
CADECOM	Catholic Development Commission
CDPDP	Chikwawa District Physical Development Plan
CHAM	Christian Health Association of Malawi
CSOs	Civil Society Organizations
DADO	District Agriculture Development Officer
DAEC	District Agriculture Executive Committee
DC	District Commissioner
DC	District Council
DR	District Road
DEC	District Executive Committee
DEM	District Education Manager
DFO	District Fisheries Officer
DODMA	Department of Disaster Management
DMS	Degrees, Minutes and Seconds
ECDCs	Early Childhood Development Centres
EMA	Environment Management Act
ESCOM	Electricity Corporation of Malawi
EGENCO	Energy Generation Company
ETG	Exports Trading Group

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

EPA	Extension Planning Area
FAO	Food and Agricultural Organization
FDH	First Discount House
FINCA	Foundation for International Community Assistance
FIG	Figure
GA	Great African Rift Valley
GBA	Green Belt Authority
GWAN	Government Wide Area Network
HIV	Human Immuno-deficiency Virus
ICT	Information Communication Technology
IFMSLP	Improved Forest Management for Sustainable Livelihood Programme
LGA	Local Government Policy
LPDP	Local Physical Development Plan
LSLBI	Large Scale Land Based Investment
MARDEF	Malawi Rural Development Fund
MACOHA	Malawi Council for the Handicapped
MASAF	Malawi Social Action Fund
MGDS	Malawi Growth and Development Strategy
MNLUP	Malawi National Land Use Policy
MHC	Malawi Housing Corporation
MoAIWD	Ministry of Agriculture, Irrigation and Water Development
MoLHUD	Ministry of Lands, Housing and Urban Development.
MoH	Ministry of Health
MPS	Malawi Police Service
MTL	Malawi Networks Limited
SME	Small and Medium Enterprise
SOGERV	Sustainable Off-Grid Electrification of Rural Villages
SDA	Seventh Day Adventist
SRWB	Southern Region Water Board
NBM	National Bank of Malawi

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

NBS	New Building Society
NDP	National Development Policy
NEP	National Environmental Policy
NGOs	Non -Governmental Organizations
NLP	National Land Policy
NRA	National Road Authority
NSO	National Statistical Office
RAI	Rural Access Index
RDP	Rural Development Project
RGCs	Rural Growth Centres
RS	Rectified Spirits
OIBM	Opportunity International Bank of Malawi
OPC	Office of President and Cabinet
OVOP	One Village One Product
PEA	Primary Education Advisor
PO	Post Office
SDGs	Sustainable Development Goals
STD	Standard Bank
SUCOMA	Sugar Corporation of Malawi
SVTP	Shire Valley Transformation Project
T/A	Traditional Authority
TEVETA	Technical Entrepreneurial Vocational Educational Training Authority
TNM	Telekom Networks Malawi
VAC	Village Agriculture Committee
VDC	Village Development Committee
VFA	Village Forest Areas
NPDP	National Physical Development Plan
USA	United States of America
UTM	Universal Transverse Mercator
VC	Village Centre

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

WB	World Bank
WV	World Vision

1 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The Chikwawa Physical Development Plan is in response to the requirements of the Physical Planning Act 2016. The Act seeks to provide for all matters connected to physical planning in Malawi and makes provision for orderly and progressive development of land both in urban and rural areas. In line with this legal requirement, the Plan has been prepared to guide spatial development of Chikwawa District while taking into consideration social and economic development aspects of all sector activities and projects. The Plan is the first comprehensive physical development plan to be prepared for Chikwawa district and has been developed under the National Land Reform Programme activities of which among others is to assist in piloting the implementation of new land laws before rolling out nation-wide. The Plan is also expected to guide the Shire Valley Transformation Project and other major projects of national interest in the District in the location and development of land based investments.

The Plan has been prepared by Chikwawa District Council with technical assistance from the Department of Physical Planning following a request by Chikwawa District Council to take lead in the Plan preparation process while the Council is developing its technical capacity.

1.2 CONTENT AND LIFE SPAN OF THE PLAN

The Plan comprises background study report, documentation of physical planning issues identified and policies and strategies to address the issues identified. The Plan outlines existing socio-economic and geospatial situation, their planning policy implications, and integrates them into proposals and recommendations for guiding spatial development framework for Chikwawa District. It has the following thematic topics: Introduction and background; Geography; Existing development plans, programmes and policies; Natural resources and economic activities; Population growth and characteristics; Urbanization; Physical infrastructure; Major land uses; Institutional Framework for District Development; Review of the Physical Development Plan; and Recommended Policies/Actions.

The lifespan of the Plan is expected to be 20 years after which the Plan will be reviewed comprehensively. However, proposals and recommendations for short-term, medium-term and long-term have been expounded.

1.3 SCOPE AND OBJECTIVES OF THE PLAN

The Plan covers the entire Chikwawa District with an area of about 4,755 sq Km, which includes both urban and rural areas.

The Plan aims at ensuring a well spatially planned Chikwawa District for effective social and economic development. To achieve this, the Plan has been prepared with the following objectives:

- i. To facilitate the promotion of a more spatially balanced economic growth that will ensure an optimum distribution of productive activities and population;
- ii. To provide a spatial framework for the coordination and implementation of socio-economic development programmes and projects;

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

- iii. To promote the development of service centres in conformity with the system of urban and rural settlements and hierarchy of service centres established in the National Physical Development Plan;
- iv. To provide for transportation network that will promote the development of human settlements, support production activities and facilitate inter settlement – functional linkages such as travel, commodity flows and delivering of services;
- v. To provide guidelines for the location of other Government development projects and private land based investments;
- vi. To rationalize and promote the optimal use of land and, in particular, the preservation of the best arable land;
- vii. To provide guidelines for the location of infrastructure and services in accordance with available resources;
- viii. To rationalize and promote the optimal use of land consistent with the requirements of land use related laws, and the need for the conservation and management of natural resources, environmental protection and quality of life;
- ix. To provide guidelines for location of tourist destination points to achieve optimum use of the Shire Valley and increase economic and social benefits accruing from tourism; and
- x. To promote mitigation and resilience to disasters.

It is further envisaged that, the Plan will enhance and facilitate the efficient and effective implementation of the Shire Valley Transformation Project which is being implemented in the district.

The preparation of the Plan has been necessitated by the need to have guidance on spatial development of the district. The prevailing legal environment empowers local government authorities to prepare physical development plans in order to provide proper spatial coordination of physical, social, economic development and environmental management and enforce development control. The Physical Planning Act 2016 also advocates for all types of land in Malawi to be subjected to planning regulations.

1.4 PLANNING PROCESS AND CONSULTATIONS

Background studies including Literature Review, Extensive Socio-Economic, and Geospatial Surveys were conducted by a team of Physical Planners, Economists, Surveyors and Environmental Planners. Institutions consulted include Government Ministries and Departments, Chikwawa District Council, Traditional Authorities and their subjects, private stakeholders, and community members within Chikwawa District.

Consultations further continued during and after the preparation of the first draft plan in order to incorporate relevant views from various development stakeholders in the district. A better understanding of major challenges and issues on existing spatial and socio-economic situation in the district was vital in guiding formulation of recommendations and proposals.

Final draft of the Plan was presented in focused group sensitisation and consultative stakeholder workshops so as to incorporate comments from participants. The final draft plan was also put on display at 8 centres within the district to solicit public views. The District Council through the office of the Director of Planning and Development coordinated most of

the Planning process activities with financial support of the Shire Valley Transformation Project.

1.5 BACKGROUND STUDIES

The Government of Malawi prepared the National Physical Development Plan (NPDP) in 1987 which aimed at integrating aspects of socio-economic development planning into spatial planning so that physical development is accomplished with sustainable use of natural resources. The NPDP provided proposals and statements for guiding the national agenda for development. It was also intended to direct the preparation of District Physical Development Plans in all districts. Due to financial constraints and other factors, such as capacity, only Karonga, Mzimba and Machinga/Balaka District plans were prepared. Despite availability of the NPDP and other sector policies, Chikwawa lacked a comprehensive spatial development framework to articulate and guide the District's socio-economic and spatial development.

The District is prone to several challenges affecting the inhabitants which include lack of adequate resources to meet the increasing demand of its population; rapid urbanisation challenges, natural disasters, frequent flooding and drought as a result of climatic changes and other environmental and land use challenges. Approaches to deal with these challenges have taken place but without proper balance of space requirement and regulation of competitive and conflicting demands for uses of land like agriculture, human settlement, forestry, industry, infrastructure for social amenities and utilities, national parks and wildlife reserves. Lack of a proper physical development plan for the district has significantly contributed to uncoordinated haphazard developments taking place in the district and mostly visible in urban centres.

Chikwawa District Council prepared land use plans to guide spatial developments and allocation of plots at Chikwawa District Headquarters, Nchalo, Kapichira, Chapananga and Ngabu with assistance from the Regional Commissioner for Physical Planning (South). The plans were however not fully followed because they were considered just advisory and lacked legal implementation and enforcement mechanisms. The local plans also lacked coherence and proper coordination with peripheral developments due to lack of a comprehensive district physical development plan and lack of requisite capacity at the District Council.

The Plan has a legal backing required for its implementation Under the Physical Planning Act, 2016. The motion to prepare the Plan was unanimously adopted by the Chikwawa District Council at its meeting held in January 2019, where among others it was decided to request the Department of Physical Planning under Ministry of Lands, Housing and Urban Development to prepare the Plan on the Council's behalf. The Department was also tasked to sensitize people at grassroot level before embarking on actual preparation of the Plan.

2 GEOGRAPHY

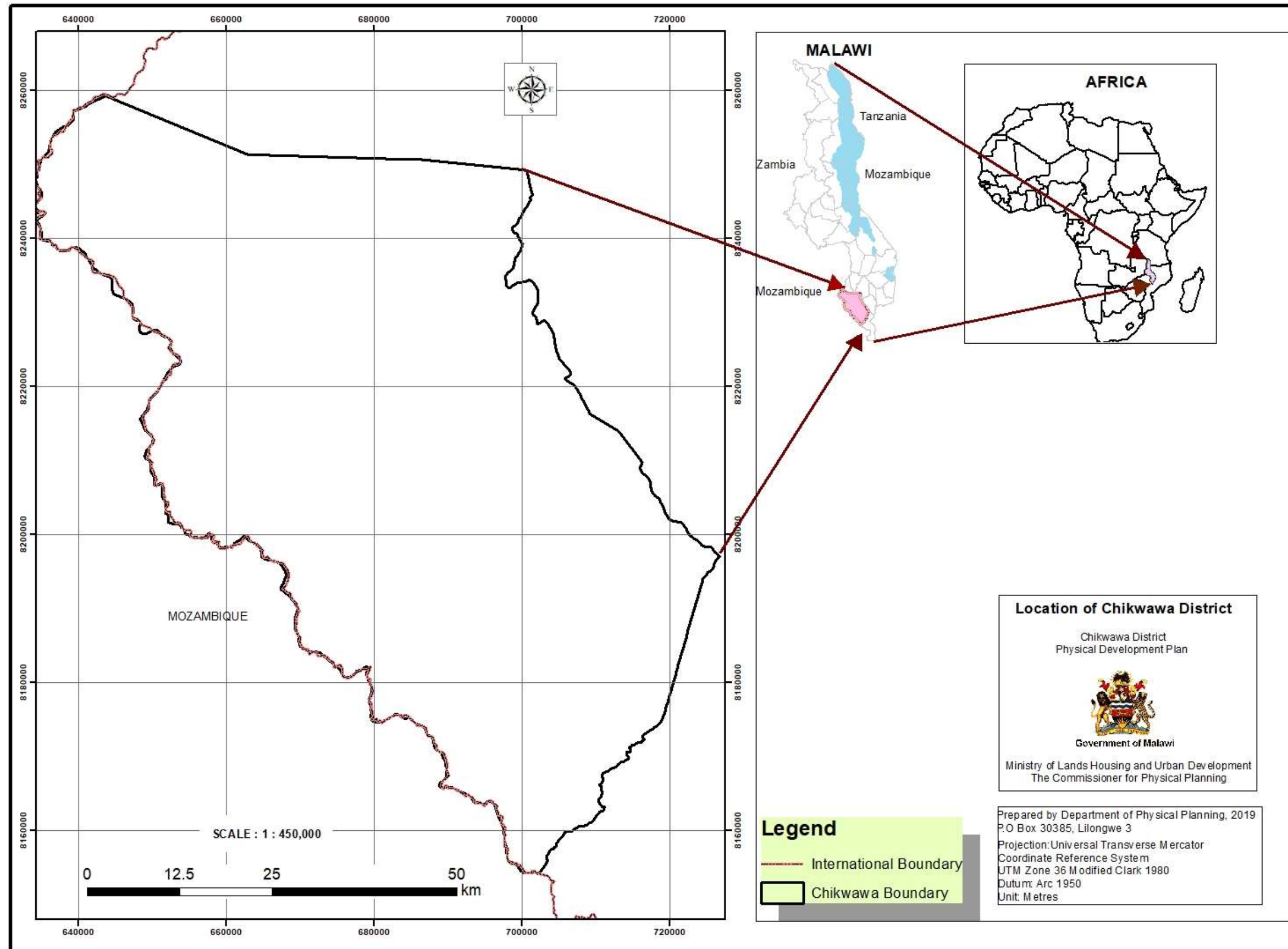
2.1 INTRODUCTION

This chapter gives a general description of the district which includes location, administrative and political boundaries, climate, geology and vegetation and other physical features.

2.2 LOCATION AND SIZE

Chikwawa District is located in the Southern Region of Malawi. It shares its boundary with Mwanza District to the North, Blantyre to the North East, Thyolo to the East, Nsanje to the South and Mozambique international boundary to the West. The District Headquarters is approximately 54 km away from Blantyre City. Its geographic locational coordinates are 16°10'0" S and 34°45'0" E in DMS (Degrees Minutes Seconds) or -16.1667 and 34.75 (in decimal degrees). The District covers a total land area of 4,892 km² (489,165.769 ha) which is about 15% the size of the Southern Region and 5.04% of the country;. It is the second largest district in southern region and fifth in Malawi. Figure 1 is a Map of Malawi showing the location of Chikwawa District.

Figure 1: Map of Malawi showing Chikwawa



2.3 TOPOGRAPHY AND DRAINAGE

2.3.1 Topography

The District has an undulating terrain surface, but is predominantly flat. It is located at an elevation of 112 meters above sea level along the lower flat basin of Shire River which is along the Great East African Rift Valley. In the eastern side of the district lies Thyolo Escarpment and most of the central part of the district is flat with marshes along the Shire River, and moderate highlands to the west. Figure 2 shows the topography of Chikwawa District.

2.3.2 Drainage

The district has both regular and parallel drainage pattern which reflect the undulating surface and varied soil types. Shire is the biggest river in the district and outlet for other rivers such as Maperera, Mwamphanzi, Nkudzi, Livunzu, Nkhate, Limphangwi, Likhubula, Mthumba and Chidzimbi. In addition, there are also other rivers originating from the western part such as Mwanza, Phwadzi, Mkombedzi, Nyamikalango, Chidyamanga, Nyakamba and Lalanje. Drainage details of the district are shown in Figure 3.

2.4 GEOLOGY AND SOILS

A wide variety of soils exist in Chikwawa District that vary from area to area according to different types of sediments and rocks. Sandy loam soils dominate among the groups with 48% and with clay loam soil as the least at 2.2%. Major soil types are shown in Figure 4 below while Figure 5 is the spatial distribution of various soil groups in the district.

The soils range from deep, medium to fine textured, brown to very dark-grey in colour. They have a drainage which varies from good to very poor. In the uplands and hills, the soils are predominantly moderately deep, medium textured, well-drained and yellowish brown. Alkaline and slightly saline soils occur at the edge of swamps, otherwise soils have a slightly acidic to neutral reaction. The natural status of most cultivatable soils are characterised by widespread deficiencies of phosphorous and nitrogen. According to the FAO classification (FAO, 1988), most of the upland soils are cambisols or luvisols under undisturbed woodlands and grasslands phaeozems may also be found. The soils in the lowlands are more variable and classified predominantly as as luvisols, fluvisols, vertisols and gleysols (cambisols).

Chikwawa has more than ten groups of soils out of a total of thirteen soil groups in Malawi, indicating a great variety of soils in the district. Agriculturally, this means several types of crops can be grown in Chikwawa.

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

Figure 2: Topographic Map of Chikwawa

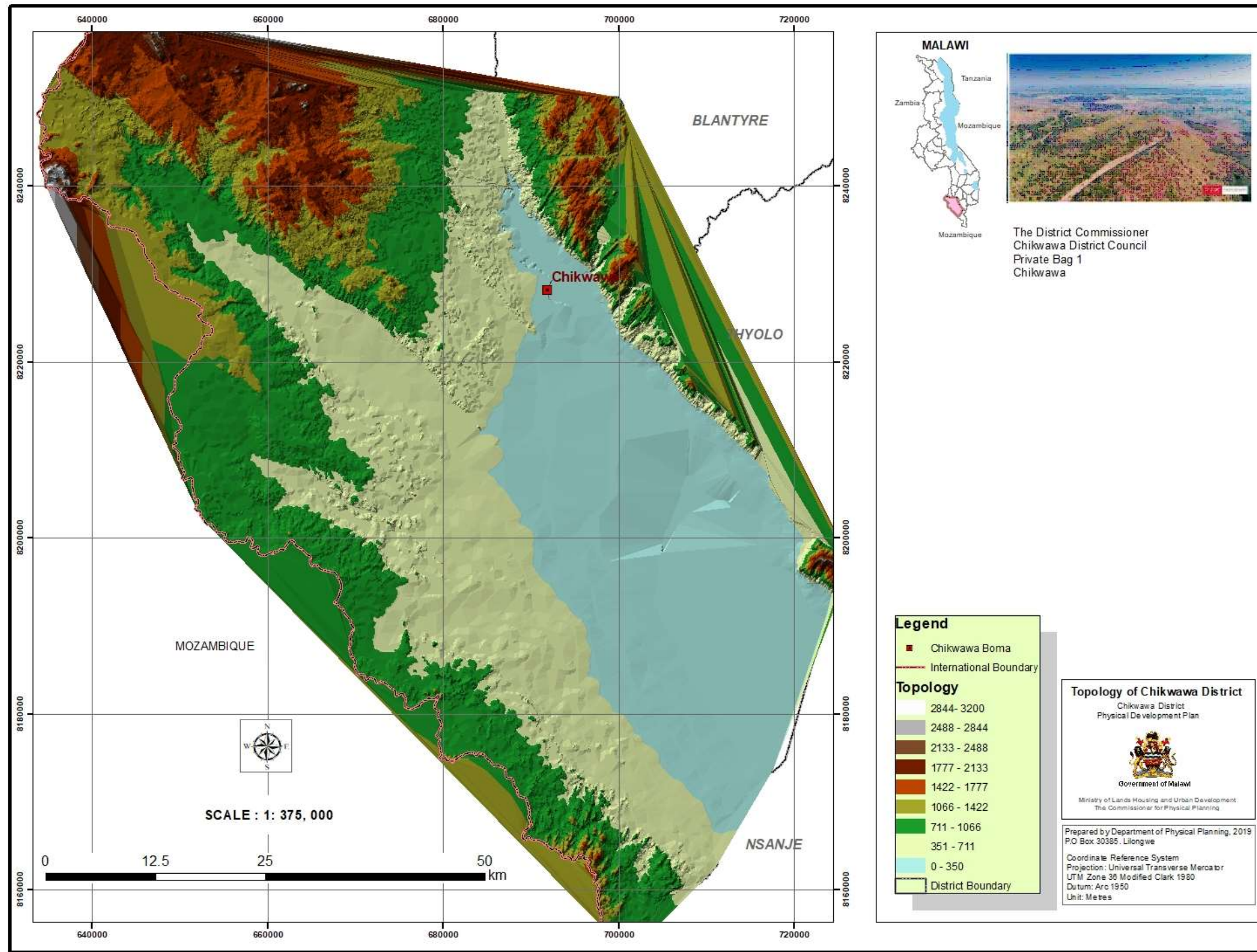


Figure 4: Geology and Soils

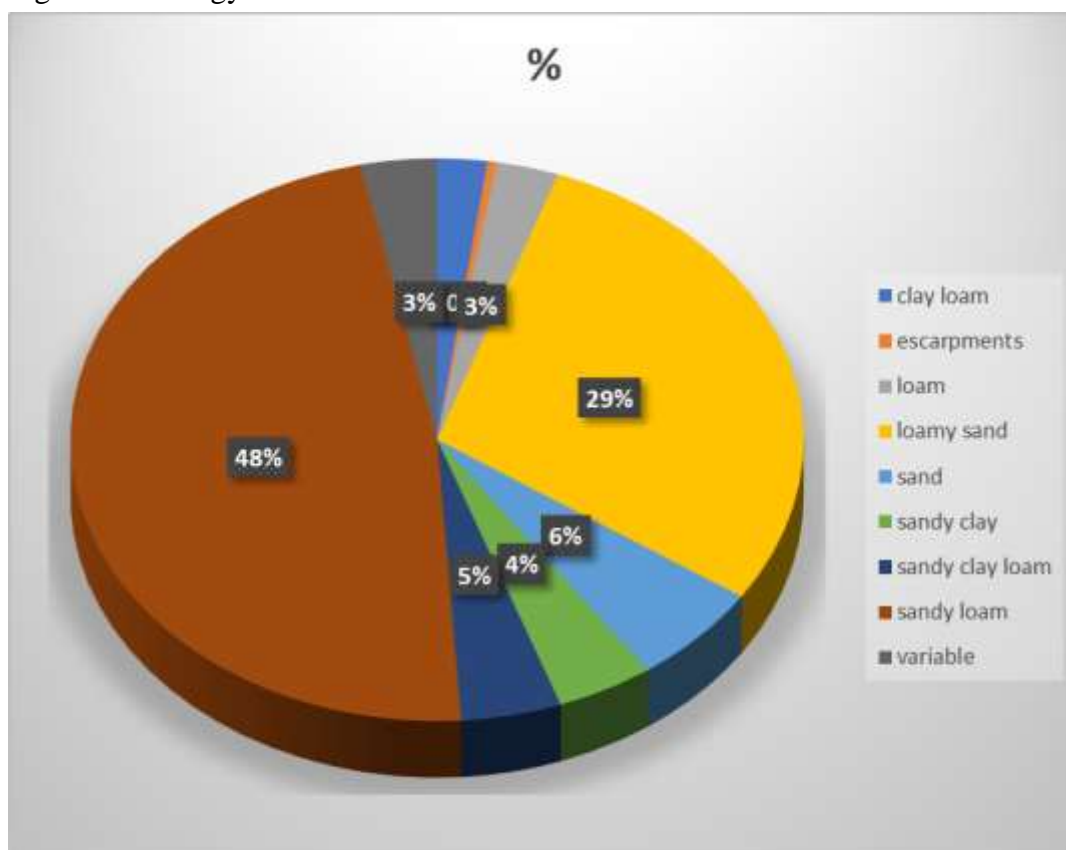


Table 1: State of Soils' Types, and Topography

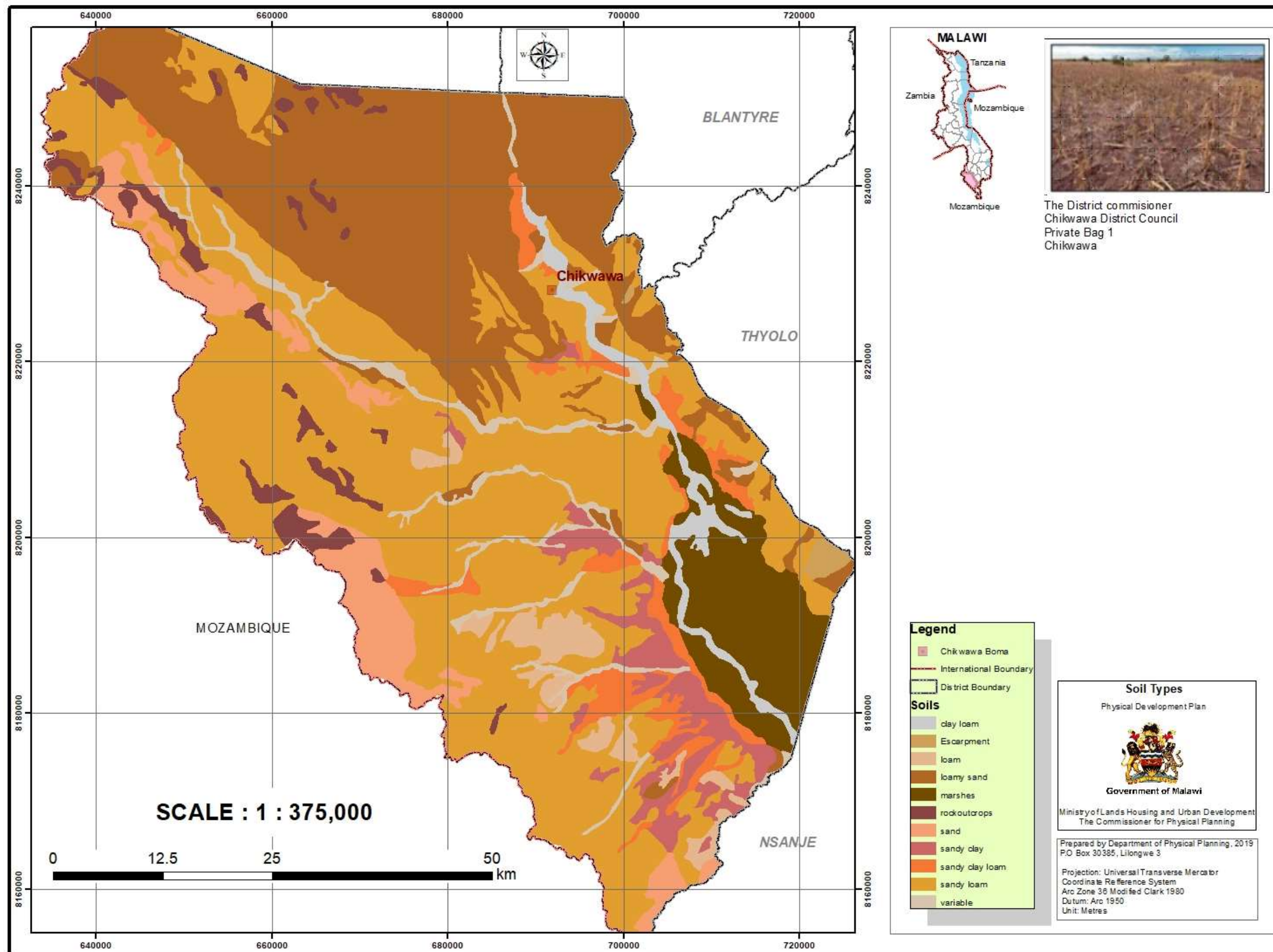
Soil group	Soil family	Soil depth (cm)	Soil drainage	Particle size		Colour subsoil	Land form
				Top soil 0-30cm deep	Subsoil >30cm deep		
Calcaric	Mikalango	100-150	Moderately well + well	Medium	Medium	Brown	Dissected foot slopes
Fluvic	Nkhate	>150	Moderately well + well	Medium + Fine	Variable	Dark Brown	Outwash plain, flood plain
	Mbewe	>150	Well	Medium	Coarse medium	Dark Brown	Outwash plains
Eutric Fersialic	Jombo	>150	Well	Medium	Medium	Brown	Foot slopes, marshes, depressions,
Gleyic	Ubale	>150	Poor imperfect	Medium + Fine	Medium + Fine	Dark Grey	Bottom lands, depression
Salic	Alumenda	>150	Poor imperfect	Medium + Fine	Medium + Fine	Dark Brown	Marsh margins

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Soil group	Soil family	Soil depth (cm)	Soil drainage	Particle size		Colour subsoil	Land form
				Top soil 0-30cm deep	Subsoil >30cm deep		
Vertic	Malikopo	>150	Poor imperfect	Fine	Fine	Dark Grey	Depression, bottom lands, lakes margin plain
	Thudzu	>150	Imperfect	Fine	Fine	Dark Grey	Uplands
Paralithic	Lengwe	50-100	Moderately well	Medium skeletal	Medium skeletal	Greyish brown	Uplands
	Ndakwera	50-100	Well	Medium + coarse	Medium	Yellowish Brown	Uplands, Hillsides, footslopes, Escarpments

Source: District State of Environment Report, 2017

Figure 5: Map of Chikwawa District Showing Soil Types

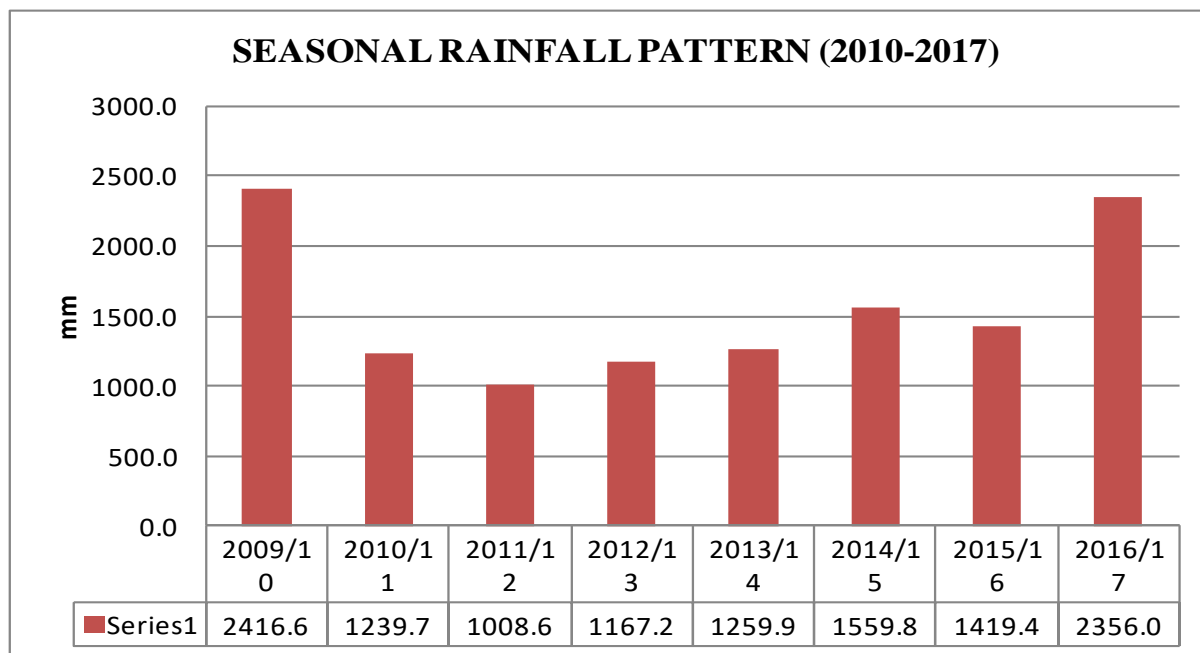


2.5 CLIMATE

2.5.1 Rainfall

The District generally experiences unreliable and variable rainfall ranging from about 170 mm to 967.6 mm as minimum and maximum rainfall. Figure 6 below shows average annual rainfall for Chikwawa covering an eight year period, while Table 3 is the monthly rainfall from 1996 to 2018.

Figure 6: Mean Annual Rainfall



Source: Ngabu Metrological Station 2017

Table 2: Monthly Rainfall Totals in mm from 1996 to 2018

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	167.0	245.4	88.4	13.6	15.5	43.2	3.5	1.1	3.8	4.6	50.7	132.5
1997	241.0	347.3	50.4	89.8	3.0	nil	28.4	nil	12.7	11.2	182.8	Nil
1998	189.6	106.5	62.8	6.7	Nil	Nil	nil	4.4	1.3	8.2	25.1	Nil
1999	265.5	143.2	126.7	113.2	5.0	12.8	16.4	nil	15.0	1.9	110.9	26.2
2000	299.7	185.2	255.9	67.7	30.3	13.0	5.2	nil	nil	77.3	nil	nil
2001	355.0	350.6	170.6	8.7	Nil	Nil	12.5	31.0	nil	nil	nil	nil
2002	nil	nil	nil	nil	Nil	Nil	nil	nil	0.2	3.5	15.4	150.9
2003	250.5	162.7	135.4	22.8	18.0	7.8	28.5	3.8	3.3	nil	37.0	8.6
2004	169.3	143.8	125.5	52.9	37.4	10.9	15.8	10.6	15.5	15.2	57.8	184.4
2005	123.3	53.8	18.1	7.4	0.5	15.4	11.9	nil	20.0	nil	95.4	277.2

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

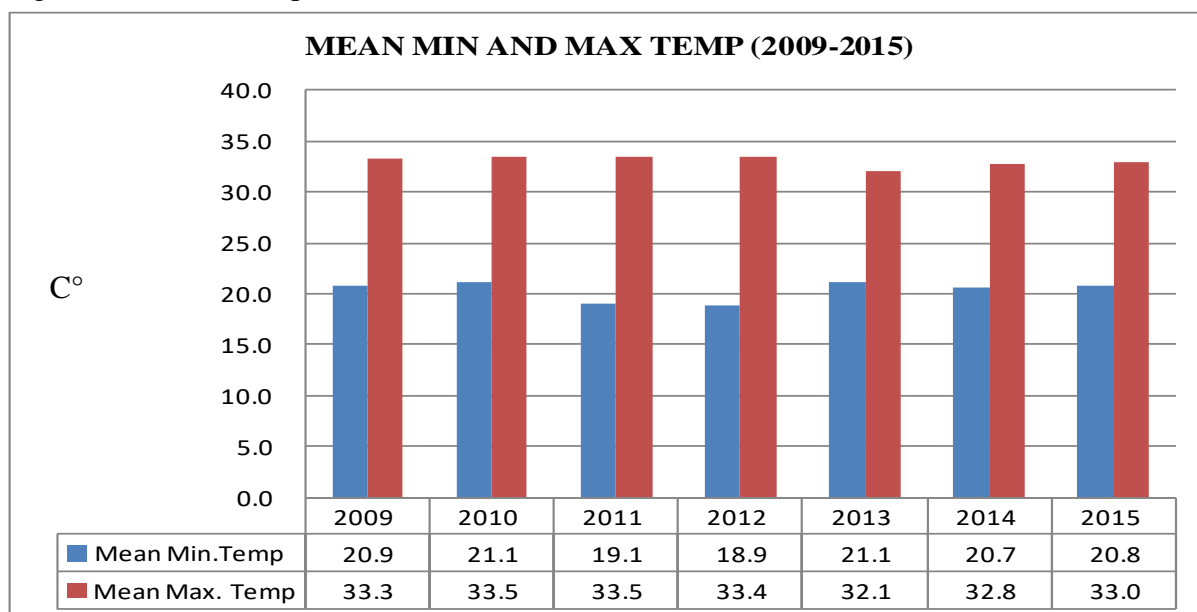
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	137.8	78.4	175.2	20.9	3.8	1.2	nil	nil	nil	nil	57.2	150.2
2007	515.7	166.8	53.1	33.3	6.8	nil	27.7	nil	7.1	27.3	86.4	334.7
2008	319.6	61.8	95.1	nil	nil	nil	10.0	0.8	nil	0.1	5.3	283.0
2009	110.7	45.6	57.8	38.4	64.7	7.7	11.0	10.0	nil	32.7	64.9	67.1
2010	42.0	140.6	116.0	26.7	10.4	14.4	nil	2.1	nil	4.1	90.8	179.0
2011	122.6	55.7	113.7	6.9	2.4	1.0	8.1	6.9	9.6	51.4	14.3	137.7
2012	226.6	123.5	83.0	23.3	11.5	29.6	nil	nil	nil	0	0.4	178.6
2013	319.5	137.8	77.1	39.5	8.0	19.0	15.2	1.9	66.4	2.1	23.3	105.0
2014	216.2	125.5	115.3	43.4	17.0	12.1	17.0	nil	3.8	2.8	9.2	104.0
2015	485.0	262.3	120.0	6.1	4.5	1.9	nil	nil	nil	nil	79.5	68.2
2016	216.1	155.6	85.3	19.6	20.2	12.5	13.1	nil	nil	1.8	33.6	103.1
2017	260.3	201.0	96.4	55.4	30.1	18.0	15.9	nil	1.6	19.1	49.8	86.9
2018	126.8	189.8	141.3	60.1	40.8	nil	53.4	13.6	nil	nil	101.7	232.4

Source: Ngabu Meteorological Station 2018

2.5.2 Temperatures

Temperatures are generally high with a maximum of about 37.6°C usually experienced in November and a minimum of 27.6 °C in July every year whilst the mean average temperatures are usually above 20 °C.

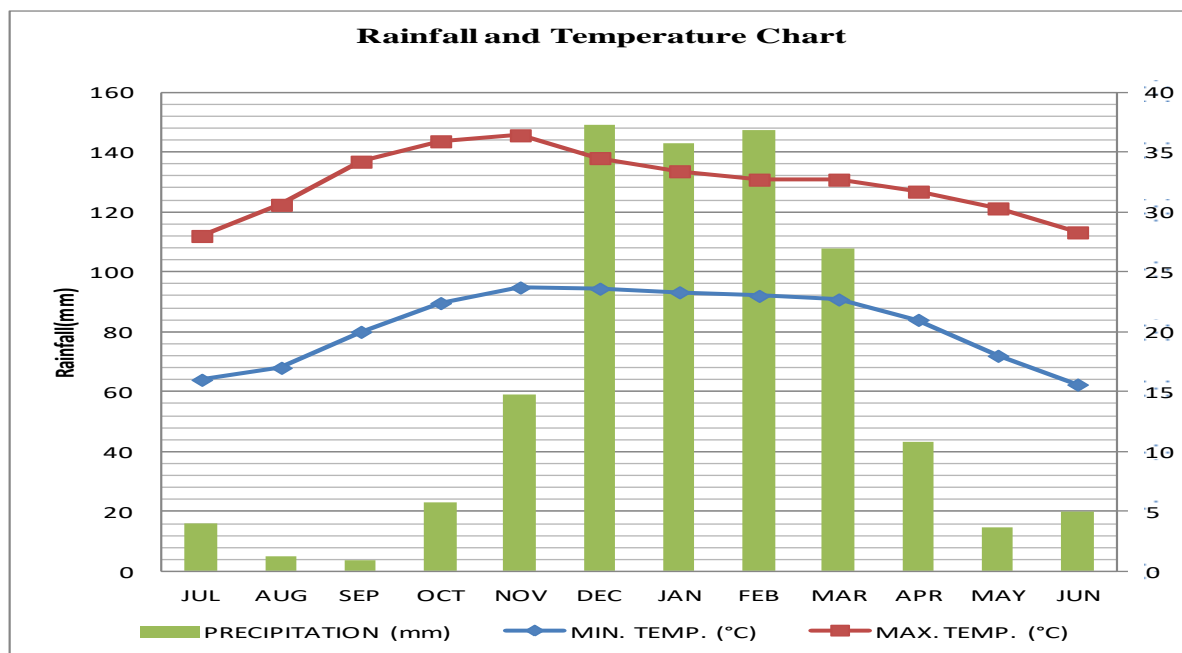
Figure 7: Annual Temperatures



Source: Ngabu Meteorological Station 2015

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

Figure 8: Rainfall and Temperature Chart



Source: Ngabu Meteorological Station 1999-2018

Table 3: Monthly Mean Minimum Temperatures in °C from 1999 to 2018

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1999	22.0	22.4	24.6	21.1	17.7	15.2	16.1	16.9	18.6	20.7	21.6	24.3
2000	24.1	23.3	23.1	20.6	17.9	17.3	16.1	17.3	20.0	22.1	23.1	23.0
2001	23.4	23.4	23.0	20.9	17.8	16.0	14.9	16.6	19.4	20.9	24.7	24.1
2002	22.7	23.3	23.1	20.3	17.6	17.2	14.7	15.9	21.0	23.3	22.9	23.9
2003	23.8	23.7	23.2	20.0	17.5	17.0	15.8	15.9	19.8	23.0	23.0	23.6
2004	24.9	23.5	21.5	18.1	E	E	E	E	E	E	E	E
2005	E	E	E	E	E	E	E	E	E	E	24.9	24.1
2006	24.0	24.0	23.5	21.0	17.3	16.1	16.5	18.1	19.0	23.6	24.4	25.0
2007	23.3	23.5	24.5	21.0	17.6	16.3	15.7	18.8	20.3	22.6	23.9	23.5
2008	23.7	23.7	21.0	19.3	17.5	14.5	15.6	17.1	20.3	23.4	25.1	24.4
2009	24.1	23.7	22.5	19.9	18.8	16.2	15.7	17.2	20.7	23.3	23.3	24.7
2010	25.1	24.2	23.2	22.9	19.0	16.9	15.3	18.7	22.8	22.5	24.1	22.0
2011	22.9	21.5	22.4	20.4	17.1	14.6	12.9	14.8	17.8	20.9	22.1	22.4
2012	21.0	20.9	19.7	16.0	14.1	13.5	12.0	16.9	21.5	24.0	23.3	19.4

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	E	E	E	E	E	E	16.0	16.8	21.6	22.1	24.7	24.5
2014	24.1	20.7	23.2	20.0	18.0	16.4	16.8	17.8	19.4	21.8	23.9	22.1
2015	22.0	22.7	20.4	19.6	19.5	15.8	16.1	18.0	19.0	19.9	22.2	22.1
2016	22.3	22.1	20.4	20.0	19.4	14.8	15.8	17.3	19.1	19.4	20.8	21.6
2017	23.4	22.1	21.4	20.8	19.4	16.1	14.9	16.6	18.5	18.8	20.7	22.4
2018	23.0	22.0	21.5	20.5	19.0	16.2	15.2	15.9	19.0	18.0	20.1	22.2

2.6 CLIMATE AND CLIMATE CHANGE

The district experiences tropical climate and falls into wet and dry seasons. The Inter-Tropical Convergence Zone oscillations largely determine the district's climate as it is the interactions between the Zonal Congo air mass and the meridian south-eastern trade winds and monsoonal north-eastern winds. It is hot and humid from October to April in the District¹. The wet season extends from November/December and ends in April/May, while the dry season occurs from May to October/November. It generally receives unreliable and variable rainfall ranging from a minimum of about 170 mm to a maximum of about 967.6 mm per annum. Temperatures are generally high with an average minimum of about 27.6 °C in July and maximum of about 37.6°C usually experienced in November every year whilst the mean monthly temperatures are usually above 20.0 °C.

Climate change greatly affects the district in many ways. The effects result into different types of disasters with floods and prolonged dry spells dominating. Other disasters include stormy rains, strong winds, high prevalence rate of HIV and AIDS pandemic, cholera and army worm outbreak and foot and mouth disease mostly when the flood victims are gathered in camp/evacuation sites. The impact of floods on rural communities is devastating and hinders development. Communities are mainly affected when their crops and livestock get washed away resulting into food insecurity and loss of livelihoods. The damage to infrastructure reduces access to social and economic amenities; among them being limited access to safe and potable drinking water and sanitation facilities.

The negative coping mechanisms have left vulnerable households with no means of livelihood and hence trapped in the poverty cycle. In some cases, floods and strong winds, strike at a period when the only viable option for replanting is to use irrigation. Floods bring alluvial soil which is very fertile for agricultural activities in Chikwawa District. Climate change has also impacted on prevailing winds. Its annual average speed movement has increased to 4.3km/h over the past 10 years between 2005 and 2014. Prevailing winds usually are from south east at moderate speed of about 2m/s.

2.7 VEGETATION

Chikwawa is one of the districts in Malawi that enjoys both terrestrial and aquatic vegetation types. The terrestrial ecosystem of the district is classified into two; acacia thicket clump savanna that is predominantly within Lengwe National Park. It comprises tree species like

¹ factrover.com/geography/Malawi, 2019

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

Acacia hygrescens, *Acacia ataxacantha*, *Albizia harveyi*, *Dalbergia melanoxylon* and *pterocarpus lucens*, and open/closed mixed woodland which comprises tree species such as *Brachystegia spp*, *Julbernadic spp*, *Diplorynchus spp*, *Combretum spp*, *terminalia*, *sericea* and *scelerocary caffra* found in Majete African Parks

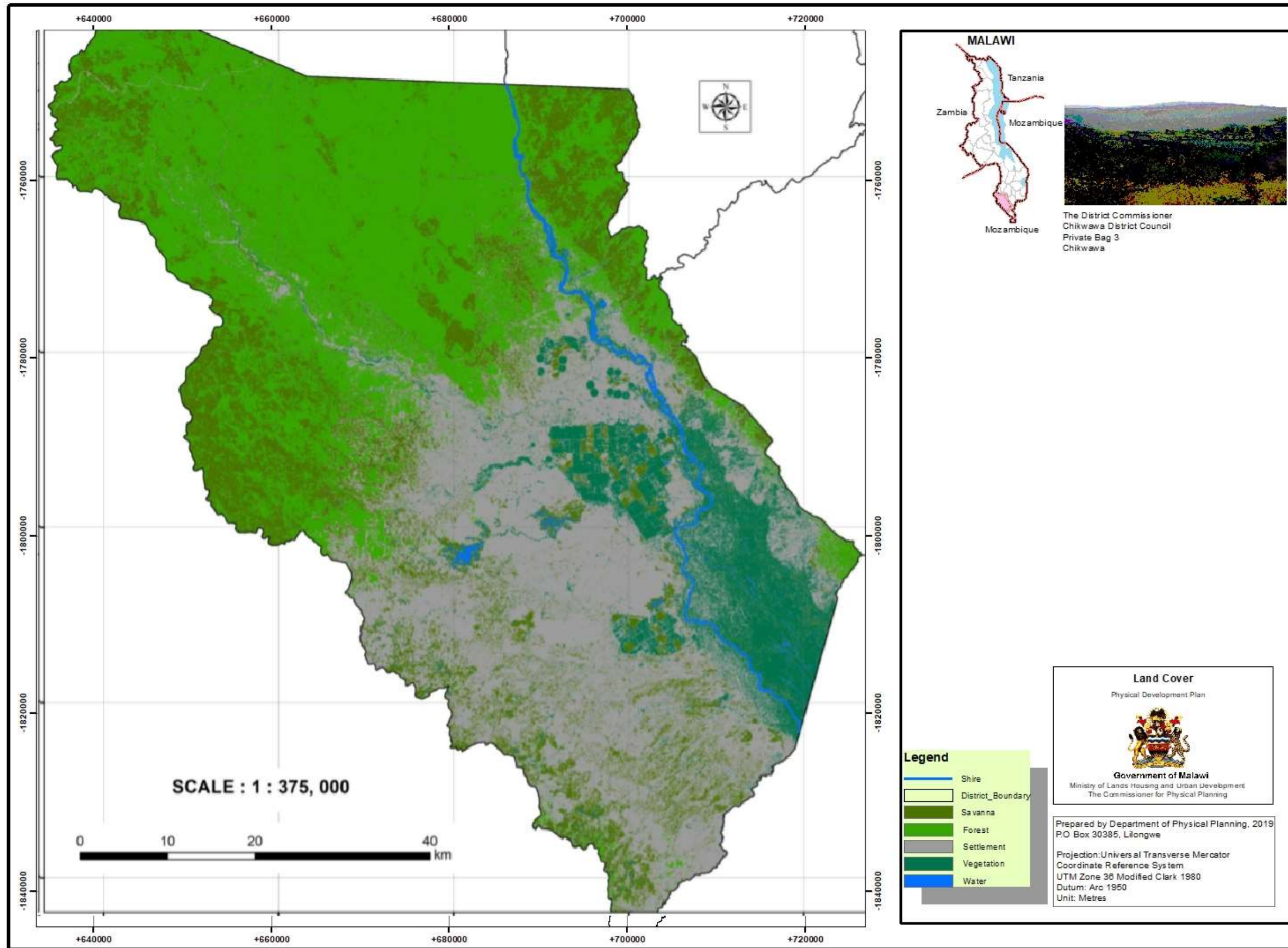
The marsh grassland and reed vegetation predominate the aquatic ecosystem and is dominated by plants like *Pistia straitoites*, *Pycrens mundtii*, *Cynodon dacitylon*, *Echnocloa colona*, *Vossia cuspidata*, *Euphorbia prostata*, *Ageratum conyzoides*, *Nymphaea petersiana* and *Phragmites mauritania* (Mkanda and Kunchedwa, 1995). Figure 9 is a pictorial view of vegetation in Chikwawa District. The general land cover for the district is shown in Figure 9 and Figure 10 overleaf is the general land cover for Chikwawa District.

Figure 9: Typical Vegetation



Source: Physical Planning Department 2019

Figure 10: Map showing Land Cover in Chikwawa District



3 EXISTING POLICY AND LEGAL FRAMEWORK

3.1 INTRODUCTION

This chapter outlines the policy and legal framework, international strategies and best practices and major development programmes which will have a significant impact on Chikwawa District Physical Development Plan preparation process, policies and the future development of the district.

3.2 INTERNATIONAL POLICY FRAMEWORK

3.2.1 Sustainable Development Goals, 2015

The Sustainable Development Goals (SDGs) developed by United Nations and adopted in 2015 by all countries seek to achieve a better and more sustainable future for all. Goal 11 of the SDGs specifically expresses the need to make cities and human settlements inclusive, safe, resilient and sustainable. Malawi has localised the SDGs. Thus, Goal 11 is particularly pertinent to the district and local plan preparation and implementation process.

3.2.2 Guiding Principles on Large Scale Land Based Investments in Africa

At continental level, the African Union adopted the Guiding Principles on Large Scale Land Based Investments (LSLBI) in 2014 following a growing realization that LSLBI were often times associated with risks such as wide spread alienation of land from local communities without adequate compensation, marginalization of smallholder farmers in favour of large scale investors who receive protection, and promotion of gender based inequalities. The Guiding Principles were the outcome of a desire by African Union Member States to ensure that investments in land benefit Member States and key stakeholders. The Principles primarily seek to ensure observance of international human rights declarations and conventions as well as regional declarations in the manner in which LSLBI are conducted.

3.3 NATIONAL LEGAL AND POLICY FRAMEWORK

3.3.1 The Malawi Constitution

Article 13(d) of the Malawi Republican Constitution calls upon the state to promote sustainable development and manage the environment responsibly in order to prevent degradation. It further stipulates that the state should guarantee the right to development and take measures for the realization of this right and to introduce reforms aimed at eradicating social injustice and inequities.

In view of this constitutional provision, the Chikwawa District Physical Development Plan shall promote improved land use, planning and management for orderly, coordinated and sustainable socio-economic development.

3.3.2 The Malawi Growth and Development Strategy (MGDS III)

The MGDS III is Malawi's overarching development strategy for the period 2017-2022. The overall objective is to move Malawi to a productive, competitive and resilient nation through sustainable economic growth, energy, industrial and infrastructure development while addressing water, climate change and environmental management and population challenges.

The strategy has identified five priority areas of development which include; Agriculture, Water Development and Climate Change Management; Education and Skills Development; Energy, Industry and Tourism Development; Transport and ICT Infrastructure and Health and Population. It is government's expectation that the five priority areas will not only be key in promoting economic growth and infrastructure development, but will also be instrumental in accelerating the attainment of the Sustainable Development Goals (SDGs). Human Settlements and Physical Planning are placed in the category of Other Development Areas of Focus which are considered to be essential complements, guide for physical development and play a catalytic role to the realization of the five key priority areas.²

MGDS III acknowledges that Malawi is experiencing significant demographic changes which influence the unprecedented growing need for land for various uses. The strategy further acknowledges that, due to lack of appropriate spatial framework, human settlements have developed uncontrollably and spread to environmentally fragile areas such as wetlands, steep slopes and riverbanks among others, resulting in environmental degradation in most parts of the country. This state of affairs has created an urgent need for the development of effective mechanisms to contain the situation. The Chikwawa District Physical Development Plan is one such instrument that will ensure that physical development, both in urban and rural areas of the district, is properly guided.

3.3.3 The National Physical Development Plan

The National Physical Development Plan (NPDP) was adopted by the Government for implementation in 1987. The purpose of the Plan is to provide a spatial framework for integrating all aspects of physical planning into national development planning, programmes and projects in order to promote coordinated and balanced distribution of social and economic development in the country. The NPDP has also played a major role as the country's strategy for managing land use and urbanisation.

The NPDP was the first major step towards guiding rural land use planning. The Plan designated areas into zones of major land uses on the basis of their development potential and stipulated broad principles and policies to be elaborated on and applied by respective District and Local Physical Development Plans.

However, several issues have emerged in most sectors of the economy over the years that have to some extent undermined the relevance and effectiveness of NPDP. For instance, the country has experienced a shift in government development strategy to reflect global trends of people-centred planning approaches which subsequently saw the birth and adoption of the Millennium Development Goals (MDGs) in 2000 and superseded by the Sustainable Development Goals (SDGs) in 2015. In addition, Government adopted a new development strategy namely, the Malawi Growth and Development Strategy (MGDS) which resulted in the realignment of the country's development focus areas.

Since the Plan was prepared in 1987, some strategies and approaches have changed rendering the Plan outdated. Furthermore, this has been compounded with the enactment of the Physical Planning Act 2016, which advocates for participatory planning, decentralised approaches to implementation and give emphasis to sustainable development. It is therefore imperative that the NPDP should be reviewed to realign it with the country and international physical, social and economic changes. This notwithstanding, it is noteworthy that the general provisions and guiding principles of the Plan are still relevant for most sectors. Thus, the NPDP forms a sound basis for the preparation of the Plan.

² MGDS III,

3.3.4 The Physical Planning Act 2016

The Physical Planning Act 2016 is the principal statutory instrument governing physical planning in Malawi. The Act gives the responsibility of district physical development plan preparation to Local Government Authorities and Sections 29-32 of the Act stipulate the Plan's content, preparation and approval process. To this end, all consultations during situation analysis process for the Plan has been strictly aligned to the provisions of the Act.

Other pieces of legislation, which are critical for the Plan include the following: The Land (Amendment) Act, 2016, Customary Land Act, 2016, Land Survey Act 2016, the Forestry (Amendment) Act, 2016, the Local Government (Amendment) Act, 2010 and the Water Resources Act among others. Also listed below are some of the policies and major existing development programmes/projects whose provisions have a direct bearing on the Plan.

3.3.5 The National Land Policy, 2002

The goal of the National Land Policy (NLP) is to ensure tenure security and equitable access to land and facilitate the attainment of social harmony and broad based social and economic development through optimum and ecologically balanced use of land and land-based resources.

The NLP stipulates that the application of the physical planning law should extend land use and development control to all rural and urban areas. In essence, the policy provision declared the whole country a planning area. The NLP also identified the need to develop a comprehensive spatial development framework to ensure that social and economic development takes place in a sustainable manner throughout the country. This necessitated the preparation of the National Land Use Policy (NLUP).

The goal of the NLUP is to achieve coordinated, efficient and environmentally sustainable socio-economic development through effective land use planning, orderly development, and management of land and land-based resources. In this regard, the Plan seeks to provide a spatial framework that will promote and support sustainable social and economic development in the district.

3.3.6 National Decentralization Policy, 1998

The National Decentralization Policy (NDP) 1998 provides for popular participation in governance through local governments. The NDP provide for many functions to be devolved including physical planning to the local level and designates Local Government Authorities as planning authorities and requires them to provide for stakeholder participation in the formulation, implementation and monitoring of plans and socio-economic and infrastructural development. The policy is reinforced by the Local Government (Amendment) Act, 2010 which empowers local authorities to plan and implement development projects.

3.3.7 National Environmental Policy, 2004

The overall goal of the National Environmental policy (NEP) is to promote sustainable social and economic development through the sound management of the environment and natural resources in the country. The NEP acts as the benchmark against which all sectoral environmental policies are developed to ensure that they conform to the principles of sustainable development. In this context, the NEP provides guiding principles which the Plan is advocating.

3.3.8 Malawi National Disaster Risk Management Policy, 2016

The policy emphasizes the need for mainstreaming disaster risk management into all sustainable development planning and implementation processes at all levels. The Chikwawa District Physical Development Plan will integrate disaster risk management with the view to increase communities' resilience and mitigate the impact of disasters.

3.3.9 National Wildlife Policy, 2000

The policy seeks to conserve and manage protected areas and wildlife (national parks, wildlife reserves etc) and provide for their sustainable use through equitable access and fair sharing of benefits to Malawians. The policy is particularly relevant to Chikwawa District in view of the existence of two of the country's major national parks namely, Lengwe and Majete, and the presence of Elephant Marsh and other tourist attractions.

3.3.10 National Housing Policy, 2018

The National Housing Policy seeks to create an enabling institutional, legal and strategic framework for the better delivery of adequate and affordable housing to meet the current and future housing demands and related infrastructural needs for all Malawians. Implementation of this policy is relevant and critical to Chikwawa District in the light of the ever-growing housing needs resulting from population growth, coupled with natural disasters, especially floods which have a negative impact on the district's existing housing stock.

3.3.11 National Agriculture Policy, 2016

The goal of the policy is to achieve sustainable agricultural transformation that will result in significant growth of the agricultural sector, expanding incomes for farm households, improved food and nutrition security for all Malawians, and increased agricultural exports. One of the objectives of the policy is to strengthen linkages between the agricultural sector and other sectors to ensure sustained and resilient socio-economic growth and development. The policy promotes development and maintenance of agriculture-related infrastructure, such as roads, value addition centres, and warehouses to enhance urban-rural market linkages. This policy's implementation is extremely significant in view of the major agricultural projects being implemented in Chikwawa District namely, the Shire Valley Transformation and Agriculture Commercialisation.

3.3.12 National Climate Change Management Policy, 2016

The goal of the policy is to promote climate change adaptation, mitigation, technology development and transfer and capacity building for sustainable livelihoods through green economy measures for Malawi. It seeks to guide programming of interventions for reduction of greenhouse gas emissions into the atmosphere, as well as adapting to the adverse effects and impacts of climatic change and climate variability. Implementation of this policy will be very critical because Chikwawa district is susceptible to natural disasters such as floods, strong winds and droughts some of which are a result of climate change.

3.3.13 The National Urban Policy, (NUP) 2019

The overall goal of NUP is to create an enabling environment for developing efficient and dynamic urban settlements, which promote equality in accessing economic opportunities, ensure improved standard of living and well-being, and foster sustainable economic growth. Implementation of this policy will be critical in view of the rapid urbanization being experienced in the country and indeed in some of the urban centres in Chikwawa District such as Ngabu, Dyeratu and Nchalo.

3.3.14 The Water Policy, 2007

The goal of the policy is to realise sustainable and efficient access to water to satisfy the basic needs of Malawians and for enhancement of the natural ecosystem. This policy ensures that water provision and conservation are part of sustainable land use and management principles and practices. This policy is critical to the implementation of the Plan and various other village land use plans which form part of the spatial frameworks for the Shire Valley Transformation Project and all other development projects in the district.

3.3.15 National Gender Policy, 2011

The goal of the policy is to ensure mainstreaming of gender in the national development process to enhance participation of all people for sustainable and equitable social economic development for poverty eradication. The Plan preparation process was highly consultative to allow for the participation of all stakeholders including all groups of people.

3.3.16 Land Resources Management Policy and Strategy, 2000

The policy promotes the sustainable utilisation and management of land for agricultural productivity in order to balance land requirements for different uses according to land and soil suitability. The policy is also an instrument for conservation of land-based resources. Thus, the policy has direct relevance to the Plan that forms the spatial framework for development and has assigned land uses in a manner that will achieve optimum utilisation of the land and land-based resources.

3.4 EXISTING MAJOR DEVELOPMENT PROGRAMMES/PROJECTS

3.4.1 Shire Valley Transformation Programme

The Shire Valley Transformation Project is currently the major existing development project in Chikwawa District. The overall objective of the Programme is to increase agricultural productivity and commercialization for targeted households in the Shire Valley and to improve the sustainable management and utilization of natural resources. The primary beneficiaries of the SVTP programme will be smallholder farmers in the districts of Chikwawa and Nsanje. The programme has four main focus areas namely; irrigation services, land tenure strengthening, agriculture commercialization and landscape and environmental conservation.

The smallholder farmers will benefit through access to irrigated agriculture, secure land and water tenure, farm organization, agriculture (including aquaculture and livestock) production and marketing support, through improved public and private advisory services, and the access to financial services and value chain enhancement through support to value-chain enterprises.

It is envisaged that this programme will have a substantial impact on the agriculture sector, which is the main source of Malawi's economy as it provides an opportunity to move away from the uncertainties associated with rain-fed agriculture. Ultimately, the programme will boost the country's agricultural production and subsequently achieve food security, increased income and ensure sustainable socio-economic growth and development.

3.4.2 Shire River Basin Management Project

The main objective of the project is to achieve socially, environmentally and economically sustainable development in the Shire River Basin.

Chikwawa District stands to benefit considerably from this project whose focus is to safeguard and enhance the environment and natural resource base in the Shire River Basin.

This aims at ensuring improved and sustainable livelihoods, food security, water supply and electrical energy generation; essential elements to support sustainable economic growth and poverty alleviation efforts.

3.4.3 Existing Urban Structure Plans

Physical Planning Office in the Southern Region prepared urban structure plans to promote orderly development in the following urban centres: Chikwawa District Headquarters in 1979, Nchalo in 1978, Kapichira in 1996, Ngabu in 1997, and Chapananga in 2009. These plans are all out of date and in need of urgent review in order to reflect the current status of the centres.

4 NATURAL RESOURCES AND ECONOMIC ACTIVITIES

4.1 INTRODUCTION

This chapter examines the natural resources and their related economic activities in Chikwawa District. It establishes the baseline and potential for the development of these resources with particular reference to agriculture, fisheries, forestry, commerce, industry, tourism, mining and employment. In order to achieve Sustainable Development Goals (SDGs) and the Malawi Growth and Development Strategy III (MDGSIII) targets, environmental protection and management must constitute an integral part of the development process. This is further highlighted in the Environment Management Act (EMA) and the National Environmental Policy (NEP).

Average income levels in Chikwawa show that most households face serious inadequacy and cannot afford sufficient basic needs. According to the fourth Integrated Household Survey, approximately 72%, 56% and 59.4% of the households face inadequacies in food, housing and healthcare respectively. This is higher than the national averages which are 63.8%, 55.6% and 54.8% in food housing and healthcare respectively. Only 4.9% households have an income that allows them to build savings. 31.7% of households rely on borrowing to support their insufficient income base.

4.2 FAUNA AND FLORA

4.2.1 Forestry

Forest covers about 35% of the district's land area of which 21,000 Ha and 482 Ha is natural woodland and communal plantations respectively while 158,700ha is protected area. A greater proportion of Chikwawa's natural forests are dominated by Miombo (brachystegia). These type of trees have low growth rates, are not good enough for timber and mostly being used by local people for firewood and charcoal. About 93.5% of Malawi's population use biomass fuels [firewood and charcoal] for cooking and heating³. The most common use of forests include household fuel wood, brick burning, curio making, tourist attraction, industrial fuel wood, and herbs. Land clearing for agriculture, fuelwood and charcoal making also accelerates deforestation in the district. The demand for forestry products in Blantyre poses a major challenge to Chikwawa forest reserves.

Of the 489,168.769 Ha of the total district's land area, 10% is woodland under customary land tenure. The main natural woodland on the customary land covers about about 21,000 ha in the district covers Chikwawa/Thyolo escarpment in the eastern part of the district. The escarpment falls within Traditional Authorities Makhwira, Maseya, Katunga and Mulilima. This is a very important natural resource as it forms a watershed for a number of important rivers that feed into Shire River. The Department of Forestry initiated an Improved Forest Management for Sustainable Livelihood Programme (IFMSLP) working with communities to conserve the escarpment.

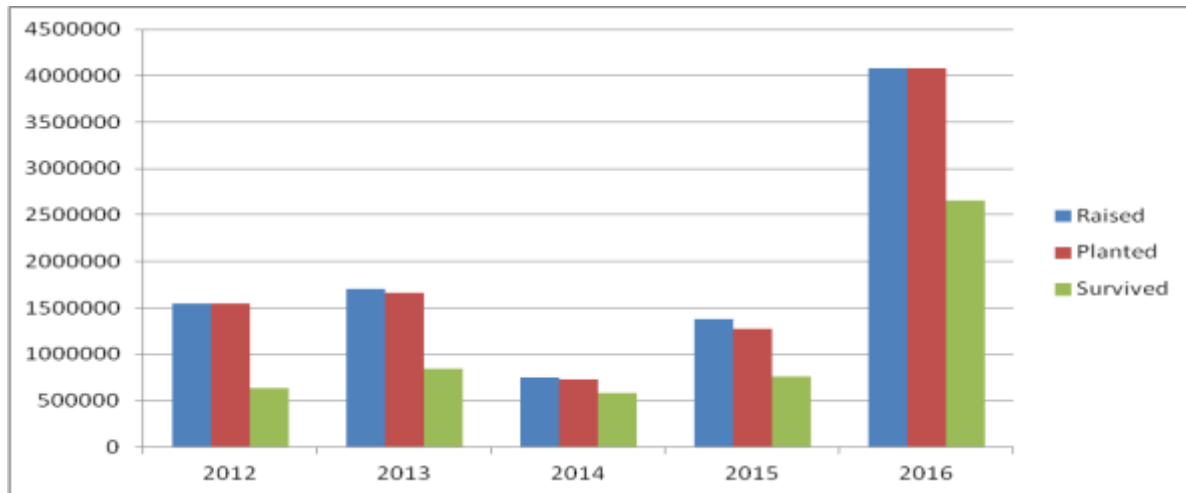
4.2.2 Production Forests /Tree Plantation

Community plantations are owned and managed by communities themselves. These were established to enhance afforestation of the degraded part of Chikwawa/Thyolo escarpment for

³ National Statistics Office 1998

both socio and economic benefit of the surrounding population and reducing siltation of Shire River.

Figure 11: Community Tree Planting

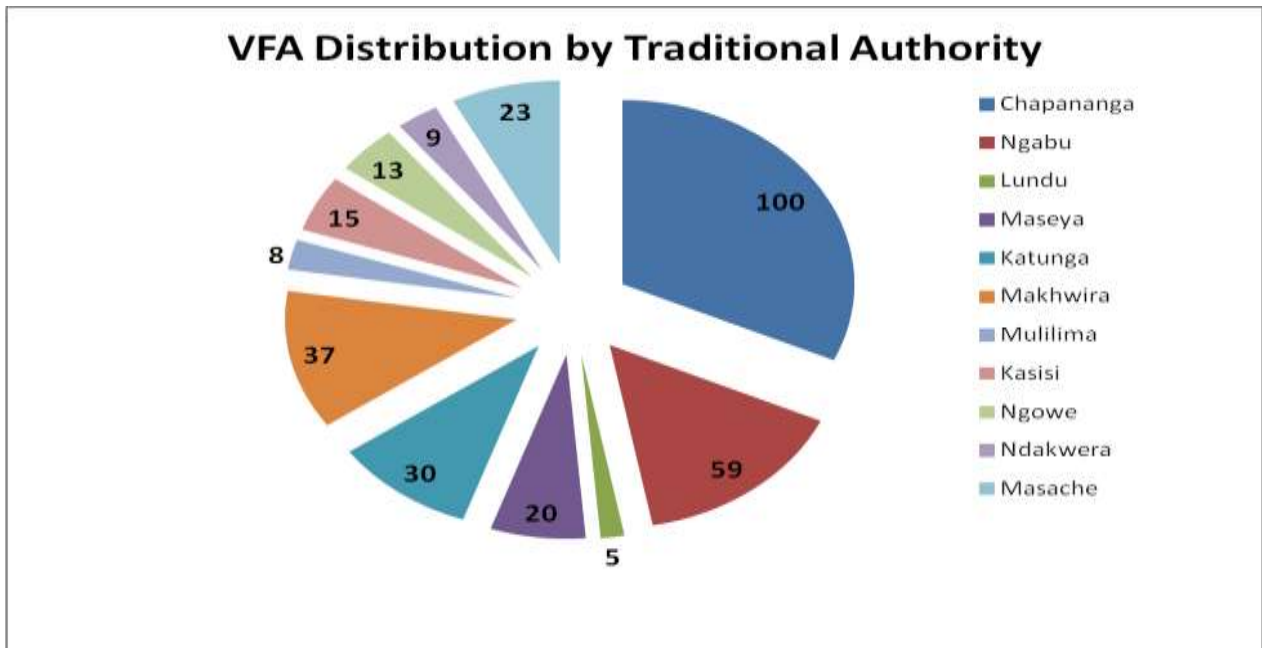


Source: Chikwawa District Forestry Office, 2017

4.2.3 Forestry Services

There is a high vacancy rate of forestry extension workers in most parts of the district. There are 19 extension workers against the requirement of 84. This hampers the provision of extension services in the district. Extension services are provided by the public, private organizations and non-governmental organizations. Services are mainly in form of technical advice especially targeting communal groups called Village Natural Resources Management Committees. There are about 483 Village Natural Resources Management Committees in the district. The most active communities managing village forests are found in Traditional Authorities of Chapananga, Ngabu and Makhuwira across the Shire River because of the technical, financial and material support given to the communities by the Improved Forest Management for sustainable Livelihood Programme (IFMSLP). This project phased out but its activities were handed over to ICRAF and World Vision who are currently sustaining the interventions. Figure 12 is the distribution of Village Forest Areas in Chikwawa according to Traditional Authority.

Figure 12: Village Forest Areas Distribution by T/A



Source: Chikwawa District Forestry Office 2017

4.2.4 Key Issues affecting Forestry

Over 90% of the district’s population, both urban and rural depend on biomass fuels [charcoal and firewood]. There is need to quickly enforce rules, identify alternative energy sources and promote cost effective fuel technologies.

Selected tree species of *combretum imberbe* (Mtsimbiti) are at risk for curio-making. Its attractive appearance when carved has created an over whelming demand for the tree. Ngabu, Nchalo Nsangwe and Dyeratu are the main manufacturing curio making centres where the business is illegally done. Due to the increasing demand for this specie, it is gradually diminishing on customary land. There have been cases where wood dealers have encroached into protected areas of Lengwe National Park and Majete Wildlife Reserve. Illegal timber sawing is also done on commonly found *cordyla Africana* (Mtondo). Other challenges include: shortage of staff in most EPAs resulting in poor extension services; lack of or not road worthy motor cycles affecting enforcement; frequent vehicle break downs; poor staff housing putting lives and property of officers at risk. Other illegal activities include charcoal burning, indigenous tree trafficking, curio making, timber production, burning of bricks and opening of gardens within Lengwe National Park and Majete Wildlife Reserve.

4.2.5 Majete Wildlife Reserve

Majete Wildlife Reserve is 70 kilometres southwest of Blantyre and 17 kilometres from Chikwawa District Headquarters. The reserve was gazetted as a protected area in 1955 and covers an area of 691 sq km. It is named after Majete Hill which has the highest point in the reserve used for viewing the very good scenic beauty of the reserve. The reserve has a wide variety of animals ranging from the African Elephants, Buffaloes, Sable Antelopes, Zebras, Bushbucks, Kudus, Elands, Reedbucks, Waterbucks, Impalas, Nyalas, Hartebeests, Hippos, Warthogs, Bush Pigs, Lions and Rhinos. All these animals are easily seen in the sanctuary that covers an area of 14 000 hectares. Most of the roads in the sanctuary are accessible throughout the year.

Majete also boasts an abundance of bird life with over 300 species including the rock pranticole that are unique to the area since they breed on the rocks of the Shire River. The vegetation of Majete ranges from reverine forest to woodlands and thickets and an abundance of tree species. Some of the most common tree species are the Marula trees and Sterculias. Hippos are best seen from *Mvuu Spot* while at *Sunset spot* there is not only nice sunshine colours at sunset, but also good and unblocked view of the park.

Majete Wildlife Reserve also offers visitors supporting activities such as bush walks, elephants tracking where a scout guides and offers security, noiseless game drive and camouflaged vehicle. Accommodation is also available at Thawale camp which offers top of the range accommodation in self-contained tents. The tents have a balcony that overlooks a waterhole that attracts animals during the day and night. The water is floodlit during the night. Accommodation facilities are also offered in Lengwe and Nyala Parks.

Community Participation is through Majete Wildlife Reserve Association (MWRA); Joint Liaison Committee (JLC); CBO meetings (98, 1324 people); Zone meetings (12, 352 people); and Village sensitization meetings. Key challenges include; Human-Wildlife Conflict, inadequate law enforcement, snaring, poaching, illegal fishing, shortage of personnel, equipment and poor relationships with communities.

4.2.6 Lengwe National Park

Lengwe National Park receives paying and non-paying visitors. The paying visitors are categorized into Malawians, resident foreigners and non-residents. Non-paying visitors include education visitors, Illovo employees, Malawi Government officials, and children.

4.2.6.1 Revenue collection

Revenue is collected in form of personal fees, vehicle fees and guiding fees. The fees are as follows; 1US\$ for Malawians per day, 3US\$ per day for resident foreigners, 5US\$ per day for non-residents, 3US\$ per day for a vehicle, and 10US\$ per day for a tour guide.

The trend in amount of revenue realized from 2014 to 2018 in Lengwe national Park is similar to that of paying visitors within the period under review. In 2014 the Park realized the highest amount of revenue of MWK2,362,075. In 2015, the revenue amount dropped by 30% to MWK1,643,970. There was a rise in 2016 and 2017 but later dropped again from MWK2,110,690 in 2017 to MWK1,187,680 in 2018 representing a 44% decrease.

4.2.7 Nyala National Park

Nyala National Park was established in 1982 by Lonrho, owners of Sugar Corporation of Malawi (SUCOMA) during a serious drought then. The area was deemed unsuitable for Agriculture due to high soil salinity. The area is also prone to flooding from the nearby Mwanza River.

4.2.7.1 Wildlife and Conditions of Entry

Key attractions include Nyala, Giraffe, Zebra, Wildebeast, Waterbuck, Impala, Bushbuck, Bush pig, Buffalo. Visitors check in at entrance gate, pay entrance fee, and hire a guide or use a map. The Park opens from 6.00 am to 6.00 pm every day. The park is accessible all year round but in rainy season some roads become slippery. Such roads are closed with branches and should be avoided at all costs. The majority of visitors are Illovo staff and their associates. In a year, the park receives about 1,000 adults in total and about 1,000 school children from the estate. In a year outside visitors reach a total of about 500.

4.2.7.2 Management

Animals are managed to maintain maximum sustainable numbers, any excess are either sold or exchanged with other species. Water is provided through a canal that runs across the park from west to east. Two dams are provided as drinking points fed from the canal. Feeding grounds are slashed towards the end of rainy season. In dry months animals are given game pellets and licks as supplementary food. Some game pellets are for energy while others have chemicals to prevent external and internal parasites. Efforts to eradicate exotic plants are underway. On its perimeter the park is fenced to maintain its integrity.

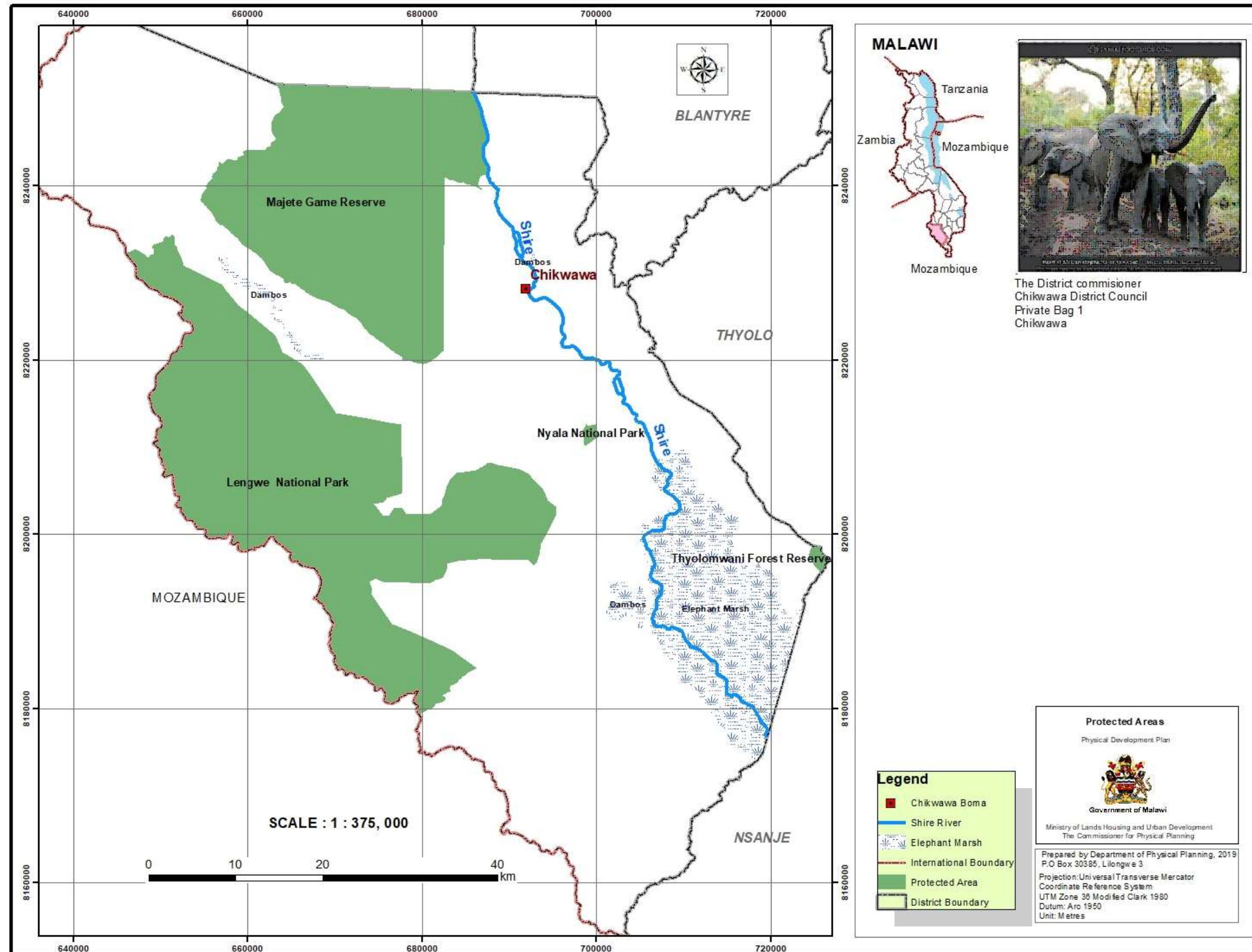
4.2.7.3 Park Facilities and Regulations

Park facilities include one visitors' picnic site and four exclusively for guests. There is also a main picnic site for Illovo staff only but on special arrangement can be made available to guests. Regulations include: do not get out of your car except at the picnic area; do not litter; do not start any fires; do not feed animals; do not drive off road.

4.2.8 Elephant Marsh

Elephant Marsh is a RAMSAR site which is a globally recognised wetland but is not yet gazetted. However, management of the site is poor and officers working in collaboration with the community to ensure effective management. The marsh plays an important role in maintaining the valley's hydrological regime through flood control, water storage and supply of nutrient-rich sediments. Figure 13 is a map showing protected areas in Chikwawa District which consist of Lengwe National Park, Majete Wildlife Reserve, Nyala National Park, Thyolomwani Forest Reserves and and Elephant Marsh.

Figure 13: Map showing Protected Areas in Chikwawa District



4.2.8.1 Fauna and Flora

Overall, the Elephant Marsh supports over 2,000 species of migrating birds, insects, reptiles, fish and large mammals such as the hippopotamus which is vitally important for keeping the tributaries open and allowing for the flow of water throughout the marsh. The other fauna include: 110 water-bird species (among which 26 breed in the area), 65 species of fish, 34 amphibian species, and 58 species of reptiles including the Nile crocodile, which is the largest reptile in the marsh⁴. The Elephant Marsh supports over 20,000 water birds and 1% or more of a delineated population of three water bird species therefore exceeding the thresholds set by the RAMSAR Convention for a wetland to be considered of ‘international importance’. In addition to this, the marsh also supports populations of aquatic invertebrates, including one new sub- species of butterfly. Local populations derive important food and income from wetland farming, casual labour on wetland farms and the harvesting of wetland products (including fishing). This forms a significant part of household livelihoods across the Elephant Marsh.

The two most common marsh species are *Phragmites australis* and *Cyperus papyrus*. They are resilient to clearing and sprout rapidly and more densely in response to being cut. See map below for the distribution of vegetation types.

4.3 AGRICULTURE

4.3.1 The Role of Agriculture in the District’s Economy

Agriculture is important for food security, source of income and a source of employment for more than 134,775 families. The district is subdivided into 6 Extension Planning Areas of Kalambo, Mbewe, Mitole, Livunzu, Mikalango and Dolo. Major food crops for the district are maize, sorghum, millet, sweet potatoes and rice which is complimented by beef, goat meat, pork, milk and fish. Cash crops grown include rice, sweet potatoes sugar cane and cotton. Cotton remains the major cash crop while major livestock classes in the district are cattle, poultry, pigs, goats, and sheep. Other classes of livestock raised are rabbits, turkeys, guinea fowls and ducks. In addition, the District has also good environmental conditions for fishing activities and fish rearing, along the Shire River, Elephant and Ndindi Marshes and in ponds.

4.3.2 Agricultural Land.

Twenty five percent of the land in Chikwawa is cultivated, while about 53% is the total arable that can be used for various agricultural activities. The district has a total area of 4,892sq kms. The total land area for agriculture is 489,168.769 hectares of which 20,118 hectares is dry arable land and 29,962 hectares is wet arable land. Estates occupy 19,000 hectares while public land covers 211,788 hectares. Non arable land covers 191,089 hectares.

4.3.3 Large Scale Farming

Large scale farming include: Illovo, KAMA, Phata and Kasinthula cane growers; and Nchalo Greenbelt Limited focusing on cotton as outlined in Table 4.

⁴ MRAG, 2016

CHIKWAWA DISTRICT PHYSICAL DEVELOPMENT PLAN

Table 4: Major Large Scale Farms

ID #	Name	Crop	Hectarage
1	Illovo	Sugarcane	13600
2	Kasinthula Cane Growers Limited	Sugarcane	1435
3	Phata Cane Growers Limited	Sugarcane	600
4	Nchalo Green Belt Limited	Cotton	480
5	KAMA Cane Growers Association	Sugarcane	106

4.3.3.1 Cooperatives

The district creates an enabling environment for empowering small and medium enterprises and co-operatives. Promoting the formation and development of SMES and cooperative societies enables the capability to aggregate and produce high quality goods and services for both domestic and export markets.

Table 5: List of Co-operatives in Chikwawa

TA	Primary Co-operatives	Secondary Cooperatives	Value Chain
Makhuwira	Zatonse, Chang'anima, Nkhate, Livunzu, Masenjere	Lower Shire Rice	Rice, Legume
Mlilima	Dumwalili		Legume
Kasisi	Njereza, Mtadeya, Mitole		Fruits and Cotton
Maseya	Phata		Sugarcane
Katunga	Khama		Sugarcane
Lundu	Nkombezi	Lower Shire Rice	Rice
Ngabu	Linga, Nyasamba, Makala		Cotton and cereals
Ndakwera	Mandirade		Livestock

Source: District council co-operative data

4.3.4 Smallholder Agriculture

Smallholder agriculture is mainly subsistence farming where the bulk of the produce is consumed by the farming families while some is sold to meet cash requirements of the farmers. Smallholder farming is guided by Chikwawa Rural Development Project (RDP) under Shire Valley Agricultural Development Programme (ADD). The District has a total of 134,775 farm families comprising 78% and 22% male headed and female headed households. About 39% of the population in the district are farmers with an average land holding size of cultivated land of less than 0.5 ha per household. About 82% of the households have land-holding sizes of less than 1 ha and only 18% of the farm families have above 1 ha of cultivable land.

4.3.4.1 Agricultural Production Indicators

Major crops in Chikwawa District include maize, sorghum, rice, cotton, millet, pigeon peas and sweet potatoes which are complemented by beans, fruits and vegetables. Minor crops

are sesame, cow peas, cassava, and ground nuts. Cotton remains the major cash crop in the district. However, farmers are slowly losing interest in the crop due to poor market incentives and lack of inputs. Slowly out-grower sugar cane schemes are taking shape in the district. The existing schemes include Kasinthula and Phata. The sugar cane out-grower schemes offers a greater economic value to the communities since sugarcane has a readily available market at Illovo sugar factory hence an upward push in the household per capita income. Most famers are opting for maize, sorghum and millet production as food crops and pigeon peas and phaseolus beans as cash crops.

4.3.4.2 Major Challenges affecting Crop Production

The district is mostly affected by drought, pests and diseases, and floods. Pests and diseases such as fall army worm which attack grass family, Banana bunchy top and Cassava mosaic highly affect production in the district. The department responsible for irrigation is currently encouraging irrigated cropping through the use of residual moisture, treadle pumps, canalisation and watering cans. Farmers are also encouraged to grow early maturing varieties such as Pilira 1 in sorghum and Kanyani in maize. Farmers are further advised to grow drought tolerant crops such as orange flesh sweet potatoes and cassava.

4.3.4.3 Agriculture Services

4.3.4.3.1 Agricultural Markets

The District has both council markets, and Agricultural Development and Marketing Corporation (ADMARC) markets, and some seasonal markets being operated by private traders and cotton buyers including Export Trading Group (ETG), GLCC, Malawi Cotton, Afrisian, Mapeto and CGL Companies. Agricultural produce is mostly sold on these local council periodic (mobile) markets and on the farm gate due to its price competitiveness. ADMARC is a national body with the following unique functions:

- To provide efficient system for supplying agricultural requirements for farmers. These include: To sell seeds, chemicals and pesticides;
- To purchase and process farm produce such as cotton, maize, and sorghum;
- To market agricultural produce and promote its consumption;
- To establish agro-industry and its associated enterprises in order to exploit fully the agriculture potential of the country;
- To provide adequate stabilization funds for unpredictable trade fluctuations;
- To operate factories through its Development and Investment Division in order to encourage more agricultural production and to provide employment in the district.

Table 6: Production, Yield and Area Planted/Major and Minor Crop

CROP	2010/2011			2011/2012			2012/2013			2013/2014		
	AREA	YIELD	PRODUCE	AREA	YIELD	PRODUCE	AREA	YIELD	PRODUCE	AREA	YIELD	PRODUCE
Maize	45,437	896	40695	41937	1178	49414	48241	1334	64332	51605	1454	75040
Rice	4917	1872	9204	3563	2407	8577	3686	2322	8560	4278	2656	11362
Sorghum	25772	743	19137	16922	875	14804	24860	962	23918	25842	1174	30046
Millet	11402	737	8397	8689	942	8184	13520	957	12937	13719	1086	14896
Cotton	26973	881	23753	60517	913	55229	39681	957	37961	35617	1124	40042
Beans	4073	791	3221	6857	336	2311	5949	1039	6178	5860	1089	6381
Cow peas	11691	343	4014	10692	400	4273	11928	474	5650	12083	489	5911
Sweet potatoes	5164	13840	71496	5891	15943	93920	6886	16125	111038	7514	16353	122878

Continued

CROP	2014/2015			2015/2016			2016/2017		
	AREA	YIELD	PRODUCE	AREA	YIELD	PRODUCE	AREA	YIELD	PRODUCE
Maize	50490	1346	67960	48583	662	32149	57361	761	43668
Rice	4731	2280	10786	3906	1377	5377	4464	2209	9859
Sorghum	25827	753	19452	29723	244	7248	33335	500	16666
Millet	13865	725	10048	16282	118	1921	17584	407	7139
Cotton	33933	801	27190	18740	245	4587	7124	442	7332
Beans	6728	1319	8872	5973	1283	7660	23036	1212	8634
Cow peas	12009	510	6121	11951	246	2943	8515	322	7426
Sweet potatoes	7637	16582	126640	7108	15709	111657		16557	140984

Source: Chikwawa District Agriculture Office 2017.

ADMARC has 28 market depots in the District. It employs 190 permanent staff members and 200 casual labourers. ADMARC has partnered with the Green Belt Authority in order to grow cotton seed which is ginned at Ngabu Ginnery. The cotton seed and lint is then to be exported. Another initiative is the winter bean growing project where farmers are given beans on loan to grow prioritising farmers along the Shire River.

Most markets, especially government markets, do not stock the inputs like seeds, chemicals and fertilizers except during the time of farm input subsidy distribution. Farmers travel long distances to have access to inputs in hard to reach areas like Changoima in Kalambo, Chavala in Mitole and Makungu in Livunzu EPAs. Private traders (agro-dealers), in most trading centres, stock seeds and pesticides but the availability of some items is seasonal.

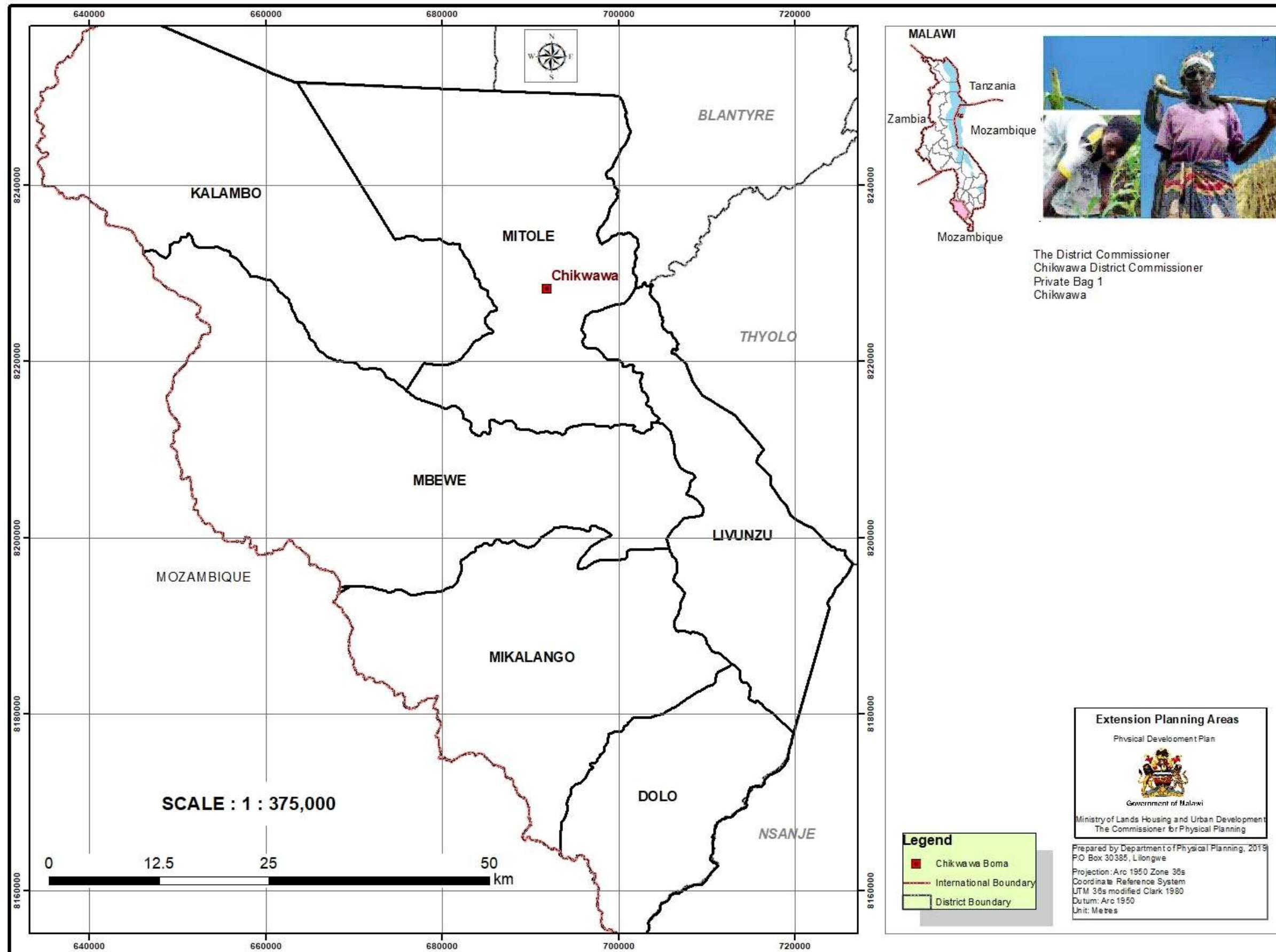
Most government markets usually do not have the resources to purchase commodities. Farmers sell their produce either on farm gate basis (right on the farm) or to vendors at very low prices. In most cases, buyers collude to fraud the farmers.

4.3.4.3.2 Extension Services

Chikwawa District is in the critical shortage of extension workers, with Mikalango being the largest of all the six EPAs in terms of number of sections. However, the Extension staff situation in the District continues to be pathetic despite the increase in the demand for extension services. There are currently 107 qualified extension workers providing services to the farmers including other stakeholders. In essence, this denotes an awkward overall Extension worker to farmer ratio of 1:1,259 which is above the national average of 1:700. As a coping mechanism, the ADD is currently deploying one extension worker to man more than one section. Figure 14 shows extension planning areas which are administrative units for extension services in the district.

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Figure 14: Map Showing Extension Planning Areas in Chikwawa District



4.3.4.3.3 Agricultural Credit Services

Access to credit is vital to the social and economic development of the district. Currently there is no agricultural credit service being rendered in the district. However, some credit institutions such as Blue Bank, Green wing, FINCA and other local financial institutions provide credit but not specifically tailor-made to agricultural credit facilities.

4.3.5 Irrigation

The Department of Irrigation in general, aims at developing small-scale irrigation schemes that are economically viable and sustainable under smallholder situation and circumstance. Chikwawa has great potential for irrigation development due to the availability of perennial rivers, such as Shire, Livunzu, Nkhate, Mapelera, Mwamphanzi, Nkudzi, Limphangwi, Chidzimbi, Mkombezi, Nyakamba and other small rivers and water sources.

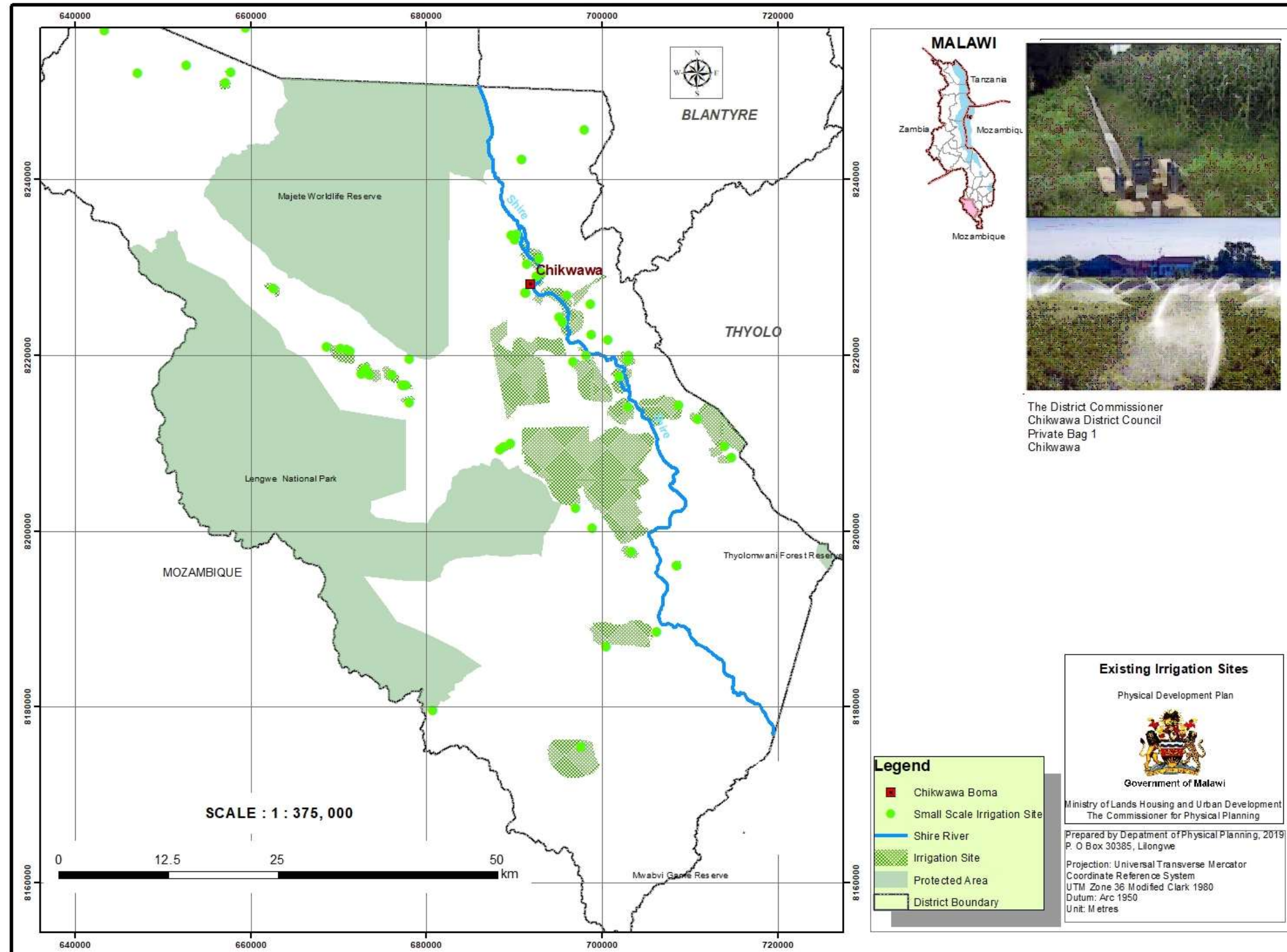
4.3.5.1 Irrigation Potential

Chikwawa District is in the Shire Valley Irrigation Services Division. It has 490,000 ha of land of which 95,000 ha has irrigation potential. It has 6 EPAs and 120 sections. Currently, 18,590.1 ha are irrigated. Between 2014 and 2019, 16 new irrigation schemes were developed covering 1,023.6 hectares benefiting 5,947 farmers of which 3,662 are men and 2,285 women. During the same period, 218 ha of existing irrigation schemes were rehabilitated benefiting 1,274 farmers of which 1,072 are men and 752 women. The area under private sector irrigation is 15,695.0ha. Overall, the total area which was being utilized for irrigation both under smallholder and estate sub sectors stood at 18,590.1 ha.

4.3.5.2 Irrigation Practices

Most irrigation systems being employed in the district include treadle pumps, motorized furrow, motorized sprinkler and gravity water diversion and residual moisture. The importance of perennial rivers cannot be over emphasized as the rains in Chikwawa are always unreliable. Two extremes of floods and prolonged dry spell characterize the rainfall pattern in the district. In view of the aforementioned, farmers mostly rely on irrigated cropping other than rain-fed due to its unpredictability. Furthermore, land holding sizes in the district remain very small, to be fully maximized through irrigation intensification to allow multiple cropping per year. This calls for robust and sustainable irrigation initiatives in order to accelerate the agro-based incomes and ensure food self-sufficiency. Figure 15 contains existing small scale irrigation sites and proposed irrigation sites in Chikwawa District.

Figure 15: Existing and Proposed Irrigation Sites



4.3.6 Livestock

Livestock plays a very important role in the economy of the district, especially among smallholder farmers. Livestock uses include food, income, manure and to a limited extent survival mechanism during draught. While livestock management is mainly traditional, stall-feeding and breeding programs are being encouraged. The major livestock types are cattle, goats, poultry, hog/pig, rabbits and sheep. Commercial cattle, goats, pigs and chickens are extremely important as they provide income and source of nutritional protein to the general public. The district has the potential to increase household economic base through livestock production as it has high monetary value. Livestock is also used as a fall back during the lean months of the year where they are sold usually at a very cheap price for the farmers to buy food. The movement of price index from one year to another therefore varies according to the food availability and the ruling market price of main food crops such as maize on the market.

4.3.6.1 Livestock Use

There is no noticeable dairying in the district mainly because of lack of dairy animals and market facilities. Dairy production remains a challenge in the district due to harsh and unfavourable climatic weather conditions for the survival of the dairy breeds. Besides the volatile nature of weather, poor quality feed, and lack of drugs also contribute to the problem. In addition, market remains a challenge in the district hence the need for bulking groups for aggregation and transporting to Blantyre.

About 98% of the cattle herd and poultry are used for meat purposes. Traction is done on a very small and limited scale. Only about 6,433 cattle have been registered to be used for traction or about 2.8% of the total cattle herd. About 8% of the population in Chikwawa is registered in the use of cattle for transport. Hides and skins, manure, and feathers are the main livestock by-products. Hides and skins are used to manufacture leather products while feathers are employed in the making of pillows and cushions. Manure is applied into the soil as fertilizer to improve fertility

4.3.6.2 Livestock Diseases

Ticks, viruses, bacteria, and worms are the main causes of livestock diseases. While these may lead to low production and reduction in animal population, appropriate measures were instituted to remedy the situation and ensure proper quality of livestock and by-products from the district. Major diseases and parasites include Foot and Mouth in cattle, New Castle Disease in poultry, African Swine Fever in Pigs, Anaplasmosis normally transmitted by ticks, Lumpy Skin Disease, Rabies in dogs, Biting flies, ticks, Internal worms and Foot Rot.

Table 7: Proportion of Livestock affected disease/parasite

Disease	% attack 2011/12	% attack 2012/13	% attack 2013/14	% attack 2014/15	% attack 2015/16	% attack 2016/17	% attack 2017/18
New castle	31	24	21	32	27	31	29
African swine fever	12	7	11	8	14	11	10
Anaplasmosis	16	11	9	18	14	12	15
Lumpy skin disease	6	8	12	9	12	14	10
Rabies	4	7	6	4	5	4	5
Biting flies	23	27	22	34	28	28	25
Ticks	32	42	44	31	36	47	45

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Disease	% attack 2011/12	% attack 2012/13	% attack 2013/14	% attack 2014/15	% attack 2015/16	% attack 2016/17	% attack 2017/18
Internal worms	58	62	69	57	49	53	60
Foot and mouth disease	22	16	18	26	15	18	20

4.3.6.3 Livestock Services and Facilities

The major livestock services that are being offered to farmers include cattle dipping, meat inspection, livestock treatment, vaccinations and production estimates (in form of Census). Normally these services are offered by the Shire Valley Agricultural Development Division during particular periods of the year

After market liberalization, Government however stopped operating the markets and private traders were allowed to operate. Only 5 markets are now operational and majority of dip tanks are not functioning.

4.3.6.4 Prevention and Management of Pests and Diseases.

Livestock treatment is usually done by farmers themselves with technical assistance from veterinary officers, animal health surveillance assistants and the agriculture extension development officers. In case of pests and disease attack of national importance, such as Foot and Mouth disease or Rabies, government provides the vaccine for free to the farmers. Government through the office of the District Agricultural Development Officer (DADO) rely on the assistance that it gets from the stakeholders in the purchase of drugs such as rabsin. The vaccination campaigns are intended to be conducted throughout the district but due to the exorbitant drug prices, only few drugs are procured and therefore few animals are treated leaving out a significant number of animals untreated thereby creating a huge risk to the animals and the people in the district.

4.3.6.5 Dip Tanks and Cattle Markets

The District has 11 Dip tanks and 6 cattle markets. Eight dip tanks were rehabilitated in 2017/ 2018 season. Over the recent past years, dip tanks have never been functional owing to the fact that the infrastructure in almost all the dip tanks was in a dilapidated state. Recently, UBALE project came to the rescue of the famers by rehabilitating 8 dip tanks and 5 cattle markets.

4.3.7 Major Issues affecting Livestock Production

Key challenges facing agricultural production in the district include:

- i. Prolonged dry spells and floods which affect both livestock and crops which negatively affect households, the district and the national economy at large;
- ii. Heavy attacks by pests and diseases such as fall army worm which attack the grass family of crops, Banana bunchy top which attack bananas and Cassava mosaic which affects cassava;
- iii. Under-exploitation of the potential irrigable areas due to both inadequate financial and human resources since irrigation development requires huge initial investments;
- iv. Poor water resource management by farmers;
- v. Inadequate availability of and accessibility to inputs such as fertilizer, high quality seeds and pesticides which compromise the quality and quantity of production;

- vi. Inadequate funds for maintenance/rehabilitation of existing Government agricultural schemes;
- vii. Low producer prices which result in low returns to investment;
- viii. Climate change;
- ix. Critical shortage of extension workers;
- x. Poor access to markets;
- xi. Farmers travel long distances to have access to inputs;
- xii. Vandalism of pipes and gates in irrigation schemes;
- xiii. Small holding sizes; and poor agronomic practices.

4.3.8 Fisheries Resources

Fish is the most common and cheapest source of animal protein. It contributes to over 60% of dietary animal protein consumption in the district. Fish industry also plays a significant economic role by providing employment opportunities and source of livelihood to communities and traders in the district. The per-capita consumption of fish in the district as of 2017 was estimated at 10kg/person/year which still lag behind the FAO recommendation of 15kg/person/year. Shire River and its tributaries of Lisuli and Gumbwi have a variety of fish ranging from the delicious *Chambo* species, Tiger fish and Cat Fish. Construction of a canal should therefore be accompanied with precautionary measures such as construction of 4m high barrier and use of wire mesh at the mouth of the canal. These will help to control spreading of the Tiger fish to upper Shire and Lake Malawi.

About 344 fishermen employed in fishing industry often use passive fish traps. There is increasing fishing pressure on the fish stocks in the Shire waters as a result of overfishing. This can be attributed to a number of factors; such as increasing human population, and limited alternative income generating activities. Habitat degradation within the aquatic environment and catchment areas and climate change also affect fish productivity.

4.3.8.1 Fishing Grounds

Chikwawa District is blessed with the Shire River which meanders through the district creating a large wetland known as the Elephant Marsh. The river is associated with many perennial tributaries of which two significant ones are Lisuli and Gumbwa. The Shire River and its associated water bodies support an important fishing industry in Chikwawa. The wetland and its peripheral areas have a potential in pond based aquaculture production. Currently, the area, being a wetland of international significance was declared a Ramsa site.

Fish farming is done in all but Dolo EPA. Dolo EPA needs an assessment of potential areas for aquaculture because the EPA is generally too dry to support fish production. Table below summarizes the number of fishponds and area per EPA.

Table 8: Number of Members, Fish ponds per EPA and Pond Area

EPA	NUMBER OF MEMBERS		NO. OF PONDS	POND AREA (m ²)
	MALES	FEMALES		
MITOLE	57	72	40	19620
KALAMBO	20	47	9	5000

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LIVUNZU	60	76	16	5006
MBEWE	9	16	6	2535
MIKALANGO	7	3	4	2400
DOLO	0	0	0	0
TOTALS	153	214	75	34561

The main fish species found and caught are mostly cichlids, cyprinids and clarids. The commonly caught cichlids include; *Oreochromis mossambicus* locally known as Makakana, *Tilapia rendalli* locally known as Nyungwe or Nyumgwitsale and Tiger fish locally known as Ntchila. The clarids comprise; *Clarias gariepinus* (African sharp tooth catfish) locally known as Mlamba, *Clarias ngamensis* locally known as Chikanu and *Protopterus annectus* (African lung fish) locally known as Dowe and small quantities of other species such as *Syanodontis Njasae* locally known as Nkholokolo.

A wide range of fishing gears is used to catch fish in Chikwawa. These gears include passive fish traps locally known as mono, gill nets, hooks, and cast nets. As of 2016, the district registered a total of 344 fishermen of which 23 were females and 285 were males. Table below summarizes the prevalent crafts and fishing gears as of 2016.

Table 9: Fishing Gear and Craft Statistics

Crafts		Gillnets			Hook and Line			Fish Trap	Other Gears	
Planked Canoe	Dugout Canoe	Gillnet	Ngon gongo	Usipa Seine	Longline	Handl ine	Chom anga	Mono	Scoop Net	Cast Net
1	97	11	403	5	30	104	8	2,488	48	87

There are 8 Beach Village Committees in the District as of 2019. In the West Bank there are Mchere and Alumenda while in the East bank they include; Lisuli, Yolodani, Gumbwa, Mitawi, Thedzi and Chijere committees.

Demand for fish is increasing in the district following increased population growth. The recovery in capture is still not enough to meet the per capita requirement of the fish for the growing population.

4.3.8.2 Fisheries Services

Fish farmers and fishing communities are supported through pluralistic extension services and which are offered and supported by a number of players including government agencies and non-state actors. The extension services are controlled and coordinated by the District Council through its fisheries sector headed by the District Fisheries Officer (DFO). Under the DFO, there are Fisheries assistants who man the Extension Planning Areas and the two fishing minor stratum of 11.2 in the East bank and 11.1 in the West bank where the 6 BVCs are located. The vacancy rate for extension services is at 50 percent.

4.3.9 Major Issues affecting Fish Production

Fish resources face challenges that threaten their sustainability.

- i. High population increase and demand for fish resources has exerted pressure leading to failure to comply with fish management regulations including use of illegal nets and under meshed nets.

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- ii. Significant increase in number of fishermen, and fishing gears have exerted pressure on fish breeding and nursery grounds resulting in reduced fish recruitment.
- iii. Inadequate financial and human resource affects effective operations of fishing activities.
- iv. Inadequate means of transportation by extension workers to efficiently provide quality services to community.
- v. Lack of tailor-made fish infrastructure such as transport and storage facilities.

Opportunities exist for development of aquaculture and fisheries in Chikwawa. These include:

- i. Availability of sites with high potential for aquaculture along the Shire Valley, Chapananga and many other sites;
- ii. Availability of Kasinthula Fisheries Research Station which produce low cost high quality fingerlings to farmers;
- iii. Availability of projects to support aquaculture;
- iv. High temperatures and good alluvial soils that enables high fish growth rates;
- v. Good co-management structures that ensures protection of the fishery resource; and
- vi. Potential of pen and cage culture in the swamps.

4.4 COMMERCE AND INDUSTRY.

4.4.1 Small and Medium Enterprises and Co-operative Development.

Malawi Government through the Ministry of Industry, Trade, and Tourism, categorises small and medium enterprises into two groups. These categories are number of employees available and annual turn-over on enterprise realizes. Such categorization is clearly illustrated in Table 10.

Table 10: Characteristics of Businesses.

Category	No. of Employees	Annual turn-over (MK)
Micro	1 – 4	Up to 120, 000.00
Small	5 – 20	120,001 to 4 million
Medium	21 – 100	Above 4 million to 10 million
Large	Above 100	Above 10 million

Table 11: Summary of Businesses by TA and Scale of Business by 2017

Location	Small Scale	Medium Scale	Large Scale
T/A makhwira	487	2	0
T/A Mlilima	96	1	0
T/A Kasisi	504	5	0
T/A Chapananga	298	0	0
T/A Katunga	63	0	1
T/A Maseya	52	2	0
T/A Lundu	1418	7	2
T/A Ngabu	456	4	2
T/A Ndakwera	79	0	
T/A Ngowe	64	0	
T/A Masache	52	0	

Source: Chikwawa District Council, Business Register, 2017

The 2014 District Council’s business register provides information on all registered businesses. The large scale businesses comprise Illovo, Kasinthula and Kapichira Hydro Power Station, PressCane, cotton ginning and cattle ranches while medium scale businesses consisted of wholesale stores, filling stations and banks. Illovo Sugar Company employs a lot of people from Chikwawa and other neighboring districts like Nsanje, Thylo, Mulanje as well as Blantyre. Similarly, PressCane and Kapichira employ both skilled and non-skilled personnel thus assisting the district in reducing unemployment rate. Despite the contribution made by Illovo on increasing employment rate, improving the household income and social corporate responsibility, the sugarcane plantation covers a large area of land which negatively affects land access to local communities in TA Lundu and Ngabu. Some notable affected areas are Bereu, Ndirande, Maseya, Tomali, Jombo, Nchalo, Ngabu, among others.

The district registered 6,486 small scale businesses where 1,753 were small shops, 1,430 cycle taxis, 655 groceries and 332 maize mills. Most of the bicycle taxi operators operate their business in TA Kasisi, Makhuwira, Lundu and Ngabu. The majority of maize millers operate their businesses in TA Makhuwira and chapanga where 27 and 24 were registered respectively.

4.4.2 Large Scale Businesses

4.4.2.1 PressCane Limited

PressCane Limited is Malawi’s leading ethanol fuel producing company using molasses supplied by Illovo. The Company is located at Dyeratu on the western shore of the Shire River which supplies water for the distillery’s operations. The Company currently manufactures two grades of ethanol; Anhydrous Alcohol (AA) with 99.5% v/v alcohol content for blending with petrol, and Rectified Spirit (RS) at 96 % alcohol content for industrial uses. The Company also produces rectified spirit ethanol that is used as a solvent in the printing and pharmaceutical industries. PressCane Limited’s distillery is capable of producing 18 million litres of ethanol annually. Its highest plant capacity utilization of 89% was achieved in 2015 due to molasses sourced from Companhia de Sena in Mozambique.

4.4.3 Banks and Financial Lending Institutions in Chikwawa

There are 6 banks operating at Nchalo Trading Centre in T/A Lundu and these include FDH, NBS, NBM, Standard Bank as well as FINCA. There is also one FDH Bank and financial lending institutions like MARDEF and FINCA at District Headquarters in T/A Kasisi and one lending financial institution at T/A Katunga. Most of these banks are operating at medium scale and they employ staff of less than one hundred.

4.4.3.1 Major Roles Played by Banks.

Banks play a big role in the economic growth of the district. They collect the savings of the individuals and lend them out to business people and manufacturers for purchasing raw materials and for working capital. The banking system facilitates local and international trade where a large part of it is done on credit. The bank interest rates that most of the financial institutions levy on loans are the same as the ones that prevail at the national financial market.

Table 12: Average bank interest rates in Malawi

Indicator	2014	2015	2016	2017	2018
Bank Interest rates	46.01	44.29	32.33	24.63	23.75

Source: www.TheGlobalEconomy.com

Due to high interest rates and collateral requirements on loans by the banks, individuals have resorted to forming informal community banking groups/cooperatives popularly known as village banks or Banki Mkhonde within their localities. The interest rates on the loans obtained by the members range from 15% to 25%, and are far much lower than those in the formal banks. Some notable cooperatives are COMSIP Co-operatives like Mandirade, Zimveke, Livunzu, Chang'anima, Nkhate, among others.

4.4.4 Business Promotion Services

Business advisory services in the district are provided by government institutions and some NGOs. The main institutions providing such services are the Ministry of Industry, Trade and Tourism and through OVOP program, office of the DADO, the District Forestry Office, the Community Development and MACOHA.

4.4.5 Contribution of Small and Medium Enterprise to the Local Economy

The SMEs have contributed in the following areas:

- i. Employment. eg bicycle taxis, maize mills, retail shops, bottle stores, restaurants, lodges and manufacturing;
- ii. Source of revenue for the District Council. Eg market fees and business licenses;
- iii. Market for farmers and other SMEs; and
- iv. Provision of basic goods and services. Eg fuel, stationery, basic household needs.

4.4.6 Key Issues and opportunities Affecting Business Sector Growth

These include:

- i. Small scale businesses, 463 in total, dominates the business sector with only 21 medium scale businesses and 5 large scale businesses;
- ii. TA Masache trails behind the rest of the TAs in terms of business development while TA Lundu dominates followed by TA Kasisi within which the district headquarters is located;
- iii. Min shops and Bicycle taxis dominate the business sector while hardware shops are very few;
- iv. Inadequate access to banking services;
- v. The sugarcane plantation covers a large area which restricts access to land by local people in T/A Lundu and T/A Ngabu. Lack of adequate trade officers in the Department of Trade to supervise, monitor, inspect and advise people. The Directorate of Commerce and Industry has also remained vacant at Chikwawa District Council thereby having no one to properly coordinate trade matters. Filling the crucial vacancies will go a long way in assisting the district to fulfil its trade potential and contribute positively to the economic development of the district and country; and
- vi. High interest rates on bank loans making it difficult to access capital.

The possible factors contributing to the status quo in the business sector in the district includes:

- i. Unpredictable macroeconomic environment, high inflation rates, unstable exchange rate and high interest rates

- ii. Natural disasters such as floods, wind storms and droughts have derailed economic activities in the district

The business sector has a number of opportunities for growth and these include:

- i. Availability of expertise on informal banking initiatives such VSL which is provided for free by NGOs and Government departments; and
- ii. Tarmac road between Blantyre and Nsanje District headquarters provides easy access to better and competitive markets.

4.5 MINING AND MINERAL DEPOSITS

Mining is almost non-existent in the district with some small scale mineral deposits, such as gemstone and blue agate in TA Ngabu. There are also some coal deposits at Lengwe National Park. Andrew and Bailey, during their 1906 – 1909 survey, collected eight samples of coal shale and concluded that the material would be of little value as fuel. The district should therefore further explore whether it would be of economic value to mine the available coal.

4.6 TOURISM

4.6.1 Tourism Potential

Chikwawa has many potential sites for tourism development. These include Kapichira falls, Madziotentha spring, Diwa spring, Kapichira Hydro Electric Power Station, Majete Wildlife Reserve, Lengwe National Park and meandering Shire River view from Thyolo – Chikwawa escarpments on the way to Chikwawa District Headquarters. There are also some historical sites and traditional dances.

4.6.2 Tourism Facilities

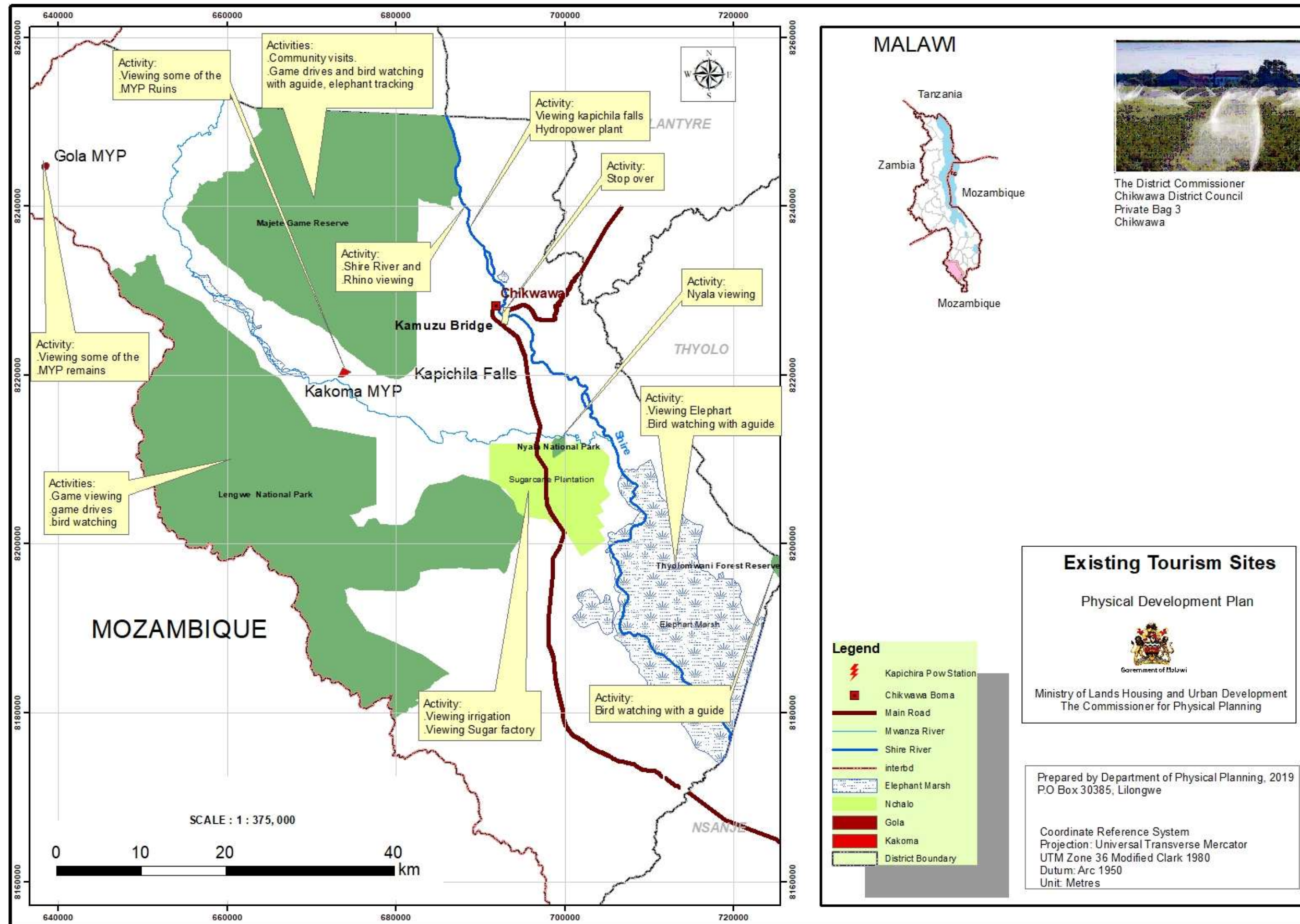
4.6.2.1 Parks and Wild Life

Established to conserve wildlife, Lengwe National Park was established in 1975 and covers 887 sq kilometres. Common wildlife in the Park include; Antelopes, Nyala, Buffaloes, Kudu, Livingstone Suni, Impala, Warthogs, Bush bucks, Bush Pigs, Grysbok, Common Duikers, Leopards, Hyenas, Civets, monkeys and birds. The Illovo Sugar Company also established Nyala Park for Tourism. Animals in this facility include; Nyalas, Zebras, giraffes and Camels.

Majete which was created in 1955, is run by African Parks through a 25 year concession which started in 2003. It sits on a 700 km² piece of land. Although the reserve has some land falling in Blantyre, Mwanza and Neno Districts, a large chunk is in Chikwawa District. Part of the reserve, also known as Mkulumadzi, is managed by Robin Pop Safari under a separate concession, with African Parks as the concessionaire.

The Wildlife Reserve has all the big five game and others including Lion, Elephant, Zebra, Leopard, hippos, Warthog, Black rhino, Eland, Impala, Buffalo, Sable antelope and Hartebeest. There are facilities like Sunbird Thawale Lodge, Mkulumadzi 5-star Lodge, community camp site, rest shelter, picnic shelter, swimming pool, restaurant, tourism office, conference room, road network for tourism and an airstrip. Tourism sites and major activities are depicted on a map in Figure 16.

Figure 16: Map Showing Tourism Sites in Chikwawa District



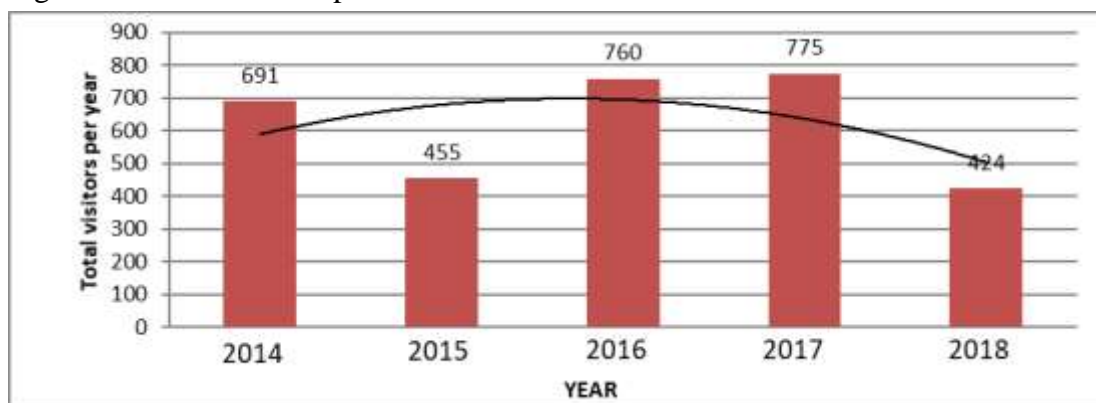
4.6.2.2 Paying visitors in Lengwe National Park from 2014 to 2018

Statistics show that the park receives more visitors between May and December (see Table 14 for details). During the rainy season, the number decreases because the roads become muddy and impassable and also the increase in vegetation cover decreases animal visibility. These conditions improve between April and May when visitation increases. The possible reasons for the sharp decrease in paying visitors in 2018 include that Nyala Lodge which provides food and accommodation services to visitors has not been attractive as it used to be. At one time in 2018, the Malawi Bureau of Standards had to close the lodge due to substandard services and it is thought that visitors became discouraged. Secondly, construction works of the Conference Hall in the park caused a lot of disturbances to the visitors. To some extent, it is thought that the high animal species diversity in Majete Wildlife Reserve attract visitors who used to visit Lengwe National park before.

Table 13: Paying Visitors Received in Lengwe National Park from 2014 to 2018

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	GRAND TOTAL
2014	41	12	38	103	40	47	57	94	63	72	66	58	691
2015	4	6	3	20	43	57	68	53	50	51	55	45	455
2016	50	24	25	43	68	72	86	132	65	64	28	103	760
2017	38	46	59	49	93	69	101	54	73	70	56	67	775
2018	37	25	47	38	54	46	14	15	15	51	40	42	424

Figure 17: Total Visitors per Year



4.6.3 Key Issues from Tourism Sector

Majete Wildlife Reserve is a success story as it has booming wildlife and its tourism facilities due to the public-private partnership. The Lengwe National Park is inaccessible during the wet season and has inadequate facilities. Stray lions sometimes cross the international boundary from Mozambique into Lengwe.

Key challenges include vandalism in tourist attraction areas, poaching, poor road conditions, lack of electric power network, floods and inadequate human and financial resources to support sustainable development and maintenance of key tourist sites.

4.7 LABOUR AND EMPLOYMENT

4.7.1 Labour Force

There are two main groups labour and these are formal and informal. Formal labour refers to the type of employment where one works in an organisation where he/she receives salary per fortnight or month end. Informal labour refers to self-employment where one works in his/her own entity such as small holder farmer, bicycle taxi or on casual, short tem or tempora temporary employment. This is the group where highest percentage of employment is registered.

The Government and the private sector that offer formal employment in the district. Government agencies employ about 3,171 people of which 2,480 are male while 1,031 are female. The private sector and NGOs employ about 5,809 people of whom 5,508 are male while 301 are female.

Table 15 shows work force distribution in Government Agencies and the Private Sector Including Civil Society Organisations.

Table 14: Work Force Distribution in Public and Private Sector/ CSOs

Employer	Male Employees	Female Employees	Total No. of Employees
Government Agencies	2480	1031	3171
Private Sector/CSOs	5508	301	5809

The distribution of work force in formal sector indicates the private sector has the bigger work force than the public agencies in the district.

The district experiences issues of child labour. Virtually, there is no child labour at present in the formal sector. This is due to intensified labour inspection in these work places by the council and increased dissemination of information on effects of child labour.

Much of child labour is practised in the informal sector including in residences, SMEs where children are sent to sell goods of low order value such as doughnuts. In fact, the Council has always had challenges to mitigate child labour in private homes as labour inspection services are restricted in these workplaces.

There is need for information dissemination across the sectors on issues surrounding child labour. These children may be enrolled in schools or provide them with vocational skills so that they would be reliable citizens in the future but this is not possible because there is only Mphungu skills centre which is operational.

The Council has established that most employers especially those in the Small and Medium Enterprises, pay below the minimum wage. Due to the challenge of lack of adequate resources, few workplaces are visited by a labour inspector which results into employers taking advantage of this as no one is there to enforce the statutory minimum wage

Employees in Chikwawa District work for 72 hours per week on average. It is unfortunate that most employers in the district do not compensate their workforce for working an extra mile beyond the normal 48 working hours as provided in the Employment Act 2000.

4.7.2 Key Issues from the Labour Sector

The key issues of labour in the district are Non-compliance to minimum wage by employers. This can mainly be attributed to low income levels of the employers in informal sectors. Non-compliance by employers to general labour laws including the Employment Act, Labour

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Relations Act, Pension Act, Occupation Safety Health and Welfare Act, Workers Compensation Act, is due to an array of factors. Some organizations do not have Human Resource personnel who can interpret and apply the laws. The other reason is that there is lack of strong punitive measures against those who do not comply with these laws.

5 POPULATION AND DEMOGRAPHIC CHARACTERISTICS

5.1.1 Introduction

Population is the number of people living within a political or geographical boundary. Population is very crucial in the development of an area. Therefore it needs to be accorded special attention when preparing any social, economic, environmental or physical development plan of an area.

Understanding population and demographic characteristics and dynamics is a prerequisite in plan making process because it aids in making estimates for land requirements, social service needs, and infrastructural development. It also guides in the formulation of land use plans, as well as development strategies, policies and programs.

This chapter assesses the population and demographic characteristics of the district such as existing and projected populations, population growths and growth rates, population densities, population distributions, age-sex structures, migration as well as urban and rural population sizes.

5.1.2 Population Size and Growth Trends -1977 – 2018

The 1977 and 1987 population census results, show that the population of Chikwawa was 194,425 and 316,733 people respectively. Between this intercensal period, the population grew by 122, 308 people representing an intercensal growth rate of 4.9 %. From 1987 to 1998 intercensal period, the number of people grew by 39, 949 people from 316, 733 people in 1987 to 356, 682 people in 1998. This represents an intercensal growth rate of 1.1%.

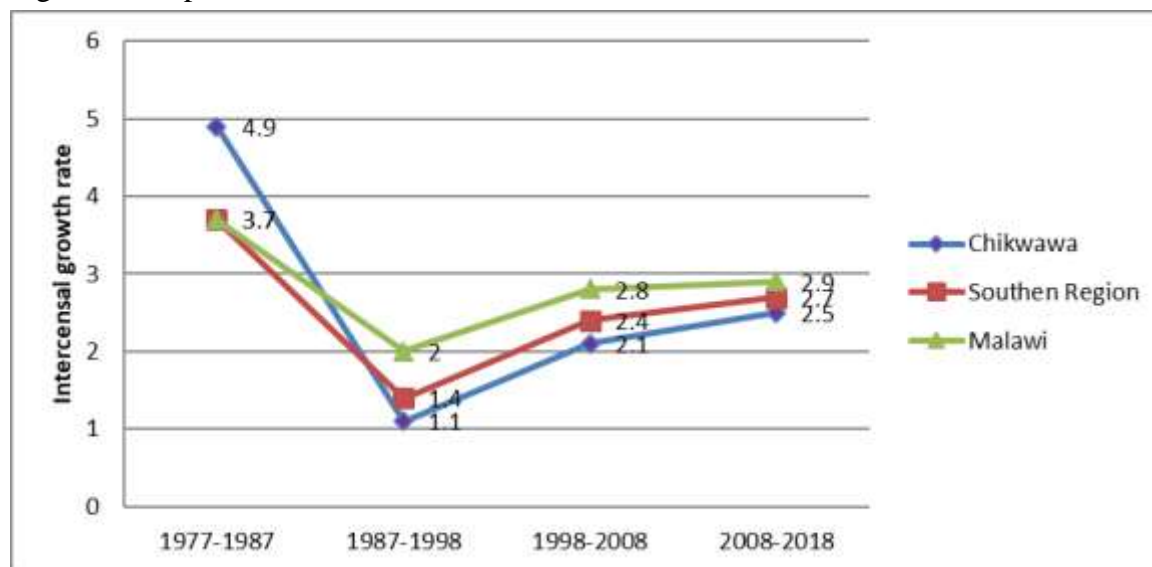
The 2008 Population and Housing Census pegged the total population of Chikwawa District at 434, 684 people. This means population grew by 77, 966 people from 356,682 people in 1998, representing an intercensal growth rate of 2.1%. In 2018 it was pegged at 564, 684 persons, growing by 130,036 people from about 434, 684 people in 2008. This represents an intercensal growth rate of 2.5%. Much as the growth rate has been oscillating all along, it has been on the increase since 2008. This increase is a bit worrisome considering the prevailing economic and environmental conditions of the district. The graph below illustrates this.

Table 15: Historical trends in Population and Inter-censal Annual Growth Rates

Area	Population ('000s)				Inter-censal Growth Rates		
	1987	1998	2008	2018	1987/98	1998/2008	2008/2018
Malawi	7,988.5	9,933.9	13,077.2	17,563.7	2.0	2.8	2.9
South	3,965.7	4,634.0	5,858.0	7,750.6	1.4	2.4	2.7
Chikwawa	316.7	356.7	434.7	564.7	1.1	2.1	2.5

The table and graph above show that the inter-censal growth of Chikwawa is in tandem with that of the Southern region as well as the country. They all took a deep in the 1987/98 intercensal period and started increasing thereafter. The reasons for the decrease are multifaceted some of which being: mass repatriation of refugees to Mozambique (NSO, 2018:10), and high mortality rates due to the upsurge of malaria and AIDS epidemic (Zimalirana, 1992: 46-47).

Figure 18: Population Size and Growth Rate



Graph above shows inter-censal growth rates for Chikwawa from 1977 – 2018

As observed in the graph in Figure 18 and Table 16, population of Chikwawa is increasing substantially. This increase in population puts pressure on available resources. Consequently, there is need for sustainable use of land-based resources. In addition, economic diversification is a crucial aspect in order to avoid overdependence on dwindling agricultural products. There is need to add social services and expand the available ones to meet the needs of the growing population.

5.1.3 Population Density

Population density is the average number of persons per square kilometre. The population density of Chikwawa District has been on a steady increase since 1987. In 2018 population density was at 116 people per square kilometre, which has increased from 91 people per square kilometre in 2008. Similarly in 1998, population density was 75 people per square kilometre which was higher than that of 1987 which was estimated at 67 people per square kilometre and the 1977 density of 41 people per square kilometre. Table 17 shows Land Area, Population Size and Population Density

Table 16: Land Area, Population Size and Population Density

Regions and Districts	Land Area (sq. km)	Population (thousands)					Population Density (per sq km)				
		1977	1987	1998	2008	2018	1977	1987	1998	2008	2018
Malawi	94,552	5,547.5	7,988.5	9,934	13,077	17,564	59	85.0	105	138	186
South	31,780	2,754.9	3,965.7	4,634	5,858	7,751	87	125.0	146	184	244
Chikwawa	4,892	194.4	316.7	356.7	434.6	564.7	41	75.0	73	90	113.34
Ngabu	873	n/a	103.9	121.3	149.5	164.7	n/a	97.3	113.69	140.1	188.72
Lundu	200	n/a	33.4	42.5	46.4	62.2	n/a	184.5	234.9	256.2	310.88
Chapananga	770	n/a	91.3	65	86.5	88.6	n/a	81.7	74.4	99.1	115.11
Maseya	140	n/a	17.2	19.2	26.6	37.8	n/a	118.7	132.5	183.2	269.95
Katunga	152	n/a	14.5	16.4	24.7	32.9	n/a	91.9	104.0	170.2	216.73
Kasisi	337	n/a	20.3	25.4	31	23.3	n/a	68.3	85.4	104.4	69.03

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Makhwira	469	n/a	51.7	59	62.9	79.9	n/a	133.9	152.9	163.0	170.43
Ndakwera	131	n/a	n/a	n/a	n/a	23.7	n/a	n/a	n/a	n/a	180.83
Mlilima	75	n/a	n/a	n/a	n/a	11.9	n/a	n/a	n/a	n/a	159.29
Masache	149	n/a	n/a	n/a	n/a	22.2	n/a	n/a	n/a	n/a	149.10
Ngowe	67	n/a	n/a	n/a	n/a	10.4	n/a	n/a	n/a	n/a	155.92
Lengwe	920	n/a	0.074	0.304	0.053	0.544	n/a	0.1	0.3	0.1	0.59
Majete	691	n/a	0	0.059	0.036	0.221	n/a	0	0.1	0.01	0.32
Boma	8	n/a	4.4	7.5	7	6.1	n/a	435.3	747.4	698.7	764.25

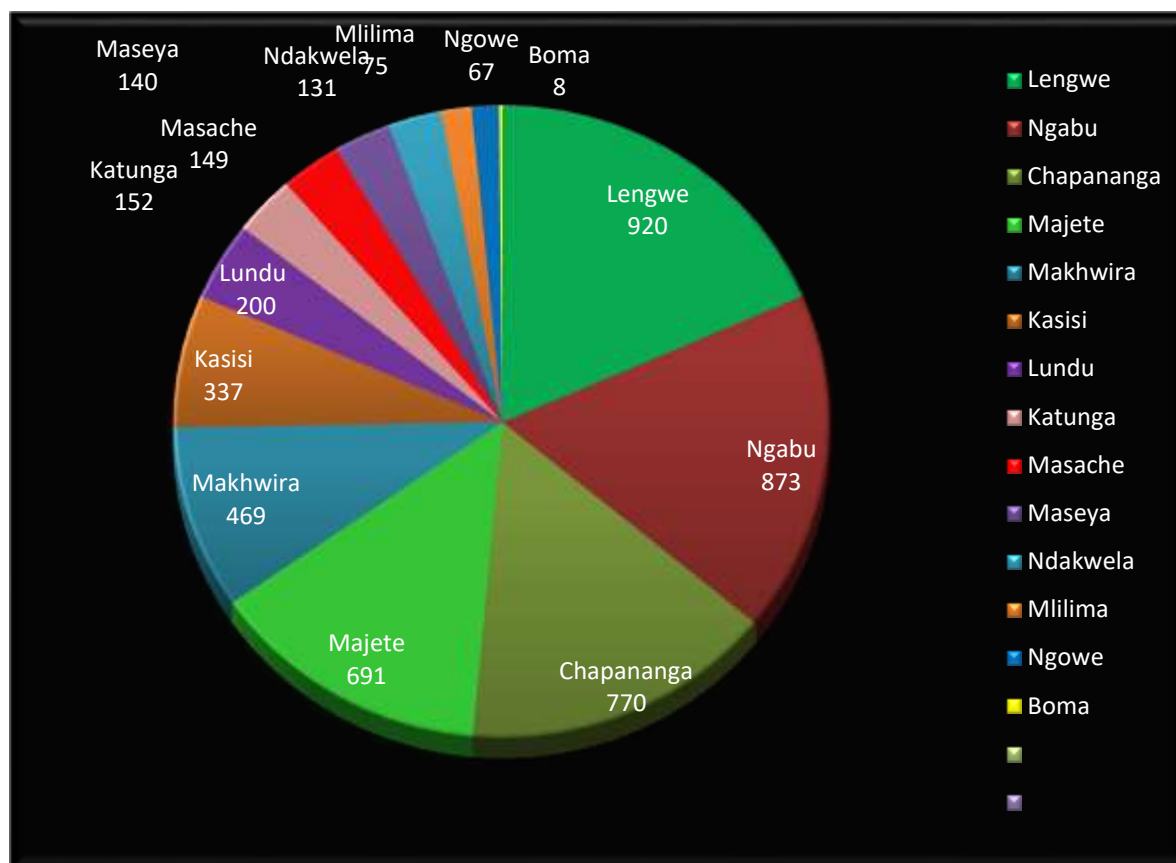
NSO Population and Housing Census Reports 1977-2018

This shows that Chikwawa District is sparsely populated compared to Malawi and Southern Region in absolute terms. The presence of wild life reserves may have contributed to this seemingly low density. Population densities vary according to traditional authorities as well as rural and urban centres. For example, in 2018, T/A Lundu had 311 people per square kilometre and T/A Chapananga had 115. The density at the District Headquarters was 764 people per square kilometre while at Ngabu there were 189 people per square kilometre.

Note that some Traditional Authorities do not have data in all the years save for 2018. These might have been under other T/As by then because were not yet created. There is also change in the total land area for Chikwawa. In the past documents for NSO, it indicated that Chikwawa had a total land area of 4,755 square kilometres while in 2018 NSO is putting Chikwawa at 4878 square kilometres. This however does not mean that land is increasing in Chikwawa rather that improvement in technology has led to better estimates of the total land area.

This shows that densities in Chikwawa have been on a steady increase. Even though population density has been increasing at a slower pace, than that of Malawi and Southern Region, the geographical characteristics of the district makes any increase in population densities a worrisome development. Specifically, habitable land in the district is very limited. A big chunk of the land is taken up by estates, mountains, Lengwe and Majete as well as flood plains. This can better be seen when considering the land area and densities under individual localities or traditional authorities. Land area for each Traditional Authority in Chikwawa is shown in Figure 19, while the district's population density by Traditional Authority is provided in Figure 20.

Figure 19: Land Area (km²) by Traditional Authority



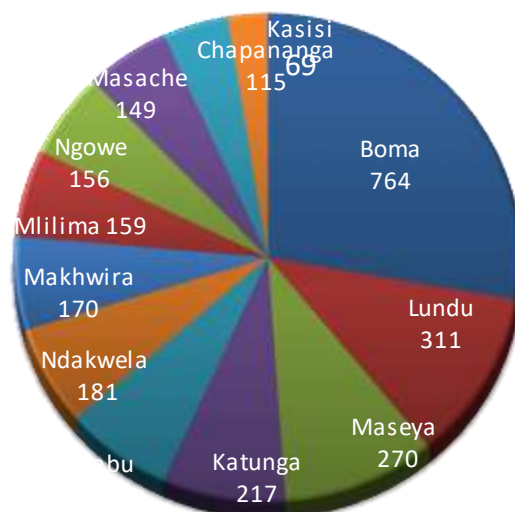
NSO Population and Housing Census Preliminary Report 2018

5.1.4 Age-Sex Structure

The overall population of Chikwawa District according to latest population census figures is skewed towards young people. Approximately 54.3% of the total population is below the age of 19 of which 49.3% are under the age of 18. On the other hand, 5.5% of the total population is over the age of 60. This means that 54.8% of the total population is an economic burden on the economically active group. The population of females is slightly higher than that of males. 51 percent of the district's total population are females. This is not too far from 2008 population and housing census results which showed that 50.1% of the total population were females.

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Figure 20: Population Densities per Traditional Authority



NSO Population and Housing Census Reports 1977-2018

Table 17: Population Distribution by 5 Year Age Groups in 2018

Age group	Total	Male	Female
1-4	69,375	34,306	35,069
5-9	88,719	44,010	44,709
10-14	79,904	39,509	40,395
15-19	68,448	34,406	34,042
20-24	51,269	24,140	27,129
25-29	42,857	20,502	22,355
30-34	34,108	16,004	18,104
35-39	32,482	15,748	16,734
40-44	24,252	12,683	11,569
45-49	19,330	10,416	8,914
50-54	11,702	5,830	5,872
55-59	11,199	5,613	5,586
60-64	7,273	3,469	3,804
65-69	7,970	3,666	4,304
70-74	5,526	2,443	3,083

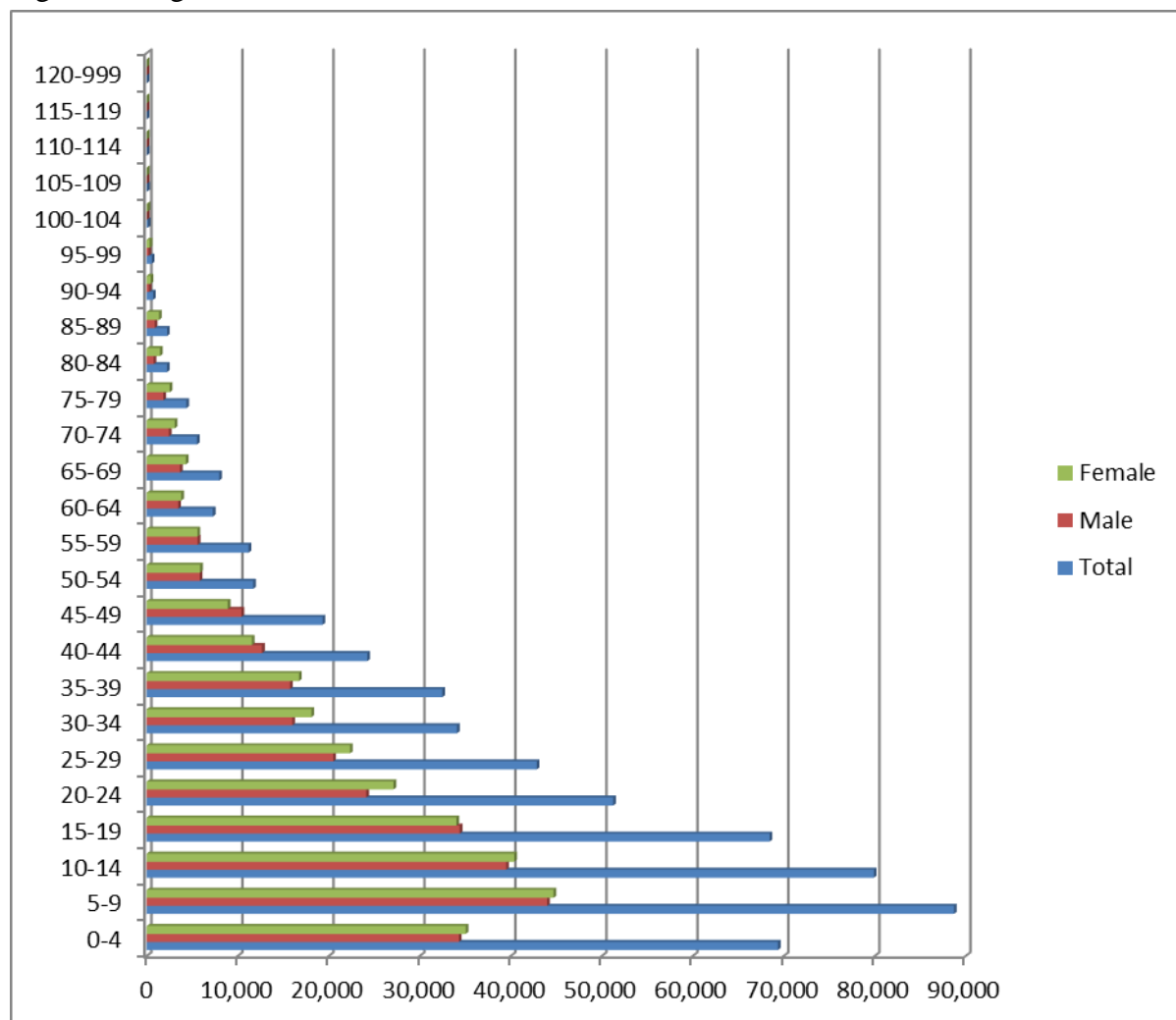
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Age group	Total	Male	Female
75-79	4,359	1,833	2,526
80-84	2230	770	1,460
85-89	2239	887	1,352
90-94	696	253	443
95-99	561	219	342
100-104	125	37	88
105-109	54	21	33
110-114	19	5	14
115-119	13	4	9
120-999	6	4	2

NSO Population and Housing Census 2018

The graph on Figure 21 is a graphic representation of Table 18, showing a clear picture of the population in Chikwawa as regards age and sex distribution.

Figure 21: Age /Sex Structure



NSO Population and Housing Census 2018

5.1.5 Urban and Rural Population

Rural population refers to people living in rural areas as defined by the National Statistical Office. It is calculated as the difference between total population and urban population. Chikwawa district has three main urban centres namely Chikwawa District headquarters with 6,114 people, Ngabu Urban with 7,032 people, and Nchalo with 15, 382 people. The majority of people in Chikwawa district live outside these urban centres, making the district to have a high percentage of rural population.

5.1.6 Population Migration

Between 1966 and 1977 inter-censal period, Chikwawa benefitted from immigration. It seemed to have gained population due to the setting up of SUCOMA Sugar Estate and its refinery which required large labour force and also the establishment of the Shire Valley Agricultural Development Division. The following table provides the summary.

Table 18: Population Migration

District	1966			1977			2008	
	In-	Out-	Net	In-	Out-	Net-	In-	Out-
Chikwawa								

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District	1966			1977			2008	
	migration	Migration	Gain/loss	migration	migration	Gain/loss	migration	Migration
	25,381	7,714	+17,667	35,428	22,030	+13,398	42,974	46,450

NSO Population and Housing Census Reports 1966-2018

Based on 2008 population census, Chikwawa experienced a net migration of -3,476 with 42 974 in-migrants and 46 450 out- migrants. There is no obvious explanation for this reversal in 2008. There were more male in-migrants (2939) and out migrants (2870) than female in migrants (2160) and out-migrants (2760).

5.1.7 Population Distribution

Population in Chikwawa as provided by the 2018 Population and Housing Census is unevenly distributed. T/A Ngabu with a population of 164, 753 representing a 29% of the district total population is the most populated area. The protected areas of Lengwe National Park and Majete Wildlife Reserve are the least populated with a population of 544 (0.1%) and 221 (0.04%) respectively. Southern region contributes 44.1% of the national population of which Chikwawa accounts for 3.2%.

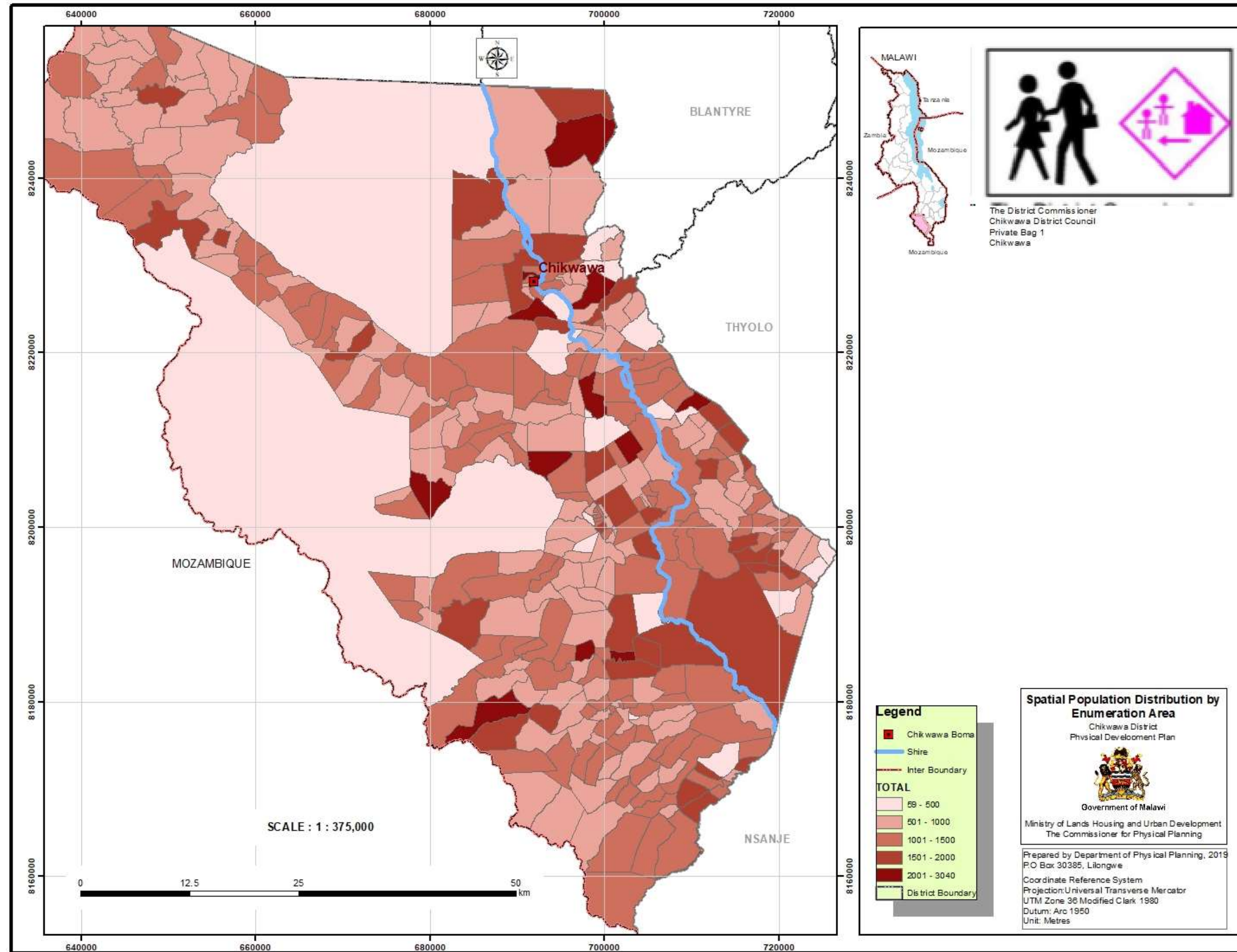
The percentage distribution of the population by T/A shows that T/A Ngabu has been having the highest population 29.17% in 2018 and 34.39% in 2008. However, the 2008 percentage included population from other traditional authorities of Ndakwela, Mlilima, Masache and Ngowe which were not in the NSO database by then. The least populated is T/A Ngowe at 1.85%. Table 20 and Figure 22 shows the spatial distribution of population in Chikwawa.

Table 19: Population distribution by Traditional Authority

Traditional Authority	Population 2018	% distribution 2018	Population 2008	% distribution 2008
Ngabu	164,774	29.17	149,490	34.39
Lundu	62, 176	11.01	46,372	10.67
Chapananga	88,641	15.69	86,495	19.90
Maseya	37,793	6.69	26,639	6.13
Katunga	32,943	5.83	24,680	5.68
Kasisi	23,266	4.12	31,003	7.13
Makhwira	79,933	14.15	62,929	14.48
STA Ndakwera	23,690	4.19		
Mlilima	11,947	2.11		
Masache	22,216	3.93		
Ngowe	10,447	1.85		
Lengwe	544	0.09	53	0.01
Majete	221	0.04		
District Headquarters	6,114	1.08	6987	1.61
DISTRICT	564,684		434,648	100

Source: Physical Planning Analysis 2019

Figure 22: Map Showing Spatial Population Distribution in Chikwawa



5.1.8 Population Projections 2019 - 2040

With an annual growth rate of 2.5%, it is expected that by the year 2040 the total population of Chikwawa District will increase with 407446 people; from 564,684 to 972,130 as seen in Table 21 below.

Table 20: Population Projections 2019 - 2040

Year	Population	Change percentage
2018	564 684	-
2019	578 801	2.5
2020	593 271	2.4
2021	608 102	2.4
2022	623 304	2.5
2023	638 886	2.5
2024	654 858	2.4
2025	671 229	2.5
2026	688 009	2.5
2027	705 209	2.5
2028	722 839	2.5
2029	740 909	2.5
2030	759 431	2.5
2031	778 416	2.5
2032	797 876	2.5
2033	817 822	2.5
2034	838 267	2.5
2035	859 223	2.5
2036	880 703	2.5
2037	902 728	2.5
2038	925 288	2.5
2039	948 420	2.5
2040	972 130	2.5

Source: Physical Planning Analysis 2019

If the population projection trends of Chikwawa District are anything to go by, then we should expect more pressure on the few available resources, and land- based resources would not sustain the growing population. People’s livelihoods have to move away from heavy dependency on agriculture. This means introducing other economic activities that would absorb more people to take pressure off the land. In addition, with this increase in population the district should brace for more environmental degradation and more pronounced related disasters like floods if upstream river catchment areas are not given special attention now.

Alternatively, if fertility declines, this will remove some of the pressure off resources, making it easier for development to keep pace with population growth across sectors.

5.1.9 Land Carrying Capacity

Carrying capacity of land is defined as “the maximum number of people that a given land will maintain in perpetuity under a given system of usage without land degradation setting in”⁵. The carrying capacity of land in terms of human biomass can be standard, employed to measure the agricultural efficiency in a society since major share of agricultural land is occupied by food crops. The National Physical Development Plan, provides for the minimum land requirement for food production for an average-size family of 4 to 5 Persons to be 0.78 ha on high potential soils, 1.56 ha on medium potential soils, and 2.19 ha on low potential soils. This is the amount of land required to produce food products to carter for a year. Since needs go beyond finding food to eat, an equal amount of land is considered for cash crop production to meet other needs. As such, the minimum land holding sizes per family of 4 to 5 was estimated to be; 1.46 ha on high potential soils, 3.12 ha on medium potential soils, and 4.38 ha on low potential soils.

The Shire Valley Agricultural Development Division estimates that Chikwawa has 50,080 hectares of arable land of which 20, 118 hectares is dry arable land and 29,962 hectares is wet arable land. Since this arable land has not yet been classified according to fertility levels, the current calculations of land carrying capacity will be based on an average of the three categorisations given by NPDP which is 2.98 hectares per family of 5. In this case the land carrying capacity for Chikwawa is 83,839 people. This is far below the population size of 564,684 people which means that the majority of the population does not have adequate land to support their livelihood. As such there is need for economic and livelihood diversification. People should move away from land based activities and move into service and manufacturing activities.

5.1.10 Major Issues

The following are the major population issues in the district:

- i. Uneven distribution of population due to estates, game reserves, flood plains as well as mountains which have taken up huge chunks of possible productive land.
- ii. Increasing population. This has resulted in shortage of good arable land to support this growing population thereby increasing pressure on few available resources. High rates of population growth hinder investment in both human and physical capital formation and exert pressure on the environment and often result in unsustainable use of a fragile resource base.
- iii. High fertility rates/ early marriages

⁵ Allan 1949

6 URBANIZATION

6.1.1 Introduction

Urbanization, in this plan, is defined as a process whereby the functions of a rural settlement of the village increasingly become oriented towards non-farm activities such as the production of goods, marketing, professional services, etc., with a concomitant increase in the non-agricultural population.

This chapter is based on the results of the central place survey carried out by the National Physical Development Plan (NPDP) team in 1981/1983 and updated by the physical planning team in 2019. This survey identified three types of levels of services available at various centres in Chikwawa District. These services were given points to reflect a high, medium or low level of service. The points accumulated for each settlement centre reflect the settlements (a) centrality as a service centre; (b) rank on the existing hierarchy of service centres and (c) level of urbanization in terms of non- farm activities. The following point system in Table 22 has been used to define the hierarchy of settlements. Centres with more than 11 points were considered urban

Table 21: Hierarchy point system

CENTRES	POINTS
Village Centre	7 – 11 Points
Rural Market Centre	12 – 19 points
District or Main Market Centre	20 – 35 points
Sub Regional Centre	36 – 45 points
Regional Centre	36 – 45 points
National Centre	36 – 45 points

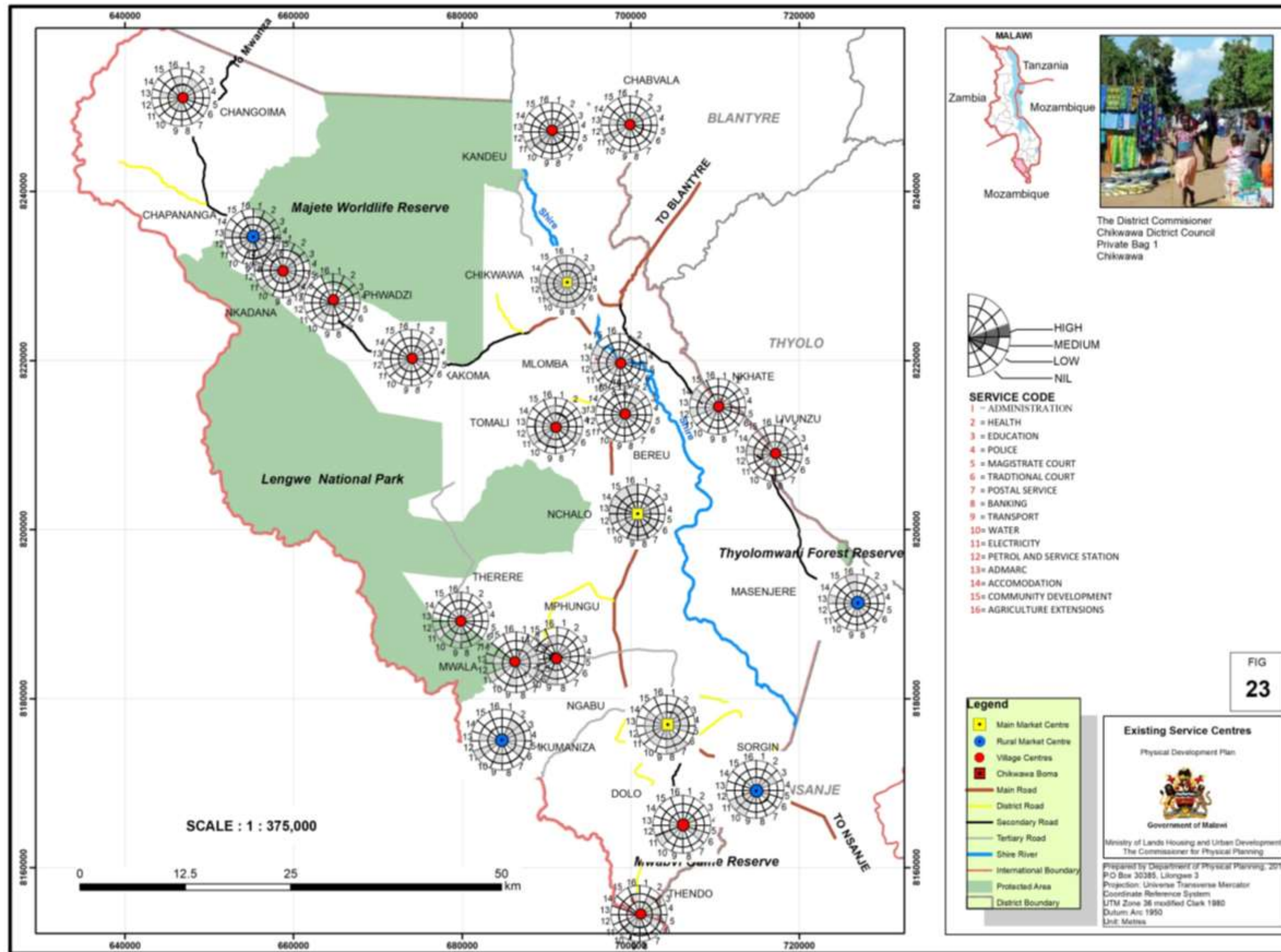
Source; National Physical Development Plan, 1987

6.1.2 Existing Service Centres

The NPDP central place survey held in 1981/83 identified a total of four service centres in this district and were Chikwawa Boma, Chapananga, Nchalo and Ngabu. The central place survey conducted by the Physical Planning Team in 2019 however identified 25 service centres in the district. There are three Main market centres, four rural market centres and eleven village centres. Almost all centres have developed in haphazard manner. These centres are graphically shown on Figure 23, the map of distribution of service centres and facilities

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Figure 23: Map Showing Distribution of Service Centres and Facilities



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Table 22: Existing Service Centres in Chikwawa

Village Centre		Rural Market Centre		Main Market Centre	
Nkhate	(10 Points	Mkumaniza	12 Points	Chikwawa	32 points
Mphungu	9 points	Chapananga	12 Points	Ngabu	28 points
Kakoma	9 Points	Masenjere	12 Points	Nchalo	27 points
Changoima	9 Points	Sorgin	12 Points		
Tomali	8 points				
Thendo	8 points				
Dolo	8 points				
Bereu	8 points				
Livunzu	8 Points				
Phwadzi	8 points				
Thereere	8 points				

Source: Physical Planning Department 2019

Individual service centres together with their areas of influence are briefly described below. Included in the descriptions are hinterlands having an influence on parts of the centres.

6.1.3 Sub-Regional Centres

A sub- regional centre is an urban center which provides central place functions, services and facilities having a catchment area of more than one district but less than five districts or 80 to 100 km radius. They offer diversified commercial, financial, professional and administrative services; accommodate regional offices of national government ministries and agencies; provide facilities for large scale and diversified markets; function as nodes of communication for the broader hinterland; provide sites for large scale agricultural processing industries and other industries; offer incentives for a variety of small scale consumer goods industries, tool – making and repair workshops, machine shops and light durable goods industries and offer higher education opportunities and more specialized vocational training and diversified and multipurpose hospitals and health clinics.

None of the examined centres in Chikwawa district was identified as a sub-regional centre. However, the NPDP central place survey in 1981/1983 identified Bangula in Nsanje District as Sub–regional Centre with sphere of influence on Chikwawa District. Using public transport, for example, buses and motor cycles, it is possible to reach Bangula within a time of 3 hours and 30 minutes. The break down of the railway system however has slowed the growth of Bangula. The central place survey of 2019 identified Blantyre District also serving as a Sub-Regional Centre for Chikwawa and it exerts a larger sphere of influence than Bangula Sub-Regional Centre. To travel to Blantyre from Chikwawa District headquarters, using a motor vehicle takes just about one hour.

6.1.4 Main Market Centre

Main market centre is an urban center which provides central place functions, facilities and services having a catchment area of the whole district or 40 to 50 km radius. There are three types of these: where administration and commercial services are combined or administration function without commercial functions or commercial function without administrative functions.

Main market centres provide wide varieties of agricultural commodities processed goods household and common consumer products and farm inputs and offer access to all weather road network. They provide the pre-conditions and infrastructure to promote agro-processing plants and small scale bulk commodity handling facilities. They also make available a variety of rural financial and credit services, meet rural energy and utility needs and offer access to all weather roads network. Main market centres further provide higher level administrative services; offer vocational and secondary education, health and child care services and rural commercial services. There are three District / Main Market centres in Chikwawa District and these are Chikwawa District Headquarters, Ngabu and Nchalo.

6.1.4.1 Chikwawa District Headquarters (32 points)

Located north of Chikwawa District, the centre falls under the jurisdiction of Traditional Authority (T/A) Kasisi. According to 2018 preliminary Population and Housing Census report, T/A Kasisi has an estimated population of 23,266 people. The District Headquarters offers the following services; district hospital, district education offices, district commissioner's office and other non-governmental organizations' offices. The centre is also vibrant because of its various small scale commercial businesses. PressCane Limited is one of the industries located in the area which provides employment opportunities to the people within and the surrounding areas.

6.1.4.2 Ngabu (28 points)

Ngabu is located on the southern part of Chikwawa and is bordered by Nsanje. The centre is 49 km away from Chikwawa District Headquarters and it lies along the M1 Road. According to NSO preliminary Population and Housing Census report of 2018, Ngabu has an estimated population of 157,742. The main mode of transport at the centre includes motor cycles and bicycles.

6.1.4.3 Nchalo (27 points)

Nchalo is located at the centre of Chikwawa District. ILLOVO group of companies is the major contributing factor to the growth of the centre. The company provides employment to a large population within Nchalo and the surrounding areas such as Sekeni, Kalulu and Jombo. The centre lies along the M1 Road and the main modes of transport include minibuses, pick-ups, motor cycles and bicycles.

6.1.5 Rural Market Centres

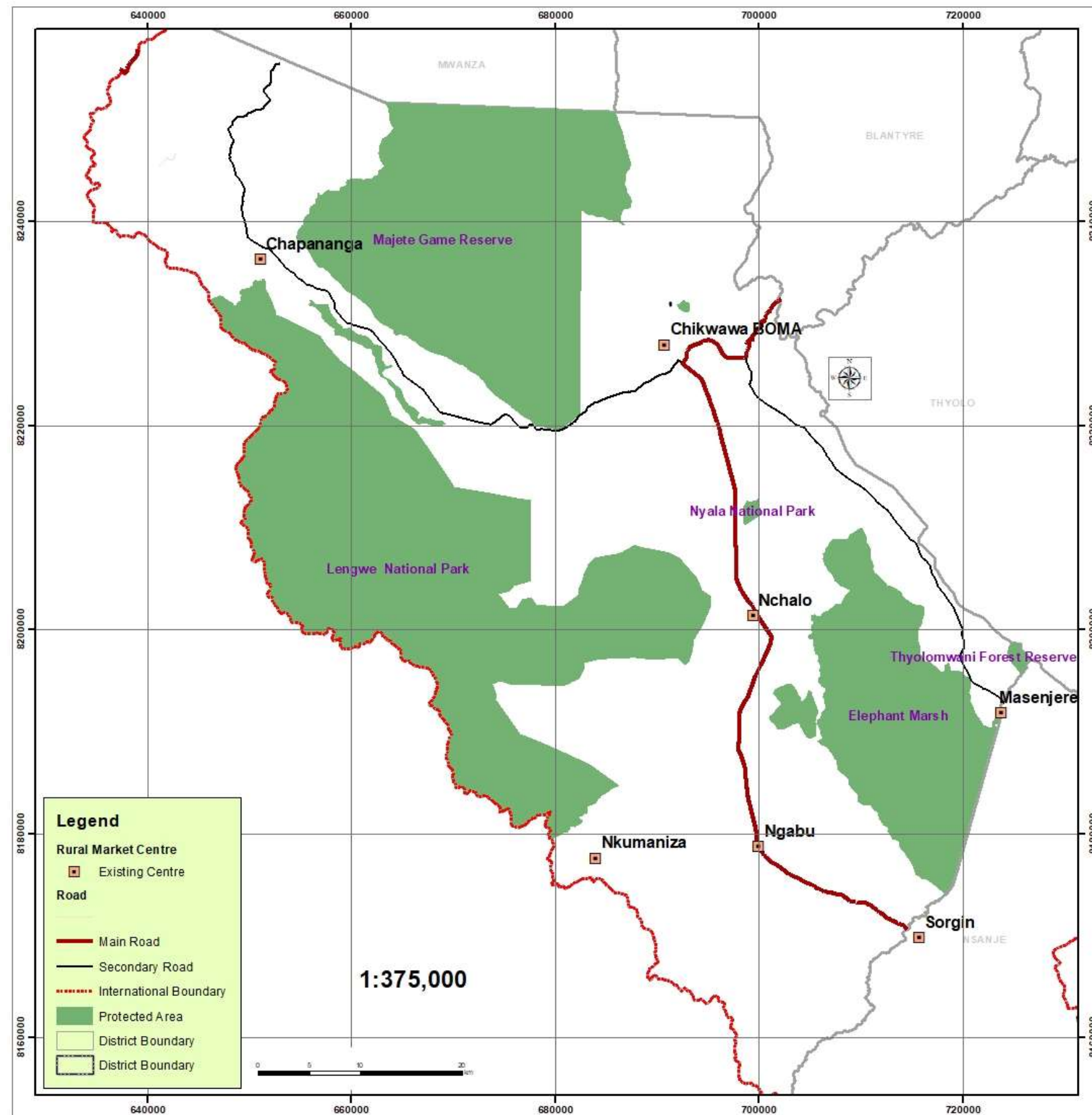
A rural market centre is an urban center in a rural setting which provides central place functions, services and facilities having a catchment area of less than one district, one chief's area, or more than one chief's area or 15 km radius.

The centres contain services and facilities to assemble agricultural commodities. They provide local periodic markets, extend transport access to main market towns and larger urban centres, accommodates small scale agro- processing and handcraft industries, distribute credit and market information as well as savings and provide basic health facilities, recreation, education and administrative services. The level of services include; wholesale and small retail shops, post office, health facilities, educational facilities, agricultural

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commodities, mobile Bank services, and ADMARC facilities for agricultural input and output market. Figure 24 depicts distribution of existing rural market centres in Chikwawa District.


Figure 24: Map Showing Existing Rural Market Centres



The District Commissioner
Chikwawa District Council
Private Bag 1
Chikwawa

FIG 24

Existing Rural Market Centre
Chikwawa District Physical Development Plan



Government of Malawi
Ministry of Lands, Housing and Urban Development
The Commissioner for Physical Planning

Prepared by Physical Planning Department
P.O. Box 30385, Lilongwe
Map Projection: Universal Transverse Mercator
Coordinate Reference System: UTM Zone 36s Modified Clark 1980
Datum: Arc 1950
Units: Metres

The following are the four existing rural market centres;

6.1.5.1 Mkumaniza (12 points)

The centre is situated approximately 15km from Ngabu and is located to the southwest of Chikwawa District bordering with Mozambique. It has an approximate population of 157,742 people according to NSO 2018 preliminary Population and Housing Census report. The centre has a numerous number of retail shops and a couple of wholesale shops. The centre also has a primary and secondary school.

6.1.5.2 Chapananga (12 points)

Chapananga is located northwest of Chikwawa District with an approximate distance of 45km from Chikwawa District Headquarters. The centre serves a large population and it is important among other things because it has an ADMARC depot, post office, health centre and traditional court.

6.1.5.3 Masenjere (12 points)

Masenjere is situated to the East of Chikwawa District and lies on the boundary between Chikwawa and Nsanje district. Economic activities like barter trade, farming and the marketing of other goods have mainly contributed to the growth of the centre. The centre has a health centre and a community day secondary school. The main modes of transportation at the centre are bicycles and pick-ups. There are more than five rivers of which most of these have no bridges and some bridges have been completely washed away which makes the centre hardly accessible by vehicles during rainy season. The construction of new bridges is underway in some points. The condition of infrastructure at the centre is poor and inadequate.

6.1.5.4 Sorgin (12 points)

The centre is a centre in Nsanje district and it borders Chikwawa District to the South-East. Part of its catchment area is mainly Chikwawa although administratively it is in Nsanje district.

6.1.6 Village Centres

A village centre is a rural service center providing basic services for a catchment area covering one or several villages, part of or one chief's area or 5 to 8 km radius. Village centres offer the lowest level of the services within the hierarchy of service centres. They provide basic services such as health, elementary education, agricultural extension and day to day commercial activities. Figure 25 shows existing village centres in the district.

The following are the existing village market centres;

6.1.6.1 Nkhate (10 points)

Located approximately 17km from Thabwa centre along M1 road. The main modes of transportation are bicycle, motor cycles and pick-ups.

6.1.6.2 Mphungu (9 points)

Mphungu has a health centre, serving a population of 42,087 persons, which gives its significance,.

6.1.6.3 Kakoma (9 points)

Kakoma is to the North West of Chikwawa District. The main modes of transportation are bicycle, motor cycles and pick-ups.

6.1.6.4 Changoima (9 points)

The centre is to the North East of Chikwawa District. The main mode of transportation is motor cycles. It is at a distance of 19 Km from Chapananga trading centre.

6.1.6.5 Tomali (8 points)

Tomali is located approximately 10Km from the M1 road. The centre is located in Paramount Chief Lundu's jurisdiction which has a population of 62,176 according to NSO preliminary survey 2018 results.

6.1.6.6 Thendo (8 points)

Thendo is bordered by Mozambique and is located 26 Km from the M1 road. It is located south-west of Chikwawa in T/A Ngabu's jurisdiction which has a population of about 164,753 according to NSO preliminary survey 2018 results.

6.1.6.7 Dolo (8 points)

Dolo is located approximately 7.3 Km from the M1 road. Among other things, the centre has a health centre which serves a population of about 47 000 people. The presence of Extension planning Area (EPA) office at the centre also increases its significance. The centre is accessible by a tarmac road.

6.1.6.8 Bereu (8 points)

Bereu is located approximately 18km from Chikwawa District Headquarters astride the M1 road. The presence of shops and an ADMARC depot increases the significance of the centre.

6.1.6.9 Livunzu (8 points)

Livunzu is located approximately 24Km from Thabwa centre which is along M1 road. Although the centre is located on the eastern part of the district the risk of disaster is minimal. The area has enough space for development and is characterized by linear settlements. The market activities of the centre are the contributory factor for its growth.

6.1.6.10 Phwadzi (8 points)

Phwadzi is located North-West of Chikwawa District. The main modes of transportation are bicycles, pickups and motorcycles. The centre has a secondary school which plays a significant role to settlement and economic development of the area.

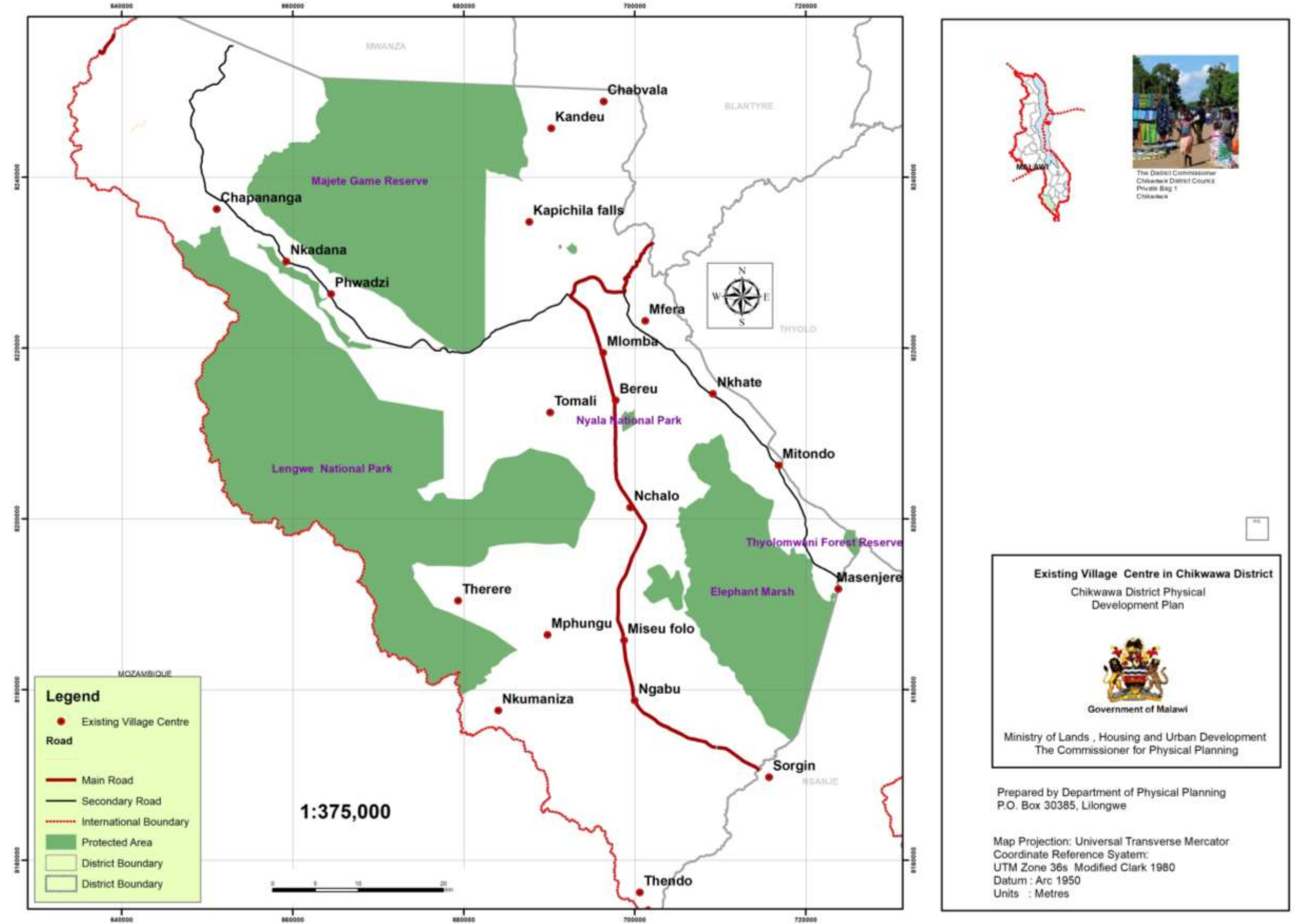
6.1.6.11 Thereere (8 points)

Thereere is located South-West of Chikwawa District. The centre is at a distance of 20.7km from Miseu Folo which lies along the M1. Thereere has a health post, ADMARC depot, agricultural offices and a secondary school.

6.1.6.12 Chabvala (7 points)

Chabvala is located north-west of Chikwawa District bordering Blantyre. There is a health centre that is under construction. The health centre once completed, will increase the significance of the centre.

Figure 25: Map Showing Distribution of Existing Village Centres



6.2 INTER-SETTLEMENT FUNCTIONAL LINKAGES

6.2.1 Relative Importance of Centres and Catchment Area Analysis

In determining the catchment area of centres and their functional linkages, a sample of people in the district were asked to indicate the place where they go to buy goods and obtain services. The goods and services involved were postal services, dispensaries, hospitals, under-five clinics, primary and secondary schools, places of worship, district council markets, maize mill, bicycles, clothing and grocery shops, ADMARC Markets and places of work. Furthermore, a number of different centres and areas were also given as to where they purchased and obtained the goods and services other than the centres already mentioned. Place of non-farm employment and other administrative functions were also included in the functions.

At Chikwawa Boma, from the total number of 900 people who were interviewed, 68 bought clothes at Chikwawa Boma, 46 bought bicycles, 58 bought produce goods, 318 visited Chikwawa for administration, 126 used post office services, 106 visited the hospital, 26 dispensary, and 16 non-farm employment. In total Chikwawa Boma received 764 votes thus the strength of attraction exerted by Chikwawa is indicated as 11%.

At Ngabu centre, from the total number of 900 people who were interviewed, 104 bought clothes, 158 bought bicycles, 110 bought produce goods, 50 visited for administration, 126 the post office, 96 the hospital, 56 the dispensary and 30 mentioned Ngabu as a place of non-farm employment. In total, Ngabu received 730 votes thus the strength of attraction exerted by Ngabu is indicated as 10%.

A follow up questionnaire regarding an alternative place where people purchased goods and services was administered. From the total number of 900 people who were interviewed 68 bought clothes, 70 bought bicycles, 6 bought produce goods, 2 acquired Administrative services, 2 visited the post office, 2 visited the hospital, 2 visited the dispensary, 12 acquired non-farm employment outside Chikwawa. In total, outside Chikwawa received 120 votes, thus the strength of attraction exerted is indicated as 1.6%. Blantyre, Ntcheu, Lilongwe and Mozambique are some of the areas that were mentioned where people acquire goods and services outside the district.

The ranking of other centres based on the influence exerted in terms of the number of functions and relative importance as a central place, is as illustrated in Table 24.

Table 23: Relative Strength of Centres

Centre	NUMBER OF PREFERNECE VOTES BY FUNCTIONS (1)								No. of Significant functions (2)	Total User Preference Votes	Relative Strength of Centres (3) %
	Purchase of Clothes	Purchase of Bicycles	Visit to Produce Market	Visit to Administration	Visit to Post Office	Visit to Hospital	Visit to Dispensary	Vist to Nonfarm Employment			
Boma	68	46	58	318	126	106	26	16	6	764	11
Ngabu	104	158	110	50	126	96	56	30	7	730	10
Nchalo	40	164	16	12	30	4	4	78	2	348	5
Chapananga	12	10	16	-	24	6	8	4	0	80	1
Livuzu	16	-	30	2	36	28	10	22	0	134	2
Fatima	-	48	-	-	44	32	12	12	1	148	2
Masenjere	40	-	-	-	-	56	36	24	1	156	2
Mitondo	64	-	84	-	-	-	12	-	2	160	2
Mphingu	-	-	8	-	-	18	20	4	0	50	0
Miseufolo	20	-	18	-	-	-	-	13	0	36	0
Dolo	-	-	-	2	-	18	12	4	0	36	0.5
Nkadana	-	-	2	-	-	10	10	4	0	36	0.3
Mpama	4	-	16	-	-	-	-	-	0	20	0.2
Kanyongolo	4	-	3	-	-	-	-	-	0	6	0
Phwazi	-	-	4	-	-	8	3	-	0	14	0.1
Malata	4	-	3	-	-	4	4	-	0	14	0.1
Mkumaniza	126	10	14	12	6	33	14	-	1	103	1.4
Kakoma	10	-	4	-	-	4	-	4	0	22	0.3
Thereere	1	-	2	-	-	-	1	-	0	8	0.1
Changoima	10	-	4	12	6	33	14	-	0	33	0.3
Outside	24	70	6	2	2	3	3	13	1	120	1.6

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Centre	NUMBER OF PREFERNECE VOTES BY FUNCTIONS (1)								No. of Significant functions (2)	Total User Preference Votes	Relative Strength of Centres (3) %
	Purchase of Clothes	Purchase of Bicycles	Visit to Produce Market	Visit to Administration	Visit to Post Office	Visit to Hospital	Visit to Dispensary	Vist to Nonfarm Employment			
Chikwawa											

Source: Central Place Survey 2019

Notes

- a) User preference votes; number of times the centre has been quoted by the sample person (total number of people for each functions).
- b) A function at a centre is defined as being significant if at least 5% of all sample persons have given user preference votes.
- c) Percentage of theoretical maximum of user preference votes (max.no.of votes= no.of sample persons x no.of functions).

Table 24: Characteristic Data on Main Central Places

CHARACTERISTICS	CENTRAL PLACE		
	NGABU	NCHALO	CHIKWAWA BOMA
Functions Exerting Influence	7	3	6
Attraction Strength (%)	10	5	11
Catchment Area (Km ²)	27.03	12.57	12.57
Hypothetical Radius (Km)	8.6	4	4

The analysis is taken a step further in Table 25. The first two rows are taken from the previous table of strength of central places. They show the number of existing functions exerting influence and the percentage strength of attraction exerted by the leading places. The other rows displays the catchment area in square kilometre and the hypothetical radius in kilometre of the centres that have much influence in the district.

6.2.2 Business Operations; Usual Centre for Purchasing Goods

The survey carried out in the District indicated that out of 512 retailers living in the Main Market Centres, Rural Market Centres and Village Centres, 33.8% owned general stores, 38.7% owned grocery shops, and 18% specialized in permanent produce goods, while 8.7% specialized in hardware. Among the 512 retailers, the common trading centres for purchasing goods within the district were Nchalo 54 (10.4%), Chikwawa District Headquarters 46 (8.8%), Ngabu 20 (3.8%) and 34 (6.4%) purchased their goods within their Centres.

The survey also showed that 367 representing 70.4% of retailers purchased their goods outside the district. Blantyre ranked first with 183 customers. Blantyre is the nearest major service centre and thus has many wholesalers with a wide range of goods, some of which are not available in the lower order centres. Lilongwe, Ntcheu, Thyolo, Mozambique and South Africa are some of the areas where business operators indicated to have purchased their goods outside Chikwawa.

6.2.3 Distance Factor in Functional Linkages

Among other factors the survey of settlements identified accessibility as a factor in the district's functional linkages. The following thirteen functions were included in the surveys; post office, under five clinics, dispensaries, hospitals, primary schools, secondary schools, places of worship, maize mill, bicycles, clothing and grocery shops, District Council markets, ADMARC markets and places of work.

Of the 900 persons interviewed, the number and percentages of people walking less than 5 Km to access the other facilities were as follows; post offices 68 persons (4.20%), under five clinics 146 persons (9.02%), dispensaries 88 persons (5.4%), hospitals 99 persons (6.12%),

primary schools 179 persons (11.06%), secondary schools 97 persons (6%), places of worship 186 persons (11.5%), District Council markets 110 persons (6.8%), maize mill 189 persons (11.68%), bicycle 85 persons (5.25%), clothing and grocery 159 persons (9.83%), ADMARC 96 persons (5.93%), place of work 116 persons (7.17%).

6.2.4 Major Issues on Inter-settlement Linkages

Some of the major issues that have been identified from the analysis to be considered in the formulation of the Plan are;

- i. Poor inter-settlement linkages due to bad roads especially during rainy season
- ii. There is a marked low level of services/facilities at most existing centres
- iii. There is complete lack of certain services and facilities in most centres
- iv. There is lack of spatially balanced pattern of service centres which can maximize the provision of good and services
- v. Most centres lack public utilities such as public toilets, water, electricity, skips and proper dumping sites for refuse.
- vi. Almost all centres have developed in a haphazard manner

7 PHYSICAL INFRASTRUCTURE AND UTILITIES

7.1 INTRODUCTION

Physical infrastructure is a collective term referring to various goods and services that promote prosperity and contribute to quality of life, including their social well-being, health and safety of citizens and the quality of their environments.⁶ Electricity, water, transport and communication all fall into this broad term of infrastructure. World Bank categorized infrastructure into: Public utilities such as power, telecommunication, piped water supply, sanitation, sewages, waste collection and disposal and piped gas; Public works include roads, dams and canal works; and other urban and rural transport facilities like railways, ports, waterways, airports. The assessment of infrastructure in the subsequent sections is in line with the above synopsis.

This chapter therefore contains a detailed presentation of various types of physical infrastructure and utilities, their location and the level at which each service/facility is operating in Chikwawa District. In addition, it also contains an analysis of these infrastructure and gaps in terms of level of service provision, their quality and quantity.

7.2 TRANSPORTATION LINKS

Although there are various modes of transport in Malawi, Chikwawa District relies mostly on road transport. A good road network in any country, region or district is an important contributor towards socio-economic development. An efficient road network helps to facilitate inter-settlement linkages thereby enhancing flow of goods and services to markets and enabling people to access social and economic services.

The Rural Access Index (RAI) is defined as proportion of people in rural areas who live within a distance of 2 km of a nearest road in good condition, is an important measure of accessibility in rural areas.⁷ No studies have ever been undertaken in Malawi, let alone Chikwawa District to determine rural accessibility. However, a quick assessment of existing road network and distribution of population shows that there are many people who have no access to good roads in the district.

7.3 ROAD TRANSPORT

The Ministry of Transport and Public Works is an umbrella Ministry under which the Roads Department and the National Roads Authority falls. According to the Public Roads Act, the road network in Malawi has six categories and these are outlined in the Table 25:

Table 25: Classification of Roads and their Reserves

Item No.	Category	Minimum Road Reserve	Responsible Authority
1	Main Roads	60m	National Roads Authority
2	Secondary Roads	36m	National Roads Authority
3	District Roads	36m	National Roads Authority

⁶ OECD, 2006

⁷ World Bank Group, 2016

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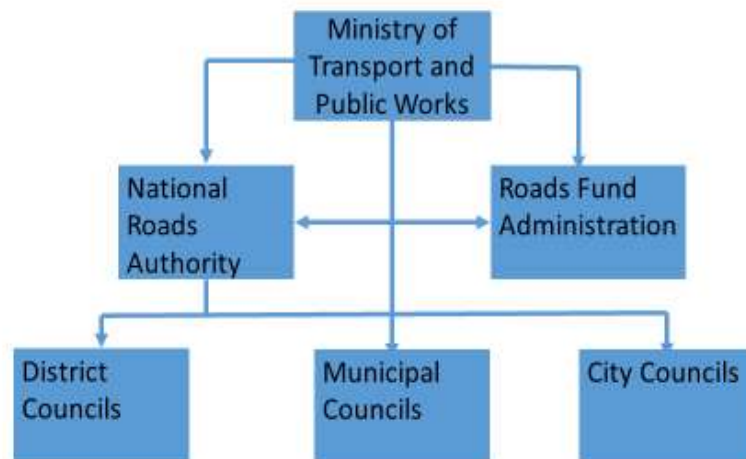
Item No.	Category	Minimum Road Reserve	Responsible Authority
4	Tertiary Roads	36m	District Council
5	Branch/Feeder Roads	18m	District Council
6	Estate Roads	12m	District Council

Source: National Roads Authority

The Roads Authority (RA) is a quasi-public body established under the Act of Parliament and it is responsible for managing public roads on behalf of the Controller of Roads. Its principal mandate is to ensure that all public roads are constructed, maintained and rehabilitated at all times.⁸ The Roads Fund Administration (RFA), also a quasi – public body is mandated to mobilize, administer and account for funds for construction, maintenance and rehabilitation of all public roads. Chikwawa District Council therefore only undertakes road works under the direct supervision of the above bodies. Individual large scale land owners such as Illovo and the wildlife reserves are responsible for constructing and maintaining the internal road network within their properties.

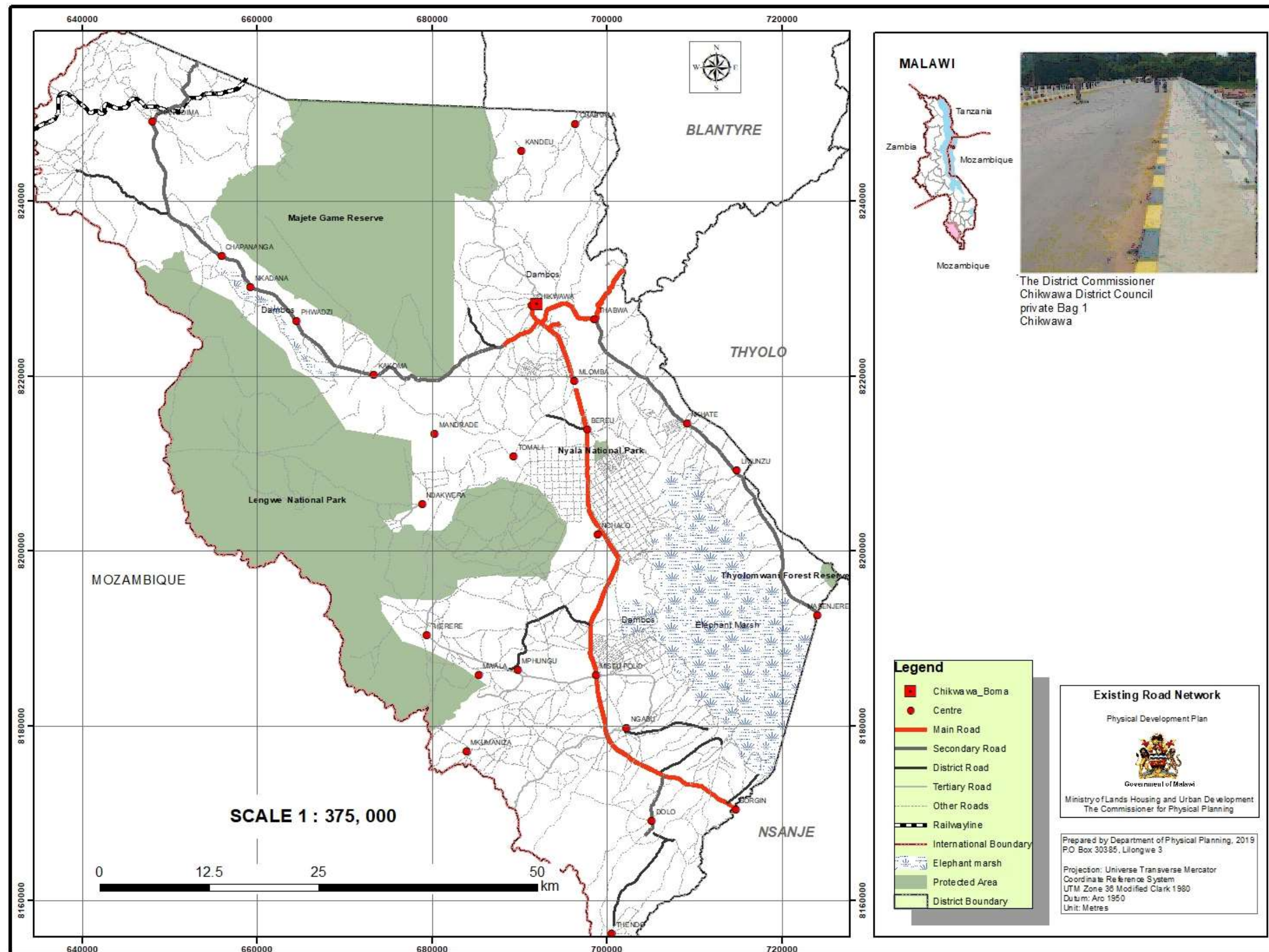
Figure 26 below depicts a simplified institutional structure for the road sector in Malawi and Figure 27 is a map showing the existing major roads in Chikwawa.

Figure 26: Institutional Framework for Road Sector



⁸ Malawi Government, 2006

Figure 27: Map Showing Existing Road Network



7.3.1 Existing Road Network

The existing road network for Chikwawa District according to the Draft Socio – Economic Profile, 2017 has 5 categories of roads. The categories and their descriptions are given below:

- a) **Main Roads:** These are main trunk roads joining district/main market centres and regional/sub-regional centres. They also serve as international corridors
- b) **Secondary Roads:** These are roads branching from main roads. They link main centres of population and production and connecting to the main road network
- c) **District Roads:** These are roads branching from secondary roads and/or main roads. They link local centres of population and developed areas with the principal arterial road system
- d) **Tertiary Roads:** Roads outside cities or towns unilaterally designated by Government linking collector roads to arterial roads accommodating the shorter trips and feeding the arterial road network
- e) **Feeder Roads:** These are roads branching from or leading to district roads

The main road (M1) is approximately 91.8 km from Madziabango to Sorgin and is of bitumen surface. There are only two secondary roads with a combined length of 115 km. The total distance for all district roads, which are 10 in total, is 137.5 km. Both the secondary and district roads are earth surfaced. Total length of all the four existing tertiary roads is approximately 93.4 km. In addition, there are 49 undetermined/feeder roads in the district which are also earth surfaced and have a combined distance of 2,218.5 km. The total distance for all designated roads is 438 km, occupying approximately 1,795 ha of land. In terms of condition, the Socio-Economic Profile emphasized the roads' accessibility during the wet season only. As shown in Table 26, the eastern bank is completely cut off during heavy rains as witnessed during the March 2019 flooding. Therefore, linkage between the east bank and west bank and other parts of the region is greatly limited during the wet season. A field visit carried out in March 2019 during the socio-economic and geospatial survey showed that even with four wheel utility vehicles, some rivers could not be crossed. Table 26 contains a network of major roads in the district and gives a picture of their condition especially during the wet season.

Lack of bridges along Mwanza River is a huge barrier to linkage between communities on both sides especially during the rainy season as seen above. Specifically, access to services such as District Hospital, Kakoma Health Centre and various secondary schools is always a challenge for communities on the west side of Mwanza River. Figure 28 shows the washed away bridge on Mwanza River between Tomali and Mlomba and the challenges communities face to cross during the rainy season. More details on this challenge is highlighted in the respective Group Village Land Use Plans for the impact areas under the Shire Valley Transformation Programme.

Figure 28: Washed away bridge on Mwanza River



Source: Physical Planning Department 2019

Table 26: Network of Major Existing Roads in Chikwawa

Road Class And Number	Road Name	Estimated Distance (Km)	Surface Finish	Road Condition Description	Rehabilitation Plans	
					Current	Future
M1	Madziabango- Sorgin	91.8	Bitumen	Cut by flood water but passable through diversion	Maintenance yearly	Not known
S152	Thabwa –Masenjere	49	Under construction	Not passable, affected by floods	Under construction	Under construction
S136	Chikwawa - Chapananga	71	Being Upgraded from Earth to Bitumen	Passable	Construction of Chapananga bridge	Construction still on-going
D383	Chafudzika- Chikuse	18	Earth	Under maintenance	Re-shaping	Not known
D136	Miseu 4 – Nsomo - Ngabu	15	Earth	Irish bridge on Namikalango River destroyed	None	Not known
D383	Nsangwe- Masanduko	12	Earth	Irish Bridge destroyed	Re-shape	Provision of a drift
D390	Sorgin- Nkhwangwa	21	Earth	Passable	Addition of a km	Re-shape (Roads authority)
D135	Tsapa –Pende	10	Earth	Passable	Maintenance Under Community Clubs	Re-shape under DC
D389	Thudzu- Mwanawanjovu	9	Earth	5km passable	Under maintenance	On-going (Passable part under community clubs and impassable part through contractor)

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Road Class And Number	Road Name	Estimated Distance (Km)	Surface Finish	Road Condition Description	Rehabilitation Plans	
					Current	Future
D386	Jombo- Mtowe	5	Earth	Passable		Under Roads authority budget 2019-2020
D134	Changoima-Zimphonje	7.5	Earth	Passable	Maintenance Under Community Clubs	Up to community clubs
D386	Jombo –Nkholongo	20	Earth	Passable after construction of a bridge	Re-shape and drifts	Not known
D329	Kapichila-Chavala	32	Earth	Impassable border to CK & BT	Maintenance Under Community Clubs	Roads fund to add structures like bridges, culverts
T423	Miseu 4 – Therere	20.4	Gravel	Passable	RA has maintained	Spot gravel drift
T416	Chikwawa to Kapichira	20	Bitumen/ Gravel	Passable but needs grading		Not known
T424	Ngabu – Kunyinda	20	Earth	Passable		
T423	Mlomba (M1) – Tomali	13	Earth	Impassable (bridge washed away)	Not known	Not known
T423	Tomali – Ndakwera	20	Earth	Passable	Not known	Not known

Source: Physical Planning Department 2019

In terms of road construction and maintenance, there are no immediate plans to rehabilitate the worn-out section of the M1 Road from Madziabango to Dyeratu. The road base for the M1 section between Dyeratu and Sorgin is still strong but the surface needs resealing as the current one is being scraped off due to harsh weather. Both secondary roads of Chikwawa – Chapananga (S136) and Thabwa – Masenjere (S152) were being upgraded to bitumen surface in 2019. The first phase of bituminizing 10 km of Chapananga Road and construction of Chapananga Bridge is underway with funding from Malawi Government. The upgrading of Thabwa – Masenjere Road to bitumen surface also commenced in 2018 with funding from the World Bank. However, the World Bank funding was only adequate to cater for 9 bridges only. The Malawi Government is to fund the actual bituminizing once funds become available. Some district roads have been put under direct maintenance of Community Clubs under supervision from the Roads Authority. Table 27 above provides details of major roads, and plans for construction, rehabilitation and upgrading of major roads in Chikwawa District.

Efforts by government to provide good and reliable road infrastructure network in Chikwawa is depicted in Figure 29 below showing bridges under construction.

Figure 29: Livunzu and Chapananga Bridges



Source: Physical Planning Department 2019

Majete Wildlife Reserve has a comprehensive network of roads of about 330 km that facilitates mobility within the reserve for game viewing purposes. Unlike Majete Wildlife Reserve where game viewing is possible even during rainy season, the situation is different for Lengwe National Park as the area is always water logged and access roads are impassable during the wet season.

7.3.2 Road Traffic Volume

Most heavy goods vehicles that use roads in Malawi exceed their load capacity and this is one of the major contributing factors towards decreased life span of roads. A survey on axle loads conducted on selected points of major roads in Malawi in 2014 showed that out of 2,691 vehicles weighed, 1,356 were overloaded, representing an extent of overloading of about 50.4%. In Chikwawa District, out of 65 trucks weighed at Nchalo, 16 were overloaded while at Madziabango, 63 trucks out of 137 were overloaded. The survey also showed that in terms of commodities being transported, sugar topped the list as the commodity being overloaded most because out of 61 trucks carrying sugar, 55 were overloaded, representing a

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90.2% extent of overload.⁹ About 7 drivers who were interviewed at Nchalo also confessed that they overload their trucks and pay the penalties at weigh bridges.

The results of the above survey give some leads on the reasons why the M1 Road gets easily worn out despite giving it constant attention in terms of maintenance. A traffic count carried out at three designated points along the main road shows a variation of movement of traffic at different days and times of the day. The data was collected at different times of the day; in the morning from 08:30 to 09:30, 13:30 to 14:30 and again from 16:30 to 17:30 on both a market and non-market day.

The major road users are pedestrians, bicycles, followed by motor vehicles. There was however, no specific count for pedestrians. There were 614 and 597 bicycles recorded at Chapananga Junction on market and non-market days. In addition, 88 and 69 motor cycles were captured at Chapananga Junction on market and non-market days respectively. At Kamuzu Bridge, 402 and 374 bicycles were recorded on market and non-market days respectively. Similarly, more mini buses were counted at Kamuzu Bridge compared to Chapananga Junction. A total of 55 mini buses were recorded going to Blantyre direction and those going to Dyeratu were 65 for both days. In contrast, only 4 mini buses were captured on each day of the traffic count at Chapananga Junction. Table 28 below gives an overview of volume and flow of traffic along the Main Road and Secondary Road to Chapananga.

Table 27: Traffic count at Chapananga Junction

Direction	motor vehicles						Motor Cycles	Bicycles
	Saloon Cars	Pick - ups	Trucks	Buses	Mini-buses	Others		
Traffic Count on Market Day at Chapananga Junction (Chikwawa Boma)								
Out	13	17	6	0	3	10	29	270
In	15	10	12	0	1	19	40	344
Total	28	27	18	0	4	29	69	614
Traffic Count on Non-Market Day at Chapananga Junction (Chikwawa Boma)								
Out	10	22	9	0	2	9	47	295
In	24	18	7	0	2	13	41	302
TOTAL	34	40	16	0	4	22	88	597

Source: Physical Planning Department 2019

Table 28: Traffic Count at Kamuzu Bridge

Direction	Motor Vehicles						Motor Cycles	Bicycles
	Saloon car	Pick - ups	Trucks	Buses	Mini-buses	Others		
Traffic Count on Market Day at Kamuzu Bridge (Dyeratu)								
Out	27	8	14	0	27	40	11	197

⁹ M. Roux, 2014

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Direction	Motor Vehicles						Motor Cycles	Bicycles
	Saloon car	Pick – ups	Trucks	Buses	Mini-buses	Others		
In	34	37	29	0	34	6	6	205
TOTAL	61	45	43	0	61	46	17	402
Traffic Count on Non-Market day at Kamuzu Bridge (Dyeratu)								
Out	24	18	14	0	28	40	4	191
In	23	36	23	0	31	17	14	183
TOTAL	47	54	37	0	59	57	18	374

Source: Physical Planning Department 2019

Traffic count was also done at Sorgin, which is the boundary between Chikwawa and Nsanje. The purpose was to assess traffic volume out of Chikwawa to Nsanje and into Chikwawa from Nsanje. The count was done on both market and non-market day from 8.30 am to 5.30 pm. Table 30 below, indicates that there is no much difference in terms of traffic at Sorgin on market and non-market day. Bicycles are the dominant road user.

Table 29: Traffic Count at Sorgin

Direction	Motor Vehicles						Motor Cycles	Bicycles
	Saloon Cars	Pick – ups	Trucks	Buses	Mini-buses	Others		
Traffic on Market Day at Sorgin (8.30 am – 5.30 pm)								
Chikwawa-Nsanje	46	64	10	0	95	1	78	417
Nsanje-Chikwawa	8	18	3	0	23	0	17	274
TOTAL	54	82	13	0	118	1	95	691
Traffic on Non-Market Day at Sorgin (8.30 am – 5.30 pm)								
Chikwawa-Nsanje	19	69	32	0	80	1	57	243
Nsanje-Chikwawa	6	15	6	0	30	0	34	208
TOTAL	25	84	38	0	110	1	91	451

Source: Physical Planning Department 2019

7.3.3 Key Issues

A small market structure exists at Ngabu while a modern market and bus depot are being constructed at Chapananga. Construction of two small shelters at Thabwa to be used as a market and bus depot has stalled. The absence of formal market structures in Chikwawa has encouraged traders to be operating from any open spaces available including road reserves, as seen at Dyeratu and Nchalo Centres creating a vehicle/pedestrian conflict and serious safety hazard. This is a threat to lives of both traders and customers as evidenced to what happened

in Ntcheu where so many lives were lost in an accident involving a truck that rammed into the congested Kampepuza Market. The responsibility of managing markets and bus depots lies with the district council.

7.3.4 Road Passenger Transport

Currently, there are no bus or mini-bus depots in Chikwawa District. However, the Council is finalizing construction of Chapananga Bus Depot with funding from Central Government through Local Development Fund. The construction of Thabwa Market and Bus Depot has stalled. The next proposed major infrastructure in Chikwawa shall be a modern market and bus station at Dyeratu.

Presently, passengers are picked and dropped in undesignated points along various roads. However, notable pick-up and drop-off points of passengers include Chikwawa District Headquarters/Dyeratu, Chapananga, Nchalo and Ngabu. No public buses pass through Chikwawa District. As seen in the table below, the dominant public passenger vehicles are minibuses. A traffic count of minibuses at Dyeratu on a market day showed that 86 minibuses with capacity of 16 and 4 with a capacity of 12 passengers were captured. The count was done for a 3 hour period from 6.15 am to 9.15 am and targeted minibuses going in both directions.

Traffic was also counted at Sorgin on a market day for the whole day. A total of 23 minibuses were recorded going in the direction of Nsanje from Chikwawa, while those heading to Nsanje from Chikwawa were 95. No single bus was captured on both market and non-market days at Sorgin.

Table 30: Minibus Count at Dyeratu, Nchalo and Ngabu on a single day

Both Directions	Total Number of Mini-Buses
Dyeratu	90
Nchalo	96
Ngabu	54
TOTAL	240

Source: Physical Planning Department 2019

Bus depots and produce markets are critical commercial infrastructure that are inseparable. In all major urban areas of Malawi, these have played a complementary role to each other and the policy actions in this plan have also recommended these infrastructure as a package. Refer to Section 11 for more details on market and bus depots infrastructure proposals

7.3.5 Road Freight

There are two manufacturing companies in Chikwawa, PressCane and Illovo. These are complementary manufacturing companies because the former gets its raw materials from the latter. Therefore, there is frequent movement of cargo from Illovo to PressCane.

PressCane is a company that specializes in production of ethanol. Their main product is called Anhydrous Alcohol (AA) and accounts for 80% of sales and Rectified Spirits (RS) accounts for 20% of total sales. The main raw materials are coal, and molasses which come in liquid form. The molasses is delivered by tankers from Illovo Sugar Company (Nchalo), Tereos Sugar in Mozambique and some from Zambia. Coal is brought by trucks from selected coal mines in the Northern Region and some from Jindal in Mozambique. The

finished products such as the AA are collected by tankers to petroleum companies such as Total Malawi and Puma Depots where they are blended with the fuel. RS is collected in drums by individual customers. Table 32 below gives a picture of freight on Chikwawa Road as captured at PressCane.

Table 31: Cargo in and Out of PressCane

	PEAK	OFF- PEAK
Trucks In	22	5
Trucks Out	22	5
Tonnage In	2000	500
Tonnage Out	2000	500

Source: Physical Planning Department 2019

Trucks wait for days before loading or off-loading cargo during peak or off-peak seasons. At PressCane, peak season runs from May to November while off – peak season spans from December to April. The main challenge faced by PressCane on road freight is congestion at Dyeratu Trading Centre caused by minibuses, bicycles and taxis because of location of a bus bay and the roadside market and also delays in customs clearance for international freight which delays delivery of goods. Interviews with 7 truck drivers at separate occasions at Nchalo revealed that they wait for an average of 2 to 3 days to load or off-load goods at Illovo and most of the trucks are parked in front of the banking area, a situation that inconveniences bank customers. The waiting period gets longer when trucks belonging to powerful members of the society arrive for loading as they are given priority.

7.3.6 Key issues

The total length of all classified roads in Chikwawa is 2,656 km. The assessment of this road network shows that the majority of the roads in Chikwawa are earth surfaced. The total road length whose surface is bituminized is only about 109 km while the earth surfaced road network is about 2,547 km. All earth surfaced roads are in poor condition in the wet season and this renders movement of people and goods very difficult. An analysis of the spatial distribution of settlements and network of roads shows that most communities are accessible but the challenge is the tough climatic conditions associated with heavy rains over short period of time which results in washing away of roads and bridges making most of the roads impassable.

Some parts of the district are also inaccessible due to non-existence of feeder roads. There are no bus depots in Chikwawa and only public passenger travel is through mini-buses. Mini-buses pick passengers in undesignated points along all roads in the district. This causes traffic chaos and safety concerns at all major urban centres of Ngabu, Nchalo and Dyeratu. The situation is worse during market days at all these centres where there is pedestrian and vehicle conflict.

7.4 RAILWAY TRANSPORT

Haulage of cargo is arguably cheaper through railway transport than other transport modes. Chikwawa District is partially connected to the country’s railway network. A railway line passes through the north-western part of the district and it links two cities in Mozambique (Tete and Nacala) through Malawi. It is located about 67km away from Chikwawa Boma. The other nearest railway line to Chikwawa District is at Bangula in Nsanje, about 85 km

south of Chikwawa Boma. The railway line that links Luchenza in Thyolo and Bangula in Nsanje is not functional because a bridge across Shire River at Chiromo was washed away by floods several years back. The National Transport Master Plan recommends extending the railway line from Nsanje to Tete-Beira line in Mozambique. The Plan proposes extending the railway line from Bangula to Chikwawa Boma. Further, the Plan recommends constructing another railway line to connect Chikwawa Boma to the Tete-Nacala line in the north-west at Changoima. These proposals however, need to be complemented by investments in rehabilitation works on the existing Blantyre – Nsanje line. Substantial capital investment is therefore required to realize this dream. Figure 30 shows Shire River with a washed away Chiromo Bridge near Bangula.

Figure 30: Washed away Rail Bridge across Shire River at Chiromo



Source: Physical Planning Department 2019

7.5 WATER TRANSPORT

The Shire River is the largest water body in Chikwawa that flows in the southern direction. It therefore acts as a barrier between communities in the east and west of the district. Unfortunately, there is no formal transport along Shire River but communities on both sides cross the river using dug-out canoes and other non-motorized boats at a fee of about K500 for a return trip. The situation however, becomes worse during floods because all crossing points are inaccessible. Figure 31 below shows people crossing the Shire River on dug-out canoes.

Figure 31: Crossing Shire River at T/A Maseya



Source: Physical Planning Department 2019

7.5.1 Key Issues

There is no organized water transport on Shire River and crossing of the river from either bank is through dug-out canoes. This is unreliable as limited number of people and cargo can be carried across. There is also danger of accidents especially when the speed of flowing water is high during the rainy season. During such times, access to either banks of the river is through Thabwa – Masenjere Road, which also becomes impassable. Another threat to this transport arrangement is the presence of crocodiles in the river.

7.6 AIR TRANSPORT

There are no publicly owned air transport facilities in Chikwawa District. The Department of Civil Aviation which is responsible for regulating the aviation sector indicated that there are no plans to construct public air transport facilities in Chikwawa District. However, the department is responsible for licensing all operational airfields not only in Chikwawa but throughout the country. Licenses to operate airfields are granted on annual basis; therefore inspections are carried out annually before renewal of licence is made.

Majete Wildlife Reserve has an earth surfaced airfield, and is 1.2km long and 100m wide. Specially arranged flights are available for tourists to Majete Wildlife Reserve and these are provided by Ulendo Air-link on special schedule. Usually, the type of aircraft that operates on such flights is the Cessna. Africa Parks, the company that manages the game reserve, also manages Liwonde National Park and Nkhotakota Game Reserve. A helicopter is available at Liwonde National Park which is hired by Majete whenever need arises. There is also a helipad for helicopters. Illovo Company has their own private planes for patrols, spraying chemicals and carrying passengers. An airfield at Illovo is located less than 500m from the M1 Road and it is in fairly good condition. As a legal requirement, it gets annual

certification from the Department of Civil Aviation. The airfield is almost 140m wide and 1.25km long.

7.6.1 Key Issues

Formal air transport is non-existent in Chikwawa District. The private airdromes are inaccessible to public aircrafts. The nearest airfield is Bangula in Nsanje District and it is located 56.5 km from Nchalo and 85 km from Chikwawa District Headquarters.

7.7 MARKET INFRASTRUCTURE

Chikwawa District does not have proper sites where small scale traders can carry out their businesses. There are informal markets at all major trading centres in the district such as Chikwawa Boma, Dyeratu, Nchalo, Ngabu, Thabwa, Nkhate, Livunzu and Masenjere. The only standard market available in the district is at Chapananga, which was constructed under the Rural Growth Centre Programme. At the time of study, the facility had not yet been fully completed.

7.8 ENERGY SUPPLIES

7.8.1 Access to Electricity

In Malawi, use of electricity is very low especially in rural areas. Chikwawa District which is predominantly rural in nature also has low connections to electricity. The 2008 population and housing census indicated that only 0.9% had access to electricity for cooking and 3.7% for lighting.¹⁰ The recent Integrated Household Survey of 2017 reported an improved access to electricity for both Malawi as a whole at 10.7% and Chikwawa District in particular at 6.4%. This access to electricity is however predominantly from the national electricity grid. Chikwawa District has also experienced an increase in off grid power generation, mainly from solar.

7.8.2 Hydro-Electricity Supply

Most of the electricity in Malawi is generated from water. While the electricity sector contributes significantly to the national economy, its access is very low. The rates of access are particularly very low in rural areas compared to urban areas. All the hydro-electricity is generated along Shire River, except for a smaller plant at Wovwe River in Karonga. Malawi has a total installed capacity of about 406.6 MW, of which 128 MW is generated at Kapichira Hydro Power Scheme, which is the only power generation plant located in Chikwawa District. The total available power for Malawi is only 335 MW. Figure 32 shows the Kapichira Power Plant, located north of Chikwawa Boma.

¹⁰ National Statistical Office, 2012

Figure 32: Kapichira Hydro Power Scheme



Source: Physical Planning Department 2019

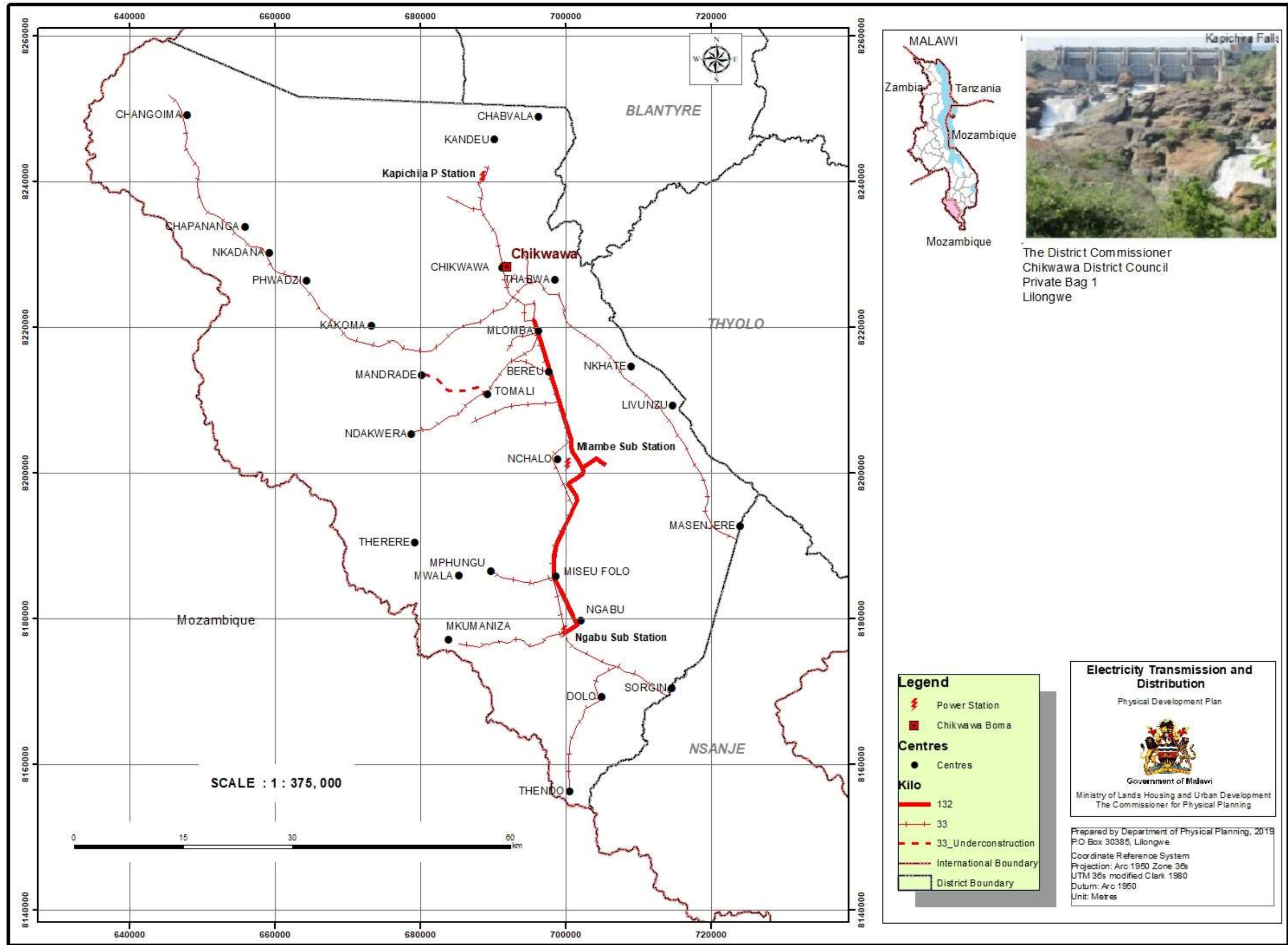
Chikwawa is supplied with hydro-electricity from Kapichira Scheme whose overall production capacity is 128 megawatts. Kapichira which was commissioned in the year 2000, is located about 22km north of Chikwawa District Headquarters and is bordered with Majete Wildlife Reserve. While hydro-electricity is generated by a quasi-public company known as Energy Generation Company (EGENCO), its transmission and distribution is done by Electricity Supply Corporation of Malawi (ESCOM), another quasi-public company. In Chikwawa District in particular, power transmission is done through a 132 kV power line and capacity of transmission lines is 345.5 amps. Associated support facilities include switchgear, substations, SCADA and metering equipment. Thereafter, power is distributed through 33kv and 400 V power lines. (ESCOM, 2018). The major transmission power lines in Chikwawa District comprises of 702 km of 33 kV line and 800 km of 400 kV.

Expansion of existing industries and establishment of other industries under the Malawi Investment and Trade Centre, the Agriculture Commercialization Project and the Shire Valley Transformation Project in Chikwawa District will result in an increase in electricity needs. The Ministry of Energy and Mining should therefore carry out a preliminary assessment of energy needs in the district and recommend ways of meeting such increased demand. See Chapter 11 for details of the recommended actions.

In terms of consumption, the district's average annual consumption is 4,146 amps which supplies to about 4985 customers. Out of these, 4658 are domestic, 306 are commercial while industrial consumers are 21 (Source: ESCOM Responses).

Figure 33 is a map showing network of major transmission and distribution power lines in Chikwawa District.

Figure 33: Map Showing Electricity Transmission and Distribution



7.8.3 Key Issues

Major problem associated with power supply in Chikwawa is the reliance on one 132kV transmission line because once there is damage to this line, the whole of Chikwawa and Nsanje have no supply. This happened during the recent floods of March 2019, when a transmission line got damaged rendering the two districts of Chikwawa and Nsanje to have no power. Another challenge is on encroachments into way leaves and vandalism to the equipment. In some cases, wooded poles are not adequately and properly treated, thereby easily getting attacked by termites. In terms of distribution, areas of concern are on use of unqualified electrical contractors and also use of substandard electrical wiring materials.

The major challenge posed to hydro-electricity is over-reliance on one source of power generation. Escom gets its power from Kapichira, which is on the Shire River. Any disturbance to the flow of the river causes instability in power supply.

7.8.4 Off Grid Electricity

Sustainable Off-Grid Electrification of Rural Villages (SOGERV) is a project that involves off-grid generation of electricity from solar energy and targeted four communities of Mandrade, Kandeu, Gola and Thendo. The project was funded by the Scottish Government through Strathclyde University, Glasgow in collaboration with WASHTED of Polytechnic and Concern Universal of Malawi. Table 33 below gives details of the SOGERV power projects in Chikwawa District.

Table 32: SOGERV Power Projects in Chikwawa District

Name of Project	Traditional Authority	Capacity (watts)	Year Commissioned
Mandrade	Ndakwera	3,700	2015
Kandeu	Kasisi	3,540	2015
Thendo	Masache	1,530	2017
Gola	Chapananga	3,540	2017

Source: SOGERV, Policy Brief 2018

Figure 34: Thendo and Mandirade Solar Energy



Source: Physical Planning Department 2019

The project was designed to construct 4KW photovoltaic charge stations at each centre whose electricity would be rented at a fee to small and medium entrepreneurs. By 2018, the electricity was benefitting 10 businesses and 795 households. Separate systems were also

designed and constructed to specifically cater for 2 schools and 2 clinics under a sustainable arrangement in order to cover maintenance costs. Potable solar products are also available for sale at each charge station.¹¹

Solar energy is also contributing positively towards irrigation farming in Chikwawa District. For instance, solar energy generates about 20,400 watts of power which is used to irrigate 20 ha of land where a variety of crops are grown at the Mbande Solar Powered Irrigation Scheme along the Old M1 Road from Mlomba to Tomali. This project is being implemented by Christian Aid in partnership with Evangelical Association of Malawi and Malawi Government, with funding from a consortium of donors. Mthumba Irrigation Scheme is another solar powered project supported by funds from multi-donors. Figures 34 and 35 shows solar power plants in the district for domestic power supply and irrigation power supply respectively.

Figure 35: Mbande and Mthumba Solar Irrigation Farms



Source: Physical Planning Department 2019

7.8.5 Key Issues

Chikwawa District and the Lower Shire in general is very hot most of the year. The sunny and hot weather is ideal for generation of solar energy. Interviews with an officer responsible for Mandirade Solar Charge Centre revealed that most of the energy generated is being wasted as the community cannot use all of it. However, it was also noted that solar energy is expensive to access as the initial capital outlay is very high. It was revealed that a set of solar equipment comprising a 150 watts panel, battery, inverter, charge controller and electrical wiring would, on average cost a minimum of K1.0 million. This makes solar energy unaffordable to most rural communities.

7.8.6 Other Sources of Energy

7.8.6.1 Fuel

Fuel supplies in Chikwawa District are available through six retail outlets of PUMA (1), Total (2), Energem (1) and Mount Meru (2). These sell products such as engine oils, gasoline and diesel for motor vehicles and other engine propelled assets such as generators, concrete mixers and many more. Slowly, people are moving away from the use of paraffin for lighting and it is therefore, becoming a scarce commodity on the market.

¹¹ Unviversity of Glasgow and Washted, 2018

7.8.6.2 Charcoal and Fuelwood

As seen in the 2016/17 Integrated Household Survey, about 85.8% and 13.6 % of the population in Chikwawa were using firewood and charcoal respectively for cooking. Further, 81.6%, 6.8% and 5.9% were using torches (dry cell batteries), firewood and electricity for lighting respectively.¹² The results of this survey show that the majority of the population in Chikwawa District are using firewood and charcoal to meet their energy needs for cooking. The implication of these findings is seen in the rampant deforestation taking place in the district.

7.8.7 Key Issues

Over reliance on fuelwood and charcoal for cooking is putting a strain on the district's forestry resources. The rate of forestry depletion is not matching with the rate of natural resource regeneration and reforestation. Coupled with high population growth, the district is losing forests at a fast rate. Strong measures shall be put in place to compensate for formal loss of forest cover through Shire Valley Transformation Project implementation. In addition, appropriate strategies have been recommended in subsequent sections.

7.9 WASTE MANAGEMENT

7.9.1 Solid Waste Management

Solid waste management is generally poor in Chikwawa District. According to the recent Integrated Household Survey, none of the households were using rubbish bins, 50% had access to rubbish pits, 15% were burning the waste while 30.7% had no any means of waste disposal. The District Council does not provide waste collection services for households, neither does it have a properly organized solid waste collection system and disposal facility. Periodically, the council collects waste from markets using funds that it generates through market fees. The council, however, is in the process of identifying a suitable site for solid waste disposal. In the meantime there are people who request for the waste after it has been collected to be used as manure in the fields/gardens. In other circumstances people get the solid waste in order to fill up gullies since gullies are a big problem in Chikwawa.

Apart from solid waste generated by households and businesses especially in major urban centres of Chikwawa, two companies, Illovo and PressCane also generate large quantities of solid waste which needs appropriate and sustainable management.

PressCane generates about 1,500 tons of solid waste (Coal ash) per year. Some of the solid waste is transported to Fombe dump site using tippers and some ash is used for production of bricks. The main problems faced with solid waste include high costs of transporting the large volume of waste, relatively small land size for the dump site and lack of best practices by the community which leads to vandalism of the facility.

7.9.2 Liquid Waste Management

Chikwawa District has registered tremendous improvement in terms of access to modern toilets facilities. The District Council with support from non-governmental organizations has been working tirelessly to advocate for improved toilet facilities at household level, community as well as in market places. This partnership has proved to be fruitful as more people are now opting to build modern toilet facilities.

¹² National Statistical Office, 2017

The district does not have a centralized sewer system. Septic tanks are planned and constructed at the household level by private developers. The council does not have a disposal site for sewer waste. In situations where septic tanks are full, residents engage the Blantyre City Council sewer collection vehicle to empty the tanks. In addition, individuals at the household level are only encouraged to utilize the waste for other uses like manure. However, in cases where waste is toxic and cannot be used, it is normally buried or left in ponds to evaporate.

Both PressCane and Illovo also generate liquid waste. PressCane disposes all its liquid waste at Lauji Pond, depicted in Figure 36. The waste is transported through pipes to the licenced pond for evaporation. The disposal pond was once fenced but the fence has been vandalized. The main challenges faced in liquid management include, vandalism of property supporting the area, encroachment and general accumulation of waste. The liquid waste (vinasse) is used as liquid fertilizer by Illovo. There is an opportunity for the community to use the same in farming with appropriate support of agricultural extension, on the dosage rates.

Figure 36: PressCane Waste Dumping Ponds at Lauji



Source: Physical Planning Department 2019

7.9.3 Gaseous Waste Management

Gaseous waste produced at PressCane is released in the atmosphere without any form of treatment. This is contributing to increased levels of air pollution around Chikwawa District Headquarters. Carbon dioxide, a gaseous waste, is the main by-product in the production process. However, the CO² produced can be used in the manufacturing industry as part of carbonated soft drinks as a form of best practice to manage the environment.

7.9.4 Key Issues

The issue of waste management is very critical in Chikwawa District. The Council does not have any form of organized and systematic collection and disposal of waste. There is generally indiscriminate dumping of waste throughout the district as evidenced in the Integrated Household Survey of 2016/17. Industries also have their own challenges in managing waste. Communities around Lauji liquid waste dump site are complaining about the waste being dumped by PressCane. The strong odour coming from the oxidation ponds as one passes through Dyeratu is evidence of the magnitude of the problem. Illovo did not allow the planning team to interview them on how they manage their waste.

7.10 WATER SUPPLY

7.10.1 Access to Potable Water

A household is considered to have access to safe drinking water if the source of water is piped into the dwelling house, piped into the yard or plot, a communal standpipe, a protected well in a yard or plot, protected public well, borehole only in rural areas, tanker truck or bowser and bottled water.¹³ National standards for access to safe and potable water are based on the average population recommended to be served by a water supply facility. A communal water tap is ideal for 120 people; a borehole serves a population of 250 while a shallow well is recommended to cater for 100 people.

The 2008 population and housing census revealed that 75% of the population in Chikwawa District had access to safe drinking water in dry season while the percentage for wet season was 74%. Access to safe drinking water is estimated to have gone up to 86% in 2017 with boreholes as the main water source.

Major urban centres in Chikwawa are connected to piped water supply under Southern Region Water Board and privately owned Illovo. Access to piped water in urban centres is quite high particularly at Chikwawa District Headquarters, Nchalo and Ngabu. The table below shows urban water supply schemes and their capacity.

Table 33: Urban Water Supply Schemes and their Capacity

Name Of Water Supply Scheme	Type	Condition	Capacity (M ³)	No. Of Customers	No. Of Water Kiosks
District Headquarters	Piped with borehole as source	Good	180	2046	21
Nchalo	Piped with Borehole as source	Good	108	1653	18
Ngabu	Piped with Borehole as source	Good	411	1268	42
TOTAL			699	4,967	81

Source: Physical Planning Department 2019

For all the urban water supply schemes, water is pumped from underground into tanks and all of them are in good condition. The Southern Region Water Board indicated that there are no immediate plans to construct new schemes or expand the existing ones. As it is shown, all Water Board services are concentrated on the western bank of Shire River. The Southern Region Water Board's Chikwawa pumping station complements its power needs with solar electricity as shown in Figure 37 below.

¹³ National Statistical Office, 2017

Figure 37: Solar Water Pumping at Chikwawa Boma



Source: Physical Planning Department, 2019

7.10.2 Rural Piped Water Projects

Chikwawa District has 6 rural water supply schemes but only two are working at full capacity, while the remaining four are partially working. Five of the water schemes are gravity-fed while only one is motorized. As seen from data below, Mmbadzi Scheme had a larger target population but only 97 taps were installed. However, 95% of the total taps are working, an indication that the scheme is well managed. Chapananga on the other hand, has a very high non-functional taps as only 60 are working against a total of 238. Chapananga Water Scheme has two sites where water is treated/purified and stored, namely Jasi and Makina.

Table 34: Rural Piped Water Projects

Name of scheme	Target Pop.	Actual Pop. Served	Total Taps	Taps Working	Taps Not Working	Functionality Rate	Type	Capacity (litres)
Mapelera	5,725	5520	120	74	46	61%	Gravity	112
Limphangwe	13,691	7200	72	60	12	83%	Gravity	130
Livunzu	15,645	3960	75	33	42	44%	Gravity	104
Mmbadzi	20,151	11040	97	92	5	95%	Gravity	195
Chapananga	28,560	7200	238	60	178	25%	Gravity	

Source: Physical Planning Department 2019

Miseu 4 also has a Rural Water Supply Scheme and it covers a radius of 2.5km. The tank has a capacity of 140m³ and water is pumped from two boreholes into the tank using a motorized pump. The entire water scheme has 1 commercial customer, 2 institutional customers, 282 individual customers and 11 communal water points. The scheme is in good conditions such that it has a 100% working rate. Plans are underway to expand the network to reach more customers. Figure 38 shows Miseu Folo Water Supply Scheme.

Figure 38: Miseu Folo Rural Water Supply Scheme

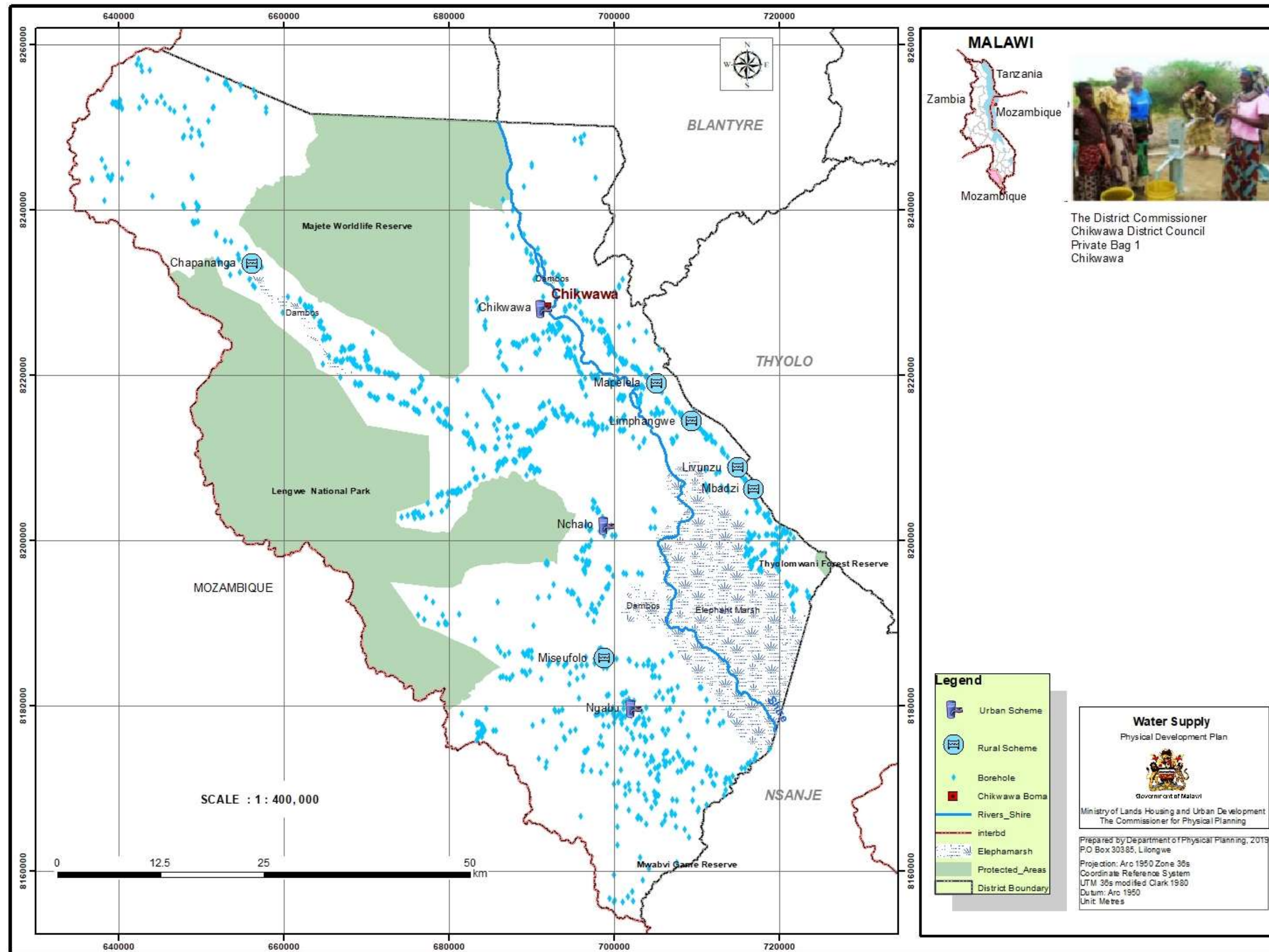


Source: Physical Planning Department 2019

Apart from rural piped water schemes located in specific communities, both Lengwe National Park and Majete Wildlife Reserve have their own water supply schemes. Lengwe National Park has 10 boreholes pumped freely by Illovo into reservoirs for animals to drink. In addition, water for domestic use is also supplied by Illovo for free.

Majete Wildlife Reserve on the other hand has 15 boreholes. Out of these, 9 boreholes supply water for animals. Water is pumped into tanks using solar power and is available for consumption by wild animals. Water from the remaining 6 boreholes is for human consumption. Figure 39 is a map showing the distribution of boreholes and water supply schemes in the district.

Figure 39: Map Showing Water Supply Facilities



7.10.3 Planned Rural Piped Water Supply Projects

There are plans to construct a new rural water supply scheme through Charity Water, a USA non-governmental organization which has partnered with a local NGO, Water for People Malawi. Explorations are currently underway in TA Ngabu. If successful, the project is expected to commence in the next two years. The same organization also plans to construct boreholes in Traditional Authorities Ngabu, Maseya, Chapananga and Makhwira in the financial year 2019-2020.

7.10.4 Ground Water Supplies

Most communities in Chikwawa District access water from boreholes. There are a total of 1645 boreholes in Chikwawa District. Out of these, 80.8% are working while the rest are non-functional. The largest number of boreholes is found in TA Chapananga and most of these boreholes are still functional as outlined in the following table. Table 35 gives an overview of the existing boreholes and their condition per traditional authority. According to the preliminary results of the Population and Housing Census, TA Ngabu has the largest population among all the traditional authorities. Therefore, the population of 164,753 is served by almost 358 functional boreholes, giving a ratio of 460 people to one borehole. Urban residents of Ngabu also benefit from water supplied by Southern Region Water Board.

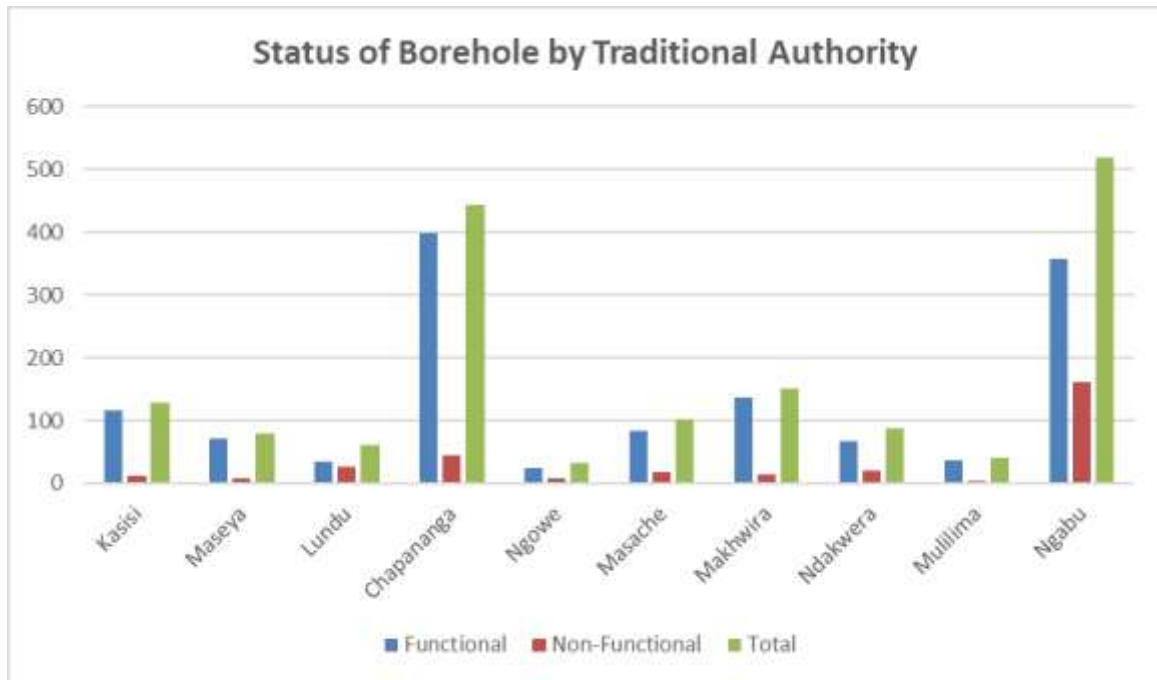
Table 35: Ground Water Supply

Item No.	TA / Ward	Type of Water Source	No. of Boreholes	No. Functioning	No. Not Functioning	Rehab Plans	
						Current	Future
1.	Kasisi	Boreholes	129	116	13	No	Yes
2.	Maseya	Boreholes	80	72	8	Yes	No
3.	Lundu	Boreholes	61	34	27	Yes	Yes
4.	Chapananga	Boreholes	444	399	45	Yes	Yes
5.	Ngowe	Boreholes	32	25	7	Yes	Yes
6.	Masache	Boreholes	102	84	18	No	Yes
7.	Makhwira	Boreholes	150	136	14	Yes	Yes
8.	Ndakwera	Boreholes	88	68	20	Yes	Yes
9.	Mulilima	Boreholes	40	37	3	No	Yes
10.	Ngabu	Boreholes	519	358	161	Yes	Yes
TOTAL			1,645	1,329	316		

Source: Physical Planning Department, 2019

The District Council has indicated that there are currently plans to rehabilitate boreholes in all Traditional Authorities except Kasisi, Masache and Mulilima, largely because most of the boreholes are in good working condition. These will be given attention in future rehabilitation plans. The District Council has no data on other sources of potable water such as shallow wells and springs. Table 36 above and Figure 40 overleaf show the functionality of boreholes in the district.

Figure 40: Borehole Status by T/A



Source: Physical Planning Department 2019

7.10.5 Key Issues

The main problem in the water sector is that access to safe and potable water is still a challenge in the district mostly because of unsustainable water sources, washed away pipelines and non-functional boreholes. The Chapananga Rural Water Scheme had targeted a population of 28,560 with 238 taps. The scheme is only 25% functional due to washing away of pipes during rainy season and low water level at intake for Chapananga leading to supply being restricted to about 4 months of the year (May to August). Similarly, Livunzu Water Supply in the Eastern Bank is only 44% functional because of washed away pipes.

On boreholes, the main challenge is noted in TA Ngabu where only 69% are functional. Ironically, TA Ngabu has the highest population in the district and this leaves a significant population of the district without safe and potable water. The three TAs of Ngabu, Lundu and Ngowe have a total population of 230,353 which is being served by 417 boreholes. On average, 552 people are served by one functional borehole, which is way above the recommended standard of 250 people per borehole. This puts a strain on the sustainability of water supplies and durability of the boreholes. It should be noted that in some parts of Paramount Chief Lundu and Traditional Authorities Ngabu, Ndakwera, Maseya and Katunga, underground water is saline. Assessment of water from 4 boreholes at Ngabu was made. Water from two boreholes located inside SOS School and Ngabu Secondary School was very salty, the third one in the nearby settlement was moderately salty and the last one had lightly salty water. A lot of resources are required to desalinate the water to make it safe and potable. Therefore, investments in borehole drilling alone will not adequately address the needs for potable water in the district. As such, the Department of Water Development has a huge responsibility of ensuring that measures outlined in the policies/strategies are implemented.

7.11 IRRIGATION INFRASTRUCTURE

7.11.1 Existing Irrigation Schemes

Vast areas of Chikwawa District are suitable for irrigation owing to its location in the Shire Valley. Most irrigable land lies between two mountain ranges on the east and west and the abundance of water from Shire River makes irrigation farming a major activity for most households. The presence of Kasinthula Research Station has contributed immensely towards development of irrigation infrastructure in the district. Major irrigation facilities are located at Illovo, Kasinthula Cane Growers Limited (formerly Kasinthula Rice Scheme), Phata Irrigation Scheme and KAMA Irrigation Scheme.

Major irrigation schemes under Illovo comprises Nchalo (9,995 ha) and Alumenda (2,764 ha). Kasinthula Cane Growers Limited consists of 1,435 ha of cane fields and 40 ha of food crops. At Kasinthula, irrigation water is pumped from Shire River into a 1.5km open canal up to the first dam, then another 4.5 km to the second and third dams. The scheme has both sprinklers that use centre pivot system and furrow irrigation system that use open canals.

The Kasinthula Research Station also uses water from the same main canal but its main focus is on irrigation research and it also conducts research on sorghum and millet. Only 40 ha are under irrigation out of the total land area of 89 ha for the entire Research Station. Figure 41 shows two types of irrigation, furrow and centre pivot being practised at Kasinthula.

Figure 41: Centre Pivot and Furrow Irrigation System



Source: Kasinthula Cane Growers Limited, 2019

The period from 2014 to 2019 saw the development of 16 new irrigation schemes covering a total area of 1,023.6 hectares for the smallholder sub-sector. On rehabilitation of existing schemes, 8 were rehabilitated covering a total of 218 hectares. Despite the rehabilitation and development of new irrigation schemes, a District Irrigation Office progress report shows that most of these irrigation schemes have not been operating because of various factors, the main

ones being washed away of water intake points and damage to irrigation canals. Details of the above report reveals that only 10 irrigation schemes are operational but not at full capacity while 14 are non-operational.

Figure 42: Washed away Pipes at Chilengo and Irrigation Canal at Phala



Source: District Irrigation Office Report 2019 and Physical Planning Department 2019

7.11.2 Proposed Irrigation Infrastructure

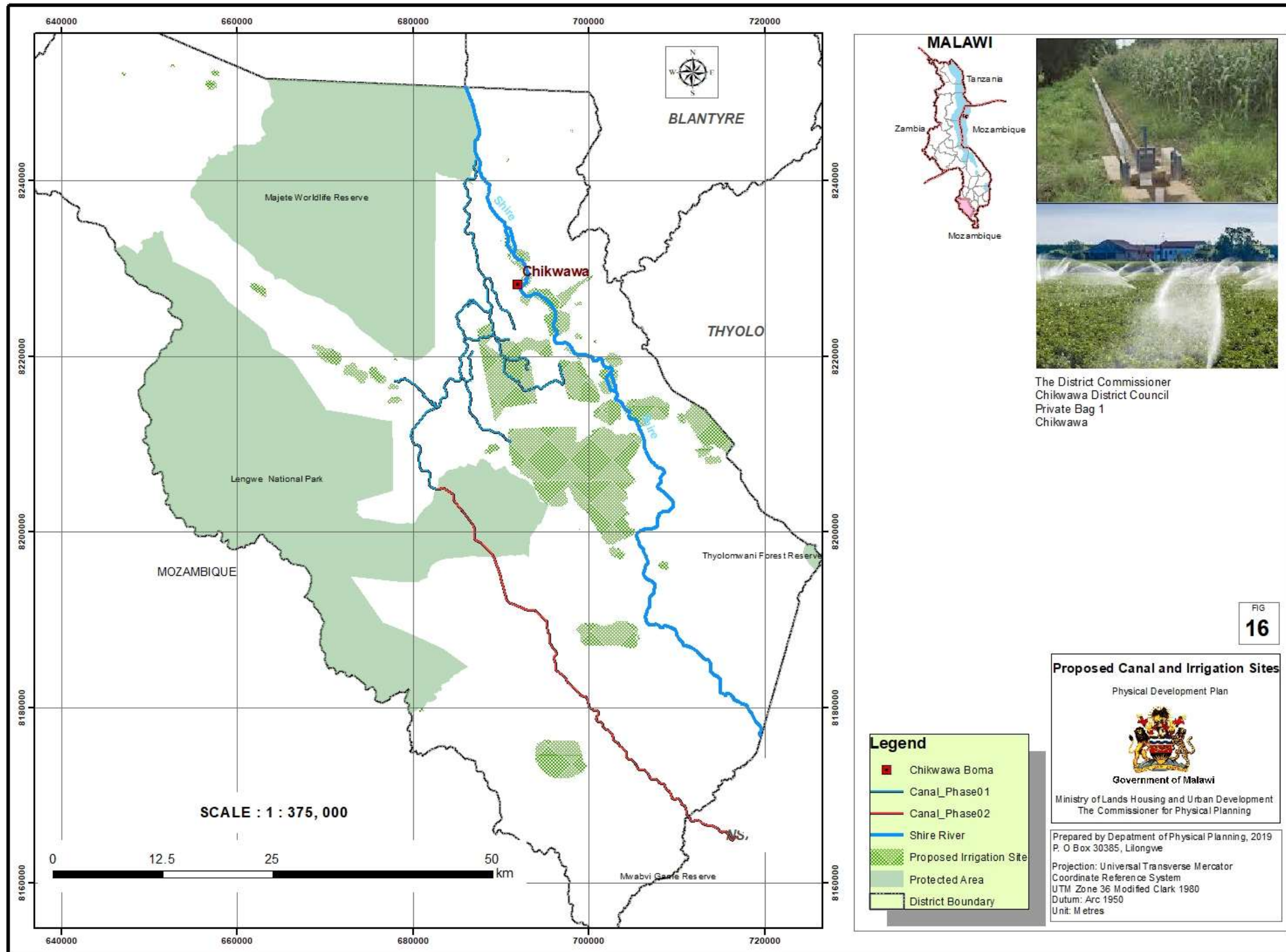
The Technical Feasibility Study commissioned by the SVTP assessed the existing irrigation schemes and new potential areas for irrigation in Chikwawa District. The study came up with recommendations that have culminated into detailed designs for new major canals to carry water from the upstream of Shire River at Kapichira Dam to down-stream up to Ngabu. This will increase irrigation land from the current 15,757 ha to 43,370 ha, an increase of about 27,613 hectares (Korea Community Corporation, 2017).

Table 36: Proposed Irrigation Infrastructure under SVTP

Description	Name of Farm	Total	Phase I (ha)	Phase II (ha)
Existing Area	Nchalo	9,995	9,995	
	Alumenda	2,764		2,764
	Sande Ranch	454	454	
	Phata	296	296	
	Kasinthula	1,429	1,429	
	Kaombe mcp	484		484
	Kaombe Trust	335		335
	Sub-Total	15,757	12,174	3,583
New Area		27,613	10,104	17,507
	TOTAL	43,370	22,280	21,090

Source: SVTP Technical Feasibility Study, 2017

Figure 43: Map Showing Proposed Irrigation Canals



The study therefore has recommended construction of three main canals. The main canal number one will be 33.7 km long; main canal number two will be 77.8 km and main canal number three will have a length of 10.6 km. From main canals, water will be channelled (siphoned) into secondary canals and into irrigation fields. All the existing irrigation schemes on the western bank, (including Illovo) will benefit from this very important irrigation infrastructure. Figure 43 shows a network of proposed irrigation canals to be constructed under the Shire Valley Transportation Programme (SVTP).

7.11.3 Key Issues

Most irrigation schemes in Chikwawa District use pumps to take water from water sources to the fields. Just like piped water supply, floods negatively affect canals and pipes during rainy season. Inadequate power which is also expensive affects pumping of water for irrigation.

Irrigation infrastructure in Chikwawa will be boosted by projects proposed by Shire Valley Transformation Programme. Project documents show that existing irrigated lands will benefit from investments under the project. In addition, new irrigation schemes will also access water from major canals to be constructed. A site visit to the eastern bank soon after the March 2019 floods revealed that irrigation infrastructure had greatly been damaged and needs huge investment to bring it to its operational state. Department of Irrigation should therefore channel a large part of their resources towards rehabilitation programmes in the Eastern Bank.

7.12 HEALTH

7.12.1 Introduction

Assessment of health infrastructure in Chikwawa District shows that both public and private facilities are available. Access to health in the district is hampered by poor access roads, especially during the rainy season and generally long distances people travel to nearest facilities. Of all the diseases that people suffer from in Chikwawa, fever and malaria is the most dominant at 50.3% compared to 45.2% for Malawi.¹⁴

7.12.2 Existing Health Facilities

There are different types of health facilities in the district and these operate at various levels depending on their classes. These include 14 health centres, 5 dispensaries, 11 under five clinics and 27 health posts and these are evenly distributed throughout the district. Some of these health facilities are operating in permanent tailor-made structures while others are in temporary buildings. There is also a rural hospital located at Ngabu. Health services in Chikwawa are also offered at village level through village clinics. There are 154 village clinics operating in the district under respective established health centres. Details of other health facilities, catchment population and distance to the referral district hospital is shown in Table 38.

7.12.3 District Hospital

Chikwawa District Hospital is the district's referral hospital and it is located at the District Headquarters. The hospital land is however slowly and steadily being reduced by landslides along Shire River Bank. Attempts to relocate the hospital to a new site have not succeeded. The land that was identified for the relocation of the hospital was however encroached. The

¹⁴ National Statistical Office, 2017

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continued existence of the hospital at the current site poses a threat to lives of people and entire infrastructure.

Apart from Chikwawa District Hospital, there is also St. Montfort Hospital, a Catholic Mission facility located 30km away from the District Headquarters at Nchalo. These two are the main referral hospitals in the district.

Table 37: Health Facilities

Health Centre	Location	Ownership	Catchment Population	Distance to District Hosp.
Makhwira	Makhwira	MOH	59,454	35
Maperera	Makhwira	MOH	13,648	30
Kakoma	Chapananga	MOH	21,806	26
Chapananga	Chapananga	MOH	17,123	45
Chang'ambika	Chapananga	MOH	8,602	97
Gaga	Chapananga	MOH/DC	23,664	89
Ndakwera	Chapananga	MOH	34,437	32
Misomali	Chapananga	CHAM	9,454	44
Dolo	Ngabu	MOH	35,876	74
Mkumaniza	Ngabu	MOH	11,436	81
Chipwaila	Ngabu	MOH	38,016	50
Ngabu SDA	Ngabu	CHAM	-----	61
Chithumba	Chapananga	MOH	9,182	
Mfera	Katunga	MOH		
Ngabu Rural Hospital	Ngabu	MOH	62,158	63
St Montfort Rural Hospital	Lundu	CHAM		28

Source: Draft Chikwawa Socio-Economic Profile, 2019

In terms of staffing levels, Chikwawa District as a whole, has 40 clinicians and 49 nurses. The district's referral hospital has 5 wards with a total of 250 beds.

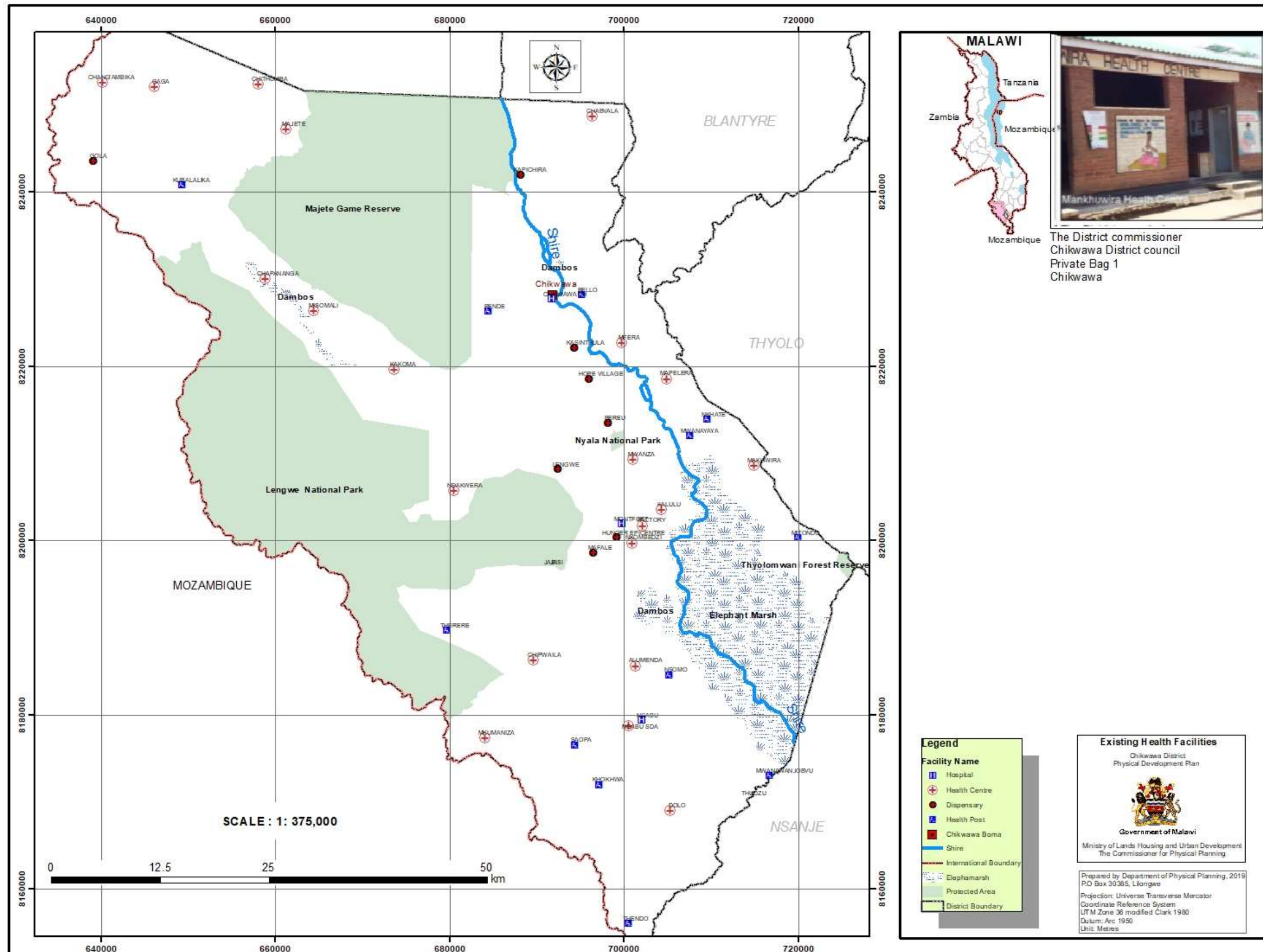
Figure 44 Makhwira Health Centre



Source: Physical Planning Department 2019

Individually owned health facilities are Chaphera and Masache in TA Lundu and Mitondo in TA Makhwira. ESCOM and ILLOVO also have their own clinics at Kapichira and Nchalo respectively, while Banja la Mtsogolo is running a clinic at Ngabu. Illovo Clinic caters for about 1,234 people. There is also a government owned health centre at Masenjere, but it is located on the Nsanje side of the urban centre. The health centre treats about 9,500 patients per month; a figure which is high because it is accessible to population of both districts. Figure 45 is a map showing the distribution of various health facilities.

Figure 45: Map Showing Existing Health Facilities



7.12.4 Key Issues

The spatial distribution shows that some health facilities are located very far away from referral hospitals. For example, Mkumaniza, Gaga and Chang'ambi are located over 80 km from the district hospital. Of particular importance is the fact that Gaga and Chang'ambika are located in remote parts of the district in TA Chapananga and the road condition is very poor especially during the rainy season.

Secondly, the spatial distribution of population shows that there are some communities that do not have access to reliable health services within an acceptable radius. For example, parts of Gola do not have a health centre and are only served by a dispensary.

Analysis of health facilities has revealed that there are deficits in some areas. On one hand, the available facilities are not adequate compared to the size of the population while on the other hand, some areas do not have a facility within the acceptable distance. Yet in some cases, the available facility is poorly staffed to handle medical conditions that are supposed to be managed at that level. The Ministry of Health and Christian Health Association of Malawi (CHAM) have a huge responsibility in ensuring that delivery of quality services is achieved. In addition, improvement in road network will also contribute towards movement of patients to access health services.

7.13 EDUCATION

7.13.1 Literacy Rates

Literacy, defined as the ability to read and write is one of the critical indicators of human development in any country. The literacy rate for Chikwawa District for persons aged 15 years and above was 59.9% in 2017 compared to 48.6% in 2011, while at national level, the rate was 73% in 2017 compared to 65.4% in 2011. Out of those who had never attended school in 2011, the majority indicated lack of money (34.2%) and lack of interest (24.3%) as the reasons for not attending school. In 2017 however, apart from lack of money (48.8%) and lack of interest (19.8%), others were not allowed to go to school by parents (21%)¹⁵. The sections below give an overview of availability of education facilities in Chikwawa District.

7.13.2 Early Childhood Development Centres

Data collected from the District Community Development Office shows that there are 62 early childhood development centres in the district, 48 of which are funded by the World Food Programme while the rest are under MASAF. Details of location of these ECDC's is provided in Table 39 below.

Table 38: Early Childhood Development Centres

TRADITIONAL AUTHORITY	NUMBER OF ECD CENTRE	
	World Food Programme Funded	Under MASAF
Kasisi	Mbwemba, Sekela, Kandeu, Nyozzerera, Fombe, Mlambe, Mwanaalirenji, Mpotazingwe and Kavallo	

¹⁵ National Statistical Office, 2017

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TRADITIONAL AUTHORITY	NUMBER OF ECD CENTRE	
Maseya	Phata, Tisankhenji, Phingo, Chidzalo	
Katunga	Chikalumphu, Mthembe, Chisomo, Chisomo 1, Biyasoni, Chimoto and Chingalumba	
Chapananga	Jamu, Sezu, Imfanjao, Tobondera, Josamu, Ndifeamodzi, Moses, Chimwanjale, Mtayamanja and Mwadio	Golonga, Siplepi, Khofusodi,
Makhwira	Wayankha, Kanyimbiri, Mpinga, Mnjale, Mnola	Alinafe, Nyangu, Tithandizane
Ngabu	Nyambiro, Luciano, Juwanesi, Talandira	Chizenga, Chaonanjiwa, Funani Moyo Wabwino and Lombe
Lundu	Tiyanjane, Tigwirizane	
Masache		Tiyanjane
Mlilima	Everbright, Nchalo	Tiasamale
Ndakwera	Mkanyoza, Chigoda, Lazaro, Khogolo, Mbesa	Njale, Thanda
TOTAL	48	14

Source: Community Development, Chikwawa District Council, 2019

7.13.3 Primary School Facilities

Primary schools in Chikwawa District, just like all parts of the country are divided into educational zones. Each zone is supervised by a Primary Education Adviser (PEA). Through the 14 education zones in the district, primary schools are adequately provided. An assessment of infrastructure in some schools shows that there are a lot of variations in terms of quality and quantity of such facilities. This is illustrated in Figure 49 below showing Ndakwera and Mandrade Schools. The condition of Ndakwera School which is located in TA Ndakwera is quite excellent whereas Mandrade School, located in in the same TA Ndakwera is in poor state as seen in Figure 46 below.

Figure 46: Ndakwera and Mandrade Primary Schools



Source: Physical Planning Department 2019

The situation is similar when schools are assessed in terms of the teacher-pupil ratio and the pupil-classroom ratio. As a district, classroom-pupil ratio has been increasing from 116 in 2009 to 131 in 2018, a sign that not much is being done in the construction of classroom blocks. In terms of pupil/teacher ratio, the district has been registering a decrease, with as high as 154:1 in 2009 to 66:1 in 2018. However, the outstanding challenge is that some schools are still inadequately provided in terms of staffing levels and the quality of staff itself. Table 40 below contains enrolment and staffing levels by zone.

Most schools are also characterized by lack of teachers' houses, inadequate desks and scarcity of teaching and learning materials.

Table 39: Enrolment, Staffing PTR by Zone and

ZONE	ENROLMENT			STAFFING			PTR
	BOYS	GIRLS	TOTAL	MALE	FEMALE	TOTAL	PTR
BOMA	7579	7422	15001	123	143	266	56.4
CHANGOIMA	4800	4776	9576	120	21	141	67.9
CHIKONDE	5475	5609	11084	114	79	193	57.4
DOLO	4686	4729	9415	92	39	131	71.9
KAKOMA	4337	4025	8362	95	32	127	65.8
KALAMBO	6148	5616	11764	127	38	165	71.3
KONZERE	4573	4293	8866	89	35	124	71.5
LIVUNZU	8123	7928	16051	143	69	212	75.7
MAPERERA	5545	5396	10941	115	61	176	62.2
MBEWE	8893	8466	17359	164	90	254	68.3
NCHALO	12207	11730	23937	152	203	355	67.4

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ZONE	ENROLMENT			STAFFING			PTR
	BOYS	GIRLS	TOTAL	MALE	FEMALE	TOTAL	PTR
NGABU	6895	6669	13564	116	98	214	63.4
NKUMANIZA	3159	3101	6260	72	33	105	59.6
NSENJERE	6920	6743	13663	143	48	191	71.5
TOTAL	89340	86503	175843	1665	989	2654	66.3

Source: Chikwawa District Education Office, 2018 Data Base

In terms of infrastructure in primary schools, the district has a total of 1,336 classrooms against a total enrolment of 175,843. In addition, there are 646 staff houses against a total of 2,679 teachers. Therefore, most teachers are occupying temporary or substandard houses, a development that is contributing to their unwillingness to be deployed in some schools especially in rural areas where even privately owned houses are scarce.

The government through Education Infrastructure Management Unit with funding from World Bank and Norway intends to construct classroom blocks and ancillary facilities in selected primary schools as detailed in the table below. Figure 48 is a graphical presentation of distribution of primary schools according to zones while Table 41 shows current plans by government to improve provision of primary school infrastructure in the district.

Table 40: Current Plans for School Block Construction

EDUCATION ZONE	NAME OF SCHOOL	PLANNED CONSTRUCTION
Dolo	Mikombo	2 Classroom Blocks
Dolo	Macheu	2 Classroom Blocks
Dolo	Chindole	2 Classroom Blocks
Kalambo	Gola	2 Classroom Blocks
Kalambo	Chimwanjale	1 Classroom Block
Mkumaniza	Finish	2 Classroom Blocks

Source: Education Infrastructure Management Unit, 2019

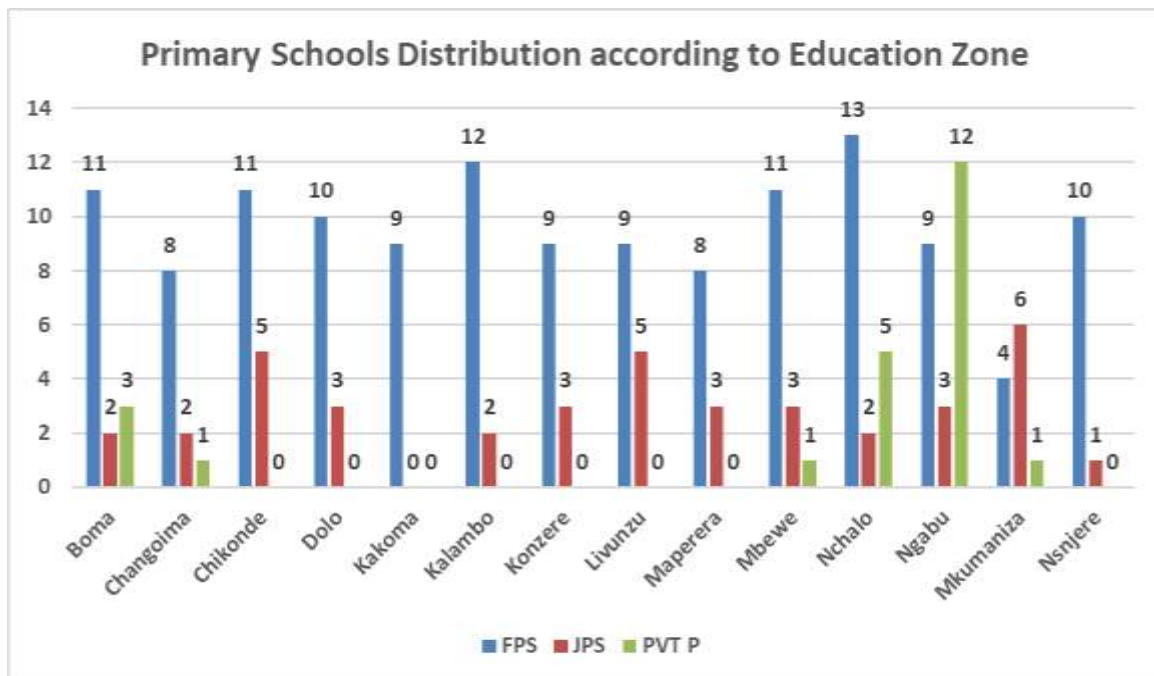
Figure 47: Teaching and Learning in the open at Nchalo Primary School



Source: Physical Planning Department 2019

Shortage of classroom blocks is very acute in most primary schools as seen in Figure 47 above in which learning is taking place in the open area at Nchalo Primary School.

Figure 48: Primary Schools Distribution by Education Zone

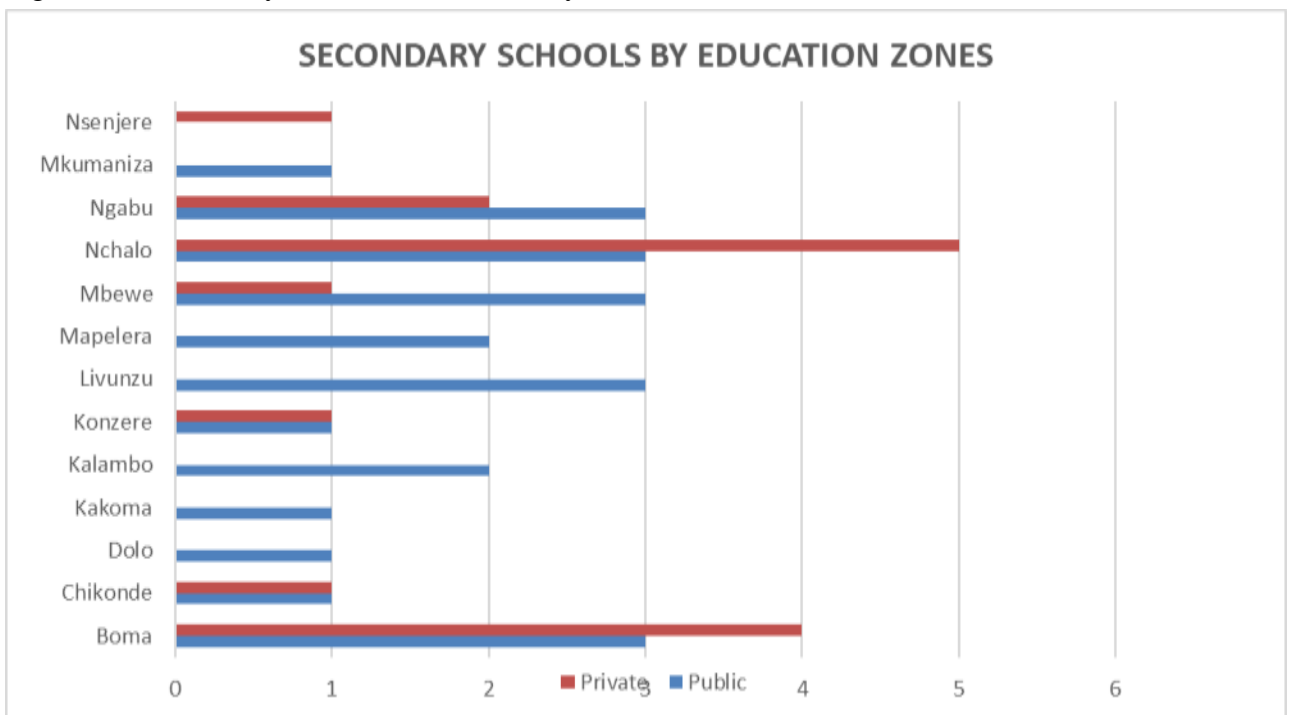


Source: Chikwawa DEMIS 2019

7.13.4 Secondary School Education

Chikwawa District has 42 secondary schools, 14 of which are privately owned. Their distribution according to educational zones is shown in Figure 49. Overall, the district’s enrolment for 2018/2019 shows that there were 5,339 girls and 5,743 boys, giving a total of 11,082 students. There were 293 teachers against 11,082 students, giving a student-teacher ratio of 1:38, and the classroom-student ratio was 88:1 as there were 125 classrooms only. The shortage of houses is also evident in secondary schools because almost half of the teachers are not accommodated in staff houses. Just like in primary schools, there is an apparent mismatch between the rate of infrastructure provision and demand in secondary schools. As more learners are being admitted into secondary schools from primary schools, this gap will keep on increasing. Figure 49 shows overall distribution of secondary schools in the district according to Education Zone.

Figure 49: Secondary School Distribution by Zone



Source: Chikwawa DEMIS 2019

Figure 51 is a map showing the spatial distribution of education facilities in Chikwawa District. It has to be noted that there is an overlap in terms of catchment areas because of several factors, one of which is lack of thorough consultations before a facility is to be constructed. In some cases, government authorities responsible for recommending location of education facilities are not consulted by either the local community or influential politicians when making decisions on the type and level of facility to be provided in a particular community.

Secondary schools do not have specific sphere of influence. It is however assumed that boarding secondary schools accommodate students from all parts of the district while community day secondary schools are meant for students who can walk or cycle from villages around the individual schools.

On-going rehabilitation projects for secondary schools in Chikwawa include construction of girls’ hostels, kitchen, maize mill and 4 blocks at Chapananga Secondary School and a no objection has been obtained for rehabilitation of the entire Chikwawa Secondary School.

7.13.5 Tertiary Education

Chikwawa District has one village polytechnic at Mphungu, which was built by Government in 2014. Its enrolment in 2017 was 20 girls and 50 boys. This is a community managed facility whose objective is to offer skills to youths in trades like carpentry, bricklaying and tailoring among others. However, lack of human resource and training materials has made the facility to fail to fulfil its mandate. Efforts to link it with the Technical Entrepreneurial Vocational Educational Training Authority (TEVETA) have not yielded any fruits with the later promising to incorporate the institution in its programme but this has not materialized. A community technical college is also nearing completion at Ngabu. See Figure 50 for a pictorial view of the college under construction at the time of the survey in April 2019.

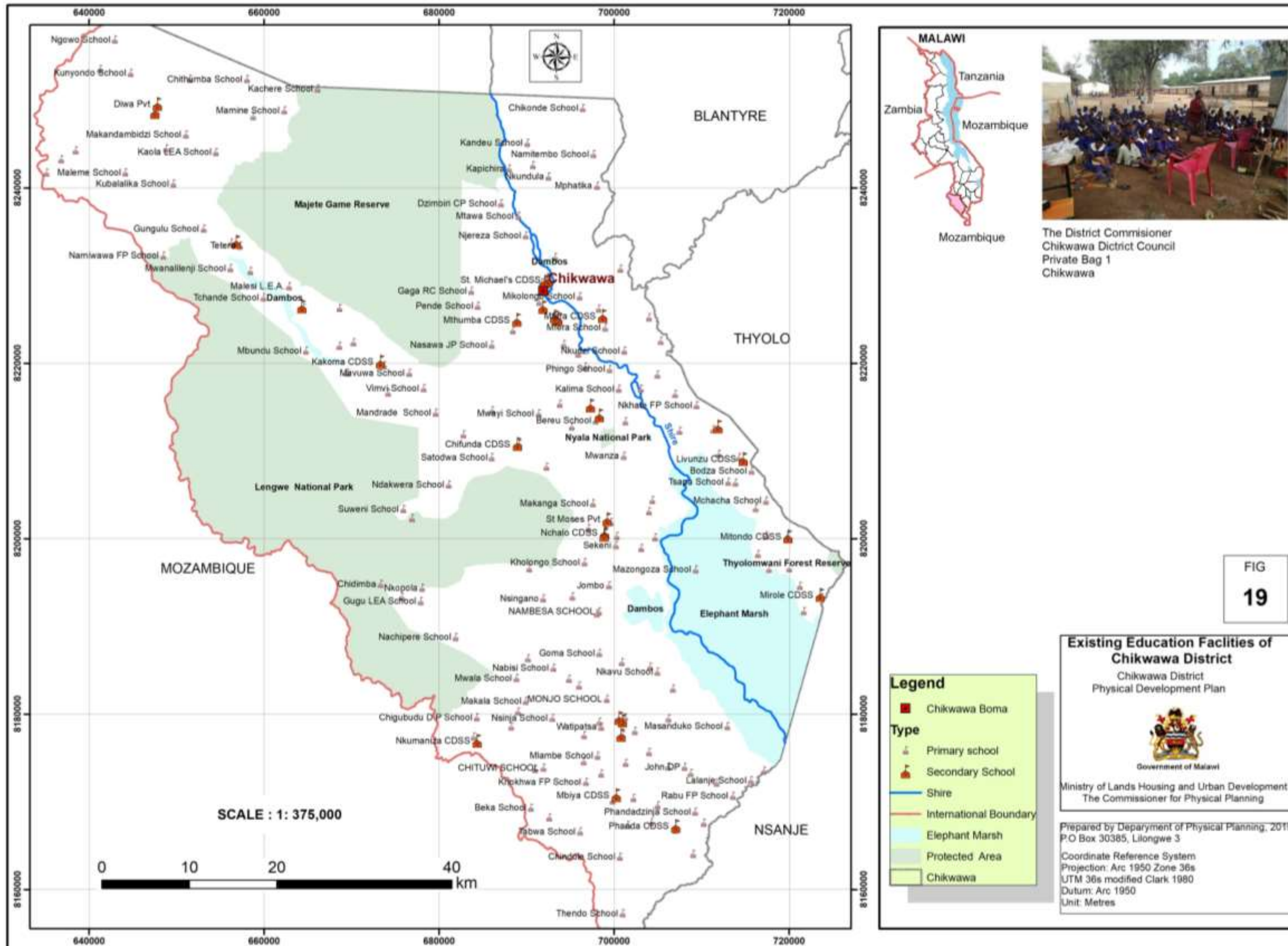
Under the Malawi University Development Programme, Chikwawa District shall have a Teacher Training College at Dyeratu whose core responsibility is to produce more teachers. The Teachers Training College under construction in Chikwawa is located near Kasinthula Research Station.

Figure 50: Ngabu Community College (under construction)



Source: Physical Planning Department 2019

Figure 51: Map Showing Existing Education Facilities



7.13.6 Key Issues

The spatial distribution of primary schools is fairly good. The main challenges are inadequate classroom blocks, staff houses and lack of teaching and learning materials. Considering a standard criteria that pupils should not walk for more than 30 minutes to access a school, it is observed that impassable roads especially during rainy season contribute to drop outs in some schools. Among others, some parents deliberately discourage their children from attending school while others drop out due to lack of school fees. The primary school going population (5 – 16 years) for Chikwawa in 2018 was 191,419. This represents about 34 % of the whole population of the district. It therefore means that provision of primary school facilities is inadequate in the district as there are only 1336 classrooms. Assuming that the above school going population is to be accommodated at a standard rate of 1 classroom per 60 pupils, the district will need a total of 3,190 classrooms. Therefore, it is obvious that there is a need to provide 1,854 additional classrooms to meet the current demand. It has to be noted however that private schools absorb a little percentage of school going population. Some areas that have high population densities also do not have secondary schools. As a result, learners cover long distances to reach nearest secondary schools.

Apart from the Ngabu Community Technical College, the district lacks formal technical/skills development centres where the youth can access vocational training. As a result, the youth who complete their secondary education have no realistic options of securing off- farm employment.

7.14 POSTS AND TELECOMMUNICATION

7.14.1 Postal Services

The relevance of postal services has diminished over the years because of the emergence of various communication technologies. There are post offices at major urban and rural centres in the district such as Chikwawa District Headquarters, Nchalo, Ngabu, Chapananga and also a postal agency at Makhwira in the Eastern Bank. Apart from mail delivery, post offices have diversified their operations to include money transfers and sale of airtime. Almost all post office facilities in the district are in very poor condition. Figure 52 below shows Chapananga Post Office in its poor state.

Figure 52: Chapananga Post Office



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Source: Physical Planning Department 2019

7.15 COMMUNICATION SERVICES

Chikwawa is connected to all the major communication service providers. The dominant providers are Airtel, Telekom Networks Malawi (TNM) and Malawi Telecommunications Limited (MTL). All these are communication services that mainly use transmitters and are therefore wireless except MTL which relies on both underground and overhead cables. There is no specific data on number of customers for the mobile/cell phone networks. As for MTL, total number of customers in Chikwawa is 1,237 for telephones and 21 for internet.

The existing communication infrastructure comprises mainly transmitter towers and some sales shops for both Airtel and TNM. Airtel has a total of 17 communication towers in Chikwawa District and each transmitter has an average radius of 20 km. Illovo alone has 4 transmitters while the rest are distributed in other parts of the district. As seen in the table below, these communication companies have entered into an agreement with each other for the purpose of sharing usage of transmitters.

TNM has 15 communication towers whose radius is about 10km while MTL has 10. Some areas such as Tomali and Nyasa are still not able to access TNM network. On the other hand, MTL does not serve most parts of the East Bank and Chapananga. TNM's main challenge is the poor condition of roads in some areas, especially during the wet season which makes it impossible to access their infrastructure. The main challenge for MTL is vandalism of cables which has resulted in the reduction of the coverage area.

The details of the names and/or locations of these communication towers are given in the Table 42 below.

Table 41: Communication Transmitters

NO.	AIRTEL	MTL	TNM
1	District Headquarters (With MTL)	Chikwawa	Dyeratu (With Airtel)
2	Kapichira	Nchalo	Chikwawa (With MTL)
3	Jombo	Ngabu	Bereu
4	Nchalo	Alumenda	Lengwe
5	Dyeratu	Bereu	Sucoma
6	Illovo Factory	Changoima	Illovo
7	Illovo Club	Kapichira	Nyala (With Airtel)
8	Illovo Housing	Lengwe	Kapichira (With Airtel)
9	Ngabu	Livunzu	Phwazi
10	Bereu	Phwadzi Hill	Chapananga
11	Mphonde		Nkhate
12	Alumenda		
13	Chapananga		

Source: Socio-Economic Survey March, 2019

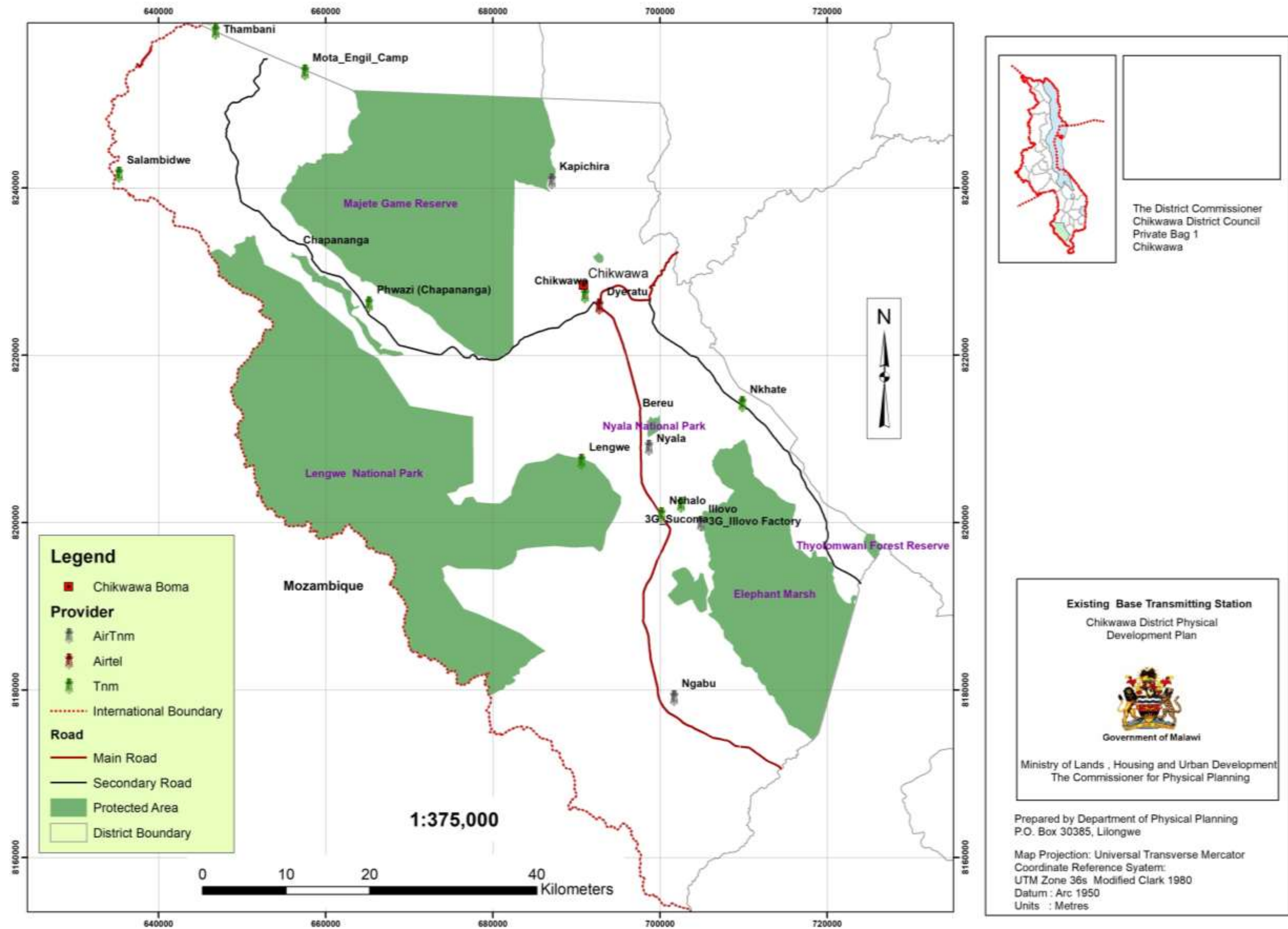
Chikwawa District is partially connected to the national information highway. This national information highway is the Government Wide Area Network (GWAN). GWAN uses the

existing ESCOM power lines using optic fibre cables. Currently, it is only the office of the DC that is connected and the rest of the government departments are expected to be connected in the next phase.

The only internet available in the district is through radio links by MTL. The company plans to expand their data network using radio system. The expansion will be done using Triangle links, Nano beams and hot spots especially in Nchalo.

Figure 53 is a map of Chikwawa District showing the distribution of all communication transmitters. It should be noted that MTL transmitters do not have designated radius.

Figure 53: Map showing Existing Base Transmitting Stations



7.15.1 Key Issues

There is poor network especially in the eastern bank. The poor condition of roads affects delivery of services by all telecommunication providers. Also, TNM's network does not reach other parts of the district due to low radius of coverage of their transmitters. Airtel, on the other hand is also failing to cover the whole district because of absence of towers in some locations. The case of MTL is the same. Their main focus is offering internet services as opposed phone lines. Most of their communication infrastructure which was overhead and in some cases, underground cables has been heavily vandalized so as to render ground lines very difficult to access.

There were two telecentres in Chikwawa District; at Ngabu and the District Headquarters but both are not functioning due to various operational challenges.

7.16 SECURITY INFRASTRUCTURE

The Malawi Police Service is the main provider of security in Chikwawa District. There are several police facilities in the district and are in different categories.

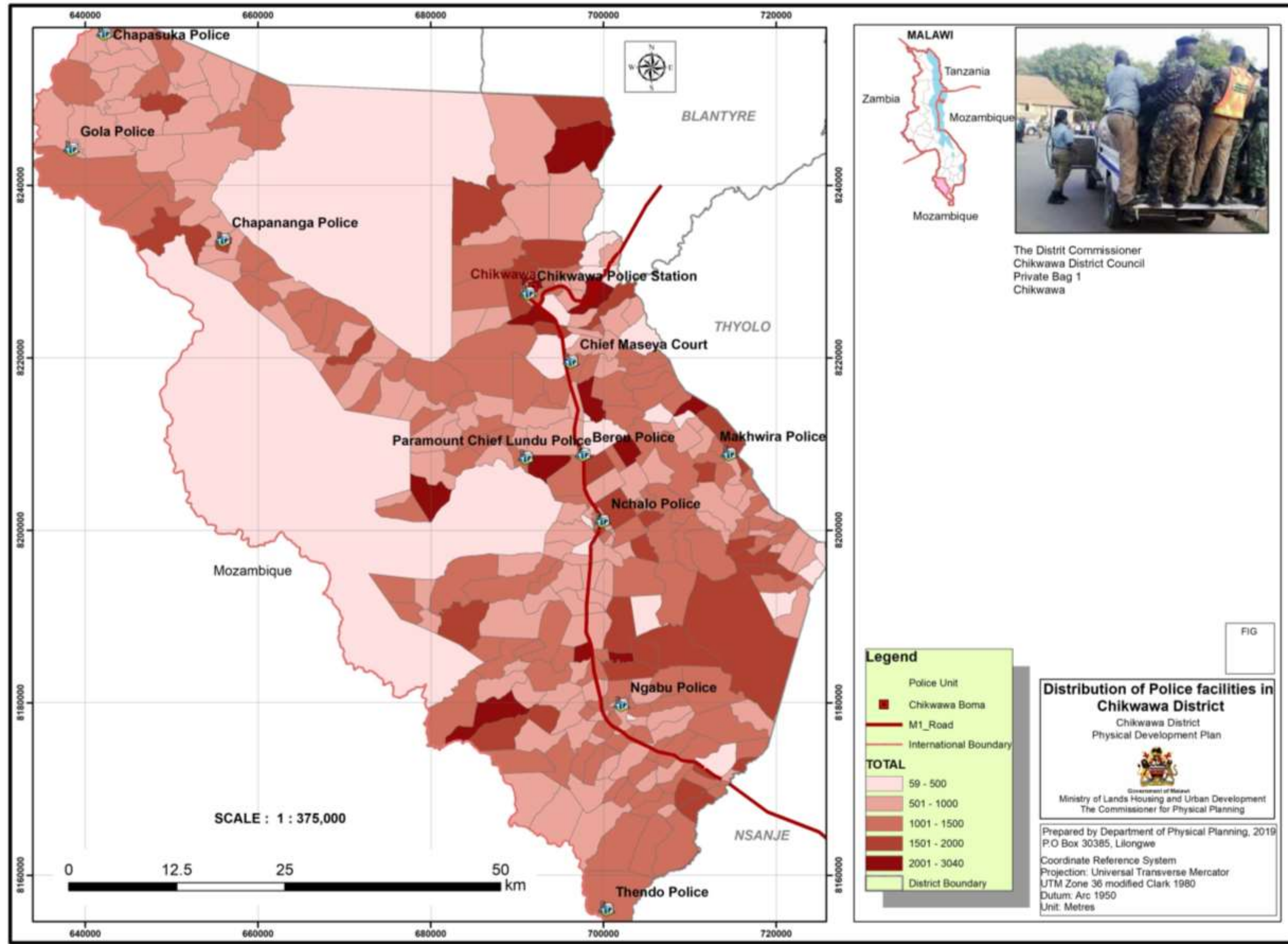
The district has 1 Police Station at the District Headquarters, 2 Police Posts at Nchalo and Ngabu, 8 Police Units at Chapananga, Gola, Changoima and Chapasuka in TA Chapananga, Goma, Thendo, Mkumaniza in T/A Ngabu, Makhwira in T/A Makhwira, Mbewe Headquarters in Paramount Chief Lundu; and 1 Police Mobile Unit camp at Mitole situated within the District Headquarters. There are also buildings meant for Police Services at Bereu and Thereere but they are not yet opened. Details of the police facilities, their locations and staffing levels are provided in the Table 43 below. Figure 54 shows the spatial distribution of police facilities in the district.

Table 42: Police Establishments

No.	Police Formation	Location (TA)	Staff		Total
			Female	Male	
1	Chikwawa Police Station	T/A Kasisi	14	64	78
2	Nchalo Police Post	Paramount Chief Lundu	8	36	44
3	Makhwira Police Unit	T/A Makhwira	6	20	26
4	Chapananga Police Unit	Senior Chief Chapananga	0	4	4
5	Gola Police Unit	“	1	4	5
6	Changoima Police Unit	“	0	2	2
7	Chapasuka Police Unit	“	0	2	2
8	Ngabu Police Post	T/A Ngabu	1	1	2
9	Goma Police Unit	“	0	2	2
10	Nkumaniza Police Unit	“	0	2	2
11	Thendo Police Unit	“	0	2	2
12	PMS Company	T/A Katunga	0	24	24

Source: Draft Chikwawa Socio-Economic Profile, 2017

Figure 54: Map Showing Existing Police Facilities



7.16.1 Key Issues

The condition of all police facilities is poor. There are no adequate staff houses and even office accommodation is inadequate to cater for all the available personnel. It is important therefore that the public security organs should be given the necessary supporting infrastructure so that they can perform their functions with dedication. The measures outlined hereunder are intended to improve delivery of service for the benefit of the public. The district has one prison facility, located at the District Headquarters.

The existence of wildlife reserves in Chikwawa District has also resulted in conflicts between humans and wildlife. On one hand, wild animals pose a challenge to the security of human beings while on the other hand, humans also threaten the existence of wild animals.

7.17 SPORTS AND RECREATION FACILITIES

There are no formal public sports and recreation facilities in Chikwawa District. Sports grounds are only available in schools. The general public use open spaces as playgrounds spread in undesignated areas in urban and rural areas. Standard sports and recreation facilities are found at Illovo in Nchalo, namely Kalulu Stadium, Golf Course, Hall and other facilities for minor sports. However, these infrastructures are exclusively for private use. Therefore, there is a great need to provide public facilities for sports and recreation in the district.

7.18 LINKAGE OF PHYSICAL INFRASTRUCTURE AND URBANIZATION

Results of a study on urbanization in Chikwawa District have led to a recommended hierarchy of urban centres with each centre having a well-defined catchment area. According to the National Physical Development Plan, the designated urban centres at each level are expected to have a number and level of services and facilities commensurate with their status. The hierarchy of urban centres in Chikwawa consists of main market centres, rural market centres and village centres. Most of these urban centres have inadequate services and facilities and are therefore functioning below their capacity. Nchalo has a sports stadium, golf course and leisure club but all these are privately owned by ILLOVO. Therefore, all the three main market centres of Chikwawa District Headquarters, Nchalo and Ngabu need community and leisure facilities such as halls and sports and recreation facilities. Both Ngabu and Nchalo also need low level district administration services. Location of these facilities will be determined at Urban Structure Planning and Detailed Layout Planning levels

The rural market centres of Masenjere, Chapananga and Mkumaniza need specific infrastructure and utilities to enable them function as recommended. These are contained in Table 44 below. Service provision for each centre shall also be based on requirements shown in Tables 54, 55 and 57.

Table 43: Infrastructure Required at Rural Market Centres

NO.	RURAL MARKET CENTRE	INFRASTRUCTURE REQUIRED
1	Chapananga	Community, banking and service station facilities
2	Mkumaniza	Urban water supply, banking, postal, community and judicial facilities
3	Masenjere	Urban water supply, police, judicial and community facilities

Source: Physical Planning Department 2019

It should be noted however, that each urban centre will be thoroughly assessed and participatory local land use plans will be prepared to guide provision of physical infrastructure and overall provision of services and facilities. For details, refer to Table 55.

8 MAJOR LAND USES

8.1 INTRODUCTION

One of the pre-requisite for the preparation of a District Physical Development Plan (DPDP) is a good knowledge and understanding of the existing land use structure, trends in the major land uses, natural or physical constraints to developments, usable vacant land, the rate at which the vacant land is being utilized or becomes part of the man-made physical environment and land for future uses. Map showing existing land uses in Chikwawa is depicted in Figure 55 and the description of these categories of existing major land uses is contained in the subsequent sections.

8.2 AGRICULTURE

The District has a total area of 4,892 square kilometres. The total land area is 489,165 hectares of which 20, 118 hectares is dry arable land and 29,962 hectares is wet arable land that can be used for agricultural purposes. Estates cover 19,000 hectares while public land covers 211,788 hectares. Non arable land covers 191,089 hectares. Chikwawa District also has potential irrigable area of 38,000 ha. Existing irrigated area for the district is at 15, 557 ha and this include; Nchalo, Sande, Phata, Kasinthula, Alumenda, and Kaombe.

8.3 SHIRE VALLEY TRANSFORMATION PROJECT (SVTP) AREA

Shire Valley Transformation Project (SVTP) is also one of the major projects taking a leading role in promoting agricultural production in the district. SVTP is embarking on developing 43, 380 ha of land under gravity irrigation. The project aims at improving agricultural production in a sustainable manner thus leading to economic growth and reduction of rural poverty in lower shire valley through establishment of rural-linked market for smallholder farming ventures and professionally operated irrigation services.

The project has also proposed a land use plan model of about 500 ha per estate that will include the following uses; settlements/villages, irrigable land, grazing areas, demarcation of floodplains, forests and woodlots on every estate.

8.4 ESTATES AND LARGE SCALE HOLDINGS

Large scale estates in the district cover about 16,221 ha and these include: Illovo, Phata and Kasinthula cane growers, Nchalo Greenbelt Limited focusing on cotton and KAMA. The Estates and Large scale holdings in the District are shown on Table 44:

Figure 55: Map Showing Existing Land Uses

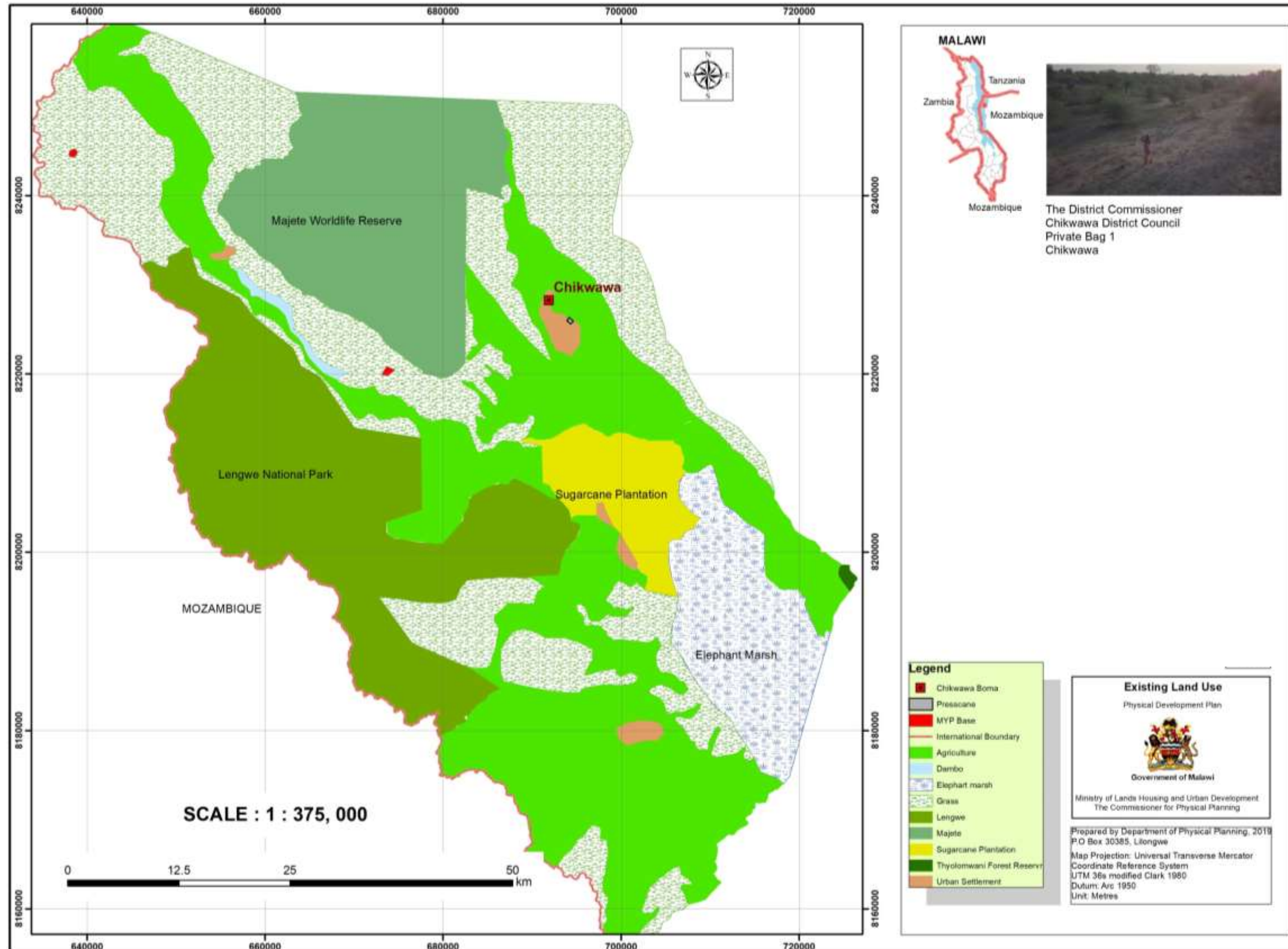


Table 44: Estates and Large-scale Holdings

No.	Name	Crop	Hectares
1	Illovo	Sugarcane	13, 600
2	Kasinthula Cane Growers Limited	Sugarcane	1, 435
3	Phata Cane Growers Limited	Sugarcane	600
4	Nchalo Green Belt Limited	Cotton	480
5	KAMA Cane Growers Association	Sugarcane	106

Source: Shire Valley Transformation Project 2017

The SVTP will incorporate both the existing estates and the new estates. Some of the existing irrigated estates that will benefit from the project include; Nchalo, Sande Ranch, Phata and Kasinthula while Alumenda and Kaombe are proposed estates to be established. The table below has segregated the estates with their coverage.

Table 45: Estates under SVTP

No.	Estate	Area
1	Nchalo extension	9, 995 ha
2	Sande ranch	454 ha
3	Phata	696 ha
4	Kasinthula	1, 429 ha
5	Alumenda(proposed)	2, 764 ha
6	Kaombe (proposed)	819 ha
	Total	15, 557 ha

Source: Shire Valley Transformation Project 2017

8.4.1 Smallholding/Subsistence Farming and Gardens

Chikwawa District has a total of 134, 775 farm families comprising 78% and 22% male headed and female headed households, respectively. About 39% of the population in the district are farmers with an average land holding size of cultivated land of less than 0.5 ha per farm household. About 82 % of the households have land-holding sizes less than 1 ha and only 18 % of the farm families have above 1 ha of cultivable land.

8.4.2 Human Settlements/Built up areas

Human Settlements consist of urban areas and village clusters representing approximately 2.5 % of the total land area of the district. The main urban areas in Chikwawa District are Ngabu, Nchalo and Chikwawa District Headquarters.

8.4.3 Airports

The district has no public airport apart from privately owned Nchalo and Majete Airfields totalling to 30 ha. Nchalo Airfield which is approximately 18ha is owned by Illovo Estate a sugar planting and manufacturing company while Majete Airfield approximately 12ha is owned by African Parks, a wildlife reserve company, The Plan recommends to maintain these two airfields.

8.5 CONSERVATION AREAS IN CHIKWAWA DISTRICT

Conservation area covers a total of 2,847 ha. These areas are managed by local communities, NGOs, and government especially the Department of Forestry. The aim of the forest sites is to protect the environment from degradation and soil erosion that might lead to natural disasters such as flooding. The table below illustrates the conservation catchment sites within the district and their land sizes.

Table 46: Chikwawa District Consolidated Catchment Conservation Areas

No.	Catchment Name	Forest (Ha)	Land Resource (Ha)	Total (Ha)
1.	Nkhate	41	70	111
2.	Mpokonyola	7	17	24
3.	Mphonde	38	79	117
4.	Dulansanje	41	34	75
5.	Mikalango	93	42	135
6.	Nyamphota	19	9	28
7.	Dongamiyala	28	85	113
8.	Mkombezi	7	22	29
9.	Nyamatope Hills	79	40	119
10.	Tambokamwa	34	31	65
11.	Nyakamba	61	102	163
12.	Chithumba	89	64	153
13.	Kasupe Hills	33	114	147
14.	Bereu	13	34	47
15.	Likhubula	37	23	60
16.	Mazira	63	60	123
17.	Phwazi	66	96	162
18.	Zalera	167	249	416
19.	Ng'ombe	85	106	191
20.	Nyambiro-Lombe	51	65	116
21.	Nanzolo	35	31	66
22.	Mthumba	25	97	122
23.	Mkudzi	23	21	44
24.	Mwanza River Tributaries	44	177	221
	Grand Total	1179	1668	2847

Source: MASAF 4 Revised Consolidated Catchment Safety Net Plan, 2018

8.6 NATIONAL PARKS, GAME AND WILD LIFE RESERVES

The total area for national parks, game reserves and conservation areas in the district is about 219,050 ha. Majete is made up of 69, 000 ha of land and shares boundary with Mwanza, Blantyre, and Mozambique. Lengwe National Park was established in 1928 by Malawi Government and it is mainly a wetland and experiencing land pressure from locals and comprise 88, 700 ha of land including extension area to the north. Elephant Marsh covers 60, 000 ha and is located within the floodplains of the lower Shire River. Nyala Park is a privately owned park under Illovo Sugar Group and covers about 350 ha.

8.6.1 Forest Reserves

Chikwawa is one of the districts with vast areas under National Parks and Game Reserves. Most of the natural forests are under traditional leaders under customary land. However, deforestation is rampant mainly due to charcoal production and brick curing. According to FAO 1993 statistics, forests, indigenous and plantations occupy 180,182 ha of land representing 36% of Chikwawa land area.

8.6.2 Infrastructure and Utilities

Infrastructure in Chikwawa is moderately developed as compared with other districts in Malawi due to the fact that the district is largely within a flood prone and protected areas as well as steep hilly areas. Road infrastructure covers a total of 1,795 ha including all designated roads and road reserves. Electricity way leaves in Chikwawa District cover 2,586 ha.

8.7 NATURAL PHYSICAL DEVELOPMENT CONSTRAINTS AND POTENTIALS

Natural physical development constraints and potentials in Chikwawa have a very big influence in the current and future development of the district.

8.7.1 Physical Development Constraints

8.7.1.1 Swamps and Flood Plains

The land in these flood plains is flooded every year and during this period the land is not usable until the floods subside.

8.7.1.2 The Rift Valley Steep Slopes

Most of the eastern bank of Shire River is too steep and usually have rock outcrops and is not recommended for cultivation and human settlements but as forest reserves and animal reserves. However, some parts of this type of land are settled and farmed leading to very heavy erosions, landslides and environmental and natural resource depletion and degradation.

8.7.2 Physical Development Potentials

Chikwawa District is blessed with some physical development potentials that provide favourable conditions for socio-economic development. Some of these opportunities are;

8.7.2.1 Fertile alluvial soils

The district has very fertile alluvial soils that are good for different types of crop production. These fertile soils are available along Shire River plains.

8.7.2.2 Abundance of Water Resources

Chikwawa has abundant water resources since Shire River is the natural outlet for Lake Malawi. This means that huge amounts of water pass through this area all the time of the

year and can be harvested and used for large-scale commercial agriculture to ensure food security in the district and the nation at large.

8.7.2.3 Favourable Weather for Crops and Livestock

The hot and humid weather for the area is good for intensive crop and animal production. In addition, the availability of perennial water bodies such as Shire River provide enough drinking water for the animals as well as facilitating the growth of pasture for the animal to feed on. Currently value addition in animals and crops is not maximized. These products are taken out raw and unprocessed.

8.7.2.4 Availability of Large Scale Holdings and Nature Reserves

Chikwawa is also a district with large scale holdings at industrial scale and huge game reserves. Such enterprises are Illovo Sugar, PressCane Industries, Lengwe National Park, Majete Wildlife reserve, Elephant marsh, and Nyala Park. These enterprises provide socio-economic development opportunities for the district as they attract foreign exchange through international trade and tourism.

8.7.3 Land for Future Uses

Considering the current population carrying capacity of the land in Chikwawa District as a whole, there is no sufficient land to meet the requirements of the future population to year 2040. Refer to table 48 showing Existing and Proposed Major Land Uses.

Land for future fuelwood forests will not be enough by 2040 and will require some land to be reserved for this purpose. If no land is available in future consequences will be serious and destruction of woodlands will have disruptive impact on water catchments areas and steep slopes and resulting in increase in erosion and floods. Urban areas will be the first and worst affected by the fuelwood shortages. The following table depicts designated land uses.

Table 47: Existing Major Land Uses

Land use category	Land Area (ha)	% of total district land area	% of national land area
Lengwe National Park	88,700.00	19%	0.82
Elephant Marsh	27,367.00	6%	0.20
Illovo	19,000.00	4%	0.70
Shire Valley Transformation project	7,843.00	2%	0.08
Majete Wildlife Reserve	69,100.00	15%	0.60
Forest Reserves	17,000.00	4%	0.18
Arable Dry Land (Cultivated Agriculture)	212,153.00	45%	2.10
Arable Wet Land (Cultivated Agriculture)	30,253.47	6%	0.30
Conserved Area	1,515.16	0%	0.02
Grand total	472,931.63	100%	5.00

Source: Physical Planning Department 2019

Table 48: Summary of Existing and Proposed Major Land Uses

Existing Land Use		Proposed Land Use		Decrease	Increase
Agriculture	147,995.17	Agriculture	132,525.76	15,469.41	
PressCane	25.77				

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Existing Land Use		Proposed Land Use		Decrease	Increase
		Canal Phase one	224.193		224.193
		Canal Phase two	118.906		113.906
Dambo	11,157.17	Dambo	10,757.17	400	
Elephant Mash	34,628.74	Elephant Marsh	25,364.74	9,264.00	
Gola Land	72.55	Gola Land	72.55		
Grassland	113,267.93	Grassland	107,551	5,716.78	
		Industrial	37.4		37.2
Kakoma Land	84.67	Kakoma Land	84.67		
Lengwe National Park	88,700.00	Lengwe National Park	88,700.00		
Majete Wildlife Reserve	69,100	Majete Wildlife Reserve	68,091	1,008.90	
		New Irrigation Site	39,479.12		39,479.02
Sugarcane Plantation	18,035.85	Sugarcane Plantation	8,783.85	9,252	
Thyolomwani Forest Reserve	379.05	Thyolomwani Forest Reserve	379.05		
Urban settlement	5,718.87	Urban Settlement	5,718.87		
Gland Total	489,165.77		489,165.77	41,111.09	41,111.09

Source: Physical Planning Department 2019

8.8 HOUSING PROVISION

The Housing sector is not well developed in Chikwawa due to the fact that economic activities in the area are labour intensive therefore attract high density housing units. Generally, the housing demand is quite high and supply is very low and of relatively low quality.

8.8.1 Malawi Housing Corporation (MHC)

The only formal Housing provider is Malawi Housing Corporation (MHC) especially at the District Headquarters. MHC has 64 houses of which 14 houses are of Low density at Senior Quarters and 50 High Density houses at DC lines.

There is very heavy encroachment of MHC land by Institutions and the local communities at the Chikwawa District Headquarters and Nchalo. MHC is also losing some land to huge Shire River erosion that is creating a gully and washing away some houses and land.

8.8.2 Institutional Houses

There are some institutional houses in the Works, Forestry, Community Development, Agriculture, Education, and Health Sectors that are not even enough to cater for Government members of staff. Companies like ILLOVO Sugar; PressCane offers houses to some of their permanent employees.

8.8.3 Private Real Estate Enterprises

There is also a well-developed private sector real estate market at the District Headquarters, Nchalo Trading centre and Ngabu Trading centre. These private land lords offer relatively high quality houses but more expensive than MHC and Institutional houses.

8.8.4 Rural Housing Project

Rural Housing Project is under the Department of Housing in the Ministry of Lands, Housing and Urban Development. Chikwawa district is one of the districts that has benefited from the project. The main objective of the project is to ensure improved access to safe and quality shelter for the rural people. The target for the district from 2014 to 2019 was to construct 1,558 houses. The table below illustrates the progress of the project and beneficiaries.

Table 49: Progress and the Beneficiaries of the Project

No	Constituency	Beneficiaries		Total	Houses Under Construction	Houses Completed	Houses not yet Started
		Male	Female				
1.	Chikwawa Central	76	26	102	47	36	19
2.	Chikwawa South	103	31	134	35	88	8
3.	Chikwawa East	124	36	160	30	105	25
4.	Chikwawa North	84	35	119	46	41	31
5.	Chikwawa West	88	45	133	39	81	21
6.	Chikwawa Mkombezi	106	23	129	40	64	25
	Total	581	196	777	237	415	129

Source: Chikwawa Rural Housing Office 2019

8.9 FORMER MALAWI YOUNG PIONEERS (MYP) BASES LAND

Chikwawa District is one of the districts that had the Malawi Young Pioneer (MYP) bases in Malawi, stationed at Kakoma and Gola sites within T/A Chapananga. The land in these sites is very fertile and suitable for crop production. MYP used to commercially produce maize and vegetables sold at Chikwawa Boma Market and to the surrounding communities.

8.9.1 Kakoma Former MYP Base

Kakoma is about 24 Km from Chikwawa District Headquarters and covers 84.76 ha. Some of the former MYP structures are still in use to-date. These include a hostel block for the pioneers which is currently being used as a girls' hostel for Kakoma Community Day Secondary School and two MYP staff houses currently used as teacher's houses for the same. The area also has new structures that have been recently developed which include Kakoma Community Day Secondary School's school blocks and teachers' houses, Police unit, and a Community Based Organization (CBO) Office. The other part of the land is being used for settlement while a larger part is under cultivation.

8.9.2 Gola former MYP Base

Gola is 67 Km from Chikwawa District Headquarters and covers 22.71 ha. The structures at Gola are dilapidated with no new developments.. However, part of the land is now used for cultivation by surrounding communities with permission from their local chief.

8.9.3 Proposed Uses for Kakoma and Gola ex MYP Bases.

The Plan proposes that the remaining land at Kakoma be returned back to agricultural use. This is so because the land is deemed as very fertile, hence would be crucial for increased agricultural production. Furthermore, the land at Gola has not been encroached much. As such the Plan proposes to revert this land back to agricultural use. The land can be used for integrated ecotourism and the production of high end vegetables, fruits, bee farming in the heavily forested hilly areas and any high end horticultural production. The land at Gola is very fertile with perennial rivers but mountainous as such still needs to maintain some of its forest areas to avoid environmental degradation.

8.10 DISASTER ISSUES MANAGEMENT SYSTEMS

Historically, Chikwawa District has experienced disasters and there is a well-developed disaster management system at the District Commissioner's Offices. The main cause of these disasters is due to negative effects of human activity and climatic changes. Examples of these human and natural causes are, deforestation, poor farming methods, and natural climatic changes leading to too much or too little rain which culminate into flooding or droughts.

The district is prone to a number of hazards. These include: geological hazards such as earthquakes and landslides; hydro-meteorological hazards such as strong winds, floods, droughts, extreme temperatures, severe storms and hailstorms; health-ecological hazards such as air pollution, water pollution, soil contamination, and extinction of flora and fauna species.

8.10.1 Disasters in Chikwawa

The types of disasters in Chikwawa District are; floods, dry spells/drought and strong winds. Other disasters that have occurred or may occur include; HIV and AIDS, cholera, army worms, foot and mouth disease. Chikwawa District has been experiencing disasters for so many years but the most disastrous one are the 2015 and 2019 flood disasters where many people lost their lives. Flooding in Chikwawa occurs almost every year. Some rivers originating from the four districts of Blantyre, Mwanza, Thyolo and Neno contribute to the flooding in Chikwawa District.

8.10.2 Disaster Mitigation Measures

There has been some deliberate efforts in mitigating disasters in the district such as the construction of Dykes by Illovo and Government. However, the dykes have been damaged by the recent floods and they need heavy repairs. Some efforts have also been made in the training of communities on how they can protect river banks through planting of trees and avoid cultivating in the river banks in order to reduce and minimize erosion and flooding.

8.10.3 Disaster Resilience System

In order to reduce flooding in some rivers, Government has been doing some river catchment area conservation projects in Chikwawa. This has been done through tree regeneration, planting of vertiva grass, and creation of contour terraces. Efforts have been done in the sensitization of the local people in the construction of safer houses based on the design by the Department of Housing.

8.10.4 Early Warnings Measures

Early warning systems in Chikwawa comprise water level monitoring by the local communities and hydro gauge stations along major flood prone rivers such as Mkombezi and

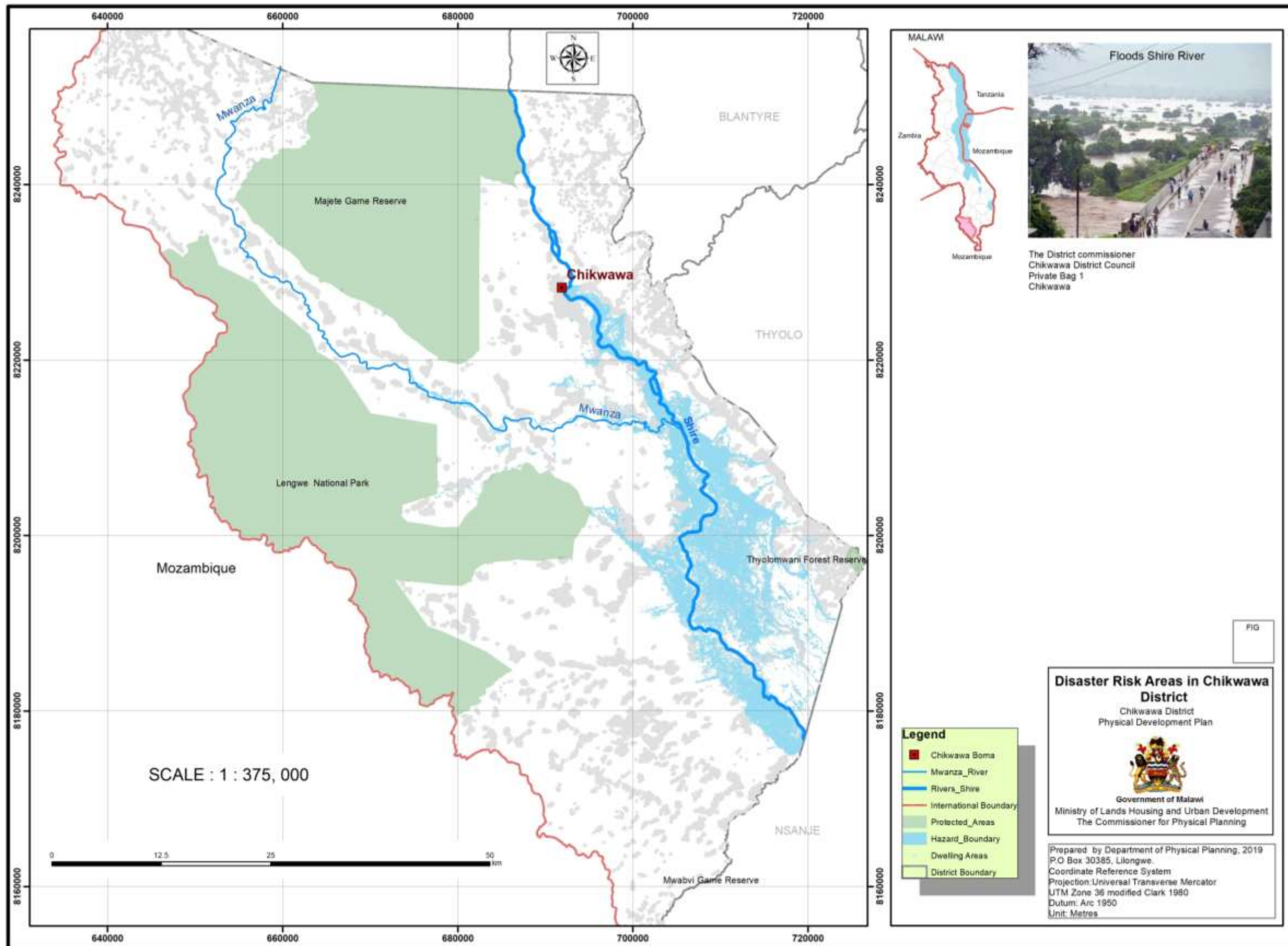
Mwanza; Using announcements on radios and television stations; and means of communication during disasters are, call persons (kafuule), mobile phones, walking /riding, letters, megaphones, VHS radios by Chikwawa Police and District Hospital.

Rescue operations are done through the use of dugout canoes, engine boats, government vehicles and in special cases, helicopter. Generally, there are no specific disaster evacuation centres where people can escape to and people mainly use schools and churches as evacuation centres.

8.10.5 Disaster Management System

Disaster issues in Malawi are handled by DODMA which is under the OPC. At the local level, the District Commissioner through the Disaster Officer manages disasters through the District Civil Protection Committee and Area Civil Protection Committee. Refer to Figure 56, Map Showing Disaster Flood Risk Areas.

Figure 56: Map Showing Disaster Flood Risk Areas



8.10.6 Key Issues

Shortage of land for development in the district is a challenge due to wanton encroachments by local people on government land. For instance there was a proposal to move the District hospital from Chikwawa District headquarters to alternative area due to flooding effects however despite availability of funds to undertake the development it failed because there was no land. The only land that was available for the council has been encroached.

The district is prone to disasters which are caused by strong winds and floods. Due to the occurrence of strong winds in 2019 the roof of the District Council Offices was brown off and many houses in the district were also affected.

There is no formal development control mechanism in the district due to unavailability of physical planners which has resulted in haphazard, low quality and unsafe structures.

Idle land and underutilization of land by estate holders is also a challenge to the development of the district. Despite shortage of land in the district large parcels of the land under private ownership are not used and some have been abandoned by absentee land lords.

Poor environmental planning and management is another challenge. There are no waste management sites for large companies, market centres and households as a result there is no proper waste disposal and an increase in both water and air pollution in the district.

There have been on-going encroachments in hazardous areas. There is an increase in settlement of local people in the disaster prone areas such as along Shire River banks which has posed serious damages to property and loss of lives in times of disasters

Tenure insecurity is a major issue in the district. Although land tenure security has been prioritized in government policies and strategies. The National Land Policy is one of the policies which seeks to ensure tenure security and equitable access to land for all, Theme One Sub Theme Five of the Malawi Growth & Development Strategy (MGDS) also seeks to ensure tenure security and equitable access to land as one of its long term goal for achieving sustainable economic growth.

Chikwawa District is one of the districts with a highest rate of tenure insecurity since most of the land holders have no land titles. Land is an asset for economic growth and land that has no title is “dead capital”.¹⁶ This highlights that lack of tenure security is one of the factors that has affected economic growth of the district.

Lack of industrial land is also an issue in the district. The district is very productive in terms of agriculture, livestock production and suitable for industries. Despite its potential in production there are no proper sites that were designated for industrial use.

¹⁶ De Soto; 2000, p. 275

9 INSTITUTIONAL FRAMEWORK FOR PLANNING AND IMPLEMENTATION

9.1 INTRODUCTION

This chapter outlines the roles of some institutions involved in the process of preparing and implementing the Chikwawa District Physical Development Plan. It also identifies institutions in various sectors to spearhead implementation, monitoring and evaluation of the Plan.

9.2 DEPARTMENT OF PHYSICAL PLANNING

Although the Department of Physical Planning has been assigned the responsibility to prepare the Plan, its specific legal mandate under the Physical Planning Act is to approve the district physical development plans prepared by the Council and ensure that the district councils are carrying out development control effectively and efficiently and that all physical developments in the districts are being implemented according to the Plans. Thus the Department of Physical Planning is further responsible for monitoring of the implementation of the Plan and making recommendations for plan review where necessary.

9.3 DEPARTMENT OF HOUSING

This will be responsible for providing ‘Safer Construction Guidelines and Building Standards and monitoring infrastructure development in the district.

9.4 LOCAL GOVERNMENT AUTHORITIES

9.4.1 Chikwawa District Council

The councils are mandated to formulate by-laws for governing their operations. The term council refers to councillors as elected representative members of wards, elected parliamentarians, traditional authorities, five nominated members representing interest groups namely the disabled, women, youth, faith groups and business persons. The District Commissioner heads the district council’s secretariat and is supported by professional heads of various Government Departments or sectors.

The district councils have the following functions:

- To make policies and decisions on local government and development
- To promote infrastructural, economic and social development through approval and execution of district development plans
- To mobilize resources for development

According to Physical Planning Act 2016, it is the responsibility of the Local Government authorities to prepare district physical development plans and local physical development plans in their areas of jurisdiction. They are also mandated to execute development control and enforcement. However, the Department of Physical Planning has been entrusted with the Chikwawa District Physical Development Plan preparation due to lack of physical planning capacity at Chikwawa District Council just as it is the case with all district councils in the country.

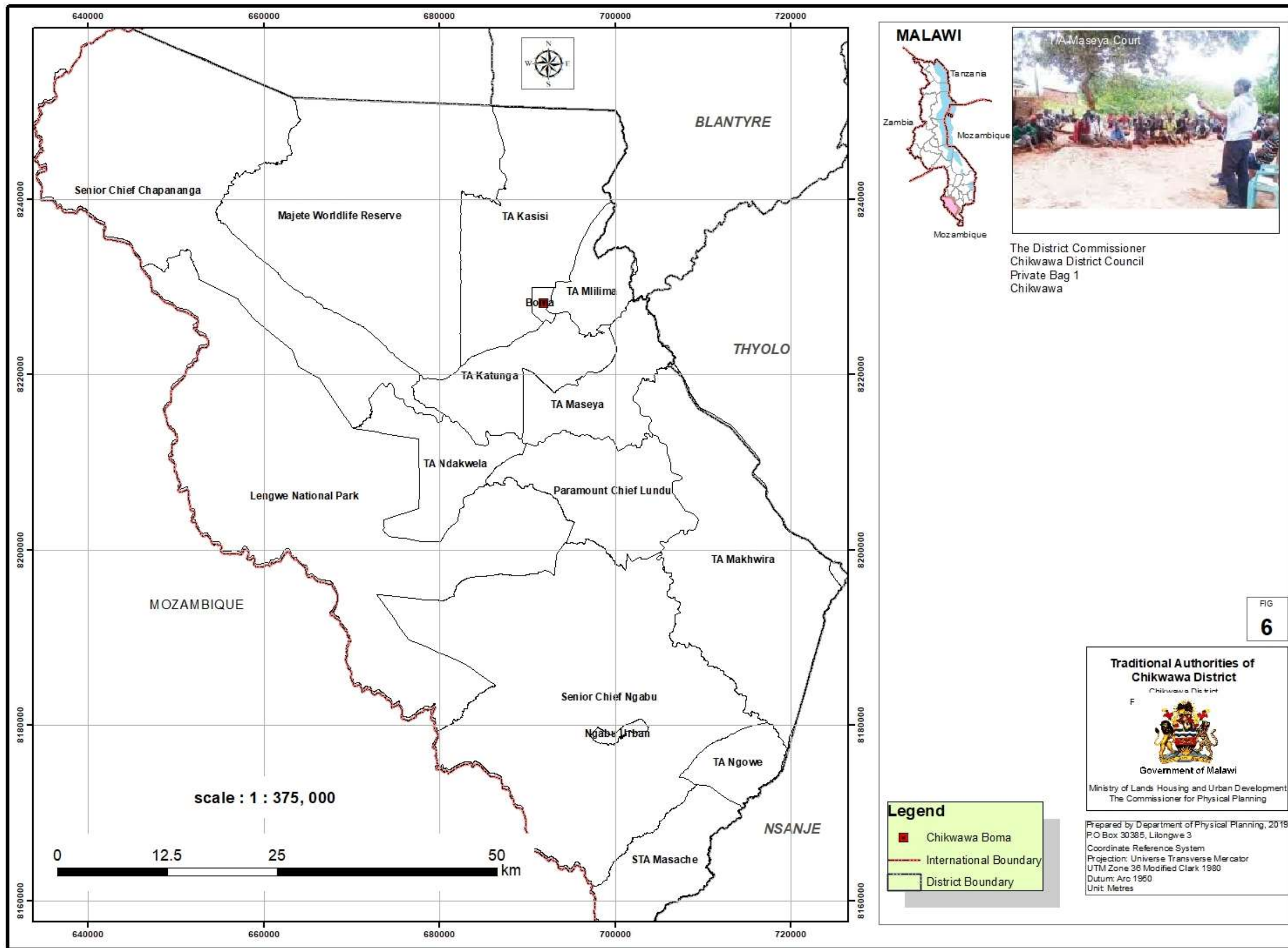
9.4.2 District Executive Committee/Council's Secretariat (DEC/CS)

District Executive Committee is composed of all heads of Government Departments or sectors, non-state actors and NGOs. Its main role is to give technical advice to the council. However, some Government Departments have not yet devolved to the district council level. This creates capacity challenges.

9.4.3 ADCs and VDCs

There are 11 area development committees in Chikwawa District which are operational and chaired by selected elected members and supervised by Chiefs/TAs. Their main roles are to mobilize community resources and determine interventions in the traditional authority area. The ADCs are given technical advice on local aspects of development by area executive committees comprising extension workers of Government agencies and NGOs in a TAs area. Figure 57, is a Map Showing TA Boundaries in Chikwawa District. There are also 220 village development committees (VDCs) in the district which are representative bodies from groups of villages. The roles of a VDC are to identify the needs of the local communities and to facilitate the Planning and development of the same.

Figure 57: Map Showing Boundary of Traditional Authority



9.4.4 Issues and Planning Implication

There is lack of physical planning capacity at the council. The Department of Physical Planning should devolve some of its functions to the district council and Ministry of Local Government and the District Council should deploy or employ physical planners for the Plan to achieve its goals.

9.4.5 District Agriculture Development Office

The Chikwawa District Agricultural Development Office has the responsibility to develop the agriculture sector through its crop, irrigation and livestock departments. It provides its services to farmers in the following Extension Planning Areas (EPAs): Livunzu, Dolo, Kalambo, Mikalango, Mbewe and Mitole. The services include dissemination of technologies for crop husbandry, animal husbandry and irrigation farming. The farmers are accessed through Village Development Committees (VDCs), Village Agriculture Committees (VACs), Area Development Committees (ADCs), Agriculture Stakeholders Panel (ASP), District Agriculture Executive Committee (DAEC), the technocratic District Agriculture Extension Coordinating Committee (DAECC) and District Agriculture Committee (DAC).

The division also advises the agro-dealers in the district on suitable agricultural inputs and equipment.

9.5 ISSUES AND PLANNING IMPLICATIONS

The district is supposed to be manned by 124 agriculture extension workers but only 55 of them are on the ground. Hence; there is need for the Ministry responsible for agriculture to fill the vacant posts of extension workers. The Eastern Bank (Livunzu and Kalambo EPAs) is considered as focal point for irrigation farming in Chikwawa due to many rivers flowing and its gradient is high there whilst the West Bank (Dolo, Mikalango, Mbewe and Mitole) is taken as dry land due to lack of flowing rivers and has low gradient with lots of land with limited agricultural production due to unreliable rainfall. Hence, there is need to implement Shire River canal irrigation which will be powered by gravity hence affordable to many farmers. The canal will also make the dry land more productive through irrigation farming.

9.6 ROLES OF ADMARC AND OTHER SIMILAR BODIES

9.6.1 Challenges

The Agricultural Development and Marketing Corporation (ADMARC) is a parastatal organization established by Act of Parliament in 1977. ADMARC is faced with the following challenges:

- Stiff competition from other traders and vendors;
- Natural disasters such as wind storm in 2015 which damaged former premises at the District Headquarters/Dyeratu;
- Inadequate resources;
- Untimely disbursements of resources;
- High demand versus limited supplies; and
- Poor premises.

9.6.2 Issues and Implications

ADMARC has interest in areas of agricultural production, land use, population and employment. Hence, its roles and interests necessitate its involvement in the Chikwawa District Physical Development Plan formulation process. However, it is apparently Ngabu ADMARC station and a few other stations that are fully functioning in the district. It has already located a cotton ginning factory at Ngabu. ADMARC has partnered with the Green Belt Authority - an example of partnerships that other farming players in the district might emulate in the quest to commercialise agriculture in the district.

There is need to sensitise developers in the district to embark on erecting disaster resilient physical structures to minimize the disaster risk in the district. The Housing Department should support with specifications on disaster resilient building construction.

9.7 DEPARTMENT OF WILDLIFE AND PARKS

Chikwawa District has a number of wildlife protected areas like Lengwe National Park covering 89,700ha, Majete Wildlife Reserve covering 69,100ha, Nyala Park covering 400ha and the Elephant Marsh covering 400ha. These areas have lots of rare fauna and flora. The wild animals include elephants and rhinos which are often a target by poachers for the notorious illegal ivory and horn trade. The rare tree species include Phingo and Mitsipi which are hardwood liked by the curios and timber industries. There are also cases of stray lions crossing border from Mozambique into these protected areas and this threatens the local communities surrounding the areas. These protected areas are susceptible to both local and international illegal logging thereby risking extinction of the rare species. Considering the huge size and sheer number of the protected areas in one district, the Department of Wildlife and Parks has a tremendous responsibility to conserve them.

9.8 ISSUES AND PLANNING IMPLICATIONS

- i. Abrupt boundaries with local communities and encroachment, hence no room for expansion of some protected areas;
- ii. Local and international illegal logging;
- iii. Inaccessible park roads in wet season and water logged conditions; and

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- iv. Stray lions migrating from Mozambique posing a threat to surrounding communities at Lengwe.

Table 50: Key Institutions in the Planning and Implementation Process

Name of the Institution	Role of the Institution
Department of Physical Planning	<ul style="list-style-type: none"> • To approve the Plan upon ensuring that the Plan elaborates relevant policies in the NPDP • To ensure that Chikwawa District Council is executing development control and enforcement properly • To monitor the implementation of the Plan and make recommendations for plan review where necessary
Department of Housing	<ul style="list-style-type: none"> • To provide safer construction guidelines and standards • To monitor infrastructure development in the district
Chikwawa District Council	<ul style="list-style-type: none"> • To formulate by-laws for governing its operations • To coordinate all sectoral developments in the district including physical planning activities and to prepare district & local physical development plans • To execute development control and enforcement in the district • To mobilize resources for development in the district
DEC, ADC AND VDC	<ul style="list-style-type: none"> • To perform role of technical advisory body to the council • To mobilize community resources for development • To determine development interventions in the traditional authority area • To identify needs of local communities • To facilitate the Planning and needs of local communities
Chikwawa District Agriculture Office	<ul style="list-style-type: none"> • To develop agriculture/farming in the district • To promote agriculture and marketing development • To provide market to rural produced commodities • To promote value addition to cotton • To sell seed and inputs to rural farmers
Department of Wildlife and Parks	To conserve wildlife in the district in conjunction with relevant stakeholders
Ministry of Agriculture	To commercialise farming in the district in conjunction with the Shire Valley Transformation Programme
Ministry of	To industrialise and market agriculture products

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Name of the Institution	Role of the Institution
Industry and Trade	
DoDMA	To coordinate disaster risk management activities including risk reduction, disaster mitigation and resilience in the district

10 INSTITUTIONAL FRAMEWORK FOR PLAN IMPLEMENTATION

10.1 INTRODUCTION

Implementation of the Chikwawa District Physical Development Plan calls for a coherent, systematic and coordinated approach given multiple sector actors. Furthermore, to ensure smooth implementation, there is need for human resource, financial and institutional capacity building at Council. Using the legal, regulatory and institutional framework, the Plan intends to promote improved land use planning and management for orderly, coordinated and sustainable socio-economic development.

10.2 LEGAL AND REGULATORY FRAMEWORK

The Physical Planning Act 2016 is the principle statutory instrument governing physical planning in Malawi. The Malawi National Land Policy (MNLP) stipulates that the application of the physical planning law should extend land use and development control to all rural and urban areas. In essence, the policy provision declared the whole country to be a planning area. This implies that all land owners and custodians are required to comply with land use planning and management policies, legal instruments and practices.

The Physical Planning Act 2016 gives the Local Government Authorities responsibility to prepare district physical development plan. Sections 29-32 of the Act stipulate the Plan's content, preparation and approval process. Section 32(1) of the Act provides that once a district physical development plan has been approved by the Commissioner for Physical Planning, all plans, programmes and projects of development proposed for the district, shall, as far as practicable, be so formulated and prepared as to have regard to, and take into account, the district physical development plan. Subsidiary Physical Planning Act 2016 regulations clarify implementation modalities of the Act and ensure smooth implementation of the same.

Other land related laws which are critical for the implementation of the Plan and the existing development programmes include the following: The Land Act, 2016; Customary Land Act, 2016; Registered Land (Amendment) Act, 2016, Land Survey Act 2016; the Forestry (Amendment) Act, 2016; and the Local Government (Amendment) Act, 2010.

10.3 IMPLEMENTATION AND MONITORING

Establishment of a District Planning Committee, processing of development plans and monitoring and evaluation of the physical development plan implementation to ensure compliance, will be some of the key activities. Section 19(1) of the Physical planning Act empowers a local government authority to appoint a planning committee for its area of jurisdiction which is charged with the responsibility for preparation of a district physical development plan, local physical development plans and development control and enforcement. Development control will be enforced through the development application approval process in accordance with Section 46(1) of the Physical Planning Act which makes it mandatory for all nature of development, except for permitted development, to obtain development permission from the Planning committee prior to the commencement of the development. Section 50(1) of the Physical Planning Act stipulates that in considering any application for development permission, the responsible authority shall, subject to the Act, or any other written law, take into account all matters deemed to be material to the proposed

development, including the district as well as local physical development plans, for purposes of satisfactory disposal of the application. In this regard, implementation of the Plan will also be guided by several other pieces of legislation and policy frameworks as outlined in chapter three.

The Planning committee will also play a key role in enhancing coordination and harmonizing all plans at different levels of the district. Section 54(1) stipulates that a person shall not commence the development of any type on any land unless he has first obtained a grant of development permission or except where the development being undertaken falls in the category of permitted development.¹⁷ The district physical development plan is a spatial framework for future development planning of Chikwawa District Council. Therefore, there will be need to immediately embark on preparation of lower level urban structure plans to facilitate the preparation of detailed layout plans especially in the fast growing urban centres such as, Dyeratu, Nchalo, Bereu and Ngabu to promote orderly, coordinated and sustainable development.

10.4 KEY ACTIVITIES AND RESPONSIBILITIES

For effective implementation of the Plan, it is important to outline the key activities and the major actors in the implementation process. Table 52 presents an overview on roles and responsibilities in the Plan implementation process

Table 51: Roles and responsibilities in the Plan Implementation

ID #	Activity	Lead Institution	Support Institutions
1	<ul style="list-style-type: none"> • Publicise the Plan • Coordinate all sectoral developments in the district including physical planning activities and prepare local physical development plans • Establish the Planning committee to execute development control and enforcement • Formulate bylaws for governing plan implementation among other • Mobilise resources for development • Approve and direct developments 	District Council	MoLG&RD and other relevant Government Ministries/Departments and Agencies, NGOs
2	Survey of planned infrastructure	District Council	Department of Surveys
3	Sensitise the general public	District Council	MoLG&RD/MoLHUD

¹⁷ Physical Planning Act, 2016

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ID #	Activity	Lead Institution	Support Institutions
4	Develop Capacity for plan making and implementation	District Council	MoLG&RD, MoLHUD and other relevant Ministries
5	Carry out Monitoring and Evaluation exercises	District Council	MoLG&RD and Department of Physical Planning
6	<ul style="list-style-type: none"> • Provide technical advice to the council • Mobilise community resources for development • Determine development interventions in the traditional authority areas • Identify needs of local communities • Facilitate the Planning and needs of local communities 	DEC, ADC AND VDC	Relevant Government Ministries/Departments and Agencies, NGOs
7	<ul style="list-style-type: none"> • Develop agriculture/farming in the district • Promote agriculture and marketing development • Provide market to rural produced commodities • Promote value addition to cotton • Sell seed and inputs to rural farmers 	Shire Valley Agricultural Development Division	Relevant Government Ministries/Departments and Agencies, NGOs
8	Conserve wildlife in the district in conjunction with relevant stakeholders	Department of Wildlife and Parks	Relevant Government Ministries/Departments and Agencies, NGOs/CBOs
9	Commercialise farming in the district in conjunction with the Shire Valley Transformation Programme	Ministry of Industry and Trade	Relevant Government Ministries/Departments and Agencies, NGOs
10	Coordinate disaster risk management activities including risk reduction, disaster mitigation and resilience in the district	Department of Disaster Management Affairs (DoDMA)	Relevant Government Ministries/Departments and Agencies, NGOs
11	<ul style="list-style-type: none"> • Promote delivery of adequate 	Department of	Relevant Government

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ID #	Activity	Lead Institution	Support Institutions
	and affordable housing to meet the current and future housing demands <ul style="list-style-type: none"> • Enforce the use of Safer Housing Construction Guidelines to increase community resilience 	Housing	Ministries/Departments and Agencies, NGOs/CBOs
12	Promote the development of efficient and dynamic urban settlements	Department of Urban Development	Relevant Government Ministries/Departments and Agencies, NGOs

11 THE PLAN RECOMMENDATIONS AND STRATEGIES

The Plan shall be reviewed periodically in whole or in part in accordance with changing circumstances, new development policies, and the findings of the periodic monitoring of the implementation of the Plan. However, comprehensive review of the Plan shall be carried out soon before its expiry in or around 2038. This chapter provides the recommendations, policies, strategies and actions to be undertaken in implementation of the plan.

11.1 RECOMMENDED POLICIES/ACTIONS

The main purpose of these policies is to address issues and challenges highlighted during the analysis of various sectoral issues in the background studies report. The recommended policies and actions are intended;

- a) to close the gaps in terms of inadequacy of service provision in the social sector.
- b) to stimulate growth of the local economy of the district so as to help reduce poverty.
- c) to preserve the district’s natural ecosystem and conserving the environment.
- d) to address the need of having sustainable and balanced development of urban centres that responds to the district’s growing population.
- e) to guide location of various investments in the district according to approved land uses in order to derive maximum benefits from land based investments.
- f) to provide a spatial framework for the sustainable development of settlements in general and housing in particular that are resilient to natural disasters.

Table 52 in the subsequent section contains details of these policies, strategies and actions.

Table 52: Recommended Policies/Actions

OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
To promote physical development planning	<ul style="list-style-type: none"> • Lack of development control • Idle land and underutilization of land • Inadequate industrial land • Encroachment in hazardous areas 	-The Council through the Ministry of Lands, Housing and Urban Development should ensure that development planning as a tool of development control is prioritized in the district. -There should be proper plans for various centres to ensure that all uses are zoned such as Institutional, Commercial, Residential, Industrial and Agricultural use in order to facilitate optimum utilization of land and orderly developments
To enhance climate change mitigation and resilience	The district is prone to natural disasters such as floods strong winds and droughts	The district council in collaboration with the relevant authorities should promote climate proofing in the design and construction of infrastructure to mitigate the effects of floods, strong winds and droughts

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
To protect and conserve wildlife, forest reserves and forestry products	Inadequate funding to manage Lengwe National Park and other reserves	The Department of National Parks and Wildlife in collaboration with ancillary authorities should explore possibilities of using Public Private Partnerships (PPPs) arrangements in the management of Lengwe National Park and other reserves to enhance investments and efficiency
	Weak conservation efforts by council	The Department of Forestry in collaboration with other stakeholders to intensify capacity building to strengthen conservation efforts
	Inadequate integrated community management initiatives	The Department of National Parks and Wildlife should implement integrated community management initiatives to improve management of Elephant Marsh
	Poor road infrastructure Poor accommodation facilities	The Department of National Parks and Wildlife should improve road infrastructure and construct a modern and standard lodge at Lengwe National Park
	Encroachments, poaching, bushfires, illegal logging, and illegal charcoal production	The Department of National Parks and Wildlife should intensify patrols and ensure that offenders are punished to reduce encroachments, poaching, bushfires, illegal logging, and illegal charcoal production
	Human-wildlife conflict at Majete, Lengwe, and Elephant Marsh reserves	The Department of National Parks and Wildlife in collaboration with the community and other stakeholders should reduce human-wildlife conflict at Majete, Lengwe, and Elephant Marsh reserves by fortifying the electric fences
	Human-wildlife conflict	Reconstruct and rehabilitate the fence around Lengwe National Park
	High concentration of animals at Majete	The Department of National Parks and Wildlife in liaison with African Parks should explore the possibility of relocating the animals to other game reserves
	Low report rate of wildlife crimes	The Department of National Parks and Wildlife in liaison with African Parks should introduce incentives for people who report wildlife crimes
	-Community involvement in forestry management -Integrated forestry management -Lack of compliance to regulations	The Department of Forestry should: Involve local communities in forestry management; Intensify bee-keeping as an alternative source of livelihood; Establish nurseries and woodlots; Introduce eco-tourism facilities in existing forest reserves; and formulate enforceable and non-discriminatory regulations for forestry products harvesting.

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	-High vacancy rate	-The Department of Forestry should recruit more extension workers
	-Human-wildlife conflict -Poaching	- The Department of National Parks and Wildlife should construct an electric fence in the remaining sections of Lengwe National Park
	-Weak institutional framework for forestry management	- The Department of Forestry should ensure functional Village Natural Resources Management Committees
	-Deforestation	- The Department of Forestry should promote the use of cost-effective fuel technologies and afforestation programmes
	-Deforestation of catchment areas	- The council in liaison with the Department of Forestry, Ministry of agriculture and other stakeholders should undertake catchment area conservation and restoration projects
	Overdependence on forests for fuelwood	- The Department of Forestry in collaboration with key stakeholders should identify alternative energy sources
	Poor accommodation and inadequate equipment to extension workers and forest guards	The Department of Forestry should provide adequate accommodation and equipment to extension workers and forest guards
	Inadequate water availability for animals	-The Plan endorses that Shire Valley Transformation Programme should construct a canal through Majete to Lengwe to enhance water availability for animals
To promote agricultural production and productivity	-Encroachment into agricultural land	-The Plan recommends promotion of most efficient use of land. In particular, ensure that arable land is kept for agricultural uses to meet the demands of the future population
	Land tenure insecurity	-The Plan proposes strengthening land tenure security through implementation of new land laws
	-Irrigation intensification -Droughts	-The Plan endorses that Shire Valley Transformation Programme should construct the irrigation canal from the Shire River in the West Bank to introduce viable irrigation farming and piloting of the Land Reform Agenda
	-Irrigation intensification -Droughts	-The Ministry of Agriculture, Irrigation and Water Development should implement interventions to intensify irrigation farming given the vulnerability of the district to droughts and

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	-Floods	floods - The Ministry of Agriculture, Irrigation and Water Development should enhance adoption of drought-tolerant varieties
	-inefficient extension services -Inadequate extension staff	- The Ministry of Agriculture, Irrigation and Water Development should reduce the vacancy rate of extension staff, enhance capacities through trainings and intensify provision of demand-driven extension services
	-High interest rates	-The Ministry of Industry and Trade in collaboration with Ministry of Finance and Economic Planning to explore possibility of instituting agricultural-tailored credit facilities
	-Poor farm produce markets	- The Ministry of Agriculture, Irrigation and Water Development should explore modalities of linking farmers to innovative market approaches such as warehouse receipt systems
	-Poor access to livestock services -Non-functional dip tanks	-The Ministry of Agriculture, Irrigation and Water Development should explore modalities of ensuring increased access to functional dip tanks and associated livestock services
To encourage the exploitation of mineral deposits in the district	-Unexploited mineral deposits	-The Ministry of Energy, Mining and Natural Resources to examine possibilities of venturing into mining
To enhance quality of existing tourist facilities in the district	-Lack of adherence to standards	-The Department of National Parks and Wildlife in collaboration with ancillary authorities should play an increasing role in promoting tourist accommodation standards in the district to ensure that they become attractive to both local and international tourists
To promote other tourist destinations in the district	Elephant Marsh's potential not fully exploited	-The Department of National Parks and Wildlife in collaboration with ancillary authorities should explore the possibility of making Elephant Marsh, currently a RAMSAR site, a vibrant tourist destination
	Lack of tourism information	-Tourist promotional brochures, websites, and television advertisements to be intensified to publicize tourist facilities and services available in the district. The Plan recommends exploring possibility of establishing a tourist information centre at the District Headquarters as a hub for tourism information

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	-Poor road network in tourist destinations	-The Ministry of Transport and Works in collaboration with Department of National Parks and Wildlife should prioritise improving the road network in tourist destinations
To improve fisheries production	-Unexploited fisheries potential	The Plan recognizes the potential economic importance of fishing industry to the general economy of the district and has designated the swampy areas surrounding elephant marsh and Shire River as potential fishing zone
	-Integrated management of environment -Sustainable development	In accordance with the recommendation from the NPDP, detailed environmental surveys of the swampy areas should be undertaken by relevant authorities. The study should examine the extent to which fishing operations already being practiced should be permitted to continue, or possibly be expanded, without disruptive environmental impact on those areas.
	Unexploited aquaculture potential	-Exploit the aquaculture potential
	Inadequate capacity at Kasinthula Fisheries Research Station	-Capacitate Kasinthula Fisheries Research Station
	High vacancy rate	-Recruit fisheries extension staff
To slow down population growth and mitigate its negative effects	-High population growth rate -High fertility rate	-The Ministry of Health in collaboration with key stakeholders should intensify sensitisation campaigns and promote access to family planning information and services
	Lack of youth-friendly Reproductive Health Services (RHS)	- The Ministry of Health in collaboration with key stakeholders should enhance provision and access to youth-friendly Reproductive Health Services (RHS)
	Poor health coverage	- The Ministry of Health in collaboration with key stakeholders should improve the health delivery systems to cater for the demands of the growing population
	-Early marriages	-The Ministry of Education Science and Technology in collaboration with key actors (Civil Society, Development Partners, Private Sector, Faith-Based Organisations) should intensify programmes to keep girls in school and expand young people's opportunities

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	Uneven distribution of population	-Chikwawa District Council should strive to distribute development projects evenly which in the long run will reduce rural-urban migration thereby promoting even population distribution. This can be achieved through projects like Malawi Rural Electrification Projects (MAREP) which will in the long run attract economically active people to invest in rural areas thereby reducing urban blight.
To develop physical planning capacity at the district council level	-No physical planning section at the district	-The Department of Physical Planning should devolve some of its functions to the district council
	-No physical planning section at the district	Ministry of Local Government should employ physical planners to the district council for the Plan to achieve its objectives
To provide a better coordination mechanism for various development players in the district	- Poor coordination mechanism for various development players in the district -Lack of adherence to the institutional framework for development	-The district council should be an entry point for all development projects in the district. Existing development structures such as Village Development Committees (VDCs) and Area Development Committees (ADCs) at community level should serve as entry points of development from the district council to the communities
	-Poor coordination	-The Council should embrace coordination and collaboration in activity implementation through periodic meetings with sector heads sharing notes on sector development proposals
	-Lack of integrated development and land use planning	- Services and infrastructure provision should be done in an integrated manner so that there is proper linkage in production, settlements and markets, while enshrining proper land use planning
To promote the commercialization and industrialisation of agriculture in the district	-Inadequate commercialization and industrialisation	-The Ministry responsible for agriculture should maintain the existing ADMARC depots and a cotton ginning factory at Ngabu
	-Inadequate industrial land	-The council should prepare a plan for agro-industries zones in the district taking into account available Prison and PressCane land
	-High vacancy rate	-The Ministry responsible for trade and industry should deploy adequate staff in the Department of Trade in order to provide trade sector services effectively in the district
	-Inadequate personnel	-The district council should fill the vacant posts in the Directorate of Commerce and Industry for

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
		proper coordination of trade matters in the district.
To encourage formation of cooperatives, associations and partnerships among various players in the agriculture sector	-Lack of partnerships in investment	-ADMARC should maintain its existing partnership with the Green Belt Authority, an example of partnerships in the agriculture industry
	-Lack of partnerships in investment	-Other farming players in the district should also be encouraged to form partnerships that stimulate agricultural commercialization
To mainstream disaster risk management in physical development of the district	-The district is prone to disasters such as floods and drought	-The district council in collaboration with key stakeholders should sensitise developers in the district to embark on erecting disaster resilient physical structures
	-High disaster risks	- The district council in collaboration with key stakeholders should strengthen existing disaster risk mitigation measures in the district
	-High disaster risks	-The district council through Department of Disaster Management Affairs (DoDMA) and Physical Planning should ensure proper planning of various development projects and enhance mitigation, resilience and disaster management measures in the district
	- High disaster risks	- The district council in collaboration with key stakeholders should strengthen early warning systems existing in the district
	-Erosion of Shire River banks -Floods	-Regarding landslides eroding Shire River banks and floods destroying M1 road, the Plan proposes a detailed study to find implementable long term solutions -The Plan recommends that studies have to be undertaken to assess the construction of dykes in order to prevent flooding
	-High disaster risks	- The district council in collaboration with key stakeholders should strengthen existing disaster resilience measures in the district
To improve road access to social services	-Majority of the roads are earth surfaced and in the wet season they are in poor condition therefore impassable Non-existence of feeder roads in some	-The National Roads Authority in liaison with related authorities should take the following appropriate actions: -Rehabilitate the Mlomba – Tomali Road -Construct the Mwanza River Bridge along the Mlomba – Tomali Road -Fast-track the rehabilitation of Thabwa –

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	parts of the district renders some areas inaccessible	Masenjere Road -Construct a bridge across Likhubula River to connect Sankhulani village -Construct bridges at appropriate sites to connect Kapichira and Chavala
To promote inter-settlement linkages	-Poor road infrastructure	-The National Roads Authority in liaison with related authorities should take the following appropriate actions: -Upgrade the M1 – Dolo Road to District Road Status (7.5 km of the road is bituminized) -Rehabilitate Jombo-Mtowe-Mphungu Road Rehabilitate and upgrade Mphungu-Mkumaniza Road to District Road status -Upgrade M1 junction to Tomali Road to District Road status -Upgrade and rehabilitate the Tomali – Dzikolatha road via Ndakwera to District road status -Upgrade the Tomali-Chafudzika Road to District Road status -Upgrade Ngabu-Mkumaniza-Kunyinda Road to District Road status -Rehabilitate and upgrade the Mitondo- Savala-Kanyimbiri Road to District Road status
To improve flow of goods and services between areas of production and markets	-Poor road infrastructure	-Rehabilitate and upgrade the road connecting Gola and Changoima to District Road status -Rehabilitate Miseu Folo- Nsomo-Ngabu Road
To facilitate connection between Chikwawa District and other major urban centres and surrounding districts	-Poor transport infrastructure	-The Ministry of Transport and Public Works should: -Carry out studies of the flow of water in Shire River near Chikwawa District Headquarters and determine the strength of Kamuzu Bridge -Raise the height of M1 Road from Dyeratu to Thabwa to prevent it from submerging during heavy floods -Consider opening other outlets of Shire River as it approaches Kamuzu Bridge from Blantyre -Upgrade Chapananga-Thambani (Mwanza) Road to Secondary Road status
To introduce formal transport	-There is no organized water transport along	-The Ministry of Transport and Public

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
along Shire River	Shire River	Infrastructure should: Identify potential sites for docking of boats Assess the potential of introducing motorized boats along Shire River
To regulate movement of people and goods by canoes	Movement of people and goods by canoes not regulated	-Ministry of Transport and Public Infrastructure should regulate and certify all boats/canoes that transport goods and people between Eastern and Western Banks
To introduce Railway transport to economically productive areas in the district	High cost of transporting cargo by road	-Rehabilitate the Limbe-Bangula railway line -Construct Nchalo-Chikwawa Boma-Changoima railway line to link with Tete-Nacala Railway line -Construct Bangula-Nchalo railway line -Rehabilitate and upgrade the Bangula-Marka railway line
To introduce formal air travel in the district and facilitate use of private airdromes for emergency operations	-Non-existence of formal air transport	-Department of Civil Aviation should explore the option of constructing an airfield at Nchalo or Ngabu
	- Non-existence of public airfields	-Department of Civil Aviation should negotiate with Illovo to open up their private airfield for emergencies
To ensure efficient and reliable power supply	-Reliance on 132kv transmission line and any damage to this line cuts off power supply to the whole of Chikwawa and Nsanje	-ESCOM should construct an additional feeder line to complement the existing line
	-Encroachment into way leaves and vandalism to the equipment	-ESCOM in collaboration with stakeholders must sensitize communities along major power lines on issues of way leaves
	-Wooden poles are not adequately and properly treated hence they are easily attacked by termites	-ESCOM should replace wooden poles with steel poles.
	-Inadequate power supply	-EGENCO and other independent power producers should invest in mini grid electricity generation to cater for localized urban centres such as Therere, Chavala and Chafudzika
	Increased energy demand due to	Ministry of Natural Resources, Energy and Mines should assess future energy needs in the

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	planned industrial development	district
To facilitate generation of solar energy in isolated rural centres/communities	-Diversification, complementarity, monopoly	-Ministry of Finance (Revenue Department) in collaboration with Ministry of Energy should explore incentives to increase demand for solar-related equipment
	-Solar energy is expensive to access as the initial capital outlay is very high	-Ministry of Energy should create a conducive environment for solar power generation by individuals/firms (independent power producers)
To ensure provision of safe and potable water	-Access to safe and potable water is a challenge in the district mostly because of unsustainable water sources, washed away pipelines and non-functional boreholes	-The Department of Water Development in collaboration with various stakeholders should undertake the following: -Rehabilitate and expand Chapananga, Mapelera and Livunzu Rural Water Supply Schemes -Expand the Miseu-Folo Rural Water Supply Scheme to serve bigger population -Southern Region Water Board to expand its network around Ngabu and Nchalo -Rehabilitate non-functional boreholes in Ngabu, Lundu and Chapananga as an interim measure Sink additional boreholes in TA Chapananga
To promote sustainable access to safe and clean water	-Poor access to safe and clean water	-Southern Region Water Board should consider using alternative energy sources for pumping water as is the case with the scheme at Chikwawa District Headquarters which uses both ESCOM power and solar energy
	-Poor access to safe and clean water	-Department of Water Development should construct new boreholes in the western part of TA Ngabu as an interim solution -The Department of Water Development should carry out studies to assess the potential of establishing new water supply schemes in areas where there are nucleated settlements as follows: Mkumaniza, Mphungu, Saopa, Therere, Ndakwera and Masenjere Trading Centres
To improve irrigation infrastructure in the Eastern Bank	-Inadequate power which is also expensive affects pumping of water for irrigation and also frequent floods during rainy season affect canals and pipes	The Department of Irrigation should implement the following: -Identify funds for the rehabilitation of irrigation schemes -Engage beneficiary communities to participate in the rehabilitation of damaged canals

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
To facilitate the use of alternative energy sources to pump water for irrigation	- Inadequate alternative energy sources to pump water for irrigation	-The Department of Irrigation should identify funding for installation of solar electricity at irrigation sites for pumping water -The Department should also explore use of wind power to pump water for irrigation for small fields -Identify new sources of water for irrigation on the upper slopes of Eastern Bank so that water can flow through gravity all year round
To promote sustainable waste management principles and practices	Poor environmental planning and waste management	-The District Council, in collaboration with relevant stakeholders, should identify and construct a waste disposal site for the district -Interested companies and NGO's should explore other uses of waste generated in the district such as recycling -The District Council should cooperate with Environmental Affairs Department (EAD) to provide waste management sites for large companies, market centres and households to curb both water and air pollution and the associated diseases in the district
	-Poor environmental planning and waste management	-The District Council in collaboration with Department of Environmental Affairs should introduce by-laws to regulate waste management in the district -The Department of Environmental Affairs should order the relocation of Lauji liquid waste disposal site
	-Poor waste management	-Department of Environmental Affairs and other relevant authorities to regularly inspect waste disposal processes at Illovo and PressCane -Department of Environmental Affairs and relevant authorities should enforce Environmental Management Plans for the two companies and ensure compliance
To facilitate access to improved health services	-The current location of the District Hospital is under threat from the landslide occurring along the Shire River Some communities do not have access to reliable health services within an acceptable radius for example	The Ministry of Health should: -Relocate the District Hospital -Deploy additional health personnel to all health centres -Provide permanent ambulances to remote facilities such as Chang'ambika, Gaga and Mkumaniza which are located over 80 km from the district hospital -Upgrade Gola, Thereere, Mafale and Thendo

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	<p>Gola does not have a health centre and another issue is some health facilities are located very far away from referral hospitals</p> <p>-Some health facilities are poorly staffed to handle medical conditions that are supposed to be managed at that level for example dispensary</p>	<p>health posts to Health Centres</p> <p>-Construct health centres at Tomali and Nkhalamba (after Chafudzika)</p>
To improve access to secondary education facilities in the district	Long distances to access secondary schools	<p>-Ministry of Education should assess infrastructure requirements for all public primary schools</p> <p>-Ministry of Education should construct secondary schools at Gola, Nkhalamba (after Chafudzika), Mandirade, Supuni, Ndakwera, Kandeu, Thereere and Singano (Near Mitondo). Note that Supuni and Mandirade are separated by Mwanza River and crossing is impossible during rainy season.</p> <p>-Ministry of Education should upgrade Chifunda, Nchalo and Milole CDSS's to conventional ones</p>
To improve access to vocational training in the district	Lack of vocational training centres	<p>-Ministry of Labour to construct community technical colleges in Chapananga and Livunzu</p> <p>-Ministry of Agriculture should organize tailor made courses in modern irrigation farming targeting farmers in the district</p>
To improve communication among the district's population	<p>-Poor network especially in the eastern bank</p> <p>-Overhead and underground cables have been heavily vandalized making the lines difficult to access</p>	<p>-Service providers should explore use of green towers</p> <p>-Service providers should assess the possibility of increasing bandwidth of existing transmitters to cover wider areas</p> <p>-Airtel and TNM should construct towers at Chavala, Chitsa (near Masenjere), Kubalalika, Mkumaniza, Mandirade, Thendo and Thereere</p>
To facilitate internet access to remote parts of the district	-The only two telecentres in Chikwawa District are not functioning due to various operational challenges	<p>The Department of Information should:</p> <p>-Construct telecentres at Chapanganga, Kakoma, Ndakwera, Thabwa, Livunzu and Masenjere</p> <p>-Revive the operations of abandoned telecentres at Ngabu and Chikwawa District Headquarters</p> <p>Extend data connectivity in the district to cover</p>

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
		other areas such as Nchalo and Ngabu through optic fibre cable
To enhance access to produce markets	-There are no formal markets in Chikwawa District and this leads to trading on open spaces including road reserves	The District Council should implement the following: -Finalize the construction of Chapananga and Thabwa Markets -Construct produce markets at Dyeratu, Nchalo, Mfera and Ngabu
To promote safety and security of road users	-Absence of bus stations in the District	-Finalize the construction of Chapananga and Thabwa Bus Stations -Construct Bus Stations at Dyeratu, Ngabu and Nchalo Enforce road traffic regulations
To create a conducive environment for security personnel	-The condition of police and prison facilities is poor. - Inadequate staff houses as well as office accommodation to cater for the available personnel	The Department of Buildings in collaboration with the Malawi Police Service and Malawi Prison Service should: -Rehabilitate staff houses and office accommodation -Construct additional staff houses and office accommodation
To improve presence of police in remote parts of the district	-Low staffing levels in some police facilities -Low funding levels in police units	-The Malawi Police Service (MPS) should increase staff at Chapananga, Gola, Changoima, Chapasuka, Ngabu, Goma, Nkumaniza and Thendo Police facilities -Upgrade Nchalo and Ngabu police units to police stations
	- Some remote areas do not have permanent police presence	The MPS in collaboration with related institutions should construct police units at Masenjere, Ndakwera, Kandeu and Kakoma
To improve access to sports and recreation facilities	-Lack of formal sports and recreation facilities in urban centres	-Construct sports and recreation centres at Nchalo, Ngabu, Livunzu and Chapananga -Construct a stadium at Chikwawa Boma
To enhance the growth of potential centres	-There is a marked low level of services/facilities at most existing centres -There is complete lack of certain services and facilities in most centres	Most centres have the potential to become village centres, rural market centres and main market centres. For instance, Chapananga can grow from rural market centre to main market centre. For this to happen, a tarmac road would act as a catalyst to its growth. Measures can be put in place to promote agriculture in Chapananga because the area does not experience floods like other parts of the district do. Promotion of

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OBJECTIVE	KEY ISSUES	STRATEGIES/ACTIONS
	<p>-There is lack of spatially balanced pattern of service centres which can maximize the provision of goods and services</p> <p>-Most centres lack public utilities such as public toilets, water, electricity, skips and proper dumping sites for refuse.</p> <p>-Almost all centres have developed in a haphazard manner</p>	<p>agriculture in the area would create employment opportunities, for example, through irrigation schemes. Comparatively, Chapananga has more land for expansion than other centres.</p> <p>Changoima, Dolo and Livunzu can grow into rural market centres. The provision of certain facilities such as police post/unit, district council markets, would enhance the growth of these areas into rural market centres.</p> <p>While Miseu-Folo has the potential of becoming a village market centre, Its location (along the M1 road) gives it an advantage for growth as it can be easily accessed by road. The provision of facilities such as a police unit/post, a proper market structure, and health centre would also enhance its growth.</p>
To promote local participation in the development of service centres which do not have local administrative structure	Inadequate local participation	-Local committees similar to centres management committee should be formed in each Rural market centres and village centres to operate under the district council
To enhance inter -settlement functional linkages especially between urban and rural areas.	-Poor inter-settlement linkages due to bad roads especially during rainy season	-Services should be grouped in the centres in accordance with NPDP Guidelines for the location of services and facilities rather than scattered and isolated places over the district. In this way users of one facility can benefit from other available facilities at a centre during the same travel or trip and considerable travel time and cost can be saved by the users.

APPENDIX 1: INTER-SETTLEMENT FUNCTIONAL LINKAGES: METHODOLOGY

In determining the catchment areas of the various centres, a large number of people were asked to indicate the place they went to purchase or obtain goods and services. The analysis of the survey was based on two factors: “functions” and “votes”. The functions are purchase of clothes, purchase of bicycle, visit to a produce market, post office, administration, a hospital, dispensary, and the presence of non-farm employment and place of worship. The function of a place was considered to exert attraction when at least 5% of those interviewed indicated they visited that place when they wished to purchase a commodity or obtain a service. Since 8 functions were involved, a place could score a maximum of 8 on the variable function.

Whenever a respondent mentioned a place, this counted as a “vote” for that place. Since 8 functions were considered the potential number of votes was x the number of interviewees. Thus, the 900 interviewees in Chikwawa District could supply a total number of possible answers (votes) of $8 \times 900 = 7,200$.

The actual number of “votes” received by a place, expressed as a percentage, indicates the strength of the attraction of the place. The number of answers received for each function exceeds the 5% threshold ($5\% \text{ of } 900 = 45$) for clothes, bicycles, produce market, post office, and hospital. Thus Chikwawa District Headquarters, Nchalo and Ngabu scored 5 each on their respective functions. In theory, a place may score 8 functions and 100% on the strength of attraction. In practice this never happened for the following reasons:

FUNCTION- Non- farm employment virtually never reached the 5% threshold to qualify to be counted as a function. Also an administration and post office were rarely mentioned by more than 5% of the interviewees. Bicycles were often purchased outside the study area in a regional or national centre. Thus in this case, the threshold value was rarely superseded.

People often failed to distinguish between a hospital and a dispensary. Then first normally included the latter, but there may be an independent dispensary next to a hospital. Since no register has been prepared for all functions actually surveyed in the field, the correctness of the answers cannot be checked. By introducing threshold value of 5%, however, most of the “noise” will have been filtered out of the data as far as the number of functions is concerned.

STRENGTH- When one place was mentioned by all interviewees for all functions, its strength of attraction was to be raised as 100%. This never happened as no place had all eight functions. The most important reason, however, why no place reached 100% of strength attraction, is that not all interviewees had actually indicated a place for each function. Thus, sizeable amount of “votes” had simply not been cast. When someone had never bought a bicycle, for example, no place for buying bicycles had been indicated.

Only a very small proportion of the interviewees indicated a place for non-farm employment. It should be noted that places which did not attract 5% of votes or at least on function have been excluded from the analysis.

APPENDIX 2: Deficits in the Provision of Services and Facilities in Service Centres

Whilst the National Physical Development Plan has given guidelines for the location of services and facilities, the District Plan identifies the disparities in the provision of services and facilities at the centres. The description of the deficits is based on a survey carried out in 2019 by the department of physical planning under the ministry of lands, housing and urban development. Depending on the hierarchical level of the centres, the deficit analysis deals with a wide range of individual services and facilities other than water and electricity supplies, education, health, transportation and post and telecommunications which are dealt with separately in this plan. The following deficit analysis should, therefore, be considered closely in the objectives of this plan.

1. Service Provision Deficit in Bangula Sub- Regional Centre

The NPDP has designated Bangula, located in Nsanje, as a sub-regional centre. Its influence area extends as far as Chikwawa and Southern part of Thyolo District. Table 53 shows however, that the existing facilities and services are inadequate and therefore, Bangula fails to function fully as a sub-regional centre. Additional facilities such as a post office, technical school and a motel among others are required and improvements to the existing facilities are needed.

On the basis of the guidelines, Bangula has adequate facilities in the following fields:

Local Authority

The Centre has a District council, Area Development committee but not a municipal council as stipulated in the Guidelines for the location/ services and facilities by Hierarchy for settlements.

Political

Although there is a district party chairman, he occupies an office which is in dilapidated state.

Marketing

The guidelines in the NPDP require at least a “Superette” type of a general store at a Sub-Regional centre. At Bangula this type service is not available but there is a general store which provides a variety of food and non-food items. There are specialized shops, slaughter house, grocery stores, wholesale shops and small retail shops with a variety of goods.

The present wholesale shop, however does not provide high-level goods. The centre does not have adequate building facilities for a produce and consumer market. A number of improvements are required especially in private sector facilities (retail and wholesale stores).

Production Inputs

Production inputs for agriculture are seasonally available at ADMARC depot for agro-inputs. Other inputs for the manufacturing industry can be made available due to the road connection that is present.

Banking and Finance

The requirement at a Sub-Regional centre is a full scale (bank) branch. The centre has one commercial bank available. In addition, a post office is available. However, essential services such as housing finance representative are not provided at the centre.

Education

Of the required education facilities, a Primary and a Secondary School are available. There are no vocational schools for grade I classes at Bangula.

Transportation Services

Bangula does not have a freight agency where goods can be processed. The centre has an airstrip which is not functional. The centre has a long-distance bus service which is of low class.

Extension Service centres

Extension services required at the centre are not available.

Energy Supply

In terms of energy supply, Bangula is connected to the national grid. There is also a back-up generator at Bangula due to the unreliability of electricity. A petrol station and a paraffin pump are available at the centre as suggested by the NPDP guidelines.

Culture

The community hall does not meet standards required for a sub-regional centre. In addition, the centre does not have a public library.

Urban Roads

The centre is accessible by a good condition urban road network although there are no streets lights.

Water Supply

Piped water supply exist at the centre but it is far from being reliable. The most reliable source of water are boreholes.

Solid Waste Disposal and Sewage

A high percentage of people use pit latrines and there is no refuse collection service by the council.

Fire Protection

The centre does not have a fire brigade service.

2. Service provision deficits at Chikwawa District Headquarters, Nchalo and Ngabu Main Market Centres

Table 54 indicates the deficits in services and facilities at Chikwawa District Headquarters, Nchalo and Ngabu. At present there are deficits in the following service areas: police, political party machinery, road networks, banking and finance, post and telecommunications, accommodation, transportation services, maintenance and repair of appliances, urban roads and water supply. On other hand there are total or partial deficits in the following:

Administration

Chikwawa District Headquarters, Nchalo and Ngabu do not have a sub- district administrator as recommended by the NPDP, however the centres are administered by the present District Council at Chikwawa District Headquarters.

Justice

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There is a Magistrate Court at Chikwawa District Headquarters and Ngabu. In every Tradition Authority there is a traditional court present.

Fire Protection

There is no fire brigade service at any of the three main market centres of Chikwawa District Headquarters, Nchalo and Ngabu.

Marketing

All Main market centres have grocery shops, wholesale shops of day to day goods and permanent ADMARC markets but they do not have specialized retail shops, large or small general store, and slaughter slab. In addition, their produce markets do not have adequate facilities.

Industry

Agro-based and small footloose industries and small-scale contractors exist at all main market centres.

Health

All centres have got health centres though they fail to meet the present and future demand of the population. The District Hospital is located at Chikwawa District Headquarters.

Transportation

All centres are serviced by the M1 road which is an all-weather road. As acquired by the NPDP guidelines, an airstrip is present at Ngabu although it is not functional at present. In Nchalo, ILLOVO group of companies has an airstrip that is only used by the company.

Banking and Finance

Static commercial bank infrastructure are present and fully operational at Chikwawa District Headquarters and Nchalo. Ngabu does not have a fully operational bank service.

Education

There are Secondary Schools in all centres. However, vocational grade II institutions are not present in all centres.

Water Supply, Solid Waste Disposal and Sewage

There is piped water supply system and boreholes in all centres. There is a deficit of a sewer system in all centres. Refuse collection and sanitary land filling is not done in all centres.

Extension Services

All centres have an EPA centre, but there is neither a DEMATT agent nor SEDOM industrial extension worker.

Energy Supply

There is no regular electricity supply at all main market centres (District Headquarters, Ngabu and Nchalo).

Culture

The community halls do not have libraries.

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Table 53: Service and Facilities in District and/ Main Market Centre

SERVICE AND FACILITIES IN DISTRICT AND/MAIN MARKET CENTRE: DEFICITS/REQUIREMENTS

Boma	Ngabu	Nchalo	Centre Service/ facilities	Boma	Ngabu	Nchalo	Centre Service/ facilities
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Central Government Sub District Administration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Banking and Finance Static Banking Agency Post Office Savings Bank
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local Authority Town Council	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Health Rural Hospital
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Justice Magistrate court	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Education Secondary School Technical School Grade II
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Police Police Unit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Post and Tele-Communication Post Office (MTO)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Political party Local Party Chairman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Accommodation Rest house
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Road Network Secondary Road connections	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Transportation Services Year Round Local Bus Service
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Airways Airstrip	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Maintenance and Repair Repair Workshops (Housing Appliances)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Marketing Specialised Retailing Large General Stores Small General Stores Groceries Wholesale of day to day goods Permanent Produce and consumer market Permanent ADMARC Market Slaughter Slabs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Extension Services DEMATT Agents SEDOM Industrial Extension Services EPA Centre
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Urban Roads All Weather Standard Roads	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Energy Supply Regular Electricity Supply Filling Station
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Water Supply Piped Water Supply	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Culture Multipurpose Community Hall Library
				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sports and Recreation Playing Field (Combined with school)

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Maintenance and Repair Repair Workshops (Household Appliances)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Extension Services DEMATT Agents SEDOM Industrial Extension Services EPA Centre
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Energy Supply Regular Electricity Supply Filling Station
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Culture Community Centre (Combined with MCDE) Mobile Library Services
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sports and Recreation Playing Field (Combined with school)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Urban Roads All weather standard urban roads
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Water Supply Piped Water Supply
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Waste Water and Sewerage Septic Tanks and Pit Latrines
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Solid Waste Disposal Refuse Collection (ox-cart) Sanitary Land Filling

3. Service Provision Deficit in the District's Designated Rural Market Centres

There are four centres designated as Rural Market Centres in Chikwawa District. These are Mkumaniza, Chapananga, Sorgin and Masenjere; they have similar facilities. See Table 55 for details of service provision deficits/requirements. Services and facilities which are adequate at both centres based on Table 55 are as follows:

Road networks, health post, production inputs, transport services which mainly include Lorries, motorcycles and bicycles. On the other hand, facilities related to Central Government, Local Authority, Education, piped water supply and urban roads are lacking in all centres.

Justice, Security, Water Supply and Accommodation

Services related to Justice, security, enough water supply and accommodation are not available at Chapananga, Masenjere, Sorgin and Mkumaniza.

Marketing

In marketing, neither of the Rural Marketing Centres has slaughter slabs but they have small general stores, seasonal ADMARC markets and grocery stores. Despite an apparent need for organized periodic produce and consumer market at Mkumaniza, Masenjere, Sorgin and Chapananga, the centres operate the markets on an open air.

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Table 54: Deficits/Requirement of Service and Facilities in Rural Market Centre:

Service/Facilities	Masenjere	Mkumaniza	Chapananga	Sorgin
Central Government				
Sub-District Administration	■	■	■	■
Local Authority				
Rural Centre Council	■	■	■	■
Justice				
Traditional Court	□	■	■	■
Protection				
Police Post	■	■	■	■
Political Party				
Local Party Chairman	■	■	■	■
Road Network				
Secondary Road Connections	■	■	■	■
Marketing				
Small General Stores	■	■	■	■
Groceries	■	■	■	■
Wholesale of Day to Day Goods	■	■	■	■
Periodic Produce and Consumer Markets	■	■	■	■
Seasonal ADMARC Market (permanent Structure)	□	□	□	□
Slaughter Slabs	□	□	□	□
Production Inputs				
Seasonal Agro-Inputs Crafts	■	■	■	■
Industry				
Artisans, Crafts	■	■	■	■
Cottage Industry	■	■	■	■
Bricklayers & Construction Related Crafts	■	■	■	■
Banking and Finance				
Mobile Bank	□	□	□	□
Post Office	□	□	□	□

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Service/Facilities	Masenjere	Mkumaniza	Chapananga	Sorgin
Health				
Healthy Centre	■	■	■	■
Education				
Malawi College of Distant Learning	□	□	□	□
Post & Telecommunication				
Post Office (M.P.S)	□	□	□	□
Accommodation				
Rest House	■	□	□	□
Transportation				
Year Round Local Bus Service	□	□	□	□
Waste Water & Sewerage				
Septic Tanks & Pit Latrines	▴	▴	▴	▴
Solid Waste Disposal				
Refuse Collection	□	□	□	□
Sanitary Land Filling	□	□	□	□
Fire Protection				
Fire Fighting Equipment	□	□	□	□

Source: Physical Planning Department 2019

Industry

There are no industries at all Rural Market Centres of Chapananga, Masenjere, Sorgin and Mkumaniza.

Banking and Finance

There are no post office facilities at the three Rural Market Centres except for Masenjere and Chapananga which have post agencies but are not functional. No banking facilities are present in all Rural Market centres.

Extension Services

There are no agricultural Extension Officers operating in all Rural Market centres.

Culture

There are no mobile library services in all Rural Market Centres.

Waste Water and Sewerage

There is lack of drainage system for facilitation of waste water in all Rural Market Centres. However, there are pit latrines present in all the centres.

Solid Waste Disposal

All Rural Market Centres do not have refuse collection facilities and services.

For the purpose of ranking the centres, it is necessary to define a deficit index for each centre. If all missing individual features (empty boxes in Table 56) are given a deficit index of 2 and the partially provided services an index of 1, the individual centres obtain absolute accumulated deficit indices as shown on Table 56. To allow for a comparison of this index with indices of another nature, a relative deficit index is also computed for each centre as shown in Table 54

Table 55: Deficit Indices for Rural Market Centres

CENTRE	ACCUMULATED Deficit Index (absolute)	ACCUMULATED Deficit Index (Relative) 1
Chapananga	23	
Mkumaniza	25	
Masenjere	27	
Sorgin	24	

Source: Physical Planning Department 2019

Relative Index shows the percentage of the absolute Index against the average Index.

Table 56 above shows that Masenjere has greater service deficit among the designated Rural Market Centres followed by Mkumaniza, Sorgin and Chapananga.

4. Service Deficits in the District’s Designated Village Centres

Services and facilities provided in Village Centres are those which are “Closest” to the rural population and, hence, are the most frequently used by the people. They have, therefore, special importance if a policy of rural development promotion is to be followed. In the past, the government provided services at various locations which were not necessarily chosen under the principle of concentration. Defining and establishing Village Centres throughout the District will facilitate the sound provision of services.

All centres can be reached by the District road network and have facilities such as political party machinery, education and maize mill. However, none of them has a Village Centre Council and Institutional electricity generator.

Justice

All Village Centres have traditional courts except for Nkhate, Changoima, Mphungu and Livunzu.

Security

Only Changoima, Thendo and Therere Village Market Centres have a police post available.

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Table 56: Service Facilities in Village Market Centre: Deficits/Requirement

Nkhate	Phwazi	Livunzu	Bereu	Kakoma	Chabvala	Thendo	Thereere	Tomali	Mphungu	Changolima	Centre
■	■	■	■	■	■	■	■	■	■	■	Service/Facility
■	■	■	■	■	■	■	■	■	■	■	Local Authority Village Centre Council
□	■	□	□	■	□	□	■	□	□	■	Justice Traditional Court
□	□	□	□	□	□	■	■	■	□	□	Protection Police Post
■	■	■	■	■	■	■	■	■	■	■	Political Party Local Party Chairman
■	■	■	■	■	■	■	■	■	■	■	Road Networks District road connection
■	■	■	■	■	■	■	■	■	■	■	Marketing Groceries Periodic produce and consumer market Temporary ADMARC market Slaughter slab Hardware General stores
■	■	■	■	■	■	■	■	■	■	■	Production Inputs Seasonal Agro- inputs stores
■	■	■	■	■	■	■	■	■	■	■	Industry Cottage Industry
■	■	■	■	□	■	□	■	■	■	■	Health Health centre Dispensary
■	■	■	■	■	■	■	■	■	■	■	Education Full primary school
□	□	□	□	□	■	□	□	□	□	□	Post and Telecommunications Postal Agency

Marketing

All village centres have grocery stores, they all also have periodic produce markets but they do not have consumer markets apart from Bereu, Livunzu and Nkhate though they are markets with poor facilities. Bereu, Livunzu, Nkhate, Dolo, Thendo and Tomali have ADMARC market facilities while the rest do not have any. There are no slaughter slabs at any of the village centres.

Production Inputs

Seasonal agro-Input stores are available at all village centres.

Industry

All village centres have cottage industries.

Health

Health centres are available at all village centres apart from Thendo and Kakoma.

Postal services

Almost all centres do not have postal services.

Transportation Services

Whole year-round local bus services are not available at all centres due to poor condition of the roads especially during rainy season.

Culture

All village centres has no mobile library services.

Water Supply

Piped water supply is not available in all village centres except for boreholes.

Waste Water and Sewerage

All centres rely on pit latrines and there is no waste water drainage system.

Solid Waste Disposal

None of the centres has refuse collection facility nor sanitary land filling facility.

APPENDIX 3: Locational Analysis of Centres

The NPDP has established the definitions and guidelines for the provision of services at various levels of centres. Whilst the locations of centres at the first three levels (Sub-Regional, Main Market Centre and Rural Market centres) have been established, this plan has also to establish sites of Village Centres.

1. District and/or Main Market Centres

The NPDP identified a gap in the coverage of the already established District and/or Main Market Centres in the North of the District. Based on the accessibility standard, and the analysis of the existing centres in the area, the Plan recommends that Chapananga be promoted to a Main Market Centre. With the inclusion of Chapananga, all inhabited parts of the district are covered by this level of centres. The centres operating at this level at the moment are Chikwawa District Headquarters, Nchalo and Ngabu.

2. Rural Market Centres

The NPDP has designated Rural Market Centres which have been incorporated in this District Plan (See Fig.). These, in addition to Bangula (SRC), Nchalo (MMC), Ngabu (MMC) and Chikwawa District Headquarters (MMC) acting also as RMC's are Nkumaniza, Sorgin, Chapananga and Masenjere. The area coverage of these centres leaves a gap around; Dolo which is in T/A Ngabu with a population of 164 753 and has only four designated centres. A gap has also been identified in the East Bank of Chikwawa District T/A Mankhwira, named Livunzu with neighboring centres of Nkhate and Mitondo as village centres. This centre has the potential to grow into a rural market centre with its high number of population and a good number of goods and services provided. The inhabitants from Nkhate (VC) to Livunzu travel a distant of approximate 1hour 30 minutes on foot, 30-45 minutes by motorcycle. Furthermore, the inhabitants of Mitondo travel a distance of less than 30-45 minutes on foot, 15 minutes on motorcycle. Mitondo and Nkhate village centres are in the proximity of 5km and 8km radii of Livunzu. Another gap has been identified in the North West of Chikwawa District, Changoima in TA Chapananga with a population of 88,641 and has only one main centre Chapananga. Therefore, the Plan recommends that Dolo, Livunzu and Changoima be promoted to rural market centres.

3. Village centres

The criterion for selecting locations for village centres is as follows:-

- a) Maximum accessibility standard of 8 km,
- b) Area coverage of all populated areas in a district, and
- c) All higher order centres, such as Rural Market Centres and upwards, functions also as village Centres.

Based on these three criteria, village centres have been identified and their influence area shown in Figure 63. Eleven centres have been assigned to this level, bringing the total number of centres at all hierarchical levels in the District to 18. The areas not covered by an existing or proposed village centre are due to sparse population while others lack basic infrastructures and services and have physical development constraint such as poor road networks.

Miseu Folo has the potential of becoming a village market centre. Its location (along the M1 road) gives it an advantage for growth as it can be easily accessed by road. The provision of facilities such as a police unit/post, a proper market structure, and health centre would also enhance its growth.

The detailed locational planning for lower-level centres follows the same basic criteria as the Planning carried out for higher level centres at the national level. At this level, the Plan aims at a distribution of centres which guarantees, for almost all inhabitants of the District, at least a tolerable maximum time/distance to the respective centres; for Rural Market centres, a maximum travel distance of 15km and for Village Centres 8km maximum travel distance.

This planning principle requires full area and population coverage at all levels of centres. On the other hand, locational planning also has to consider that the services provided at the centres require certain minimum catchment population in order to allow for an efficient operation and proper utilization of facilities. For Rural Market Centres an influence area population is 25,000 (in 1985 terms) whereas at Village Centre level, the threshold population is between 10, 000 and 20, 000.

Once the location of all centres is determined, it is necessary to know which centres should be given preference in a promotional programme and which centres should be given low priority. Therefore, for both Rural Market Centres and Village Centres a ranking list is being provided in this Plan.

Priority Ranking of Rural Market Centres and Village Centres

To give a guide so that some preferences should be given in the promotion of centres, the proposed Rural Market Centres and Village Centres are ranked in the order of their importance. The ranking criteria are basically the same as those established in the National Physical Development Plan and the subsequent District Plans i.e.

1. Present level/deficit of service provision
2. Catchment or influence area population currently served
3. Population carrying capacity and increase capacity of the land.

Following the designation of service centre, it is necessary to know which centres should be given preference in development promotion because of limited financial resources. Therefore, for both Rural Market Centres and Village Centres a ranking list has been provided. It should be taken in mind that unforeseen development could influence the importance of centre. Periodic review of the Plan will take into consideration such developments and the priorities will be amended accordingly.

Priority ranking of Sub-Regional Centres and District/Main Market Centres has already been established in the NPDP as part of national priorities. Within the District, however, priorities are Bangula, Sub-Regional Centre and Main Market Centres (Chikwawa District Headquarters, Ngabu and Nchalo).

The non-agricultural job creation potential which is taken as one of the ranking criteria for Sub-Regional Centres and District/Main Market Centres in the National Plan is not relevant for the Rural Market and Village Market Centres dealt with in this District Plan. Although ranking order is already given for Rural Market Centres in the National Plan, a new order is given here, as the accuracy of the data base referring to the individual influence area is much higher. Changes in the ranking order may therefore well occur.

APPENDIX 4: Point System for Service Centres

Table 57: Point System for Service Centres

Service	Highest Level (3 Points)	Intermediate Level (2 Points)	Lowest Level (1 Point)
Administration	District Council Plus District Commissioner Plus Town Council	District Council plus District Commissioner	District Council Officer
Health	Hospital with Resident Medical Practitioner	Hospital without Resident Medical Practitioner	Health Unit or Dispensary
Education	Post-Secondary, Plus Secondary and Plus Primary Schools	Secondary plus Primary School	Primary School
Protection	Police Station	Police Sub-Station	Police Post
Justice	Senior Resident Magistrate Or Resident Magistrate	1 st . 2 nd or 3 rd Magistrate	Traditional Court
Postal	Post Office with one or more Executive Officers	Post Office with no Executive Officers	Postal Agency
Retail	40 + points*	20-39*	10-19*
Banking	Permanent Bank	Static Agency	Mobile Agency
Public Transport	Bus Service Plus Railway	Bus Service plus Airfield	Dry-Season or all-weather Bus Service only
Water and Electricity	Piped Water Plus Reticulated Electricity	Piped Water or Reticulated Electricity	Borehole or Well
Petrol and Repair Facilities	More than one Petrol Company Plus Repair Facilities	More than one Petrol Company	One Petrol Company only
ADMARC	Main Depot	Permanent Market	Bush Market
Hotel and Rest house	Hotel	Government Rest House	District Council Rest house
Community Centre	Library and Film Facilities	Library or Film Facilities	Hall only (no facilities)
Agricultural Extension Service	District Field Officer	Area Supervisor	Field Assistant

*Points were derived according to the prevailing number and kind of shops.

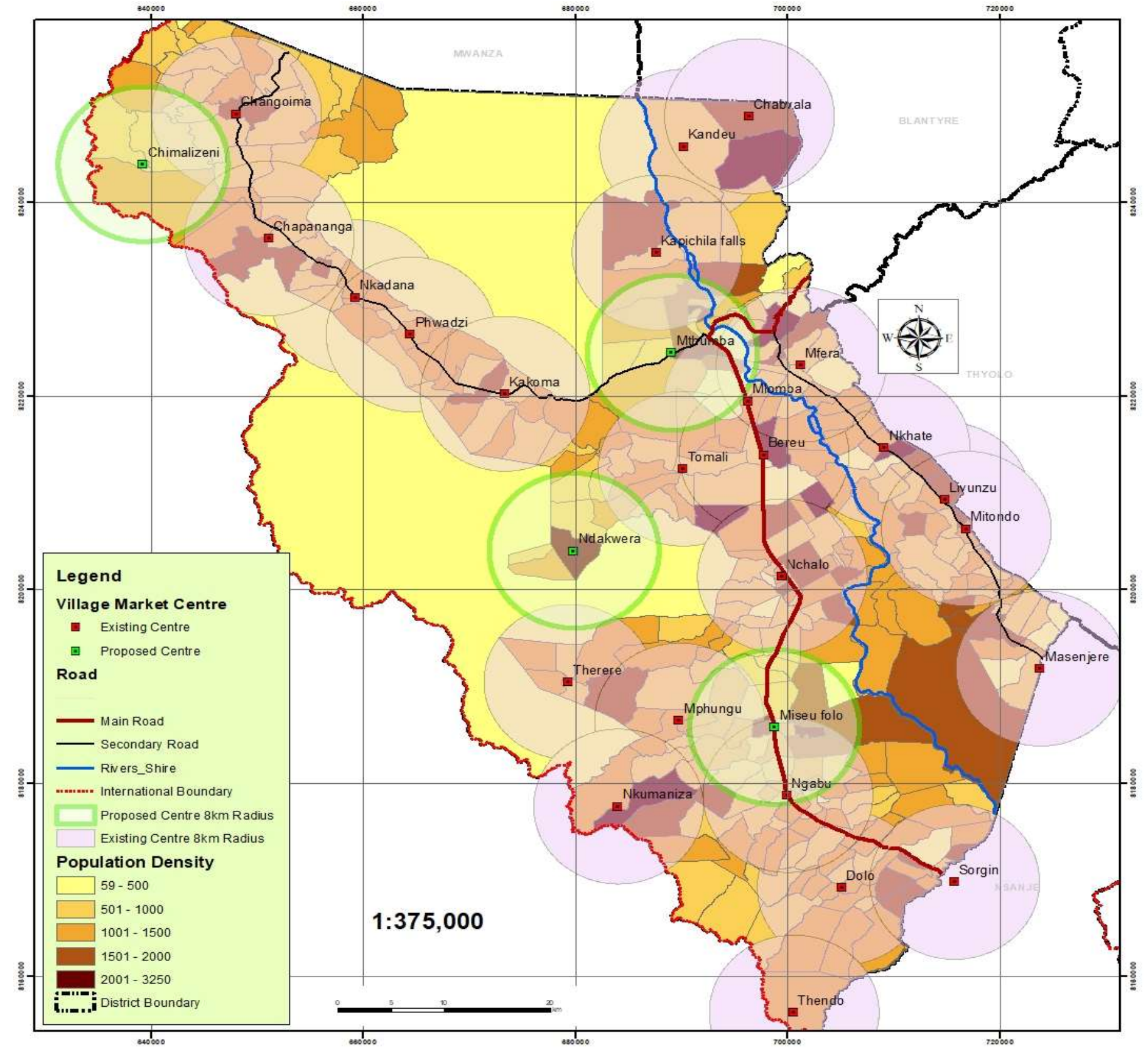
Source: Physical Planning Department 2019



APPENDIX 5: Spatial Distribution of Development Planning Proposals

This Section contains plans showing public services and facilities that have been proposed to be constructed and/or upgraded in various parts of the district. The details of these plans are:


- Proposed Village Centres
- Proposed Roads to be upgraded
- Proposed Base Transmitting Stations
- Proposed Secondary Schools
- Proposed Health Centres
- Proposed Police facilities
- Proposed Markets and Bus Depots
- Proposed Telecentres
- Proposed Land Uses Zones

Plan 1: Proposed Village Centres



The District Commissioner
Chikwawa District Council
Private Bag 1
Chikwawa



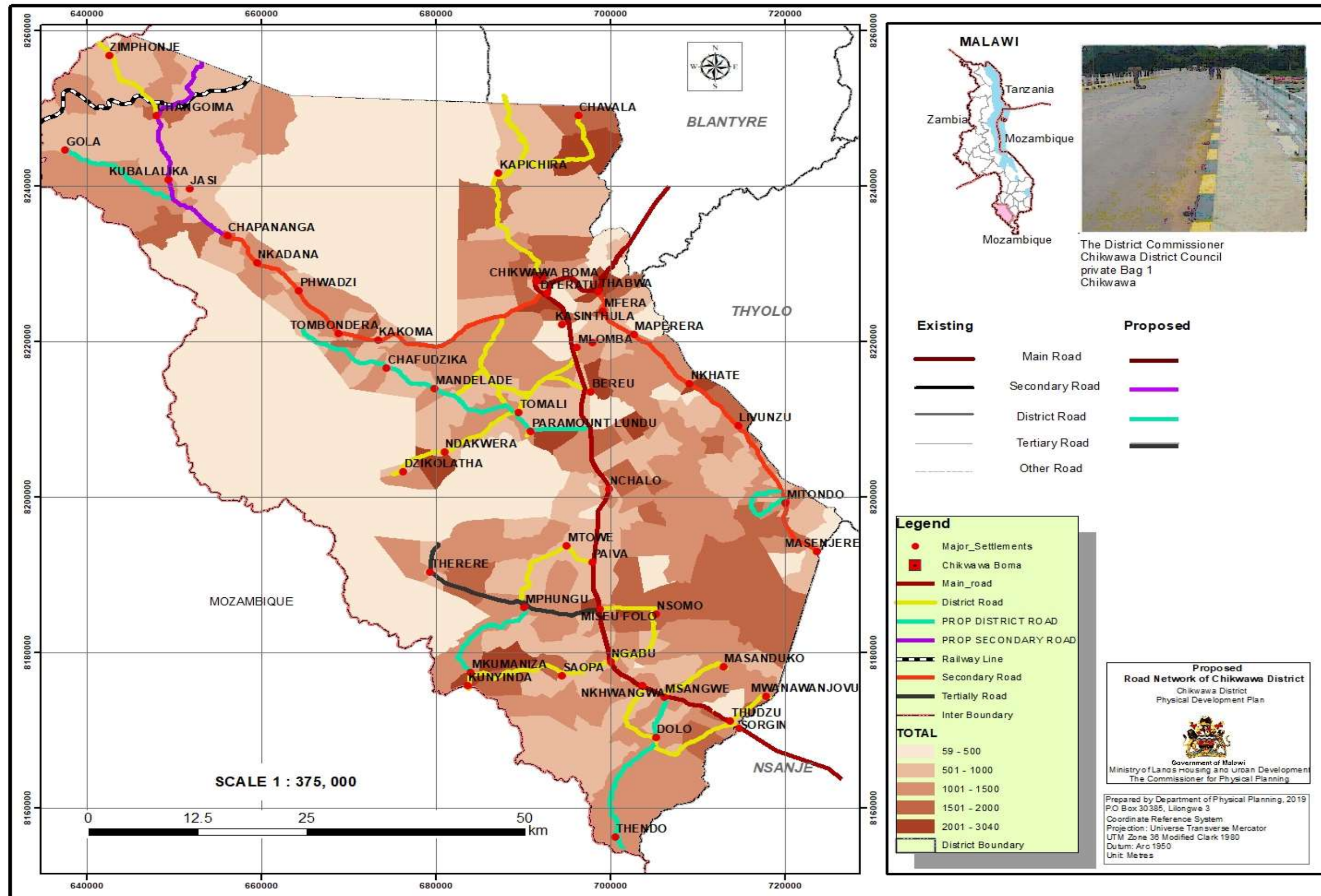
Government of Malawi

Ministry of Lands, Housing and Urban Development
The Commissioner for Physical Planning

Prepared by Department of Physical Planning
P.O. Box 30385, Lilongwe

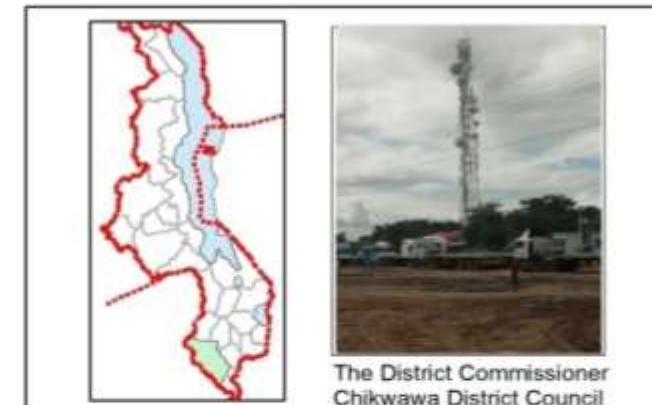
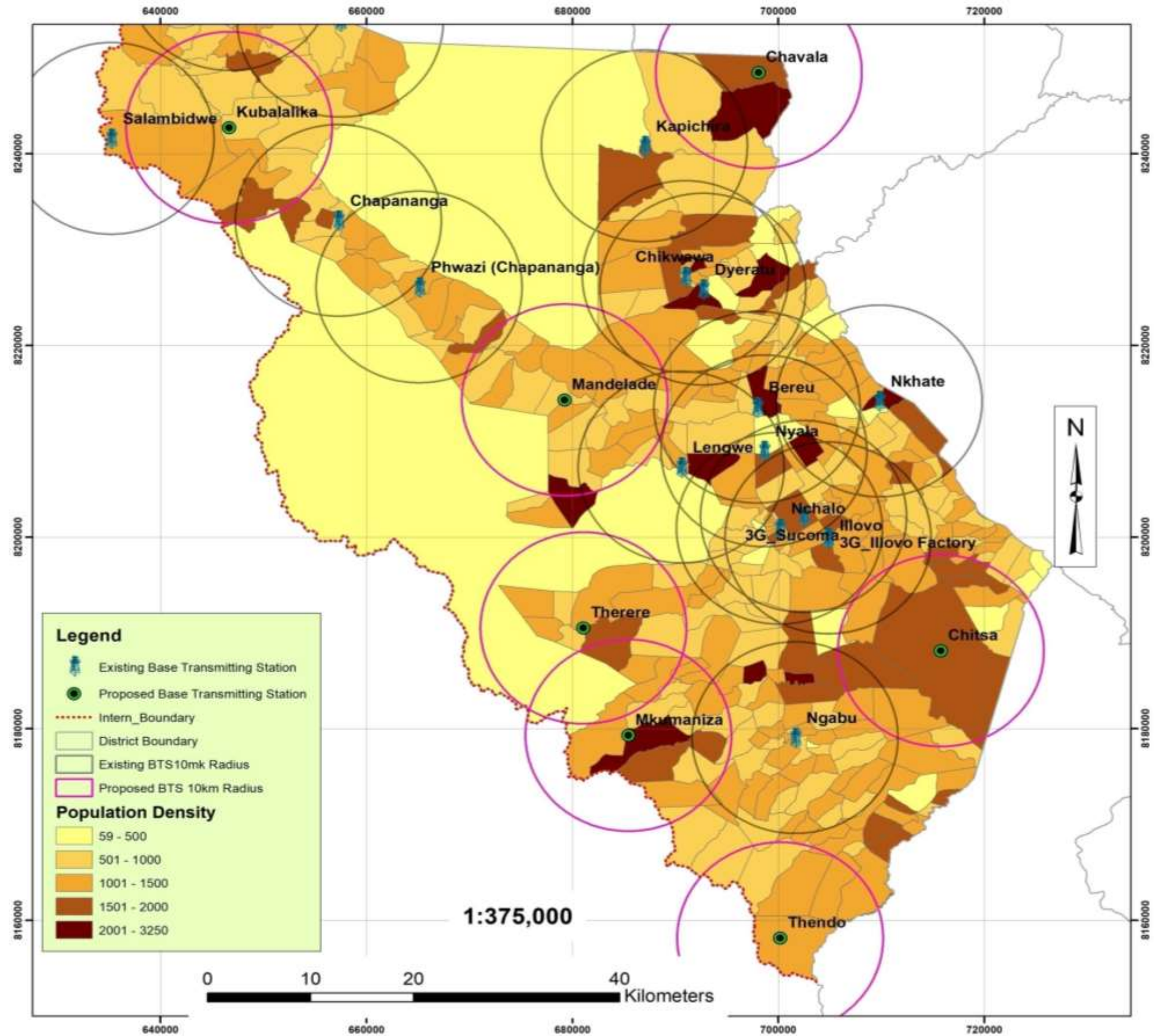
Map Projection: Universal Transverse Mercator
Coordinate Reference System:
UTM Zone 36s Modified Clark 1980
Datum: Arc 1950
Units: Metres

Plan 2: Proposed Roads to be upgraded



1.

Plan 3: Proposed Base Transmitting Stations



Proposed Base Transmitting Station
Chikwawa District Physical
Development Plan

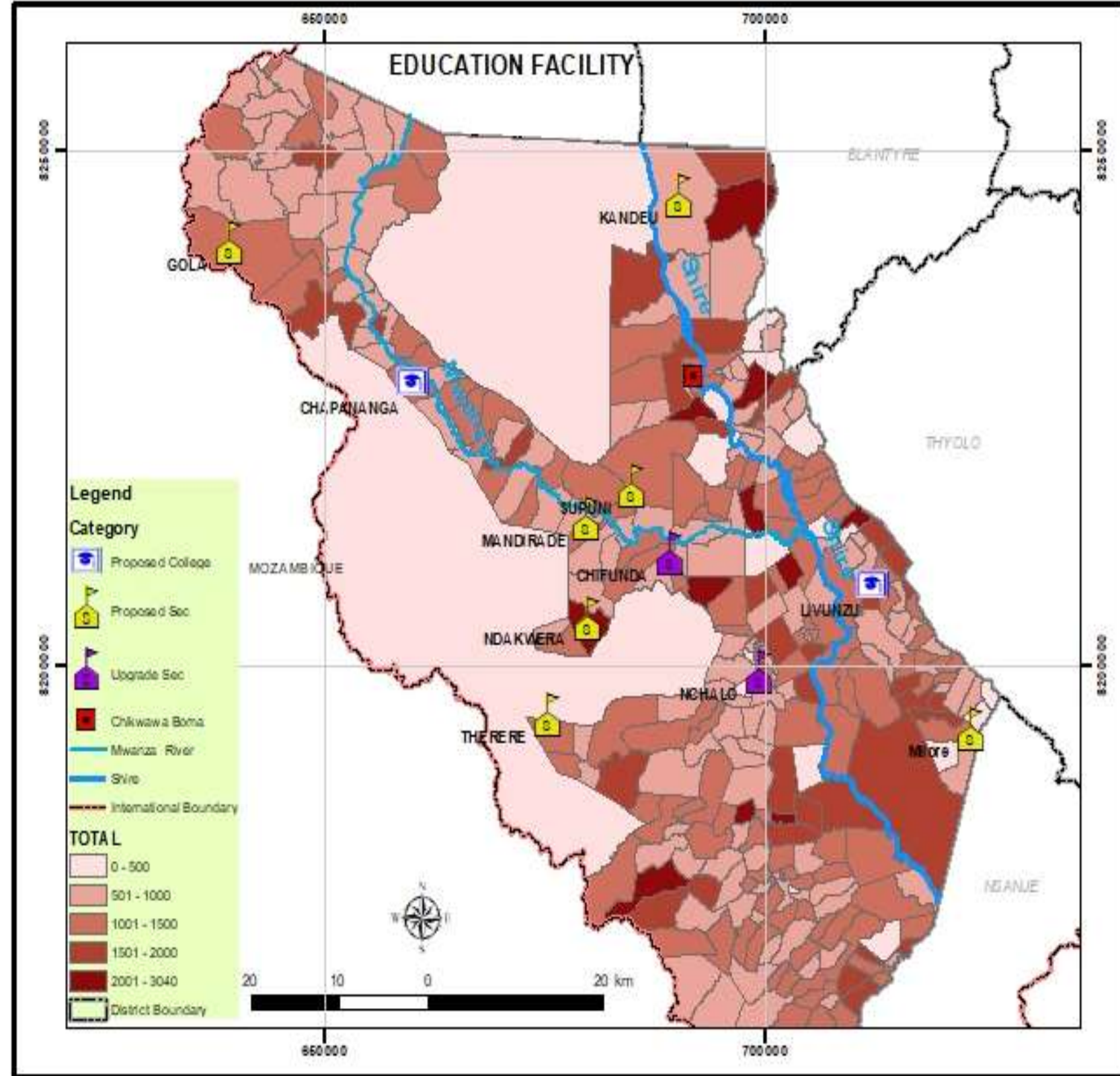


Ministry of Lands, Housing and Urban Development
The Commissioner for Physical Planning

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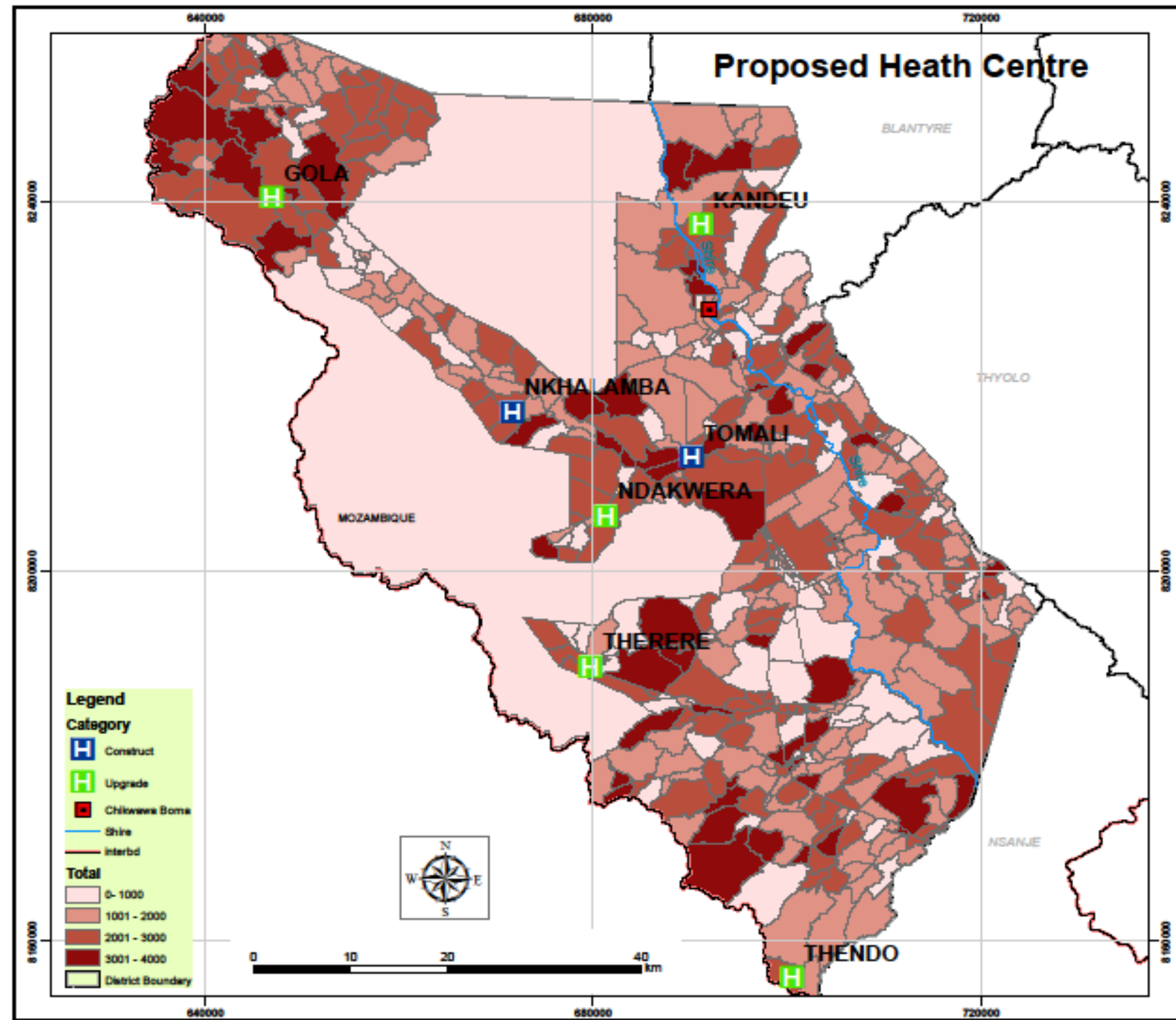
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Plan 4: Proposed Secondary Schools



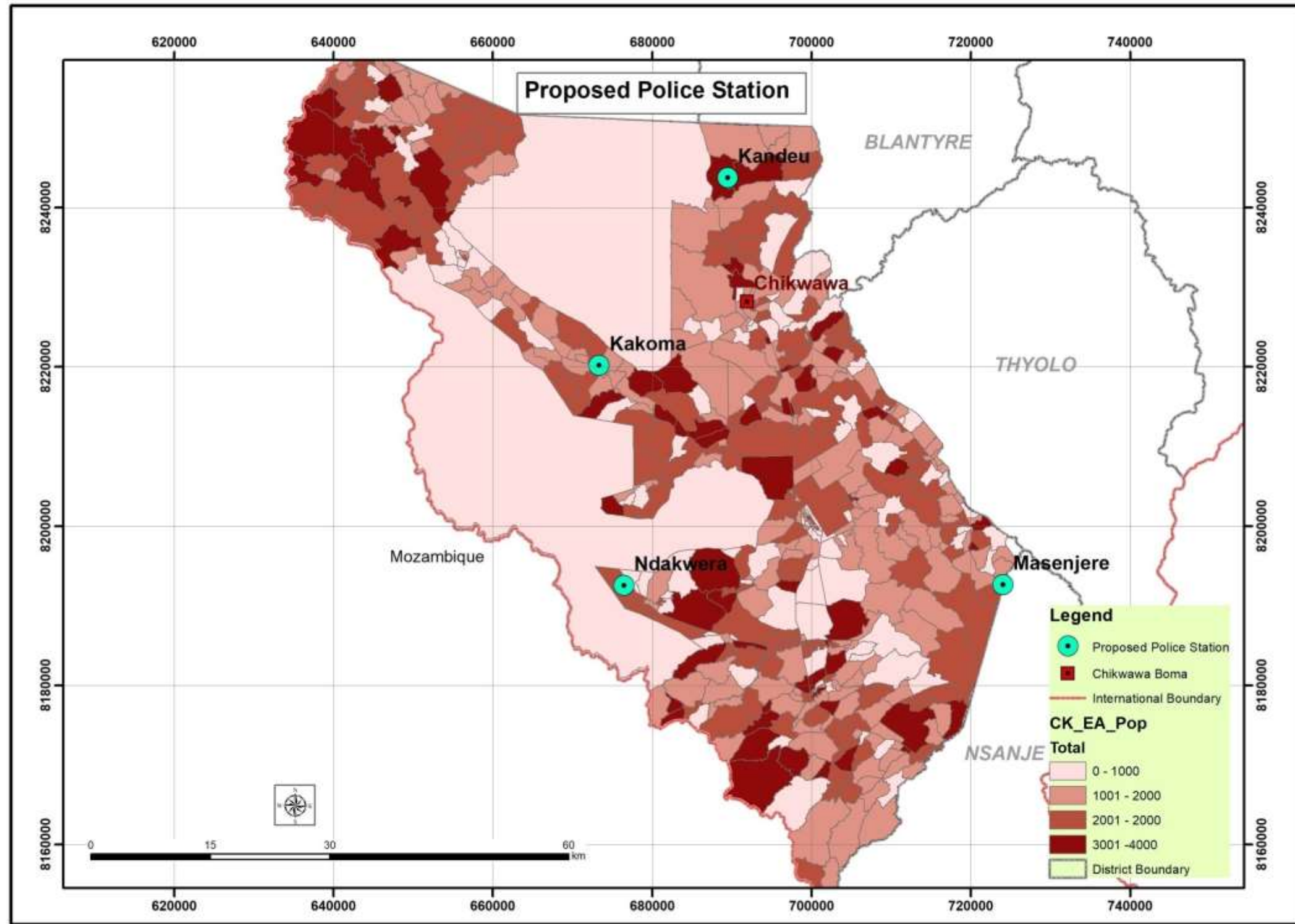
3.

Plan 5: Proposed Health Centres



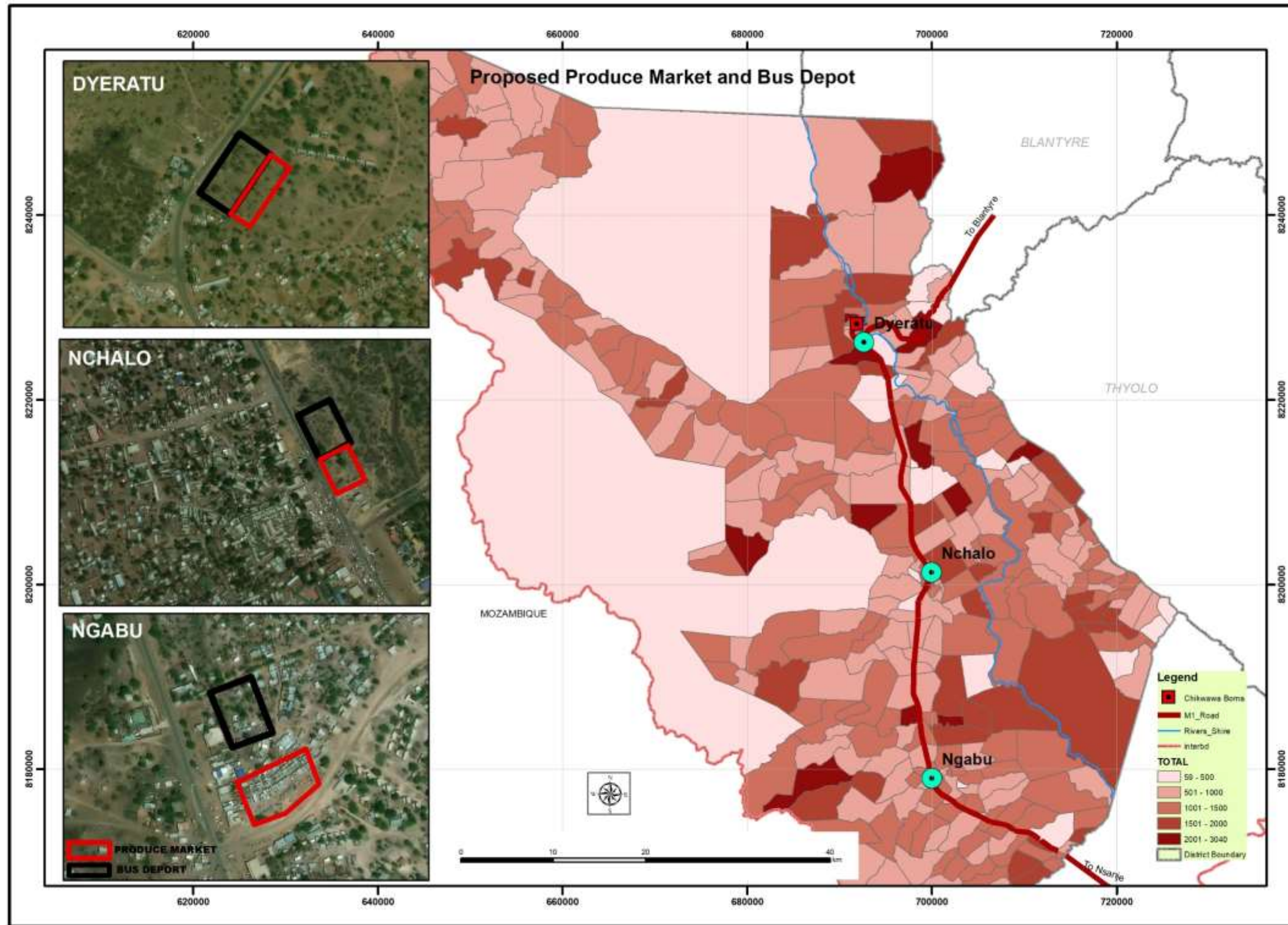
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Plan 6: Proposed Police facilities



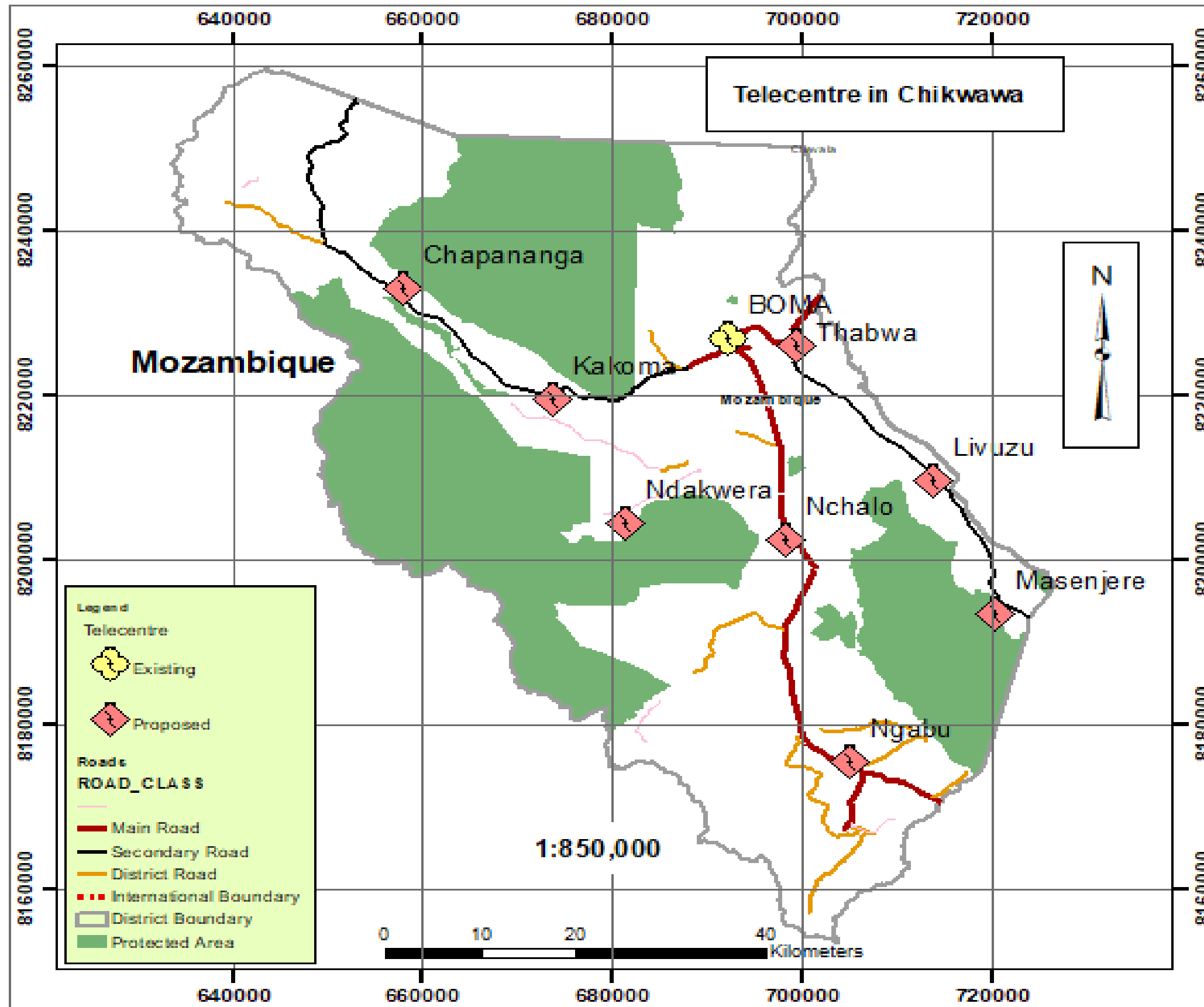
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Plan 7: Proposed Markets and Bus Depots



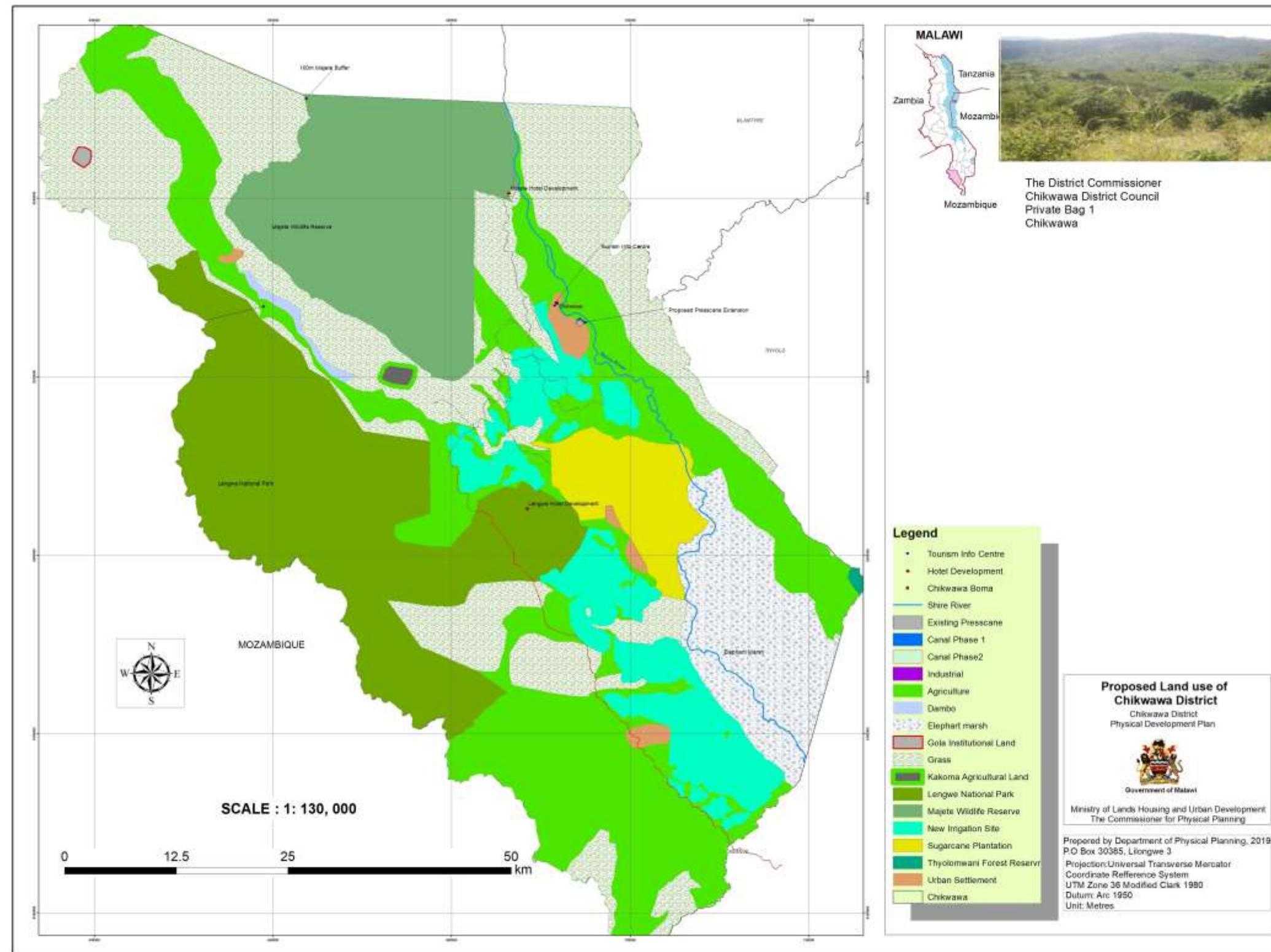
6.

Plan 8: Proposed Tele-centres



7.

Plan 9: Proposed Land Use Zones



APPENDIX 6: THE PROJECT TEAM

The Project Team which prepared the Plan consisted of the following professional and technical personnel:

A. Professional Personnel

1. F.C. Tukula Commissioner for Physical Planning
2. D. Chilonga Land Reform Programme Team Leader (LRPIU)
3. G.K. Mchoma Deputy Commissioner for Physical Planning – Development Planning
4. L.P.H. Longwe Deputy Commissioner for Physical Planning – Development Management
5. J. Lungu Chief Physical Planning Officer – Quality Assurance
6. R.B.C. Lukasi Chief Physical Planning Officer – Land Use Planning
7. K. N’gambi Chief Economist
8. A.K.W. Mkundika Acting Regional Commissioner for Physical Planning (E)
9. G. Kamtsalira Acting Regional Commissioner for Physical Planning (S)
10. J. Chilale Principal Physical Planning Officer (HQ)
11. M. Mkandawire Principal Physical Planning Officer (HQ)
12. L. Khembo Principal Physical Planning Officer (S)
13. H. Ngwale Senior Photogrammetry Officer (C)
14. L. Manda Physical Planning Officer (E)
15. M.G. Bazale Physical Planning Officer (HQ)
16. H.C. Mandalasi Physical Planning Officer (HQ)
17. C. Nyirenda Physical Planning Officer (HQ)
18. T.D. Kasakula Physical Planning Officer (C)
19. L. Madula Mchilikizo Physical Planning Officer (C)
20. Z. Nyirenda Physical Planning Officer (HQ)
21. N.S. Nyasulu Chimera Physical Planning Officer (S)
22. I. Fatchi Physical Planning Officer (S)

B. Technical Personnel

1. Y.O Kaunde Senior Assistant Physical Planning Technician (S)
2. T.A.K Mwafulirwa Assistant Physical Planning Technician (HQ)
3. L. Meya Assistant Physical Planning Technician (HQ)
4. M.Dimu Assistant Land Surveyor

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